380

265
8/5/68
Pey

OAK RIDGE NATIONAL LABORATORY

operated by
UNION CARBIDE CORPORATION

for the
U.S. ATOMIC ENERGY COMMISSION

ORNL-NSIC-45

UC-80 — Reactor Technology

MASTER

INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY LITERATURE - 14

NSIC STAFF

NUCLEAR SAFETY INFORMATION CENTER

NSIC

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

NUCLEAR SAFETY

A BIMONTHLY REVIEW JOURNAL PREPARED BY NSIC

Nuclear Safety covers significant developments in the field of nuclear safety.

The scope is limited to topics relevant to the analysis and control of hazards associated with nuclear reactors, operations involving fissionable materials, and the products of nuclear fission.

Primary emphasis is on safety in reactor design, construction, and operation; however, safety considerations in reactor fuel fabrication, spent-fuel processing, nuclear waste disposal, handling of radioisotopes, and related operations are also treated.

Qualified authors are invited to submit interpretive articles, which will be reviewed for technical accuracy and pertinency. Authors will be advised as soon as possible of acceptance or suggested changes. Send inquiries or 3 copies of manuscripts (with the draftsman's original line drawings plus 2 copies, and with continuous-tone glossy prints of photographs plus 2 copies) to J. P. Blakely, Oak Ridge National Laboratory, P. O. Box Y, Oak Ridge, Tennessee 37830.

Nuclear Safety is prepared by the Nuclear Safety Information Center at Oak Ridge National Laboratory for the U.S. Atomic Energy Commission, Division of Technical Information. For subscriptions, address Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402. The subscription rate is \$3.50 per year. Below is an order blank for your convenience.

U.S. GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON, D.C. 20402

OFFICIAL BUSINESS

RETURN AFTER 5 DAYS

POSTAGE AND FEES PAID
U.S. GOVERNMENT PRINTING OFFICE

Name _____
Address _____
City _____ State _____ Zip _____

----- TO INSURE PROMPT, ACCURATE SHIPMENT, PLEASE PRINT OR TYPE CORRECT ADDRESS ON MAILING LABEL ABOVE -----

MAIL ORDER FORM To:

Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

FOR USE OF SUPT. DOCS.	

Enclosed find \$_____ (check, money order, or Supt. of Documents coupons). Please enter my subscription to NUCLEAR SAFETY for one ☐, two ☐, or three ☐ years, at \$3.50 a year; \$1.00 additional for foreign mailing.

Please charge this order
to my Deposit Account
No. _____

Name _____
Address _____
City and State _____ ZIP Code _____

CONTRACT NO. W-7405-ENG-26

NUCLEAR SAFETY INFORMATION CENTER

INDEXED BIBLIOGRAPHY OF CURRENT
NUCLEAR SAFETY LITERATURE - 14

NSIC STAFF

JULY 1968

LEGAL NOTICE

This report was prepared as an account of Government sponsored work. Neither the United States, nor the Commission, nor any person acting on behalf of the Commission:

A. Makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or

B. Assumes any liabilities with respect to the use of, or for damages resulting from the use of any information, apparatus, method, or process disclosed in this report.

As used in the above, "person acting on behalf of the Commission" includes any employee or contractor of the Commission, or employee of such contractor, to the extent that such employee or contractor of the Commission, or employee of such contractor prepares, disseminates, or provides access to, any information pursuant to his employment or contract with the Commission, or his employment with such contractor.

OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE
OPERATED BY
UNION CARBIDE CORPORATION
FOR THE
U.S. ATOMIC ENERGY COMMISSION

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Printed in the United States of America. Available from Clearinghouse for Federal
Scientific and Technical Information, National Bureau of Standards,
U.S. Department of Commerce, Springfield, Virginia 22151
Price: Printed Copy \$3.00; Microfiche \$0.65

— LEGAL NOTICE —

This report was prepared as an account of Government sponsored work. Neither the United States, nor the Commission, nor any person acting on behalf of the Commission:

- A. Makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or
- B. Assumes any liabilities with respect to the use of, or for damages resulting from the use of any information, apparatus, method, or process disclosed in this report.

As used in the above, "person acting on behalf of the Commission" includes any employee or contractor of the Commission, or employee of such contractor, to the extent that such employee or contractor of the Commission, or employee of such contractor prepares, disseminates, or provides access to, any information pursuant to his employment or contract with the Commission, or his employment with such contractor.

FOREWORD

THE INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY LITERATURE IS PUBLISHED FOUR TIMES ANNUALLY UNDER THE AUSPICES OF THE NUCLEAR SAFETY INFORMATION CENTER. THE CENTER WAS ESTABLISHED IN MARCH 1963 AT THE OAK RIDGE NATIONAL LABORATORY UNDER THE SPONSORSHIP OF THE U.S. ATOMIC ENERGY COMMISSION AND SERVES AS A FOCAL POINT FOR THE COLLECTION, STORAGE, EVALUATION, AND DISSEMINATION OF NUCLEAR SAFETY INFORMATION. THE CENTERS EXTENSIVE REFERENCE FILES ARE STORED ON MAGNETIC TAPE AT THE OAK RIDGE COMPUTING TECHNOLOGY CENTER (CTC) AND ARE READILY AVAILABLE FOR USE BY THE NSIC STAFF IN GIVING GUIDANCE ON PROBLEMS THAT ARISE IN THE FIELD OF NUCLEAR SAFETY. THE PRODUCTION OF THIS BIBLIOGRAPHY WAS MADE POSSIBLE THROUGH IBM-7090 COMPUTER PROGRAMS DEVELOPED BY THE INFORMATION SYSTEMS DEPARTMENT OF CTC.

BIBLIOGRAPHIC ITEMS HAVE BEEN SORTED INTO 19 CATEGORIES OF NUCLEAR SAFETY INFORMATION. ITEMS MAY APPEAR IN AS MANY AS THREE CATEGORIES. A SELECTOR INDEX AND AN AUTHOR INDEX ARE PROVIDED FOR THE CONVENIENCE OF THE USER.

EACH BIBLIOGRAPHIC ITEM CONSISTS OF AUTHOR(S), TITLE, CORPORATE AUTHOR(S), NUMBER OF PAGES, TABLES, FIGURES, REFERENCES, DATE, DOCUMENT NUMBER(S), AVAILABILITY (IF NOT OBVIOUS), AN INFORMATIVE ABSTRACT OF LESS THAN 100 WORDS, AND SEVERAL SELECTOR TERMS. THE SELECTOR TERMS OR KEYWORDS ARE ASSIGNED BY NSIC PERSONNEL TO SERVE AS COORDINATE INDEXING TERMS FOR STORAGE AND FUTURE RETRIEVAL OF INFORMATION. THE MOST SIGNIFICANT SELECTOR TERMS FOR EACH BIBLIOGRAPHIC ENTRY ARE ASTERISKED AS WEIGHTING FACTORS. SELECTOR TERMS ARE INCLUDED WITH THIS BIBLIOGRAPHY SINCE THEY CAN, THROUGH THE SELECTOR INDEX, BE OF AID TO THE READER IN LOCATING ITEMS OF INTEREST. MANY READERS, HOWEVER, WILL PREFER TO SCAN THE CATEGORIES MOST RELATED TO THEIR FIELD OF INTEREST.

NSIC STAFF MEMBERS SELECTED, EXTRACTED, AND KEYWORDED THE VARIOUS ENTRIES IN THE BIBLIOGRAPHY. THE ASSIGNMENTS OF THE STAFF MEMBERS, MOST OF WHOM WORK HALF TIME FOR THE CENTER, ARE AS FOLLOWS

WM. B. COTTRELL - DIRECTOR
 J. R. BUCHANAN - ASSISTANT DIRECTOR
 H. B. PIPER - GENERAL TECHNICAL SPECIALIST
 M. L. WINTON - COMPUTER PROGRAMS
 H. B. WHETSEL - TECHNICAL EDITING - VOCABULARY CONTROL
 C. M. MURPHY - CHIEF INFORMATION SPECIALIST
 A. M. HAYES - INFORMATION SPECIALIST
 S. P. HENDRIX - INFORMATION SPECIALIST

CATEGORY

1 J. P. BLAKELY
 2 H. B. PIPER, W. C. MCCLAIN
 3 L. B. SHAPPERT
 4 S. P. HENDRIX
 5 M. H. FONTANA, C. G. LAWSON
 6 J. V. WILSON, H. F. BAUMAN,
 B. E. PRINCE, J. D. SMITH
 7 G. W. KEILHOLTZ
 8 H. A. MCCLAIN
 9 C. S. WALKER, E. W. HAGEN
 10 C. S. WALKER, E. W. HAGEN

CATEGORY

11 J. R. BUCHANAN, J. G. MERKLE
 12 W. G. STOCKDALE
 13 W. G. STOCKDALE
 14 F. M. EMPSON, B. L. HOUSER
 15 F. M. EMPSON, B. L. HOUSER
 16 S. D. SWISHER
 17 E. N. CRAMER, R. L. SCOTT,
 C. A. MYERS
 18 E. N. CRAMER, R. L. SCOTT,
 C. A. MYERS

THE SERVICES OF THE CENTER INCLUDE PRINCIPALLY (1) PREPARATION OF STATE-OF-THE-ART REPORTS (ISSUED WITH ORNL-NSIC REPORT NUMBERS) IN THE SUBJECT AREAS LISTED ABOVE WITH STAFF ASSIGNMENTS, (2) PREPARATION OF THE BIMONTHLY TECHNICAL PROGRESS REVIEW, NUCLEAR SAFETY, (3) ANSWERING TECHNICAL INQUIRIES AS TIME IS AVAILABLE, AND (4) COUNSEL AND GUIDANCE ON NUCLEAR SAFETY PROBLEMS IN THE ABOVE SUBJECT AREAS. THE COMPUTER CODE USED IN THE PREPARATION OF THIS BIBLIOGRAPHY IS ALSO USED FOR SELECTIVE DISSEMINATION OF INFORMATION AND SPECIAL LITERATURE SEARCHES.

SERVICES OF THE NSIC ARE AVAILABLE WITHOUT CHARGE TO GOVERNMENT AGENCIES, RESEARCH AND EDUCATIONAL INSTITUTIONS, AND THE NUCLEAR INDUSTRY. THE NSIC SERVICES ARE AS LISTED ABOVE BUT UNDER NO CIRCUMSTANCES DO THEY INCLUDE FURNISHING COPIES OF ANY DOCUMENTS (EXCEPT NSIC REPORTS) ALTHOUGH ALL DOCUMENTS MAY BE EXAMINED AT THE CENTER BY QUALIFIED PERSONNEL. INQUIRIES CONCERNING THE CAPABILITIES AND OPERATION OF THE CENTER MAY BE ADDRESSED TO

J. R. BUCHANAN, ASSISTANT DIRECTOR
(PHONE 615-483-8611 EXT. 3-7253)
NUCLEAR SAFETY INFORMATION CENTER
OAK RIDGE NATIONAL LABORATORY
POST OFFICE BOX Y
OAK RIDGE, TENNESSEE 37830

THE PUBLICATIONS CONTAINED IN THIS REPORT WERE PROCESSED BY THE NSIC STAFF DURING DECEMBER, 1967, JANUARY AND FEBRUARY, 1968.

PREVIOUS NUCLEAR SAFETY INFORMATION CENTER BIBLIOGRAPHIC REPORTS, NONE OF WHICH ARE CUMULATIVE, ARE AS FOLLOWS

- ORNL-NSIC-8 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 1 APRIL, 1965
- ORNL-NSIC-9 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 2 AUGUST, 1965
- ORNL-NSIC-12 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 3 NOVEMBER, 1965
- ORNL-NSIC-14 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 4 MARCH, 1966
- ORNL-NSIC-16 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 5 JUNE, 1966
- ORNL-NSIC-19 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 6 SEPTEMBER, 1966
- ORNL-NSIC-20 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 7 NOVEMBER, 1966
- ORNL-NSIC-32 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 8 MARCH, 1967
- ORNL-NSIC-34 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 9 MAY, 1967
- ORNL-NSIC-36 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 10 AUGUST, 1967

ORNL-NSIC-40 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 11 NOVEMBER, 1967.

ORNL-NSIC-42 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 12 FEBRUARY, 1968

ORNL-NSIC-44 INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY
LITERATURE - 13 MAY, 1968

PARTS AND METHOD OF INDEXING ABSTRACTS

PAGE 12

PAGE NUMBER

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

CATEGORY NUMBER

TOPIC

DOCUMENT TITLE

CATEGORY NUMBER

NSIC NUMBER—ALL ABSTRACTS ARE LISTED NUMERICALLY IN SEQUENCE BY THIS NUMBER

AUTHOR—AUTHORS ARE LISTED ALPHABETICALLY IN THE *AUTHOR INDEX* ALONG WITH NSIC NUMBER

PUBLICATION DATE

DOCUMENT AVAILABILITY AND PRICE
SEE *APPENDIX REFERENCE SOURCES*

3-09849 DOSHI KD
STRUCTURAL INTEGRITY OF SHIPPING CONTAINERS FOR RADIOACTIVE MATERIALS. PART V. AN ANALYTICAL STUDY OF LONGITUDINAL VEHICLE-COLLISIONS.
FRANKLIN INST. RESEARCH LABS., PHILADELPHIA
NYO-2529-4 +. 49 PAGES, FIGURES, REFERENCES. NOVEMBER 1965. CFST1. \$2.00 CY. \$C.50 MN

A BASIC APPROACH IS OUTLINED FOR DEVELOPING ANALYTICAL PROCEDURES TO PREDICT VEHICLE-COLLISION BEHAVIOR. THE APPROACH IS TO IDEALIZE THE PHYSICAL SYSTEM BY A NONLINEAR, LUMPED-PARAMETER MATHEMATICAL MODEL, THEN TO SET UP THE EQUATIONS OF MOTION OF THE MODEL AND SOLVE THESE NUMERICALLY BY MEANS OF RUNGE-KUTTA PROPAGATION TECHNIQUES FOR INITIAL-VALUE PROBLEMS. AN ANALYSIS AND DIGITAL COMPUTER PROGRAM ARE PROVIDED FOR NUMERICAL EVALUATION OF SYSTEM RESPONSE FOR THE LONGITUDINAL COLLISION OF A TRACTOR SEMITRAILER CARRYING A CONTAINER FOR IRRADIATED FUEL. THE ANALYSIS GIVEN FOR THIS SPECIFIC CASE PRESUMES FOREKNOWLEDGE OF COLLISION INPUT FORCE AND OF THE FORCE/DISPLACEMENT CHARACTERISTICS OF DEFORMABLE ELEMENTS OF THE SYSTEM. IN ADDITION, ONLY LONGITUDINAL MOTION OF THE SYSTEM WAS CONSIDERED. MODIFICATIONS CAN BE MADE TO THE ANALYSIS IF FUTURE COLLISION-TEST RESULTS REQUIRE THEM.

ABSTRACT OF ORIGINAL DOCUMENT

*ACCIDENT ANALYSIS + *ACCIDENT, TRANSPORTATION + *ANALYTICAL MODEL + TRANSPORTATION AND HANDLING

BIBLIOGRAPHIC DATA

CORPORATE AUTHOR

KEY WORDS—LISTED ALPHABETICALLY IN THE *SELECTOR INDEX* WITH THE NSIC NUMBER

REPORT NUMBER—LISTED ALPHANUMERICALLY WITH ITS NSIC NUMBER IN THE *REPORT INDEX*

THE RANGE OF NSIC ACCESSION NUMBERS LISTED ON THIS PAGE—NOTE 09849 FALLS IN THIS RANGE

ACCESSION NUMBER 3-09527 TO 3-10307

TABLE OF CONTENTS

	PAGE
FOREWORD	III
PARTS AND METHOD OF INDEXING ABSTRACTS	VI
CATEGORY SCOPE NOTES	1
BIBLIOGRAPHY	
CATEGORY 1, GENERAL SAFETY CRITERIA	3
CATEGORY 2, SITING OF NUCLEAR FACILITIES	10
CATEGORY 3, TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS	27
CATEGORY 4, AEROSPACE SAFETY	28
CATEGORY 5, ACCIDENT ANALYSIS	33
CATEGORY 6, REACTOR TRANSIENTS, KINETICS, AND STABILITY	51
CATEGORY 7, FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL	76
CATEGORY 8, SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS	86
CATEGORY 9, NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS	93
CATEGORY 10, ELECTRICAL POWER SYSTEMS	141
CATEGORY 11, CONTAINMENT OF NUCLEAR FACILITIES	144
CATEGORY 12, PLANT SAFETY FEATURES	167
CATEGORY 13, RADIOCHEMICAL PLANT SAFETY	176
CATEGORY 14, RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT	180
CATEGORY 15, ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN	251
CATEGORY 16, METEOROLOGICAL CONSIDERATIONS	315
CATEGORY 17, OPERATIONAL SAFETY AND EXPERIENCE	332
CATEGORY 18, SAFETY ANALYSIS AND DESIGN REPORTS	412
CATEGORY 19, BIBLIOGRAPHIES	451
KEYWORD INDEX	452
PERSONAL AUTHOR INDEX	480
APPENDIX REFERENCE SOURCES	499

CATEGORY SCOPE NOTES

A BRIEF EXPLANATION OF THE COMPOSITION OF EACH CATEGORY WITHIN THE SCOPE OF THE NUCLEAR SAFETY INFORMATION CENTER FOLLOWS

1. GENERAL SAFETY CRITERIA

THIS CATEGORY ENCOMPASSES ALL SAFETY ASPECTS OF RADIATION PHILOSOPHY, STANDARDS, CODES, COST, FINANCIAL LIABILITY AND INSURANCE. OTHER ITEMS OF INTEREST ARE THE COMPARATIVE RISK TO THE PUBLIC HEALTH AND SAFETY FROM NUCLEAR AND NONNUCLEAR HAZARDS.

2. SITING OF NUCLEAR FACILITIES

THIS CATEGORY DEALS WITH DOCUMENTS RELATED TO THE FACTORS USED IN EVALUATING SITES SUCH AS CHARACTERISTICS OF THE FACILITY DESIGN, PROPOSED OPERATION, POPULATION DENSITY, USE CHARACTERISTICS OF THE SITE ENVIRONS, PHYSICAL CHARACTERISTICS OF THE SITE, EARTHQUAKE CONSIDERATIONS, AND THE RELATIONSHIP OF ENGINEERED SAFEGUARDS TO NUCLEAR FACILITY SITING.

3. TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

THIS CATEGORY CONTAINS ARTICLES DEALING WITH SHIPPING CONTAINERS, SHIPPING REGULATIONS, CRITICALITY SAFETY AS RELATED TO SHIPPING AND HANDLING, TRANSPORTATION ACCIDENTS, AND ALL OTHER ITEMS DEALING WITH SAFETY DURING THE TRANSPORTATION AND/OR HANDLING OF RADIOACTIVE MATERIALS.

4. AEROSPACE SAFETY

THIS CATEGORY COVERS SAFETY CONSIDERATIONS SUCH AS LAUNCH AND REENTRY PROBLEMS THAT ARE UNIQUE TO NUCLEAR SYSTEMS USED IN AEROSPACE VEHICLES.

5. ACCIDENT ANALYSIS

ALL FACETS OF THE ANALYSIS OF POSTULATED ACCIDENTS ARE CONSIDERED IN THIS CATEGORY. INCLUDED ARE BURNOUT HEAT FLUX, CRITICAL HEAT TRANSFER, RELIABILITY ANALYSIS, IN PILE EXPERIMENTS, COOLANT ACTIVITY BUILDUP, PIPE RUPTURE, AND EXPERIMENTS, I.E. LOFT. EXPERIMENTS RELATED TO REACTOR KINETICS ARE CATALOGED IN CATEGORY 6.

6. REACTOR TRANSIENTS, KINETICS, AND STABILITY

THIS CATEGORY INCLUDES THE VARIOUS STUDIES, BOTH ANALYTICAL AND EXPERIMENTAL, SUCH AS TREAT AND SPERT IN WHICH THE TRANSIENT BEHAVIOR OF REACTORS AND CRITICALITY ACCIDENTS ARE EXAMINED.

7. FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

THE RELEASE OF FISSION PRODUCTS FROM VARIOUS MATERIALS AND THEIR MOVEMENT WITHIN A NUCLEAR FACILITY CONTAINMENT SYSTEM ARE INCLUDED IN THIS CATEGORY. TRANSPORT OF THE FISSION PRODUCT INVOLVES THE PHYSICAL AND CHEMICAL CHARACTERIZATION OF THE RELEASED RADIOACTIVE MATERIALS, AS WELL AS THE VARIOUS MECHANISMS SUCH AS DEPOSITION, ADSORPTION, FILTRATION, FALLOUT, ETC., THAT WOULD ATTENUATE THEIR CONCENTRATION WITHIN THE CONTAINMENT SYSTEM.

8. SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

SOURCES OF ENERGY CONSIDERED IN THIS CATEGORY INCLUDE NUCLEAR, WIGNER, AND GAMMA ENERGIES, AS WELL AS CHEMICAL REACTIONS, METAL-WATER REACTIONS, AND ANY OTHER TYPES OF ENERGY THAT MIGHT BE RELEASED AS THE RESULT OF A NUCLEAR ACCIDENT.

9. NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

THE DESIGN OF CONTROL AND SAFETY SYSTEMS FOR VARIOUS NUCLEAR PROCESSES, AS WELL AS THE REQUIRED INSTRUMENTATION AND HARDWARE, ARE INCLUDED IN THIS CATEGORY. THE PROBLEMS INVOLVED ARE THE PERFORMANCE REQUIRED OF SAFETY SYSTEMS THE SPECIFICATION OF INSTRUMENTATION THE CONCEPTS OF COINCIDENCE, REDUNDANCE, FAILURE MODES, AND RELIABILITY THE ADEQUACY OF SHUTDOWN MARGINS THE DESIGN FEATURES OF DIFFERENT MECHANICAL DEVICES AND RELATED SUBJECTS.

10. ELECTRICAL POWER SYSTEMS

INFORMATION RELATED TO ROUTINE AND EMERGENCY MEANS OF SUPPLYING ELECTRICAL POWER TO NUCLEAR FACILITIES IS COVERED IN THIS CATEGORY.

11. CONTAINMENT OF NUCLEAR FACILITIES

THIS CATEGORY ENCOMPASSES ALL ASPECTS OF PRESSURE CONTAINMENT, PRESSURE RELEASE CONTAINMENT, AND MULTIPLE BARRIER CONTAINMENT FOR REACTORS, RADIOCHEMICAL PLANTS, HOT CELLS, SOURCES, ETC., AND WILL INCLUDE SUCH ASPECTS AS DESIGN CONSIDERATIONS, LEAKAGE, PENETRATIONS, STRUCTURAL INTEGRITY, AND TEST TESTING.

12. PLANT SAFETY FEATURES

THE SAFETY ASPECTS OF MAINTENANCE, DECONTAMINATION, REACTOR SYSTEMS, URANIUM MINING AND MILLING, AND FUEL FABRICATION AND STORAGE ARE COVERED IN THIS CATEGORY. ENGINEERING DEVICES SUCH AS PRESSURE AND TEMPERATURE REDUCING SYSTEMS, AIR CLEANING SYSTEMS, AND CORE SPRAY AND SAFETY INJECTION SYSTEMS THAT ARE DESIGNED TO MINIMIZE THE CONSEQUENCES OF NUCLEAR ACCIDENTS ARE INCLUDED.

13. RADIOCHEMICAL PLANT SAFETY

NUCLEAR SAFETY INFORMATION RELATED SPECIFICALLY TO RADIOCHEMICAL PLANTS IS COVERED IN THIS CATEGORY.

14. RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

ALL ASPECTS OF THE INTENTIONAL OR ACCIDENTAL RELEASE OF RADIOACTIVITY TO THE ENVIRONMENT ARE INCLUDED IN THIS CATEGORY. RADIOACTIVE WASTE MANAGEMENT, INCLUDING WASTE TRANSPORTATION, TREATMENT, DISPOSAL AND EFFLUENT CONTROL IS OF PRIMARY IMPORTANCE AS IS RADIONUCLIDE OCCURRENCE AND MOVEMENT. THE LATTER INCLUDES FALLOUT, GEOLOGICAL CONSIDERATIONS, COUNTERMEASURES, ANALYTICAL TECHNIQUES, HYDROLOGIC CONSIDERATIONS, AND RADIONUCLIDE MOVEMENT IN SOIL AND WATER.

15. ENVIRONMENTAL SURVEYS, MONITORING, AND RADIATION EXPOSURE OF MAN

THIS CATEGORY INCLUDES ITEMS RELATED TO (1) ENVIRONMENTAL AND PERSONNEL MONITORING DURING ROUTINE AND ACCIDENTAL RADIONUCLIDE RELEASE, (2) MONITORING METHODS AND TECHNIQUES, (3) DOSE MEASUREMENT AND CALCULATION, (4) DETERMINATION OF MAXIMUM PERMISSIBLE DOSE AND CONCENTRATION, AND (5) INTERNAL AND EXTERNAL EXPOSURE TO RADIONUCLIDES.

16. METEOROLOGICAL CONSIDERATIONS

THIS CATEGORY CONSIDERS, NOT ONLY DIFFUSION AND DEPOSITION OF RADIOACTIVE MATERIAL NEAR THE EARTH'S SURFACE IN CONNECTION WITH REACTOR OPERATIONS BUT ALSO THE ATMOSPHERIC TRANSPORT AND FALLOUT IN THE TROPOSPHERE AND STRATOSPHERE AS A RESULT OF NUCLEAR WEAPONS TESTS.

17. OPERATIONAL SAFETY AND EXPERIENCE

THIS CATEGORY INCLUDES COVERAGE OF THE SAFETY ASPECTS OF ROUTINE REACTOR OPERATION AND OF INCIDENTS OR UNUSUAL OPERATING OCCURRENCES, LARGE OR SMALL. POWER, RESEARCH, AND TEST REACTORS AND FUEL REPROCESSING PLANTS WILL BE COVERED. ALL AVAILABLE OPERATING, INCIDENTS, SAFEGUARDS, AND INSPECTION REPORTS WILL BE COLLECTED AND INDEXED.

18. SAFETY ANALYSIS AND DESIGN REPORTS

ROUTINE LISTINGS OF THE LATEST NUCLEAR FACILITY SAFETY ANALYSIS AND DESIGN REPORTS ARE TO BE FOUND IN THIS CATEGORY. INCLUDED ARE BOTH ANALYSES AND REPORTS BY FACILITY DESIGNERS AND BY THE AEC REGULATORY STAFF.

19. BIBLIOGRAPHIES

THIS CATEGORY CATALOGUES DOCUMENTS ON NUCLEAR SAFETY TOPICS THAT ARE EXCLUSIVELY BIBLIOGRAPHIES AS WELL AS THOSE THAT INCLUDE EXTENSIVE BIBLIOGRAPHIES WITH OTHER MATERIAL.

CATEGORY 1
GENERAL SAFETY CRITERIA

1-16553 ALSO IN CATEGORY 17
MITCHELL W + CHARNOFF G + COE RJ
REPORT TO THE AEC BY THE SECONDARY REGULATORY REVIEW PANEL, JUNE 1967
ATOMIC ENERGY COMMISSION, WASHINGTON
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(28) PAGE 13 (JULY 10, 1967)

A FOLLOWUP TO THE 1965 MITCHELL PANEL MADE A SERIES OF RECOMMENDATIONS REGARDING CONTESTED CASES APPEARING BEFORE THE ATOMIC SAFETY AND LICENSING BOARD. ITEMS TREAT BOARDS FUNCTION AND PROCEDURES.

*REGULATION, AEC + USAEC (U.S. ATOMIC ENERGY COMMISSION)

1-17568
NYER WE + SCHROEDER F + WILSON TR
A REVIEW OF RESULTS OF REACTOR SAFETY RESEARCH
PHILLIPS PETROLEUM COMPANY, ATOMIC ENERGY DIVISION, IDAHO FALLS, IDAHO
7 PAGES, 5 TABLES, IEEE TRANSACTIONS ON NUCLEAR SCIENCE 13(1), PAGES 126 THRU 132, (FEBRUARY 1966)

WATER-REACTOR SAFETY RESEARCH IS BEING CONDUCTED AT NRTS ON REACTIVITY ACCIDENTS, LOSS-OF-COOLANT ACCIDENTS, CONTAINMENT, AND MAXIMUM CREDIBLE ENERGY RELEASE. IN THE REACTIVITY STUDIES, THE PHYSICAL EFFECTS THAT ACT TO SELF-LIMIT THE POWER PULSES HAVE BEEN IDENTIFIED AND VERIFIED, THEIR EFFECTIVENESS HAS BEEN DEMONSTRATED, AND SYSTEMATICS OF REACTOR KINETICS HAVE BEEN DEVELOPED. THE PRESENT R AND D CENTERS ON CALCULATIONAL MODELS OF KINETIC BEHAVIOR, SPACE-DEPENDENT KINETICS OF LARGE CORES, AND CONSEQUENCES OF LARGE REACTIVITY ADDITIONS. THE LOSS-OF-COOLANT STUDIES CENTER IN THE LOFT PROGRAM, IN WHICH THE ACCIDENT WILL BE SIMULATED IN A 50-MW(T) REACTOR. THE TEST WILL EMPHASIZE INVESTIGATION OF FISSION PRODUCT RELEASE, TRANSPORT, AND PLATEOUT UNDER ACTUAL ACCIDENT CONDITIONS. THESE STUDIES WILL LEAD IN INFORMATION ON CONTAINMENT AND THE MAXIMUM CREDIBLE ENERGY RELEASE.

*NRTS (NATIONAL REACTOR TEST STATION) + *REACTOR, WATER + *RESEARCH AND DEVELOPMENT PROGRAM + *SAFETY ANALYSIS + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT, GENERAL + LOFT (LOSS OF FLUID TEST) + REACTOR KINETICS

1-17696
RAMEY JI
QUALITY ASSURANCE AS A MATTER OF PUBLIC POLICY IN THE SAFETY OF ATOMIC POWER PLANTS
U. S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
6 PAGES, 7 REFERENCES, NUCLEAR ENERGY, PAGES 45 THRU 50, (MARCH-APRIL 1967)

THE RAPID EXPANSION OF THE NUCLEAR POWER INDUSTRY IMPOSES NEW REQUIREMENTS FOR A MORE EFFECTIVE QUALITY-ASSURANCE PROGRAM TO PERMIT THE DISCHARGE OF RESPONSIBILITIES FOR PUBLIC SAFETY. THE KEY REQUIREMENTS OF THIS UPGRADED QUALITY-ASSURANCE PROGRAM INCLUDE ESTABLISHMENT OF QUALITY SYSTEM REQUIREMENTS, ESTABLISHMENT OF COMMERCIAL ENGINEERING STANDARDS CONCERNING DESIGN, CONSTRUCTION, INSPECTION, QUALITY CONTROL, PROOF TESTING AND OPERATION, AND ESTABLISHMENT OF THE MEANS FOR IMPLEMENTING THE FIRST TWO THROUGH REVIEWS, INSPECTION, AND SURVEILLANCE. THE COMMERCIAL NUCLEAR POWER INDUSTRY AND THE AEC MUST TOGETHER MEET THESE REQUIREMENTS SO THAT WE CAN CONTINUE TO CARRY OUT THE CONGRESSIONAL MANDATE TO DEVELOP SAFE ECONOMICAL NUCLEAR POWER APPLICATIONS.

*CODES AND STANDARDS + *QUALITY CONTROL + *USAEC (U.S. ATOMIC ENERGY COMMISSION) + INSPECTION AND COMPLIANCE

1-17697
BOSNAK RJ
THE ROLE OF THE U.S. COAST GUARD IN NUCLEAR MERCHANT SHIP SAFETY
U. S. COAST GUARD
14 PAGES, 27 REFERENCES, NUCLEAR SAFETY 8(2), PAGES 102 THRU 115, (WINTER 1966-1967)

NUCLEAR SHIPS ARE SUBJECT TO THE SAME LAWS AND REGULATIONS FOR CONSTRUCTION OF THE HULL AND THE MACHINERY AND FOR OPERATIONS AND MANNING AS CONVENTIONAL SHIPS. THIS REVIEW CITES THE PROVISIONS OF SOLAS 60 AND THE COAST GUARD REGULATIONS AND TENTATIVE REQUIREMENTS COVERING DESIGN, CERTIFICATION, AND PERIODIC TESTING. INCLUDED ARE DESIGN REQUIREMENTS FOR PRESSURE VESSELS, CONTAINMENT VESSELS, PRIMARY- AND SECONDARY-SYSTEM SAFETY VALVES, PIPING SYSTEMS, SHIPBOARD ACCELERATIONS, HULL STRENGTH AND COLLISION PROTECTION, FIRE PROTECTION, EMERGENCY PROPULSION, AND ELECTRICAL ENGINEERING.

*CODES AND STANDARDS + *REACTOR, MARITIME + *REGULATION, GENERAL + INSPECTION AND COMPLIANCE + N S SAVANNAH + REACTOR, PRESSURIZED WATER

1-17849 ALSO IN CATEGORY 17
ZELLER AF
USAF AIRCRAFT ACCIDENTS INVOLVING TEN OR MORE FATALITIES
U.S. AIR FORCE
4 PAGES, 4 TABLES, 5 REFERENCES, AEROSPACE MEDICINE 36(12), PAGES 1156 THRU 1159, (DECEMBER 1966)

CATEGORY 1
GENERAL SAFETY CRITERIA

1-17849 *CONTINUED*

ANALYSIS OF DATA ON AIR FORCE DISASTERS (10 OR MORE FATALITIES) SHOWS SUCH DISASTERS ACCOUNT FOR LESS THAN 30% OF ALL SUCH AIR FORCE DEATHS. A MUCH HIGHER PERCENTAGE OF THE DISASTROUS... CRASHES ARE UNEXPLAINED (32%), LARGELY DUE TO THEIR VERY NATURE. THE PRIMARY KNOWN CAUSE IS HUMAN ERROR (48%). INEXPERIENCE IS SELDOM A FACTOR. THESE ACCIDENTS GET PUBLICIZED BUT ARE LESS THAN 3% OF THE TOTAL. THE AUTHOR CONTENDS THAT THE PROGRAMS AIMED AT PREVENTING SMALLER ACCIDENTS WILL RESULT IN FEWER DISASTERS.

*AIRCRAFT + *INCIDENT, ACTUAL, NONNUCLEAR + OPERATING EXPERIENCE

1-18336 ALSO IN CATEGORY 17

HUMBOLDT BAY POPULATION FACTOR CALCULATION
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA + AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
2 PAGES, APRIL 20, 1966, DOCKET NO. 50-133, PROPOSED AMENDMENT 27.

CALCULATIONS BASED ON BUREAU OF CENSUS DATA SHOW POPULATION FACTOR IS STILL 1.2 (BY CRITERION OF 10 CFR 140.12).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POPULATION DISTRIBUTION + HUMBOLDT BAY + INSURANCE + REACTOR, BOILING WATER

1-18652 ALSO IN CATEGORY 9

NELSON P. + YOUNG G.
MINIMIZING THE NATURAL FUEL REQUIREMENT FOR NUCLEAR REACTOR POWER SYSTEMS. A NONSTANDARD OPTIMAL CONTROL PROBLEM
OAK RIDGE NATIONAL LAB., TENN.
ORNL-P-3314 +. 25 PAGES, REFERENCES, 1967

THE PROBLEM STUDIED IS THE SYNTHESIS OF POLICIES OF MINIMUM NATURAL FUEL REQUIREMENT FOR A CERTAIN MODEL OF NUCLEAR POWER SYSTEM. THIS PROBLEM IS SOLVED COMPLETELY FOR A SYSTEM CONSISTING OF TWO REACTOR TYPES, AND MOST OF THE RESULTS ARE RESTRICTED TO SUCH TWO-COMPONENT SYSTEMS. THE PROBLEM CONSIDERED IS SHOWN TO BE EQUIVALENT TO A FIXED-TIME, VARIABLE-ENDPOINT LINEAR OPTIMAL CONTROL PROBLEM, BUT OF A RATHER NONSTANDARD TYPE IN THAT ONE OF THE CONTROL CONSTRAINTS DEPENDS ON THE STATE VARIABLE AND THE COST FUNCTIONAL DEPENDS ONLY ON THE LEFT ENDPOINT VALUE OF THE STATE VARIABLE. THE APPEARANCE OF THE STATE VARIABLE IN A CONTROL CONSTRAINT ESSENTIALLY RESULTS FROM THE BREEDING FEATURE OF NUCLEAR REACTORS.

ECONOMIC STUDY + FUEL BURNUP + THEORETICAL INVESTIGATION

1-18673 ALSO IN CATEGORY 17

MCA ANALYSIS FOR NSCUR-3
NORTH CAROLINA STATE UNIVERSITY
11 PAGES, SEPTEMBER 19, 1967, DOCKET NO. 50-111, NORTH CAROLINA STATE UNIVERSITY REACTOR

(LETTER TO DRL, SEPTEMBER 19, 1967) PREVIOUS MCA WAS CAUSED BY A STEP-REACTIVITY INSERTION OF 0.8%, ON INSERTION OF TWO GRAPHITE BEAM-PORT PLUGS. DUE TO CHANGE IN REACTOR USAGE (PLUGS NO LONGER USED BECAUSE OF BEAM-HOLE EXPERIMENT), IT IS NOW THOUGHT MORE PROBABLY THE STEP INSERTION COULD BE CAUSED BY EJECTION OF NEAR-PERFECT ABSORBERS FROM THE VERTICAL EXPOSURE PORT (VEP). LICENSED CORE EXCESS REACTIVITY IS 1.5%, WHICH IS THEREFORE THE MAXIMUM STEP REACTIVITY FROM SUCH AN EJECTION (ALTHOUGH PRESENT EXCESS REACTIVITY IS ONLY 0.8%). SPERT-1 AND BORAX-1 EXPERIMENTS SHOW THAT SUCH AN ACCIDENT WOULD NOT RESULT IN FUEL FAILURE, BUT PROCEDURE LIMITS EXPERIMENT WORTH TO 0.4%. *** ADMINISTRATIVE SAFEGUARDS INCLUDE (1) EXPERIMENT APPROVAL BY OPERATIONS ADMINISTRATOR, (2) FUEL HANDLING BY SENIOR OPERATOR, (3) SENIOR OPERATOR IN CONTROL ROOM DURING OPERATION, (4) LIMITED ENTRY TO REACTOR AREA, (5) RODS MAY BE MOVED NO MORE THAN 0.4% ABOVE CALCULATED CRITICAL POSITION.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, MAXIMUM CREDIBLE (MCA) + *ACCIDENT, REACTIVITY + *ADMINISTRATIVE CONTROLS AND PRACTICES +
*BEAM HOLE + REACTIVITY, EXCESS + REACTOR, POOL TYPE + REACTOR, RESEARCH

1-18856 ALSO IN CATEGORIES 15 AND 17

VENUS ACCIDENT
2 PAGES, FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING 12(128) PAGES 36-37 (OCT. 18, 1967)

BRIEFLY DESCRIBES THE DEC. 30, 1965 INCIDENT WHEREIN (1) A SAFETY RULE WAS VIOLATED BY THE MANUAL MANIPULATION OF REACTOR CONTROL RODS WITHOUT DUMPING THE MODERATOR FIRST, AND (2) A TECHNICIAN REVERSED THE PROCEDURE AND REMOVED AN ABSORBER ROD BEFORE INSERTING A SUBSTITUTE IN ANOTHER POSITION. MEASUREMENTS SHOWED BOTH CIRCUMSTANCES WERE NECESSARY TO PRODUCE THE INCIDENT. A PROMPT-CRITICAL EXCURSION OF 15 MW-SECONDS ENERGY GAVE THE TECHNICIAN A PROBABLE GAMMA DOSE TO THE CHEST OF 550 ROENTGENS AND 4000 TO HIS LEFT FOOT. AFTER 21 DAYS, BLOOD DISORDERS RESULTED IN SEVERE DETERIORATION, AND THE PATIENT WAS IN A CRITICAL CONDITION FOR THREE WEEKS. LATER HIS LEFT LEG WAS AMPUTATED.

*FAILURE, ADMINISTRATIVE CONTROL + *INCIDENT, ACTUAL, HUMAN ERROR + ACCIDENT, CRITICALITY +
ADMINISTRATIVE CONTROLS AND PRACTICES + BELGIUM + CRITICAL ASSEMBLY FACILITY +

CATEGORY 1
GENERAL SAFETY CRITERIA

1-18856 *CONTINUED*
DOSE MEASUREMENT, EXTERNAL + FAILURE, OPERATOR ERROR + FAILURE, SEQUENTIAL + INCIDENT, EXPOSURE + PROMPT CRITICALITY

1-19138
RUPPERT VH
INSURANCE PROBLEMS IN THE MANUFACTURE AND SUPPLY OF FUEL ELEMENTS
3 PAGES, ATOMWIRTSCHAFT, 12(3) PAGES 143-145 (MARCH 1967)

SPECIAL INSURANCE PROBLEMS OCCUR IN THE GERMAN FEDERAL REPUBLIC WHERE PLANTS FOR THE MANUFACTURE OF FUEL ELEMENTS DO NOT COUNT AS NUCLEAR ENERGY INSTALLATIONS. THE RESULT, PARTICULARLY FOR FUEL ELEMENT PLANTS OF LARGE CAPACITY, IS INTOLERABLY HIGH PREMIUMS. THE BEST SOLUTION WOULD RESULT FROM THE RATIFICATION OF THE PARIS LIABILITY CONVENTION. THE SAME END COULD BE ACHIEVED BY ALTERATION OF THE GERMAN LIABILITY LAW. THE DISTRIBUTOR AND MANUFACTURER OF FUEL ELEMENTS IS ONLY SAFEGUARDED AGAINST CLAIMS FOR DAMAGES OR RECOURSE IF THE OWNER OF THE REACTOR HAS TAKEN OUT A PROPERTY INSURANCE. AGREEMENT CONCERNING THE LIABILITY EXEMPTION MUST BE MADE.

*FABRICATION FACILITY + *FUEL ELEMENT + *GERMANY + *INSURANCE + *LIABILITY

1-19139
BRAUN VH
HOW CAN NUCLEAR POWER STATIONS BE INSURED
4 PAGES, 2 FIGURES, ATOMWIRTSCHAFT 12(1) PAGE 40-42 (JANUARY 1967) IN GERMAN

THE FOLLOWING KINDS OF INSURANCE ARE INVOLVED IN THE BUILDING AND OPERATION OF A NUCLEAR POWER STATION - AN INSURANCE COVERING THE CIVIL ENGINEERING INVOLVED (WITHOUT STEEL STRUCTURES), A FURTHER INSURANCE COVERING ASSEMBLY, WHICH NOT ONLY INCLUDES THE ASSEMBLY OF THE COMPONENT PARTS BUT ALSO THE TESTING OF THE INDIVIDUAL PARTS AND, IN MANY CASES, THE OPERATIONAL COMMISSIONING OF THE STATION UP TO ITS OPERATION AT FULL POWER. SINCE THERE IS NO SPECIAL INSURANCE AGAINST DAMAGE BY RADIOACTIVE CONTAMINATION, THIS RISK WAS INCORPORATED INTERNATIONALLY BY SUPPLEMENTARY TERMS IN THE GENERAL FIRE INSURANCE. IN THE CASE OF LIABILITY, THE USUAL THIRD-PARTY INSURANCE IS SUFFICIENT UNTIL CRITICALITY IS REACHED. THEREAFTER, A SPECIAL FORM OF INSURANCE BASED ON LEGAL REGULATIONS INCLUDES THE COVERAGE OF LIABILITY FOR NUCLEAR DAMAGE. THE SUPPLYING FIRMS CAN NEGOTIATE A GUARANTEE INSURANCE COVERING THE MACHINES AND EQUIPMENT THAT THEY SUPPLY. FINALLY, THE MACHINE-OPERATING INSURANCE INCLUDES THE COMPLETE POWER STATION AND COVERS UNFORESEEN AND SUDDENLY OCCURRING DAMAGE, INCLUDING ALSO THAT RESULTING FROM THE FAILURE OF PERSONNEL, ETC.

*GERMANY + *INSURANCE + *LIABILITY + *REACTOR, POWER + *REVIEW

1-19140
MANDEL VH
THE LONG-TERM ENERGY PROVISION OF THE GERMAN FEDERAL REPUBLIC AND THE ROLE OF NUCLEAR ENERGY
1 PAGE, 2 FIGURES, ATOMWIRTSCHAFT 12(1) PAGES 44 TO 52 (JANUARY 1967) IN GERMAN

TAKING INTO ACCOUNT THE EXPECTED GROWTH IN POPULATION, THE ANNUAL DEMAND FOR PRIMARY ENERGY IN THE GERMAN FEDERAL REPUBLIC DURING THE PERIOD 1965 TO 2000 MUST INCREASE BY ABOUT 2.8 TIMES FROM 267 MILLION TONS OF HARD COAL EQUIVALENT TO 740 MILLION TONS. ELECTRICITY, AMONG THE VARIOUS FORMS IN WHICH ENERGY IS ULTIMATELY CONSUMED, IS TAKING ON A GROWING SIGNIFICANCE. ITS SHARE COULD GROW FROM THE PRESENT 24% TO 50% BY THE YEAR 2000. NUCLEAR ENERGY WILL PROVIDE A RAPIDLY GROWING (1980 IN THE GFR, 39%) AND FINALLY A DOMINATING (2000 IN THE GFR, 86%) PROPORTION. IN 2000, THE SHARE OF NUCLEAR ENERGY WOULD BE THE EQUIVALENT OF 310 MILLION TONS OF HARD COAL.

*FORECAST + *GERMANY + *REACTOR, POWER + *SURVEY, GENERAL

1-19251 ALSO IN CATEGORIES 15 AND 17
WITTENBROCK NG
NUCLEAR SAFETY IN THE PLUTONIUM RECYCLE PROGRAM
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
BNWL-SA-1345 + CONF-670713-2 +. 24 PAGES, 7 FIGURES, 4 TABLES, 11 REFERENCES, JULY 3, 1967

DISCUSSION OF PLUTONIUM FUEL EFFECT ON REACTOR SAFETY RELATIVE TO PLUTONIUM VS URANIUM-FISSION-PRODUCT HAZARDS. GIVES ALLOWABLE CONCENTRATION IN AIR OF VARIOUS SUBSTANCES, AND MAXIMUM PERMISSIBLE BODY BURDENS FOR PU AND U ISOTOPES. GIVES EXPERIENCE WITH FABRICATION AND USE OF PU. DESCRIBES CONSTRUCTION OF A GLOVE BOX FOR PU WORK. PLUTONIUM-RECYCLE TEST REACTOR, 2 FIHI-FATIIRF INCIDENTS, AND EXPERIENCE CITED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE + *PLUTONIUM + GLOVE BOX + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, TEST + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

CATEGORY 1
GENERAL SAFETY CRITERIA

1-19505 ALSO IN CATEGORIES 13 AND 17
STRATTON WR
REVIEW OF CRITICALITY ACCIDENTS
LOS ALAMOS SCIENTIFIC LAB., N. MEXICO
LA-3611 +. 111 PAGES, 9 FIGURES, 2 TABLES, 70 REFERENCES, JANUARY 1967

THIRD EDITION OF THE 1960-61 REVIEWS, CURRENT TO JAN. 1967. BRIEF SUMMARIES AND REFERENCES TO 34 ACCIDENTS (TEN WITH WATER SOLUTIONS, NINE WITH UNMODERATED METAL ASSEMBLIES, NINE WITH MODERATED REACTORS, AND FIVE WITH MISC. ASSEMBLIES). DESCRIPTIONS ARE GOOD BASIC TRAINING MATERIAL FOR THOSE WHO WILL DESIGN AND OPERATE SIMILAR SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *INCIDENT, ACTUAL, GENERAL + CRITICAL ASSEMBLY FACILITY + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + FUEL REPROCESSING + REACTOR, WATER + WASTE DISPOSAL, LIQUID

1-19569 ALSO IN CATEGORIES 15 AND 17
SCIENCE AND THE CITIZEN - DEATH BY RADIATION
2 PAGES, SCIENTIFIC AMERICAN 212 (6), PAGES 58-59 (JUNE 1965)

A SYNOPSIS OF CLINICAL DETAILS FROM AN ARTICLE IN THE NEW ENGLAND JOURNAL OF MEDICINE. BRIEF DISCUSSION OF WORKER, WHO HAD IMPROVISED A BATCH METHOD FOR HANDLING WASTE, UNWITTINGLY EMPTYING ENRICHED-URANIUM SOLUTION INTO 2-FT-DIAM TANK. DISCUSSES SYMPTOMS AND CARE. NOTES THAT THIS WAS 5TH KNOWN PEACETIME (FIRST KNOWN INDUSTRIAL) CASUALTY FROM EXPOSURE TO MASSIVE RADIATION DOSE.

CRITICALITY SAFETY + INCIDENT, EXPOSURE + INCIDENT, WOOD RIVER + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

1-19683 ALSO IN CATEGORY 17
SAFETY HAZARDS IN THE ATOMIC INDUSTRY
6 PAGES, CONGRESSIONAL RECORD--SENATE, PAGES S7478-83, MAY 25, 1967

BRIEF DISCUSSION BY SEN. HARTKE (INDIANA) ON THE URANIUM-MINER PROBLEM, AND INSERTION INTO RECORD OF AN APRIL 26, 1967, SPEECH BY LEO GOODMAN. LATTER SPEECH DISCUSSES URANIUM-MINER RADON-GAS PROBLEM, WOODRIVER INCIDENT, THE AEC CLASSIFYING REPORTS OF INCIDENTS TO DENY PUBLIC ACCESS TO FACTS, SOME REACTOR INCIDENTS, AND SOME RADIOACTIVITY RELEASES AND LOST RADIATION SOURCES. ASKS WHAT HAS BEEN THE RESULT OF THE 88 LOST SOURCES, REFERRING TO DEATHS IN MEXICAN INCIDENT. LABELS AS A SHAME THE ABSENCE OF MEDICAL FACILITIES NEAR THE PLANT TO MEET NEEDS.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + AIRBORNE RELEASE + CONGRESSIONAL ACTIVITY + INCIDENT, WOOD RIVER + MINING + RADIATION INJURY, TREATMENT OF + RADON + SOURCE, RADIATION, LOST

1-19791 ALSO IN CATEGORY 11
FRENCH REGULATIONS CONCERNING PRESTRESSED CONCRETE REACTOR PRESSURE VESSELS
FRANCE MINISTRY OF INDUSTRY
ORNL-TR-1678 +. 34 PAGES, 1966, TRANSLATION FROM FRENCH

A FRENCH CODE OF STANDARDS IS PRESENTED, WITH LIMITING CONDITIONS FOR NUCLEAR SERVICE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CODES AND STANDARDS + *CONCRETE, PRESTRESSED + *FRANCE + *PRESSURE VESSEL

1-19844 ALSO IN CATEGORIES 18 AND 5
WILLIS CA
STATISTICAL SAFETY EVALUATION OF POWER REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
AI-65-MEMO-212 +. 12 PAGES, 1 FIGURE, 22 REFERENCES, OCTOBER 20, 1965

STATISTICAL METHOD OF HAZARDS ANALYSIS IS CONSIDERING THE RISK AS THE PRODUCT OF PROBABILITY OF AN ACCIDENT OCCURRING AND THE RESULTING DAMAGE TO PUBLIC, RATHER THEN DETERMINING FIRST WHICH ACCIDENTS ARE CREDIBLE, THEN WHICH OF THESE IS THE WORST (MCA), IGNORING MANY SMALL ACCIDENTS THAT MAY HAVE A HIGH CHANCE OF OCCURRENCE. STATISTICAL SAFETY EVALUATIONS USE THE FAULT-TREE-ANALYSIS SYSTEM. EXAMPLE GIVEN RESULTS IN A RISK FROM EXCESS EFFLUENT RELEASE OF 2.5×10^{-2} OVEREXPOSURES PER YEAR VS. 10^{-6} TH FOR MCA. SNAP 10-A SAFEGUARDS REPORT (NAA-SR-10022) USES THIS APPROACH.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 1
GENERAL SAFETY CRITERIA

1-19844 *CONTINUED*
*FAULT TREE ANALYSIS + *HAZARDS ANALYSIS + *SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, CONSEQUENCES +
ACCIDENT, MAXIMUM CREDIBLE (MCA) + AIRBORNE RELEASE + DOSE + PROBABILITY + RELIABILITY ANALYSIS

1-19890
STEERE NY
HANDBOOK OF LABORATORY SAFETY
THE 3M COMPANY
560 PAGES, FIGURES, TABLES, REFERENCES, THE CHEMICAL RUBBER CO., 1967

PRESENTS DATA ON PERSONAL HAZARDS AND SAFETY, OBTAINED FROM AUTHENTIC AND HIGHLY REGARDED SOURCES. LISTS A WIDE VARIETY OF REFERENCES. THE OBJECTIVE IS TO FURNISH THE BEST GUIDE AVAILABLE RELATIVE TO SAFETY AND HAZARDS. CHAPTER TITLES ARE - GENERAL PROTECTIVE EQUIPMENT, VENTILATION, FIRE HAZARDS, WATER SUPPLY, BIOLOGICAL HAZARDS, VENTILATION, FIRE HAZARDS, CHEMICAL REACTIONS, TOXIC HAZARDS, RADIATION HAZARDS, ELECTRICAL AND MECHANICAL HAZARDS, WATER SUPPLY, BIOLOGICAL HAZARDS, LABORATORY DESIGN AND EQUIPMENT, AND TABLES OF CHEMICAL HAZARDS INFORMATION.

AVAILABILITY - THE CHEMICAL RUBBER CO., 18901 CRANWOOD PARKWAY, CLEVELAND, OHIO 44128

*BIBLIOGRAPHY + *BIOMEDICAL + *CHEMICAL REACTION + *CHEMICAL TOXICITY + *EQUIPMENT DESIGN + *FIRE +
*HAZARD, RELATIVE + *PERSONNEL PROTECTIVE DEVICE + *RADIATION PROTECTION, ORGANIZATION +
*RADIATION SAFETY AND CONTROL + *VENTILATION SYSTEM + *WATER POLLUTION + CODES AND STANDARDS + DOSE +
INGESTION + INHALATION + LASER + RADIOISOTOPE + SURFACE CONTAMINATION

1-19959
SHOUPP WE
NUCLEAR STANDARDS AND
AMERICAN NUCLEAR SOCIETY
1 PAGE, NUCLEAR NEWS 10(11), PAGE 25 (NOVEMBER 1967)

TECHNICAL STANDARDS NOT ONLY PROTECT BUT REALLY ENHANCE OUR ABILITY TO CREATE NEW OR MODIFY OLD CONCEPTS. NUCLEAR STANDARDS ARE WRITTEN BY EXPERTS IN THEIR RESPECTIVE FIELDS. THE FUNCTION OF THE NUCLEAR STANDARDS BOARD (USASI) IS TO ENSURE THAT (1) STANDARDS ARE CREATED AND WRITTEN WHERE AND WHEN THEY ARE REQUIRED, (2) THEY ARE WRITTEN BY KNOWLEDGEABLE PEOPLE, AND (3) THEY REPRESENT A CONSENSUS OF ALL PARTIES WHO HAVE ANY CONCEIVABLE INTEREST IN THE STANDARD OR ITS PERFORMANCE. THE BASIC OBJECTIVE OF THE STANDARDS ORGANIZATION IS TO CREATE A SET OF STATEMENTS THAT DESCRIBE THE DESIRED RESULTS WITHOUT INHIBITING THE MANNER OF OBTAINING THEM.

*CODES AND STANDARDS + *REGULATION, GENERAL + *USASI (USA STANDARDS INSTITUTE)

1-19960
KOCH HW + DONNERT HJ + HAVENS WW + ROGOSA GL + ROSEN L
NUCLEAR AND RADIATION STANDARDS OF IMPORTANCE TO THE NATIONAL ATOMIC ENERGY PROGRAM
U.S. DEPARTMENT OF COMMERCE, NATIONAL BUREAU OF STANDARDS
NBS-TECHNICAL NOTE-283 + 44 PAGES, 5 TABLES, 57 REFERENCES, MARCH 1966

A SYSTEMATIC APPROACH TO PHYSICAL MEASUREMENTS IN NUCLEAR PHYSICS REQUIRES THE ESTABLISHMENT, AVAILABILITY, AND USE OF STANDARDS. THE STANDARDS MAY CONSIST OF STANDARD CROSS SECTIONS, FOILS, COUNTERS, AND EVALUATED NUCLEAR DATA. BECAUSE OF THE FUNDAMENTAL IMPORTANCE OF MEASUREMENT STANDARDS, THE NUCLEAR CROSS SECTION ADVISORY GROUP HAS EXAMINED THE DEFINITIONS, REQUIREMENTS, CHARACTERISTICS, AND AVAILABILITY OF NUCLEAR AND RADIATION STANDARDS OF IMPORTANCE TO THE NATIONAL ATOMIC ENERGY PROGRAM. THIS REPORT PRESENTS THE RESULTS OF THE EXAMINATION AND A STATEMENT OF FUTURE NEEDS.

AVAILABILITY - U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402

*CODES AND STANDARDS + *NBS (NATIONAL BUREAU OF STANDARDS) + COUNTER + CROSS SECTION + DATA PROCESSING

1-19961
SPERRY K
RADIATION HAZARDS. SENATE BILL WOULD PROVIDE FEDERAL REGULATION
2 PAGES, SCIENCE 157, PAGE 1292-93 (SEPT. 1967)

CONCERN OVER THE LACK OF REGULATIONS GOVERNING THE GROWING NUMBER OF PRODUCTS THAT EMIT RADIATION WAS EXPRESSED DURING HEARINGS 28 TO 30 AUGUST 1967 ON A BILL THAT WOULD PROTECT THE PUBLIC AGAINST DAMAGES FROM RADIATION. SENATOR BARTLETT (D-ALASKA) CONDUCTED THE HEARINGS FOR THE SENATE COMMERCE COMMITTEE ON HIS BILL (S. 2067) WHICH WOULD AUTHORIZE THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE TO CONDUCT RESEARCH AND SET STANDARDS APPLICABLE TO THE EMISSION OF RADIATION FROM ELECTRONIC PRODUCTS. HEARINGS ON A HOUSE COMPANION MEASURE (H.R. 10790) WERE HELD ON 14 AUGUST.

*RADIATION DAMAGE + *RADIATION SAFETY AND CONTROL + *REGULATION, GENERAL + LAW

CATEGORY 1
GENERAL SAFETY CRITERIA

1-19962
JARVIS GM
NUCLEAR ENERGY LEGISLATION IN CANADA
ATOMIC ENERGY CONTROL BOARD, CANADA
4 PAGES, 13 REFERENCES, J. BRIT. NUCL. ENRG. SOC., 6(1), PAGE 86-89, (1967)

THE DEVELOPMENT, USE, AND APPLICATION OF NUCLEAR ENERGY IN CANADA ARE GOVERNED BY REGULATIONS MADE UNDER THE ATOMIC ENERGY CONTROL ACT AND ADMINISTERED BY THE ATOMIC ENERGY CONTROL BOARD, ESTABLISHED BY THE ACT. THE BOARD SET UP THE REACTOR SAFETY ADVISORY COMMITTEE TO CONSIDER IN DETAIL AND ADVISE THE BOARD ON APPLICATIONS FOR PERMISSION TO CONSTRUCT AND OPERATE REACTORS OUTSIDE FEDERAL GOVERNMENT ESTABLISHMENTS. THERE IS AS YET NO NUCLEAR-LIABILITY LEGISLATION OF GENERAL APPLICATION IN CANADA, BUT INDEMNIFICATION AGAINST LIABILITY FOR NUCLEAR DAMAGE IS PROVIDED BY CONTRACT IN SOME CIRCUMSTANCES.

*CANADA + *INSURANCE + *LAW + *REGULATION, GENERAL + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + LIABILITY

1-20456
EDESUTY FJ
SAFETY PROBLEMS AND SAFETY CODES CONCERNING LIQUID HYDROGEN AND LIQUID HELIUM
LOS ALAMOS SCIENTIFIC LAB., N. MEX.
LA-DC-8463 + CONF-670802-1 +. 36 PAGES, 1967

SUBJECTS INCLUDE CONTROL OF CHEMICAL CONTAMINATION, CONTAINER-MATERIAL SELECTION, CONTAINER STRESS ANALYSIS, AND SAFETY CODES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*OPERATING EXPERIENCE + CODES AND STANDARDS + HELIUM + HYDROGEN + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + SAFETY PRINCIPLES AND PHILOSOPHY + STORAGE CONTAINER

1-20461
PRINCIPLES OF NUCLEAR SAFETY
UNION CARBIDE CORP., Y-12 PLANT
Y-E4-600 +. 28 PAGES, FIGURES, APRIL 1965

A BOOKLET DESCRIBING CRITICALITY SAFETY PRINCIPLES TO LAYMEN IN SIMPLE TERMS BY NARRATIVE AND DRAWINGS. DISCUSSES RADIOACTIVE DECAY, FISSION, CRITICALITY CONTROL, MODERATION, GEOMETRY, REFLECTION, POISONS, AND CRITICAL MASS.

AVAILABILITY - OAK RIDGE Y-12 PLANT, P. O. BOX Y, OAK RIDGE, TENNESSEE

*SAFETY PRINCIPLES AND PHILOSOPHY + *STAFFING, TRAINING, QUALIFICATION + CRITICALITY SAFETY + ORNL (OAK RIDGE NATIONAL LABORATORY)

1-20615 ALSO IN CATEGORY 17
LOW LD
TESTIMONY BY DIV. OF COMPLIANCE AT JCAE REGULATORY PROCEDURES HEARING
ATOMIC ENERGY COMMISSION
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 13(17), PAGE 43-45 (APRIL 24, 1967)

FINDINGS AND ACTIONS (1963-1966). NONCOMPLIANCE ITEMS WERE FOUND AT 35-50% OF THE FACILITIES IN OPERATION. DURING 1966, 37 OF THE 90 OPERATING REACTORS HAD DEFICIENCIES IN VARYING DEGREES (21 WERE ADMINISTRATIVE PROCEDURES, 13 WERE LICENSE-LIMIT VIOLATIONS, 14 WERE OPERATION WITH LESS THAN MINIMUM EQUIPMENT, THE REST WERE RADIATION SAFETY AND CONTROL). INSPECTORS INVESTIGATED 55-60 FAILURES/MALFUNCTIONS REPORTED (LISTS 8 FAIRLY SIGNIFICANT INSTANCES). CONCLUDES BY INDICATING STAFF EXPANSION WILL BE REQUIRED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + CONGRESSIONAL ACTIVITY + REGULATION, AEC

1-20624 ALSO IN CATEGORY 17
ACRS TESTIMONY BEFORE JCAE REGULATORY REVIEW HEARING
ATOMIC ENERGY COMMISSION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 40-44, (APRIL 17, 1967)

CITED 13 SPECIFIC EXAMPLE (STICKING OF CONTROL RODS, LOSS OF NORMAL AND EMERGENCY, AND LOSS OF ALL INCOMING POWER, FUEL MELTING) AS INDICATING NEED FOR DIVERSITY AND REDUNDANCE IN SAFETY COMPONENTS. AMONG 7 SAFETY MATTERS WARRANTING SPECIAL ATTENTION (LONG-TERM SAFE OPERATION, SEISMIC-DESIGN CRITERIA, QUALITY ASSURANCE AND INSPECTABILITY, SITING CLOSE TO POPULATION CENTERS, EMERGENCY CORE COOLING, AND INCREASED POWER LEVEL/DENSITY) IS ONE CLOSE TO OUR HEARTS, NAMELY, DISSEMINATION OF SAFETY-RELATED EXPERIENCE. (QUOTE) ACRS BELIEVES IT TO BE

CATEGORY 1
GENERAL SAFETY CRITERIA

1-20624 *CONTINUED*

IMPORTANT THAT A SUITABLE MECHANISM EXIST WHEREBY PROMPT DISSEMINATION OCCURS WITHIN THE NUCLEAR INDUSTRY AND THE AEC OF OFTEN UNPUBLISHED, SAFETY-RELATED EXPERIENCE GAINED ON INDIVIDUAL, PRIVATELY OWNED POWER REACTORS. THE AEC NOW PERFORMS SUCH A SERVICE, AT LEAST IN PART, FOR SAFETY-RELATED EXPERIENCE GAINED ON AEC-OWNED REACTORS. (UNQUOTE)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONGRESSIONAL ACTIVITY + *INFORMATION RETRIEVAL + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + EARTHQUAKE ENGINEERING + EMERGENCY COOLING CONSIDERATIONS + INCIDENT COMPILATION + QUALITY CONTROL + REDUNDANCE + REGULATION, AEC + SITING, REACTOR

1-20684 ALSO IN CATEGORY 16
SWANSON AE + BATES FC

TORNADO DESIGN CONSIDERATIONS FOR NUCLEAR POWER PLANTS
UNIVERSITY OF ST. LOUIS + BLACK AND VEATCH

20 PAGES, 7 FIGURES, 5 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(2), PAGE 712 AND 713, (NOVEMBER 1967), PRESENTED AT THE 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOV. 5-9, 1967

POTENTIAL TORNADO DAMAGE IS A RESULT OF DIRECT WIND PRESSURES AND BAROMETRIC PRESSURE DROP AS WELL AS THE EFFECTS OF PENETRATING MISSILES SET IN MOTION BY THE TORNADO. THIS DISCUSSION PRESENTS A MODEL OF A TORNADO, MODES OF MISSILE INJECTION, AND AERODYNAMICS OF AIRBORNE MISSILES.

*DESTRUCTIVE WIND + *REACTOR, POWER + MATHEMATICAL STUDY + METEOROLOGICAL SUPPORT + SAFETY STUDY + SITING, REACTOR

1-20718 ALSO IN CATEGORY 17

REP. HOSMER WARNS UMW THAT BLOCKING COMMERCIAL NUCLEAR POWER HURTS ONLY THE COAL INDUSTRY AND ITS CUSTOMERS
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(49), PAGE 4-6, (DECEMBER 4, 1967)

(HOUSE SPEECH) NOTES THAT INFORMAL TRUCE (IN NOT USING SCARE TACTICS) BETWEEN COAL AND NUCLEAR INDUSTRIES IS BEING VIOLATED BY UMW, TO THE DETRIMENT OF THE UTILITIES CAUGHT IN THE CROSSFIRE. FPC STUDIES SHOW MORE RADIUM IS RELEASED FROM COAL PLANTS, THAN I-131 AND KR-85 FROM NUCLEAR, THOUGH NOT IN HAZARDOUS AMOUNTS. HOSMER SUPPORTS A RESOLUTION TO INVESTIGATE CIVILIAN ATOMIC ENERGY PROGRAMS, BECAUSE HE BELIEVES THIS WOULD END THESE POORLY INFORMED AND HIGHLY EMOTIONAL TIRADES. BENEFITS OF PEACEFUL ATOM OUTWEIGH ANY HAZARDS, AND THESE ARE BEING KEPT AT AN ACCEPTABLE LEVEL AND CONSTANTLY REDUCED.

CONGRESSIONAL ACTIVITY + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

1-20876 ALSO IN CATEGORY 17

O-BRIEN B

JCAE HEARING ON POWER REACTOR REGULATION - BRICE O-BRIEN
NATIONAL COAL ASSOCIATION

4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(38) PAGES 44-47 (SEPTEMBER 18, 1967)

REFERS TO AEC DUAL ROLE (PROMOTION AND REGULATION) AND BIBLICAL REFERENCE TO FACT THAT NO MAN CAN SERVE TWO MASTERS. REFERS TO HADDAM NECK PHOTOS (TIME, MARCH 10, 1967, AND NEW YORK TIMES, JUNE 11, 1967) HAVING STACK REMOVED BY ARTIST BRUSH TO HELP SELL ATOMIC POWER TO THE PUBLIC. REFERS TO NONAVAILABILITY OF WASH-740 AND AEC NOT UPDATING IT AS CONCEALING THE FACTS. QUOTES NOVEMBER 1965 NEW YORK CITY REPORT AS ADVISING HIRING OF EURATOM TO ENSURE INDEPENDENT REVIEW.

*CONGRESSIONAL ACTIVITY + *REGULATION, AEC + EURATOM + HADDAM NECK + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + STACK

1-21318 ALSO IN CATEGORIES 11 AND 7

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPT.-OCT. 1967

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2057 +. 131 PAGES, FIGURES, TABLES, NOVEMBER 27, 1967

INCLUDED IN THIS PROGRESS REPORT IS WORK ON VARIOUS CHEMICAL REACTIONS, AS WELL AS THE RELEASE, CHARACTERIZATION, AND TRANSPORT OF FISSION PRODUCTS IN CONTAINMENT SYSTEMS UNDER VARIOUS ACCIDENT CONDITIONS AND ON PROBLEMS ASSOCIATED WITH THE REMOVAL OF THESE FISSION PRODUCTS FROM GAS STREAMS. ALTHOUGH MOST OF THE WORK HAS BEEN AND CONTINUES TO BE IN GENERAL SUPPORT OF WATER POWER REACTOR TECHNOLOGY, INCLUDING SOME IN DIRECT SUPPORT OF THE LOFT AND CSE PROGRAMS, SEVERAL PROJECTS WERE STARTED IN THE FIRST OF THE CALENDAR YEAR IN SUPPORT OF THE HIGH-TEMPERATURE GAS-COOLED REACTOR (HTGR) PROGRAM. THESE PROJECTS INCLUDE BOTH IN-PILE AND OUT-PILE STUDIES OF REACTION RATES AND FISSION PRODUCT RELEASE AND TRANSPORT PHENOMENA RELEVANT TO POTENTIAL HTGR ACCIDENT SITUATIONS. OTHER MAJOR PROJECTS INCLUDE FUEL TRANSPORT SAFETY INVESTIGATIONS, A SERIES OF DISCUSSION PAPERS ON VARIOUS ASPECTS OF WATER REACTOR TECHNOLOGY, AND THE STUDIES ON PRESSURE VESSEL TECHNOLOGY. EXPERIMENTAL WORK RELATIVE TO PRESSURE VESSEL TECHNOLOGY INCLUDES INVESTIGATIONS OF THE ATTACHMENT OF NOZZLES TO SHELLS AND THE VARIABILITY OF IMPACT DATA ON LOW-ALLOY STEELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA

CATEGORY 1
GENERAL SAFETY CRITERIA

1-21318 *CONTINUED*
22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*CONTAINMENT, GENERAL + *CSE (CONTAINMENT SYSTEMS EXPERIMENT) + *FISSION PRODUCT RETENTION +
*FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *LOFT (LOSS OF FLUID TEST) +
*NOZZLE + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY +
FISSION PRODUCT RELEASE, GENERAL + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-17286

ROBERTS J

THEORETICAL AMPLITUDES AND TRAVEL TIMES OF EXPLOSION-GENERATED SEISMIC P WAVES
LAWRENCE RADIATION LAB., LIVERMORE
UCRL-50,232 +. 10 PAGES, 6 FIGURES, 1 TABLE, 11 REFERENCES, APRIL 5, 1967

AMPLITUDES AND TRAVEL TIMES WERE CALCULATED FOR THE FIRST HALF-CYCLE OF SEISMIC P WAVES
GENERATED BY NUCLEAR EXPLOSIONS AT DISTANCES VARYING FROM 140 TO 2900 KM. THE HEAD-WAVE
BODY-WAVE MODEL YIELDS TRAVEL TIMES WITHIN PLUS OR MINUS 3.9 SEC OF THE MEAN EXPERIMENTAL
VALUES OVER THE INDICATED RANGE OF DISTANCES AND ALSO PROVIDES AN INTERPRETATION OF THE
LARGE-SMALL-LARGE NATURE OF THE AMPLITUDES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*NUCLEAR DETONATION + *VIBRATION + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + WAVE, STRESS

2-17701

ALSO IN CATEGORY 9

DOVE RC + BUTLER RI

THE SELECTION AND EVALUATION OF SHOCK TEST INSTRUMENTATION
SANDIA CORPORATION, ALBUQUERQUE, N. MEX. + NEW MEXICO UNIVERSITY, ALBUQUERQUE
SC-DC-66-1219 +. 27 PAGES, 51 FIGURES, REFERENCES, JANUARY 5, 1966

IN THIS PROGRAM, THE COMPONENTS USUALLY FOUND IN INSTRUMENT SYSTEMS USED FOR SHOCK TESTS ARE
DISCUSSED, AND THE CHARACTERISTICS OF THE COMPONENTS ARE EXAMINED TO ESTABLISH HOW THEY CAN
BEST BE USED AND HOW RESULTS SO OBTAINED CAN BE INTERPRETED. THE PAPER IS CONFINED TO
ACCELEROMETERS (WITH EMPHASIS ON THE PIEZOELECTRIC TYPE) AND TO THE SYSTEMS USED TO CONDITION
AND RECORD THE OUTPUT SIGNALS.

EARTHQUAKE + EARTHQUAKE ENGINEERING + INSTRUMENTATION, EARTHQUAKE

2-17845

ALSO IN CATEGORY 18

AEC SETS ASIDE PROVISIONAL CONSTRUCTION PERMIT FOR MALIBU AND ORDERS MORE REVIEW
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D.C.
19 PAGES, FIGURES, APRIL 5, 1967, DOCKET NO. 50-214, MALIBU NUCLEAR PLANT NO. 1

AFTER PUBLIC HEARINGS, AEC SETS ASIDE LICENSING-BOARD DECISIONS AND SENDS MATTER BACK TO THE
BOARD FOR STUDY OF THE AMOUNT OF DIFFERENTIAL GROUND DISPLACEMENT THAT THE FACILITY MUST BE
REQUIRED TO WITHSTAND, AND THE ADEQUACY OF THE DESIGN CRITERIA THAT MAY BE PROPOSED BY THE
APPLICANT TO PERMIT THE FACILITY TO WITHSTAND THIS DISPLACEMENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONSTRUCTION PERMIT PROCESS + *EARTHQUAKE ENGINEERING + *LICENSING STATUS OF NUCLEAR PROJECTS +
DESIGN CRITERIA + MALIBU + REACTOR, PRESSURIZED WATER

2-18313

ALSO IN CATEGORY 18

VERMONT YANKEE AMENDMENT 6. SEISMIC DESIGN CONSIDERATIONS
VERMONT YANKEE NUCLEAR POWER CORPORATION, RUTLAND, VERMONT
12 PAGES, 3 FIGURES, MAY 24, 1967, DOCKET NO. 50-271

DESIGN CRITERIA FOR THE REACTOR BUILDING AND VERNON DAM, INCLUDING STABILITY ANALYSIS OF
VERNON DAM. VERNON DAM CAPABLE OF WITHSTANDING THE DESIGN EARTHQUAKE FOR THE SITE (0.07 G
GROUND ACCELERATION) WITH OUT GROSS FAILURE. ASSUMING AN ACCELERATION OF 0.140, 1300 FT OF
CRACKS WOULD APPEAR IN REACTOR-BUILDING WALLS, HALF OF WHICH CLOSE IMMEDIATELY. ASSUMING A
CRACK WIDTH OF 20 MILS AND NEGATIVE INSIDE PRESSURE OF 0.25 IN. (H2O), INFLOW RATE IS 50 CFM
(TREATMENT SYSTEM CAPACITY, 1500 CFM).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EARTHQUAKE ENGINEERING + *EMERGENCY COOLING CONSIDERATIONS + DESIGN CRITERIA + REACTOR, BOILING WATER +
SAFETY ANALYSIS REPORT, GENERAL + VERMONT YANKEE

2-18798

HODGSON JH

EARTHQUAKES AND EARTH STRUCTURE

166 PAGES, 91 FIGURES, PRENTICE-HALL, ENGLEWOOD CLIFFS, NEW JERSEY, 1965

THIS SHORT BOOK IS A GOOD NONTECHNICAL INTRODUCTION TO ENTIRE FIELD OF SEISMOLOGY, TECTONICS,
AND EARTHQUAKE ENGINEERING. THE FOUR MAIN CHAPTERS (1) DESCRIBE EARTHQUAKES BY EXAMPLE AND
DISCUSS SOME OF THEIR EFFECTS, (2) DISCUSS THE SEISMOLOGISTS VIEW OF EARTHQUAKES, ESPECIALLY
THE INSTRUMENTAL RECORDING OF TELESEISMS, (3) REVIEWS THE CURRENT STATE-OF-THE-ART IN
EARTHQUAKE PREDICTION, BUT MOSTLY IN AN OVERGENERALIZED WAY, AND (4) DESCRIBES THE
POSSIBILITIES FOR THE FUTURE, ESPECIALLY THE IMPROVEMENT OF SEISMIC REGIONALIZATION MAPS AND

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-18798 *CONTINUED*
BUILDING CODES BASED ON THEM.

AVAILABILITY - PRENTICE-HALL, INC., ENGLEWOOD CLIFF, NEW JERSEY, \$3.95 COPY

EARTHQUAKE ENGINEERING + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FAULT + INSTRUMENTATION, EARTHQUAKE + SEISMIC ZONE + SEISMOLOGY + TECTONICS

2-18801
ARNOLD AB
THE SAN ANDREAS FAULT CROSSINGS OF THE CALIFORNIA AQUEDUCT
CALIFORNIA DEPT. OF WATER RESOURCES, PALMDALE, CALIF.
8 PAGES, ENG. GEOL. 4(1) PAGES 1-8 (JANUARY 1967)

IN SOUTHERN CALIFORNIA THE CALIFORNIA AQUEDUCT CROSSES THE SAN ANDREAS FAULT AT FOUR LOCATIONS. TWO OF THE CROSSINGS ARE MADE IN ANTELOPE VALLEY NEAR PALMDALE, ONE IS MADE NEAR GORMAN, AND ONE ON THE SOUTH SIDE OF THE SAN BERNARDINO MOUNTAINS. A POSSIBLE MOVEMENT OF 20 FEET HORIZONTAL AND 2 TO 3 FEET VERTICAL WAS CONSIDERED IN THE DESIGN OF THE CROSSINGS. INFORMATION CONCERNING FAULT MOVEMENT AND POSSIBLE DAMAGE TO THE AQUEDUCT WILL BE PROVIDED BY SENSITIVE SEISMOGRAPHS, TILTMETERS, AND PRECISE SURVEYING TECHNIQUES. IN THE EVENT OF MOVEMENT AND DAMAGE TO THE AQUEDUCT, CHECK-STRUCTURES AND EROSION-CONTROL FEATURES WILL CONTROL THE FLOW OF WATER AND REPAIRS CAN BE MADE QUICKLY.

DISPLACEMENT, DESIGN FOR + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + GEOLOGICAL CONSIDERATION, GENERAL + SOIL MECHANICS

2-18802
FETT JD + HAMILTON DH + FLEMING FA
CONTINUING SURFACE DISPLACEMENTS ALONG THE CASA LOMA AND SAN JACINTO FAULTS IN SAN JACINTO VALLEY, RIVERSIDE COUNTY, CALIFORNIA
JOHN D. FETT AND ASSOCIATES, HEMET, CALIF. + SOIL MECHANICS AND FOUNDATION ENGINEERS, INC., PALO ALTO, CALIF. + RIVERSIDE COUNTY ROAD DEPT., RIVERSIDE, CALIF.
11 PAGES, ENG. GEOL. 4(1) PAGES 22-32 (JANUARY 1967)

EVIDENCE OF SURFACE DISPLACEMENT AND OF DIFFERENTIAL ELEVATION CHANGES RELATED TO MOVEMENT ALONG THE SAN JACINTO AND CASA LOMA FAULTS INCLUDES THE EXISTENCE OF ESCARPMENTS IN RECENT SEDIMENTS ALONG THE FAULTS, A HISTORY OF RECURRENT CRACKING, OFFSETTING, REPAIRING AND EVEN REGRADING OF ROADS CROSSING THE FAULTS, FORMATION OF LINES OF SINK HOLES IN ALLUVIAL SEDIMENTS ALONG PORTIONS OF THE FAULTS, AND COMPARATIVE LEVELING DATA SHOWING SUBSIDENCE OF THE BLOCK DEFINED BY THE TWO FAULTS. THE OBSERVED MOVEMENTS ALONG THESE FAULTS, AND THE DOWN-DROPPING OF THE SAN JACINTO VALLEY MAY BE ATTRIBUTABLE, WHOLLY OR IN PART, TO THE EFFECTS OF GROUND-WATER WITHDRAWAL FROM THE PRESSURE AQUIFER UNDERLYING THE VALLEY. THE POSSIBILITY STILL EXISTS, HOWEVER, THAT THE FAULT MOVEMENTS ARE IN PART A CONTINUED MANIFESTATION OF THE TECTONIC PROCESSES WHICH HAVE BEEN RESPONSIBLE FOR THE ORIGIN AND DEVELOPMENT OF THE SAN JACINTO VALLEY.

*DISPLACEMENT, GENERAL + CREEP + EARTHQUAKE, GENERAL + FAULT + SEISMIC ZONE + SUBSIDENCE + TECTONICS

2-19201
THE ALASKAN EARTHQUAKE
DEPARTMENT OF WATER RESOURCES, STATE OF CALIFORNIA
DEPT. OF WATER RESOURCES BULLETIN NO. 116-5, 64 PAGES, 6 FIGURES, 2 TABLES, OCTOBER 1965

A FAIRLY BRIEF AND CONCISE DESCRIPTION OF THE VARIOUS ASPECTS OF THE ANCHORAGE EARTHQUAKE OF 1964. DISCUSSION OF THE RESULTING DAMAGE TO STRUCTURES RESULTING FROM DEFECTS IN DESIGN AND CONSTRUCTION, AND RESULTING FROM THE EXTENSIVE SOIL FAILURES. ALSO INCLUDED ARE THE RESULTS OF SEVERAL INVESTIGATIVE PROGRAMS ON THESE FAILURES.

AVAILABILITY - RESOURCES AGENCY, DEPT. OF WATER RESOURCES, STATE OF CALIFORNIA

EARTHQUAKE ENGINEERING + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + LANDSLIDE + LIQUEFACTION + SEISMIC ZONE + SUBSIDENCE + TECTONICS + TSUNAMI

2-19665 ALSO IN CATEGORIES 11 AND 18
TEN ITEMS OF ADDITIONAL PALISADES INFORMATION
CONSUMERS POWER COMPANY
11 PAGES, 1 TABLE, JANUARY 1967, DOCKET 50-255, AMENDMENT 7

(1) STUDY SHOWS THAT PC CHECK VALVES SHOULD BE REMOVED, AS THEY SHORTEN FLOW COASTDOWN. (2) A PARALLEL SELECTOR VALVE IS ADDED TO COMPONENT COOL-WATER SYSTEM. (3) HORIZONTAL AND VERTICAL SEISMIC MOTION ARE ADDITIVE. (4) CRANE WILL BE RESTRAINED. (5,7) CLASS-1 ACCELERATIONS WILL BE DETERMINED FROM EARTHQUAKE-RESPONSE CURVES AND WILL ALLOW SAFE SHUTDOWN FROM 0.2 G. (6) CONTAINMENT MEMBRANE TENSION WILL NOT EXCEED $3 \times \text{SQ. ROOT OF FC}$. (7) NO MOTOR-OPERATED VALVES WILL BE USED FOR CONTAINMENT ISOLATION. TURBINE-REHEAT STOP-VALVES WILL BE USED FOR MAIN STEAM LINE AND WILL CLOSE IN 4-6 SEC. (9) CLASS-1 CRITERIA OUTLINED. (10) FOR THE 0.2-G EARTHQUAKE, 5% STRUCTURAL DAMPING WILL BE USED. DYNAMIC TESTS WILL BE MADE AT THE SITE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-19665 *CONTINUED*

*ACCIDENT, LOSS OF FLOW + *CONTAINMENT PENETRATION, CLOSURE OF + *EARTHQUAKE ENGINEERING + AEC QUESTION + PALISADES POINT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + VALVE

2-19695 ALSO IN CATEGORIES 18 AND 9
SECOND SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT FOR POINT BEACH NUCLEAR PLANT
WISCONSIN MICHIGAN POWER COMPANY
150 PAGES, 18 FIGURES, 7 TABLES, 15 REFERENCES, FEBRUARY 3, 1967, DOCKET NO. 50-266

71 ANSWERS TO QUESTIONS ASKED BY DLR, DEC. 23, 1966. SOME DETAILED INFORMATION WILL BE SUBMITTED LATER. TABLE OF CONTENTS FORMAT - I. GENERAL (44 QUESTIONS), II. INSTRUMENTATION (11 QUESTIONS), III. SITE (9 QUESTIONS), IV. ACCIDENT ANALYSIS (7 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *INSTRUMENTATION, GENERAL + *SITING, REACTOR + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

2-19857 ALSO IN CATEGORY 9
BALLARD RF
PROJECT PRE-GONDOLA I --STRUCTURES INSTRUMENTATION
ARMY ENGINEER WATERWAYS EXPERIMENT STATION, VICKSBURG, MISS.
PNE-1106 +. 72 PAGES, FIGURES, TABLES, 6 REFERENCES, MAY 1967

THREE MICROSEISMIC STATIONS WERE OPERATED BY THE U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION (WES) DURING THE PRE-GONDOLA I CRATERING CALIBRATION SERIES AT FORT PECK, MONTANA. THE SEISMIC STATIONS, LOCATED IN THE CENTER OF THE DAM, AT GATE CONTROL STRUCTURE NO. 3, AND ON THE SPILLWAY, WERE MONITORED TO DETERMINE STRUCTURE RESPONSE RESULTING FROM THE 20-TON CHARGES DETONATED ABOUT 12 MILES FROM THE DAM. PARTICLE VELOCITY DATA WERE RECORDED SIMULTANEOUSLY ON OSCILLOGRAPHS AND MAGNETIC TAPE. OSCILLOGRAMS WERE ANALYZED FOR MAXIMUM TRANSIENT ZERO TO PEAK PARTICLE VELOCITIES, AND THE TAPE WAS SUBJECTED TO LINEAR AND POWER SPECTRAL DENSITY ANALYSIS FROM 0.5 TO 20 HZ OVER A PERIOD OF 160 SEC. THE RESULTS OF THE STUDY INDICATE THAT THE AMPLITUDES RECORDED DURING THIS TEST SERIES EXCEEDED THE MOTIONS RECORDED DURING THE 1000-LB CALIBRATION SERIES BY NEARLY 30 TIMES AT ALL STATIONS. THIS REPORT PRESENTS A DOCUMENTATION OF TEST DATA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*EXPLOSION + *TESTING + EARTHQUAKE ENGINEERING + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TESTING + PLOWSHARE PROGRAM

2-19878
AMBRASEYS NN
THE EARTHQUAKES OF 1965-66 IN THE PELOPONNESUS, GREECE, A FIELD REPORT
IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, LONDON
22 PAGES, 14 FIGURES, 2 TABLES, 18 REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(5),
PAGE 1025-1046, (OCTOBER 1967)

BETWEEN MARCH 1965 AND SEPTEMBER 1966, TWO STRONG EARTHQUAKES OCCURRED IN CENTRAL PELOPONNESUS. THE FIRST SHOCK WAS CONNECTED WITH THE WEST WALL OF THE MEGALOPOLIS DEPRESSION, AND IT WAS FOLLOWED BY ANOTHER SHOCK CONNECTED WITH THE OPPOSITE WALL. THE CUMULATIVE EFFECTS OF THESE TWO EARTHQUAKES, AND OF TWO OTHER DEEPER SHOCKS THAT OCCURRED FURTHER NORTH, WERE CONSIDERABLE AND DIFFICULT TO SEPARATE. LANDSLIDES AND SLUMPING OF THE GROUND ACCOUNTED FOR THE MAJORITY OF THE DAMAGE, WHICH INCREASED PROGRESSIVELY WITH THE SHOCKS THAT FOLLOWED. SUBMARINE AND COASTAL SLUMPING CAUSED ADDITIONAL DAMAGE, AND A SMALL SEA-WAVE WAS SET OFF IN THE GULF OF CORINTH. AT THE EPICENTRAL AREA, THE GROUND MOVEMENTS WERE SEVERE, WITH A DOUBLE AMPLITUDE ON THE RECORD PLATE OF A STANDARD WILMOT SEISMOSCOPE REACHING 60 MILLIMETERS.

*EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + LANDSLIDE + LURCHING + SEISMIC ZONE + SOIL MECHANICS + TSUNAMI

2-19879
GLADOW DE
VIBRATIONAL ANALYSIS OCEAN BOTTOM SEISMIC SYSTEM
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-1M-67-253 +. 26 PAGES, FIGURES, APRIL 1967

TO EVALUATE THE EFFECT OF SOFT SUSPENSION (RUBBER MOUNTS IN A GLASS SPHERE AND/OR MUD OCEAN FLOORS), THE AUTHOR SELECTS A ONE-DEGREE-OF-FREEDOM SIMPLIFIED SYSTEM WHICH IS COMPARABLE TO A THREE-POINT SUSPENSION IN WHICH ONE OR TWO POINTS SERVE AS HORIZONTAL PIVOTS. RESPONSE AND CROSS-TALK EQUATIONS ARE DERIVED FOR SEISMOMETERS USING LACOSTE, SWINGING GATE, AND CONVENTIONAL SPRING-MASS SUSPENSIONS. ANALYSIS OF THESE EQUATIONS LEADS TO THE SELECTION OF A SYSTEM CONFIGURATION IN WHICH CROSS-TALK IS MINIMIZED. NUMERICAL EVALUATION INDICATES THAT CROSS-TALK FROM THE RUBBER MOUNTS CAN BE KEPT AS LOW AS 60 DB DOWN, BUT THAT CROSS-TALK FROM SOFT OCEAN FLOORS MAY BE QUITE HIGH. THE LATTER EFFECT IS PRESENTED IN PLOTS OF MAXIMUM

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-19879 *CONTINUED*

CROSS-TALK VERSUS EFFECTIVE SPRING CONSTANT. SHORT-PERIOD INSTRUMENTS (1-SEC NATURAL PERIOD) ARE MUCH MORE CROSS-TALK SENSITIVE THAN LONG PERIOD (15-SEC NATURAL PERIOD).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + INSTRUMENTATION, EARTHQUAKE + MATHEMATICAL STUDY + SEISMOLOGY, GENERAL

2-19880

SHIBATA H + SATO T

EARTHQUAKE-PROOF DESIGN OF MECHANICAL STRUCTURES. IN RELATION WITH THE ATOMIC POWER PLANTS TOKYO UNIVERSITY

12 PAGES, 12 FIGURES, 1 TABLE, 29 REFERENCES, SEISAN-KENKYU 17(11), PAGE 8-19, (NOVEMBER 1965), (IN JAPANESE)

THE DESIGN OF EARTHQUAKE-PROOF MECHANICAL STRUCTURES PARTICULARLY FOR ATOMIC POWER PLANTS IS DISCUSSED. THE CHARACTERISTICS OF EARTHQUAKE SHOCK WAVES DEPEND ON THE GEOLOGY OF THE AREA AFFECTED AND MUST BE ANALYZED FOR THE VIBRATION EFFECT ON A PARTICULAR STRUCTURE AT A SPECIFIED LOCATION. FATIGUE DUE TO FREQUENCY OF VIBRATION WAS EVALUATED. THE OVERALL STRESSES CALCULATED WERE COMPARED WITH THE PERMISSIBLE STRESS VALUES DETERMINED BY THE TENSILE STRENGTH, YIELD POINT, ELASTIC LIMIT, AND FATIGUE STRENGTH OF THE MECHANICAL STRUCTURE.

EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + RESPONSE SPECTRUM + WAVE, STRESS

2-19991

RASCUAL F + ALONSO A + SEVILLA A + NORENA S

SITE OF THE FIRST SPANISH NUCLEAR POWER STATIONS

JUNTA DE ENERGIA NUCLEAR, MADRID, SPAIN

SM-89/3 + CONF-670 402 +. 15 PAGES, 2 FIGURES, 1 TABLE, 10 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE AUTHORS ANALYZE AND DESCRIBE WITH REGARD TO NORMAL SITE CRITERIA AND SAFETY CONSIDERATIONS THE SITES OF THREE SPANISH NUCLEAR POWER STATIONS - THE ZORITA STATION (53 MW(E)) WITH A PRESSURIZED-WATER REACTOR AND SINGLE CONTAINMENT, THE SANTA MARIA DE GARONA STATION (380 MW(E)) WITH A BOILING WATER REACTOR AND CONTAINMENT BY PRESSURE CONTROL, AND THE VANDELLOS STATION (480 MW(E)), WITH A GRAPHITE-MODERATED GAS-COOLED REACTOR AND INTEGRATED DESIGN OF THE EDF-4 TYPE. THE FIRST TWO ARE LOCATED IN THE INTERIOR OF THE COUNTRY AND THE THIRD ON THE MEDITERRANEAN COAST. EXPERIENCE ACQUIRED IN TRANSPORTING EQUIPMENT FOR THE ZORITA PLANT IS DISCUSSED. IT REFERS PARTICULARLY TO THE HYDROLOGICAL STUDIES CARRIED OUT AT ZORITA AND SANTA MARIA DE GARONA AND DESCRIBES THE WEATHER STATIONS SET UP AT BOTH SITES, THE DIFFUSION EXPERIMENTS WITH NEUTRAL-BUOYANCY BALLONS AT SANTA MARIA DE GARONA, AND THE RESULTS OF THESE INVESTIGATIONS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*SITING, REACTOR + *SPAIN + ATMOSPHERIC DIFFUSION EXPERIMENT + GEOLOGICAL CONSIDERATION, GENERAL + METEOROLOGY + SAFETY EVALUATION + TOPOGRAPHY

2-19993

KNECHT O

CORRELATION BETWEEN REACTOR SITING AND CONTAINMENT

INTERATOM

SM-89/6 + CONF-670 402 +. 10 PAGES, 8 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

A PSUEDO SAFETY FACTOR IS DEFINED WHICH REPRESENTS THE POTENTIAL HAZARD OF A PLANT. THIS FACTOR IS DEPENDENT UPON POPULATION DENSITY, CONTAINMENT EFFECTIVENESS, AND OTHER CONSIDERATIONS. IT IS QUITE DIFFICULT TO EVALUATE THIS FACTOR, SO FUTURE EMPHASIS SHOULD BE PLACED ON THE AVOIDANCE OF ACCIDENTS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y. 10016

*CONTAINMENT, GENERAL + *GERMANY + *SITING, REACTOR + ACCIDENT ANALYSIS + MATHEMATICAL TREATMENT + POPULATION DISTRIBUTION + SAFETY STUDY

2-19994

CRANCHER DW

SITE CRITERIA FOR NUCLEAR POWER PLANTS

AUSTRALIAN ATOMIC ENERGY COMMISSION, COOGEE, AUSTRALIA

SM-89/14 + CONF-670 402 +. 8 PAGES, 11 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THERE IS PRESENTLY A LACK OF UNIFORMITY IN THE EVALUATION OF POTENTIAL REACTOR SITES. IN

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-19994 *CONTINUED*

GENERAL, THEY ARE CLASSIFIED EITHER BY POPULATION DENSITY OR BY PRESCRIBED ALLOWABLE DOSE. THE USE OF REFERENCE DOSES ASSOCIATED WITH A SPECIFIC ACCIDENT SEEMS TO HAVE THE MOST MERIT IF ACCEPTABLE DOSES AND ACCIDENT CONDITIONS CAN BE DECIDED. A DOSE BASED ON 25 REM WHOLE BODY AND 50 REM TO CHILD THYROID, AND AN ACCIDENT INVOLVING TWO INDEPENDENT FAILURES IS SUGGESTED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y. 10016

*AUSTRALIA + *SITING, REACTOR + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES + DQSE

2-19995

BOURGEOIS J + LAVIE JM + DE VATHAIRE F

SITING OF NUCLEAR POWER PLANTS NEAR TOWNS

CENTRE D ETUDES NUCLEAIRES DE SACLAY, FRANCE

SM-89/20 + CONF-670 402 +. 24 PAGES, 5 FIGURES, 3 TABLES, 19 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

HAVING EXAMINED THE SITES CHOSEN FOR THE NUCLEAR POWER STATIONS IN OPERATION OR UNDER CONSTRUCTION, THE AUTHORS STUDY THE POSSIBILITY OF SITING FUTURE PLANTS CLOSER TO TOWNS. THE SITES CHOSEN MUST BE THE RESULT OF A COMPROMISE BETWEEN ECONOMIC FACTORS AND THE IMPERATIVE NEED TO ENSURE A VERY HIGH LEVEL OF HUMAN SAFETY. IF THE ARRANGEMENTS MADE FOR THE CONSTRUCTION AND OPERATION OF THE PLANT DO NOT PRECLUDE ALMOST ENTIRELY THE RISK OF LARGE-SCALE RELEASE OF FISSION PRODUCTS, IT IS PREFERABLE TO MAKE USE OF THE ADDITIONAL SAFETY FACTOR PROVIDED BY DISTANCE, TO THE EXTENT THAT THIS CAN BE DONE IN THE COUNTRY CONCERNED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y. 10016

*FRANCE + *SITING, REACTOR + DISTANCE + ECONOMICS + FISSION PRODUCT RELEASE, GENERAL + POPULATION EXPOSURE

2-19996

ALSO IN CATEGORY 11

BOYD FC

CONTAINMENT AND SITING REQUIREMENTS IN CANADA

ATOMIC ENERGY CONTROL BOARD, OTTAWA, ONTARIO, CANADA

SM-89/22 + CONF-670 402 +. 13 PAGES, 9 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

IN CONSIDERING THE SUITABILITY OF A SITE AND THE ADEQUACY OF THE CONTAINMENT PROVISIONS, THE ATOMIC ENERGY CONTROL BOARD HAS DEVELOPED SITING CRITERIA WHICH CONSIDER - (1) NORMAL RELEASES OF RADIOACTIVE MATERIAL FROM THE PLANT, (2) THE SIZE OF POTENTIAL ACCIDENTAL RELEASES, (3) THE PROBABILITY OF ACCIDENTS, AND (4) THE DENSITY OF SURROUNDING POPULATION. DESIGN GUIDE VALUES ARE GIVEN FOR THE RADIATION EXPOSURE BOTH OF INDIVIDUALS AND THE TOTAL POPULATION AT RISK FOR THREE CONDITIONS - (1) NORMAL OPERATION, (2) FAILURES OF OPERATING OR PROCESS EQUIPMENT ONLY, (3) COMBINED FAILURES OF PROCESS AND PROTECTIVE EQUIPMENT. FROM THE APPLICATION OF KNOWN OR STATED METEOROLOGICAL CONDITIONS AN ACCEPTABLE RELEASE FROM THE PLANT CAN BE DETERMINED. WHEN COMBINED WITH PREDICTED RELEASES FROM THE REACTOR FOR VARIOUS ACCIDENTS WITHIN THE LAST TWO CATEGORIES ABOVE, THIS WILL GIVE THE TOTAL ALLOWABLE FRACTIONAL RELEASE FROM THE CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y. 10016

*CANADA + *CONTAINMENT, GENERAL + *SITING, GENERAL + DOSE + FISSION PRODUCT RELEASE, GENERAL + POPULATION DISTRIBUTION + PROBABILITY

2-19997

STOBBS JJ + PEKAREK HJ

THE INFLUENCE OF THERMAL POLLUTION ON NUCLEAR POWER PLANT SITE SELECTION

ELECTRO-WATT ENGINEERING SERVICES LTD., ZURICH, SWITZERLAND

SM-89/24 + CONF-670 402 +. 28 PAGES, 2 FIGURES, 2 TABLES, 6 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THERMAL POWER STATIONS REQUIRE COOLING WATER FOR EFFICIENT OPERATION, AND CONCERN HAS BEEN GROWING IN THE CASE OF RIVERS THAT ARE CALLED UPON TO SUPPORT SEVERAL PLANTS. A MATHEMATICAL MODEL IS DESCRIBED WHICH RELATES RIVER TEMPERATURE TO VARIOUS PARAMETERS. THE MODEL IS CODED FOR COMPUTER AND APPLIED TO THE RHINE RIVER. RESULTS ARE PRESENTED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y., 10016

*SITING, REACTOR + *SWITZERLAND + *THERMAL POLLUTION + COMPUTER PROGRAM + MATHEMATICAL TREATMENT + RIVER, GENERAL + SITING, GENERAL

2-19998

OSAWA H

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-19998. *CONTINUED*

THE APPLICATION OF SITE CRITERIA IN JAPAN
ATOMIC ENERGY BUREAU, TOKYO, JAPAN

SM-89/25 + CONF-670 402 +. 26 PAGES, 2 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE JAPAN ATOMIC ENERGY COMMISSION HAS ISSUED GUIDELINES TO PROVIDE A PROVISIONAL CRITERION FOR SITE SELECTION. MAJOR AND HYPOTHETICAL ACCIDENTS ARE DEFINED AND REFERENCE DOSE RATES ARE GIVEN. SITE METEOROLOGY IS CONSIDERED AND APPLIED STATISTICALLY. CONDITIONS AT THESE REACTOR SITES ARE TABULATED AND COMPARED. THE PROBLEM OF WASTE TREATMENT AND DISPOSAL IS CONSIDERED, AS IS THE ATTITUDE OF THE JAPANESE PEOPLE TO CATAclysmic EVENTS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*JAPAN + *SITING, REACTOR + ACCIDENT ANALYSIS + DOSE + METEOROLOGY + POPULATION DISTRIBUTION + WASTE DISPOSAL, GENERAL

2-19999

INOUE T

PROBLEMS AND EFFORTS IN SITING NUCLEAR POWER PLANTS IN JAPAN
MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY, TOKYO, JAPAN

SM-89/26 + CONF-670 402 +. 22 PAGES, 4 FIGURES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

JAPAN IS CHARACTERIZED BY THE FOLLOWING FACTORS WHICH MAKE SITING NUCLEAR POWER PLANTS MORE DIFFICULT THAN IN ANY OTHER COUNTRY - A SMALL, DENSELY-POPULATED TERRITORY WITH LITTLE LEVEL LAND (ALREADY FULLY OCCUPIED FOR AGRICULTURAL AND/OR INDUSTRIAL PURPOSES), SMALL RIVERS AND ACTIVE MARINE PRODUCT INDUSTRY DEVELOPED ALONG MOST OF THE SEACOASTS (BOTH OF WHICH CREATE DIFFICULT COOLING WATER PROBLEMS), FREQUENT EARTHQUAKES, AND THE FACT OF BEING THE ONLY NATION IN THE WORLD TO HAVE SUFFERED FROM THE ATOMIC BOMB, RESULTING IN AN UNUSUAL FEAR AMONG THE POPULATION OF POSSIBLE RADIOACTIVITY. A STUDY WAS MADE WHICH INCLUDED QUANTITATIVE ANALYSES OF REACTOR SITING FACTORS AND SUGGESTED MEASURES FOR SOLVING THE SITING PROBLEMS. THE ANALYSES WERE BASED ON NUCLEAR POWER PLANT SITES ASSUMED TO BE SEACOAST LOCATIONS CHARACTERIZED BY LOW POPULATION DENSITY, DESIRABLE GEOLOGY, AND FAVOURABLE TOPOGRAPHY. IT WAS ASSUMED THAT SEACOAST SITING WAS MORE ECONOMICAL THAN INLAND SITING.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y. 10016

*JAPAN + *SITING, REACTOR + EARTHQUAKE ENGINEERING + ENGINEERED SAFETY FEATURE + POPULATION DISTRIBUTION + RIVER, GENERAL + THERMAL POLLUTION

2-20000

UCHIDA T + ISO Y

CONTAINMENT DESIGN AND STUDY FOR THE FAST CRITICAL ASSEMBLY OF JAERI
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, JAPAN

SM-89/27 + CONF-670 402 +. 28 PAGES, 10 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE FAST CRITICAL ASSEMBLY (FCA) OF THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE IS BEING BUILT AT TOKAI TO OBTAIN THE REACTOR PHYSICS DATA AS THE FIRST STEP OF THE FAST BREEDER REACTOR DEVELOPMENT SCHEDULE IN JAPAN. THE CONTAINMENT OF FCA IS REQUIRED TO MEET THE JAPANESE SITE CRITERIA FOR THE HYPOTHETICAL ACCIDENT, WHICH IS ASSUMED AS GROSS MELTDOWN AND THE RESULTING CRITICAL POWER EXCURSION. NUCLEAR ENERGY OF ABOUT 10(20TH) FISSIONS AND A CHEMICAL ENERGY OF 3×10^{17} CAL RESULTING FROM THE RAPID METAL-AIR REACTION ARE ESTIMATED TO BE RELEASED IN THE HYPOTHETICAL ACCIDENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*CONTAINMENT, HIGH PRESSURE + *CRITICAL ASSEMBLY FACILITY + *JAPAN + DESIGN CRITERIA + EXPLOSION + REACTOR, FAST + TEST, PLANT RESPONSE

2-20001

CARLBOM L + OBRADOVIC J + MOJOVIE L

ANALYSIS OF CRITERIA AND THEIR APPLICATION IN SITE SELECTION FOR NUCLEAR POWER PLANTS IN YUGOSLAVIA
AB ATOMENERGI, STUDSVIK, SWEDEN + ENERGOPROJEKT, BELGRADE, YUGOSLAVIA

SM-89/29 + CONF-670 402 +. 18 PAGES, 2 FIGURES, 1 TABLE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

MOST OF THE CRITERIA REFERRING TO SITE SELECTION ARE COMMON TO BOTH CONVENTIONAL THERMAL POWER PLANTS AND NUCLEAR POWER PLANTS, ALTHOUGH THE CRITERIA ARE NOT OF EQUAL IMPORTANCE IN BOTH CASES. FOR A NUCLEAR PLANT, RADIOACTIVE HAZARD AND CONTAMINATION OF THE SURROUNDINGS IS DIFFERENT AND IMPORTANT. THE IMPORTANCE OF PARTICULAR CRITERIA COULD BE EXPRESSED QUALITATIVELY AND QUANTITATIVELY, I.E., WITH ECONOMIC FIGURES. THE ECONOMIC FIGURES SHOULD ALSO COMPRISE THE NECESSARY ADJUSTMENT OF PLANT DESIGN TO SUIT THE SITE CONDITIONS. METHODS USED TO ASSESS THE COST FIGURES FOR INDIVIDUAL CRITERIA ARE DESCRIBED, AND THE RESULTS OBTAINED ARE PRESENTED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20001 *CONTINUED*
10016

*SITING, REACTOR + *SWEDEN + *YUGOSLAVIA + ECONOMICS + ENVIRONMENTAL CONDITION +
GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + METEOROLOGY + SEISMOLOGY

2-20002
CAVE L + HOLMES RE
SUITABILITY OF THE AGR FOR URBAN SITING
ATOMIC POWER CONSTRUCTIONS LTD., ENGLAND
SM-89/32 + CONF-670-402 +. 30 PAGES, 1 FIGURE, 2 TABLES, REFERENCES, PRESENTED AT THE INTERNATIONAL
ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE SUITABILITY OF AN A.G.R. FOR AN URBAN SITE IS ASSESSED IN TERMS OF THE EXTENT TO WHICH
RADIOACTIVE MATERIAL WOULD BE RELEASED TO THE ENVIRONMENT, BOTH IN NORMAL OPERATION AND IN
FAULT CONDITIONS. AN ESTIMATE IS MUCH OF THE UPPER LIMIT TO THE POTENTIAL FISSION PRODUCT
RELEASE IN EACH OF THE FORESEEABLE PRIMARY FAULT CONDITIONS, TOGETHER WITH AN ESTIMATE OF THE
PROBABILITY OF THE RELEASE OCCURRING. THE RELATION BETWEEN THESE EXPECTATIONS OF RELEASE AND
THE WELL-BEING OF THE PUBLIC IS ILLUSTRATED BY EXAMINATION OF THEIR EFFECTS ON THE
INHABITANTS OF TWO TYPICAL URBAN SITES. IT IS SHOWN THAT AN A.G.R., WITHOUT SECONDARY
CONTAINMENT IS SUITABLE FOR SUCH SITES.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.
10016

*REACTOR, GAS COOLED + *SITING, REACTOR + *UNITED KINGDOM + ACCIDENT, MAXIMUM CREDIBLE (MCA) +
AGR (ADVANCED GASCOOLED REACTOR, WINDSCALE, UK) + FISSION PRODUCT RELEASE, GENERAL + RELIABILITY, SYSTEM +
SAFETY EVALUATION

2-20003
ADAMS CA + STONE GN
SAFETY AND SITING OF NUCLEAR POWER STATIONS IN THE UNITED KINGDOM
CENTRAL ELECTRICITY GENERATING BOARD, LONDON, UK
SM-89/39 + CONF-670 402 +. 12 PAGES, 1 TABLE, 10 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY
SYMPOSIUM ON THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

A POLICY OF REMOTE SITING IN THE UK CONFLICTS WITH THOSE INTERESTED IN NATURAL BEAUTY,
RECREATIONAL, AND SCIENTIFIC INTERESTS, AND A FINANCIAL PENALTY IS ALSO IMPOSED BY THE USE OF
SUCH SITES. A METHOD OF SITE ASSESSMENT WHICH ENSURES THAT THE RISK TO THE PUBLIC BE BELOW
SOME REFERENCE LEVEL IS PRESENTED. IT IS CONCLUDED THAT IT IS ESSENTIAL TO ENSURE BY
SAFEGUARDS IN DESIGN AND OPERATION THAT THE PROBABILITY OF A LARGE RELEASE IS REDUCED TO
INSIGNIFICANCE.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.
10016

*SITING, REACTOR + *UNITED KINGDOM + ACCIDENT, CONSEQUENCES + FISSION PRODUCT RELEASE, GENERAL +
POPULATION EXPOSURE + STATISTICAL CORRELATION

2-20004
CHARLESWORTH FR + GRONOW WS
A SUMMARY OF EXPERIENCE IN THE PRACTICAL APPLICATION OF SITING POLICY IN THE UK
MINISTRY OF POWER, LONDON
SM-89/41 + CONF-670 402 +. 38 PAGES, 9 FIGURES, 9 TABLES, 10 REFERENCES, PRESENTED AT THE INTERNATIONAL
ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SITE-SELECTION POLICY IN UK HAS UNDERGONE DEVELOPMENT AND REVISION DURING THE PAST 10 TO 12
YEARS. EARLY POLICY PUT EMPHASIS ON REMOTENESS. ADMINISTRATIVE LIMITATION OF THIS IS
DISCUSSED. THE PAPER PROPOSES A METHOD OF EVALUATING SITES IN TERMS OF THE HAZARD TO THE
PUBLIC AND MAKES RECOMMENDATIONS WITH REGARD TO THE SAFEGUARDING MEASURES WHICH SHOULD BE
TAKEN TO PROTECT THE CLOSE-IN POPULATION. THE EVALUATION ALSO TAKES INTO ACCOUNT THE GENERAL
DISTRIBUTION OF POPULATION AS WELL AS THAT PART RESIDENT IN THE MOST DENSELY POPULATED
SECTOR. THE PAPER CONCLUDES WITH SOME OBSERVATIONS ON THE ACCIDENT PROBABILITY CONCEPT IN
REACTOR SAFETY, RECOGNISING THAT IT IS A USEFUL TOOL IN THE EVOLUTION OF REACTOR SAFETY AND
MAY EVENTUALLY PROVIDE A MORE RATIONAL BASIS FOR SAFETY ASSESSMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.
10016

*SITING, REACTOR + *UNITED KINGDOM + ACCIDENT, CONSEQUENCES + DISTANCE + FISSION PRODUCT RELEASE, GENERAL +
POPULATION EXPOSURE + RADIOACTIVITY, RELEASE

2-20005 ALSO IN CATEGORY 7
KOZLOV VM + BOLOTIN YA + SERGEEV BV + FILATOV AS
SOURCES OF RADIOACTIVE OFF-GASES AND METHODS USED TO DECONTAMINATE THE GASES DURING THE OPERATION OF
SOVIET NUCLEAR POWER PLANTS
SM-89/47 + CONF-670 402 +. 18 PAGES, 6 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON
CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20005 *CONTINUED*

RESULTS OF MEASUREMENT OF RADIOACTIVE OFF-GAS FROM TWO REACTOR PLANTS ARE GIVEN AND DISCUSSED WITH REGARD TO REACTOR AND FUEL DESIGN. LEAKAGE PATHS TO THE ATMOSPHERE ARE DISCUSSED, AND VARIOUS CLEAN-UP METHODS AND PROCEDURES ARE SUGGESTED AND EVALUATED. CONCENTRATIONS OF RELEASED GASES WERE EVALUATED, AND DILUTION AND MOVEMENT IN THE ATMOSPHERE WERE CALCULATED. IT WAS CONCLUDED THAT PRACTICALLY AN ADVERSE EFFECT ON THE ENVIRONMENT IN THE PLANT HAD OCCURRED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*REACTOR OFFGAS + *UNION OF SOVIET SOCIALIST REPUBLICS + ATMOSPHERIC DIFFUSION + DISPERSION + MONITOR, RADIATION, GAS + SCRUBBER + VENTILATION SYSTEM

2-20006 ALSO IN CATEGORY 14

KOZLOV VM + RYZHOV AI + FILATOV AS + YAMBROVSKY YM

SITING OF NUCLEAR POWER PLANTS AND CONSIDERATION OF THE HEALTH AND HYGIENE ASPECTS OF NATURAL FEATURES AT THE SITES OF SOVIET NUCLEAR POWER PLANTS

SM-89/46 + CONF-670 402 +. 24 PAGES, 7 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SITES FOR BUILDING NUCLEAR POWER PLANTS IN THE USSR ARE NEVER ALLOCATED WITHOUT THE APPROVAL OF THE SANITARY INSPECTION AUTHORITIES. PLANT SITES MUST COMPLY WITH THE FOLLOWING BASIC SANITARY REQUIREMENTS - (1) GOOD LOCAL AIR CIRCULATION, (2) FAVOURABLE HYDRO-GEOLOGICAL CONDITIONS, WITH LOW-LYING GROUNDWATER, (3) FAIRLY LEVEL GROUND, (4) COMPARATIVELY SPARSELY POPULATED AREA, FAIRLY REMOTE FROM TOWNS (5) THE POSSIBILITY OF ORGANIZING A HEALTH PROTECTION ZONE. THE SIZE OF THE HEALTH PROTECTION ZONE AROUND A NUCLEAR POWER PLANT DEPENDS ON THE TYPE AND POWER OF THE PLANT. AUXILIARY BUILDINGS MAY BE BUILT IN THE ZONE, BUT NOT PERMANENT DWELLING HOUSES. THE ZONE MAY BE USED FOR CROP CULTIVATION AND THE PASTURAGING OF LIVESTOCK PROVIDED THAT MONITORING IS CARRIED OUT IN THE AREA. ENVIRONMENTAL EXPERIENCE AT TWO EXISTING PLANTS IS DISCUSSED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*ENVIRONMENTAL CONDITION + *SITING, REACTOR + *UNION OF SOVIET SOCIALIST REPUBLICS + EFFLUENT + MONITORING PROGRAM, ENVIRONMENTAL + STACK + WASTE DISPOSAL, GENERAL

2-20007

DAVIS WK

NUCLEAR PLANT SITING IN THE UNITED STATES

RECHTEL CORP., SAN FRANCISCO, CALIF.

SM-89/52 + CONF-670 402 +. 21 PAGES, 8 FIGURES, 2 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

BASIC FACTORS IN NUCLEAR PLANT SITING INCLUDE SUFFICIENT QUANTITIES OF COOLING WATER, SITE ACCESSIBILITY, ADEQUATE SOIL BEARING CAPACITY, FOUNDATIONS, POPULATION DISTRIBUTION, AND FLOODING. THESE FACTORS AND SEISMOLOGY AND TORNADO DESIGN FEATURES ARE COMPARED FOR THE RECENT SITES IN THE UNITED STATES. THE INTERRELATION BETWEEN TOPOGRAPHY, METEOROLOGY, AND DISPOSAL OF RADIOACTIVE GASES FROM NORMAL OPERATION IS DISCUSSED. SITE ACCESSIBILITY, TRANSPORTATION FACILITIES, AND PUBLIC ACCEPTANCE ARE ALSO IMPORTANT CONSIDERATIONS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*SITING, REACTOR + *UNITED STATES + DISTANCE + EARTHQUAKE ENGINEERING + ENVIRONMENTAL CONDITION + METEOROLOGY + POPULATION DISTRIBUTION + SEISMOLOGY + THERMAL POLLUTION

2-20008

ALSO IN CATEGORY 12

BECK CK

TRENDS IN REACTOR SAFETY AND SITING CRITERIA - CRITERIA FOR SEISMIC AREAS

U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

SM-89/54 + CONF-670 402 +. 9 PAGES PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

CONSIDERABLE PROGRESS HAS BEEN MADE IN DEVELOPMENT OF SAFETY CRITERIA FOR EVALUATION OF REACTOR DESIGNS, SOME NEW ADVANCES HAVE BEEN MADE IN CODE DEVELOPMENT, AND PRELIMINARY CRITERIA HAVE BEEN DRAFTED FOR LOCATION AND DESIGN OF REACTORS IN SEISMIC AREAS. CRITERIA INVOLVING GENERAL PLANT DESIGN, SAFETY DESIGN, BOILER AND PRESSURE VESSELS, SEISMIC-AREA CONSTRUCTION, AND VARIOUS WORK IN CODES AND STANDARDS IS DISCUSSED.

AVAILABILITY - NUCLEAR AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*EARTHQUAKE + *EARTHQUAKE ENGINEERING + *SITING, REACTOR + *UNITED STATES + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + CODES AND STANDARDS + DESIGN CRITERIA

2-20009

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20009 *CONTINUED*

MORRIS PA

SITE EVALUATION PROCEDURES IN THE U.S.

U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

SM-89/55 + CONF-670 402 +. 19 PAGES, 5 FIGURES, 2 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SUITABILITY OF A SITE IS BASED ON THE CALCULATED DOSE TO INDIVIDUALS AT THE SITE BOUNDARY FOR THE FIRST TWO HOURS AFTER AN ASSUMED ACCIDENT AND THE DOSE AT THE EDGE OF THE LOW-POPULATION ZONE DURING THE COURSE OF THE ACCIDENT. THE INPUT FOR THIS CALCULATION EVOLVES FROM A COMPREHENSIVE REVIEW OF THE CHARACTERISTICS OF THE SITE, THE REACTOR, ITS CONTAINMENT, AND ITS ENGINEERED SAFEGUARDS. SITING FACTORS TO BE CONSIDERED ARE ENUMERATED IN THE COMMISSIONS REACTOR SITE CRITERIA, AND THIS PAPER DISCUSSES THE RELATION OF THESE FACTORS TO THE DESIGN OF THE REACTOR AND ITS ENGINEERED SAFEGUARDS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*SITING, REACTOR + *UNITED STATES + ATMOSPHERIC DIFFUSION + DOSE + ENGINEERED SAFETY FEATURE + ENVIRONMENTAL CONDITION + FISSION PRODUCT RELEASE, GENERAL + INHALATION + METEOROLOGY

2-20010

IANSITI E + SENNIS C

NUCLEAR PLANT SITING FROM THE POINT OF VIEW OF ENGINEERING SAFETY EVALUATION

COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME

SM-89/59 + CONF-670 402 +. 29 PAGES, 7 FIGURES, 22 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

DISCUSSES THE MAIN CHARACTERISTICS OF THE SITE WHICH ARE RELEVANT FOR SELECTION OF THE MOST CONVENIENT LOCATION FOR NUCLEAR POWER PLANTS FROM THE SAFETY POINT OF VIEW. THESE CHARACTERISTICS ARE LOOKED AT FROM THE POINT OF VIEW OF THE REQUIREMENT THAT THE SITE, TAKING INTO ACCOUNT THE SUITABLE PRECAUTIONS WHICH HAVE BEEN INCORPORATED IN THE DESIGN, DO NOT ABNORMALLY INCREASE THE PROBABILITY OF A MAJOR ACCIDENT. IMPORTANT FACTORS TO BE CONSIDERED ARE EARTHQUAKE HAZARDS, FLOODING POSSIBILITY, TORNADOS, TSUNAMIS, AND FOUNDATION STABILITY. OTHER SITE CHARACTERISTICS SUCH AS SOIL-RETENTION PROPERTIES AND HYDROLOGY CAN ALSO BE REVIEWED, BUT ALWAYS WITH REFERENCE TO SPECIFIC PLANT FEATURES.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*ITALY + *SITING, REACTOR + ENVIRONMENTAL CONDITION + HYDROLOGICAL CONSIDERATION, GENERAL + METEOROLOGY + POPULATION DISTRIBUTION + SEISMOLOGY

2-20011

MORGAN EE

CRITERIA APPLIED IN THE RECENT CHOICE OF SITE FOR THE FIRST ARGENTINE NUCLEAR POWER STATION

NATIONAL ATOMIC ENERGY COMMISSION, BUENOS AIRES, ARGENTINA

SM-89/13 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANT, VIENNA, APRIL 3-7, 1967

THE BASIC REQUIREMENTS FOR THE SITE FALL UNDER TWO MAIN HEADINGS - STATION CONSTRUCTION AND STATION OPERATION. THE FIRST HEADING COVERS, IN ADDITION TO PROPER INTEGRATION OF THE STATION INTO THE GRID, THE AVAILABILITY OF COOLING WATER, FAVOURABLE TOPOGRAPHY, SUITABLE FOUNDATIONS, EASY ACCESS, AND ACCEPTABLE HYDROLOGICAL, SOIL, AND METEOROLOGICAL CONDITIONS. THE SECOND HEADING COVERS, APART FROM MEASURES RELATING TO THE PREVENTION OF REACTOR ACCIDENTS AND THE CONTAINMENT OF THE RADIOACTIVITY, SUCH ITEMS AS THE FEATURES OF THE SITE IN RELATION TO CENTERS OF POPULATION, ASSUMING THAT THE SAFETY MEASURES CANNOT ENTIRELY PREVENT AN ESCAPE OF FISSION PRODUCTS.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*ARGENTINA + *SITING, REACTOR + ECONOMICS + ENVIRONMENTAL CONDITION + POPULATION DISTRIBUTION

2-20012

SUCAR FS

SELECTION AND ASSESSMENT OF POSSIBLE SITES FOR A NUCLEAR POWER STATION TO PROVIDE ELECTRICITY FOR THE MEXICAN GRID

NATIONAL NUCLEAR ENERGY COMMISSION, MEXICO CITY

SM-89/2 + CONF-670 402 +. 2 PAGES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

MEXICO HAS A NEED TO DEVELOP NUCLEAR POWER SOURCES TO MEET ITS POWER DEMANDS. THE SELECTION OF A SITE IS COMPLICATED BY THE FACT THAT MOST POWER IS USED IN AND AROUND MEXICO CITY, AND MOST SUITABLE SITES HAVE BEEN DEVELOPED INTO MUCH-NEEDED IRRIGATED FARMS. A SITE IS DISCUSSED WHICH IS NEAR THIS AREA.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*MEXICO + *SITING, REACTOR + ECONOMICS + ENVIRONMENTAL CONDITION

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20014

AHMED JU + KARIM F

CRITERIA FOR REACTOR SITE SELECTION IN EAST PAKISTAN
ATOMIC ENERGY CENTRE, DACCA, PAKISTAN

SM-89/45 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT
AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

DISCUSSES THE PROBLEMS OF SITE SELECTION FOR POWER REACTORS IN EAST PAKISTAN. THE POINTS UNDER CONSIDERATION ARE - (1) HIGH DENSITY OF POPULATION IN EAST PAKISTAN, ABOUT 1000 PER SQUARE MILE, WHICH MAKES THE SELECTION OF THE EXCLUSION DISTANCE AND THE LOW-POPULATION ZONE QUITE DIFFICULT. (2) FLAT TERRAIN. (3) HEAVY RAINFALL DURING THE MONSOON, WHICH CAUSES FLOODS INUNDATING LARGE AREAS OF THE COUNTRY. (4) LARGE NUMBER OF RIVERS - THE AREA COVERED BY RIVERS CONSTITUTES ABOUT 6% OF THE AREA OF EAST PAKISTAN. RIVER WATER IS USED FOR DRINKING, BATHING, ETC., BY RURAL PEOPLE. (5) CYCLONES WHICH SWEEP OVER THE COASTAL DISTRICTS SEVERAL TIMES A YEAR. (6) WATER TABLE THAT VARIES FROM 0 TO 40 FEET, DEPENDING ON THE LOCATION.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*PAKISTAN + *SITING, REACTOR + ENVIRONMENTAL CONDITION + METEOROLOGY + POPULATION DISTRIBUTION

2-20015

ALSO IN CATEGORY 11

SHERSHLEV ST

CONTAINMENT INTEGRITY AND THE SITING OF NUCLEAR PLANTS

SM-89/49 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT
AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SOME GENERAL PRINCIPLES FOR USE IN SELECTING APPROPRIATE DESIGNS FOR SECONDARY CONTAINMENT IN RELATION TO THE LOCATION OF THE REACTOR AND THE BASIC CORRELATION BETWEEN THE PARAMETERS DETERMINING CONTAINMENT INTEGRITY AND THE RELATIVE REMOTENESS (TERRITORIAL LOCATION) OF THE NUCLEAR PLANT ARE GIVEN. A DISCUSSION OF SAFETY PROBLEMS IN VIEW OF ACCEPTED HAZARDS FROM GENERAL INDUSTRY IS GIVEN. GENERAL RELATIONSHIPS ARE PRESENTED WHICH ESTIMATE THE INTEGRITY AND EFFECTIVENESS OF SECONDARY CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*CONTAINMENT, GENERAL + *SITING, REACTOR + *UNION OF SOVIET SOCIALIST REPUBLICS + ENVIRONMENTAL CONDITION + INTEGRITY + MATHEMATICAL TREATMENT

2-20017

RASZL K + FEKETE L

SELECTION OF A SITE FOR A POWER STATION WITH A WATER-MODERATED WATER-COOLED REACTOR IN HUNGARY

SM-89/61 + CONF-670-402 +. 4 PAGES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT
AND SITING OF THE NUCLEAR POWER PLANTS, APRIL 3-7, 1967, VIENNA

NEEDS FOR A NUCLEAR STATION IN HUNGARY ARE ANALYZED AND THE ECONOMICS OF ALTERNATE SYSTEMS STUDIED. INDUSTRIAL DEVELOPMENT, SOCIAL CONDITIONS, AND SITING REQUIREMENTS WERE STUDIED. METEOROLOGY, GEOLOGY, AND HEALTH-PHYSICS ASPECTS ARE DISCUSSED

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*HUNGARY + *REACTOR, WATER + *SITING, REACTOR + ECONOMICS + GEOLOGICAL CONSIDERATION, GENERAL + METEOROLOGY + POPULATION DISTRIBUTION + THERMAL POLLUTION

2-20593

BAZANT Z

STABILITY OF SATURATED SAND DURING EARTHQUAKE

FOUNDATION ENGINEERING TECHNICAL UNIVERSITY, PRAGUE, CZECHOSLOVAKIA

16 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. I, PAGES 6-21, AUCKLAND
AND WELLINGTON, NEW ZEALAND, JANUARY 22-FEBRUARY 1, 1965

THERE ARE MANY EXAMPLES OF LIQUEFACTION AND OF GREAT SUBSIDENCE IN EARTHQUAKE AREAS UNDERLAIN BY SATURATED SAND. THEREFORE IT IS OF INTEREST TO KNOW HOW THE STABILITY OF SAND IS AFFECTED BY THE EARTHQUAKE. THIS CASE IS STUDIED AS THE STATE OF STRESS IN DYNAMICALLY EXCITED SOIL BY THE USE OF MOHR'S DIAGRAM. THE ACCELERATION OF AN EARTHQUAKE CREATES EITHER DYNAMIC STABILITY OF SAND, COMPACTION, OR LIQUEFACTION. AS CRITERIA DIFFERENTIATING THESE STATES ARE SERVING THE CRITICAL ACCELERATION AND THE LIQUEFACTIONAL ACCELERATION, WHICH UPON THE RESULT OF DIMENSIONAL ANALYSIS ARE THE FUNCTION OF FIVE VARIABLES GIVEN BY EQ. (15). FROM THIS EQUATION IT IS POSSIBLE TO PREDICT THE BEHAVIOUR OF SATURATED SAND DURING EARTHQUAKE FOR A GIVEN DRY DENSITY, HEIGHT, AND VOLUME OF SAND LAYER. EQUATION (15) IS TO BE SOLVED EXPERIMENTALLY.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20593 *CONTINUED*

*SOIL MECHANICS + COMPACTION + EARTH MATERIAL, DYNAMIC PROPERTY + EARTHQUAKE, GENERAL + LIQUEFACTION + SUBSIDENCE

2-20594

FLEMING JF + SCREWALA FN + KONDNER RL

FOUNDATION SUPERSTRUCTURE INTERACTION UNDER EARTHQUAKE MOTION

NORTHWESTERN UNIVERSITY, EVANSTON, ILLINOIS

9 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. 1, PAGES 22-30, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

A METHOD OF ANALYSIS IS PRESENTED FOR DETERMINING THE DYNAMIC RESPONSE OF STRUCTURES UNDER EARTHQUAKE MOTION, TAKING INTO ACCOUNT THE FLEXIBILITY OF THE FOUNDATION. THE STRUCTURE IS REPLACED BY A LUMPED-MASS MATHEMATICAL MODEL WHICH IS ATTACHED TO THE MOVING ROCK LAYER BY A FLEXIBLE MEMBER HAVING THE SAME FORCE-DISPLACEMENT RELATIONSHIP AS THE FOUNDATION. SEVERAL EXAMPLE PROBLEMS ARE DISCUSSED WHICH SHOW THE EFFECT OF THE SOIL STIFFNESS UPON THE RESPONSE OF THE STRUCTURE.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*INTERACTION, SOIL AND STRUCTURE + ACCELERATION + EARTHQUAKE, GENERAL + MATHEMATICAL STUDY + SOIL MECHANICS

2-20595

HERRERA I + ROSENBLUETH E + RASCON OA

EARTHQUAKE SPECTRUM PREDICTION FOR THE VALLEY OF MEXICO

NATIONAL UNIVERSITY OF MEXICO

14 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. 1, PAGES 61-74, AUCKLAND AND WELLINGTON, NEW ZEALAND

REPORTS FIELD AND LABORATORY TESTS TO DETERMINE THE DYNAMIC PROPERTIES OF MEXICO CITY CLAY. THE DATA ARE USED IN CONJUNCTION WITH A LINEAR ONE-DIMENSIONAL THEORY OF MULTIPLE WAVE REFLECTION IN STRATIFIED MEDIA, AND THE RESULTS ARE TREATED IN ACCORDANCE WITH AN APPROXIMATE THEORY, WHICH PERMITS COMPUTING THE PROBABILITY DISTRIBUTIONS OF SPECTRAL RESPONSES FOR VARIOUS DEGREES OF DAMPING. EXPECTED SPECTRA ARE COMPARED WITH THOSE OBTAINED FROM EARTHQUAKE RECORDS. MISSING INFORMATION FOR DEEP STRATA IS FOUND BY TRIAL AND ERROR, AND VELOCITIES MEASURED FOR THE UPPER LAYERS ARE ADJUSTED ON REASONABLE BASES. THE COMPARISON IS DEEMED GOOD.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*EARTH MATERIAL, DYNAMIC PROPERTY + DAMPING + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + RESPONSE SPECTRUM + SOIL MECHANICS

2-20596

KONDNER RL

CHARACTERISTIC PERIODS OF COHESIVE SOIL-FOUNDATION SYSTEMS

NORTHWESTERN UNIVERSITY, EVANSTON, ILLINOIS

7 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. 1, PAGES 75-82, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

CHARACTERISTIC PERIODS ASSOCIATED WITH BOTH RESONANT AND ZERO-FORCE-LEVEL PHENOMENA AND IMPORTANT IN THE DESIGN OF SOIL-STRUCTURE SYSTEMS UNDER TRANSIENT LOADINGS ARE PRESENTED FOR PROTOTYPE CIRCULAR FOOTINGS SUPPORTED ON A COHESIVE SOIL. INTERRELATED EFFECTS OF FOOTING DIAMETERS RANGING FROM 5 FT-2 IN. TO 10 FT-4 IN., TOTAL WEIGHTS FROM 6.41 TONS TO 25.64 TONS, STATIC PRESSURE LEVELS FROM 2.56 PSI TO 10.25 PSI, AND LEVEL OF DYNAMIC LOADING ARE CONSIDERED. PERIODS VARY AS A POWER OF THE TOTAL WEIGHT AND INVERSELY AS A POWER OF THE CONTACT FOOTING AREA. DYNAMIC-FORCE-LEVEL EFFECTS INDICATE A NONLINEAR (UNDERLINEAR) NATURE FOR THE COHESIVE SOIL-FOUNDATION SYSTEMS CONSIDERED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

EARTH MATERIAL, DYNAMIC PROPERTY + EARTHQUAKE, GENERAL + FOUNDATION ENGINEERING + INTERACTION, SOIL AND STRUCTURE + SOIL MECHANICS

2-20597

CLARK RH + DIBBLE RR

TECTONIC AND EARTHQUAKE RISK ZONING IN NEW ZEALAND

18 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. 1, PAGES 107-124, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

QUATERNARY TECTONIC DEFORMATION IN NEW ZEALAND SHOWS A NORTHEAST TREND, AND THIS IS ALSO SHOWN BY HISTORIC DEFORMATION AND EARTHQUAKES. A STUDY OF QUATERNARY DEFORMATION SHOWS THAT ZONES OF RELATIVE FREQUENCY OF TECTONIC MOVEMENT CAN BE INFERRED AND RELATED TO A COMMON MEDIAN AXIS. WHERE TECTONIC ACTIVITY IS MOST FREQUENT, DESTRUCTIVE EARTHQUAKES ARE EXPECTED TO BE MOST FREQUENT. CONVERSELY, WHERE TECTONIC ACTIVITY IS LEAST FREQUENT, DESTRUCTIVE EARTHQUAKES ARE EXPECTED TO BE LEAST FREQUENT. WITH THIS AS A BASIS, TOGETHER WITH A KNOWLEDGE OF THE DISTANCES TO WHICH DESTRUCTIVE EFFECTS EXTEND FROM EARTHQUAKES OF PARTICULAR MAGNITUDES, ZONES OF EARTHQUAKE RISK ARE SUGGESTED. THESE ARE ZONES OF RELATIVE FREQUENCY OF

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20597 *CONTINUED*

DESTRUCTION FROM EARTHQUAKES, NOT OF ABSOLUTE LIABILITY TO DESTRUCTION. THE BOUNDARIES ARE NECESSARILY SOMEWHAT ARBITRARY AS EACH GRADES INTO THE NEXT.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*EARTHQUAKE PREDICTION + EARTHQUAKE EPICENTER + EARTHQUAKE, GENERAL + SEISMIC ZONE + TECTONICS

2-20598

SCOTT RF

SOIL MECHANICS AND FOUNDATION ENGINEERING ASPECTS OF THE ALASKAN EARTHQUAKE OF MARCH 27, 1964. CALIFORNIA INSTITUTE OF TECHNOLOGY

16 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. I, PAGES 157-172, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

REPORT BEGINS BY BRIEFLY SUMMARIZING THE GEOLOGY AND SOIL PROFILES OF THE ANCHORAGE AREA. THE MOST IMPORTANT EFFECTS OF THE EARTHQUAKE WITH RESPECT TO SOIL ENGINEERING ARE THEN QUALITATIVELY DESCRIBED AND ILLUSTRATED, AND A BRIEF DISCUSSION OF THE STABILITY OF SLOPES IN THE REGION OF INTEREST IS PRESENTED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

EARTH MATERIAL, DYNAMIC PROPERTY + EARTHQUAKE, GENERAL + FOUNDATION ENGINEERING + LANDSLIDE + LIQUEFACTION + SOIL MECHANICS

2-20599

DUFLOU PC + SKINNER RI

NEW STRONG-MOTION ACCELEROGRAPHS

NEW ZEALAND, DEPT. OF SCIENTIFIC AND INDUSTRIAL RESEARCH

8 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III, PAGES 54-61, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

DESCRIBES TWO NEW ACCELEROGRAPHS. THE FIRST IS A THREE-COMPONENT INSTRUMENT WHICH GIVES A GOOD PERFORMANCE WITH RELIABILITY AT A LOW COST. IT ACHIEVES THIS BY USING A SIMPLE APPROACH WITH SOME NOVEL FEATURES. THE SECOND ACCELEROGRAPH IS A VERY SIMPLE INSTRUMENT WHICH TRACES THE END-POINT OF THE HORIZONTAL ACCELERATION VECTOR. THIS HAS BEEN CONSTRUCTED AT A VERY LOW COST.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*INSTRUMENTATION, EARTHQUAKE + ACCELERATION + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL

2-20600

EIBY GA

THE ASSESSMENT OF EARTHQUAKE FELT INTENSITIES

13 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VO. III, PAGES 62-74, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

THE DEFINITION OF FELT INTENSITY HAS BEEN GREATLY INFLUENCED BY THE PROBLEM OF MAKING ASSESSMENTS UNDER EXTREMELY VARIED FIELD CONDITIONS. DIFFICULTIES IN DEVISING AND APPLYING A SATISFACTORY INTENSITY SCALE, AND THE LIMITATIONS OF SOME SCALES IN COMMON USE ARE DISCUSSED. INTENSITIES CANNOT BE CLOSELY CORRELATED WITH GROUND ACCELERATIONS, BUT THEY CAN BE ASSESSED WITH A HIGH DEGREE OF MUTUAL CONSISTENCY. INSTRUMENTAL MEASUREMENTS OF ACCELERATION ARE SCARCE, AND LIKELY TO REMAIN SO. WHEN TREATED STATISTICALLY OR PRESENTED IN THE FORM OF ISOSEISMAL MAPS, ESTIMATES OF INTENSITY CAN BE USED FOR THE INVESTIGATION OF DIFFERENCES IN FOUNDATION CONDITIONS, CHARACTERISTIC AND ANOMALOUS PROPAGATION OF EARTHQUAKE MOTION, AND SIMILAR PROBLEMS OF SEISMOLOGICAL AND ENGINEERING IMPORTANCE.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*EARTHQUAKE ENGINEERING + DAMAGE + EARTHQUAKE, GENERAL + ENERGY LEVEL + STRUCTURAL INTEGRITY

2-20601

HALVERSON HT

THE STRONG MOTION ACCELEROGRAPH

UNITED ELECTRODYNAMICS, INC., PASADENA, CALIF.

18 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III, PAGES 75-93, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1965

THE INCREASING EMPHASIS BY ENGINEERING SEISMOLOGISTS AND EARTHQUAKE ENGINEERS ON THE ACQUISITION OF TRUE GROUND-ACCELERATION DATA HAS STIMULATED THE DEVELOPMENT OF SEVERAL NEW STRONG-MOTION ACCELEROGRAPHS. THIS IS OF INTEREST TO THE SEISMOLOGIST CONCERNED WITH CONTINUOUS DATA ACQUISITION BEYOND THE RANGE OF THE STANDARD SEISMIC INSTRUMENTS, AND OF INTEREST TO THE STRUCTURAL OR EARTHQUAKE ENGINEER REQUIRING ACCELERATION DATA TO CALCULATE OR EVALUATE STRUCTURAL RESPONSE TO STRONG LOCAL SEISMIC SHOCKS. A SUMMARIZATION OF THE CHARACTERISTICS OF THE SIGNIFICANT STRONG-MOTION ACCELEROGRAPHS OF THE VARIOUS COUNTRIES IS PRESENTED, TOGETHER WITH AVAILABLE INFORMATION ON WORLD-WIDE STRONG-MOTION ACCELEROGRAPH INSTALLATIONS, AND TYPICAL STRONG-MOTION ACCELEROGRAPH RECORDS.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20601 *CONTINUED*
AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*INSTRUMENTATION, EARTHQUAKE + ACCELERATION + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + VIBRATION

2-20602
JENSCHKE VA + CLOUGH RW + PENZIEN J
CHARACTERISTICS OF STRONG GROUND MOTIONS
COLUMBIA UNIVERSITY, NEW YORK + UNIVERSITY OF CALIFORNIA, BERKELEY
18 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III, PAGES 125-142,
AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

THREE METHODS, NAMELY PROBABILISTIC, FOURIER SPECTRA, AND RESPONSE SPECTRA WERE USED TO INVESTIGATE CHARACTERISTICS OF STRONG GROUND MOTIONS LIKE EARTHQUAKES AND UNDERGROUND NUCLEAR EXPLOSIONS. A DESCRIPTION IS GIVEN OF THE RESULTS OBTAINED, WITH SPECIAL EMPHASIS ON THE RESPONSE-SPECTRA METHOD. THE INTRINSIC RELATIONS AND PROPERTIES OF FIVE DIFFERENT RESPONSE SPECTRA ARE STUDIED. A PEAK SPECTRAL FREQUENCY IS DEFINED, ALLOWING ONE TO CLASSIFY EVENTS AS HAVING ACCELERATION SPECTRA OF LOW, MEDIUM, OR HIGH PEAK-SPECTRAL-FREQUENCY TYPE. APART FROM THE EFFECT OF OTHER GEOPHYSICAL PARAMETERS, A CORRELATION IS SHOWN TO EXIST BETWEEN PEAK SPECTRAL FREQUENCY AND EPICENTRAL DISTANCE.

AVAILABILITY - R. E. OWENS, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*VIBRATION ANALYSIS + ACCELERATION + EARTHQUAKE, GENERAL + GROUND MOTION + MATHEMATICAL TREATMENT + RESPONSE SPECTRUM

2-20603
LACER DA
A SIMULATION OF EARTHQUAKE AMPLIFICATION SPECTRA FOR SOUTHERN CALIFORNIA SITES
AEROSPACE CORPORATION
17 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III, PAGES 151-167,
AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

A MATHEMATICAL MODEL IS DEVELOPED FOR ESTIMATING THE MAXIMUM GROUND MOTION TO BE EXPECTED AT A GIVEN SITE IN A GIVEN TIME PERIOD. MORE THAN 2,000 SIMULATED EARTHQUAKES ARE GENERATED USING MONTE CARLO AND OTHER STATISTICAL TECHNIQUES. A DIGITAL COMPUTER PROGRAM IS USED TO CALCULATE THE MAXIMUM VELOCITY SPECTRA AT SEVERAL SOUTHERN CALIFORNIA SITES DUE TO THE SIMULATED EARTHQUAKES. IT IS CONCLUDED THAT THE SIMULATED EARTHQUAKE APPROACH IS A REASONABLE ANALYTIC METHOD THAT CAN BE REFINED TO YIELD RESULTS WHICH WILL BE OF IMPORTANCE IN EARTHQUAKE-RESISTANT STRUCTURAL DESIGN.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*EARTHQUAKE PREDICTION + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + GROUND MOTION + RESPONSE SPECTRUM + SEISMIC ZONE

2-20604
HOUSNER GW
INTENSITY OF EARTHQUAKE GROUND SHAKING NEAR THE CAUSATIVE FAULT
CALIFORNIA INSTITUTE OF TECHNOLOGY
2 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III, PAGES 94-115,
AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

DATA AND ANALYSES INDICATE AN UPPER BOUND FOR INTENSITY OF GROUND SHAKING THAT IS ABOUT 50% GREATER THAN AT EL CENTRO DURING THE EARTHQUAKE OF MAY 18, 1940. UPPER BOUNDS OF 50% G FOR MAXIMUM GROUND ACCELERATION AND 45 SEC FOR DURATION FOR STRONG SHAKING ARE INDICATED. THE INTENSITY IMMEDIATELY ADJACENT TO A FAULT IS NOT ESPECIALLY SEVERE BUT IS, IN GENERAL, SOMEWHAT LESS THAN AT A DISTANCE OF SEVERAL MILES. THE MAXIMUM INTENSITY OF SHAKING ASSOCIATED WITH A MAGNITUDE-8.5 EARTHQUAKE IS LESS AND THAT ASSOCIATED WITH A MAGNITUDE-5 EARTHQUAKE IS GREATER THAN HAS BEEN COMMONLY SUPPOSED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*FAULT + ACCELERATION + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + ENERGY LEVEL + RESPONSE SPECTRUM + VIBRATION

2-20605
ROTHE JP
SEISMICITY MAPS OF FRANCE
UNIVERSITY OF STRASBOURG
11 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. III PAGES 205-216,
AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

USING A CATALOGUE COLLECTING NUMEROUS HISTORICAL DATA, THE OLDEST OF WHICH DATE BACK TO THE YEAR 1021, A SET OF SEISMIC MAPS WAS DRAWN (A MAP OF MAXIMUM FELT INTENSITY (1021-1964), AN EPICENTRE MAP (1861-1960), A MAP OF PROBABLE MAXIMUM INTENSITY, AND A SEISMIC ZONING MAP). DISTRICTS ARE LISTED IN WHICH AN OFFICIAL CODE AND REGULATIONS FOR EARTHQUAKE-RESISTANT DESIGN AND BUILDING CONSTRUCTION SHOULD BE ENFORCED. A SEISMOTECTONIC MAP SHOWS THE MAIN

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20605 *CONTINUED*

SEISMIC AREAS OF FRANCE (NORTH-PYRENEAN FRONT, BRIANCON SEISMIC ARC, PYRENEO-PROVENCIAL FOLD, AND RHINE GRABEN).

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*SEISMIC ZONE + EARTHQUAKE EPICENTER + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FRANCE + GROUND MOTION + TECTONICS

2-20606

TAJIMI H + OHMURA M + UCHIDA T + AKINO K

OBSERVED VIBRATIONS OF A NUCLEAR REACTOR BUILDING DURING SOME WEAK EARTHQUAKES

NIHON UNIVERSITY + JAPAN ATOMIC ENERGY RESEARCH INSTITUTE + JAPAN ATOMIC POWER CO. LTD.

12 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING II, PAGES 619-630, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

A SEISMIC OBSERVATION SYSTEM OF THE CONTAINER BUILDING OF THE JAPAN POWER DEMONSTRATION REACTOR WAS RECENTLY PUT IN OPERATION. THIS PAPER PRESENTS SOME OF THE MEASUREMENT DATA AND THE RESULTS OF ANALYSIS. AS A RESULT, AN OUTLINE OF VIBRATIONAL PROPERTIES OF THIS BUILDING IS DERIVED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*VIBRATION ANALYSIS + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + GROUND MOTION

2-20607

VELETOS AS + NEWMARK NM + CHELAPATI CV

DEFORMATION SPECTRA FOR ELASTIC AND ELASTOPLASTIC SYSTEMS SUBJECTED TO GROUND SHOCK AND EARTHQUAKE MOTIONS

UNIVERSITY OF ILLINOIS + LOS ANGELES STATE COLLEGE

32 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING II, PAGES 663-694, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

BRIEFLY DISCUSSES THE MAXIMUM DEFORMATION EXPERIENCED BY SINGLE-DEGREE-OF-FREEDOM SYSTEMS SUBJECTED TO GROUND MOTIONS OF VARIOUS FORMS. THE MOTIONS CONSIDERED INCLUDE SEVERAL SIMPLE, PULSE-LIKE EXCITATIONS AND A COMPLEX INPUT CORRESPONDING TO A STRONG-MOTION EARTHQUAKE RECORD. FOR EACH CLASS OF INPUT, SIMPLE APPROXIMATE RULES ARE PRESENTED FOR THE CONSTRUCTION OF DEFORMATION SPECTRA FOR UNDAMPED AND LIGHTLY DAMPED SYSTEMS FROM CONSIDERATION OF THE GROSS CHARACTERISTICS OF THE DISPLACEMENT, VELOCITY AND ACCELERATION DIAGRAMS OF THE GROUND MOTION. BOTH ELASTIC AND ELASTOPLASTIC SYSTEMS ARE INVESTIGATED, AND THE SPECTRA FOR THE INELASTIC SYSTEMS ARE RELATED TO THOSE APPLICABLE TO ELASTIC SYSTEMS. THERE IS SHOWN TO EXIST A SIMPLE AND DIRECT RELATIONSHIP BETWEEN THE RESPONSE OF SYSTEMS TO EARTHQUAKES AND TO THE SIMPLER INPUTS.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*RESPONSE SPECTRUM + ACCELERATION + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + INELASTIC BEHAVIOR

2-20608

MAZAROV AG

THEORETICAL FOUNDATION OF INVESTIGATION OF EARTHQUAKE RESISTANCE OF STRUCTURES ON MODELS

ACADEMY OF SCIENCES OF ARMENIAN SSR

13 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING VOL. II, PGS. 812-824, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

PRESENTS THE RESULTS OF THE THEORY OF ENLARGED SIMILARITY OF SOLID DEFORMABLE BODIES APPLICABLE TO THE MODELLING OF STRUCTURES INVESTIGATED ON SEISMIC INFLUENCES. IT IS PROVED THAT WHEN A MODELLING MATERIAL IS USED, THAT MODELS THE MECHANICAL PROPERTIES OF THE ORIGINAL FAIRLY ACCURATELY, QUITE A RELIABLE MODELLING IS EXPECTED WHEN DEALING WITH PROBLEMS OF ENGINEERING SEISMOLOGY AND THE EARTHQUAKE RESISTANCE OF STRUCTURES, INCLUDING THE STAGE OF CRACK FORMATION AND FAILURE. IT IS ESPECIALLY CONVENIENT TO CARRY OUT THE EXPERIMENTATION WHEN THERE IS EQUALITY OF ACCELERATIONS IN THE ORIGINAL AND IN THE MODEL SINCE IN THIS CASE THERE ARISES NO MORE NEED OF SPECIAL CHARGING OR EXPERIMENTING IN AN ARTIFICIAL FIELD OF GRAVITY.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

*MODEL TESTING + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + MATHEMATICAL TREATMENT + MODEL, EARTHQUAKE RESISTANCE + VIBRATION ANALYSIS

2-20609

BUSTAMANTE JI

SEISMIC SHEARS AND OVERTURNING MOMENTS IN BUILDINGS

INSTITUTE OF ENGINEERING, NATIONAL UNIVERSITY OF MEXICO

27 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING IV, PAGES 144-160, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY, 1965

SEISMIC SHEARS AND OVERTURNING MOMENTS RESULTING FROM THE ANALYSIS PROPOSED IN THE CODE OF THE STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA ARE COMPARED WITH THEIR DYNAMIC COUNTERPARTS

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20609 *CONTINUED*

AS OBTAINED BY MODAL ANALYSIS OF ELASTIC SHEAR BUILDINGS. THE SAME RESPONSE SPECTRUM IS USED AS THE ONE WHICH SERVED TO ESTABLISH THE CRITERION FOR OVERTURNING MOMENT IN THAT CODE. ACTUAL AND IMAGINARY BUILDINGS ARE STUDIED. THE CASES IN WHICH THE CODE IS EITHER NOT CONSERVATIVE OR OVERCONSERVATIVE ARE DISCUSSED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

CODES AND STANDARDS + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + ELASTICITY + RESPONSE SPECTRUM + VIBRATION ANALYSIS

2-20610

BLUME JA

EARTHQUAKE GROUND MOTION AND ENGINEERING PROCEDURES FOR IMPORTANT INSTALLATIONS NEAR ACTIVE FAULTS
JOHN A. BLUME AND ASSOCIATES, SAN FRANCISCO, CALIF.

29 PAGES, PROCEEDINGS OF THE THIRD WORLD CONFERENCE ON EARTHQUAKE ENGINEERING IV, PAGES 53-71, AUCKLAND AND WELLINGTON, NEW ZEALAND, JANUARY 22--FEBRUARY 1, 1965

COSTLY OR SENSITIVE BUILDINGS, STRUCTURES, AND FACILITIES ARE BEING BUILT IN ACTIVE EARTHQUAKE AREAS THROUGHOUT THE WORLD. BUILDING CODES AND NORMAL DESIGN PRACTICES ARE NOT ALWAYS COMPATIBLE WITH THE INHERENT RISKS. THIS PAPER OUTLINES PROCEDURES FOR SITE STUDIES AND SITE SELECTION, EVALUATION OF SEISMIC PROBABILITY AND RISK, A NEW APPROACH TO GROUND MOTION BASED UPON SOIL AND ROCK PROPERTIES, RESPONSE SPECTRA, INELASTIC DESIGN CRITERIA, AND RELATED MATTERS, IN THE LIGHT OF CURRENT (LIMITED) KNOWLEDGE. HYPOTHETICAL EXAMPLES ARE BASED UPON EXPERIENCE WITH NUCLEAR POWER PLANTS AND MAJOR RESEARCH FACILITIES CLOSE TO ACTIVE FAULTS. ANALYTICAL, EMPIRICAL, PHILOSOPHICAL, AND PRACTICAL CONSIDERATIONS ARE RECONCILED.

AVAILABILITY - R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND

EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + FAULT + GROUND MOTION + RESPONSE SPECTRUM + SITING, GENERAL + SOIL PROPERTY, IN SITU

2-20660

JACKSON MW

THRESHOLDS OF DAMAGE DUE TO GROUND MOTION

HOLMES AND NARVER, INC., LOS ANGELES, CALIF.

HN-20-1021 + CONF-670804-4 +. 17 PAGES, JULY 1967, PRESENTED AT SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS, ALBUQUERQUE, N. MEX.

SUMMARIZES THRESHOLDS OF DAMAGE DUE TO GROUND MOTION. VALUES BASED ON PEAK PARTICLE ACCELERATION, VELOCITY, DISPLACEMENT, PERIOD, AND DURATION WERE COMPARED IN RELATION TO EXPERIENCE FROM QUARRY BLASTING, NUCLEAR DETONATIONS, AND EARTHQUAKES. TRIGGERING ACTION, AS AN EXPLANATION OF DAMAGE, AND STATISTICAL EVALUATION OF DAMAGE INVOLVING A LARGE NUMBER OF STRUCTURES, ARE CONSIDERED. THE USE OF BUILDING CODES TO ESTABLISH A DAMAGE THRESHOLD WAS CONSIDERED NOT VALID. DAMAGE THRESHOLDS BASED ON STRUCTURAL RESPONSE SPECTRA MAY OFFER POTENTIAL PROMISE, BUT SUFFICIENT DATA HAS NOT BEEN DEVELOPED FOR MEANINGFUL VALUES. THE SOURCE OF POTENTIALLY VALUABLE FUTURE INFORMATION FROM THE LOS ANGELES AREA IS INDICATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EARTHQUAKE ENGINEERING + ACCELERATION + DAMAGE + EARTHQUAKE, GENERAL + RESPONSE SPECTRUM

2-20662

WALL JF

SEISMIC-INDUCED ARCHITECTURAL DAMAGE TO MASONRY STRUCTURES, AT MERCURY, NEVADA

19 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(5), PAGE 991-1009, (OCTOBER 1967)

FORTY-THREE MASONRY STRUCTURES IN MERCURY, NEVADA, WERE INSPECTED FOR CRACKING BEFORE AND AFTER NUCLEAR DETONATIONS AT THE NEVADA TEST SITE, AT DISTANCES OF 33 TO 78 KM FROM MERCURY. THE SAME BUILDINGS WERE INSPECTED DURING PERIODS OF NO SIGNIFICANT NUCLEAR ACTIVITY. FINDINGS INCLUDE EVIDENCE THAT PEAK-PARTICLE VELOCITIES OF 0.1 TO 0.3 CM/SEC CAUSED, ON THE AVERAGE, 24 CRACKS IN THE 43 BUILDINGS, COMPARED WITH ABOUT 2.5 CRACKS DURING A SIMILAR TIME SPAN OF NO NUCLEAR ACTIVITY. CRACKS AT THESE LOW LEVELS OF MOTION ARE NOT MORE SEVERE THAN THOSE OCCURRING NATURALLY.

*EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + NEVADA TEST SITE + STRUCTURAL INTEGRITY + WAVE, STRESS

2-20663

EISLER JD

INVESTIGATION OF A METHOD FOR DETERMINING STRESS ACCUMULATION AT DEPTH

21 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(5), PAGE 891-911, (OCTOBER 1967)

MEASUREMENT OF STRESS ACCUMULATION AT DEPTH COULD SERVE AS THE BASIS FOR PREDICTING EARTHQUAKES. BASED ON LABORATORY MEASUREMENTS OF ROCK SAMPLES, STRESS ACCUMULATION IN THE EARTH CAN BE ESTIMATED FROM CHANGES IN THE COMPRESSIONAL VELOCITY OF SEISMIC WAVES TRAVERSING THE STRESSED REGION, PROVIDED THAT TRAVEL TIMES CAN BE DETERMINED WITH PRECISION. AN INITIAL FIELD EXPERIMENT PERFORMED IN THE GABILAN RANGE NEAR SALINAS, CALIFORNIA, USING 100-KILOGRAM

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-20663 *CONTINUED*

CHARGES, DEMONSTRATED THAT SEISMIC ENERGY COULD BE RELIABLY DETECTED UP TO 42 KILOMETERS AWAY, THAT THE CHARACTER OF THE RECORDED SIGNAL WAS CLOSELY REPEATABLE FOR SUCCESSIVE SHOTS, AND THAT THE PRECISION OF TIMING WAS BETTER THAN PLUS OR MINUS 1 MILLISEC.

EARTH MATERIAL, DYNAMIC PROPERTY + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + INSTRUMENTATION, EARTHQUAKE + ROCK MECHANICS

2-20802 ALSO IN CATEGORY 18

RANCHO SECO NUCLEAR GENERATING STATION UNIT 1 - PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME IV
SACRAMENTO MUNICIPAL UTILITY DISTRICT
150 PAGES, FIGURES, TABLES, REFERENCES, RANCHO SECO NUCLEAR GENERATING STATION UNIT 1, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME IV, NOVEMBER 1967, DOCKET 50-312

APPENDIX 2 - ON-SITE, 6-WEEK METEOROLOGICAL INVESTIGATION, POPULATION DATA, GEOLOGY AND SEISMOLOGY, SOIL REPORT. APPENDIX 5 - CONTAINMENT-DESIGN INFORMATION. SEISMIC REPORT BY RYERLY CONCLUDES NO REASON TO FEAR THE BREAKING OF A FAULT IN THE SITE AREA. SHOCKS WILL COME FROM SAN ANDREAS, 100 MILES WEST. SURFACE DESIGN ACCELERATION (0.1 G FOR CLASS 1, 0.2 G FOR SAFE SHUTDOWN) IS MOST CONSERVATIVE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CONTAINMENT CONSTRUCTION + CONTAINMENT DESIGN + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + METEOROLOGY + MONITORING PROGRAM, ENVIRONMENTAL + RANCHO SECO (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

2-20847 ALSO IN CATEGORY 18

SUPPLEMENT 9 TO FORT CALHOUN FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
OMAHA PUBLIC POWER DISTRICT
7 PAGES, 9 REFERENCES, AMENDMENT 9 TO THE LICENSE APPLICATION (SUPPLEMENT 9 TO THE FORT CALHOUN UNIT 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT) NOVEMBER 9, 1967 (EXHIBIT F9 TO DOCKET 50-285)

DESCRIBES THE STRUCTURAL GEOLOGY OF THE SITE, WITH SPECIAL EMPHASIS ON THE LACK OF ANY KIND OF FAULTING IN THE IMMEDIATE VICINITY. THEIR CONSERVATIVE INTERPRETATION OF THE AVAILABLE GEOLOGICAL INFORMATION INDICATES THAT ANY STRUCTURE CONNECTED WITH THE NEMAHU UPLIFT TRENDS TO THE NORTHEAST FROM JUST SOUTH OF OMAHA, NEBRASKA, AND DOES NOT CONTINUE CLOSER TO THE SITE. STRUCTURES TO THE NORTH ARE REASONABLY WELL DEFINED AND DO NOT EXTEND INTO THE SITE AREA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

FAULT + FT. CALHOUN + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TECTONICS

2-21653 ALSO IN CATEGORY 18

INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT. VOLUME I
CONSOLIDATED EDISON COMPANY OF NEW YORK
194 PAGES, TABLES, FIGURES, INDIAN POINT 3, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME I (EXHIBIT B, VOLUME 1) APRIL 1967. DOCKET 50-286

VOLUME 1 (OF 3) COVERS SITE AND ENVIRONMENT. UNIT 3 WILL BE SOUTH OF UNIT 1. UNIT 2 IS BEING BUILT NORTH OF UNIT 1 ON THE HUDSON RIVER IN UPPER WESTCHESTER COUNTY, 24 MILES NORTH OF NEW YORK CITY BOUNDARY. NEAREST CITY (2.5 MILES) IS PEEKSKILL (POP. 19,000). GAS MAIN RUNS 700 FT SOUTH OF UNIT 3. INDIAN POINT 3 IS A 3025 MWT/965 MWE WESTINGHOUSE PWR. INCLUDED ARE A 1955 AND A 1965 REPORT ON HYDROLOGY, POPULATION AND LAND-USAGE PROJECTION TO 1980, AND 1957-58 METEOROLOGICAL REPORTS WITH A 4-PAGE DISCUSSION OF ITS APPLICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*SITING, REACTOR + HYDROLOGICAL CONSIDERATION, GENERAL + INDIAN POINT 3 + METEOROLOGY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

2-21843 ALSO IN CATEGORY 18

COOK 1 + 2 PSAR APPENDIX A - SITE ENVIRONMENT STUDIES
INDIANA AND MICHIGAN ELECTRIC COMPANY + DAMES AND MOORE
64 PAGES, TABLES, FIGURES, REFERENCES, PAGE IA-1 TO IIC-A6 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

REPORT COVERS FIELD INVESTIGATIONS, LABORATORY TESTS, AND DISCUSSIONS OF GEOLOGY, HYDROLOGY, AND SEISMOLOGY. FIELD INVESTIGATIONS INCLUDED GEOLOGIC SURVEY, HYDROLOGICAL SURVEY, TEST-BORING PROGRAM, SEISMIC-REFRACTION SURVEY, AND UP-HOLE SEISMIC SURVEY, MICROMOTION MEASUREMENTS, AND PERMEABILITY TESTS. SITE IS ON THE GRAND MARAIS EMBAYMENT ON THE SHORE OF LAKE MICHIGAN, A SYSTEM OF SAND DUNES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SITING, REACTOR + COOK 1 AND 2 (PWR) + EARTHQUAKE ENGINEERING + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + RESPONSE SPECTRUM +

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-21843 *CONTINUED*
SAFETY ANALYSIS REPORT, PRELIMINARY + SOIL, PROPERTY

2-22875 ALSO IN CATEGORY 18
SALEM 1 AND 2 PSAR - VOLUME 1
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
450 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--PWP, MFG.--WEST.,
AF--PUBLIC SERVICE OF N. J.

VOLUME 1 CONTAINS CHAPTERS 1 THRU 5 (SUMMARY DESCRIPTION, SITE, REACTOR, COOLING SYSTEM, AND CONTAINMENT). SALEM (FORMERLY BURLINGTON) CONSISTS OF TWO 3250-MWT WESTINGHOUSE PWRS, LOCATED ON THE JERSEY SIDE OF THE DELAWARE RIVER, 30 MILES SOUTHWEST OF PHILADELPHIA. SITE IS ON A SAND BAR IN THE RIVER, CONNECTED BY DREDGED FILL TO THE MAINLAND. THE REACTORS WILL BE AT ABOUT 11 FT MSL (HIGHEST TIDE IS 8.5 FT, AND SAFEGUARDS SYSTEMS WILL BE AT 23 FT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR) + SITING, REACTOR

2-22879 ALSO IN CATEGORY 18
SALEM 1 AND 2 PSAR - VOL 3 - APPENDIX B. SITE STUDIES BY DAMES AND MOORE
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
63 PAGES, TABLES, FIGURES, REFERENCES, PAGES IA-1 THRU IIC-B2 OF SALEM 1 AND 2 PSAR, VOLUME III, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--BWP, MFG.--G.E., AE--STONE + WEBSTER

REPORT COVERS FIELD EXPLORATION AND LAB TESTS, GEOLOGY, HYDROLOGY, AND SEISMOLOGY. SOIL IS PRINCIPALLY SAND AND CLAY (40 FT OF QUATERNARY DEPOSITS, 20 FT OF KIRKWOOD FORMATION, AND 60 OF VINCETOWN FORMATION) DOWN TO AT LEAST 200 FT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR) + SITING, REACTOR + SOIL

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-17962
KELLER EL
URANIUM HEXAFLUORIDE HANDLING PROCEDURES AND CONTAINER CRITERIA
OAK RIDGE OPERATIONS OFFICE (AEC), TENN.
ORO-651 (REV. 1) +. 84 PAGES, 14 FIGURES, 5 TABLES, 1967

THIS REPORT WAS PREPARED TO BETTER ACQUAINT THE COMMERCIAL SEGMENT OF THE NUCLEAR INDUSTRY WITH AEC ROUTINE HANDLING PROCEDURES AND CONTAINER DESIGN AND UTILIZATION CRITERIA FOR URANIUM HEXAFLUORIDE. THE PROCEDURAL INFORMATION COVERS THE ESSENTIAL ASPECTS OF UF₆ WEIGHING, SAMPLING, CYLINDER EMPTYING AND FILLING, AND CYLINDER INSPECTION, CLEANING, TESTING, AND REPAIR. ANALYTICAL PROCEDURES ARE LISTED BY TYPE ONLY SINCE THE PROCEDURES ARE BEING IMPROVED ON A CONTINUING BASIS. SHIPPING PROCEDURES ARE ALSO DISCUSSED IN VERY GENERAL TERMS SINCE ALL UF₆ SHIPMENTS TO OR FROM THE AEC ARE F.O.B. THE AEC FACILITIES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*PROCEDURES AND MANUALS + *URANIUM HEXAFLUORIDE + DESIGN CRITERIA + INSPECTION AND COMPLIANCE + SHIPPING CONTAINER + TESTING

3-19889 ALSO IN CATEGORY 17
DROPPED FUEL ELEMENT DURING INDIAN POINT 1 REFUELING
CONSOLIDATED EDISON CO. OF NEW YORK
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(47) PAGES 33-34 (NOVEMBER 20, 1967)

(LETTER, NOV. 2) DURING REFUELING ON OCTOBER 17, 1967, A FUEL ELEMENT, NOT HIGH ENOUGH DURING TRANSFER, STRUCK AN I-BEAM, AND SEPARATED BETWEEN THE PERFORATED FUEL ENCLOSURE AND THE UPPER NOZZLE ASSEMBLY. TEN PERIPHERAL PINS PROTRUDED, BUT SAMPLES INDICATED NO RELEASE OF FISSION PRODUCTS. RIGGERS WERE BROUGHT IN AND MOCKUP BUILT TO TRY PROCEDURES AND SPECIAL SNARES. ALL ACTIVITY WAS SUSPENDED AND AN UNDERWATER TV INSTALLED. ON OCTOBER 24, THE RIGGERS LIFTED THE ASSEMBLY AND PLACED IT IN THE TRANSFER BASKET IN 3 HR, WITHOUT INCIDENT.

*FUEL HANDLING + *INCIDENT, ACTUAL, HUMAN ERROR + ACCIDENT, REFUELING + FAILURE, OPERATOR ERROR + INCIDENT, ACTUAL, RECOVERY FROM + INDIAN POINT 1 + REACTOR, PRESSURIZED WATER + REMOTE MANIPULATING AND VIEWING

3-20719 ALSO IN CATEGORY 17
YANKEE FUEL STORAGE PIT INSPECTION
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 82 FOR OCTOBER 1967, PAGE 1, NOVEMBER 30, 1967, DOCKET 50-29

NINETEEN CONDENSER TUBES WERE PLUGGED, AS LEAKS 3-5 FT FROM THE COLD TUBE SHEET DEVELOPED. ***WOODEN FUEL-RACK PLATFORMS WERE DISCARDED AFTER RADIATION-INDUCED EMBRITTLEMENT. BLISTERS IN PHENOLIC POOL-WALL COATING WERE MORE PREVALENT NEAR ALUMINUM STORAGE RACKS. A THIN, 15-FT-LONG VERTICAL CRACK, TERMINATING IN AN ABOVE-GROUND CONSTRUCTION POINT, APPEARS DUE TO SHRINKAGE. CRACK WILL BE COVERED WITH FIBERGLASS AND RECOATED. ***REACTOR WAS SHUT DOWN 9 HR FOR OPERATOR-LICENSE EXAMINATIONS. REACTIVITY DEPLETION WAS AT THE RATE OF 0.7% DELTA K/K PER 1000 MWH DAYS/MTU. AND PC RORON DECREASED FROM 167 PPM TO 83.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAULT + *FUEL STORAGE + COATING, SURFACE + CONCRETE + FUEL BURNUP + OPERATIONS REPORT, GENERAL + RADIATION DAMAGE + REACTOR, PRESSURIZED WATER + STAFFING, TRAINING, QUALIFICATION + YANKEE

3-22446 ALSO IN CATEGORIES 18 AND 13
AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION
NUCLEAR FUEL SERVICES, INC.
200 PAGES, TABLES, FIGURES, REFERENCES, AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION (NEPTUNIUM RECOVERY FACILITY), NOVEMBER 15, 1967, DOCKET 50-201

THIS DOCUMENT (NINE SECTIONS PLUS APPENDIXES) REPRESENTS A DESCRIPTION AND SAFETY ANALYSIS OF THE ADDITIONAL PROCESSING STEPS TO BE PERFORMED AS PART OF THE OVERALL REPROCESSING OPERATIONS AT THE WESTERN NEW YORK NUCLEAR SERVICE CENTER TO RECOVER NEPTUNIUM AS WELL AS THE PRESENT PRODUCTS, PLUTONIUM AND URANIUM. THESE ADDITIONAL PROCESSING STEPS WILL BE PERFORMED IN STRUCTURES AND EQUIPMENT (THE NEPTUNIUM RECOVERY FACILITY OR NRF) WHICH NUCLEAR FUEL SERVICES, INC. (NFS) AND THE NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY (ASDA) PLAN TO ADD TO THE WEST VALLEY REPROCESSING PLANT (WVRP) PRESENTLY BEING OPERATED UNDER AEC LICENSE NO. CFS-1.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HAZARDS ANALYSIS + *NEPTUNIUM + *NFS (NUCLEAR FUEL SERVICES) + LICENSING STATUS OF NUCLEAR PROJECTS + PROCEDURES AND MANUALS

CATEGORY 4
AEROSPACE SAFETY

4-16651
COLEMAN JR + DENHAM RS
RADIOLOGICAL SAFETY STUDIES OF SPACE NUCLEAR SYSTEMS. QUARTERLY REPORT NO. 1, SEPTEMBER 13 - DECEMBER 13, 1966
NUS CORP., WASHINGTON, D. C.
SC-CR-66-2144 +. 39 PAGES, REFERENCES, JANUARY 1967

FIRST QUARTERLY REPORT UNDER CONTRACT 48-4310 FOR THE DEVELOPMENT AND APPLICATION OF RADIATION DOSE AND INTERACTION-PROBABILITY MODELS FOR DISPERSED AND INTACT RE-ENTRY MODES OF ISOTOPIC SNAP UNITS, COMPARISON OF THE RE-ENTRY MODES AND THEIR RADIOLOGICAL CONSEQUENCES, AND SUCH OTHER ASSISTANCE AS MAY BE REQUIRED ON SPECIAL QUESTIONS WHICH ARISE DURING SAFETY EVALUATIONS OF SNAP SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + *DOSE CALCULATION, INTERNAL + *SPACECRAFT + DOSIMETRY, GENERAL + REENTRY, ATMOSPHERIC + ROVER PROGRAM + SNAP, GENERAL (SYSTEMS FOR NUCLEAR AUX. POWER)

4-17809 ALSO IN CATEGORIES 5 AND 6
CULLOM RR + DIEDRICH G + ALBERS LU
ANALYSIS OF SOLIDIFICATION IN THERMAL-ENERGY STORAGE SYSTEMS WITH AXISYMMETRIC HEAT-TRANSFER SOLUTIONS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-3763 +. 25 PAGES, 8 FIGURES, 1 TABLE, 6 REFERENCES, DECEMBER 1966

AN ANALYSIS WAS MADE OF A TRANSIENT HEAT CONDUCTION PROBLEM WITH A PHASE CHANGE IN THE AXISYMMETRIC CONDUCTING MEDIUM AND HEAT TRANSFER AT THE INNER RADIUS ONLY. NONDIMENSIONAL FINITE-DIFFERENCE SOLUTIONS FOR SURFACE TEMPERATURE AND SOLIDIFICATION THICKNESS WERE OBTAINED FOR A RANGE OF TIME, INITIAL HEAT-REJECTION RATE, TUBE DIAMETER, AND STORAGE-MATERIAL PROPERTIES. THE NONDIMENSIONAL SOLUTIONS PRESENTED IN THIS REPORT CAN BE APPLIED TO A WIDE RANGE OF AXISYMMETRIC SOLIDIFICATION PROBLEMS, SUCH AS METAL CASTING AND ICE FORMATION. THE GENERAL SOLUTIONS WERE USED IN AN ANALYSIS OF A LITHIUM HYDRIDE THERMAL-ENERGY STORAGE SYSTEM. ANALYSIS INDICATES AXISYMMETRIC SOLUTIONS ARE RECOMMENDED OVER THE SIMPLE ONE-DIMENSIONAL SOLUTIONS FOR LOW RADII OR LONG DARK TIMES TO PREVENT INEFFICIENT OVERDESIGN OF THE THERMAL-ENERGY STORAGE COMPONENT. THE STORAGE-MATERIAL SURFACE TEMPERATURE IS MORE SENSITIVE TO CHANGES IN HEAT-REJECTION RATE THAN TO CHANGES IN EITHER COOLING TIME OR HEAT-TRANSFER SURFACE RADIUS. THE SOLIDIFICATION THICKNESS IS A STRONGER FUNCTION OF COOLING TIME THAN EITHER HEAT-TRANSFER RATE OR SURFACE RADIUS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

HEAT TRANSFER ANALYSIS + HEAT TRANSFER, CONDUCTION + MATHEMATICAL TREATMENT + PHASE CHANGE + REACTOR, SPACE

4-18724
CARPENTER RB
SAFETY ASSURANCE FOR EXTENDED MANNED MISSIONS
4 PAGES, 5 FIGURES, 4 TABLES, 8 REFERENCES, J. SPACECRAFT AND ROCKETS 4(4), PAGE 448 THRU 451, (APRIL 1967)

THIS PAPER EXPLORES THE RELIABILITY PROBLEM OF LONG-DURATION INTERPLANETARY MISSIONS USING THE SYSTEMS-ENGINEERING APPROACH TO DETERMINE MISSION REQUIREMENTS IN TERMS OF FUNCTIONS, DUTY CYCLE, AND SUBSEQUENT RELIABILITY. USING THE APOLLO RELIABILITY ASSESSMENTS, THE EXTENT OF THE MISSION-RELIABILITY/CREW-SAFETY PROBLEM IS ESTABLISHED. IN THE SOLUTION PRESENTED HERE, FAILURES ARE ACCEPTED, IDENTIFIED, AND PROGRAMMED INTO THE DESIGN BY APPLICATION OF THE AVAILABILITY CONCEPT, WHICH ESTABLISHES A BALANCE BETWEEN SYSTEM PERFORMANCE, RELIABILITY, AND MAINTAINABILITY WITHIN THE CONSTRAINTS OF CREW CAPABILITIES, MISSION, AND TECHNICAL STATE OF THE ART. THE CONCEPT IS APPLIED FIRST TO THE ENVIRONMENTAL CONTROL SYSTEM, THEN TO THE LIFE-SUPPORT SYSTEM, AND FINALLY TO TYPICAL FLYBY SPACECRAFT SYSTEM. AS A RESULT, PROBLEM AREAS SUCH AS RELIABILITY/CREW SAFETY, MAINTAINABILITY, DOWNTIME CONSTRAINTS, SPARES REQUIREMENTS, TEST REQUIREMENTS, AND OPERATIONAL PROCEDURES, REQUIREMENTS, AND LIMITATIONS ARE IDENTIFIED AND EXPLORED USING APOLLO SYSTEMS AS A POINT OF REFERENCE. IT IS CONCLUDED THAT, IN TERMS OF CREW SURVIVAL, MANNED FLYBY MISSIONS ARE FEASIBLE WITHIN THE DECADE, USING LOGICAL EXTENSIONS OF APOLLO SUBSYSTEMS.

*AEROSPACE SAFETY + *RELIABILITY ANALYSIS + FAILURE, GENERAL + SAFE FAILURE CRITERION + SPACECRAFT

4-18725
WALTER CE + KOLAR OC + BROWN NJ + WILCOX TP
LARGE NUCLEAR-ELECTRIC SPACE POWER PLANT
CALIFORNIA UNIV., LIVERMORE. LAWRENCE RADIATION LAB.
UCRL-70272 + CONF-670806-3 +. 47 PAGES, REFERENCES, MAY 12, 1967, FOR PRESENTATION AT 2ND INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE, MIAMI BEACH, FLA.

A LARGE NUCLEAR-ELECTRIC SPACE POWER (NESP) PLANT IS DESIRABLE FOR A MANNED MARS LANDING MISSION. THE CHARACTERISTICS OF SUCH A POWER PLANT, PARTICULARLY THOSE OF THE NUCLEAR REACTOR, ARE THE SUBJECT OF THE PRESENT DISCUSSION. IT APPEARS THAT THE APPROPRIATE NUCLEAR REACTOR IS TECHNICALLY FEASIBLE. IT IS THE AUTHORS OPINION THAT AN ACTIVE DEVELOPMENT

CATEGORY 4
AEROSPACE SAFETY

4-18725 *CONTINUED*

PROGRAM ENCOMPASSING ALL THE HARDWARE REQUIRED FOR A SPECIFIED MANNED MARS MISSION IS A LOGICAL SEQUEL TO THE APOLLO PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + *ELECTRIC POWER, GENERAL + *REACTOR, SPACE + DESIGN STUDY + REACTOR DESCRIPTION + SPACECRAFT

4-18726

BARTON JA

FUTURE ASPECTS OF VTOL SAFETY

LTV AEROSPACE CORPORATION, DALLAS

4 PAGES, 10 REFERENCES, CAN. AERON SPACE JOURNAL 13(5), PAGE 219 THRU 222, (MAY 1967)

DISCUSSES DESIGN, FACILITY, AND OPERATIONAL SAFETY ASPECTS OF FUTURE VTOL AIRCRAFT. THE MANAGEMENT/ENGINEERING APPROACH TO ENSURE OPTIMUM DESIGN SAFETY IS DISCUSSED. ADVANTAGES AND DISADVANTAGES ARE MENTIONED, WITH RECOMMENDATIONS FOR STUDY AND EVALUATION OF EXPECTED HAZARDOUS PROBLEM AREAS.

*AEROSPACE SAFETY + AIRCRAFT + DESIGN STUDY + OPERATION

4-18914

EASTON CR + LANGLEY RW

PROBABILITY OF INJURY FROM RANDOM REENTRY OF A NUCLEAR SATELLITE

RAND CORPORATION

CONF-670-602 +. 2 PAGES, 2 FIGURES, 1 TABLE, 3 REFERENCES, TRANSACTIONS 10(1), PAGE 6 AND 7, PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

PRESENTS AN ANALYSIS OF INJURY PROBABILITY RESULTING FROM THE RANDOM REENTRY OF A SATELLITE FROM NEAR-EARTH ORBIT.

*ACCIDENT, PROBABILITY OF + *AEROSPACE SAFETY + REENTRY, ATMOSPHERIC + SPACECRAFT

4-19115

ALSO IN CATEGORY 9

STEELE OP + KELLOGG LG + DEWART WG

DEVELOPMENT OF THE CONTROL SYSTEM FOR SNAP REACTORS

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

18 PAGES, 26 FIGURES, 6 TABLES, IEEE TRANS. NUCL. SCIENCE 13(1), PAGES 206-223 (FEB. 1966)

THE SNAP 10A, 2, AND 8 NUCLEAR REACTOR SYSTEMS ARE DESIGNED TO PROVIDE ELECTRICAL POWER ON SPACE VEHICLES OR ENVIRONMENTS OF ULTRAHIGH VACUUM. ALTHOUGH EACH SYSTEM HAS DIFFERENT POWER CAPABILITIES, THE CONTROL COMPONENTS ARE BASICALLY THE SAME. DEVELOPMENT OF THE VARIOUS CONTROL COMPONENTS AND SUBCOMPONENTS IS DISCUSSED. THE ELECTROMECHANICAL ACTUATOR, BEARINGS, AND GEARS FOR EACH SNAP SYSTEM ARE REVIEWED IN DETAIL. A CONTROL-DRUM-DRIVE MECHANISM THAT PROVIDES FAIL SAFE SCRAM CAPABILITIES FOR GROUND TESTING OF THE REACTOR SYSTEM HAS BEEN DESIGNED AND PROOF TESTED. THE DETAILS OF THIS DESIGN AS IT APPLIES TO SNAP 10A SYSTEMS ARE PRESENTED.

CONTROL SYSTEM + REACTOR, LIQUID METAL COOLED + REACTOR, SPACE + REACTOR, SPACE + SERVOMECHANISM + SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + SNAP 2 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + TEST, COMPONENT

4-19117

ALSO IN CATEGORY 9

MALICK FS + RAMP RL + GILMOUR GA

NERVA NUCLEAR REACTOR INSTRUMENTATION

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.

7 PAGES, 4 FIGURES, IEEE TRANS. NUCLEAR SCIENCE 13(1), PAGES 685-91 (FEBRUARY 1966)

THE ENVIRONMENTAL CONDITIONS EXISTING AT MANY OF THE POINTS AT WHICH MEASUREMENTS ARE REQUIRED IN THE GROUND TESTING OF THE NERVA REACTORS ARE BEYOND THE CAPABILITIES OF COMMERCIAL TRANSDUCERS. THE OBJECT OF THIS PAPER IS TO SHOW THE NATURE OF THE INSTRUMENTATION PROBLEMS ASSOCIATED WITH THE DEVELOPMENT OF THE NUCLEAR REACTOR ONLY AND TO SHOW THE EXTENT OF THEIR SOLUTION. IT DOES NOT DISCUSS THE INSTRUMENTATION PROBLEMS ASSOCIATED WITH THE OTHER NERVA ENGINE COMPONENTS, SUCH AS THE PRESSURE VESSEL, NOZZEL, AND TURBO-PUMP. A DEVELOPMENT PROGRAM HAS BEEN SUCCESSFUL TO THE EXTENT THAT TRANSDUCERS ARE AVAILABLE TO MAKE MANY OF THE MEASUREMENTS REQUIRED FOR THE DEVELOPMENT OF THE PRESENT REACTOR. IMPROVEMENTS IN TRANSDUCER ACCURACY AND LIFE ARE DESIRABLE AND EVERY TRANSDUCER HAS POTENTIAL FOR FURTHER DEVELOPMENT IN THESE TWO RESPECTS.

*INSTRUMENTATION, GENERAL + *INSTRUMENTATION, IN CORE + *NERVA PROGRAM + DISPLACEMENT, GENERAL + HIGH TEMPERATURE + INSTRUMENTATION, PRESSURE + NEUTRON + STRESS STRAIN DATA + THERMAL CONSIDERATION + VIBRATION

CATEGORY 4
AEROSPACE SAFETY

4-19118 ALSO IN CATEGORY 9
KIRSCHBAUM HS + MORRIS WR + HOHMANN GL
NEW CONTROL TECHNIQUES FOR NERVA REACTORS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
6 PAGES, 5 FIGURES, 3 REFERENCES, IEEE TRANS. NUCLEAR SCIENCE 13(1), PAGES 670-75 (FEBRUARY 1966)

THE DEVELOPMENT OF THE NERVA REACTOR HAS REACHED THE POINT WHERE IT CAN BE OPERATED PREDICTABLY FOR SUSTAINED TIMES. THIS SUCCESS IN MECHANICAL AND NUCLEAR DESIGN HAS GIVEN TO THE CONTROL ENGINEERS THE OPPORTUNITY TO DESIGN AND EXPERIMENTALLY VERIFY IMPROVEMENTS IN REACTOR CONTROL. THIS PAPER PRESENTS A SUMMARY OF THE CONTROL SYSTEMS USED TO TEST THE EARLY KIWI AND NRX REACTORS. USING THESE REFERENCE CONTROLLERS, DESIGNS TO IMPROVE RELIABILITY AND PERFORMANCE ARE DISCUSSED. THESE IMPROVEMENTS INCLUDE THE USE OF LIMITER CIRCUITS TO PROTECT THE NUCLEAR SUBSYSTEM FROM CONTROLLER MALFUNCTIONS AND OFF-DESIGN OPERATION OF THE SYSTEM WITHOUT RESORTING TO REACTOR SCRAMS AND THE ENSUING SYSTEM SHOCKS.

*CONTROL SYSTEM + *INSTRUMENTATION, CONTROL + *NERVA PROGRAM + *REACTOR CONTROL + KIWI + NRX (CANADIAN NATURAL U-HEAVY WATER REACTOR) + REACTOR, HEAVY WATER + REACTOR, SPACE + ROVER PROGRAM

4-19174 ALSO IN CATEGORY 9
PICKETT RT
ADVANCED TEST REACTOR SERVO REGULATOR ROD TEST PROGRAM. ATR SITE TESTS
BABCOCK AND WILCOX CO., LYNCHBURG, VA. ATOMIC ENERGY DIV.
ATR-IC-101 + TIO-22547 +. 32 PAGES, FIGURES, SEPTEMBER 1965

THE ACCEPTANCE TEST OF THE SERVO-REGULATOR RODS AND CONTROL SYSTEMS ARE REPORTED. THE ROD MET THE TEST REQUIREMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ATR (ADVANCED TEST REACTOR - NRTS) + *CONTROL ROD + *TEST, INSTRUMENT RESPONSE + CONTROL SYSTEM + INSTRUMENTATION, TESTING + REACTOR, TEST + TEST, CONTROL ROD DRIVE

4-19403 ALSO IN CATEGORY 9
MC CONVILLE JH + WALTON JW
SNAP-50/SPUR ELECTROMAGNETIC PUMP PROGRAM - CONCEPT SELECTION AND STATUS REPORT
PRATT AND WHITNEY AIRCRAFT, MIDDLETOWN, CONN.
TIM-911 +. 27 PAGES, FIGURES, REFERENCES, MAY 28, 1965

BASED ON THE RESULTS OF ANALYTICAL STUDIES USING LIMITED EXPERIMENTAL DATA, THE 3200-CPS RECTIFIER/CONDUCTION PUMP UNIT IS THE MOST PROMISING ELECTROMAGNETIC REACTOR COOLANT PUMP FOR THE SNAP-50/SPUR POWERPLANT. THE PUMP HAS BEEN SHOWN TO BE COMPETITIVE WITH THE FREQUENCY CONVERTER/MECHANICAL PUMP ON A PERFORMANCE BASIS. THE MAIN ADVANTAGES ARE ITS SIMPLE, RUGGED CONSTRUCTION, AS CHARACTERIZED BY THE ABSENCE OF ROTATING PARTS, MINIMIZATION OF CLOSE TOLERANCES, AND CONSERVATION OF COLUMBIUM ALLOY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

EQUIPMENT DESIGN + PUMP + REACTOR, SPACE + SNAP 50 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)

4-19423 ALSO IN CATEGORY 5
DAVISON HW
A DIGITAL COMPUTER PROGRAM FOR CALCULATING STEADY TEMPERATURE AND DENSITY DISTRIBUTIONS IN A GAS CONTAINING HEAT SOURCES
LEWIS RESEARCH CENTER, CLEVELAND. NASA
NASA-TN-D-4135 +. 40 PAGES, 7 FIGURES, 4 TABLES, 7 REFERENCES, SEPTEMBER 1967

A DIGITAL COMPUTER PROGRAM THAT ALLOWS CALCULATION OF AXIAL TEMPERATURE AND DENSITY DISTRIBUTIONS IN A STAGNANT GAS ENCLOSED WITHIN AN ANNULUS IS PRESENTED. THE PROGRAM, CALLED STADDIG, IS WRITTEN IN FORTRAN IV LANGUAGE FOR THE IBM 7094 COMPUTER AND IS BASED ON A STEADY-STATE ONE-DIMENSIONAL (RADIAL) HEAT-TRANSFER CALCULATION USING CYLINDRICAL COORDINATES. THE GAS DENSITY IS RELATED TO THE GAS TEMPERATURE THROUGH THE PERFECT-GAS LAW. THE PROGRAM ALLOWS FOR CONDUCTION ACROSS THE GAS AND ACROSS THE CONTAINER WALLS. HEAT IS DISSIPATED FROM THE CONTAINER WALLS BY FORCED-CONVECTION COOLING WITH AN INCOMPRESSIBLE COOLANT. HEAT SOURCES ARE INCLUDED IN THE COOLANT, THE GAS, AND THE CONTAINER WALLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + GAS + HEAT GENERATION, NONUNIFORM + REACTOR, SPACE + THERMAL ANALYSIS

4-19501 ALSO IN CATEGORIES 9 AND 14
BERTA VT

CATEGORY 4
AEROSPACE SAFETY

4-19501 *CONTINUED*
 SNAPTRAN EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION
 PHILLIPS PETROLEUM COMPANY, IDAHO
 IDO-17205 +. 161 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967.

THE SNAPTRAN EXPERIMENTAL PROGRAM WAS DESIGNED TO PROVIDE NUCLEAR-SAFETY INFORMATION APPLICABLE TO SNAP 10A/2 REACTOR SYSTEMS. THE SPECIFIC DESIGNATIONS FOR THE PROGRAMS ARE - SNAPTRAN-1 (FOR THE KINETICS STUDIES IN THE NONDESTRUCTIVE REGION), SNAPTRAN-2 (FOR THE KINETIC STUDIES IN THE DESTRUCTIVE REGION), AND SNAPTRAN-3 (FOR THE SAFETY STUDIES INVOLVING REACTOR DESTRUCTION DUE TO WATER IMMERSION). THE REACTORS FOR PERFORMING THESE TESTS WERE DESIGNED AND BUILT BY ATOMICS INTERNATIONAL. THIS REPORT CONTAINS A DETAILED DESCRIPTION OF THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION USED TO OBTAIN DATA FROM THE TESTS. ALSO INCLUDED ARE DETAILED DESCRIPTIONS OF THE REACTOR SYSTEMS AND THE THEORETICAL ANALYSES WHICH FORMED THE BASIS FOR THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION.

AVAILABILITY - CLEARINGHOUSE FOR SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*COMPARISON, THEORY AND EXPERIENCE + *SAFETY PRINCIPLES AND PHILOSOPHY +
 *SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + *SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES) +
 DOSIMETRY, GENERAL + INSTRUMENTATION, GENERAL + MEASUREMENT, GENERAL + MONITOR, RADIATION, GENERAL +
 REACTOR, SPACE + REACTOR, TEST

4-19518 ALSO IN CATEGORY 9
 EAMES WF + FULTONBERG DN + ROSAL ER + FLETCHER WD + LOVING JJ
 FEASIBILITY OF A CHEMICAL POISON LOOP SYSTEM. FINAL REPORT
 WESTINGHOUSE ELECTRIC CORP., ATOMIC POWER DIVISION, PITTSBURGH, PA.
 WCAP-2993 + NASA-CR-72105 +. 75 PAGES, TABLES, FIGURES, SEPTEMBER 1966

A FINAL PROGRAM REPORT CONCLUDING THE FEASIBILITY OF UTILIZING A CHEMICAL POISON LOOP FOR THE REACTIVITY CONTROL OF A TUNGSTEN-WATER MODERATED ROCKET REACTOR. A SERIES OF DYNAMIC TESTS WAS PERFORMED TO SIMULATE THE REQUIRED STARTUPS AND SHUTDOWNS, WITH ANALYTICAL DATA TAKEN TO EVALUATE SYSTEM PERFORMANCE. SATISFACTORY PERFORMANCE WAS ACHIEVED IN ALL INSTANCES. AS TO OVERALL SYSTEM FEASIBILITY, IT IS CONCLUDED THAT THE DESIGN SYSTEM REQUIREMENTS ARE GENERALLY SATISFACTORILY MET. BECAUSE OF PROBLEMS WITH THERMAL STABILITY OF THE POISON SOLUTION, THE PERFORMANCE UNDER NORMAL OPERATION CONDITIONS MUST BE CONSIDERED MARGINAL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + REACTOR CONTROL + REACTOR, AIRCRAFT + REACTOR, SPACE + REACTOR, WATER + TUNGSTEN

4-19795
 DEAGAZIO AW
 DOSE CALCULATION MODELS FOR RE-ENTERING NUCLEAR ROCKET DEBRIS
 NUS CORP., WASHINGTON, D. C.
 NUS-229 (REV.) +. 51 PAGES, FIGURES, REFERENCES, JANUARY 1967

THE DISTRIBUTION OF POPULATION OVER THE EARTH'S SURFACE, THE FRACTION OF LAND DEVOTED TO AGRICULTURE, AND THOSE OTHER CULTURAL FACTORS WHICH AFFECT THE PROBABILITY OF AN INDIVIDUAL RECEIVING A CERTAIN DOSE MUST BE CONSIDERED IN EVALUATING THE HAZARDS FROM A MALFUNCTION OF A NUCLEAR ENGINE. OTHERWISE, UNREALISTIC AND EXCESSIVELY CONSERVATIVE RESULTS WILL BE OBTAINED. THE PROBABILISTIC APPROACH TO THE EVALUATION OF DOSE WAS INITIALLY TREATED IN NUS-167. MUCH OF THIS REPORT IS A REFINEMENT OF THAT WORK. SOME BETA-DOSE FUNCTIONS ARE DESCRIBED IN DETAIL IN NUS-217. CULTURAL DATA FOR THE BAND OF THE EARTH'S SURFACE BETWEEN 40 N AND 40 S LATITUDE ARE GIVEN IN NUS-230. THE EXTERNAL-DOSE FUNCTIONS AND EXTERNAL AND INTERNAL DOSE PROBABILITY FUNCTIONS ARE DERIVED IN THIS REPORT. EXTERNAL WHOLE-BODY GAMMA AND BETA DOSE RELATIONSHIPS ARE DERIVED FOR RECEPTORS WHO ARE MOBILE. THE PROBABILITY OF RECEIVING AT LEAST A GIVEN EXTERNAL DOSE, THE FRACTION OF THE POPULATION RECEIVING AT LEAST A GIVEN DOSE, AND THE OVERALL POPULATION DOSE ARE ALSO DERIVED FOR EXTERNAL GAMMA RADIATION EXPOSURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + ACCIDENT ANALYSIS + DOSE +
 NUCLEAR EXPLOSION DEBRIS

4-19796 ALSO IN CATEGORY 9
 ROTH CE + RYERSON CM + CONNOR JA + ANDERSON WB + DUSHAY I + WARNER WK + MEYER JC + BROWN DE + SOLTAU R +
 MOSKOVITZ AI
 RELIABILITY IN SPACE VEHICLES
 SPACE-GENERAL CORP.
 118 PAGES, FIGURES, TABLES, ENGINEERING PUBLISHERS, ELIZABETH, NEW JERSEY, APRIL 2, 1965

THE MATERIAL PRESENTED IN THIS BOOK INCLUDES CONTRIBUTIONS TO AND CONTEMPORARY DATA ON RELIABILITY AS IT RELATES TO SPACE VEHICLES. IT IS PRESENTED BY ENGINEERS KNOWN TO HAVE MADE SIGNIFICANT PROGRESS IN TECHNIQUES AND APPLICATIONS OF RELIABILITY IN SPACE VEHICLES DURING 1964. MOST IMPORTANT TO RELIABILITY-ANALYSIS TECHNIQUES ARE THE APPLICATIONS PRESENTED HERE OF THE RECENT ADVANCES IN PRODUCT RELIABILITY MANAGEMENT, INTERPRETATION OF RELIABILITY K FACTORS, DEGRADATION ANALYSIS AND EFFECTIVE SCREENING TECHNIQUES, AND FAILURE ANALYSIS.

CATEGORY 4
AEROSPACE SAFETY

4-19796 *CONTINUED*
AVAILABILITY - ENGINEERING PUBLISHERS, ELIZABETH, NEW JERSEY, \$9.00 COPY

*AEROSPACE SAFETY + *RELIABILITY ANALYSIS + OPERATING EXPERIENCE + RELIABILITY, COMPONENT +
RELIABILITY, SYSTEM

4-19873 ALSO IN CATEGORIES 5 AND 6

HALE CJ
LOSS-OF-FLOW ACCIDENT STUDIES ON THE 10-MW GTR
GENERAL DYNAMICS, FORT WORTH, TEXAS
CONF-670 602 + FZM 4800 +. 85 PAGES, FIGURES, TABLES, REFERENCES, PRESENTED AT ANS 1967 ANNUAL MEETING,
SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967, ANS TRANSACTIONS, 10(1), PAGE 333 (JUNE 1967)

AS PART OF THE STARTUP TESTS AND IN CONJUNCTION WITH THE INCREASE IN POWER TO 10 MW, A
COMPREHENSIVE LOSS-OF-FLOW EXPERIMENT WAS PERFORMED ON THE GROUND-TEST REACTOR (GTR). A
COMPLETE PRE-TEST ANALYSIS WAS PERFORMED WITH THE AID OF A COMPUTER CODE WHICH PREDICTED
TRANSIENT FLOWS AND TEMPERATURES THAT WOULD BE EXPERIENCED IN THE LOSS-OF-FLOW TESTS. THE
LOSS-OF-FLOW EXPERIMENT WAS COMPLETED IN A TEST SERIES WHICH STARTED WITH TESTS OF FLOW ONLY
AND ENDED WITH SIMULATED LOSS-OF-FLOW ACCIDENTS WITH THE GTR AT 10 MW. THE EXPERIMENTAL
INSTRUMENTATION DID NOT DETECT THE PRESENCE OF BOILING IN ANY OF THE TESTS. IN ADDITION, THE
MAXIMUM FUEL SURFACE TEMPERATURES WERE NOT HIGH ENOUGH TO SUPPORT BOILING IN THE TRANSIENT OR
LEVEL OPERATION TESTS.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF FLOW + AEROSPACE SAFETY + REACTOR, POOL TYPE + REACTOR, TEST

4-19973

JOHNSON CE + ROECKER JH
SNAP 8 REACTOR TEST PROGRAM
ATOMICS INTERNATIONAL, CANOGA PARK
6 PAGES, 7 FIGURES, 2 TABLES, IEEE TRANS. NUCL. SCIENCE 13 (1) PAGES 264-69 (FEB. 1966)

DESCRIBES THREE SERIES OF TESTS TO (1) DEMONSTRATE THE LONG-TERM OPERATING CAPABILITY OF THE
REACTOR, (2) VERIFY PERFORMANCE OF STARTUP AND CONTROL-DRIVE SYSTEM AND DETERMINE THE
REACTORS ENVIRONMENTAL CAPABILITIES, AND (3) TO VERIFY THE FLIGHT REACTOR DESIGN AND OPERATE
WITH IT COUPLED TO A POWER-CONVERSION SYSTEM. RESULTS ARE BRIEFLY SUMMARIZED.

*TEST, SYSTEM OPERABILITY + REACTOR, SPACE + SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + SPACECRAFT

4-20547

ALSO IN CATEGORY 7
HOPENFENFELD J + DARLEY D
DYNAMIC MASS TRANSFER OF STAINLESS STEEL IN SODIUM UNDER HIGH-HEAT-FLUX CONDITIONS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-12447 +. 54 PAGES, 14 FIGURES, 3 TABLES, 24 REFERENCES, JULY 15, 1967

PRESENTS EQUATIONS GOVERNING THE CORROSION RATE OF FUEL CLADDING MATERIAL IN SODIUM-COOLED
REACTORS. USING CORROSION DATA OBTAINED FROM VARIOUS LOOP TESTS, ATTEMPTS WERE MADE TO
EVALUATE THE MASS-TRANSFER COEFFICIENTS WHICH APPEAR IN THE BASIC EQUATIONS. IT WAS FOUND
THAT AVAILABLE LOOP DATA ARE INADEQUATE TO PROVIDE THE NEEDED INFORMATION, MAINLY BECAUSE THE
LOCAL BULK LIQUID CONCENTRATION OF THE CORROSION PRODUCTS CANNOT BE DETERMINED TO ANY DEGREE
OF CERTAINTY IN THESE LOOPS. A TEST LOOP IS DESCRIBED WHERE THIS DIFFICULTY IS ELIMINATED BY
SETTING UP CONCENTRATION GRADIENTS BETWEEN THE SURFACE AND THE BULK LIQUID BY MEANS OF
HIGH-HEAT-FLUX HEATERS. PRELIMINARY DATA IS PRESENTED ON THE CORROSION BEHAVIOR OF TYPE 304
STAINLESS STEEL EXPOSED TO 1200 F SODIUM, WITH A 1250 F SURFACE TEMPERATURE. THE RESULTS
DEMONSTRATE THE FEASIBILITY OF USING THE PRESENT METHOD TO STUDY MASS-TRANSFER MECHANISMS IN
SODIUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.55 MICROFICHE

*MASS TRANSFER + *METAL, LIQUID + *OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM + *STEEL, STAINLESS +
CORROSION

4-20551

KEILHOLTZ GW + MOORE RE
IRRADIATION DAMAGE TO ALUMINUM OXIDE EXPOSED TO 5×10^{21} FAST NEUTRONS/CM SQUARED.
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
6 PAGES, TABLES, FIGURES, REFERENCES, NUCLEAR APPLICATIONS, 3(11), PAGES 686-691 (NOVEMBER 1967)

THE EFFECTS OF NEUTRON IRRADIATION ON POLYCRYSTALLINE ALPHA-ALUMINA WERE INVESTIGATED. THE
SPECIMENS WERE TRANSLUCENT SOLID CYLINDERS OF 99.8% OF THEORETICAL DENSITY, WITH AN AVERAGE
GRAIN SIZE OF 25 MICRONS. FAST (GREATER THAN 1 MEV) NEUTRON EXPOSURES RANGED FROM 0.6 TO 5.2×10^{21}
N/CM SQUARED WHERE THE THERMAL-TO-FAST FLUX RATIO VARIED FROM 1.6 TO 1.1.
TEMPERATURES OF THE SPECIMENS WERE CALCULATED TO RANGE FROM 300 TO 600 C. GRAIN-BOUNDARY
SEPARATION WAS OBSERVED WHEN THE NEUTRON DOSE (GREATER THAN 1 MEV) WAS ABOUT 2.3×10^{21}
N/CM SQUARED, AND IT BECAME PROGRESSIVELY WORSE WITH INCREASING NEUTRON DOSE.

*ALUMINUM + *OXIDE + *RADIATION DAMAGE + *RADIATION EFFECT + AIRCRAFT + MATERIAL + NEUTRON + SPACECRAFT

CATEGORY 4
AEROSPACE SAFETY

4-20818 ALSO IN CATEGORY 11

POSEY JC

CONSEQUENCES OF INTERNAL HEAT FLOW IN RADIOISOTOPE HEAT SOURCES

OAK RIDGE NATIONAL LABORATORY

ORNL-P-3189 + CONF-670714-5 +. 7 PAGES, FROM 2ND INTERNATIONAL SYMPOSIUM ON NUCLEONICS IN AEROSPACE, COLUMBUS, OHIO, 1967

EQUATIONS RELATING THE MAXIMUM INTERNAL TEMPERATURES OF VARIOUS-SHAPED FUEL FORMS AND OTHER SOURCE PARAMETERS ARE GIVEN. BY USING CALCULATED RESULTS, THE USE OF CERMETS IS COMPARED WITH THE USE OF OXIDE-METAL LAMINAR STRUCTURES AS METHODS OF DECREASING THE RESISTANCE TO HEAT FLOW IN THE INTERIOR OF HEAT SOURCES AND ACHIEVING HIGHER SURFACE HEAT FLUXES WITHOUT EXCEEDING MAXIMUM ALLOWABLE INTERNAL TEMPERATURES. THE LAMINAR COMPOSITE FUEL FORM IS MODERATELY SUPERIOR. THE EXPECTED VAPOR PHASE MIGRATION AND EQUILIBRIUM DISTRIBUTION OF A VOLATILE RADIOACTIVE FUEL INSIDE A HEAT SOURCE CAPSULE IS DESCRIBED. REDISTRIBUTION DOES NOT ALWAYS RESULT IN SERIOUS PROBLEMS AND CAN REDUCE THE COST OF SOURCE FABRICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + HEAT CONDUCTANCE, FUEL TO CLAD + HEAT GENERATION, INTERNAL + HEAT TRANSFER, CONDUCTION

4-20819

STEWART PG + TOBIAS CA

MATHEMATICAL MODELING OF SPACE RADIATION HAZARDS

LAWRENCE RADIATION LAB., LIVERMORE

UCRL-17,751 +. 5 PAGES, 4 REFERENCES, PAGES 137 THROUGH 142 OF JOINT NASA-AEC PROGRAM IN SPACE RADIATION BIOLOGY, PROGRESS REPORT, FALL 1967

SINCE ONE MAY ASSUME THAT THE ADAPTABILITY OF HOMEOSTATIC RESPONSES IS A FUNCTION OF THE AGING PROCESS, IT IS IMPORTANT TO CONSIDER THE ACCELERATION OF THE AGING PROCESS DUE TO RADIATION IN SPACE AS WELL AS DUE TO OTHER UNUSUAL ASPECTS OF THE ASTRONAUTS SPACE ENVIRONMENT. AT THIS TIME, WE ARE NOT AIMING AT A REFINED MODEL TO ACCOUNT FOR MINUTE DETAILS OF EXPERIMENTAL RESULTS (AS WAS DONE, FOR EXAMPLE, BY SACHER AND GRAHN). THE AIM IS INSTEAD TO HAVE A SIMPLIFIED MODEL RESPONDING TO CONSTANTS MEASURABLE IN RADIOBIOLOGICAL EXPERIMENTS THAT COULD STATE OVERALL RESULTS FROM ANIMALS TO MAN AND EVENTUALLY YIELD AN INDEX FOR THE MAGNITUDE OF INJURY FOLLOWING A KNOWN DOSE SCHEDULE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + *BIOMEDICAL + DOSE + HAZARD, RELATIVE + HAZARDS ANALYSIS

4-20820

BABECKI AJ + GRIMSLEY JD + FRANKEL HE

AN ANALYSIS OF FAILURES IN SPACECRAFT

NASA, GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

5 PAGES, FIGURES, METAL PROGRESS, 91(2), PAGES 100-104 (FEBRUARY 1967)

NASA ENGINEERS CHECK AND DOUBLE-CHECK EACH PART IN A SPACECRAFT TO GUARD AGAINST COSTLY MALFUNCTIONS. IN PERFORMANCE TESTS AT EVERY STAGE OF MANUFACTURE, THEY SPOT CAUSES OF FAILURE RANGING FROM DEFECTIVE MATERIAL TO POOR WORKMANSHIP. FAILURES STEM FROM A GALAXY OF CAUSES - EXCESSIVE STRESSING (WHICH RESULTS FROM VIBRATIONAL SPECTRUMS EXPERIENCED ON LAUNCHING), EXHAUSTION OF FATIGUE DESIGN LIFE (WHICH CAN BE ATTRIBUTED TO THE NUMBER OF TESTS AND RETESTS MADE ON A COMPONENT AS IT IS INCORPORATED INTO A SYSTEM), IMPROPER PROCESSING AND INSPECTION DURING FABRICATION, SELECTION OF THE WRONG MATERIALS, POOR DESIGN.

*AEROSPACE SAFETY + *FAILURE, GENERAL + *TEST, COMPONENT + *TEST, LEAK LOCATION + FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + FAILURE, FATIGUE + FAILURE, INSTALLATION ERROR + TESTING

CATEGORY 5
ACCIDENT ANALYSIS

5-16571 ALSO IN CATEGORY 8
WITTE L + HESSON J + IVINS RO + BAKER L + PAVLIK J + CASSULO J + SILVERMAN M
TRANSIENT HEAT TRANSFER STUDIES. MEASUREMENT OF HEAT FLUX FROM A HEATED METAL SPHERE MOVING THROUGH WATER AND LIQUID SODIUM.
ARGONNE NATIONAL LABORATORY, ILL.
ANL-7225 +. 9 PAGES, 11 FIGURES, 14 REFERENCES, PAGES 189-198, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1966, NOVEMBER 1966

FOR ANALYSIS OF CONSEQUENCES OF DISPERSION OF HOT FUEL INTO COOLANT (WATER OR SODIUM) FORCED-CONVECTION FILM BOILING FOR SPHERES IN BOTH MEDIA WAS STUDIED. THEORETICAL STUDIES INCLUDED CRITICAL SURVEY OF PERTINENT LITERATURE. EXPERIMENTS INVOLVED NICKEL BALL PASSING RAPIDLY THROUGH WATER, THE APPARATUS USED BEING A MODIFICATION OF THE ONE DESCRIBED IN ANL 7055, PAGE 206, AND ANL 7125, PAGE 193. AT SPHERE TEMPERATURES AROUND 300 C, THE MODIFICATION INDUCED SUBSTANTIAL CHANGES IN RESULTS. APPARATUS AND RESULTS FOR ANALOGOUS EXPERIMENTS IN SODIUM ARE GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT ANALYSIS + *DISPERSION + *FUEL MELTDOWN + HEAT TRANSFER ANALYSIS + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, BOILING + HEAT TRANSFER, CONVECTION + SODIUM + WATER, GENERAL

5-16572
LEIBOWITZ L + MISHLER LW
HIGH TEMPERATURE PHYSICAL PROPERTIES. HEAT CAPACITY OF LIQUID UO₂.
ARGONNE NATIONAL LAB., ILL.
ANL-7225 +. 3 PAGES, 3 FIGURES, 1 REFERENCE, PAGE 198-200, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1966, NOVEMBER 1966

A PROGRAM WAS BEGUN TO MEASURE THE HIGH TEMPERATURE HEAT CAPACITY OF UO₂ (SEE ANL-7125, P. 198) BECAUSE OF THE IMPORTANCE OF THAT QUANTITY IN FAST-REACTOR SAFETY CALCULATIONS. THE GENERAL APPROACH WILL BE TO ENCAPSULATE THE UO₂ IN TUNGSTEN, HEAT BY INDUCTION, AND MEASURE THE HEAT CONTENT BY CONVENTIONAL DROP CALORIMETRY. ALTHOUGH CALCULATIONS SHOW COOLING-CURVE METHODS TO BE LESS LIKELY TO SUCCEED THAN THE METHOD OUTLINED ABOVE, A FEW EXPERIMENTAL TESTS OF THE COOLING-CURVE METHODS WILL ALSO BE MADE. IT IS HOPED THAT TEMPERATURES FROM THE MELTING POINT OF UO₂ (2800 C) TO NEAR THE MELTING POINT OF TUNGSTEN (ABOUT 3400 C) CAN BE EXPLORED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*THERMAL PROPERTY + *URANIUM DIOXIDE

5-16574 ALSO IN CATEGORY 8
LEIBOWITZ L
SODIUM-AIR REACTIONS.
ARGONNE NATIONAL LAB., ILL.
ANL-7225 +. 3 PAGES, 4 FIGURES, 4 TABLES, 8 REFERENCES, PAGE 201-203, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1966, NOVEMBER 1966

RATIONAL SAFETY ANALYSES FOR FAST REACTORS REQUIRE KNOWLEDGE OF THE TEMPERATURES AND PRESSURES GENERATED DURING SODIUM COMBUSTION IN AIR. COMBUSTION OF BOTH POOLS AND SPRAYS OF SODIUM WILL HAVE TO BE CONSIDERED. BAKER AND TEVEBAUGH (ANL-7055, P. 208) POINTED OUT THAT REGARDLESS OF THE BURNING MECHANISM, THE PRESSURES AND TEMPERATURES ARE LIMITED BY THE THERMODYNAMIC PROPERTIES OF THE SYSTEM. CALCULATIONS HAVE BEEN CARRIED OUT FOR EQUILIBRIUM CONDITIONS IN SODIUM-AIR AND SODIUM-AIR-WATER MIXTURES, USING A COMPUTER PROGRAM DESIGNED TO MINIMIZE FREE ENERGY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FIRE + *SODIUM + ACCIDENT ANALYSIS + PRESSURE, INTERNAL

5-16631 ALSO IN CATEGORY 12
FERRELL JK + MCGEE JW
TWO-PHASE FLOW THROUGH ABRUPT EXPANSIONS AND CONTRACTIONS. FINAL REPORT. VOLUME III ON A STUDY OF CONVECTION BOILING INSIDE CHANNELS
NORTH CAROLINA STATE UNIVERSITY, RALEIGH
TID-23394(VOL. 3) +. 230 PAGES, FIGURES, TABLES, JUNE 1966

PRESSURE DROP AND VOID FRACTION DATA WERE OBTAINED FOR ADIABATIC TWO-PHASE FLOW OF WATER-STEAM MIXTURES THROUGH SUDDEN EXPANSIONS AND CONTRACTIONS AND UNIFORM-DIAMETER CHANNELS. THE DATA WERE OBTAINED FOR UPFLOW IN TUBES. SUDDEN EXPANSIONS WITH AREA RATIOS OF 0.332, 0.546, AND 0.608, SUDDEN CONTRACTIONS WITH AREA RATIOS OF 0.546, AND 0.608, AND UNIFORM CHANNELS OF 0.460-IN AND 0.340-IN DIAMETERS WERE INVESTIGATED. THE RANGE OF VARIABLES ENCOMPASSED PRESSURES FROM 60 TO 240 PSIA, MASS VELOCITIES FROM 67 TO 506 LB/FT SQUARED-SEC, AND QUALITIES FROM SUBCOOLED CONDITIONS TO 0.32. FOR THE UNIFORM-DIAMETER CHANNELS A DEFINITE

CATEGORY 5
ACCIDENT ANALYSIS

5-16631 *CONTINUED*

CORRELATION EXISTED BETWEEN THE SLIP RATIO AND THE FLOW REGIME. THE SLIP RATIO INCREASED WITH QUALITY IN THE SLUG- AND CHURN-FLOW REGIMES, REACHED A MAXIMUM AT A QUALITY NEAR TRANSITION FROM CHURN TO ANNULAR FLOW, AND DECREASED WITH INCREASING QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

FLOW THEORY AND EXPERIMENTS + FLOW, MIST + FLOW, TUBE + FLOW, TWO PHASE + HYDRAULIC EXPERIMENT + PIPING, CONTRACTION + PIPING, EXPANSION

5-17160

ALSO IN CATEGORY 17

PIPER HB

HEAT TRANSFER IN THE MSRE HEAT EXCHANGER

OAK RIDGE NATIONAL LAB., TENN.

CONF-670-713 +. 13 PAGES, 4 FIGURES, 6 REFERENCES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 29, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

A SPECIAL KIND OF MANIPULATION OF THE STANDARD HEAT-TRANSFER EQUATIONS, (ASSUMING THERMOCOUPLE MEASUREMENT BIASES REMAINED CONSTANT DESPITE TEMPERATURE CHANGES) PROVED SUCCESSFUL IN THE MEASUREMENT OF THE OVERALL HEAT-TRANSFER COEFFICIENT. THE MEASUREMENT YIELDED A LOWER VALUE OF OVERALL HEAT TRANSFER THAN ORIGINALLY USED. EXAMINATION OF THE ORIGINAL PHYSICAL-PROPERTY VALUES USED (MANY OF WHICH WERE EXTRAPOLATIONS BASED ON OTHER SALTS) SUGGESTED CONSIDERABLE UNCERTAINTY IN THERMAL CONDUCTIVITY. MEASUREMENTS CONFIRMED THIS. SO FAR, NO PERCEPTIBLE CORROSION OR SCALING HAS OCCURRED.

*HEAT EXCHANGER + *HEAT TRANSFER ANALYSIS + MSRE (MOLTEN SALT REACTOR EXPERIMENT) + OPERATIONS REPORT, ANALYSIS + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT + SURFACE FILM DEPOSIT

5-17530

ALSO IN CATEGORY 6

BURDG CE + ZUROMSKY G + KOZIOL JJ

POWER BURST FACILITY FUEL ROD PROTOTYPE OUT-OF-PILE THERMAL TESTS. FINAL REPORT

COMBUSTION ENGINEERING, INC., WINDSOR, CONN. NUCLEAR DIVISION

CEND-235 +. 71 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1965

THIS REPORT COMPLETES THE WORK ON SUBCONTRACT C-258, WITH PHILLIPS PETROLEUM COMPANY, FOR CONDUCTING OUT-OF-PILE THERMAL TESTS ON CERAMIC FUEL COMPOSITIONS OF THE UO₂-ZRO₂-CAO SYSTEM. THREE MAIN TASKS WERE ACCOMPLISHED - THE PHASE STABILITY OF THE MATERIALS WAS INVESTIGATED AT SEVERAL HIGH TEMPERATURES. THE MELTING POINT, SPECIFIC HEAT, AND THERMAL CONDUCTIVITY WERE DETERMINED FOR TWO OF THE COMPOSITIONS. THERMAL-CYCLING TESTS WERE PERFORMED ON FUEL-ROD COMPONENTS UNDER SEVERE THERMAL GRADIENT CONDITIONS AND WITH SEVERAL COMBINATIONS OF FUEL COMPOSITION AND COMPONENT GEOMETRY, SIMULATING POWER BURST FACILITY CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CERAMICS + FUEL ELEMENT + PHASE CHANGE + TEST, PROOF + THERMAL PROPERTY

5-17536

DURFEE RL + NICHOLS CR + SPURLOCK JM + MARKELS M

BOILING HEAT TRANSFER WITH ELECTRICAL FIELD (EHD)

ATLANTIC RESEARCH CORP., ALEXANDRIA, VA.

NYO-2404-76 +. 194 PAGES, 53 FIGURES, 27 TABLES, 25 REFERENCES, FEBRUARY 1966

ENHANCEMENT OF BOILING HEAT TRANSFER TO ISOPROPANOL AND DEIONIZED WATER BY APPLICATION OF ELECTRICAL FIELDS WAS STUDIED. TRANSFER TO ISOPROPANOL WAS INCREASED 6 TIMES THE NORMAL NUCLEATE BOILING PEAK AT 10,000 VOLTS DC. ABOVE 1000 VOLTS, NUCLEATE BOILING OCCURRED AT ALL TEMPERATURE DIFFERENCE. THE BURNOUT HEAT FLUX IN FLOWING WATER AT 1500 PSI WAS INCREASED 40% BY APPLYING 1000 VOLTS AC.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + ELECTROHYDRODYNAMICS + FLOW STABILITY + HEAT TRANSFER AUGMENTATION + HEAT TRANSFER EXPERIMENT

5-17557

KONAKOV PK

PROGRESS IN HEAT TRANSFER. PART I - LAMINARY BOUNDARY LAYER FLOW IN TRANSPARENT AND GRAY MEDIA. PART II - EQUIPMENT FOR THE PREPARATION OF SEMICONDUCTOR MATERIALS

157 PAGES, FIGURES, TABLES, REFERENCES, CONSULTANTS BUREAU, NEW YORK, (TRANSLATED FROM RUSSIAN)

SIXTEEN PAPERS DESCRIBING RUSSIAN WORK IN THE AREA OF COMPOSITE HEAT-TRANSFER MECHANISM OF RADIATION, CONVECTION AND CONDUCTION TO GRAY AND TRANSPARENT MEDIA. THE PAPERS INCLUDE STATE-OF-THE-ART SURVEYS, EXPERIMENTAL INVESTIGATION REPORTS, CLASSICAL ANALYSIS OF RADIATION COMBINED WITH BOUNDARY LAYER FLOW OF ABSORBING MEDIUM AND COMBUSTION-CHAMBER-DESIGN CALCULATIONS. THE TRANSLATION READS EASILY. THE ARTICLES ARE WELL REFERENCED UP TO EARLY

CATEGORY 5
ACCIDENT ANALYSIS

5-17557 *CONTINUED*

1963. SIX OTHER PAPERS DEAL WITH PRODUCTION OF LARGE SINGLE CRYSTALS.

AVAILABILITY - CONSULTANTS BUREAU, NEW YORK

BOUNDARY LAYER, REACTING + COMBUSTION + HEAT TRANSFER + HEAT TRANSFER ANALYSIS +
HEAT TRANSFER, CONVECTION + HEAT TRANSFER, RADIANT

5-17578

FORSLUND RP + ROHSENOW WM

THERMAL NON-EQUILIBRIUM IN DISPERSED FLOW FILM BOILING IN A VERTICAL TUBE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, DEPARTMENT OF MECHANICAL ENGINEERING, CAMBRIDGE, MASSACHUSETTS
MIT-TR-75312-44 +. 152 PAGES, 45 FIGURES, 2 TABLES, 39 REFERENCES, NOVEMBER 1966

THE DEPARTURE FROM THERMAL EQUILIBRIUM BETWEEN A DISPERSED LIQUID PHASE AND ITS VAPOR AT HIGH QUALITY DURING FILM BOILING WAS INVESTIGATED. THE DEPARTURE FROM EQUILIBRIUM WAS MANIFESTED BY THE HIGH RESISTANCE TO HEAT TRANSFER BETWEEN THE DISPERSED AND CONTINUOUS PHASES, WHICH RESULTED IN MUCH HIGHER VAPOR TEMPERATURES AND AN EFFECT IN THE AMOUNT OF VAPOR GENERATED. THE EFFECT ON THE OVERALL HEAT TRANSFER IS TO RAISE THE TUBE WALL TEMPERATURE, AND INCOMPLETE EVAPORATION OCCURS WITHIN THE TUBES.

AVAILABILITY - ROBERT P. FORSLUND AND WARREN M. ROHSENOW, DEPARTMENT OF MECHANICAL ENGINEERING,
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE 39, MASSACHUSETTS

FLOW, TWO PHASE + HEAT TRANSFER, BOILING + HEAT TRANSFER, CONVECTION

5-17700

ALSO IN CATEGORY 17

SELECTED CVTR OPERATING EXPERIENCE

CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.

CVNA-261 +. 31 PAGES, PAGE 4, 24, AND 26 OF MONTHLY OPERATING REPORT, JUNE 1966

(PAGE 4) A SPURIOUS SCRAM OCCURRED WHEN THE OPERATOR, WHILE RAPIDLY REDUCING POWER BECAUSE TURBINE TUBE-OIL-COOLING FAILED, TURNED THE FLUX-SCRAM SELECTOR TO LOW INSTEAD OF BLOCKING THE POWER-RADIO SCRAM. (PAGE 24) POWER HAS BEEN LIMITED TO 83% BY THE HIGH-POWER/HIGH-BURNUP ASSEMBLY HEAT RATE. DATA IS BEING ANALYZED FOR THE DISCREPANCY BETWEEN TWO CALCULATIONS. (PAGE 26) COOLANT MIXING IN THE PRESSURE-TUBE U-BEND SHOWS THAT THE TEMPERATURE MEASURED THERE IS THE MIXED-MEAN TEMP. TUBES WITH FRESH FUEL HAVE HAD 6-WEEK FLOW DROPS OF ABOUT 7%, MUCH IN THE INITIAL 1 TO 2 WEEKS. NO CHANGE IN TOTAL CORE FLOW RATE EVIDENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE*FLOW DISTRIBUTION + *PERFORMANCE LIMIT + *SCRAM, SPURIOUS + *SURFACE FILM DEPOSIT +
CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + INSTRUMENTATION, TEMPERATURE + OPERATIONS REPORT, GENERAL +
REACTOR POWER + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + REACTOR, PRESSURIZED WATER

5-17802

ALSO IN CATEGORIES 6 AND 8

REDMAN JD + MCKEE G + RULE IC

AN EXPERIMENTAL STUDY OF TURBULENT FORCED CONVECTION HEAT TRANSFER TO GASES IN AXIAL FLOW ROD CLUSTER
PASSAGESREACTOR GROUP, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SELLAFIELD, ENGLAND + REACTOR, DEVELOPMENT
LABORATORY, WINDSCALE, ENGLAND

TRG-REPORT-931 + JNPC-TEWP(65)/P-45 +. 70 PAGES, 31 FIGURES, 9 REFERENCES, NOVEMBER 11, 1965

FUEL ELEMENTS IN SEVERAL TYPES OF NUCLEAR REACTOR AND SOME CONVENTIONAL HEAT EXCHANGERS CONSIST OF CLUSTERS OF TUBES COOLED ON THE OUTSIDE BY AXIAL TURBULENT FLUID FLOW. THE HEAT TRANSFER IN FLOW PASSAGES OF THIS TYPE DEPENDS ON THE CLUSTER GEOMETRY, THE REYNOLDS NUMBER, AND THE BOUNDARY CONDITIONS AT THE SURFACES OF THE TUBES. EXPERIMENTAL WORK IS REPORTED ON THE INFLUENCE OF ALL THESE PARAMETERS ON FULLY DEVELOPED HEAT TRANSFER IN A SIMPLE CLUSTER.

AVAILABILITY - PUBLIC RELATIONS BRANCH, U.K.A.E.A. (REACTOR GROUP), RISLEY, WARRINGTON, LANCASHIRE

FLOW, AXIAL + FLOW, CROSS + FLOW, TURBULENT + FUEL ELEMENT + FUEL ELEMENT CLUSTER +
HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, CONVECTION + REACTOR, GENERAL

5-17804

ALSO IN CATEGORIES 6 AND 8

CLERICI GC + GARRIBA S + SALA R + TOZZI A

CRITICAL STUDIES ON STEADY BURNOUT. FINAL REPORT. PART 1. CORRELATION FOR NON UNIFORM HEATING. PART 2.
STUDIES ON LINEAR CORRELATIONS

APPLICAZIONI E RICERCHE SCIENTIFICHE, MILAN, ITALY

EURAE-1833(PTS. 1 AND 2) + EUR-3356(PTS. 1 AND 2) +. 150 PAGES, REFERENCES, 1967

THE MANY CORRELATIONS FOR STEADY-STATE BURNOUT WERE COLLECTED AND COMPARED. THE CORRELATIONS WERE THEN PUT ON A STANDARD BASIS, COMPARING THE BURNOUT-CRITICAL HEAT FLUX WITH THE STEAM OUTLET QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 5
ACCIDENT ANALYSIS

5-17804 *CONTINUED*
BURNOUT HEAT FLUX + DNB (DEPARTURE FROM NUCLEATE BOILING) + EURATOM + HEAT TRANSFER CORRELATION + ITALY +
REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

5-17805 ALSO IN CATEGORIES 6 AND 8
MAYINGER F + SCHAD O + WEISS E
INVESTIGATIONS INTO THE CRITICAL HEAT FLUX IN BOILING. FINAL REPORT
MASCHINENFABRIK AUGSBURG-NUERNBERG A. G., NUERNBERG, WEST GERMANY
EURAC-1811 + EUR-3347 +. 359 PAGES, MAY 20, 1966

THE PURPOSE WAS TO MEASURE THE CRITICAL HEAT FLUX (BURNOUT) IN BOILING AND, PRIMARILY, THE
EFFECTS OF THE HISTORY AND THE INLET CONDITIONS AS WELL AS THE L/D RATIO OF THE TEST CHANNEL
ON NUCLEATE BOILING. THE INCEPTION OF FILM BOILING WAS ALSO INVESTIGATED. THE TESTS WERE
MADE AT PRESSURES OF 70 TO 140 KGF/SQ. CM, USING INTERNALLY COOLED TUBES WITH DIAMETERS
VARYING FROM 0.7 TO 1.5 CM. THE CONDITIONS AT THE CHANNEL INLETS COVERED MASS FLOWS BETWEEN
100 AND 350 G/SQ. CM/SEC BETWEEN A DEGREE OF SUBCOOLING OF 20%, AND 20% STEAM QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FLOW, PULSATING + FLOW, TWO PHASE + GERMANY + HEAT FLUX, CRITICAL + HEAT TRANSFER EXPERIMENT +
REACTOR, BOILING WATER

5-17806 ALSO IN CATEGORIES 6 AND 8
HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT
NO. 9, JANUARY 1-APRIL 1, 1966
TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS
EURAC-1672 + EUR-2864 + WW-015-R-100 +. 23 PAGES, REFERENCES, MAY 1966

DURING THIS QUARTER EXPERIMENTS WERE MADE ON A SEVEN-ROD CLUSTER ELEMENT TO DETERMINE THE
INFLUENCE OF THE SHROUD DISTANCE AND MIXING BETWEEN THE FUEL CHANNEL AND SURROUNDING CHANNELS
ON THE BURNOUT POWER. TECHNOLOGICAL TESTS WERE MADE WITH THE MIXING TEST SECTION IN THE
PRESSURIZED LOOP, AMONG WHICH PERFORMANCE TESTS ON THE NEWLY INSTALLED VOID METERS WAS A MAIN
ITEM. CONTINUED ARE THE CALIBRATIONS IN AN AIR-WATER LOOP AND A THEORETICAL STUDY ON THE
HYDRAULIC COUPLING OF PARALLELED CHANNELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DNB (DEPARTURE FROM NUCLEATE BOILING) + FLOW, CROSS + FUEL ELEMENT CLUSTER + HYDRAULIC EXPERIMENT +
REACTOR, PRESSURIZED WATER

5-17807
PRESSURIZED WATER REACTOR PH-REACTIVITY EFFECT. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING MARCH 31,
1967
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIVISION
WCAP-3696-3 + EURAC-1828 +. 84 PAGES, 5 FIGURES, 1 TABLE, APRIL 1967

THE OBJECTIVE OF THIS REPORT SERIES IS TO DEVELOP AND PUBLISH THE UNDERSTANDING OF THE
PH-REACTIVITY EFFECT OBSERVED DURING OPERATIONS OF SEVERAL PRESSURIZED-WATER REACTORS, SUCH
AS YANKEE AND SAXTON. LABORATORY TESTS, REACTOR TESTS, AND ANALYTICAL STUDIES ARE REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CHEMICAL REACTION + COOLANT COEFFICIENT + COOLANT PURIFICATION SYSTEM + COOLANT QUALITY + CRUD +
PH-REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER

5-17808 ALSO IN CATEGORIES 6 AND 8
HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT
NO. 8, OCTOBER 1, 1965-JANUARY 1, 1966
TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS
EUR-2856 + WW-015-R-96 + EURAC-1664 +. 27 PAGES, REFERENCES, JANUARY 1966

EXPERIMENTS WERE FINISHED ON A SINGLE-ROD SQUARE-ANNULUS GEOMETRY FOR DETERMINING THE
INFLUENCE OF A COLD WALL AND MIXING BETWEEN THE FUEL CHANNEL AND A SURROUNDING CHANNEL ON THE
BURNOUT POWER. EXPERIMENTS WERE MADE IN AN AIR-WATER LOOP ON A TWO-CHANNEL GEOMETRY BY
MAKING MASS AND HEAT BALANCES IN TWO ADJACENT CHANNELS. (MEASUREMENTS WERE MADE ON VOID
FRACTION IN THE AIR-WATER LOOP DURING NONSYMMETRIC INJECTIONS OF AIR AT DIFFERENT LEVELS.
THE TEST SECTION ON THE TWO-CHANNEL GEOMETRY IN THE 140-ATM PRESSURIZED LOOP WAS FABRICATED).
THE THEORETICAL STUDY ON THE HYDRAULIC COUPLING OF PARALLELED CHANNELS IS CONTINUING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + FLOW, CROSS + HEAT TRANSFER, BOILING + REACTOR, BOILING WATER +
REACTOR, PRESSURIZED WATER

CATEGORY 5
ACCIDENT ANALYSIS

5-17809 ALSO IN CATEGORIES 4 AND 6
CULLOM RR + DIEDRICH G + ALBERS LU
ANALYSIS OF SOLIDIFICATION IN THERMAL-ENERGY STORAGE SYSTEMS WITH AXISYMMETRIC HEAT-TRANSFER SOLUTIONS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-3763 +. 25 PAGES, 8 FIGURES, 1 TABLE, 6 REFERENCES, DECEMBER 1966

AN ANALYSIS WAS MADE OF A TRANSIENT HEAT CONDUCTION PROBLEM WITH A PHASE CHANGE IN THE AXISYMMETRIC CONDUCTING MEDIUM AND HEAT TRANSFER AT THE INNER RADIUS ONLY. NONDIMENSIONAL FINITE-DIFFERENCE SOLUTIONS FOR SURFACE TEMPERATURE AND SOLIDIFICATION THICKNESS WERE OBTAINED FOR A RANGE OF TIME, INITIAL HEAT-REJECTION RATE, TUBE DIAMETER, AND STORAGE-MATERIAL PROPERTIES. THE NONDIMENSIONAL SOLUTIONS PRESENTED IN THIS REPORT CAN BE APPLIED TO A WIDE RANGE OF AXISYMMETRIC SOLIDIFICATION PROBLEMS, SUCH AS METAL CASTING AND ICE FORMATION. THE GENERAL SOLUTIONS WERE USED IN AN ANALYSIS OF A LITHIUM HYDRIDE THERMAL-ENERGY STORAGE SYSTEM. ANALYSIS INDICATES AXISYMMETRIC SOLUTIONS ARE RECOMMENDED OVER THE SIMPLE ONE-DIMENSIONAL SOLUTIONS FOR LOW RADII OR LONG DARK TIMES TO PREVENT INEFFICIENT OVERDESIGN OF THE THERMAL-ENERGY STORAGE COMPONENT. THE STORAGE-MATERIAL SURFACE TEMPERATURE IS MORE SENSITIVE TO CHANGES IN HEAT-REJECTION RATE THAN TO CHANGES IN EITHER COOLING TIME OR HEAT-TRANSFER SURFACE RADIUS. THE SOLIDIFICATION THICKNESS IS A STRONGER FUNCTION OF COOLING TIME THAN EITHER HEAT-TRANSFER RATE OR SURFACE RADIUS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

HEAT TRANSFER ANALYSIS + HEAT TRANSFER, CONDUCTION + MATHEMATICAL TREATMENT + PHASE CHANGE + REACTOR, SPACE

5-17837 ALSO IN CATEGORY 17
BOYD RS
SAXTON CHANGE 24. TEST FUEL ASSEMBLIES XV AND XVI
DIVISION OF REACTOR LICENSING, WASHINGTON, D.C.
5 PAGES, AUGUST 10, 1966, DOCKET NO. 50-146

DRL ALLOWS SAXTON TO USE TWO NEW TEST FUEL ASSEMBLIES. ASSEMBLY XV WILL CONSIST OF 5 SS-CLAD FUEL RODS, PLUS ANY COMBINATION OF 4 RODS OF THE FOLLOWING - (1) ZIRC-4-CLAD TUBES CONTAINING ZIRC-4 CAPSULES IN WHICH ARE ZIRCALOY TEST SPECIMENS OF GRID-STRAP MATERIAL, (2) IDENTICAL TUBE EXCEPT PRESSURIZED TO PRODUCE STRESSES OF 41,500 PSI IN THE CLADDING, (3) STANDARD FUEL RODS PRESSURIZED TO PRODUCE 27,500 PSI IN THE CLAD, AND (4) ZIRC-4-CLAD FUEL RODS ENRICHED TO 17.4% U-235 AND PRESSURIZED TO PRODUCE 22,000 PSI IN THE CLADDING. ASSEMBLY XVI IS IDENTICAL EXCEPT THE 5 SS RODS HAVE PREVIOUSLY BEEN IRRADIATED.

*CLAD + *IRRADIATION TESTING + *PRESSURE, INTERNAL + *STRESS + *ZIRCALOY + FUEL ELEMENT + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SAXTON + TECHNICAL SPECIFICATIONS

5-17841 ALSO IN CATEGORY 17
MCELROY DF
PATHFINDER PROPOSED CHANGE 12. EXTENSION OF EXCEPTION FROM MAXIMUM COOLDOWN RATE BEYOND 40% FULL POWER
NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA
7 PAGES, 3 FIGURES, AUGUST 16, 1966, DOCKET NO. 50-130

PATHFINDER REQUESTS THAT CHANGE 11 BE EXTENDED TO PERMIT CONTINUED POWER ESCALATION WHILE PERMANENT REVISION (PROPOSED CHANGE 14) IS UNDER AEC REVIEW. AT PRESENT A SCRAM OR RUNBACK WHILE ON MANUAL PRESSURE CONTROL COULD CAUSE HIGH BLOWDOWN RATE. 3 MODIFICATIONS ARE TO BE MADE BEFORE EXCEEDING 40% POWER. (1) AUTOMATIC OPERATING LIMITS/TECHNICAL SPECIFICATIONS CONTROL OF MAIN STEAM ISOLATION VALVE. (2) POWER-ACTUATED SAFETY VALVE WILL BE AVAILABLE ONLY IF MAIN STEAM BYPASS VALVE IS FULLY OPEN. (3) CHANGE IN CONTROL OF LOW-STEAM-FLOW SETPOINT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*EMERGENCY COOLING CONSIDERATIONS + *RATE + *THERMAL MECHANICAL EFFECT + MODIFICATION, SYSTEM OR EQUIPMENT + PATHFINDER + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

5-18679 ALSO IN CATEGORY 17
IS BOILING WATER ENVIRONMENT DETRIMENTAL TO SS CLADDING
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
6 PAGES, 1 FIGURE, 27 REFERENCES, POWER REACTOR TECHNOLOGY 8(4) PAGES 252-257 (FALL 1965)

OPPOSING VIEWS ARE PRESENTED ON DIFFERENCES BETWEEN PWR AND BWR CLADDING BEHAVIOR. SPECIFICALLY DISCUSSED ARE (1) SYSTEM PRESSURE EFFECTS ON TENSILE STRESS AND CRACK PROPAGATION, (2) SYSTEM-CHEMISTRY EFFECT ON STRESS CORROSION, (3) CORROSION-PRODUCT DEPOSITION, (4) LOCAL THERMAL STRESSES, AND (5) THE APPLICATION OF EXPERIENCE DATA FROM VALLECITOS BWR TO BWRs IN GENERAL.

*FAILURE, CLADDING + *NUCLEATE BOILING + *STEEL, STAINLESS + *THERMAL MECHANICAL EFFECT + CLAD + CORROSION + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER + STRESS CORROSION + SURFACE FILM DEPOSIT + TENSILE PROPERTY + VBWR (VALLECITOS BOILING WATER REACTOR)

CATEGORY 5
ACCIDENT ANALYSIS

5-18691 ALSO IN CATEGORY 17
LACY PS + RABY TM
PATHFINDER ATOMIC POWER PLANT. XENON REACTIVITY TEST (335)
ALLIS-CHALMERS MFG. CO., BETHESDA, MD. ATOMIC ENERGY DIVISION
ACNP-67521 +. 34 PAGES, 14 FIGURES, 4 TABLES, JUNE 1967

XE AND SM REACTIVITY VALUES WERE OBTAINED FOR STARTUP AND SHUTDOWN AT VARIOUS POWER LEVELS TO 85%. XE PEAKING APPEARS ABOVE 30% POWER. ESTIMATES ARE THAT AT FULL POWER, EQUIL. XE IS 2.7, AND PEAK XE IS 5% DELTA/K. MEASURED DATA ARE LESS THAN CALCULATIONS FOR HIGHER POWERS BECAUSE THE CALCULATIONS WERE DONE FOR A VOIDED UNRODDED CORE, AND THE MEASUREMENTS WERE MADE IN AN UNVOIDED, RODDED CORE. CONTROL-ROD-WORTH DATA GENERATED DURING TEST ADD UNCERTAINTY BECAUSE THE AMOUNT AND DISTRIBUTION OF VOIDS HAVE AN APPRECIABLE EFFECT ON ROD-WORTH MAGNITUDE AND SHAPE, ALSO SHOWS EFFECT OF CORE VERTICAL DISCONTINUITIES. SM EQUILIBRIUM OF 0.8% DELTA/K WAS IN GOOD AGREEMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD WORTH + *MEASUREMENT, REACTIVITY + *SAMARIUM + *XENON + COMPARISON, THEORY AND EXPERIENCE + OPERATIONS REPORT, ANALYSIS + PATHFINDER + REACTIVITY EFFECT + REACTOR, INTERNAL SUPERHEAT

5-18694 ALSO IN CATEGORY 17
NOVENDSTERN EH + JONES MB
STUDY OF PROPOSED CVTR OPERATION AT 100 MWF
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIVISION
CVNA-273 +. 50 PAGES, REFERENCES, MAY 1967

STUDY OF CVTR POWER UPGRATING FROM 65 MWF SHOW OPERATION AT 100 MWF TO BE FEASIBLE, ASSUMING A MAXIMUM LINEAR POWER RATING TO BE 17 KW/FT (PRESENT LICENSE LIMIT). HOT-CHANNEL FACTORS MUST BE LOWER THAN PRESENT LIMITS, HOWEVER, AND INLET COOLANT TEMPERATURE DECREASED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*HEAT TRANSFER ANALYSIS + *POWER UPGRATING + CVTR (CAROLINA'S VIRGINIA TUBE REACTOR) + REACTOR, PRESSURIZED WATER

5-18857 ALSO IN CATEGORY 17
PHILLIPS JL
DOUNREAY FAST REACTOR MODIFICATIONS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY
4 PAGES, 6 FIGURES, NUCLEAR ENGINEERING 12(128) PAGES 40-43 (OCTOBER 18, 1967)

MODIFICATIONS WERE NECESSARY BECAUSE OF COOLANT-FLOW INSTABILITIES IN THE OUTER BREEDER ELEMENTS AS A RESULT OF OPPOSING CONVECTIVE AND BUOYANCY-INDUCED FLOWS. THERMAL EFFECTS CAUSED EXCESSIVE FUEL SWELLING IN 1/3 OF THE OUTER BREEDER ELEMENTS TO SUCH AN EXTENT THAT MAJOR MODIFICATIONS WERE NECESSARY TO DISCHARGE MOST OF THEM. THE MODIFICATIONS, TOOLING, AND METHODS ARE DESCRIBED.

*FAILURE, DESIGN ERROR + *FAILURE, FUEL ELEMENT + DOUNREAY (UK) + FLOW STABILITY + MAINTENANCE AND REPAIR + MAINTENANCE, REMOTE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + UNITED KINGDOM

5-18892 ALSO IN CATEGORY 6
BLANC H + LE BERRE F + MILLOT JP
CALCULATION OF POWER BURSTS IN SWIMMING POOL REACTORS WHEN THE COOLING SYSTEM IS NOT WORKING
COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE
17 PAGES, 9 FIGURES, 5 REFERENCES, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 95 THRU 112, (FEBRUARY 1967)

A MATHEMATICAL MODEL FOR COMPUTING REACTIVITY ACCIDENTS IN POOL-TYPE REACTORS WHEN THE COOLING SYSTEM IS NOT WORKING IS DESCRIBED. IT TAKES INTO ACCOUNT THE HEATING OF THE CORE, THE MODERATOR BOILING, AND THE DOPPLER EFFECT. SAMPLE RESULTS ARE GIVEN.

ACCIDENT ANALYSIS + MATHEMATICAL TREATMENT + REACTIVITY EFFECT + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR, POOL TYPE

5-18893 ALSO IN CATEGORY 6
BLANC H + DUTRAIVE P + FABREGA S + MILLOT JP
CALCULATION OF ACCIDENTS IN WATER REACTORS DURING OPERATION AT POWER
COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE
8 PAGES, 4 FIGURES, 1 REFERENCE, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 87 THRU 94, (FEBRUARY 1967)

DESCRIBES A COMPUTER CODE THAT WILL CALCULATE THE BEHAVIOR OF A WATER-COOLED REACTOR DURING AN ACCIDENT OCCURRING DURING NORMAL POWER OPERATION. REACTIVITY, LOSS OF COOLANT, AND

CATEGORY 5
ACCIDENT ANALYSIS

5-18893 *CONTINUED*
POWER-OVERSHOOT TYPES OF ACCIDENTS ARE TREATED.

ACCIDENT ANALYSIS + COMPUTER PROGRAM + MATHEMATICAL TREATMENT + REACTIVITY EFFECT + REACTOR DYNAMICS + REACTOR KINETICS

5-18899 ALSO IN CATEGORIES 15 AND 17

THOMAS JT + CALLIHAN D

RADIATION EXCURSION AT ORNL CRITICAL EXPERIMENT LABORATORY - MAY 26, 1954

OAK RIDGE NATIONAL LABORATORY

ORNL-2452 +. 27 PAGES, 12 FIGURES, 5 TABLES, PAGES 4-27 OF RADIATION EXCURSIONS AT THE ORNL CRITICAL EXPERIMENTS LABORATORY, MAY 5, 1958

UO2F2 LIQUID FUEL WAS IN A 10-IN.-DIAM CYLINDER, WITH A 2-IN.-DIAM CADMIUM CYLINDER, HELD IN THE CENTER BY A SPIDER AT THE TOP. A PIN ON THE LIQUID-LEVEL PROBE, RAISED WHEN AT NEAR CRITICAL VOLUME, RAISED THE SPIDER, ALLOWING THE CENTRAL TUBE TO TIP OVER, CREATING A MORE FAVORABLE GEOMETRY AND MOVING ABSORBER FROM A REGION OF HIGH IMPORTANCE. RESULTING EXCESS REACTIVITY (\$2.8) RELEASED ABOUT 0.8 KWHR. VENTILATION SYSTEM WAS ALLOWED TO RUN FOR 15 MIN, AND TRUCK DOOR WAS OPEN, ALLOWING FISSION-PRODUCT ESCAPE. LARGEST EXPOSURE WAS 0.9 R, TO A GUARD AT NEARBY GATE. RADIATION LEVEL 30 MIN LATER AT TRUCK DOOR WAS 2.65 R/HR. SKYSHINE WAS A PROBLEM DUE TO THIN CEILING. MAXIMUM INTERNAL DOSAGE WAS ABOUT 0.3 MICROCURIE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*ACCIDENT, CRITICALITY + *INCIDENT, ACTUAL, EQUIPMENT + *SCATTERING (SKYSHINE) + CRITICAL ASSEMBLY FACILITY + LIQUID FUEL + OPERATIONS REPORT, ANALYSIS + ORNL (OAK RIDGE NATIONAL LABORATORY) + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

5-18901

BECKER KM

AN ANALYTICAL AND EXPERIMENTAL STUDY OF BURNOUT CONDITIONS IN VERTICAL ROUND DUCTS

THE ROYAL INSTITUTE OF TECHNOLOGY, STOCKHOLM

14 PAGES, 27 FIGURES, 16 REFERENCES, NUKLEONIK 9(6) PAGES 257-70 (APRIL 1967)

THE BURNOUT CONDITIONS FOR FLOW OF BOILING WATER IN VERTICAL, ROUND DUCTS WERE MEASURED IN WIDE RANGES OF VARIABLES. THE INVESTIGATION COMPRISED 1299 MEASUREMENTS. A BURNOUT CORRELATION WAS DEVELOPED, EMPLOYING THE VANDERWATER FLOW MODEL. THE CORRELATION DEMONSTRATES CONCLUSIVELY THAT THE BURNOUT CONDITIONS DEPEND ONLY ON THE LOCAL VALUES OF PRESSURE, MASS VELOCITY, SURFACE HEAT FLUX, AND STEAM QUALITY AT THE BURNOUT POSITION AND ON THE DIAMETER OF THE DUCT. A COMPARISON BETWEEN THE CORRELATION AND THE EXPERIMENTAL RESULTS REVEALED THAT FOR 1170 RUNS, CORRESPONDING TO 91% OF THE MEASUREMENTS, THE PREDICTED AND MEASURED BURNOUT HEAT FLUXES AGREED WITHIN PLUS OR MINUS 8%, AND THE RMS ERROR FOR THE TOTAL INVESTIGATION WAS 5.3%.

*ACCIDENT ANALYSIS + *BURNOUT HEAT FLUX + *COMPARISON, THEORY AND EXPERIENCE + *STEAM QUALITY

5-18912 ALSO IN CATEGORIES 16 AND 18

ELK RIVER DILUTION FACTOR, AND FEEDWATER OSCILLATION

RURAL COOPERATIVE POWER ASSOCIATION

NUS-269 +. 122 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967, DOCKET NO. 115-1

(PAGES 12-18) RE-EVALUATION OF ANNUAL AVERAGE DILUTION FACTORS, USING WINDIF-3 WITH DATA FROM ON-SITE AND MINNEAPOLIS, YIELDED DILUTION FACTOR 50 TIMES CURRENT VALUES. (PAGES 42-50) PRIMARY FEEDWATER HYDRAULIC OSCILLATIONS ARE BRIEFLY SUMMARIZED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *DILUTION + *FLUCTUATION + *REACTOR POWER + *WIND STATISTICS + ATMOSPHERIC DIFFUSION + CIRCULATION, NATURAL (LOOPS AND REACTORS) + ELK RIVER + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

5-19107

ALSO IN CATEGORIES 12 AND 18

PALLADINO NJ

ACRS REPORT ON PEACH BOTTOM 2 AND 3

ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

PRESS REL. K-246 +. 3 PAGES, LETTER TO DR. SEABORG FROM PALLADINO, OCTOBER 12, 1967, DOCKET NO. 50-277/8

ACRS SUGGESTS DRL REVIEW (1) SOURCES OF WATER IN CASE CONWINGO DAM BREAKS AND (2) MODIFICATION TO RING HEADER SUPPLYING TORUS WATER TO EMERGENCY CORE COOLING. ACRS RECOMMENDS FURTHER EXPERIMENTS ON FILM-CONDENSATION COEFFICIENT USED IN DEPRESSURIZATION PREDICTIONS FOR HPCI SYSTEM, A CAREFUL STARTUP PROGRAM, AND REFERS TO MARCH 14, 1967 LETTER ON BROWNS FERRY AS APPLICABLE HERE. ACRS APPROVES REACTOR CONSTRUCTION.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*CORE SPRAY + *HEAT TRANSFER EXPERIMENT + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) +

CATEGORY 5
ACCIDENT ANALYSIS

5-19107 *CONTINUED*

CONTAINMENT, PRESSURE SUPPRESSION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

5-19110 ALSO IN CATEGORY 17

NATH RJ + WYKE TF

CVTR CORE 1 NUCLEAR OPERATIONS FOLLOW SUMMARY

WESTINGHOUSE ELECTRIC CORP., PITTSBURG, PA.

CVNA-280 +. 154 PAGES, FIGURES, TABLES, REFERENCES, JULY 1966

RESULTS FROM CORE 1 SHOWED THAT ANALYTICAL METHODS (TURBO) WERE ADEQUATE. MEASURED POWER DISTRIBUTIONS, CORE LIFETIMES, AND REACTIVITY COEFFICIENTS AGREED WITH PREDICTED VALUES. INSTRUMENTS AND EQUIPMENT PERFORMED WELL. ONE PROBLEM ENCOUNTERED WAS THE HIGH PHOTONEUTRON BACKGROUND DURING PHYSICS TESTING, DUE TO THE HEAVY-WATER MODERATOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STARTUP TESTING + COMPARISON, THEORY AND EXPERIENCE + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

5-19111 ALSO IN CATEGORIES 6 AND 17

TOPPEL BJ + VOGELBERGER PJ + WIMUNC EA

SAFETY ANALYSIS ASSOCIATED WITH THE PLUTONIUM RECYCLE EXPERIMENT IN EBWR

ARGONNE NATIONAL LABORATORY

ANL-6841 +. 106 PAGES, 29 FIGURES, 23 TABLES, 67 REFERENCES, NOVEMBER 1966

CORE CONSISTS OF 6 X 6 PU-U ZONE SURROUNDED BY A SHIM REGION AND AN OUTER REGION OF URANIUM. BETA-EFF. WILL VARY FROM 0.005 (U CORE, 0.0082) AT BEGINNING TO 0.006 (U CORE, 0.0054). MCA IS LOSS OF COOLANT FROM REACTOR-VESSEL VERTICAL-SEAM FAILURE AND CORE MELTDOWN (AFTER 2 HR OR MORE), BUT CONTAINMENT SHELL WOULD WITHSTAND RESULTING PRESSURE, ASSUMING FAILURE OF THE CONTAINMENT SPRAY SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT, LOSS OF COOLANT + *DELAYED NEUTRON + *DOSE + *PLUTONIUM + BLOWDOWN + CONTAINMENT SPRAY + EBWR (EXPERIMENTAL BOILING WATER REACTOR) + METAL WATER REACTION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

5-19148 ALSO IN CATEGORY 17

INDIAN POINT 1 CHANGE 31 - REFUELING OF CORE B

AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

9 PAGES, 2 TABLES, OCTOBER 19, 1967, DOCKET NO. 50-3

7 CHANGES RELATING TO REFUELING AND SUBSEQUENT TESTING PROGRAM. CENTRAL CORE REGION WILL BE REMOVED, REMAINING ELEMENTS REPOSITIONED, AND FRESH FUEL LOADED IN PERIPHERY. THERMAL LIMITS REMAIN UNCHANGED. CHANGES ALSO INCLUDE (1) LIMIT ON EXCESS REACTIVITY DROPPED AS REDUNDANT WITH SHUTDOWN MARGIN LIMIT, (2) LIMIT ON LOW PRESSURE DROPPED AS REDUNDANT WITH ROD-DROP-TIME SPECIFICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP TESTING + *REFUELING + CONTROL ROD SCRAM MECHANISM + INDIAN POINT 1 + PRESSURE, INTERNAL + REACTIVITY, EXCESS + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SHUTDOWN MARGIN + TECHNICAL SPECIFICATIONS

5-19180

HENCH JE + BOEHM RF

NINE-ROD CRITICAL HEAT FLUX INVESTIGATION AT 1000 PSIA

GENERAL ELECTRIC CO., SAN JOSE, CALIF. ATOMIC POWER EQUIPMENT DEPT.

GEAP-4929 +. 33 PAGES, REFERENCES, JANUARY 1966

AN EXPERIMENTAL STUDY IS IN PROGRESS TO DETERMINE THE CRITICAL-HEAT-FLUX VARIATION IN WATER AT HIGH PRESSURE. THE COMPLETED TESTS UTILIZED A NINE-ROD SECTION WITH UNOBSTRUCTED GEOMETRY (I.E., NEGLIGIBLE SPACER EFFECT). SEVENTY-FIVE DATA POINTS ARE PRESENTED FOR THE MASS VELOCITY RANGE OF 0.3 TO 1.25 MLB/HR-SQ. FT AT 1000 PSIA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *HEAT TRANSFER EXPERIMENT + COMPARISON, THEORY AND EXPERIENCE + HEAT TRANSFER CORRELATION + REACTOR, BOILING WATER

5-19182 ALSO IN CATEGORIES 8 AND 18

CATEGORY 5
ACCIDENT ANALYSIS

5-19182 *CONTINUED*
FORTESCUE P + SHANSTROM R + BROIDO J + STEIN JM + BAXTER A + FENECH H
SAFETY CHARACTERISTICS OF LARGE GAS-COOLED FAST POWER REACTORS
GENERAL ATOMIC, SAN DIEGO, CALIF. JOHN JAY HOPKINS LAB. FOR PURE AND APPLIED SCIENCE
GA-6732 + CONF-651009-5 + 81 PAGES, OCTOBER 8, 1965, PRESENTED AT CONFERENCE ON SAFETY, FUELS AND CORE
DESIGN IN LARGE FAST POWER REACTORS, ARGONNE, ILL.

DESCRIBES THE PRINCIPAL MECHANICAL FEATURES OF A REFERENCE DESIGN AND THEN ANALYZES SELECTED
ACCIDENTS, INCLUDING LOSS OF COOLANT, REACTIVITY CHANGES CAUSED BY INTRODUCTION OF WATER INTO
THE CORE, AND CONTROL-ROD WITHDRAWAL. OTHER TOPICS INCLUDE A STABILITY ANALYSIS AND
MAXIMUM-ENERGY-RELEASE STUDIES FROM SEVERE ACCIDENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *REACTOR, GAS COOLED + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES +
ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOSS OF COOLANT + ACCIDENT, REACTIVITY + REACTOR STABILITY +
REACTOR, FAST

5-19198 ALSO IN CATEGORIES 6 AND 17
HALL WF + LUMB RF + MACPHEE J
WVNYNRC PULSTAR FUEL ROD TESTING PROGRAM
TI UNITED STATES, LTD. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC.
12 PAGES, 5 FIGURES, 1 TABLE, PAGE 12 THRU 23 OF PULSTAR, A SLIGHTLY ENRICHED URANIUM-DIOXIDE FUELED
REACTOR, APRIL 1967, PRESENTED AT INTERNATIONAL CONFERENCE ON RESEARCH REACTOR UTILIZATION AND REACTOR
MATHEMATICS, MEXICO CITY, MEXICO, MAY 2 THRU 4, 1967

PULSE TESTS (PAGE 12-23), UNDER BOTH FORCED AND NATURAL CONVECTION, USING TEST PINS IN REGIONS
OF HIGH FLUX AS WELL AS THE NORMAL CORE PINS, WERE CONDUCTED TO DETERMINE (1) THRESHOLD OF
FUEL-PIN BOWING, (2) ONSET OF DNB, AND (3) SURFACE DEPOSIT BUILDUP. BULGING (6% DIA. GROWTH)
AND BANGBOING WERE OBSERVED IN SOME TEST PINS. 2900 F WAS ESTABLISHED TO BE THE LIMIT ON UO2
TEMPERATURE WITH NATURAL CONVECTION, AND PULSE RESTRICTED TO 200 MW/35 MW-SEC. DATA IS GIVEN
ON DNB ONSET WITH A VARIETY OF FUEL-ROD CONFIGURATIONS.

AVAILABILITY - WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC., POWER DRIVE, BUFFALO, NEW YORK 14214

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *FUEL ELEMENT BOWING + *SURFACE FILM DEPOSIT + *TEST, PROOF +
EXAMINATION + FUEL ELEMENT + OPERATING EXPERIENCE + PERFORMANCE LIMIT + PULSTAR +
REACTOR STARTUP TESTING + REACTOR, PULSED + REACTOR, RESEARCH + TEMPERATURE TRANSIENT +
THERMAL MECHANICAL EFFECT + URANIUM DIOXIDE

5-19238 ALSO IN CATEGORY 17
DRESDEN 1 CHANGE 13. REFUELING WITH TYPE-V ELEMENTS
DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, 1 TABLE, DOCKET 50-10, 1967

DRL ALLOWS LOADING OF UP TO 106 TYPE-V AND 4 SPECIAL TYPE-III-F ASSEMBLIES AND TO MODIFY THE
TYPE SA-1 ASSEMBLY BY REMOVING 5 RODS EACH FROM THE UPPER AND LOWER HALVES. THE PRINCIPAL
DIFFERENCE BETWEEN THE TYPE V AND THE PREVIOUSLY USED TYPE III AND III-F ASSEMBLIES IS THAT
THE TYPE V WILL HAVE THE GADOLINIA POISON IN 102 RODS RATHER THAN A SINGLE ALUMINA ROD.
INCLUDED ARE 6 SPECIAL TYPE-V PILOT ASSEMBLIES (4 WITH REDUCED CLAD THICKNESS AND 2 WITH ZIRC
RATHER THAN S. S SPACERS AND SOME DISHED PELLETS). THE 4 SPECIAL TYPE-III-F HAVE 1
PU-ENRICHED ROD IN THE 36-ROD BUNDLE AND LACK BURNABLE POISON. NEW FUEL WILL BE UNIFORMLY
SCATTERED IN THE CORE AND RESULTS IN THE LEAST REACTIVE DRESDEN CORE (MOST REACTIVE CONDITION
IS 2/3 OF THE WAY THROUGH THE CYCLE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CLAD + *CORE COMPONENTS, MISCELLANEOUS + *PLUTONIUM + *POISON, BURNABLE + *REFUELING + DRESDEN 1 +
FUEL ELEMENT + GADOLINIUM + REACTOR, BOILING WATER + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS +
ZIRCALOY

5-19419 ALSO IN CATEGORY 8
TODREAS NE + ROHSENOW WM
THE EFFECT OF NONUNIFORM AXIAL HEAT FLUX DISTRIBUTION
MASS. INST. OF TECHNOLOGY, CAMBRIDGE
NP-15622 + 245 PAGES, 52 FIGURES, TABLES, 54 REFERENCES

A SYSTEMATIC EXPERIMENTAL AND ANALYTIC INVESTIGATION OF THE EFFECT OF NONUNIFORM AXIAL
HEAT-FLUX DISTRIBUTION ON CRITICAL HEAT FLUX WAS PERFORMED WITH WATER IN THE QUALITY
CONDITION. UTILIZING A MODEL WHICH ASCRIBES THE CRITICAL CONDITION, TO EITHER A
NUCLEATION-INDUCED DISRUPTION OF THE ANNULAR LIQUID FILM OR ANNULAR FILM DRYOUT, THE
EXPERIMENTAL RESULTS TAKEN AT LOW PRESSURES (50-200 PSIA) WERE CONFIRMED. APPLICATION OF
THIS MODEL TO HIGHER PRESSURE CONDITIONS (500-200 PSIA) INDICATED QUALITATIVE AGREEMENT WITH
AVAILABLE DATA OF OTHER INVESTIGATORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *HEAT GENERATION, NONUNIFORM + FLOW, ANNULAR + FLOW, TWO PHASE +
REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

CATEGORY 5
ACCIDENT ANALYSIS

5-19421 ALSO IN CATEGORY 8
MCBRIDE BJ + GORDON S
FORTRAN IV PROGRAM FOR CALCULATION OF THERMODYNAMIC DATA
LEWIS RESEARCH CENTER, CLEVELAND
NASA-TN-D-4097 +. 129 PAGES, 1 FIGURE, 7 TABLES, 35 REFERENCES, AUGUST 1967

A FORTRAN IV PROGRAM IS DESCRIBED WHICH (1) CALCULATES THERMODYNAMIC FUNCTIONS (HEAT CAPACITY, ENTHALPY, ENTROPY, AND FREE ENERGY), (2) FITS THESE FUNCTIONS TO EMPIRICAL EQUATIONS, AND (3) CALCULATES, AS A FUNCTION OF TEMPERATURE, HEATS OF FORMATION AND EQUILIBRIUM CONSTANTS. THE PROGRAM PROVIDES SEVERAL METHODS FOR CALCULATING IDEAL GAS PROPERTIES. FOR MONATOMIC GASES, THREE METHODS ARE GIVEN WHICH DIFFER IN THE TECHNIQUE USED FOR TRUNCATING THE PARTITION FUNCTION. FOR DIATOMIC AND POLYATOMIC MOLECULES, FIVE METHODS ARE GIVEN WHICH DIFFER IN THE CORRECTIONS TO THE RIGID-ROTATOR HARMONIC-OSCILLATOR APPROXIMATION. IN ADDITION, THE PROGRAM PROVIDES FOR CALCULATING THERMODYNAMIC FUNCTIONS FOR SOLIDS, LIQUIDS, AND GASES FROM EMPIRICAL HEAT CAPACITY EQUATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *GAS + *LIQUID + *THERMAL PROPERTY + SOLID + THERMODYNAMICS

5-19422 ALSO IN CATEGORY 18
LOCKHART RW
FEASIBILITY STUDY OF BOILING WATER REACTOR NUCLEAR STEAM SUPPLY SYSTEMS WITH CAPACITIES UP TO 10,000 MWT.
FINAL REPORT
GENERAL ELECTRIC CO., SUNNYVALE, CALIF.
GEGR-5155 +. 127 PAGES, FIGURES, TABLES, FEBRUARY 1967

A FEASIBILITY STUDY OF A 10,000-MWT BWR WAS MADE TO DETERMINE TECHNOLOGICAL ADVANCES REQUIRED. IT WAS DETERMINED THAT AN INCREASE IN THERMAL OUTPUT OF BWR WOULD REQUIRE A LARGER-DIAMETER CORE RATHER THAN A LONGER CORE BECAUSE OF ADVERSE EFFECTS ON POWER DENSITY, COOLING-PUMP REQUIREMENTS, FLOW STABILITY, AND HEAT TRANSPORT. INCREASE OF POWER DENSITY IS FORECAST FROM 60 KW/1 (DEMONSTRATED IN BIG ROCK POINT) TO 80 KW/1.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

DESIGN STUDY + REACTOR, BOILING WATER

5-19423 ALSO IN CATEGORY 4
DAVISON HW
A DIGITAL COMPUTER PROGRAM FOR CALCULATING STEADY TEMPERATURE AND DENSITY DISTRIBUTIONS IN A GAS CONTAINING HEAT SOURCES
LEWIS RESEARCH CENTER, CLEVELAND. NASA
NASA-TN-D-4135 +. 40 PAGES, 7 FIGURES, 4 TABLES, 7 REFERENCES, SEPTEMBER 1967

A DIGITAL COMPUTER PROGRAM THAT ALLOWS CALCULATION OF AXIAL TEMPERATURE AND DENSITY DISTRIBUTIONS IN A STAGNANT GAS ENCLOSED WITHIN AN ANNULUS IS PRESENTED. THE PROGRAM, CALLED STADDIG, IS WRITTEN IN FORTRAN IV LANGUAGE FOR THE IBM 7094 COMPUTER AND IS BASED ON A STEADY-STATE ONE-DIMENSIONAL (RADIAL) HEAT-TRANSFER CALCULATION USING CYLINDRICAL COORDINATES. THE GAS DENSITY IS RELATED TO THE GAS TEMPERATURE THROUGH THE PERFECT-GAS LAW. THE PROGRAM ALLOWS FOR CONDUCTION ACROSS THE GAS AND ACROSS THE CONTAINER WALLS. HEAT IS DISSIPATED FROM THE CONTAINER WALLS BY FORCED-CONVECTION COOLING WITH AN INCOMPRESSIBLE COOLANT. HEAT SOURCES ARE INCLUDED IN THE COOLANT, THE GAS, AND THE CONTAINER WALLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + GAS + HEAT GENERATION; NONUNIFORM + REACTOR, SPACE + THERMAL ANALYSIS

5-19483 ALSO IN CATEGORIES 6 AND 17
PRESSURIZED WATER REACTOR (PWR) PROJECT. TECHNICAL PROGRESS REPORT, APRIL 21, 1967-JULY 21, 1967.
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-MRP-121 +. 96 PAGES, FIGURES, TABLES, JULY 21, 1967

(PAGE 1) C STEAM-GENERATOR LEAK HAS INCREASED TO 8 GPH, AS INDICATED BY FLUORINE-18. (PAGES 9-11) POTASSIUM PENTABORATE, TO BE USED AS SOLUBLE POISON IN REFUELING CANAL, HAS A PH OF 9.3. TESTS PRESENTLY INDICATE NO ALUMINUM PITTING CORROSION, AND GENERAL CORROSION ACCEPTABLE FOR 3-6 MONTHS USE. (PAGES 26,6) A CHANGE IN CONTROL-ROD PROGRAM DURING LOW-PH (9.9) OPERATION SHOWED AN INITIAL INCREASE IN FLOW DECAY, BUT NO LONG-TERM EFFECT. (PAGES 31-53) A NEW ROD PROGRAM WAS DEvised, SO IN XENON TRANSIENTS THE PARTIALLY WITHDRAWN CONTROL RODS MINIMIZE AXIAL FLUX SHIFTS. TURBO-ZIP STILL IS IN POOR AGREEMENT WITH IN-CORE FLUX PLOTS DURING INTERMEDIATE XENON CONDITIONS. HOT-SPOT FACTORS WERE ADJUSTED FOR FUEL-ROD BUTT WELD, OBSERVED FLUX-WIRE DEVIATIONS, FUEL-PLATE MISALIGNMENT, AND CONTROL-ROD MISALIGNMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

CATEGORY 5
ACCIDENT ANALYSIS

5-19483 *CONTINUED*
*CONTROL ROD PROGRAM + *CORROSION + *FAILURE, TUBING + *HOT SPOT + *SURFACE FILM DEPOSIT +
OPERATIONS REPORT, ANALYSIS + PH REACTIVITY EFFECT + POISON, SOLUBLE + POWER DISTRIBUTION +
REACTIVITY EFFECT, ANOMALOUS + REACTOR, PRESSURIZED WATER + SHIPPINGPORT + STEAM GENERATOR +
XENON OSCILLATION

5-19484 ALSO IN CATEGORY 17
LACROSSE PROPOSED CHANGE--INCREASE IN MINIMUM PUMP SPEED
ALLIS-CHALMERS
2 PAGES, OCTOBER 26, 1967, DOCKET NO. 115-5

FLOW TESTS WITH CORE INSTALLED SHOW PRESSURE DROP IN FORCED CIRCULATION SYSTEM TO BE 25% LESS
THAN EXPECTED. THE ALLIS-CHALMERS VERTICAL, SINGLE-STAGE CENTRIFUGAL PUMPS HAVE A FLUID
PISTON BEARING ON THE IMPELLER WHICH CENTERS THE SHAFT BY THE HEAD DEVELOPED. MANUFACTURER
LIMIT ON MINIMUM HEAD IS TO BE FOLLOWED DURING INITIAL STARTUP. LACROSSE ASKS THAT UPPER
LIMIT ON MINIMUM SPEED BE CHANGED FROM 42% TO 55%. BEHAVIOR, PERFORMANCE, OR SAFETY OF THE
REACTOR SYSTEM IS NOT ALTERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*COMPARISON, THEORY AND EXPERIENCE + *PUMP + *RATE + FLOW, RECIRCULATION + HYDRAULIC EFFECT + LACROSSE +
PRESSURE DROP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

5-19503 ALSO IN CATEGORY 18
OYSTER CREEK AMENDMENT 14 TO PSAR--RE-ANALYSIS OF TURBINE TRIPS
JERSEY CENTRAL POWER AND LIGHT COMPANY
55 PAGES, FIGURES, TABLES, OCTOBER 31, 1967, DOCKET 50-219

CONSISTS OF REVISED PAGES AND GRAPHS TO PSAR CONCERNING NEW ANALYSIS OF ACCIDENTS
(LOSS-OF-LOAD, FEEDWATER, AND OTHER VALVE MALFUNCTIONS) AT INITIAL OPERATING POWER OF 1600
MWT, RATHER THAN 1860 MWT.

*ACCIDENT, LOAD REJECTION + OYSTER CREEK + PRESSURE, INTERNAL + REACTOR, BOILING WATER +
SAFETY ANALYSIS REPORT, GENERAL + TURBINE

5-19540 ALSO IN CATEGORIES 6 AND 8
BOWRING RW
HAMBO. A COMPUTER PROGRAMME FOR THE SUBCHANNEL ANALYSIS OF THE HYDRAULIC AND BURNOUT CHARACTERISTICS OF
ROD-CLUSTERS. PART 1. GENERAL DESCRIPTION
ATOMIC ENERGY ESTABLISHMENT, WINFRITH, ENGLAND
AEEW-R-524 +. 24 PAGES, 2 FIGURES, 1 TABLE, 16 REFERENCES, APRIL 1967

HAMBO IS A COMPUTER CODE FOR THE STEADY-STATE HYDRAULIC ANALYSIS OF A ROD-CLUSTER ASSEMBLY
COOLED BY A BOILING FLUID, USING A SUBCHANNEL MODEL. THE CLUSTER BURNOUT POWER IS ASSESSED
BY A SUBCHANNEL BURNOUT CORRELATION. CLUSTERS WHICH CAN BE REPRESENTED WITH 10 SUBCHANNELS,
I.E., WITH UP TO 37 RODS IN A CYLINDRICAL PRESSURE TUBE, CAN BE ANALYSED WITH THE PRESENT
VERSION OF THE PROGRAMME. THE CODE IS PRIMARILY A DESIGN TOOL FOR THE THERMAL PERFORMANCE
ASSESSMENT OF FUEL ASSEMBLIES IN NUCLEAR REACTORS COOLED BY WATER-STEAM MIXTURES. IT CAN BE
USED TO ASSESS THE EFFECT OF CHANGE IN CLUSTER RADIAL FLUX DEPRESSION, ROD PITCH, BOWING, AND
ECCENTRICITY ON THE FLUID DENSITY AND BURNOUT POWER. THE HYDRAULIC MODEL INCLUDES THE
FOLLOWING EFFECTS - (A) HEAT AND MOMENTUM TRANSFER BETWEEN ADJACENT COOLANT SUBCHANNELS BY
MASS TRANSFER (CROSS-FLOW) AND BY TURBULENT MIXING, (B) SINGLE PHASE, SUBCOOLED BOILING AND
BULK BOILING REGIMES, (C) ROD SPACING BY LOCALISED GRIDS OR BY WIRE WRAPS, (D) RADIAL AND
AXIAL HEAT PROFILE, (E) LATERAL RESISTANCE TO CROSS FLOW. THE CODE IS WRITTEN IN EGTRAN
DIALECT OF FORTRAN FOR THE KDF 9 COMPUTER AND IS BEING TRANSLATED INTO FORTRAN S2 AND IV FOR
THE IBM 7030 AND 7090 MACHINES RESPECTIVELY. TYPICAL RUNNING TIMES PER CASE ARE FROM 15 SEC
FOR A 7-ROD CLUSTER TO 150 SEC FOR A 37-ROD CLUSTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA.
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS +
REACTOR, BOILING WATER + UNITED KINGDOM

5-19541
HAMELL TD + BAUMEISTER KJ
EFFECT OF SURCOOLING AND RADIATION ON FILM-BOILING HEAT TRANSFER FROM A FLAT PLATE
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-3925 +. 39 PAGES, 5 FIGURES, 3 TABLES, 16 REFERENCES, AUGUST 1967

A THEORETICAL ANALYSIS OF FILM BOILING FROM A HORIZONTAL PLATE WITH SUBCOOLING AND RADIATION
IS PRESENTED. THE ANALYSIS IS BASED ON THE POSTULATE THAT THE RATE OF ENTROPY PRODUCTION IS
MAXIMIZED. THE GENERAL SOLUTION ENABLES THE OVERALL HEAT-TRANSFER COEFFICIENT TO BE
CALCULATED WHEN CERTAIN HEAT-TRANSFER COEFFICIENTS AND SUBCOOLING GROUPS ARE SPECIFIED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 5
ACCIDENT ANALYSIS

5-19541 *CONTINUED*
HEAT TRANSFER, BOILING + HEAT TRANSFER, RADIANT

5-19542
BOILING WATER REACTOR STABILITY STUDIES. QUARTERLY REPORT NO. 5, JANUARY 1-MARCH 31, 1966.
KERNENERGIEANLAGEN, ALLGEMEINE ELEKTRICITAETS-GESELLSCHAFT, FRANKFURT AM MAIN
EURAC-1608 + EUR-2821 +. 30 PAGES, FIGURES, TABLES, MARCH 1967

THE STATIONARY LOCAL-STEAM-BUBBLE CONTENT AND FREQUENCY RANGE ARE BEING DETERMINED AT THREE DIFFERENT POSITIONS ALONG THE BOILING ZONE (NAMELY, AT POINTS X EQUALS 0.14, 0.45 AND 0.95 M, MEASURED FROM THE UPPER END OF THE HEATING ROD) OF THE ANNULUS TEST SECTION OF THE AEC INSTABILITY TESTING RIG, AND UNDER A SERIES OF DIFFERENT TEST CONDITIONS. A COMPUTER PROGRAM WAS DEVELOPED FOR THE IBM 7040 DIGITAL COMPUTER, INTENDED TO MAKE IT EASIER IN FUTURE TO ANALYSE THEORETICALLY THE EXPERIMENTALLY FOUND FREQUENCY RANGES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*VOID FRACTION + EURATOM + FLOW STABILITY + GERMANY + REACTOR, BOILING WATER

5-19545
LOWE P
A TWO DIMENSIONAL TURBULENT FLOW MIXING MODEL FOR PARALLEL FLOW ROD BUNDLES
BETTIS ATOMIC POWER LABORATORY
WAPD-T-1923 + CONF-670 602 +. 18 PAGES, 5 FIGURES, 10 REFERENCES, OCTOBER 1966, FOR THE ANS MEETING, SAN DIEGO, CALIF., JUNE 11-15, 1967, ANS TRANS. 10(1), PAGES 363-364

A TWO-DIMENSIONAL STEADY-STATE ENERGY EQUATION, IN TERMS OF THE FLUID ENTHALPY RISE, FOR A NUCLEAR REACTOR CHANNEL IS FORMULATED AND SOLVED. IN ORDER TO FACILITATE ITS USEFULNESS TO THE REACTOR DESIGNER, THE SOLUTION IS PRESENTED IN THE FORM OF A HOT-CHANNEL FACTOR. PARAMETRIC RESULTS ARE PRESENTED IN ORDER THAT THE INFORMATION MAY BE RELATED TO OTHER CHANNEL DIMENSIONS.

FLOW THEORY AND EXPERIMENTS + FLOW, CROSS + FLOW, MIXING + HEAT TRANSFER ANALYSIS +
REACTOR, PRESSURIZED WATER

5-19546 ALSO IN CATEGORIES 6 AND 8
ROWE DS
CROSS-FLOW MIXING BETWEEN PARALLEL FLOW CHANNELS DURING BOILING. PART 1. COBRA. COMPUTER PROGRAM FOR COOLANT BOILING IN ROD ARRAYS
BATTTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-371(P.T.1) +. 112 PAGES, 8 FIGURES, 3 TABLES, 27 REFERENCES, MARCH 1967

THIS REPORT PRESENTS A MATHEMATICAL MODEL AND DIGITAL COMPUTER PROGRAM FOR COMPUTING COOLANT FLOW AND ENTHALPY IN THE SUBCHANNELS OF ROD-BUNDLE FUEL ELEMENTS. ONE-DIMENSIONAL, TWO-PHASE, SLIP FLOW IN THE SUBCHANNELS PROVIDES THE BASIS FOR THE MATHEMATICAL MODEL. THE MODEL ALSO INCLUDES THE EFFECT OF MIXING THAT OCCURS THROUGH THE GAP BETWEEN ADJACENT SUBCHANNELS BY USING A TURBULENT (FLUCTUATING) CROSS-FLOW AND A DIVERSION CROSS-FLOW THAT RESULTS FROM FLOW REDISTRIBUTION. THE DIGITAL COMPUTER PROGRAM COBRA SOLVES THE MATHEMATICAL EQUATIONS BY USING NUMERICAL PROCEDURES SIMILAR TO THE MODIFIED EULER METHOD, BUT WITH AN ADDITIONAL FEATURE TO CONTROL DIVERSION CROSS-FLOW AND ENSURE A STABLE SOLUTION. COBRA CONSIDERS BOTH SINGLE AND TWO-PHASE FLOW IN ROD BUNDLES OF ARBITRARY GEOMETRY AND CAN CONSIDER UP TO 36 SUBCHANNELS AND 25 FUEL RODS. ARBITRARY HEAT-FLUX DISTRIBUTIONS ARE SPECIFIED BY THE AXIAL FLUX DISTRIBUTION, RELATIVE ROD POWER, AND FRACTION OF ROD POWER TO EACH ADJACENT SUBCHANNEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FLOW, CROSS + FLOW, MIXING + FLOW, TWO PHASE + HEAT TRANSFER, BOILING +
REACTOR, BOILING WATER

5-19685 ALSO IN CATEGORY 17
OBOYLE MJ
YANKEE CORE EVALUATION PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING SEPT. 30, 1966
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA., ATOMIC POWER DIV.
WCAP-6082 +. 147 PAGES, 26 FIGURES, 32 TABLES, APRIL 1967

(SECTION 320) - SURFACE-FILM DEPOSITS ON FUEL ELEMENTS ARE NOT INITIALLY BEGUN FROM NUCLEATE BOILING, ALTHOUGH SUCH OCCURS AFTER 0.002 IN. OF CRUD IS DEPOSITED. COOLANT CHEMISTRY DOES NOT ACCOUNT FOR DIFFERENCES. CATAPHORESIS OR ELECTRICAL CURRENTS IN HIGHER RADIATION FIELDS MAY INCREASE THE CONTACT TIME OF PARTICLES. (SECTION 330) - CLADDING SAMPLES CUT FROM YANKEE FUEL WERE TESTED BY GE AT VBWR CONDITIONS. DATA ON AUTOCLAVE STRESS-CORROSION TESTS SUGGESTS THAT COOLANT CHEMISTRY AND OPERATING STRESS AND MORE ADVANTAGEOUS IN PWR. (SECTION 340) - CORE-IV THERMAL AND HYDRAULIC ANALYSIS INDICATES SUBCOOLED BOILING MAY HAVE EXISTED WITH 6 MILS OR MORE OF CRUD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00

CATEGORY 5
ACCIDENT ANALYSIS

5-19685 *CONTINUED*
COPY, \$0.65 MICROFICHE

*FAILURE, CLADDING + *NUCLEATE BOILING + *SURFACE FILM DEPOSIT + COOLANT CHEMISTRY + CORROSION +
EXAMINATION + FUEL ELEMENT + HYDRAULIC ANALYSIS + OPERATIONS REPORT, ANALYSIS +
REACTOR, PRESSURIZED WATER + STRESS + THERMAL ANALYSIS + YANKEE

5-19788 ALSO IN CATEGORY 17
SUMMARY OF DRESDEN 1 CYCLE 4 FLOW DECREASE AND ASSEMBLY CLEANUP
COMMONWEALTH EDISON COMPANY
3 PAGES, JULY 1967, DOCKET 50-10

A GRADUAL INCREASE IN CORE PRESSURE DROP DURING CYCLES 3 (0.76 PSI/MONTH) AND 4 (0.43 PSI/MONTH) LED TO CLEANUP DURING REFUELING. CRUD WAS 79% CU, 14% MAGNETIC IRON OXIDE, AND 8% NI, FROM MONEL FEEDWATER HEATERS. CRUD THICKNESS APPROACHED 0.2 IN. IN ORIFICE AND NOSE CONE. WHEN GALLING PREVENTED REINSERTING ORIFICES, ELEMENT WAS INVERTED AND NOZZLES CLEANED. A FLOW-TEST FIXTURE WAS BUILT. CYCLE-V CORE IS EXPECTED TO HAVE AN AV. 3-5 PSI PRESSURE DROP (VS CYCLE-IV, 12 PSI). ***MCHF-RATIO CALCULATIONS STRONGLY SUPPORT VIEW THAT AT NO TIME DID THE RATIO APPROACH 1.0, ALTHO THE WORST CRUD OVERPOWER CALCULATION RUN LATER WITH MEASURED ELEMENT DELTA P WAS MCHF RATIO OF 0.86.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *FUEL ELEMENT + *SURFACE FILM DEPOSIT + ALLOY + COPPER +
DRESDEN 1 + FLOW ORIFICE OR RESTRICTION + HEAT EXCHANGER + OPERATIONS REPORT, ANALYSIS + PRESSURE DROP +
REACTOR, BOILING WATER + TUBING

5-19844 ALSO IN CATEGORIES 12 AND 1
WILLIS CA
STATISTICAL SAFETY EVALUATION OF POWER REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
A1-65-MEMO-212 +. 12 PAGES, 1 FIGURE, 22 REFERENCES, OCTOBER 20, 1965

STATISTICAL METHOD OF HAZARDS ANALYSIS IS CONSIDERING THE RISK AS THE PRODUCT OF PROBABILITY OF AN ACCIDENT OCCURRING AND THE RESULTING DAMAGE TO PUBLIC, RATHER THEN DETERMINING FIRST WHICH ACCIDENTS ARE CREDIBLE, THEN WHICH OF THESE IS THE WORST (MCA), IGNORING MANY SMALL ACCIDENTS THAT MAY HAVE A HIGH CHANCE OF OCCURRENCE. STATISTICAL SAFETY EVALUATIONS USE THE FAULT-TREE-ANALYSIS SYSTEM. EXAMPLE GIVEN RESULTS IN A RISK FROM EXCESS EFFLUENT RELEASE OF $2.5 \times 10^{(-2ND)}$ OVEREXPOSURES PER YEAR VS. $10^{(-6TH)}$ FOR MCA. SNAP 10-A SAFEGUARDS REPORT (NAA-SR-10022) USES THIS APPROACH.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FAULT TREE ANALYSIS + *HAZARDS ANALYSIS + *SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, CONSEQUENCES +
ACCIDENT, MAXIMUM CREDIBLE (MCA) + AIRBORNE RELEASE + DOSE + PROBABILITY + RELIABILITY ANALYSIS

5-19850 ALSO IN CATEGORIES 12 AND 10
SECTION 2 - EMERGENCY CORE COOLING SYSTEM ANALYSIS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
56 PAGES, 18 FIGURES FROM THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 18, 1967

AN ACCUMULATOR WAS ADDED AND FUNCTIONING OF ENTIRE SYSTEM BRIEFLY DESCRIBED. DESCRIBES FLASH, CHIC-KIN, LOCTA-R2, AND SATAN COMPUTER CODE USAGE IN LOSS-OF-COOLANT ANALYSIS TO FIX COOLING-SYSTEM REQUIREMENTS. A SMALL BREAK GENERATES THE MOST ENERGY BEFORE ROD INSERTION. EFFECT OF FILM-COEFFICIENT VARIATION WAS STUDIED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ACCUMULATOR + *BLOWDOWN + COMPUTER PROGRAM +
CORE REFLUDDING SYSTEM + ERROR ANALYSIS + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

5-19851 ALSO IN CATEGORY 18
SECTION 3 - EFFECT OF MAXIMUM LOSS OF COOLANT ACCIDENT ON REACTOR COPE AND INTERNALS INTEGRITY
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
16 PAGES OF THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 18, 1967

SATAN DIGITAL PROGRAM WAS USED TO CALCULATE DYNAMIC EFFECTS (INCLUDING SHOCK WAVES). THE MAXIMUM LONGITUDINAL COMPRESSIVE FORCE IS 9900 LB, NEARLY 1/10TH THE FORCE REQUIRED TO BUCKLE AN ASSEMBLY. RCC GUIDE STRESS (16,800 PSI) IS BELOW YIELD STRENGTH. REPORT IMPLIES THAT GROSS DEFORMATION DOES NOT EXIST, SO CONTROL RODS MAY DROP AND SAFETY INJECTION FLOW IS NOT IMPEDED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 5
ACCIDENT ANALYSIS

5-19851 *CONTINUED*

*SYSTEM OPERABILITY IN ACCIDENT CONDITIONS + *VIBRATION ANALYSIS + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + COMPUTER PROGRAM + CONTROL ROD SCRAM MECHANISM + CORE COMPONENTS, MISCELLANEOUS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

5-19868 ALSO IN CATEGORIES 6 AND 8

THOMPSON DH + KOLB WL + SOWA ES

A LARGE LOOP FACILITY FOR THE MELTDOWN STUDY OF FAST-REACTOR FUEL ELEMENTS IN HIGH-TEMPERATURE FLOWING SODIUM

ARGONNE NATIONAL LABORATORY

CONF-670 602 +. 2 PAGES, 1 FIGURE, 1 TABLE, ANS TRANS. 10(1), PAGES 341-2 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DESCRIBES A LOOP CAPABLE OF PERFORMING IN-PILE MELTDOWN OF FUEL CLUSTERS FOR FAST REACTORS IN THE TREAT REACTOR.

ANL (ARGONNE NATIONAL LABORATORY) + FUEL ELEMENT CLUSTER + FUEL MELTDOWN + REACTOR, FAST + REACTOR, GRAPHITE MODERATED + REACTOR, TEST + SODIUM + TREAT (TRANSIENT TEST REACTOR FACILITY)

5-19869 ALSO IN CATEGORIES 6 AND 8

GRIEBENOW ML + RICHERT KD

MACABRE II

IDAHO NUCLEAR CORP., IDAHO FALLS

IN-1107 +. 86 PAGES, 2 FIGURES, SEPTEMBER 1967

MACABRE II WAS WRITTEN FOR THE IBM 7040 COMPUTER IN USE AT THE NRTS. THE BASIC PROGRAMMING LANGUAGE IS FORTRAN IV, BUT SOME SYMBOLIC ROUTINES ARE USED IN THE 7040 VERSION. A VERSION PROGRAMMED IN FORTRAN IV FOR THE UNIVAC 1108 IS ALSO AVAILABLE. THIS VERSION CONTAINS SMALL SYMBOLIC ROUTINES FOR THE DATE, TIME, AND AUXILIARY STORAGE DEFINITIONS, AND SHOULD PRESENT NO PROBLEMS IN CONVERSION TO ANOTHER COMPUTER. MACABRE II IS CAPABLE OF SOLVING THE ISOTHERMAL HYDRAULICS AND NONISOTHERMAL HYDRAULICS AND HEAT TRANSFER OF MOST PLATE-TYPE REACTOR FUEL ASSEMBLIES DIMENSIONAL, TIME-DEPENDENT (QUASI STEADY STATE) HEAT GENERATION RATES, AND HYDRAULIC COMMUNICATION BETWEEN THE PARALLEL COOLANT CHANNELS. IN ADDITION, MACABRE II WILL COMPUTE THE CORROSION OF THE ALUMINUM-CLAD HEAT-TRANSFER SURFACES (WHEN PRESENT) AND CAN HANDLE PARTIAL SLOUGHING OF THE BOEHMITE CORROSION PRODUCT. MACABRE II HAS BEEN USED IN MTR, ETR, ATR, AND EOCR FUEL ASSEMBLY ANALYSIS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + COMPUTER, DIGITAL + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS + REACTOR, POOL TYPE

5-19870 ALSO IN CATEGORY 6

MATHISEN RP + EKLIND O

POWER DISTURBANCES CLOSE TO HYDRODYNAMIC INSTABILITY IN NATURAL CIRCULATION TWO-PHASE FLOW

AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN

AE-285 +. 32 PAGES, FIGURES, REFERENCES, JULY 1967

IN CERTAIN BOILING-REACTOR DESIGNS, HIGH POSITIVE VOID COEFFICIENTS COULD EXIST AND UNDER CERTAIN CIRCUMSTANCES CAUSE INSTABILITY. CONTROL SYSTEMS MAY THEREFORE BE DESIRED. IN SUCH A CONTROLLED REACTOR THERE COULD REMAIN SUPERIMPOSED LOW-FREQUENCY POWER OSCILLATIONS OF SOME MAGNITUDE. THE OBJECT OF THE CURRENT EXPERIMENTS IN SKALVAN WAS TO EXAMINE WHETHER SUCH SLOW OSCILLATIONS COULD INFLUENCE THE HYDRODYNAMIC STABILITY LIMIT OF THE INDIVIDUAL BOILING CHANNELS. WITH MINIMUM TEST-SECTION INLET RESTRICTIONS, THE POWER LEVEL AT INSTABILITY WAS MUCH LOWER THAN THAT AT BURNOUT CONDITIONS. AT HIGHER RESTRICTIONS, THESE PHENOMENA OCCURRED AT APPROXIMATELY EQUIVALENT POWER LEVELS. THE EXPERIMENTS WITH MINIMUM INLET RESTRICTIONS WERE ALSO PERFORMED BEYOND THE INSTABILITY THRESHOLD. IN THIS CASE IT WAS POSSIBLE TO EXCEED THE NOMINAL BURNOUT POINT TEMPORARILY BY 5 PERCENT OR MORE FOR ABOUT 1 SEC. EVEN THEN, THE BOILING CHANNEL CONDITIONS WERE NOT SO SEVERELY AFFECTED THAT THE BURNOUT DETECTORS TRIPPED, AND THE POWER DISTURBANCES CAUSED LOW-FREQUENCY MODULATED WAVE TRAINS.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

EXPERIMENT, GENERAL + INSTABILITY + POWER COEFFICIENT + REACTOR STABILITY + REACTOR, BOILING WATER + SWEDEN

5-19871 ALSO IN CATEGORY 6

YIH TS + GRIFFITH P

THE MEASUREMENT, INTERPRETATION AND USE OF UNSTEADY MOMENTUM FLUXES IN TWO-PHASE FLOW

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

MIT-70,318-50 +. 35 PAGES, FIGURES, REFERENCES, AUGUST 1967

THE STEADY AND UNSTEADY COMPONENTS OF THE MOMENTUM FLUX IN A TWO-PHASE FLOW WERE MEASURED AT THE EXIT OF A VERTICAL PIPE BY AN IMPULSE TECHNIQUE USING A TURNING TEE AND BEAM. DIFFERENT ELECTRICAL FILTERS WERE TRIED IN THE RECORDING CIRCUIT FOR ELIMINATING THE SIGNALS AROUND THE NATURAL FREQUENCY OF THE BEAM SYSTEM. A SPECIAL FILTER SET WAS DESIGNED TO APPROXIMATE THE INVERSE OF THE TRANSFER FUNCTION OF THE BEAM SYSTEM. THE SIGNALS RECORDED AFTER PASSING

CATEGORY 5
ACCIDENT ANALYSIS

5-19871 *CONTINUED*

THROUGH THE BEAM-FILTER COMBINATION CAN BE CONSIDERED AS THE EXCITATION TIMES A CONSTANT. TWO DIFFERENT ANALOG METHODS WERE USED TO ANALYZE THE RANDOM SIGNALS FOR OBTAINING THE STATISTICAL QUANTITIES PREDOMINANT FREQUENCY AND THE RMS VALUE OF THE UNSTEADY MOMENTUM FLUX. IN THE PRELIMINARY MEASUREMENTS OF THE UNSTEADY MOMENTUM FLUX FOR THE ADIABATIC UPFLOW OF AN AIR-WATER MIXTURE IN A 5/8-INCH PIPE, THE GREATEST UNSTEADINESS OF MOMENTUM FLUX APPEARED IN THE QUALITY RANGE OF ONE PERCENT TO SIX PERCENT. IN AN EXAMPLE PROBLEM, USING THE PRELIMINARY RESULTS, THE EFFECT OF THE UNSTEADY MOMENTUM FLUX ON A FUEL ROD WAS STUDIED. THE AMPLITUDE OF THE VIBRATIONS RESULTING FROM THE TWO-PHASE EXCITATION WAS FOUND. IN ADDITION, IT WAS ALSO FOUND THAT THERE IS A POSSIBILITY OF UNSTABLE VIBRATIONS DUE TO A NONLINEAR RESTORING FORCE ON THE FUEL ELEMENT. THIS NONLINEARITY IS DUE TO THE UNSTEADY COMPONENT OF THE MOMENTUM FLUX IN THE FLOW PAST THE ROD.

AVAILABILITY - PETER GRIFFITH, DEPT. OF MECHANICAL ENGINEERING, MASS. INST. OF TECH., CAMBRIDGE, MASS.

ANALYTICAL TECHNIQUE, GENERAL + FLOW STABILITY + FLOW THEORY AND EXPERIMENTS + FLOW, TWO PHASE + FUEL ELEMENT + VIBRATION

5-19873 ALSO IN CATEGORIES 4 AND 6

HALE CJ

LOSS-OF-FLOW ACCIDENT STUDIES ON THE 10-MW GTR

GENERAL DYNAMICS, FORT WORTH, TEXAS

CONF-670 602 + FZM 4800 +. 85 PAGES, FIGURES, TABLES, REFERENCES, PRESENTED AT ANS 1967 ANNUAL MEETING, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967, ANS TRANSACTIONS, 10(1), PAGE 333 (JUNE 1967)

AS PART OF THE STARTUP TESTS AND IN CONJUNCTION WITH THE INCREASE IN POWER TO 10 MW, A COMPREHENSIVE LOSS-OF-FLOW EXPERIMENT WAS PERFORMED ON THE GROUND-TEST REACTOR (GTR). A COMPLETE PRE-TEST ANALYSIS WAS PERFORMED WITH THE AID OF A COMPUTER CODE WHICH PREDICTED TRANSIENT FLOWS AND TEMPERATURES THAT WOULD BE EXPERIENCED IN THE LOSS-OF-FLOW TESTS. THE LOSS-OF-FLOW EXPERIMENT WAS COMPLETED IN A TEST SERIES WHICH STARTED WITH TESTS OF FLOW ONLY AND ENDED WITH SIMULATED LOSS-OF-FLOW ACCIDENTS WITH THE GTR AT 10 MW. THE EXPERIMENTAL INSTRUMENTATION DID NOT DETECT THE PRESENCE OF BOILING IN ANY OF THE TESTS. IN ADDITION, THE MAXIMUM FUEL SURFACE TEMPERATURES WERE NOT HIGH ENOUGH TO SUPPORT BOILING IN THE TRANSIENT OR LEVEL OPERATION TESTS.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF FLOW + AEROSPACE SAFETY + REACTOR, POOL TYPE + REACTOR, TEST

5-19883 ALSO IN CATEGORY 8

COOPER MH + HANKEL RD

RE-ANALYSIS OF N.S. SAVANNAH LOSS-OF-COOLANT ACCIDENT

UNITED NUCLEAR CORPORATION, RESEARCH AND ENGINEERING CENTER, ELMSFORD, NEW YORK

UNC-5185 +. 133 PAGES, 40 FIGURES, 6 TABLES, 11 REFERENCES, AUGUST 1, 1967, DOCKET 50-238

VESSEL INLET PIPE WAS ASSUMED TO RUPTURE, WITH NO WATER INJECTION, AND CONTROL RODS STUCK OUT. BLOWDOWN (ANALYZED WITH FLASH) ENDED AT 10 SEC, WITH CONTAINMENT PRESSURE AT 189 PSIG. FUEL SLUMPING (ANALYZED WITH NURLOC) BEGAN AT 1180 SEC. AT 3800 SEC, FAILURE OF THE FLOW BAFFLE DEPOSITED THE WHOLE CORE ON THE BOTTOM HEAD. HYDROGEN WILL NOT BURN. REACTOR VESSEL (ANALYZED WITH TIGER) REACHES PEAK TEMPERATURE OF 1100 F AT ABOUT 10 HR, BUT CONTAINS THE FUEL. 50 PAGES OF COMPUTER INPUT/OUTPUT DATA, AND MODEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + ANALYTICAL MODEL + BLOWDOWN + COMPUTER PROGRAM + CONTAINMENT DESIGN + CORE MELTDOWN + METAL WATER REACTION + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER

5-19929 ALSO IN CATEGORY 9

TEMLER J

A SIMPLE ESTIMATION OF FAILURE RATE

2 PAGES, 1 TABLE, MICROELECTRONICS AND RELIABILITY 6(3), PAGE 239 AND 240, (JUNE 1967)

THE UPPER LIMIT OF FAILURE RATE AT 50% CONFIDENCE LEVEL, BASED ON A TEST OF N ITEMS, TERMINATED AFTER TIME T, IS GIVEN BY THE SIMPLE RATIO OF THE NUMBER OF FAILURES PLUS 0.68 TO THE ELAPSED TIME. FOR CASES WITH REPLACEMENT OR REPAIR, THE DENOMINATOR BECOMES THE PRODUCT OF N AND T.

*RELIABILITY ANALYSIS + *RELIABILITY, COMPONENT + FAILURE, COMPONENT + MATHEMATICAL TREATMENT

5-19936 ALSO IN CATEGORY 18

HEAT-EXCHANGER BAFFLE SPACING FORMULA

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

2 PAGES, PAGE 1-34 AND 1-35 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

AN EMPIRICAL FORMULA BY THE LUMMUS CO. IS USED TO ENSURE THAT RESIDUAL AND COMPONENT COOLING HEAT EXCHANGERS HAVE THE PROPER BAFFLE SPACING TO PREVENT TUBE VIBRATION. FORMULA GIVEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 5
ACCIDENT ANALYSIS

5-19936 *CONTINUED*

*DESIGN CRITERIA + *FAILURE, FATIGUE + *HEAT EXCHANGER + EQUATION, GENERAL + FAILURE, TUBING +
INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + VIBRATION ANALYSIS

5-19937

ALSO IN CATEGORY 18

SECTION 2. REACTOR INTERNALS DESIGN CRITERIA AND BLOWDOWN EFFECTS

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

12 PAGES, 7 FIGURES, PAGE 2-1 THRU 2-12 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO
THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

ASME PRESSURE-VESSEL SECTION-III STRESS CRITERIA WAS ADOPTED FOR CORE INTERNALS EXCEPT FUEL CLAD. SEISMIC STRESS IS CONSIDERED PRIMARY STRESS. FUEL ELEMENT GRIDS WERE INCREASED FROM 8 TO 9 PER ASSEMBLY. CALCULATED AND ALLOWABLE DEFLECTIONS DURING BLOWDOWN ARE LISTED FOR 4 CRUCIAL COMPONENTS. PRESSURE DIFFERENCE AND DEFLECTIONS OF VARIOUS CORE COMPONENTS REPORTED IN SUPPL. SIX ARE RECLARIFIED AND ASSERTED TO BE LESS THAN THOSE WHICH WOULD ADVERSELY EFFECT THE INTEGRITY OF THE STRUCTURES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BLOWDOWN + *CORE COMPONENTS, MISCELLANEOUS + *STRESS ANALYSIS + *STRUCTURAL INTEGRITY +
CODES AND STANDARDS + DISPLACEMENT, DESIGN FOR + FUEL ELEMENT + INDIAN POINT 2 +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

5-20041

ALSO IN CATEGORY 9

COLLOQUIUM ON RELIABILITY. PROCEEDINGS 1964-65. VOLUME 179. PART 3K
THE INSTITUTION OF MECHANICAL ENGINEERS26 PAGES, A COLLOQUIUM ARRANGED BY THE INSTITUTION OF MECHANICAL ENGINEERS FOR THE NATIONAL COUNCIL FOR
QUALITY AND RELIABILITY, NOVEMBER 10-11, 1964, DOCUMENT PUBLISHED IN 1966 BY THE INSTITUTION OF
MECHANICAL ENGINEERS

THE COLLOQUIUM WAS ORGANIZED TO EMPHASIZE THE IMPORTANCE OF RELIABILITY TO ALL FACETS OF UK INDUSTRY. DEFINITIONS AND CONNOTATIONS FOR THE MEANING OF RELIABILITY WERE DISCUSSED IN RELATION TO THE MANUFACTURER AND THE CUSTOMER. THE GENERAL UNRELIABILITY OF STATISTICAL INFERENCE IN THIS FIELD WAS STRESSED. THE OPINIONS PRESENTED WERE GENERAL TO THE MANUFACTURING INDUSTRIES AND WERE NONTECHNICAL IN CONTENT.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, WESTMINSTER, LONDON S.W.

COMPARISON, THEORY AND EXPERIENCE + RELIABILITY ANALYSIS + RELIABILITY, COMPONENT

5-20058

ALSO IN CATEGORY 17

SANTASILIA, FRANCO

HIGH VOID TESTS AT THE GARIGLIANO NUCLEAR POWER STATION

ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY

EURAE-1782 + EUR-3324 +. 77 PAGES, OCTOBER 1966

PRESENTS RESULTS OF TESTS WHICH SIMULATED HIGH-POWER-DENSITY CONDITIONS TO DETERMINE PLANT STABILITY. TESTS DEMONSTRATED (1) THE PLANT IS STABLE, (2) RATED POWER (506 MWTH) CAN BE MAINTAINED BY NATURAL CIRCULATION, (3) MOVABLE IN-CORE CHAMBERS PROVED VALUABLE IN DETERMINING CORE PERFORMANCE IMMEDIATELY AND (4) THE REACTOR WAS OPERATED WITH A FEEDWATER-TO-RECIRCULATION FLOW RATIO OF 1/5, INDICATING THAT JET PUMPS OF NEW BOILING WATER REACTORS CAN BE FED DIRECTLY WITH WATER FROM FEED PUMPS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE*PERFORMANCE LIMIT + *TEST, PLANT RESPONSE + *TEST, SYSTEM OPERABILITY +
CIRCULATION, NATURAL (LOOPS AND REACTORS) + HEAT TRANSFER, CONVECTION + INSTRUMENTATION, IN CORE + ITALY +
MAIN COOLING SYSTEM + PUMP, JET + REACTIVITY EFFECT + REACTOR STABILITY + REACTOR, BOILING WATER +
SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + VOID COEFFICIENT

5-20452

ALSO IN CATEGORY 9

WAGGENER JP + HERRICK RC

TUBE FAILURE AND ANALYSIS PROGRAM ON THE ADVANCED TEST REACTOR PRIMARY HEAT EXCHANGER. PHASE II, FINAL
REPORT

FRANKLIN INST. RESEARCH LABS., PHILADELPHIA, PA.

TID-22616 +. 126 PAGES, 61 FIGURES, SEPTEMBER 3, 1965

THIS REPORT IS THE FINAL ONE OF A SERIES OF THREE. ALL REPORTS HAVE BEEN WRITTEN AS PART OF A PROGRAM TO DETERMINE THE CAUSE OF THE EARLY FAILURE OF THE ADVANCED TEST REACTOR PRIMARY HEAT EXCHANGERS AND TO GUIDE THE DESIGN OF RELIABLE REPLACEMENT EQUIPMENT.

AVAILABILITY - USAEC, DIVISION OF TECHNICAL INFORMATION EXTENSION, OAK RIDGE, TENN.

*FAILURE, TUBING + *HEAT EXCHANGER + FREQUENCY SPECTRA + IDAHO FALLS + INSTRUMENTATION CALIBRATION +
INSTRUMENTATION, PRESSURE + INSTRUMENTATION, TESTING + REACTOR TEST FACILITY + VIBRATION

CATEGORY 5
ACCIDENT ANALYSIS

5-20460 ALSO IN CATEGORY 18
NOTLEY MJ + LANE AD
FACTORS AFFECTING THE DESIGN OF RODDED UO₂ FUEL BUNDLES FOR HIGH POWER OUTPUTS
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO
AECL-2945 + SM-99135 +. 22 PAGES, 5 FIGURES, 29 REFERENCES, SEPTEMBER, 1967

AN EXCELLENT DISCUSSION OF FACTORS (SUCH AS ASSEMBLY GEOMETRY, ROD SIZE AND NUMBER, FABRICATION COSTS, HEAT TRANSFER, CENTERLINE MELTING, CLAD STRESSES, FAILURE MODES, ETC.) IN THE DESIGN OF FUEL ELEMENTS, CITING PERTINENT REFERENCES (29 REFERENCES IN BIBLIOGRAPHY).

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, \$1.00 COPY

*FUEL ELEMENT + *PERFORMANCE LIMIT + BIBLIOGRAPHY + BURNOUT HEAT FLUX + CANADA + CENTERLINE MELTING + CLAD + ECONOMICS + FABRICATION + FUEL BURNUP + FUEL INTEGRITY + FUEL MELTDOWN + HEAT CONDUCTANCE, FUEL TO CLAD + HEAT FLUX, DRYOUT + HEAT TRANSFER + REACTOR, HEAVY WATER

5-20481 ALSO IN CATEGORY 17
ARLT WH + BARTH NH + LEES EA + LYONS ME + WEISS DT
POWER REACTOR HIGH PERFORMANCE UO₂ PROGRAM. PROGRESS REPORT NO. 1, JULY-OCTOBER 1966
GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA
GEAP-5402 + EURAEC-1820 +. 51 PAGES, REFERENCES, DECEMBER 1966

PRESENTS THE INITIAL DESIGN CRITERIA AND PHYSICS ANALYSIS FOR THE PROGRAM IN WHICH FUEL RODS WILL BE IRRADIATED TO VARYING DEGREES OF CENTRAL MELTING IN BIG ROCK POINT. TWO ELEMENTS WILL OPERATE AT INCIPENT MELTING, AND FOUR WITH MODERATE MELTING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CENTERLINE MELTING + *RESEARCH AND DEVELOPMENT PROGRAM + BIG ROCK POINT + DESIGN CRITERIA + EURATOM + FUEL ELEMENT + REACTOR, BUILDING WATER

5-20517 ALSO IN CATEGORY 9
KARR CH + SWANSON L
RELIABILITY ANALYSIS AND PREDICTION
MARTIN CO., BALTIMORE, MD.
MND-3607-123 +. 36 PAGES, NOVEMBER 1966

PROGRESS REPORT, ONE OF A SERIES (MND-3607-1). THIS ISSUE (4/66-10/66) INCLUDES A DETAILED FAILURE-MODE-AND-EFFECTS ANALYSIS, AND THE LATEST UPDATED RELIABILITY MATHEMATICAL MODEL AND PREDICTION. TO SUPPORT THE VALIDITY OF PIECE-PART RELIABILITY DATA, THE STATUS AND MEANS OF QUALIFYING EACH PART IS DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*RELIABILITY ANALYSIS + *RESEARCH AND DEVELOPMENT PROGRAM +
*SNAP 19 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + ANALYTICAL MODEL + ISOTOPIC GENERATOR + MODEL TESTING + RELIABILITY, COMPONENT

5-20540 ALSO IN CATEGORIES 6 AND 8
STAUB FW
HEAT TRANSFER AND HYDRAULICS. THE EFFECTS OF SUBCOOLED VOIDS. QUARTERLY REPORT NO. 1, FEBRUARY-JUNE 1967
GENERAL ELECTRIC CO., SCHENECTADY, N. Y. RESEARCH AND DEVELOPMENT CENTER
NYO-3672-1 + EURAEC-1911 +. 46 PAGES, FIGURES, REFERENCES, JULY 1967

FIRST QUARTERLY PROGRESS REPORT FROM JOINT U.S.-EURATOM PROGRAM DESIGNED TO DETERMINE THE VOID DISTRIBUTION, LOCATION OF THE INITIATION OF NET VAPOR GENERATION, PRESSURE-DROP AND HEAT-TRANSFER COEFFICIENTS IN SUBCOOLED WATER SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EURATOM + FLOW, TWO PHASE + HEAT TRANSFER + SUBCOOLING

5-21847 ALSO IN CATEGORY 17
LA CROSSE CHANGE 2-MINIMUM PUMP SPEED RANGE AT STARTUP
DIVISION OF REACTOR LICENSING
2 PAGES, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY, DECEMBER 12, 1967

DRL ALLOWS SPECIFICATION ON A MINIMUM PUMP SPEED OF 34% OF FULL SPEED (VS PREVIOUS LIMIT OF GREATER THAN 34% BUT LESS THAN 42). SAFETY ANALYSIS ESTABLISHED THAT A FLOW OF 4500 GPM IS NECESSARY TO PREVENT FLOW INSTABILITIES AT LOW POWER. A 34% PUMP SPEED RESULTS IN 6750 GPM. DRL STATES THAT OPERATION AT SPEED HIGHER THAN 34% INCREASES THE SAFETY MARGIN.

CATEGORY 5
ACCIDENT ANALYSIS

5-21847 *CONTINUED*
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FLOW STABILITY + *FLOW, RECIRCULATION + LACROSSE + MAIN COOLING SYSTEM + PUMP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

5-21989 ALSO IN CATEGORY 17
WARZEE M + SONNEN C + BERGE PH
INFLUENCE OF SURFACE TREATMENT ON THE CORROSION OF TWO ZIRCONIUM ALLOYS IN HIGH-TEMPERATURE PRESSURIZED WATER AND SUPERHEATED STEAM. SPECIAL REPORT NO. 7
SOCIETE D-ETUDES, DE RECHERCHES ET D-APPLICATIONS POUR L-INDUSTRIE, BRUSSELS, BELGIUM
EURAC-1894 + EUR-3386 +. 26 PAGES, FIGURES, TABLES, REFERENCES, JULY 6, 1967

THE EFFECT OF SURFACE TREATMENT ON ZIRCALOY 2 IS VERY SECONDARY. FOR A ZIRCONIUM (2%), CHROMIUM (0.16%), IRON ALLOY IN SUPERHEATED STEAM AT 450 C (70 KG/CM²) IT SEEMS ADVANTAGEOUS TO PREPARE THE SURFACES BY ELECTRO-POLISHING. SUCH TREATMENT APPRECIABLY REDUCES THE CORROSION RATE IN THE POSTTRANSITION ZONE. DEEP SURFACE WORK-HARDENING WAS FOUND TO BE MOST UNFAVORABLE IN THIS RESPECT. THE INFLUENCE WAS SYSTEMATICALLY EXAMINED (FOR 300 TO 450 C) OVER RELATIVELY LONG PERIODS OF TIME.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*CORROSION + *ZIRCALOY + CLAD + COATING, SURFACE + EMBRITTLEMENT + EURATOM + HYDROGEN + RESEARCH AND DEVELOPMENT PROGRAM

5-22773 ALSO IN CATEGORIES 12 AND 18
SECTION XV - SAFETY ANALYSIS OF CORE AND COOLANT BOUNDARY PROTECTION
OMAHA PUBLIC POWER DISTRICT
16 PAGES, 3 FIGURES, 1 TABLE, PAGES XV-1-1 THRU XV-4-8 OF FORT CALHOUN 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 2, 1967, DOCKET 50-285, TYPE--PWR, MFG.--C.E., AE--GIBBS + HILL

PRESENTS PRELIMINARY EVALUATION MAINLY BY DEFINING THE ACCIDENT TO DETERMINE THE CRITERIA FOR SAFETY AND TO CONSIDER SAFEGUARD FEATURES WHICH WILL BE INCORPORATED TO MEET THE CRITERIA. ACCIDENTS CONSIDERED INCLUDE STARTUP, CORE-BARREL FAILURE, BORON DILUTION OR COLD WATER, POWER-TO-FLOW MISMATCH, LOSS OF LOAD, STEAM-LINE BREAK, AND LOSS OF FEEDWATER FLOW. THESE ACCIDENTS DO NOT COMPROMISE THE COOLANT-SYSTEM BOUNDARY, AND NO GROSS FAILURES OF FUEL RODS OCCUR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY ANALYSIS + ACCIDENT, COLD COOLANT + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOAD REJECTION + ACCIDENT, REACTIVITY + ACCIDENT, STEAM LINE RUPTURE + ENGINEERED SAFETY FEATURE + FT. CALHOUN + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-16573
CHASANOV MG + FISCHER OF
FUEL MIGRATION STUDIES.
ARGONNE NATIONAL LAB., ILL.
ANL-7225 +. 1 PAGE, 1 FIGURE, PAGE 200, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT,
JANUARY-JUNE 1966, NOVEMBER 1966

A PROGRAM IS BEING CARRIED OUT TO DETERMINE THE EXTENT OF FUEL MIGRATION AND SEGREGATION IN MIXED URANIUM-PLUTONIUM FUELS. A SIGNIFICANT DEGREE OF SEGREGATION MIGHT SERIOUSLY DECREASE THE EFFECT OF DOPPLER BROADENING AS A SHUTDOWN MECHANISM IN AN OPERATING REACTOR. AN INVESTIGATION OF MIGRATION IN MIXED FUELS SUCH AS URANIUM AND PLUTONIUM OXIDES, CARBIDES, AND NITRIDES IN A THERMAL GRADIENT IS PLANNED. SEGREGATION WITHIN FUEL SAMPLES WILL BE DETERMINED BY CHEMICAL, METALLOGRAPHIC, AND ELECTRON-MICROPROBE ANALYSES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FUEL SEGREGATION + DOPPLER EFFECT

6-16646
PALOWITCH BL + HARDY J
MEASUREMENT OF THE EFFECTIVE RESONANCE INTEGRAL AND DOPPLER COEFFICIENT OF THORIUM OXIDE RODS
BETTS ATOMIC POWER LABORATORY, PITTSBURGH, PA.
WAPD-TM-627 +. 47 PAGES, 12 FIGURES, 8 TABLES, 25 REFERENCES, DECEMBER 1966

THE EFFECTIVE RESONANCE CAPTURE INTEGRAL OF THO₂ WAS MEASURED, AT TEMPERATURES OF 300 AND 1200 K, FOR RODS RANGING IN DIAMETER FROM 0.4 TO 3.0 CM. CALCULATED RESONANCE INTEGRALS OBTAINED BY USING CURRENT CROSS SECTIONS AND CALCULATIONAL METHODS ARE FOUND TO BE IN GOOD AGREEMENT WITH THE EXPERIMENTAL RESULTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOPPLER COEFFICIENT + *THORIUM + COMPARISON, THEORY AND EXPERIENCE

6-16647
CALJAKULA L + HAEFELE W + SCHIKARSKI W
EXPERIMENTS TO EVALUATE REACTIVITY COEFFICIENTS WITH REACTOR OPERATING AT STEADY STATE CONDITIONS (STATIC EXPERIMENTS)
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
KFK-260 +. 42 PAGES, 1 FIGURE, FEBRUARY 1966

IN EXPERIMENTS TO EVALUATE REACTIVITY COEFFICIENTS WITH REACTOR OPERATING AT STEADY STATE, WE MEASURED THE GLOBAL POWER COEFFICIENT G (RELATED TO THE REACTOR POWER), THE GLOBAL COOLANT TEMPERATURE COEFFICIENT GAMMA (RELATED TO THE AVERAGE COOLANT TEMPERATURE), THE SECONDARY RADIAL EXPANSION TEMPERATURE COEFFICIENT, GAMMA-SUB-R (RELATED TO THE COOLANT-TEMPERATURE RISE IN THE REACTOR). ERROR ANALYSIS WITH NUMERICAL EXAMPLES RELATED TO SEFOR. CONTROL POLICY OF THE REACTOR SYSTEM DURING THE EXPERIMENTS WAS ALSO STUDIED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*REACTIVITY COEFFICIENT + *SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR) + COOLANT COEFFICIENT + POWER COEFFICIENT + REACTIVITY EFFECT, EXPANSION + REACTOR, BREEDER + REACTOR, FAST + TEMPERATURE COEFFICIENT

6-16648
FISCHER EA
ON THE IMPORTANCE OF THE ADJOINT FLUX IN REACTOR KINETICS
NUCLEAR RESEARCH CENTER, KARLSRUHE, WEST GERMANY
KFK-508 +. 37 PAGES, 14 REFERENCES, JAN. 1967 (IN GERMAN)

IN THE FIRST SECTION, IMPORTANCE FUNCTIONS ARE DEFINED AND THEIR PROPERTIES CLARIFIED. LATER SECTIONS DISCUSS THE PHYSICALLY SIGNIFICANT INFORMATION OBTAINABLE FOR THE SOLUTION OF THE ADJOINT EQUATIONS. THE ADJOINT DESCRIPTION IS EXPLICITLY APPLIED TO A REACTIVITY JUMP.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*REACTOR KINETICS + PERTURBATION METHOD

6-16649
HAEFELE W
FAST BREEDER REACTORS, THEIR PRINCIPLES, THEIR DEVELOPMENT, AND THEIR ROLE IN A NUCLEAR ECONOMY.
NUCLEAR RESEARCH CENTER, KARLSRUHE, GERMANY
KFK-480 + EURFNR-233F +. 32 PAGES, 10 FIGURES, 44 REFERENCES, OCTOBER 1966

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-16649 *CONTINUED*

THIS GENERAL PAPER ON FAST BREEDERS CONTAINS ON PP. 12 AND 13 A FEW FUNDAMENTAL REMARKS ABOUT STABILITY AND SAFETY. FUEL-EXPANSION COEFFICIENT IN METAL-FUELED REACTORS, DOPPLER EFFECT IN OXIDE REACTORS. SUAV, STARK AND SNEAK, SEFOR EXPERIMENT.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*REACTOR STABILITY + DOPPLER EFFECT + GERMANY + REACTIVITY EFFECT, EXPANSION + REACTOR, BREEDER + REACTOR, FAST + RESEARCH AND DEVELOPMENT PROGRAM + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

6-17166 ALSO IN CATEGORY 17

WHITENER HL + STEPHAN LA

FUEL-ROD-FAILURE EXPERIENCE DURING TRANSIENT TESTING

PHILLIPS PETROLEUM COMPANY

CONF-670-713 +. 2 PAGES, 4 REFERENCES, ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 32 AND 33, (JULY 1967), CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

12 FUEL ROD (OUT OF 1652 SS-CLAD UO₂ RODS) HAVE FAILED ON 9 TRANSIENT TESTS AT THE CAPSULE DRIVER CORE WITH PERIODS LESS THAN 5 SEC. 11 WERE DUE TO WATERLOGGINGS (DUE TO CLADDING OR END-CLOSURE IMPERFECTIONS) THAT GAVE STEAM RUPTURES AT 50 CAL/GRAM. ONE ROD (NEXT TO A RUPTURE) SHEARED AT A GRID. CONCLUSIONS - QUALITY ASSURANCE IN FABRICATION IS OF PRIMARY IMPORTANCE. FAILURES CAN OCCUR WITHOUT PROPAGATION (AUTHORS WERE CAREFUL TO POINT OUT LOW FISSION-PRODUCT BURDEN).

*FAILURE, FUEL ELEMENT WATERLOGGING + CORE, CAPSULE DRIVER (CDC) + EXCURSION, LARGE + FAILURE, SEQUENTIAL + SPERT 4 (SPECIAL POWER EXCURSION REACTOR TEST)

6-17530 ALSO IN CATEGORY 5

BURDG CE + ZUROMSKY G + KOZIOL JJ

POWER BURST FACILITY FUEL ROD PROTOTYPE OUT-OF-PILE THERMAL TESTS. FINAL REPORT

COMBUSTION ENGINEERING, INC., WINDSOR, CONN. NUCLEAR DIVISION

CEND-235 +. 71 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1965

THIS REPORT COMPLETES THE WORK ON SUBCONTRACT C-258, WITH PHILLIPS PETROLEUM COMPANY, FOR CONDUCTING OUT-OF-PILE THERMAL TESTS ON CERAMIC FUEL COMPOSITIONS OF THE UO₂-ZRO₂-CAO SYSTEM. THREE MAIN TASKS WERE ACCOMPLISHED - THE PHASE STABILITY OF THE MATERIALS WAS INVESTIGATED AT SEVERAL HIGH TEMPERATURES. THE MELTING POINT, SPECIFIC HEAT, AND THERMAL CONDUCTIVITY WERE DETERMINED FOR TWO OF THE COMPOSITIONS. THERMAL-CYCLING TESTS WERE PERFORMED ON FUEL-ROD COMPONENTS UNDER SEVERE THERMAL GRADIENT CONDITIONS AND WITH SEVERAL COMBINATIONS OF FUEL COMPOSITION AND COMPONENT GEOMETRY, SIMULATING POWER BURST FACILITY CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, .065 MICROFICHE

CERAMICS + FUEL ELEMENT + PHASE CHANGE + TEST, PROOF + THERMAL PROPERTY

6-17802 ALSO IN CATEGORIES 5 AND 8

REDMAN JD + MCKEE G + RULE IC

AN EXPERIMENTAL STUDY OF TURBULENT FORCED CONVECTION HEAT TRANSFER TO GASES IN AXIAL FLOW ROD CLUSTER PASSAGES

REACTOR GROUP, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SELLAFIELD, ENGLAND + REACTOR, DEVELOPMENT LABORATORY, WINDSCALE, ENGLAND

TRG-REPORT-931 + JNPC-FEWP(65)/P-45 +. 70 PAGES, 31 FIGURES, 9 REFERENCES, NOVEMBER 11, 1965

FUEL ELEMENTS IN SEVERAL TYPES OF NUCLEAR REACTOR AND SOME CONVENTIONAL HEAT EXCHANGERS CONSIST OF CLUSTERS OF TUBES COOLED ON THE OUTSIDE BY AXIAL TURBULENT FLUID FLOW. THE HEAT TRANSFER IN FLOW PASSAGES OF THIS TYPE DEPENDS ON THE CLUSTER GEOMETRY, THE REYNOLDS NUMBER, AND THE BOUNDARY CONDITIONS AT THE SURFACES OF THE TUBES. EXPERIMENTAL WORK IS REPORTED ON THE INFLUENCE OF ALL THESE PARAMETERS ON FULLY DEVELOPED HEAT TRANSFER IN A SIMPLE CLUSTER.

AVAILABILITY - PUBLIC RELATIONS BRANCH, U.K.A.E.A. (REACTOR GROUP), RISLEY, WARRINGTON, LANCASHIRE

FLOW, AXIAL + FLOW, CROSS + FLOW, TURBULENT + FUEL ELEMENT + FUEL ELEMENT CLUSTER + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, CONVECTION + REACTOR, GENERAL

6-17804 ALSO IN CATEGORIES 5 AND 8

CLERICI GC + GARRIBA S + SALA R + TOZZI A

CRITICAL STUDIES ON STEADY BURNOUT. FINAL REPORT. PART 1. CORRELATION FOR NON UNIFORM HEATING. PART 2. STUDIES ON LINEAR CORRELATIONS

APPLICAZIONI E RICERCHE SCIENTIFICHE, MILAN, ITALY

EURAE-1833(PTS. 1 AND 2) + EUR-3356(PTS. 1 AND 2) +. 150 PAGES, REFERENCES, 1967

THE MANY CORRELATIONS FOR STEADY-STATE BURNOUT WERE COLLECTED AND COMPARED. THE CORRELATIONS WERE THEN PUT ON A STANDARD BASIS, COMPARING THE BURNOUT-CRITICAL HEAT FLUX WITH THE STEAM OUTLET QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-17804 *CONTINUED*

STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + DNB (DEPARTURE FROM NUCLEATE BOILING) + EURATOM + HEAT TRANSFER CORRELATION + ITALY + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

6-17805 ALSO IN CATEGORIES 5 AND 8

MAYINGER F + SCHAD O + WEISS E

INVESTIGATIONS INTO THE CRITICAL HEAT FLUX IN BOILING. FINAL REPORT

MASCHINENFABRIK AUGSBURG-NUERNBERG A. G., NUREMBERG, WEST GERMANY

EURAC-1811 + EUR-3347 +. 359 PAGES, MAY 20, 1966

THE PURPOSE WAS TO MEASURE THE CRITICAL HEAT FLUX (BURNOUT) IN BOILING AND, PRIMARILY, THE EFFECTS OF THE HISTORY AND THE INLET CONDITIONS AS WELL AS THE L/D RATIO OF THE TEST CHANNEL ON NUCLEATE BOILING. THE INCEPTION OF FILM BOILING WAS ALSO INVESTIGATED. THE TESTS WERE MADE AT PRESSURES OF 70 TO 140 KGF/SQ. CM, USING INTERNALLY COOLED TUBES WITH DIAMETERS VARYING FROM 0.7 TO 1.5 CM. THE CONDITIONS AT THE CHANNEL INLETS COVERED MASS FLOWS BETWEEN 100 AND 350 G/SQ. CM/SEC BETWEEN A DEGREE OF SUBCOOLING OF 20%, AND 20% STEAM QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FLOW, PULSATING + FLOW, TWO PHASE + GERMANY + HEAT FLUX, CRITICAL + HEAT TRANSFER EXPERIMENT + REACTOR, BOILING WATER

6-17806 ALSO IN CATEGORIES 5 AND 8

HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT NO. 9, JANUARY 1-APRIL 1, 1966

TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS

EURAC-1672 + EUR-2864 + WW-015-R-100 +. 23 PAGES, REFERENCES, MAY 1966

DURING THIS QUARTER EXPERIMENTS WERE MADE ON A SEVEN-ROD CLUSTER ELEMENT TO DETERMINE THE INFLUENCE OF THE SHROUD DISTANCE AND MIXING BETWEEN THE FUEL CHANNEL AND SURROUNDING CHANNELS ON THE BURNOUT POWER. TECHNOLOGICAL TESTS WERE MADE WITH THE MIXING TEST SECTION IN THE PRESSURIZED LOOP, AMONG WHICH PERFORMANCE TESTS ON THE NEWLY INSTALLED VOID METERS WAS A MAIN ITEM. CONTINUED ARE THE CALIBRATIONS IN AN AIR-WATER LOOP AND A THEORETICAL STUDY ON THE HYDRAULIC COUPLING OF PARALLELED CHANNELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DNB (DEPARTURE FROM NUCLEATE BOILING) + FLOW, CROSS + FUEL ELEMENT CLUSTER + HYDRAULIC EXPERIMENT + REACTOR, PRESSURIZED WATER

6-17808 ALSO IN CATEGORIES 5 AND 8

HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT NO. 8, OCTOBER 1, 1965-JANUARY 1, 1966

TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS

EUR-2856 + WW-015-R-96 + EURAC-1664 +. 27 PAGES, REFERENCES, JANUARY 1966

EXPERIMENTS WERE FINISHED ON A SINGLE-ROD SQUARE-ANNULUS GEOMETRY FOR DETERMINING THE INFLUENCE OF A COLD WALL AND MIXING BETWEEN THE FUEL CHANNEL AND A SURROUNDING CHANNEL ON THE BURNOUT POWER. EXPERIMENTS WERE MADE IN AN AIR-WATER LOOP ON A TWO-CHANNEL GEOMETRY BY MAKING MASS AND HEAT BALANCES IN TWO ADJACENT CHANNELS. (MEASUREMENTS WERE MADE ON VOID FRACTION IN THE AIR-WATER LOOP DURING NONSYMMETRIC INJECTIONS OF AIR AT DIFFERENT LEVELS. THE TEST SECTION ON THE TWO-CHANNEL GEOMETRY IN THE 140-ATM PRESSURIZED LOOP WAS FABRICATED). THE THEORETICAL STUDY ON THE HYDRAULIC COUPLING OF PARALLELED CHANNELS IS CONTINUING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + FLOW, CROSS + HEAT TRANSFER, BOILING + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

6-17809 ALSO IN CATEGORIES 5 AND 4

CULLOM RR + DIEDRICH G + ALBERS LU

ANALYSIS OF SOLIDIFICATION IN THERMAL-ENERGY STORAGE SYSTEMS WITH AXISYMMETRIC HEAT-TRANSFER SOLUTIONS

NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO

NASA-TN-D-3763 +. 25 PAGES, 8 FIGURES, 1 TABLE, 6 REFERENCES, DECEMBER 1966

AN ANALYSIS WAS MADE OF A TRANSIENT HEAT CONDUCTION PROBLEM WITH A PHASE CHANGE IN THE AXISYMMETRIC CONDUCTING MEDIUM AND HEAT TRANSFER AT THE INNER RADIUS ONLY. NONDIMENSIONAL FINITE-DIFFERENCE SOLUTIONS FOR SURFACE TEMPERATURE AND SOLIDIFICATION THICKNESS WERE OBTAINED FOR A RANGE OF TIME, INITIAL HEAT-REJECTION RATE, TUBE DIAMETER, AND STORAGE-MATERIAL PROPERTIES. THE NONDIMENSIONAL SOLUTIONS PRESENTED IN THIS REPORT CAN BE APPLIED TO A WIDE RANGE OF AXISYMMETRIC SOLIDIFICATION PROBLEMS, SUCH AS METAL CASTING AND ICE FORMATION. THE GENERAL SOLUTIONS WERE USED IN AN ANALYSIS OF A LITHIUM HYDRIDE THERMAL-ENERGY STORAGE SYSTEM. ANALYSIS INDICATES AXISYMMETRIC SOLUTIONS ARE RECOMMENDED

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-17809 *CONTINUED*

OVER THE SIMPLE ONE-DIMENSIONAL SOLUTIONS FOR LOW RADII OR LONG DARK TIMES TO PREVENT INEFFICIENT OVERDESIGN OF THE THERMAL-ENERGY STORAGE COMPONENT. THE STORAGE-MATERIAL SURFACE TEMPERATURE IS MORE SENSITIVE TO CHANGES IN HEAT-REJECTION RATE THAN TO CHANGES IN EITHER COOLING TIME OR HEAT-TRANSFER SURFACE RADIUS. THE SOLIDIFICATION THICKNESS IS A STRONGER FUNCTION OF COOLING TIME THAN EITHER HEAT-TRANSFER RATE OR SURFACE RADIUS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

HEAT TRANSFER ANALYSIS + HEAT TRANSFER, CONDUCTION + MATHEMATICAL TREATMENT + PHASE CHANGE + REACTOR, SPACE

6-18334 ALSO IN CATEGORY 17

HUMBOLDT BAY PROPOSED CHANGE 22 ADDENDUM C. SUPPLEMENTAL INFORMATION
PACIFIC GAS AND ELECTRIC COMPANY, SAN FRANCISCO, CALIFORNIA
10 PAGES, 4 FIGURES, 1 TABLE, FEBRUARY 28, 1967, DOCKET NO. 50-133

ADDITIONAL ANALYSIS OF CONTROL-ROD-DROP ACCIDENTS (RESULTS GIVEN IN TABULAR FORM) THAT YIELD ENTHALPIES ABOVE THE PROCEDURAL LIMIT OF 360 CAL/GRAM GIVES A GRAVITY ROD-DROP OF 3.8% TO CAUSE VESSEL OR PIPING DAMAGE. THEY CONCLUDE THAT PROPOSED CONTROL-ROD-WORTH LIMITS GIVE CONSIDERABLE MARGIN AGAINST VESSEL DAMAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, CONTROL ROD EJECTION + ACCIDENT ANALYSIS + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

6-18382 ALSO IN CATEGORY 9

LEWINS J + BENHAM RD
TIME OPTIMAL XENON SHUTDOWN ON THE XENON BOUNDARY
PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-186 +. 34 PAGES, 11 FIGURES, 9 REFERENCES, MAY 1966

THE TIME-OPTIMAL FLUX PROGRAM TO SHUT DOWN A REACTOR WITHOUT LOSING RESTART CAPABILITY THROUGH XENON POISONING IS REVIEWED. A MORE RIGOROUS PROOF OF THE OPTIMAL NATURE OF OPERATING ALONG THE XENON BOUNDARY IS OFFERED, TOGETHER WITH A DISCUSSION OF SITUATIONS WHICH MIGHT NOT BE OPTIMAL. IT IS CONCLUDED THAT FOR PRACTICAL PURPOSES OPERATION ALONG THE BOUNDARY WILL BE OPTIMAL. PART OF THE PROOF CONSISTS OF ANALOG COMPUTATIONS, AND A DISCUSSION IS GIVEN OF THE SUITABILITY OF THE OPTIMUM XENON STUDY TO ANALOG TECHNIQUES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ANALOG SIMULATION + POISON, BURNABLE + REACTOR CONTROL + SHUTDOWN MARGIN + XENON

6-18541

KATZ R
THERMAL DESIGN ASPECTS OF GAS-COOLED REACTOR CORES
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION
GA-7941 + CONF-670530-1 +. 44 PAGES, FIGURES, REFERENCES, APRIL 19, 1967 FROM 4TH ANNUAL TECHNICAL SYMPOSIUM OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, IDAHO FALLS, IDAHO.

REVIEWS THERMAL DESIGN ASPECTS OF GAS-COOLED REACTOR CORES. EMPHASIZES PUMPING-POWER REQUIREMENTS AND DESIGN-TEMPERATURE CRITERIA. SELECTED REACTORS ARE REVIEWED AND THE DESIGN-TEMPERATURE CRITERION IDENTIFIED. THE MAIN DESIGN PARAMETERS AVAILABLE FOR REDUCING PUMPING ARE DISCUSSED. HEAT-TRANSFER CHARACTERISTICS NEEDED FOR DESIGN EVALUATION ARE ILLUSTRATED. A FEW SPECIAL HEAT-TRANSFER PROBLEMS AND THE CURRENT TREND IN HEAT-TRANSFER WORK ARE DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

HEAT TRANSFER + HEAT TRANSFER ANALYSIS + REACTOR, GAS COOLED + THERMAL ANALYSIS

6-18619 ALSO IN CATEGORY 9

TAKAHASHI J
CONTROL ROD DRIVE
JAPANESE PATENT 1966-3598 +. 3 PAGES, MARCH 2, 1966, PATENT (FOREIGN)

THE CONTROL-ROD DRIVE IS MADE SIMPLY. SHIM AND FINE-ADJUSTMENT OF A SINGLE CONTROL ROD AND EASE IN FABRICATION AND CONSTRUCTION AND HIGH RELIABILITY ARE SIMPLIFIED. THE LONG, THREADED ROD FOR MOVING A CONTROL ROD FOR BOTH THE SHIM AND FINE-ADJUSTMENT CONTROLS ENGAGES WITH THE TWO LONG NUTS FOR THE SHIM AND FINE-ADJUSTMENT RESPECTIVELY. THESE TWO NUTS ARE LOCATED UP AND DOWN ALONG THE THREADED ROD. FOR THE SHIM CONTROL, THE UPPER NUT MOVES TOGETHER WITH THE THREADED ROD. FOR FINE-ADJUSTMENT, THE LOWER NUT MOVES WITH THE THREADED ROD. FOR THE LATTER, PROVISION IS MADE FOR CONTROLLING THE LENGTH OF THE UP OR DOWN MOVEMENT. THE SHIM AND THE FINE-ADJUSTMENT ROD MOVEMENT ARE ACHIEVED BY THE RESPECTIVE MECHANISMS, INCLUDING A WORM-WHEEL, A WORM, AN ELECTRIC MOTOR, ETC.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18619 *CONTINUED*
AVAILABILITY - PHOTOCOPIES MAY BE OBTAINED FROM THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 PER PAGE)

CONTROL ROD DRIVE + CONTROL ROD, SHIM SAFETY + JAPAN + PATENT

6-18647 ALSO IN CATEGORY 17
DELCHAMBRE PH + MILLOT JP
REVIEW OF EXPERIMENTS ON REACTIVITY ACCIDENTS
16 PAGES, 23 FIGURES, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 41 THRU 56, (FEBRUARY 1967), IN FRENCH

GIVES RESULTS OF EXPERIMENTS WITH 2 SIMILARLY SHAPED CORES (OSIRIS) FLOW RATES AT AN INITIAL TEMPERATURE OF 30 C WERE PERFORMED. OSIRIS RESULTS SHOW THAT FOR PERIODS SHORTER THAN 15 MSEC, A CONSIDERABLE AMOUNT OF WATER IS EXPELLED FROM THE CORE AT PEAK POWER.

*ACCIDENT, REACTIVITY + *EXCURSION, LARGE + EMERGENCY COOLING CONSIDERATIONS + FRANCE + REACTOR, POOL TYPE + REACTOR, SAFETY RESEARCH

6-18700 ALSO IN CATEGORY 18
XENON STABILITY IN LARGE HTGRS
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION
GA-6881 +. 12 PAGES, 5 FIGURES, 2 TABLES, PAGE 53 THRU 64 OF MULTIMILLION KILOWATT HTGR. A DESALINATION REACTOR SCALEUP STUDY, MAY 19, 1967

CORE SIZE NECESSARY FOR 10,000-MWT RANGE WILL BE UNSTABLE FROM XENON-INDUCED OSCILLATIONS, AZIMUTHAL OR RADIAL. FUEL LENGTH SELECTED (15.5 FT) IS SHORT ENOUGH, HOWEVER, TO PREVENT AXIAL XENON OSCILLATIONS. RADIAL OR AZIMUTHAL OSCILLATIONS CAN BE CONTROLLED BY PARTIAL INSERTION OF STANDARD RODS FROM ABOVE THE CORE. SIGNIFICANT CHANGES IN POWER DENSITY DUE TO XENON TRANSIENTS CAN OCCUR OVER A DISTANCE OF 8 FT. THEREFORE, ROD SPACING OF ABOUT 3 FT IS ADEQUATE FOR XENON CONTROL. CRITICAL DIMENSION FOR XENON OSCILLATION WAS CALCULATED TO BE 30 FT (COSINE FLUX) AND 20 FT (FLAT FLUX). DISCUSSES IN-CORE INSTRUMENTATION NECESSARY TO DETECT XENON TRANSIENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*XENON OSCILLATION + DESIGN STUDY + INSTRUMENTATION, IN CORE + MATHEMATICAL STUDY + PERFORMANCE LIMIT + REACTOR KINETICS + REACTOR, DESALINATION + REACTOR, HIGH TEMP. GAS

6-18876
ERNST BH + SCHUSKE CL + KING HW
EMPIRICAL ANALYSIS OF SPHERICAL AND HEMISPHERICAL ASSEMBLIES OF ENRICHED-URANIUM METAL
DOW CHEMICAL CO., GOLDEN, COLO.
RFP-939 +. 4 PAGES, 3 FIGURES, 2 TABLES, JUNE 9, 1967

A SIMPLE EMPIRICAL EQUATION WAS FOUND FOR RELATING THE VOLUME-TO-SURFACE RATIO (V/S) TO THE CRITICAL MASS OF SPHERICAL AND HEMISPHERICAL SHAPES, REFLECTED AND MODERATED WITH OIL. THE EQUATION IS OF THE FORM - MASS EQUALS C/(V/S-B) PLUS A, WHERE A, B, AND C ARE EMPIRICAL CONSTANTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

CRITICALITY EXPERIMENT

6-18877
KNAPP WG
MEASUREMENT OF SPACE-DEPENDENT MATERIAL REACTIVITY WORTHS
ARGONNE NATIONAL LABORATORY
CONF-670 602 +. 3 PAGES, 1 FIGURE, 2 REFERENCES, ANS TRANSACTIONS 10(1), PAGES 272-3 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

THE SPATIAL REACTIVITY EFFECTS OF MATERIALS IN A FAST CRITICAL FACILITY WERE MEASURED BY AN ON-LINE DIGITAL COMPUTER TECHNIQUE. THE METHOD HAS THESE ADVANTAGES - (1) ELIMINATION OF MANIPULATIONS OF THE REACTOR DURING A TRAVERSE, REDUCING ERRORS DUE TO NONREPRODUCIBILITY IN POSITIONING OF REACTOR COMPONENTS, (2) USE OF SMALL SAMPLES, MINIMIZING SAMPLE-SIZE EFFECTS, AND (3) SIGNIFICANT REDUCTION IN MEASURING TIME.

CRITICALITY EXPERIMENT + REACTIVITY COEFFICIENT

6-18878
NORELLI F + PEPINO A
A METHOD FOR THE CALCULATION OF KINETIC PROBLEMS OF THERMAL REACTORS
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME, ITALY
RT-FI-(66)21 +. 17 PAGES, 1966. IN ITALIAN

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18878 *CONTINUED*

NONSPATIAL REACTOR-KINETICS PROBLEMS WERE SOLVED BY A LANCZOS PERTURBATION OF THE LINEAR OPERATORS, WHICH IS OPERATED BY MINIMUM-NORM, SUCH AS LEGENDRE OR CHEBICHEV, POLYNOMIALS. ASPECTS OF THE METHOD WERE POINTED OUT, AND THE RESULTS, FOR SIMPLE MATHEMATICAL AND PHYSICAL PROBLEMS, ARE LISTED. A COMPARISON IS MADE BETWEEN THE FOURIER-LIKE METHOD USED AND THE CLASSICAL TAYLOR-LIKE STEP-BY-STEP PROCEDURE.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

REACTOR KINETICS

6-18879

PACILIO N + FERRARI T

KINETIC EXPERIMENTS ON THE ROSPO EMPLOYING THE ENDOGENOUS PULSED SOURCE METHOD
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME, ITALY
RT-FI-166120 +. 37 PAGES, 1966. IN ITALIAN

REPORTS EXPERIMENTAL RESULTS OF PROMPT-NEUTRON TIME-DECAY EIGENVALUES AND REACTIVITY-COEFFICIENT MEASUREMENTS IN THE ROSPO REACTOR. THE RESULTS WERE OBTAINED USING A TECHNIQUE NAMED ENDOGENOUS PULSED-SOURCE METHOD (NO EXTERNAL INPUT IS NECESSARY, SINCE THE REACTOR ITSELF TRIGGERS THE TIME ANALYSIS OF ITS SPONTANEOUS BURSTS). THE METHOD IS SHOWN TO BE VALID WITHIN A WIDE REACTIVITY RANGE (FROM CRITICALITY TO 13 %) AND APPEARS TO BE CONSISTENT WITH VARIOUS STOCHASTIC TECHNIQUES PREVIOUSLY ADOPTED TO MEASURE THE SAME PARAMETERS.

MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISC. 54669

PROMPT NEUTRON LIFETIME + PULSED NEUTRON TECHNIQUE + REACTIVITY COEFFICIENT

6-18880

MORTON JR + PIERCE GA + GARDNER LL + BALL CJ

SUMMARY REPORT OF CRITICAL EXPERIMENTS PLUTONIUM ARRAY STUDIES, PHASE I
LAWRENCE RADIATION LAB., LIVERMORE
UCRL-50175 +. 56 PAGES, 48 FIGURES, 16 TABLES, 9 REFERENCES

A SERIES OF SMALL-SCALE 3-DIMENSIONAL ARRAYS OF 3-KG CYLINDRICAL ALPHA-PLUTONIUM BILLETS WAS STUDIED. THE PARAMETER MEASURED WAS THE SURFACE-TO-SURFACE SPACING OF THE BILLETS AT THE CRITICAL CONDITION. THE FOLLOWING SYSTEMS WERE STUDIED - (A) 2 TO THE 3RD (2 X 2 X 2) ARRAYS BARE, REFLECTED AND MODERATED, (B) 2 X 2 ARRAYS OF 6-KG PAIRS BARE AND MODERATED, (C) 3 TO THE 3RD ARRAYS BARE AND REFLECTED, (D) AND 3 TO THE 3RD ARRAYS CONTAINING SEVERAL PERTURBATIONS. MULTIPLICATION MEASUREMENTS ARE ALSO REPORTED FOR AN EXTENSIVE GROUP OF IRREGULAR ARRAYS, WHICH WERE RELEVANT TO THE OPERATIONAL SAFETY OF THE PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00
COPY, 0.65 MICROFICHE

CRITICAL ASSEMBLY FACILITY + CRITICALITY EXPERIMENT + CRITICALITY SAFETY + PLUTONIUM + SAFETY ANALYSIS

6-18881

SPINKS N

REACTIVITY WORTH OF CONTROL RODS IN THE BERYLLIUM OXIDE MODERATED PEBBLE BED REACTOR
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT
AAEC/TM-375 +. 13 PAGES, 4 TABLES, 8 REFERENCES, FEBRUARY 1967

REPORTS STUDIES ON THE WORTH OF TUBULAR CONTROL RODS IN A BERYLLIUM-OXIDE-MODERATED PEBBLE-BED REACTOR SYSTEM. A NUMBER OF CONTROL-ROD ARRANGEMENTS AND A RANGE OF ROD SIZES WERE CONSIDERED. FINALLY, A PARTICULAR ROD SIZE AND PATTERN WAS CHOSEN FOR DETAILED INVESTIGATION. A FEATURE OF THE STUDY IS THE ACCURATE WAY THE EPITHERMAL ABSORPTION CAN BE TAKEN INTO ACCOUNT BY USING A THREE-GROUP MODEL IN THE REFLECTED REACTOR.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

ANALYTICAL MODEL + CONTROL ROD WORTH + REACTOR, PEBBLE BED

6-18882

DAHLBERG RC + MERRILL MH

NUCLEAR TRANSIENTS IN REACTORS WITH PACKED BEDS OF COATED PARTICLES. INITIAL STUDIES WITH BLOOST-6
GENERAL DYNAMICS CORP., SAN DIEGO, GENERAL ATOMIC DIV.
GAMD-7547 +. 29 PAGES, 3 FIGURES, 11 TABLES, 7 REFERENCES

DESCRIBES STUDIES OF THE EFFECT OF THE DELAYED DOPPLER COEFFICIENT ON REACTIVITY-ACCIDENTS. A FUEL ELEMENT CONTAINING BEDS OF COATED FISSILE AND FERTILE PARTICLES IN A GRAPHITE BODY IS ASSUMED. FOR SLOW REACTIVITY INSERTIONS, THE DELAY IN HEAT TRANSFER TO THE THORIUM PARTICLE, DOES NOT GREATLY AFFECT THE OVERALL POWER TRANSIENT. CALCULATIONS USING THE BLOOST-6 POINT-KINETICS PROGRAM WERE MADE TO INVESTIGATE THE EFFECTS DUE TO UNCERTAINTIES IN THE HEAT TRANSFER PARAMETERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 3.00

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18882 *CONTINUED*
COPY, 0.65 MICROFICHE

ACCIDENT, REACTIVITY + COATED PARTICLE + DOPPLER COEFFICIENT + HEAT TRANSFER + REACTIVITY COEFFICIENT +
REACTOR KINETICS + REACTOR TRANSIENT

6-18883
COHN CE
FAST-REACTOR NOISE ANALYSIS WITH AN ON-LINE DIGITAL COMPUTER
ARGONNE NATIONAL LABORATORY
CONF-670 602 +. 17 PAGES, 8 FIGURES, 10 REFERENCES, ANS TRANSACTION 10(1) PAGES 285-6 (JUNE 1967), 1967
ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

A METHOD WAS DEVELOPED FOR USING A COMPUTER TO ANALYZE THE NOISE FROM FAST CRITICAL ASSEMBLIES AND TO DETERMINE THE PROMPT-CHAIN DECAY CONSTANTS. THE METHOD, WHICH USES POLARITY CROSS CORRELATION, AVOIDS THE LIMITATIONS ASSOCIATED WITH PREVIOUS METHODS OF NOISE ANALYSIS. THE METHOD ALLOWS MEASUREMENT OF NEUTRON LIFETIME WITH NO INTRINSIC LIMITATION ON POWER LEVEL AND IS WELL SUITED FOR USE WITH PLUTONIUM ASSEMBLIES.

COMPUTER PROGRAM + COMPUTER, DIGITAL + NOISE ANALYSIS + NOISE CROSS CORRELATION + REACTOR, FAST +
THEORETICAL INVESTIGATION

6-18884
SHOTKIN LM
INSTABILITY IN LINEARLY STABLE SYSTEMS
BROOKHAVEN NATIONAL LABORATORY
CONF-670-602 + SNL-11158 +. 3 PAGES, ABSTRACT IN ANS TRANSACTIONS 10(1), PAGE 204 AND 205, (JUNE 1967),
PAPER PRESENTED AT THE SAN DIEGO MEETING OF THE AMERICAN NUCLEAR SOCIETY, JUNE 1967

THE STABILITY BEHAVIOUR OF POINT-KINETICS MODELS IS STUDIED BY MEANS OF A PERTURBATION EXPANSION ABOUT THE EQUILIBRIUM STATE. IN PARTICULAR, WHEN THE MODEL IS LINEARLY STABLE, THE SMALLEST FLUX PERTURBATION THAT CAUSES THE SYSTEM TO BECOME UNSTABLE IS SOUGHT.

FLUX TILT + PERTURBATION METHOD + REACTOR DYNAMICS + REACTOR STABILITY + THEORETICAL INVESTIGATION

6-18885
SCHWALM D
ASYMPTOTIC STABILITY OF A COUPLED REACTOR WITH LINEAR POWER FEEDBACK
EUROPEAN ATOMIC ENERGY COMMUNITY
7 PAGES, 7 FIGURES, 12 REFERENCES, NUKLEONIK 9(4), PAGE 194 THRU 200, (MARCH 1967)

THE ASYMPTOTIC STABILITY IN THE SMALL OF THE KINETICS EQUATIONS OF A COUPLED REACTOR IS STUDIED FOR A FINITE CLOSED REGION AROUND THE POWER-EQUILIBRIUM STATE BY MEANS OF LIAPUNOV'S DIRECT METHOD. A LIAPUNOV V FUNCTION IS CHOSEN SUCH THAT THE REGION OF ASYMPTOTIC STABILITY IN THE PARAMETER SPACE IS GIVEN BY THE HURWITZ CONDITION. THE METHOD IS ILLUSTRATED FOR TWO-DIMENSIONAL SYSTEMS WHERE THE REACTIVITY IN EACH CORE IS A LINEAR FUNCTION OF THE POWER.

COUPLED CORES + DYNAMICS, NONLINEAR + FLUX TILT + LIAPUNOV'S FUNCTION + MATHEMATICAL TREATMENT +
REACTOR KINETICS + REACTOR STABILITY + REACTOR, INTERACTING + THEORETICAL INVESTIGATION

6-18886
ANDERSON CA
RAPID (REACTOR AND PLANT INTEGRATED DYNAMICS) COMPUTER PROGRAM
LOS ALAMOS SCIENTIFIC LAB., N. MEX.
LA-3694 +. 184 PAGES, 15 FIGURES, 5 TABLES, 21 REFERENCES, NOVEMBER 10, 1966

RAPID IS A DIGITAL COMPUTER PROGRAM FOR THE IBM 7094 COMPUTER, INTENDED FOR STEADY-STATE AND TRANSIENT ANALYSIS OF AN ENTIRE REACTOR PLANT. IT TREATS CORE NEUTRONICS AND HEAT TRANSFER IN CORE, REFLECTOR, PRIMARY LOOP, SECONDARY LOOP, HEAT EXCHANGERS, HEAT DUMP, AND PIPING. IT IS APPLICABLE TO A LARGE NUMBER OF PLANTS, RATHER THAN ONE SPECIFIC REACTOR PLANT. MATHEMATICAL AND FORTRAN EQUATIONS ARE DERIVED AND DISCUSSED. CAPABILITIES, LIMITATIONS, AND DESIRABLE IMPROVEMENTS ARE DETAILED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + COMPUTER, DIGITAL + REACTOR DYNAMICS + REACTOR TEST FACILITY + REACTOR TRANSIENT

6-18887
ELBAUM GJ + THOMPSON TJ
ANALYSIS OF RAPID EXCURSIONS INVOLVING FUEL-ELEMENT RUPTURE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CONF-670-602 +. 22 PAGES, 6 FIGURES, 13 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(1), (JUNE 1967),
PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18887 *CONTINUED*

AN ANALYTICAL METHOD WAS DEVELOPED FOR CHARTING THE COURSE OF A RAPID EXCURSION INVOLVING FUEL-ELEMENT RUPTURE. THIS METHOD FINDS REACTOR POWER, ENERGY, VOID VOLUME AND PRESSURE, AVERAGE CORE PRESSURE, EXTENT OF FUEL-ELEMENT VAPORIZATION, ETC., AND DETERMINES THE EFFECTS OF REACTOR DESIGN ON ITS EXCURSION CHARACTERISTICS. IT WAS SHOWN THAT IN RAPID EXCURSIONS INVOLVING FUEL ELEMENT RUPTURE, THE RESULTING VOID FORMATION LIMITS THE ENERGY GENERATED. ALSO, THE RATE OF REACTIVITY INSERTION, RATHER THAN THE MAXIMUM INSERTION, DETERMINES EXCURSION SEVERITY. FINALLY, BUBBLE EXPANSION ENDS BWR EXCURSIONS, BUT IN PWRs BUBBLE EXPANSION IS SOMEWHAT CONSTRAINED, AND THE EXCURSION IS ENDED MAINLY BY DOPPLER EFFECT.

*FAILURE, FUEL ELEMENT + *MATHEMATICAL TREATMENT + ACCIDENT ANALYSIS + EXCURSION, LARGE + REACTOR KINETICS + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER + SHUTDOWN MECHANISM, SELF + VOID COEFFICIENT

6-18888

BAILEY HS + PLUTA PR

EXCURSION ANALYSIS IN A SMALL TEST REACTOR WITH SEVERAL DIFFERENT FUEL TYPES
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA

CONF-670-602 +. 5 PAGES, 1 FIGURE, 2 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(1), PAGE 246 AND 247, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

DESCRIBES THE TRANSIENT METHODS DEVELOPED TO ANALYZE THE EXCURSION RESPONSE CHARACTERISTICS OF THE EVESR THERMAL TEST REACTOR. THE EVESR IS A STEAM-COOLED, 17-MW(TH) TEST REACTOR, WITH A HIGHLY HETEROGENEOUS CORE. SINCE A GENERAL SPACE-DEPENDENT KINETICS PROGRAM IS NOT AVAILABLE, A SIMPLE METHOD WAS DEVELOPED TO OBTAIN POINT-KINETICS PARAMETERS FOR DESCRIBING ITS TRANSIENT BEHAVIOR. SPACE-TIME SEPARABILITY IS ASSUMED.

ANALYTICAL MODEL + DOPPLER COEFFICIENT + EXCURSION, LARGE + PERTURBATION METHOD + REACTIVITY COEFFICIENT + REACTOR KINETICS + REACTOR, THERMAL + STEAM

6-18889

ARIEMMA A + LESNONI LA PAROLA G + PAOLETTI GUALANDI M

ADEQUACY OF A CALCULATION METHOD FOR REACTIVITY ASSESSMENTS IN LIGHT-WATER REACTORS

ENTE NAZIONALE PER L ENERGIE ELETTRICA, ITALY

CONF-670-602 +. 9 PAGES, 6 FIGURES, 11 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(1), PAGE 304 AND 305, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

DESCRIBES A CALCULATIONAL PROCEDURE FOR EVALUATING CORE REACTIVITY UNDER DIFFERENT TEMPERATURE, POWER, AND IRRADIATION CONDITIONS. OF PARTICULAR INTEREST IS THE ASSESSMENT OF CONTROL-ROD WORTH AND SHUTDOWN MARGIN FOR LIGHT-WATER REACTORS. THE ADEQUACY OF THE METHOD WAS VERIFIED FOR VARIOUS CONDITIONS OF THE GARIGLIANO STATION, DIFFERING IN TEMPERATURE, ROD CONFIGURATIONS, BURNUP LEVELS, AND POWER LEVELS.

CONTROL ROD WORTH + MATHEMATICAL TREATMENT + REACTIVITY, EXCESS + REACTOR, WATER + SHUTDOWN MARGIN

6-18890

KESSLER WE + PRAEL RE + WEYDERT LN

ANALYSIS OF SNAPTRAN REACTOR BEHAVIOR

PHILLIPS PETROLEUM CO., ATOMIC ENERGY DIVISION

100-17204 +. 19 PAGES, 9 FIGURES, 1 TABLE, 20 REFERENCES, JUNE 1967

THE SNAPTRAN PROGRAM PROVIDED NUCLEAR SAFETY INFORMATION ON THE RAPID TRANSIENT BEHAVIOR OF ZIRCONIUM-HYDRIDE-URANIUM FUELS. KNOWLEDGE OF THE FISSION ENERGY SOURCE AS A FUNCTION OF TIME IN CONJUNCTION WITH KNOWLEDGE OF THE FUEL TEMPERATURE YIELDED A WELL DEFINED TREND FROM WHICH AN EVALUATION OF THE SPECIFIC HEAT OF THE FUEL WAS OBTAINED. THE SPECIFIC HEAT WAS FOUND TO BE DESCRIBED BY A LINEAR TEMPERATURE-DEPENDENT TERM PLUS AN EINSTEIN-OSCILLATOR-MODEL TEMPERATURE-DEPENDENT TERM. THE SNAPTRAN REACTOR TEMPERATURE COEFFICIENT, CALCULATED USING THIS SPECIFIC-HEAT FORMULATION, VARIED FROM -0.10 TO -0.18 CENTS/F IN THE RANGE OF 100 TO 1200 F.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DESTRUCTIVE TRANSIENT + EXCURSION, LARGE + HEAT TRANSFER + REACTIVITY COEFFICIENT + REACTIVITY, EXCESS + REACTOR TRANSIENT + SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES) + TEMPERATURE COEFFICIENT + ZIRCONIUM

6-18891

REACTOR PHYSICS DEPARTMENT TECHNICAL ACTIVITIES QUARTERLY REPORT, OCTOBER, NOVEMBER, DECEMBER 1966

PATELLE-NORTHWEST, PCHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-400 +. 66 PAGES, FIGURES, TABLES, REFERENCES, APRIL 15, 1967

THIS REPORT IS ONE OF A SERIES OF SUCH REPORTS ON THE FOLLOWING - DOPPLER BROADENING, CRITICAL TESTS IN THE PRTR, CRITICAL EXPERIMENTS WITH PLUTONIUM-WATER LATTICES, HTLTR CONTROL-ROD EXPERIMENT, DOPPLER-COEFFICIENT CALCULATIONS, AND SODIUM ACTIVATION IN THE FTR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18891 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER, DIGITAL + CONTROL ROD WORTH + CRITICALITY EXPERIMENT + DOPPLER COEFFICIENT + DOPPLER EFFECT + MONTE CARLO

6-18892 ALSO IN CATEGORY 5
BLANC H + LE BERRE F + MILLOT JP
CALCULATION OF POWER BURSTS IN SWIMMING POOL REACTORS WHEN THE COOLING SYSTEM IS NOT WORKING
COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE
17 PAGES, 9 FIGURES, 5 REFERENCES, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 95 THRU 112, (FEBRUARY 1967)

A MATHEMATICAL MODEL FOR COMPUTING REACTIVITY ACCIDENTS IN POOL-TYPE REACTORS WHEN THE COOLING SYSTEM IS NOT WORKING IS DESCRIBED. IT TAKES INTO ACCOUNT THE HEATING OF THE CORE, THE MODERATOR BOILING, AND THE DOPPLER EFFECT. SAMPLE RESULTS ARE GIVEN.

ACCIDENT ANALYSIS + MATHEMATICAL TREATMENT + REACTIVITY EFFECT + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR, POOL TYPE

6-18893 ALSO IN CATEGORY 5
BLANC H + DUKRAIVE V + FABREGA J + MILLOT JP
CALCULATION OF ACCIDENTS IN WATER REACTORS DURING OPERATION AT POWER
COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE
8 PAGES, 4 FIGURES, 1 REFERENCE, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 87 THRU 94, (FEBRUARY 1967)

DESCRIBES A COMPUTER CODE THAT WILL CALCULATE THE BEHAVIOR OF A WATER-COOLED REACTOR DURING AN ACCIDENT OCCURRING DURING NORMAL POWER OPERATION. REACTIVITY, LOSS OF COOLANT, AND POWER-OVERSHOOT TYPES OF ACCIDENTS ARE TREATED.

ACCIDENT ANALYSIS + COMPUTER PROGRAM + MATHEMATICAL TREATMENT + REACTIVITY EFFECT + REACTOR DYNAMICS + REACTOR KINETICS

6-18894
SPINKS N
WORTH OF BORON ROD IN THE REACTOR MOATA
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC-E-181 +. 20 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

THE U-235 FUEL INCREASE REQUIRED TO COMPENSATE FOR INSERTION INTO THE MOATA REACTOR OF AN ENRICHED BORON ROD WAS MEASURED. A SIMPLIFIED CALCULATIONAL MOCKUP OF THE EXPERIMENT WAS ANALYZED BY DIFFUSION AND TRANSPORT-THEORY CALCULATIONS. THE WORTH OF THE ROD AS CALCULATED BY DIFFUSION THEORY WAS 10% ABOVE THE EXPERIMENTAL WORTH AND 3% BELOW THE WORTH FROM TRANSPORT THEORY.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

COMPARISON, THEORY AND EXPERIENCE + CONTROL ROD WORTH + CRITICALITY EXPERIMENT + REACTOR CONTROL

6-18895
JASON RH
THE ROLE OF THE ADJOINT FLUX IN DETERMINING REACTOR STABILITY
ARGONNE NATIONAL LAB., ILL.
ANL-7189 +. 95 PAGES, 43 REFERENCES, MARCH 1966

MATHEMATICAL RELATIONS ARE DERIVED IN WHICH THE TIME-DEPENDENT ADJOINT FLUX IS USED AS AN INDICATION OF THE STABILITY OF A GENERAL NONLINEAR REACTOR SYSTEM WITH SPATIALLY DEPENDENT PROPERTIES AT FINITE TIMES. (REPORT IS ENTIRELY THEORETICAL - NO EXAMPLES, NO APPLICATIONS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

MATHEMATICAL TREATMENT + REACTOR DYNAMICS + REACTOR STABILITY + THEORETICAL INVESTIGATION

6-18896
CANOSA J
A NEW METHOD FOR NONLINEAR REACTOR DYNAMICS PROBLEMS
GENERAL ELECTRIC CO., NUCLEAR TECHNOLOGY DEPARTMENT, VALLECITOS ATOMIC LABORATORY, PLEASANTON, CALIFORNIA
7 PAGES, 4 FIGURES, 4 TABLES, 12 REFERENCES, NUKLEONIK 9, PAGE 289 THRU 295, (1967)

THE NONLINEAR DIFFERENTIAL EQUATIONS DESCRIBING CERTAIN REACTOR EXCURSION PROBLEMS ARE SHOWN TO BE OF THE TYPE KNOWN AS SINGULAR PERTURBATION EQUATIONS, WHICH CAN BE SOLVED ANALYTICALLY BY THE METHOD OF ASYMPTOTIC EXPANSIONS. THE RESULTS OBTAINED FROM ANALYTICAL SOLUTIONS AGREE WELL WITH MACHINE-COMPUTED RESULTS.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18896 *CONTINUED*

*EXCURSION, LARGE + *MATHEMATICAL TREATMENT + REACTIVITY EFFECT + REACTOR KINETICS + THEORETICAL INVESTIGATION

6-18897

CLARKE WG + MARGOLIS SG

THE MULTIMODE SYNTHESIS APPROXIMATION FOR SPACE-TIME REACTOR DYNAMICS. AN APPRAISAL OF FINITE DIFFERENCING METHODS

BETTS ATOMIC POWER LAB., PITTSBURGH, PA.

WAPD-TM-635 +. 76 PAGES, 10 FIGURES, 5 TABLES, REFERENCES, MAY 1967

THIS REPORT APPRAISES POSSIBLE FINITE-DIFFERENCING METHODS FOR THE MULTIMODE-TIME-SYNTHESIS APPROXIMATION TO SPACE-TIME REACTOR KINETICS, WITH EMPHASIS ON ACCURACY, STABILITY, COMPUTER ECONOMY, AND PROGRAMMING SIMPLICITY. A FORTRAN IV PROGRAM, MUMKIN-2, USED TO PERFORM THESE NUMERICAL STUDIES, IS DESCRIBED. THE PROGRAM SOLVES THE MULTIMODE KINETICS EQUATIONS IN THE ABSENCE OF REACTIVITY FEEDBACK FOR UP TO NINE TRIAL FUNCTIONS AND SIX DELAYED NEUTRON GROUPS. THE PROGRAM DESCRIPTION INCLUDES AN EXAMPLE OF HOW MULTIMODE KINETICS PARAMETERS CAN BE GENERATED BY ARITHMETICAL OPERATIONS ON THE SYNTHESIS EDITS OF AN EXISTING ONE-DIMENSIONAL NEUTRON-DIFFUSION PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *SPACE DEPENDENT DYNAMICS + MATHEMATICAL TREATMENT + REACTOR DYNAMICS + REACTOR KINETICS

6-18898

GARRONI A + LUCIA A + SCIUTO F

NOISE MEASUREMENTS IN A ZERO POWER REACTOR AND ANALYSIS OF ITS INFLUENCE ON OSCILLATION MEASUREMENTS CCR EURATOM, REACTOR PHYSICS DEPARTMENT, ISPRA, VARESE

14 PAGES, 8 FIGURES, 11 REFERENCES, ENERGIA NUCLEARE 14(2), PAGE 81 THRU 94, (FEBRUARY 1967)

REPORT SETS OUT RESULTS OF SPECTRUM ANALYSIS OF THE NEUTRON NOISE OF THE AGN-201 REACTOR AT THE UNIVERSITY OF PALERMO. NOISE POWER-SPECTRUM-DENSITY GRAPH INTERPRETED IN TERMS OF TRANSFER FUNCTION, AND PARAMETERS FOR THIS ARE GIVEN. WITH NOISE AND DYNAMIC BEHAVIOR OF THE REACTOR ASCERTAINED, ACCURACIES OBTAINABLE IN OSCILLATION MEASUREMENTS ARE CONSIDERED IN THE LIGHT OF VARIOUS DETECTING METHODS. EXPERIMENTAL RESULTS FULLY CONFIRM THEORETICAL CONCLUSION.

*AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + *COMPARISON, THEORY AND EXPERIENCE + *NOISE ANALYSIS + *OSCILLATOR, REACTIVITY + INSTRUMENTATION, NUCLEAR + MEASUREMENT, REACTIVITY

6-18911

ALSO IN CATEGORY 17

PIQUA TESTS FOR ANOMALOUS REACTIVITY EFFECT

PIQUA NUCLEAR POWER FACILITY

COO-652-13 +. 4 PAGES, FIGURES, MARCH 1965, DOCKET NO. 115-2, FROM PIQUA NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 23

(PAGES 18-19) SPECIAL TESTS TO FIND CAUSE OF ANOMALOUS REACTIVITY EFFECT. ROD CALIBRATION INDICATED A SIGNIFICANT CHANGE FROM 9/64 CALIBRATIONS. POWER COEFFICIENT HAD CHANGED FROM INITIAL -0.0094% DELTA K/MWT AND IS NOW POWER DEPENDENT (-0.014% AT 8 MW, AND -0.022% AT 24 MW), HOWEVER, POWER COEFFICIENT WITH ONE PUMP OPERATING IS CONSISTENTLY AROUND -0.018% BETWEEN 7 AND 21 MW. PRESSURE COEFFICIENT ALSO INCREASED AND IS POWER DEPENDENT. A PRESSURE CHANGE FROM 130 TO 105 PSIG CAUSES REACTIVITY CHANGES OF -0.007% AT 12 MW, -0.02% AT 20 MW, AND -0.006% AT 29 MW.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODERATOR COEFFICIENT + *POWER COEFFICIENT + *REACTIVITY EFFECT, ANOMALOUS + CONTROL ROD WORTH + FLOW BLOCKAGE + OPERATIONS REPORT, GENERAL + PIQUA + REACTOR, AEC OWNED + REACTOR, ORGANIC COOLED + TEST, PHYSICS + TESTING + XENON

6-18941

ALSO IN CATEGORY 17

MILLOT JP

CABRI--A TEST REACTOR FOR SAFETY STUDIES

COMMISSARIAT A L ENERGIE ATOMIQUE, CADARACHE

7 PAGES, 3 FIGURES, 1 TABLE, 20 REFERENCES, NUCLEAR SAFETY 8(5), PAGES 455-61 (SEPT.-OCT. 1967)

PRESENTS FEATURES OF THE REACTOR, DESIGNED TO STUDY THE SAFETY OF FRENCH SWIMMING-POOL REACTORS. REACTIVITY ACCIDENTS WERE SIMULATED FOR 3 HIGH-POWER TEST REACTORS. RESULTS AGREED WITH THOSE FROM SPERT. FUTURE EXPERIMENTS WILL INCLUDE LOSS-OF-FLOW TESTS, PERFECTION OF REACTIVITY ACCIDENTS, AND CORE MELTING. A PROGRAM OF FUEL TESTING FOR BOTH WATER AND FAST REACTORS, INVOLVING CABRI AS A CAPSULE-DRIVER CORE, IS BEING ESTABLISHED.

*RESEARCH AND DEVELOPMENT PROGRAM + ACCIDENT, CONSEQUENCES + ACCIDENT, LOSS OF FLOW + ACCIDENT, REACTIVITY + FRANCE + REACTOR, POOL TYPE + REACTOR, SAFETY RESEARCH + REACTOR, TEST + SAFETY STUDY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-18946 ALSO IN CATEGORY 17
KLICKMAN AE + CALLEN RC
ANOMALOUS REACTIVITY EFFECTS IN THE FERMI INCIDENT
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC. + POWER REACTOR DEVELOPMENT COMPANY
CONF-670 602 +. 1 PAGE, ANS TRANSACTIONS 10(1) PAGE 334, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

REVIEWS THE REACTIVITY EFFECTS THAT OCCURRED DURING THE FUEL MELTDOWN OF OCT. 1966. WHEN REACTOR POWER REACHED 5.5 MW, REACTIVITY INSERTION WAS AT THE RATE OF 0.185 CENT/MIN FOR 27 MIN UNTIL POWER REACHED 18 MW. THIS WAS ATTRIBUTED TO OVERHEATING OF THE CORE. AT 18 MW, THE RATE ABRUPTLY CHANGED TO 1.17 CENTS/MIN FOR 18 MIN UNTIL THE POWER WAS 30 MW. SUPERIMPOSED ON THIS LATTER TREND WERE THREE TRANSIENTS. THIS TREND AND THE TRANSIENTS WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSSES WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSS DETERMINED BY THE SHIM-AND REGULATING-ROD HISTORIES WAS 26 CENTS.

*POWER COEFFICIENT + *REACTIVITY EFFECT, ANOMALOUS + FAILURE, FUEL ELEMENT + FERMI + INCIDENT, ACTUAL, GENERAL + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED

6-19111 ALSO IN CATEGORIES 5 AND 17
TOPPEL BJ + VOGELBERGER PJ + WIMUNC EA
SAFETY ANALYSIS ASSOCIATED WITH THE PLUTONIUM RECYCLE EXPERIMENT IN EBWR
ARGONNE NATIONAL LABORATORY
ANL-6841 +. 106 PAGES, 29 FIGURES, 23 TABLES, 67 REFERENCES, NOVEMBER 1966

CORE CONSISTS OF 6 X 6 PU-U ZONE SURROUNDED BY A SHIM REGION AND AN OUTER REGION OF URANIUM. BETA-EFF. WILL VARY FROM 0.005 (U CORE, 0.0082) AT BEGINNING TO 0.006 (U CORE, 0.0054). MCA IS LOSS OF COOLANT FROM REACTOR-VESSEL VERTICAL-SEAM FAILURE AND CORE MELTDOWN (AFTER 2 HR OR MORE), BUT CONTAINMENT SHELL WOULD WITHSTAND RESULTING PRESSURE, ASSUMING FAILURE OF THE CONTAINMENT SPRAY SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT, LOSS OF COOLANT + *DELAYED NEUTRON + *DOSE + *PLUTONIUM + BLOWDOWN + CONTAINMENT SPRAY + EBWR (EXPERIMENTAL BOILING WATER REACTOR) + METAL WATER REACTION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

6-19112 ALSO IN CATEGORY 17
TOPPEL BJ + VOGELBERGER PJ + WIMUNC EA
COMPENSATION OF SUPER-PROMPT CRITICAL REACTIVITY INSERTIONS BY THE DOPPLER EFFECT
ARGONNE NATIONAL LABORATORY
ANL-6841 +. 6 PAGES, 2 FIGURES, 1 TABLE, FROM SAFETY ANALYSIS ASSOCIATED WITH THE PLUTONIUM RECYCLE EXPERIMENT IN EBWR, NOVEMBER 1966

(PAGES 46-51) CALCULATION (COUPLED WITH TEMPERATURE-TRANSIENT TESTS) OF THE TEMPERATURES REACHED IN AN EXCURSION DUE TO A REACTIVITY INSERTION WHEN ALL RODS EXCEPT 1 CORNER ROD ARE INSERTED (70% OF POWER IS IN THE QUADRANT OF THE PULLED ROD) SHOWED THAT AN INPUT OF 0.94% WAS NOT SUFFICIENT TO CAUSE FUEL MELTING AND RESULTED IN CLAD (ZIRC-2) STRESS OF 14,500 PSI (SHORT-TERM TENSILE STRENGTH, 35,000 PSI). STEP INSERTION OF 1% RESULTED IN CENTERLINE FUEL MELTING AND A CLAD STRESS OF 18,700 PSI. RESULTS CONFIRM CONCLUSIONS DRAWN FROM SPERT-1 EXPERIENCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *ZIRCALOY + ACCIDENT, REACTIVITY + EBWR (EXPERIMENTAL BOILING WATER REACTOR) + MATHEMATICAL TREATMENT + REACTOR, BOILING WATER + TEMPERATURE TRANSIENT + TEST, PHYSICS

6-19119 ALSO IN CATEGORY 9
STACEY WM
LINEAR ANALYSIS OF XENON SPATIAL OSCILLATIONS
KNOLLS ATOMIC POWER LAB., SCHENECTADY
KAPL-M-6596 +. 37 PAGES, REFERENCES, FEBRUARY 6, 1967

MADE A LINEAR ANALYSIS OF XENON-INDUCED SPATIAL-POWER OSCILLATIONS. ALTHOUGH THIS ANALYSIS PROCEEDS ALONG TRADITIONAL LINES (LINEARIZATION, LAPLACE TRANSFORMATION, MODAL EXPANSION), IT IS UNIQUE IN THAT STATIC FEW-GROUP DIFFUSION THEORY CODES (E.G., KARE) MAY BE USED DIRECTLY TO EVALUATE THE PERTINENT PARAMETERS, AND IN THAT THE POWER DISTRIBUTION, AS WELL AS THE POWER LEVEL, IS INCORPORATED INTO THE FORMALISM. THUS, THE ANALYSIS IS APPLICABLE TO PRACTICAL REACTOR MODELS. A CRITERION IS DEVELOPED FOR PREDICTING THOSE COMBINATIONS OF POWER LEVEL AND DISTRIBUTION, POWER COEFFICIENT, AND SEPARATION OF FUNDAMENTAL AND FIRST HARMONIC MODE EIGENVALUES FOR WHICH SPATIAL POWER OSCILLATIONS ARE JUST SUSTAINED (I.E., NEITHER GROW NOR DECAY). PREDICTIONS BASED ON THIS CRITERION AGREED WITH DIRECT NUMERICAL SOLUTIONS OBTAINED WITH THE SPRITE DIGITAL CODE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19119 *CONTINUED*
*THEORETICAL INVESTIGATION + *XENON OSCILLATION + ANALYTICAL MODEL + COMPUTER PROGRAM + REACTOR POWER + TRANSFER FUNCTION

6-19130 ALSO IN CATEGORY 9
WIBERG DM
OPTIMAL FEEDBACK CONTROL OF SPATIAL XENON OSCILLATIONS IN A NUCLEAR REACTOR
CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA
TID-21273 +. 177 PAGES, JUNE 26, 1964

PH.D. THESIS. THE SPECIFIC PROBLEM STUDIED WAS THE OSCILLATION OF THE POWER DENSITY IN A NUCLEAR REACTOR, SUCH THAT A HOT SPOT MOVES FROM ONE REGION TO ANOTHER AND BACK AGAIN IN THE COURSE OF TIME. THE REACTOR KINETICS PROCESSES WERE INVESTIGATED MATHEMATICALLY WITH THE GOAL OF THE THESIS IN MIND, NAMELY, TO DEVELOP A METHOD OF CONTROLLING THESE OSCILLATIONS WITH A FEEDBACK SYSTEM. THE OSCILLATIONS ARE DUE IN PART TO XE-135. THE MATHEMATICAL FORMULATION OF THE PROBLEM CAN BE GENERALIZED TO INCLUDE OTHER EFFECTS IN ADDITION TO THE XENON PROCESS. HOWEVER, FOR CLARITY AND UTILITY, ONLY THE XENON PROBLEM WAS FULLY ANALYZED, WITH MANY EXTENSIONS INDICATED IN THE DEVELOPMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*THEORETICAL INVESTIGATION + *XENON OSCILLATION + ANALYTICAL MODEL + REACTOR, GENERAL

6-19135 ALSO IN CATEGORY 9
BABALA D
THEORY OF ROSSI-ALPHA EXPERIMENT IN REACTOR NOISE ANALYSIS
INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY
TID-23381 + KR-105 +. 24 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

EXPLAINS THE DISAGREEMENT BETWEEN THE ROSSI-ALPHA FORMULA AND THE CONDITIONAL COUNT PROBABILITY, OBSERVED BY SEVERAL AUTHORS IN MEASUREMENTS WITH A MULTICHANNEL TIME ANALYZER. SHOWS THAT THE ROSSI-ALPHA EXPERIMENTS CURRENTLY PERFORMED ARE TO TWO DISTINCT TYPES, GIVING DIFFERENT RESULTS - THE FIRST ONE IS BASED ON MEASUREMENTS OF DELAYED COINCIDENCES (ORNDORFF), THE SECOND ONE EMPLOYS A MULTICHANNEL TIME ANALYZER AS DESCRIBED IN THIS PAPER. ON THE BASIS OF KOLMOGOROV'S GENERAL THEORY OF CHAIN PROCESSES, A FORMULA FOR THE SECOND TYPE OF EXPERIMENT IS DERIVED, WHICH IS IN GOOD AGREEMENT WITH MEASUREMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.85 MICROFICHE

*NOISE ANALYSIS + *ROSSI ALPHA + *THEORETICAL INVESTIGATION + INSTRUMENTATION, NUCLEAR + MEASUREMENT, NOISE

6-19198 ALSO IN CATEGORIES 5 AND 17
HALL WF + LUMB RF + MACPHEE J
WNYNRC PULSTAR FUEL ROD TESTING PROGRAM
TI UNITED STATES, LTD. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC.
12 PAGES, 5 FIGURES, 1 TABLE, PAGE 12 THRU 23 OF PULSTAR, A SLIGHTLY ENRICHED URANIUM-DIOXIDE FUELED REACTOR, APRIL 1967, PRESENTED AT INTERNATIONAL CONFERENCE ON RESEARCH REACTOR UTILIZATION AND REACTOR MATHEMATICS, MEXICO CITY, MEXICO, MAY 2 THRU 4, 1967

PULSE TESTS (PAGE 12-23), UNDER BOTH FORCED AND NATURAL CONVECTION, USING TEST PINS IN REGIONS OF HIGH FLUX AS WELL AS THE NORMAL CORE PINS, WERE CONDUCTED TO DETERMINE (1) THRESHOLD OF FUEL-PIN BOWING, (2) ONSET OF DNB, AND (3) SURFACE DEPOSIT BUILDUP. BULGING (6% DIA. GROWTH) AND BAMBOOING WERE OBSERVED IN SOME TEST PINS. 2900 F WAS ESTABLISHED TO BE THE LIMIT ON UO₂ TEMPERATURE WITH NATURAL CONVECTION, AND PULSE RESTRICTED TO 200 MW/35 MW-SEC. DATA IS GIVEN ON DNB ONSET WITH A VARIETY OF FUEL-ROD CONFIGURATIONS.

AVAILABILITY - WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC., POWER DRIVE, BUFFALO, NEW YORK 14214

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *FUEL ELEMENT BOWING + *SURFACE FILM DEPOSIT + *TEST, PROOF + EXAMINATION + FUEL ELEMENT + OPERATING EXPERIENCE + PERFORMANCE LIMIT + PULSTAR + REACTOR STARTUP TESTING + REACTOR, PULSED + REACTOR, RESEARCH + TEMPERATURE TRANSIENT + THERMAL MECHANICAL EFFECT + URANIUM DIOXIDE

6-19222
PASCOUET A
SIMULATION OF POWER BURSTS
5 PAGES, 4 FIGURES, 6 REFERENCES, BULL. INFORM. SCI. TECH. (PARIS) 112, PAGE 7 THRU 12, (FEBRUARY 1967), IN FRENCH

THE POSSIBLE MECHANICAL EFFECTS OF NUCLEAR POWER EXCURSIONS IN WATER-COOLED AND -MODERATED REACTORS ARE OF CONCERN TO REACTOR DESIGNERS AND OPERATORS. AN INVESTIGATION AT THE FRENCH ATOMIC ENERGY COMMISSION OF MEANS FOR SIMULATING NUCLEAR POWER EXCURSIONS LED TO THE DEVELOPMENT OF EXPLOSIVE SIMULATION CHARGES WITH TIME-DEPENDENT POWER RELEASES. RELEASE COMPARABLE WITH THE MAXIMUM BORAX-1 POWER RELEASE IS OBTAINED WITHIN A GIVEN VOLUME. THE DATA ARE IN GOOD AGREEMENT WITH THOSE DEDUCED FROM EXPERIMENTS RUN IN THE UNITED STATES ON VARIOUS REACTORS AND WERE USED TO ESTABLISH LIKELY ORDERS OF MAGNITUDE FOR THE MECHANICAL

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19222 *CONTINUED*
STRUCTURAL RESPONSE.

ACCIDENT ANALYSIS + BORAX, ALL (BOILING REACTOR EXPERIMENTS, NRTS) + DAMAGE + DESTRUCTIVE TRANSIENT + EXCURSION, LARGE + EXPLOSION + REACTOR TRANSIENT + REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT + SAFETY ANALYSIS

6-19223

HUTCHINS BA + OTT K

AN ANALYSIS OF ERRORS INVOLVED IN THE SUB-PROMPT CRITICAL TRANSIENT EXPERIMENTS IN SEFOR
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY. INSTITUT FUER NEUTRONENPHYSIK UND REAKTORTECHNIK
EURFNR-315 + KFK-578 +. 29 PAGES, FEBRUARY 1967

IN SEFOR, PART OF THE DOPPLER-COEFFICIENT MEASUREMENTS WILL BE MADE BY MEANS OF SUBPROMPT-CRITICAL EXCURSIONS INDUCED BY A STEP-LIKE REACTIVITY INSERTION. THE POWER-TRANSIENT CURVE ALLOWS A FAIRLY DIRECT DETERMINATION OF THE DOPPLER COEFFICIENT, AS SHOWN BY ONE OF THE AUTHORS IN REPORT KFK-153. THERE WERE TWO APPROACHES TO THE ANALYSIS AS PROPOSED IN KFK-153. THE SUBJECT OF THIS PAPER IS TO INVESTIGATE THE ERRORS INTRODUCED INTO THIS ANALYSIS BY THE ERRORS IN THE MEASUREMENT OF RELATIVE AND ABSOLUTE POWER AND BY THE ERROR IN THE DELAYED-NEUTRON DATA. THE INVESTIGATION OF THE SENSITIVITY OF THE ERROR IN THE DOPPLER COEFFICIENT TO THE SIZE OF THE IMPRESSED TRANSIENT ANSWERS THE QUESTION OF OPTIMAL TRANSIENT SIZE.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

DOPPLER COEFFICIENT + ERROR ANALYSIS + POWER COEFFICIENT + REACTIVITY COEFFICIENT + REACTOR DYNAMICS + REACTOR TRANSIENT

6-19224

CALDAROLA L

ANALYSIS OF REACTOR POWER EXCURSIONS BY MEANS OF SOLUTIONS WITH ASYMPTOTIC EXPANSIONS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
10 PAGES, 4 FIGURES, 7 REFERENCES, NUKLEONIK 9(3), PAGE 129 THRU 138, (FEBRUARY 1967)

THE CONSTANT-POWER-REMOVAL METHOD IS USED TO STUDY POWER EXCURSIONS. FOR REACTIVITY ADDITIONS BELOW \$1, THE EQUATIONS ARE SOLVED BY ASYMPTOTIC EXPANSIONS SUITABLE FOR NUMERICAL EVALUATION. SYSTEM STABILITY IS STUDIED BY A LIAPUNOV'S FUNCTION. CALCULATIONS WERE DONE FOR SEFOR REACTOR.

*MATHEMATICAL TREATMENT + EXCURSION, LARGE + LIAPUNOV'S FUNCTION + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR STABILITY + REACTOR, BREEDER + REACTOR, FAST + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

6-19243

ALSO IN CATEGORY 17

SUPPLEMENT 1 TO SAN ONOFRE REPORT ON POSITIVE MODERATOR COEFFICIENT
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIFORNIA
6 PAGES, 1 FIGURE, OCTOBER 19, 1967, DOCKET NO. 50-206

MODERATOR COEFFICIENT EXTRAPOLATED TO FULL POWER IS $0.54 \times 10^{(-4TH)} DP/F$ (NO XENON), $0.42 \times 10^{(-4TH)}$ (EQUILIBRIUM XENON), CORRESPONDING TO A MAXIMUM POTENTIAL INSERTION OF 0.2 TO 0.26% DELTA K/K. REVIEW OF EFFECT ON STARTUP, ROD WITHDRAWAL, BORON DILUTION, LOSS OF FLOW, LOSS OF LOAD, COLD WATER, STEAM BREAK, AND ROD-EJECTION ACCIDENT. LOSS-OF-COOLANT ANALYSIS PREVIOUSLY IGNORED THE REACTIVITY GAIN OF THE VOIDS DUE TO MODERATOR COEFFICIENT. CONN. YANKEE AMENDMENT 14 ANALYSIS APPLIED TO SAN ONOFRE INDICATES A 0.4% SHORT EXCURSION RELEASES 269 MW-SEC FOR LARGE DOUBLE-ENDED RUPTURE AND 1280 MW-SEC FOR A 10-IN. PIPE BREAK. SUGGESTED TECH.-SPEC. MINIMUM AT ZERO POWER IS $0.57 \times 10^{(-4TH)} DP/F$. MEASURED VALUE IS $0.74 \times 10^{(-4TH)}$.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *MODERATOR COEFFICIENT + EXCURSION, LARGE + EXTRAPOLATION FACTOR + REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER + SAN ONOFRE + TECHNICAL SPECIFICATIONS + VOID COEFFICIENT

6-19244

ALSO IN CATEGORY 17

SUPPLEMENT II TO SAN ONOFRE REPORT ON POSITIVE MODERATOR COEFFICIENT - ANSWERS TO AEC QUESTIONS
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIFORNIA
4 PAGES, 1 TABLE, OCTOBER 20, 1967, DOCKET NO. 50-206

(1) $-0.13 \times 10^{(-4TH)} DP/F$ IS THE CORRECTION TO THE MODERATOR COEFFICIENT DUE SOLELY TO THE INCREASED BORON CONCENTRATION AT FULL POWER. (2) FULL LOAD IS THE MOST LIMITING CONFIGURATION FOR ACCIDENT ANALYSIS AS COEFFICIENT INCREASES WITH DECREASING POWER LEVEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODERATOR COEFFICIENT + AEC QUESTION + EXTRAPOLATION FACTOR + POISON, SOLUBLE + POWER COEFFICIENT + REACTOR, PRESSURIZED WATER + SAN ONOFRE + TECHNICAL SPECIFICATIONS

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19245 ALSO IN CATEGORY 17
DRL AGREES TO N. CAROLINA STATE U ON HAZARDS SUMMARY REPORT CHANGES
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
1 PAGE, OCTOBER 23, 1967, DOCKET NO. 50-111

(REPLY TO LETTER OF 19 SEPT. 67) DRL AGREES THAT A RE-EVALUATION IS NEEDED OF THE MCA TO REFLECT THE POSSIBILITY OF THE INSERTION OF 1.5% (TECH.-SPEC. LIMIT) BY USE OF THE VERTICAL EXPOSURE PORT. PRESENT ANALYSIS IS FOR 0.8%, FROM BEAM PORT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, MAXIMUM CREDIBLE (MCA) + *IRRADIATION FACILITY + ACCIDENT, REACTIVITY + BEAM HOLE + REACTOR, GRAPHITE MODERATED + REACTOR, RESEARCH + SAFETY ANALYSIS REPORT, GENERAL

6-19483 ALSO IN CATEGORIES 5 AND 17
PRESSURIZED WATER REACTOR (PWR) PROJECT. TECHNICAL PROGRESS REPORT, APRIL 21, 1967-JULY 21, 1967.
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-MRP-121 +. 96 PAGES, FIGURES, TABLES, JULY 21, 1967

(PAGE 1) C STEAM-GENERATOR LEAK HAS INCREASED TO 8 GPH, AS INDICATED BY FLUORINE-18. (PAGES 9-11) POTASSIUM PENTABORATE, TO BE USED AS SOLUBLE POISON IN REFUELING CANAL, HAS A PH OF 9.3. TESTS PRESENTLY INDICATE NO ALUMINUM PITTING CORROSION, AND GENERAL CORROSION ACCEPTABLE FOR 3-6 MONTHS USE. (PAGES 26,6) A CHANGE IN CONTROL-ROD PROGRAM DURING LOW-PH (9.9) OPERATION SHOWED AN INITIAL INCREASE IN FLOW DECAY, BUT NO LONG-TERM EFFECT. (PAGES 31-53) A NEW ROD PROGRAM WAS DEvised, SO IN XENON TRANSIENTS THE PARTIALLY WITHDRAWN CONTROL RODS MINIMIZE AXIAL FLUX SHIFTS. TURBO-ZIP STILL IS IN POOR AGREEMENT WITH IN-CORE FLUX PLOTS DURING INTERMEDIATE XENON CONDITIONS. HOT-SPOT FACTORS WERE ADJUSTED FOR FUEL-ROD BUTT WELD, OBSERVED FLUX-WIRE DEVIATIONS, FUEL-PLATE MISALIGNMENT, AND CONTROL-ROD MISALIGNMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD PROGRAM + *CORROSION + *FAILURE, TUBING + *HOT SPOT + *SURFACE FILM DEPOSIT + OPERATIONS REPORT, ANALYSIS + PH REACTIVITY EFFECT + POISON, SOLUBLE + POWER DISTRIBUTION + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PRESSURIZED WATER + SHIPPINGPORT + STEAM GENERATOR + XENON OSCILLATION

6-19504 ALSO IN CATEGORY 17
SHULTZ TG + STONE JT
PATHFINDER ATOMIC POWER PLANT RESPONSE TO SCRAM AND RUNBACK TESTS (431)
ALLIS-CHALMERS MFG. CO., BETHESDA, MD.
ACNP-67514 +. 42 PAGES, 17 FIGURES, 1 TABLE, APRIL 1967, DOCKET NO. 50-130

RECORDS MEASURED FLUX, STEAM AND WATER CONDITIONS IN RESPONSE TO SCRAM, RUNBACK AND TURBINE TRIPS WITH AND WITHOUT ISOLATION AT POWERS UP TO 168 MWTH/46 MWE. LOAD REJECTION LEADS TO FLUX INCREASES OF 13-20% DUE TO THE FLOW INCREASES CAUSED BY FASTER TURBINE-SPEED/ELECTRICAL FREQUENCY. AT LOW POWERS, SIMILAR EFFECTS WERE ASCRIBED TO PRESSURE EFFECTS ON STEAM VOIDS. DAMPED 4-CPS PRESSURE OSCILLATIONS FOLLOWING STEAM-FLOW DISTURBANCES WERE NOT DUE TO THE PRESSURE CONTROLLER BUT TO ACOUSTICAL RESONANCES. IN-CORE CHAMBERS SHOWED SUPERHEATER FOLLOWED FLUX DECAY UP BOILER IN A SCRAM, WITH AXIAL FLUX READJUSTMENT DUE TO RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*SCRAM, REAL + *TEST, PLANT RESPONSE + ACCIDENT, LOAD REJECTION + FLOW, RECIRCULATION + FLUCTUATION + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + OPERATIONS REPORT, ANALYSIS + PATHFINDER + POWER DISTRIBUTION + REACTOR DYNAMICS + REACTOR, INTERNAL SUPERHEAT

6-19515 ALSO IN CATEGORY 17
FISHER JR + KENDRICK ED
ELK RIVER REACTOR OPERATIONS ANALYSIS PROGRAM. FUEL CYCLE STUDIES FOR SECOND CORE - TASK 201
ALLIS-CHALMERS MFG. CO., BETHESDA, MD.
ACNP-66522 +. 67 PAGES, TABLES, FIGURES, REFERENCES, MARCH 1966

RECOMMENDED LOADING HAS 48 NEW ELEMENTS IN A UNIFORM ARRAY, AS ZONING DISADVANTAGES WERE LOWER OPERATING TIME AND SHUTDOWN MARGIN. PDQ-5 AND FLARE WERE USED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*REFUELING + COMPUTER PROGRAM + ELK RIVER + POWER DISTRIBUTION + REACTIVITY, EXCESS + REACTOR, BOILING WATER + SHUTDOWN MARGIN

6-19517 ALSO IN CATEGORY 9

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19517 *CONTINUED*

DRAGT JB

BIAS DUE TO FINITE MEASURING TIME IN NUCLEAR REACTOR NOISE ANALYSIS
REACTOR CENTRUM NEDERLAND, PETTEN

RCN-65 +. 19 PAGES, REFERENCES, FEBRUARY 1967

THE EFFECT OF FINITE MEASURING TIME ON THE ANALYSIS OF REACTOR NOISE, MEASURED BY MEANS OF A NEUTRON COUNTER, WAS INVESTIGATED IN A SYSTEMATIC WAY. IT WAS FOUND THAT THIS FINITE TIME INTRODUCED A SYSTEMATIC BIAS IN THE FEYNMAN, AUTOCORRELATION, AND POWER-SPECTRUM ANALYSIS, NOT IN THE BENNETT ANALYSIS. EXPRESSIONS FOR THE EFFECT ARE GIVEN, WHICH CAN BE USED FOR CORRECTING EXPERIMENTAL RESULTS. THE EFFECT APPEARS TO BE CLOSELY COUPLED TO THE DELAYED NEUTRON EFFECT. IT IS SHOWN THAT THIS FINITE TIME EFFECT REMOVES THE DIVERGENCE THAT OCCURS IN THE USUAL FORMULATIONS FOR FEYNMAN AND AUTOCORRELATION ANALYSIS FOR A CRITICAL REACTOR.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*NOISE ANALYSIS + *THEORETICAL INVESTIGATION + NOISE + NOISE CROSS CORRELATION + RESPONSE TIME + ROSSI ALPHA

6-19519 ALSO IN CATEGORY 9

BRICKSTOCK A + DAVIES AR

REP3 - A SPATIALLY DEPENDENT FISSION PRODUCT POISONING CODE FOR THE IBM 7030

ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, ENGLAND

AWRE-U-64/66 +. 14 PAGES, JANUARY 1967

TRANSIENT PEAKS SUBSEQUENT TO SHUTDOWN OF A THERMAL REACTOR ARE NOT ALWAYS WELL ESTIMATED IN CORES WITH STRONGLY SPACED DEPENDENT FLUXES. PART OF THIS ERROR ARISES BECAUSE THE RATIO OF PEAK TO EQUILIBRIUM POISONING IS NOT A LINEAR FUNCTION OF FLUX DENSITY. IN THE RANGE OF FLUXES 0.25 TO 3.0×10^{13} TH, THE EQUILIBRIUM POISONING RISES CONSIDERABLY SLOWER WITH FLUX THAN DOES THE TRANSIENT PEAK. CONSEQUENTLY, THE RATIO PEAK/EQUILIBRIUM RISES RAPIDLY AT HIGHER FLUX LEVELS. A COMPUTER PROGRAM FOR THE IBM 7090 IS DEVELOPED TO COVER THIS ASPECT OF REACTOR CONTROL INVESTIGATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *COMPUTER, DIGITAL + REACTOR CONTROL + SAMARIUM + XENON

6-19540 ALSO IN CATEGORIES 5 AND 8

BOWRING RW

HAMBO. A COMPUTER PROGRAMME FOR THE SUBCHANNEL ANALYSIS OF THE HYDRAULIC AND BURNOUT CHARACTERISTICS OF

ROD-CLUSTERS. PART 1. GENERAL DESCRIPTION

ATOMIC ENERGY ESTABLISHMENT, WINFRITH, ENGLAND

AEEW-R-524 +. 24 PAGES, 2 FIGURES, 1 TABLE, 16 REFERENCES, APRIL 1967

HAMBO IS A COMPUTER CODE FOR THE STEADY-STATE HYDRAULIC ANALYSIS OF A ROD-CLUSTER ASSEMBLY COOLED BY A BOILING FLUID, USING A SUBCHANNEL MODEL. THE CLUSTER BURNOUT POWER IS ASSESSED BY A SUBCHANNEL BURNOUT CORRELATION. CLUSTERS WHICH CAN BE REPRESENTED WITH 10 SUBCHANNELS, I.E., WITH UP TO 37 RODS IN A CYLINDRICAL PRESSURE TUBE, CAN BE ANALYSED WITH THE PRESENT VERSION OF THE PROGRAMME. THE CODE IS PRIMARILY A DESIGN TOOL FOR THE THERMAL PERFORMANCE ASSESSMENT OF FUEL ASSEMBLIES IN NUCLEAR REACTORS COOLED BY WATER-STEAM MIXTURES. IT CAN BE USED TO ASSESS THE EFFECT OF CHANGE IN CLUSTER RADIAL FLUX DEPRESSION, ROD PITCH, BOWING, AND ECCENTRICITY ON THE FLUID DENSITY AND BURNOUT POWER. THE HYDRAULIC MODEL INCLUDES THE FOLLOWING EFFECTS - (A) HEAT AND MOMENTUM TRANSFER BETWEEN ADJACENT COOLANT SUBCHANNELS BY MASS TRANSFER (CROSS-FLOW) AND BY TURBULENT MIXING, (B) SINGLE PHASE, SUBCOOLED BOILING AND BULK BOILING REGIMES, (C) ROD SPACING BY LOCALISED GRIDS OR BY WIRE WRAPS, (D) RADIAL AND AXIAL HEAT PROFILE, (E) LATERAL RESISTANCE TO CROSS FLOW. THE CODE IS WRITTEN IN EGTAN DIALECT OF FORTRAN FOR THE KDF 9 COMPUTER AND IS BEING TRANSLATED INTO FORTRAN S2 AND IV FOR THE IBM 7030 AND 7090 MACHINES RESPECTIVELY. TYPICAL RUNNING TIMES PER CASE ARE FROM 15 SEC FOR A 7-ROD CLUSTER TO 150 SEC FOR A 37-ROD CLUSTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS + REACTOR, BOILING WATER + UNITED KINGDOM

6-19546 ALSO IN CATEGORIES 5 AND 8

ROWE DS

CROSS-FLOW MIXING BETWEEN PARALLEL FLOW CHANNELS DURING BOILING. PART 1. COBRA. COMPUTER PROGRAM FOR COOLANT BOILING IN ROD ARRAYS

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-371(Pt.1) +. 112 PAGES, 6 FIGURES, 3 TABLES, 27 REFERENCES, MARCH 1967

THIS REPORT PRESENTS A MATHEMATICAL MODEL AND DIGITAL COMPUTER PROGRAM FOR COMPUTING COOLANT FLOW AND ENTHALPY IN THE SUBCHANNELS OF ROD-BUNDLE FUEL ELEMENTS. ONE-DIMENSIONAL, TWO-PHASE, SLIP FLOW IN THE SUBCHANNELS PROVIDES THE BASIS FOR THE MATHEMATICAL MODEL. THE MODEL ALSO INCLUDES THE EFFECT OF MIXING THAT OCCURS THROUGH THE GAP BETWEEN ADJACENT SUBCHANNELS BY USING A TURBULENT (FLUCTUATING) CROSS-FLOW AND A DIVERSION CROSS-FLOW THAT RESULTS FROM FLOW REDISTRIBUTION. THE DIGITAL COMPUTER PROGRAM COBRA SOLVES THE MATHEMATICAL

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19546 *CONTINUED*

EQUATIONS BY USING NUMERICAL PROCEDURES SIMILAR TO THE MODIFIED EULER METHOD, BUT WITH AN ADDITIONAL FEATURE TO CONTROL DIVERSION CROSS-FLOW AND ENSURE A STABLE SOLUTION. COBRA CONSIDERS BOTH SINGLE AND TWO-PHASE FLOW IN ROD BUNDLES OF ARBITRARY GEOMETRY AND CAN CONSIDER UP TO 36 SUBCHANNELS AND 25 FUEL RODS. ARBITRARY HEAT-FLUX DISTRIBUTIONS ARE SPECIFIED BY THE AXIAL FLUX DISTRIBUTION, RELATIVE ROD POWER, AND FRACTION OF ROD POWER TO EACH ADJACENT SUBCHANNEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA.
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FLOW, CROSS + FLOW, MIXING + FLOW, TWO PHASE + HEAT TRANSFER, BOILING + REACTOR, BOILING WATER

6-19680

ALSO IN CATEGORY 9

TRINKO JR + HANAUER SH + ROUX DP + DE LORENZO JT
REACTOR NOISE ANALYSIS USING A PULSE TYPE DETECTOR
OAK RIDGE NATIONAL LABORATORY + UNIVERSITY OF TENNESSEE
ORNL-P-2880 + CONF-670602-5 +. 6 PAGES, FROM 13TH ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF.

REACTOR FLUCTUATION STUDIES USING PULSE DETECTORS WERE EXTENDED BY USING A NEW COUNTER WITH A COLLECTION TIME OF 60 NSEC. PULSES WERE APPLIED TO AMPLIFIERS AND A DISCRIMINATOR WITH 100-MHZ RESPONSE FOLLOWED BY CURRENT INTEGRATION IN A COUNTING-RATE METER WITH RC EQUAL TO 15 MICROSEC. THE OVERALL DOUBLE-PULSE RESOLVING TIME WAS ABOUT 130 NSEC. FLUCTUATIONS IN COUNTING RATE WERE ANALYZED FOR CURRENT FLUCTUATIONS. IT APPEARS THAT THE PULSE SYSTEM IS EQUIVALENT TO THE CURRENT SYSTEM AND THAT THE SYSTEMS HAVE DIFFERENT ADVANTAGES AND LIMITATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, PULSE + NOISE ANALYSIS + REACTOR TRANSIENT

6-19776

ALSO IN CATEGORY 9

MCVEAN RL + WEITZBERG A + KREMSER JA + LERIDON AM + LONG JK
CRITICAL STUDIES OF THE SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR (SEFOR) IN ZPR-3 (ASSEMBLY 47)
ARGONNE NATIONAL LABORATORY + GENERAL ELECTRIC, ADVANCED PRODUCTS OPERATION + CEA. CADARACHE
ANL-7248 +. 50 PAGES, 42 FIGURES, 13 TABLES, 7 REFERENCES, MARCH 1967

THE CRITICAL-STUDIES PROGRAM INVESTIGATED SEVEN OBJECTIVES - (1) TO DETERMINE THE PLUTONIUM ENRICHMENT OF THE SEFOR FUEL. (2) TO VERIFY THE ADEQUACY OF THE REFLECTOR CONTROL STRENGTH. (3) TO DETERMINE THE REACTIVITY EFFECT OF A SIMULATED AXIAL THERMAL EXPANSION OF THE FUEL, SUCH AS WOULD OCCUR DURING A SEFOR TRANSIENT MEASUREMENT. (4) TO VERIFY THE EXISTENCE OF A NEGATIVE SEFOR DOPPLER COEFFICIENT. (5) TO DETERMINE THE REACTIVITY EFFECT OF THE LOSS OF SODIUM COOLANT. (6) TO CHECK THE ACCURACY OF THE PHYSICS MODEL FOR SEFOR AND THE ACCURACY OF THE CALCULATIONAL TECHNIQUES EMPLOYED. (7) TO DETERMINE THE NEUTRON LIFETIME FOR THE SEFOR REACTOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CRITICAL ASSEMBLY FACILITY + CRITICALITY EXPERIMENT + DESIGN STUDY + REACTOR, BREEDER + REACTOR. FAST + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR) + ZPR 3 (ANL ZERO POWER REACTOR)

6-19839

ALSO IN CATEGORY 9

BUSLIK AJ + WEINREICH WA
VARIATIONAL CALCULATION OF COMPLEX NATURAL MODES OF XENON OSCILLATION (LWB-LSBR DEVELOPMENT PROGRAM)
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, BETTIS ATOMIC POWER LAB
WAPD-TM-673 +. 14 PAGES, 1 FIGURE, 1 TABLE, 9 REFERENCES, SEPTEMBER 1967

PRESENTS A VARIATIONAL CALCULATION OF THE COMPLEX NATURAL MODES OF XENON OSCILLATION (PMODES). THE IODINE AND XENON COMPONENTS OF THE PMODES ARE ELIMINATED BEFORE THE FUNCTIONAL IS SET UP, ELIMINATING THE NEED FOR TRIAL FUNCTIONS FOR THESE VARIABLES. THE EIGENVALUES P ARE DETERMINED BY THE SOLUTION OF A POLYNOMIAL EQUATION. WHEN USED IN CONJUNCTION WITH A SINGLE MU-MODE TRIAL FUNCTION, AN IMPROVEMENT IN THE USUAL MU-MODE FORMALISM IS PRODUCED, SINCE FAST FISSION PRODUCTION OF XENON CAN BE TAKEN INTO ACCOUNT MORE EXACTLY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*XENON OSCILLATION + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

6-19854

ALSO IN CATEGORIES 12 AND 18

TAB 2 - REACTOR PIT CRUCIBLE
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
12 PAGES, 2 FIGURES, 2 TABLES, 3 REFERENCES, FROM FIFTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19854 *CONTINUED*
50-257, JULY 28, 1967

AN MGO-LINED STEEL CRUCIBLE WILL BACK UP THE EMERGENCY CORE-COOLING SYSTEMS SHOULD THE CORE MELT THRU THE REACTOR VESSEL. HEAT-TRANSFER ANALYSIS OF TEMPERATURE INDICATES UO₂ RANGES BETWEEN 6000 AND 4500 F, MGO AVERAGE IS 2400 F, AND STEEL AVERAGES 500. EXACT EXPERIMENTAL HEAT-TRANSFER DATA IS NOT AVAILABLE. HOWEVER, CRUCIBLE SYSTEMS OF THIS KIND ARE WELL KNOWN IN THE METAL-CASTING INDUSTRY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE MELTDOWN + *ENGINEERED SAFETY FEATURE + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + REFRACTORY MATERIAL + SAFETY ANALYSIS REPORT, PRELIMINARY

6-19868 ALSO IN CATEGORIES 5 AND 8
THOMPSON DH + KOLB WL + SOWA ES
A LARGE LOOP FACILITY FOR THE MELTDOWN STUDY OF FAST-REACTOR FUEL ELEMENTS IN HIGH-TEMPERATURE FLOWING SODIUM
ARGONNE NATIONAL LABORATORY
CONF-670 602 +. 2 PAGES, 1 FIGURE, 1 TABLE, ANS TRANS. 10(1), PAGES 341-2 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DESCRIBES A LOOP CAPABLE OF PERFORMING IN-PILE MELTDOWN OF FUEL CLUSTERS FOR FAST REACTORS IN THE TREAT REACTOR.

ANL (ARGONNE NATIONAL LABORATORY) + FUEL ELEMENT CLUSTER + FUEL MELTDOWN + REACTOR, FAST + REACTOR, GRAPHITE MODERATED + REACTOR, TEST + SODIUM + TREAT (TRANSIENT TEST REACTOR FACILITY)

6-19869 ALSO IN CATEGORIES 5 AND 8
GRIEBENCW ML + RICHERT KD
MACABRE II
IDAHO NUCLEAR CORP., IDAHO FALLS
IN-1107 +. 86 PAGES, 2 FIGURES, SEPTEMBER 1967

MACABRE II WAS WRITTEN FOR THE IBM 7040 COMPUTER IN USE AT THE NRTS. THE BASIC PROGRAMMING LANGUAGE IS FORTRAN IV, BUT SOME SYMBOLIC ROUTINES ARE USED IN THE 7040 VERSION. A VERSION PROGRAMMED IN FORTRAN IV FOR THE UNIVAC 1108 IS ALSO AVAILABLE. THIS VERSION CONTAINS SMALL SYMBOLIC ROUTINES FOR THE DATE, TIME, AND AUXILIARY STORAGE DEFINITIONS, AND SHOULD PRESENT NO PROBLEMS IN CONVERSION TO ANOTHER COMPUTER. MACABRE II IS CAPABLE OF SOLVING THE ISOTHERMAL HYDRAULICS AND NONISOTHERMAL HYDRAULICS AND HEAT TRANSFER OF MOST PLATE-TYPE REACTOR, FUEL ASSEMBLIES DIMENSIONAL, TIME-DEPENDENT (QUASI STEADY STATE) HEAT GENERATION RATES, AND HYDRAULIC COMMUNICATION BETWEEN THE PARALLEL COOLANT CHANNELS. IN ADDITION, MACABRE II WILL COMPUTE THE CORROSION OF THE ALUMINUM-CLAD HEAT-TRANSFER SURFACES (WHEN PRESENT) AND CAN HANDLE PARTIAL SLOUGHING OF THE BOEHMITE CORROSION PRODUCT. MACABRE II HAS BEEN USED IN MTR, ETR, ATR, AND EOCR FUEL ASSEMBLY ANALYSIS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + COMPUTER, DIGITAL + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS + REACTOR, POOL TYPE

6-19870 ALSO IN CATEGORY 5
MATHISEN RP + EKLUND O
POWER DISTURBANCES CLOSE TO HYDRODYNAMIC INSTABILITY IN NATURAL CIRCULATION TWO-PHASE FLOW
AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN
AE-285 +. 32 PAGES, FIGURES, REFERENCES, JULY 1967

IN CERTAIN BOILING-REACTOR DESIGNS, HIGH POSITIVE VOID COEFFICIENTS COULD EXIST AND UNDER CERTAIN CIRCUMSTANCES CAUSE INSTABILITY. CONTROL SYSTEMS MAY THEREFORE BE DESIRED. IN SUCH A CONTROLLED REACTOR THERE COULD REMAIN SUPERIMPOSED LOW-FREQUENCY POWER OSCILLATIONS OF SOME MAGNITUDE. THE OBJECT OF THE CURRENT EXPERIMENTS IN SKALVAN WAS TO EXAMINE WHETHER SUCH SLOW OSCILLATIONS COULD INFLUENCE THE HYDRODYNAMIC STABILITY LIMIT OF THE INDIVIDUAL BOILING CHANNELS. WITH MINIMUM TEST-SECTION INLET RESTRICTIONS, THE POWER LEVEL AT INSTABILITY WAS MUCH LOWER THAN THAT AT BURNOUT CONDITIONS. AT HIGHER RESTRICTIONS, THESE PHENOMENA OCCURRED AT APPROXIMATELY EQUIVALENT POWER LEVELS. THE EXPERIMENTS WITH MINIMUM INLET RESTRICTIONS WERE ALSO PERFORMED BEYOND THE INSTABILITY THRESHOLD. IN THIS CASE IT WAS POSSIBLE TO EXCEED THE NOMINAL BURNOUT POINT TEMPORARILY BY 5 PERCENT OR MORE FOR ABOUT 1 SEC. EVEN THEN, THE BOILING CHANNEL CONDITIONS WERE NOT SO SEVERELY AFFECTED THAT THE BURNOUT DETECTORS TRIPPED, AND THE POWER DISTURBANCES CAUSED LOW-FREQUENCY MODULATED WAVE TRAINS.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

EXPERIMENT, GENERAL + INSTABILITY + POWER COEFFICIENT + REACTOR STABILITY + REACTOR, BOILING WATER + SWEDEN

6-19871 ALSO IN CATEGORY 5
YIH TS + GRIFFITH P

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19871 *CONTINUED*

THE MEASUREMENT, INTERPRETATION AND USE OF UNSTEADY MOMENTUM FLUXES IN TWO-PHASE FLOW
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
MIT-70,318-50 +. 35 PAGES, FIGURES, REFERENCES, AUGUST 1967

THE STEADY AND UNSTEADY COMPONENTS OF THE MOMENTUM FLUX IN A TWO-PHASE FLOW WERE MEASURED AT THE EXIT OF A VERTICAL PIPE BY AN IMPULSE TECHNIQUE USING A TURNING TEE AND BEAM. DIFFERENT ELECTRICAL FILTERS WERE TRIED IN THE RECORDING CIRCUIT FOR ELIMINATING THE SIGNALS AROUND THE NATURAL FREQUENCY OF THE BEAM SYSTEM. A SPECIAL FILTER SET WAS DESIGNED TO APPROXIMATE THE INVERSE OF THE TRANSFER FUNCTION OF THE BEAM SYSTEM. THE SIGNALS RECORDED AFTER PASSING THROUGH THE BEAM-FILTER COMBINATION CAN BE CONSIDERED AS THE EXCITATION TIMES A CONSTANT. TWO DIFFERENT ANALOG METHODS WERE USED TO ANALYZE THE RANDOM SIGNALS FOR OBTAINING THE STATISTICAL QUANTITIES PREDOMINANT FREQUENCY AND THE RMS VALUE OF THE UNSTEADY MOMENTUM FLUX. IN THE PRELIMINARY MEASUREMENTS OF THE UNSTEADY MOMENTUM FLUX FOR THE ADIABATIC UPFLOW OF AN AIR-WATER MIXTURE IN A 5/8-INCH PIPE, THE GREATEST UNSTEADINESS OF MOMENTUM FLUX APPEARED IN THE QUALITY RANGE OF ONE PERCENT TO SIX PERCENT. IN AN EXAMPLE PROBLEM, USING THE PRELIMINARY RESULTS, THE EFFECT OF THE UNSTEADY MOMENTUM FLUX ON A FUEL ROD WAS STUDIED. THE AMPLITUDE OF THE VIBRATIONS RESULTING FROM THE TWO-PHASE EXCITATION WAS FOUND. IN ADDITION, IT WAS ALSO FOUND THAT THERE IS A POSSIBILITY OF UNSTABLE VIBRATIONS DUE TO A NONLINEAR RESTORING FORCE ON THE FUEL ELEMENT. THIS NONLINEARITY IS DUE TO THE UNSTEADY COMPONENT OF THE MOMENTUM FLUX IN THE FLOW PAST THE ROD.

AVAILABILITY - PETER GRIFFITH, DEPT. OF MECHANICAL ENGINEERING, MASS. INST. OF TECH., CAMBRIDGE, MASS.

ANALYTICAL TECHNIQUE, GENERAL + FLOW STABILITY + FLOW THEORY AND EXPERIMENTS + FLOW, TWO PHASE + FUEL ELEMENT + VIBRATION

6-19873 ALSO IN CATEGORIES 4 AND 5
HALE CJ

LOSS-OF-FLOW ACCIDENT STUDIES ON THE 10-MW GTR
GENERAL DYNAMICS, FORT WORTH, TEXAS
CONF-670 602 + FZM 4800 +. 85 PAGES, FIGURES, TABLES, REFERENCES, PRESENTED AT ANS 1967 ANNUAL MEETING, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967, ANS TRANSACTIONS, 10(1), PAGE 333 (JUNE 1967)

AS PART OF THE STARTUP TESTS AND IN CONJUNCTION WITH THE INCREASE IN POWER TO 10 MW, A COMPREHENSIVE LOSS-OF-FLOW EXPERIMENT WAS PERFORMED ON THE GROUND-TEST REACTOR (GTR). A COMPLETE PRE-TEST ANALYSIS WAS PERFORMED WITH THE AID OF A COMPUTER CODE WHICH PREDICTED TRANSIENT FLOWS AND TEMPERATURES THAT WOULD BE EXPERIENCED IN THE LOSS-OF-FLOW TESTS. THE LOSS-OF-FLOW EXPERIMENT WAS COMPLETED IN A TEST SERIES WHICH STARTED WITH TESTS OF FLOW ONLY AND ENDED WITH SIMULATED LOSS-OF-FLOW ACCIDENTS WITH THE GTR AT 10 MW. THE EXPERIMENTAL INSTRUMENTATION DID NOT DETECT THE PRESENCE OF BOILING IN ANY OF THE TESTS. IN ADDITION, THE MAXIMUM FUEL SURFACE TEMPERATURES WERE NOT HIGH ENOUGH TO SUPPORT BOILING IN THE TRANSIENT OR LEVEL OPERATION TESTS.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF FLOW + AEROSPACE SAFETY + REACTOR, POOL TYPE + REACTOR, TEST

6-19934 ALSO IN CATEGORIES 12 AND 18
SEVENTH SUPPLEMENT TO INDIAN POINT 2. PRELIMINARY SAFETY ANALYSIS REPORT. EXHIBIT B-7
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
166 PAGES, 54 FIGURES, 6 TABLES, OCTOBER 16, 1967, DOCKET NO. 50-247

GIVES ADDITIONAL INFORMATION IN RESPONSE TO ACRS LETTER OF 16 AUG. 1966. (SECTION 1, 60 PG) SAFETY INJECTION SYSTEM FINAL DESIGN. (SECTION 2, 12 PG) REACTOR INTERNALS AND BLOWDOWN EFFECTS. (SECT 3, 4 PG) ADEQUACY OF REACTOR SYSTEM DESIGN AND INSPECTION. (SECT 4, 9 PG) REACTOR SYSTEM INSPECTION. (SECT 5, 6 PG) REACTOR COOLANT SYSTEM LEAK DETECTION. (SECT 6, 4 PG) FINAL LOADING PATTERN AND NONPOSITIVE TEMP COEFF. (SECT 7, 15 PG) REACTOR-PIT CRUCIBLE. (APPENDIX A - WCAP 7072) USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE PWRs. (APPENDIX B - WCAP 7113) USE OF BURNABLE POISONS IN WESTINGHOUSE PWRs.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

6-19940 ALSO IN CATEGORIES 9 AND 18
SECTION 6 - CORE REACTIVITY-DESIGN MODIFICATION
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
4 PAGES, 1 FIGURE, PAGE 6-1 THRU 6-4 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

(1) THE INITIAL FUEL LOADING WILL HAVE AN INTERIOR CHECKERBOARD OF 2.2 AND 2.7 W/O ENRICHMENTS WITH THE OUTER ROW OF 3.2 W/O. (2) FIXED BURNABLE-POISON RODS USED IN THE FIRST CYCLE WILL MAINTAIN A NEGATIVE MODERATOR COEFFICIENT AND ASSUME THAT DIAMETRAL AND AZIMUTHAL XENON OSCILLATIONS ARE DAMPED. IN SUCCEEDING CYCLES, THE COEFFICIENT IS NEGATIVE WITHOUT POISON, AND XENON OSCILLATIONS ARE DAMPED. (3) PART-LENGTH ABSORBER RODS WILL BE USED TO CONTROL AXIAL XENON OSCILLATIONS. WCAP 7072 AND 7113 ARE APPENDED FOR DETAILS. ADDITION OF FIXED POISON MAKES THE REACTIVITY FROM FUEL BOWING (AT END OF CYCLE) A MAXIMUM OF 0.33%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POISON, BURNABLE + *POISON, FIXED + *REFUELING + *XENON OSCILLATION + CONTROL ROD, SHIM SAFETY +

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19940 *CONTINUED*

INDIAN POINT 2 + MODERATOR COEFFICIENT + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

6-19943 ALSO IN CATEGORIES 9 AND 18

WOOD PM + GALLAGHER JM + MENTZ RM + DEAN RA

USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE PRESSURIZED WATER REACTORS

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

WCAP-7072 +. 29 PAGES, 11 FIGURES, APPENDIX A OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, JUNE 1967

(APPENDIX A OF INDIAN POINT 2 SEVENTH PSAR SUPPLEMENT.) 8 STANDARD ROD-CLUSTERS WILL HAVE ALL BUT THE LOWER 36 IN. FILLED WITH A1203 AND BE USED FOR OTHER AXIAL POWER-SHAPING OR OVERCOMING AXIAL XENON OSCILLATION. DROPPING ONE COULD ADD 0.3% DELTA K AND AFFECT HOT-SPOT FACTOR. SENA LONG-ION-CHAMBER RESULTS SHOW THEY INDICATE ABOUT 13% LESS IMBALANCE WHEN CONTROL GROUP INSERTED 55%. DETAILED SAFETY ANALYSIS BEING PREPARED, ALONG WITH CONTROL ROD PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD, SHIM SAFETY + *XENON OSCILLATION + CONTROL ROD PROGRAM + INDIAN POINT 2 + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, POWER RANGE + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER

6-19944 ALSO IN CATEGORY 18

WOOD PM + BASSLER EA + MACDONALD PE + PADDLEFORD DF

USE OF BURNABLE POISON RODS IN WESTINGHOUSE PRESSURIZED WATER REACTOR

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

WCAP-7113 +. 29 PAGES, 11 FIGURES, 1 TABLE, APPENDIX B OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 1967, DOCKET NO. 50-247

BORATED PYREX TUBES CLAD IN STAINLESS STEEL WILL BE PLACED IN 1144 VACANT ROD-CLUSTER GUIDE TUBES (NEARLY HALF THE ELEMENT) TO INITIALLY CONTROL 7.2% REACTIVITY, ALLOWING SOLUBLE BORON TO BE REDUCED TO 1200 PPM SO THE MODERATOR COEFFICIENT IS NEGATIVE. THIS STABILIZES THE CORE AGAINST AZIMUTHAL/DIAMETRAL XENON OSCILLATION AND REACTIVITY ADDED DURING LOSS OF COOLANT. CRITICAL EXPERIMENTS AND SAXTON IRRADIATION TESTS ARE IN PROGRESS. BRIEF OUTLINE OF MOD. COEFFICIENT VS POISON BURNUP, METHOD OF NUCLEAR CALCULATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POISON, BURNABLE + *POISON, FIXED + GLASS + INDIAN POINT 2 + MODERATOR COEFFICIENT + REACTOR STABILITY + REACTOR, PRESSURIZED WATER + XENON OSCILLATION

6-19978

MCTAGGART MH + GOODFELLOW H + PATERSON WJ + WEALE JW

VERA U-235 GRAPHITE REACTOR EXPERIMENT. INTERIM REPORT

ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ABERDEEN, ENGLAND

AWRE-R-4/63 +. 55 PAGES, 17 FIGURES, 22 TABLES, REFERENCES, 1966

DESCRIBES EXPERIMENTS ON SMALL FAST-REACTOR ASSEMBLIES WITH U-235/GRAPHITE CORES AND NATURAL U REFLECTORS TO PROVIDE DETAILED INFORMATION TO CHECK NUCLEAR DATA FOR U-235 IN THE ENERGY RANGE 50 TO 500 KEV. CRITICAL MASSES WERE MEASURED FOR FIVE ASSEMBLIES WITH VARYING HEIGHT/DIAMETER RATIOS AND C/U RATIOS, AND ROSSI ALPHA WAS MEASURED FOR ONE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY EXPERIMENT + MEASUREMENT, REACTIVITY + REACTOR PHYSICS + REACTOR, GRAPHITE MODERATED + ROSSI ALPHA + URANIUM

6-19979

BELLER IS + FARRAR IV H

MEASUREMENT OF THE EFFECTIVE RESONANCE INTEGRAL, THERMAL ATTENUATION FACTOR, AND DOPPLER EFFECT IN GOLD

OVER A WIDE RANGE IN SURFACE MASS RATIO AND TEMPERATURE

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12499 +. 62 PAGES, 11 FIGURES, 15 TABLES, 15 REFERENCES, AUGUST 15, 1967

REPORTS MEASUREMENTS OF THE EFFECTIVE RESONANCE INTEGRAL, THERMAL AND EPITHERMAL SELF-SHIELDING FACTORS, AND DOPPLER COEFFICIENTS IN Au-197. THE MEASUREMENTS COVER MORE THAN FOUR DECADES IN SURFACE/MASS RATIO, AND 500 C IN TEMPERATURE. THEY WERE MADE BY ACTIVATION IN A NOMINALLY 1/E NEUTRON ENERGY SPECTRUM. THE EXPERIMENTAL METHODS ARE DESCRIBED IN DETAIL AND RESULTED IN EXCEPTIONALLY GOOD REPRODUCIBILITY. MEASUREMENTS OF THE EFFECTIVE RESONANCE INTEGRAL AGREED WELL WITH CALCULATION BY SEVERAL METHODS. DOPPLER EFFECT MEASUREMENTS DID NOT AGREE WITH TRIX-I CALCULATIONS, BUT THE CAUSES APPEAR TO LIE IN THE CALCULATION AND NOT THE EXPERIMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 6
 REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19979 *CONTINUED*

*GOLD + ACTIVATION + COMPARISON, THEORY AND EXPERIENCE + DOPPLER COEFFICIENT + SELF SHIELDING

6-19980

PUCKER N

THE MEASUREMENT OF THE DOPPLER COEFFICIENT OF FAST REACTORS USING HEATED SAMPLES

KERNFORSCHUNGSZENTRUM KARLSRUHE

4 PAGES, 6 REFERENCES, ATOMKERNENERGIE 12(5-6), PAGES 189-92 (JUNE 1967)

THE MEASUREMENT OF THE DOPPLER COEFFICIENT OF A FAST REACTOR BY USING A HEATED SAMPLE IN THE CORE IS DISCUSSED THEORETICALLY. THE SUITABILITY OF MULTIGROUP DIFFUSION METHODS FOR THIS PROBLEM IS INVESTIGATED, AND RESULTS USING FIRST-ORDER PERTURBATION THEORY ARE PRESENTED.

*DOPPLER COEFFICIENT + *THEORETICAL INVESTIGATION + DOPPLER EFFECT + REACTOR, FAST

6-19981

ERNST BB

CRITICAL MASSES OF OIL REFLECTED, ENRICHED URANIUM METAL ASSEMBLIES WITH POLYURETHANE CENTERS

DOW CHEMICAL CO., GOLDEN, COLO.

RFP-1017 +. 9 PAGES, 9 FIGURES, 7 TABLES, SEPT. 6, 1967

THE CRITICAL MASSES OF OIL-REFLECTED, ENRICHED-URANIUM, SPHERICAL ASSEMBLIES OF INSIDE URANIUM RADIUS, 0.0, 4.017, 8.010, AND 12.011 CM, WITH A LOW-DENSITY FOAM IN THE CENTRAL CAVITY, WERE MEASURED TO BE 24.3, 31, 65, 52.1, AND 91.3 KILOGRAMS. CRITICAL MASSES WERE DETERMINED BY RECIPROCAL MULTIPLICATION MEASUREMENTS ON FULLY REFLECTED ASSEMBLIES AND WERE COMPARED WITH CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT + URANIUM

6-19982

PERRY TR + KOHLER WH

A RANGE OF VALIDITY STUDY OF THE HANSEN-FUCHS MODEL WITH THE GENERAL LINEAR ENERGY POINT REACTOR DYNAMICS EQUATIONS AS A VALID DESCRIPTION OF THE EXCURSION

TEXAS A AND M

CONF-670 602 +. 2 PAGES, 3 REFERENCES, ANS TRANS. 10(1), PAGES 244-5 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

THE HANSEN-FUCHS MODEL IS APPLIED TO PROMPT-CRITICAL REACTORS IN WHICH THE REACTIVITY IS INSERTED AS A RAMP RATHER THAN AS A STEP. THE RANGE OF VALIDITY OF THE MODIFIED MODEL IS DETERMINED BY COMPARISON WITH THE NUMERICAL SOLUTION OF THE GENERAL LINEAR ENERGY POINT REACTOR DYNAMICS EQUATIONS.

EXCURSION, LARGE + FUCHS MODEL + PROMPT CRITICALITY + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR TRANSIENT + TEMPERATURE TRANSIENT

6-19984

DRAGT JB

ON THE ACCURACY OF CROSS AND AUTO REACTOR NOISE SPECTRA

REACTOR CENTRUM NEDERLAND, PETTEN, NETHERLANDS

2 PAGES, 4 REFERENCES, NUKLEONIK 10(2), PAGES 95-6 (JULY 1967)

CLOSED EXPRESSIONS ARE DERIVED FOR THE VARIANCES IN AUTO- AND CROSS-POWER SPECTRAL-DENSITY ESTIMATES FOR EQUAL MEASURING TIMES IN A ZERO-POWER POINT REACTOR. IT IS CONCLUDED THAT FOR LARGE DETECTOR EFFICIENCIES AND LARGE BANDWIDTH, THE AUTO-POWER SPECTRUM IS SLIGHTLY MORE ACCURATE, BUT, FOR LOW EFFICIENCY AND RESTRICTED BANDWIDTH, THE CROSS-POWER SPECTRUM IS SUPERIOR.

NOISE ANALYSIS + NOISE CROSS CORRELATION

6-19985

MAYOR JC + MENNIG J + SARLOS G

ARLEKIN - A GENERALIZED REACTOR KINETICS CODE USING LIE-SERIES

EIDGENÖSSISCHES INSTITUT FÜR REAKTORFORSCHUNG, WÜRENLINGEN

EIR-111 +. 17 PAGES, FIGURES, 4 REFERENCES, MAY 1967

DESCRIBES A CODE THAT SOLVES THE NONLINEAR SYSTEM OF DIFFERENTIAL EQUATIONS GOVERNING REACTOR DYNAMICS. THE PROGRAM IS BASED ON A NEW METHOD OF INTEGRATION WHICH MAKES USE OF LIE SERIES AND PERMITS RELIABLE ERROR CONTROL BY SPECIFYING APPROPRIATE INPUT PARAMETERS. COMPUTING TIMES ARE REASONABLE. THE DIFFERENTIAL EQUATIONS DESCRIBING THE DYNAMICAL EVOLUTION OF THE SYSTEM ARE GIVEN IN GENERALIZED FORM. EQUATIONS OF VARIABLES DEFINING FEEDBACK MAY BE NONLINEAR. THE EXTERNAL REACTIVITY MAY BE EXPRESSED IN TERMS OF A LINEAR COMBINATION OF TIME-DEPENDENT FUNCTIONS SUCH AS STEP-FUNCTIONS, RAMPS, SINE-FUNCTIONS OR EXPONENTIALS.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-19985 *CONTINUED*

COOLING COEFFICIENTS ARE ALLOWED TO VARY DISCONTINUOUSLY IN TIME IN ORDER TO SIMULATE PUMP ACCIDENTS.

COMPUTER PROGRAM + DYNAMICS, NONLINEAR + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR TRANSIENT

6-19986

GAGE SJ + ADLER FT

STABILITY OF COUPLED-CORE NUCLEAR REACTORS - SELECTED EXACT RESULTS

UNIVERSITY OF TEXAS + UNIVERSITY OF ILLINOIS

4 PAGES, 4 FIGURES, J. BASIC ENG., TRANS. ASME 89(2), PAGES 283-6 (JUNE 1967)

EXACT ANALYTICAL STABILITY CRITERIA ARE DERIVED FOR THE COUPLED-CORE KINETICS EQUATIONS. FOUR APPROXIMATE MODELS FOR DESCRIBING THE TIME DISTRIBUTION OF THE COUPLING NEUTRONS ARE CONSIDERED, AND A THEOREM PROVED BY PONTRYAGIN IS USED TO ESTABLISH THE ASYMPTOTIC STABILITY OF THE SYSTEMS. THE CRITERION, BASED ON THE SINGLE DELTA-FUNCTION MODEL, IS COMPARED WITH THE ONE BASED ON THE SINGLE STEP-FUNCTION MODEL.

COUPLED CORES + REACTOR KINETICS + REACTOR STABILITY + THEORETICAL INVESTIGATION + TRANSFER FUNCTION

6-19987

WHEELER FJ

RAVEN - A COMPUTER PACKAGE FOR EVALUATING RESOLVED AND UNRESOLVED RESONANCE ABSORPTION INCLUDING PIN SHADOWING

PHILLIPS PETROLEUM CO., IDAHO FALLS

IDO-17212 +. 43 PAGES, 1 FIGURE, 1 TABLE, 13 REFERENCES

A COMPUTER CODE, RAVEN, WAS PREPARED FOR THE IBM-7040. THE PURPOSE OF THE CODE IS TO PROVIDE THE USER WITH A FAST, ACCURATE, AND CONVENIENT CALCULATION OF RESONANCE ABSORPTION IN BOTH THE RESOLVED AND UNRESOLVED ENERGY RANGES. AN OPTION TO COMPUTE THE DANCOFF CORRECTION FOR CYLINDRICAL PINS IN A LATTICE IS INCLUDED SO THAT RESONANCE INTEGRALS AND MULTI-GROUP CROSS SECTIONS MAY BE OBTAINED WITH ONLY ONE RUN ON THE COMPUTER. FORTRAN IV IS USED THROUGHOUT, WITH THE EXCEPTION OF ONE MAP SUBROUTINE, PSICHI, WHICH COMPUTES THE POINTWISE DOPPLER-BROADENED CROSS SECTIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + CROSS SECTION + DOPPLER COEFFICIENT + DOPPLER EFFECT

6-19988

STEEN NM + HANSON JN

A SIMPLE METHOD TO INCORPORATE HETEROGENEOUS AND DOPPLER BROADENING EFFECTS IN THE MUFT-5 RESONANCE TREATMENT

BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.

WAPD-TM-675 +. 39 PAGES, 10 FIGURES, 1 TABLE, 6 REFERENCES, JULY 1967

PRESENTS A METHOD THAT PERMITS THE CURRENT MUFT-5 PROGRAM TO CONSIDER DIRECTLY THE RESONANCE ABSORPTION IN HETEROGENEOUS SYSTEMS IN THE PRESENCE OF DOPPLER BROADENING AT A PRESCRIBED TEMPERATURE. THE METHOD DOES NOT REQUIRE ANY PROGRAM CHANGES AND IS SIMPLE TO USE. AN APPROXIMATE TECHNIQUE IS INCLUDED TO ACCOUNT FOR RESONANCE OVERLAP, WHICH IS IMPORTANT IN FISSILE NUCLIDES. ONE OF THE CHARACTERISTICS OF THE METHOD IS THAT THE RESONANCES INTEGRAL FOR A NUCLIDE ARE PRECISELY DETERMINED FOR CERTAIN SYSTEMS OF PRIMARY INTEREST. THE WORK WAS PERFORMED IN SUPPORT OF THE LWB-LSBR DEVELOPMENT PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CROSS SECTION + DOPPLER COEFFICIENT + DOPPLER EFFECT + RESONANCE OVERLAP

6-19989

STACEY WM

XENON SPATIAL OSCILLATIONS

KNOL'S ATOMIC POWER LABORATORY, SCHENECTADY, NEW YORK

KAPL-M-6596 +. 10 PAGES, 2 FIGURES, 6 REFERENCES, ABSTRACT IN ANS TRANS. 10(1), PAGE 254, FEBRUARY 6, 1967

A LINEAR ANALYSIS OF XENON-INDUCED SPATIAL-POWER OSCILLATIONS IS PERFORMED USING LAPLACE TRANSFORMATION AND MODAL EXPANSION. STATIC FEW-GROUP DIFFUSION-THEORY CODES FURNISH THE PERTINENT PARAMETERS. THE FORMALISM INCLUDES POWER DISTRIBUTION AND LEVEL. STARTING CRITERIA FOR SPATIAL POWER OSCILLATIONS ARE DEVELOPED AND FOUND TO AGREE WITH RESULTS OF THE SPRITE DIGITAL CODE.

*XENON OSCILLATION + REACTOR DYNAMICS + REACTOR STABILITY + SPACE DEPENDENT DYNAMICS

6-20043

ALSO IN CATEGORY 9

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-20043 *CONTINUED*

KAPLAN S

NATURAL MODES OF THE XENON PROBLEM WITH TEMPERATURE AND CONTROL FEEDBACK

BETTIS ATOMIC POWER LABORATORY, PITTSBURGH, PA.

WAPD-TM-695 +. 14 PAGES, MAY 1967

THE P-MODE FORMALISM, WHICH IDENTIFIES THE NATURAL MOTIONS AND TIME CONSTANTS OF A REACTOR IN THE PRESENCE OF XENON FEEDBACK, IS EXTENDED TO THE CASE WHERE TEMPERATURE AND CONTROL FEEDBACKS ARE ALSO PRESENT. TWO METHODS ARE DISCUSSED BY WHICH THESE MODES MIGHT BE NUMERICALLY COMPUTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, CONTROL + *XENON + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

6-20051

ALSO IN CATEGORY 17

TURBINE OVERSPEED ON LOAD REJECTION DUE TO MOISTURE FLASHING TO STEAM

SOCIETA ELETTRONUCLEARE NAZIONALE, ROME, ITALY

TID-21073 +. 4 PAGES, PAGE 1-4 OF GARIGLIANO NUCLEAR POWER PLANT TECHNICAL REPORT, JUNE 30, 1964

ABNORMAL TURBINE OVERSPEED WAS EXPERIENCED WHEN THE GENERATOR BREAKER WAS OPENED. THIS WAS ATTRIBUTED TO THE EVAPORATION OF CONDENSATE IN THE TURBINE WHEN THE PRESSURE DROPS AS THE STEAM THROTTLE VALVES CLOSE. TO REDUCE WATER POCKETS, THE TURBINE DRAINAGE SYSTEM WILL BE MODIFIED BY REPLACING THE CROSSUNDER PIPES WITH ONES WHICH HAVE CENTRIFUGAL MOISTURE SEPARATORS AND TRAP DRAINS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, DESIGN ERROR + ACCIDENT, LOAD REJECTION + ITALY + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + TURBINE

6-20052

ALSO IN CATEGORY 17

HOWARD CL

DEVELOPMENT PROGRAM ON THE GARIGLIANO NUCLEAR REACTOR. QUARTERLY REPORT NOS. 16 + 17.

GENERAL ELECTRIC CO., ATOMIC POWER EQUIPMENT DEPT., SAN JOSE, CALIF.

GEAP-5277 + EURAEC-1823 +. 34 PAGES, JANUARY 3, 1967

MOSTLY RESULTS OF TESTS TO DETERMINE PLANT STABILITY. TRANSFER-FUNCTION RESULTS FOR EACH TEST CONDITION ARE GIVEN, AND EFFECTS OF FLOW AND INLET SUBCOOLING ON REACTOR STABILITY ARE SHOWN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STABILITY + *TEST, PLANT RESPONSE + ITALY + REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + TEST, SYSTEM OPERABILITY

6-20446

ALSO IN CATEGORY 17

CHRISTOPHER SS + MAHAGIN DE + KUZIOLO JJ

BURNABLE POISON ADDITIONS TO UO₂. SUMMARY REPORT

COMBUSTION ENGINEERING, INC., WINDSOR, CONN. NUCLEAR DIVISION

CEND-3107-306 + EURAEC-1872 +. 101 PAGES, 41 FIGURES, 24 TABLES, REFERENCES, JULY 11, 1967

GIVES RESULTS OF EXPERIMENTS WHERE TWO 6% UO₂ FUEL ELEMENTS CONTAINING 500 PPM B₄C (IRRADIATED TO 1000 AND 5000 MWD/MTV AT 17.2 AND 19.8 KW/FT PEAK SPECIFIC POWER) WERE EXAMINED. NO GROSS DIMENSIONAL CHANGES AND NO SIGNIFICANT AXIAL MOVEMENT OF BORON, HOWEVER, A SUBSTANTIAL RADIAL REDISTRIBUTION OCCURRED IN BOTH RODS. OTHER INVESTIGATIONS SHOWED THAT AT HIGH TEMPERATURES, UO₂ AND B₄C REACTED, PRODUCING UB₄ AND CO₂.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DIFFUSION + *FUEL BURNUP + *FUEL ELEMENT + *POISON, BURNABLE + BORON + FUEL SEGREGATION + IRRADIATION TESTING

6-20449

ALSO IN CATEGORY 17

POWER EXCURSION DUE TO TURBINE CONTROL-VALVE MISOPERATION AT A BWR

AEC, DIVISION OF OPERATIONAL SAFETY

2 PAGES, REACTOR SAFETY OPERATING EXPERIENCE 67-14, NOVEMBER 17, 1967

POOR ELECTRICAL GROUNDING OF TURBINE SHAFT CAUSED OIL-PUMP BEARING TO ACT AS GROUND, AND BEARING FAILED. PUMP SUPPLIED HYDRAULIC GOVERNOR CONTROL SYSTEM WHICH CONTROLS TURBINE ADMISSION VALVE. A PARTICLE OF BEARING MATERIAL BLOCKED PILOT-VALVE OIL FLOW, RESULTING IN ADMISSION VALVE BEING SLAMMED SHUT. BYPASS VALVE IS NOT DESIGNED TO HANDLE THIS COMPLETE LOAD REJECTION, AND REACTOR WAS SCRAMMED BY HIGH-FLUX TRIP WHEN PRESSURE BUILDUP CAUSED EXCURSION FROM VOID COLLAPSE.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-20449 *CONTINUED*
AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*ACCIDENT, REACTIVITY + *ELECTROSTATIC CHARGE + *TURBINE + *VALVE + ACCIDENT, LOAD REJECTION + INCIDENT, ACTUAL, EQUIPMENT + LUBRICATION + PRESSURE, INTERNAL + PUMP + REACTOR, BOILING WATER

6-20457 ALSO IN CATEGORIES 17 AND 9
RUDY GC + STONE JT
PATHFINDER ATOMIC POWER PLANT. PILE OSCILLATOR ROD ASSEMBLY, AND MEASUREMENTS OF REACTOR TRANSFER FUNCTIONS
ALLIS-CHALMERS MFG. CO., BETHESDA
ACNP-67522 +. 133 PAGES, FIGURES, TABLES, JULY 1967

DESCRIBES SPECIAL OSCILLATOR-ROD ASSEMBLY AND LOW-POWER INITIAL CALIBRATION TESTS. TESTING AT HIGHER POWER LEVELS WAS NOT DONE BECAUSE OF CURTAILMENT OF PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*OSCILLATOR, REACTIVITY + *REACTOR STABILITY + *TEST, PHYSICS + NOISE ANALYSIS + PATHFINDER + REACTOR, INTERNAL SUPERHEAT

6-20540 ALSO IN CATEGORIES 5 AND 8
STAUB FW
HEAT TRANSFER AND HYDRAULICS. THE EFFECTS OF SUBCOOLED VOIDS. QUARTERLY REPORT NO. 1, FEBRUARY-JUNE 1967
GENERAL ELECTRIC CO., SCHENECTADY, N. Y. RESEARCH AND DEVELOPMENT CENTER
NYO-3679-1 + EURAEC-1911 +. 46 PAGES, FIGURES, REFERENCES, JULY 1967

FIRST QUARTERLY PROGRESS REPORT FROM JOINT U.S.-EURATOM PROGRAM DESIGNED TO DETERMINE THE VOID DISTRIBUTION, LOCATION OF THE INITIATION OF NET VAPOR GENERATION, PRESSURE-DROP AND HEAT-TRANSFER COEFFICIENTS IN SUBCOOLED WATER SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EURATOM + FLOW, TWO PHASE + HEAT TRANSFER + SUBCOOLING

6-20758
FIELDHOUSE P + PERKIN JL + WARNER GP + BRICKSTOCK A + DAVIES AR
THE DOPPLER EFFECT ON THE U-238(N,GAMMA) REACTION AT DIFFERENT NEUTRON ENERGIES AND AT HIGH TEMPERATURES
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKS
9 PAGES, 4 FIGURES, 1 TABLE, REFERENCES, JOURNAL OF NUCLEAR ENERGY, 21(11), PAGE 847-855 (NOVEMBER 1967)

THE CALCULATIONS OF THE DOPPLER EFFECT IN SMALL METALLIC SAMPLES OF URANIUM AGREE WITHIN EXPERIMENTAL ERROR WITH EXPERIMENTAL RESULTS OVER THE RANGE OF TEMPERATURE (170-770K) AND NEUTRON ENERGY (0-30 KEV) AT WHICH COMPARISONS WERE MADE. IN THE UO2 SAMPLES, THE MEASURED DOPPLER EFFECT OVER THE RANGE 290-1960 K AGREES WITH THAT CALCULATED EXCEPT OVER THE FIRST 200 K OF THIS RANGE, WHERE THE MEASURED EFFECT WAS FOUND TO BE GREATER THAN THAT CALCULATED.

*DOPPLER COEFFICIENT + URANIUM + URANIUM OXIDE

6-20822
FOELL WK
HETEROGENEITY EFFECTS IN SNEAK DOPPLER LOOP MEASUREMENTS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
KFK-507 +. 11 PAGES, 4 FIGURES, JANUARY 1967

A BROAD PROGRAM FOR THE DOPPLER EFFECT MEASUREMENTS IN SNEAK, THE KARLSRUHE FAST CRITICAL ASSEMBLY. THE DOPPLER TEST ZONE WILL CONSIST OF MODIFIED SNEAK FUEL ELEMENTS WHICH CAN BE OSCILLATED IN TEMPERATURES BETWEEN 300 AND 650 K. THE PURPOSE OF THIS NOTE IS TO EXAMINE THE HETEROGENEITY EFFECTS ARISING FROM THE SEPARATION OF THE MATERIALS IN PINS OF FINITE DIAMETERS. THE FERTILE MATERIAL IS PRESENT IN ALL PINS BUT IN DIFFERENT CONCENTRATIONS. THE FISSILE MATERIAL IS PRESENT IN PIN TYPE B ONLY.

AVAILABILITY - MICROCARD EDITIONS, INC., (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*DOPPLER COEFFICIENT + *GERMANY

6-20825
GUIDELINE FOR THE RECOVERY OF RADIOACTIVE WASTE. GUIDELINE FOR THE EXAMINATION OF CLOSED RADIOACTIVE SOURCES. EXAMPLE OF A WORKING PROCEDURE FOR WORK WITH OPEN RADIOACTIVE MATERIAL.
STAATLICHE ZENTRALE FÜR STRAHLENSCHUTZ
SZS-3(1966) +. 29 PAGES, TABLES, APRIL 1966, IN GERMAN

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-20825* *CONTINUED*

GUIDELINE FOR CENTRAL REGULATION AND DEPOSITION OF RADIOACTIVE WASTE, FOR THE TESTING OF CLOSED SOURCES OF RADIOACTIVE RADIATION, REGULATION OF WORK WITH OPEN RADIOACTIVE SUBSTANCES. SOME DUTIES OF THE RADIATION PROTECTION OFFICER.

*GERMANY + RADIATION PROTECTION, ORGANIZATION + RADIATION SAFETY AND CONTROL + REGULATION, GENERAL + WASTE DISPOSAL, GENERAL

6-20845 ALSO IN CATEGORIES 17 AND 9

GULF GENERAL ATOMIC TRIGA MARK III PROPOSED CHANGE--DIFFERENT METHOD OF SHUTDOWN MARGIN DETERMINATION
GULF GENERAL ATOMIC
3 PAGES, DOCKET 50-227, NOVEMBER 16, 1967

ASKS TO REPLACE PRESENT NEGATIVE-PERIOD-MEASUREMENT TECHNIQUE BY DIFFERENTIAL ROD-DROP METHOD DESCRIBED ON PAGES 256-257, TECHNOLOGY OF NUCLEAR REACTOR SAFETY, REACTOR PHYSICS AND CONTROL, VOL. 1. CHANGE WOULD ALLOW EITHER TECHNIQUE TO BE USED TO ENSURE A 10 CENT SHUTDOWN MARGIN EVEN WITH THE MOST REACTIVE ROD STUCK OUT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD WORTH + *MEASUREMENT, REACTIVITY + *SHUTDOWN MARGIN + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

6-21127

STEGEMANN DH
DETERMINATION OF REACTOR PHYSICS PARAMETERS FROM THE REACTOR NOISE BY ANALYSIS OF PROBABILITY DISTRIBUTIONS
KERNFORSCHUNGSZENTRUM, KARLSRUHE WEST GERMANY
KFK-542 +. 69 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967, IN GERMAN

REACTOR PARAMETERS SUCH AS THE PROMPT DECAY CONSTANT AND THE NEUTRON LIFETIME ARE OBTAINED FROM THE STATISTICAL FLUCTUATIONS OF THE NEUTRON DENSITY IN ZERO-POWER ASSEMBLIES BY A NEWLY DEVELOPED METHOD USING PROBABILITY DISTRIBUTIONS. THE THEORETICAL BASIS OF THIS METHOD AND ITS APPLICATION TO FAST REACTOR SYSTEMS IS DEVELOPED, USING THE POINT-REACTOR APPROXIMATION. AN EXPERIMENTAL PROGRAM WAS CARRIED OUT TO TEST THE METHOD AND TO ESTABLISH VALID ASSUMPTIONS FOR TREATING COUPLED-CORE SYSTEMS. GOOD AGREEMENT BETWEEN VALUES OF PARAMETERS DETERMINED BY NOISE ANALYSIS AND OTHER INDEPENDENT METHODS WAS OBTAINED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

COUPLED CORES + MEASUREMENT, NOISE + NOISE ANALYSIS + REACTOR KINETICS + REACTOR, FAST + STATISTICAL FLUCTUATION + THEORETICAL INVESTIGATION

6-21129

MANCA G
COMPARISONS OF THEORETICAL AND EXPERIMENTAL DATA ON THE CONTROL RODS IN GARIGLIANO REACTOR (WATER MODERATED UO2 REACTOR)
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME, ITALY
RT-FI-(66)-16 +. 31 PAGES, 1966, IN ITALIAN

THE APPLICATION AND VALIDITY OF SOME METHODS USED IN CONTROL-ROD CALCULATIONS IN LIGHT-WATER-MODERATED UO2 THERMAL REACTORS ARE STUDIED. THE COMPARISON BETWEEN THEORY AND EXPERIENCE IS MADE BY UTILIZING DATA OBTAINED FROM THE GARIGLIANO REACTOR.

AVAILABILITY - MICROCARD EDITIONS INC. (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

CONTROL ROD CALIBRATION + CONTROL ROD WORTH + CRITICALITY EXPERIMENT + REACTIVITY EFFECT

6-21131

STRATTON WR
CRITICALITY DATA AND FACTORS AFFECTING CRITICALITY OF SINGLE HOMOGENEOUS UNITS
LOS ALAMOS SCIENTIFIC LAB., N. MEXICO
LA-3612 +. 53 PAGES, 29 FIGURES, TABLES, 74 REFERENCES, JULY 1964

THE CRITICAL PARAMETERS OF SINGLE HOMOGENEOUS UNITS ARE EXAMINED AND TABULATED. THE STUDY INCLUDES BOTH THEORETICAL AND EXPERIMENTAL RESULTS WHICH ARE COMPARED EXTENSIVELY IN ORDER TO ESTABLISH THE ACCURACY OF THE THEORETICAL METHOD. THE EXPERIMENTAL DATA ARE REDUCED TO STANDARD CONDITIONS TO FACILITATE THIS COMPARISON AND TO INVESTIGATE THE CONSISTENCY OF THE LARGE NUMBER OF CRITICAL EXPERIMENTS. GIVEN THE VALIDITY OF THE CALCULATIONAL SCHEME, THE VARIOUS AFFECTS OF DILUENTS (INCLUDING MODERATORS), REFLECTORS, DENSITY CHANGES, AND POISONS ARE STUDIED. FINALLY, BY APPLICATION OF THE THEORY, RESULTS ARE OBTAINED WHICH ARE INACCESSIBLE OR VERY DIFFICULT TO OBTAIN BY EXPERIMENTAL METHODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD WORTH + CRITICALITY EXPERIMENT + MODERATOR + REACTIVITY EFFECT + REFLECTOR

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-21988 ALSO IN CATEGORIES 14 AND 17
REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 25, JULY 1 TO JULY 31, 1967
NUS CORP., WASHINGTON, D. C.
NUS-405 +. 53 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

REACTOR WAS STARTED LATE IN JUNE. (A) AIR-EJECTOR LEVELS ARE 1/30TH THE ALARM POINT. GAS RELEASE LIMITS WERE EVALUATED. BOTH SOURCES OF RELEASE SHOULD BE COVERED IN A SINGLE TECH. SPEC. AN INCREASED PERMISSIBLE RELEASE APPEARS FEASIBLE, AND OPERATIONAL CONSIDERATIONS LIMIT AIR EJECTOR RELEASES. (B) CORE IS 0.42% DELTA RHO LESS REACTIVE THAN PREDICTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTIVITY, EXCESS + *SOURCE, CONTINUOUS + COMPARISON, THEORY AND EXPERIENCE + DOSE + ELK RIVER +
OPERATIONS REPORT, ANALYSIS + REACTOR OFFGAS + REACTOR, BOILING WATER +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

6-22113 ALSO IN CATEGORY 17
TABOR WH + HURT SS
OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, APRIL, MAY, AND JUNE OF 1967
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2033 +. 9 PAGES, 11 FIGURES, OCT. 11, 1967

WHILE PERFORMING ROD-WORTH TESTS, IT WAS OBSERVED THAT NEW FUEL-FOLLOWER SHIM RODS EXHIBITED A NEGATIVE DIFFERENTIAL ROD WORTH FOR THE LAST INCH OF TRAVEL. PARTIALLY DEPLETED RODS DID NOT SHOW THIS EFFECT. THE EXPLANATION GIVEN IS THAT NEW HSIM RODS CONTAIN AN EVEN DISTRIBUTION OF FUEL AND THAT DURING THE UPPER PORTION OF TRAVEL THE FUEL IS MOVED AWAY FROM THE NEUTRON FLUX PEAK IN THE REFLECTOR INTO A LESS IMPORTANT FLUX REGION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTIVITY EFFECT, ANOMALOUS + CONTROL ROD CALIBRATION + CONTROL ROD WORTH + OPERATIONS REPORT, GENERAL +
ORR (OAK RIDGE RESEARCH REACTOR) + REACTOR, RESEARCH + TEST, PHYSICS

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-17673

PEERS AM

ELOVICH ADSORPTION KINETICS AND THE HETEROGENEOUS SURFACE

LABORATOIRE CURIE, INSTITUT DU RADIUM, PARIS, FRANCE

5 PAGES, 1 FIGURE, 13 REFERENCES, CATALYSIS 4, PAGES 499 THRU 503, (1965)

EARLIER TREATMENTS OF THE RATE OF ADSORPTION ON A HETEROGENEOUS SURFACE GAVE RESULTS WHICH DO NOT AGREE WITH THE ELOVICH EQUATION AT VERY SHORT TIMES, BUT IT IS SHOWN HERE THAT THE FAMILIAR, SIMPLE MODEL OF A NONUNIFORM SURFACE DOES IN FACT LEAD TO A RATE EQUATION IN GOOD AGREEMENT WITH THE ELOVICH EQUATION AT VERY SHORT AS WELL AS AT VERY LONG TIMES.

*ADSORPTION + *CHEMICAL KINETICS + ANALYTICAL MODEL + CHEMISORPTION + DESORPTION + DIFFUSION + HYDROGEN

7-17824

LOCKHART LB + PATTERSON RL + SAUNDERS AM

FILTER PACK TECHNIQUE FOR CLASSIFYING RADIOACTIVE AEROSOLS BY PARTICLE SIZE. PART 5. FINAL REPORT

NAVAL RESEARCH LAB., WASHINGTON, D. C.

NRL-6520 +. 18 PAGES, 1 FIGURE, 7 TABLES, 4 REFERENCES, MARCH 1, 1967

CONDITIONS HAVE BEEN DEVELOPED FOR OBTAINING SIZE DISTRIBUTIONS IN 3 OR 4 SIZE GROUPS, IN THE SUBMICRON RANGE, THROUGH USE OF PACKS CONSISTING OF 3 OR 4 WELL-CHARACTERIZED FILTER MEDIA OPERATED IN TWO CONVENIENT AIR FLOW REGIMES, 60-70 CM/SEC AND 145 CM/SEC. SIMPLE TWO-FILTER PACKS CAN BE USED TO MONITOR THE BEHAVIOR OF RADIOACTIVE PARTICULATE MATTER IN A RESTRICTED SIZE RANGE (E.G., THE COMPONENT EITHER LARGER THAN 1 MICRON IN DIAMETER OR SMALLER THAN 0.3 MICRON). THE GENERAL METHOD IS APPLICABLE TO THE SIZING OF ANY AEROSOL MATERIAL FOR WHICH SUITABLE ANALYTICAL TECHNIQUES ARE AVAILABLE. METHOD IS NOT QUANTITATIVE. GROSS BETA ACTIVITY LEVELS AND CONCENTRATIONS OF SPECIFIC RADIONUCLIDES IN THE ATMOSPHERE AT WASHINGTON, D.C., WERE DOCUMENTED FOR JANUARY 1965 THROUGH JULY 1966.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*AEROSOL, RADIOACTIVE + *BETA EMITTER + *FILTER PACK + *PARTICLE SIZE DISTRIBUTION + AEROSOL + ANALYTICAL MODEL + ANALYTICAL TECHNIQUE, GENERAL + FILTER EFFICIENCY + FISSION PRODUCT, AIRBORNE

7-17827

DAVIES CN

AEROSOL SCIENCE

UNIVERSITY OF LONDON, LONDON, ENGLAND

468 PAGES, FIGURES, TABLES, REFERENCES, ACADEMIC PRESS, NEW YORK, 1966

AS TITLE SUGGESTS, THE BOOK IS ABOUT AEROSOL SCIENCE, NOT TECHNOLOGY. CHAPTER HEADINGS ARE - GENERATION AND USE OF MONODISPERSE AEROSOLS, COAGULATION OF AEROSOLS, ELECTRICAL BEHAVIOR OF AEROSOLS, ELECTRIC CHARGE AND RADIOACTIVITY OF NATURAL AEROSOLS, PHOTOPHORESIS, THERMO- AND DIFFUSIOPHORESIS, THERMO- AND DIFFUSIOPHORESIS IN WATER-VAPOR, FILTRATION, THEORY OF FILTRATION BY FIBROUS AND MEMBRANE FILTERS, OPTICAL MEASUREMENT, ADHESION OF PARTICLES, DEPOSITION FROM MOVING AEROSOLS.

AVAILABILITY - ACADEMIC PRESS, 11 FIFTH AVE., NEW YORK, NEW YORK 10003

*AEROSOL + *ANALYTICAL MODEL + *REVIEW + ADHESION + AEROSOL PRODUCTION + AEROSOL PROPERTIES + AEROSOL PROPERTIES + AGGLOMERATE + AIR CLEANING + DEPOSITION + DIFFUSION + DIFFUSIOPHORESIS + ELECTROSTATIC CHARGE + FILTER CHARACTERISTICS + FILTER, FIBER + FILTER, MEMBRANE + FILTRATION + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + PHOTOPHORESIS + THERMOPHORESIS + WATER VAPOR

7-17828

ABRAHAM P

IN SITU MEASUREMENT OF THE EFFICIENCY OF ABSOLUTE FILTERS

HEALTH PHYSICS DIVISION, ATOMIC ENERGY ESTABLISHMENT TROMBAY, BOMBAY, INDIA

2 PAGES, 1 FIGURE, 2 REFERENCES, HEALTH PHYSICS 12, PAGE 861 AND 862, (1966)

MEASUREMENTS OF THE EFFICIENCY OF FILTERS INSTALLED IN THE REACTOR EXHAUST SYSTEM ARE DONE BY TAKING FILTER-PAPER (CWS-6) AIR SAMPLES FROM UPSTREAM AND DOWNSTREAM OF THE ABSOLUTE FILTERS DURING NORMAL OPERATION.

*FILTER EFFICIENCY + *FILTER, ABSOLUTE + *AEROSOL + AIR CLEANING + FILTER

7-17829

ALSO IN CATEGORIES 15 AND 14

POSNER S + ETTINGER HJ + PRATT OR + MOORE R

EVALUATION OF PARTICLE SIZING TECHNIQUES, COMPARISON OF COMPUTER PARTICLE SIZING PROGRAMS

LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, NEW MEXICO

LF-30 +. 11 PAGES, 2 FIGURES, 3 TABLES, 8 REFERENCES, JULY 1966

AEROSOL SAMPLING AND SIZING TECHNIQUES FROM SEVERAL DIFFERENT LABORATORIES WERE COMPARED IN PART I OF OUR EVALUATION. RESULTS FROM THE PARTICIPANTS AGREED WITHIN PLUS OR MINUS 10

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-17829 *CONTINUED*

PERCENT IN DEFINING COUNT MEDIAN DIAMETER AND GEOMETRIC STANDARD DEVIATION. THESE WERE OBTAINED VIA HAND CALCULATION. PART II DEALS WITH COMPARING THE SAME OR SIMILAR DATA BY COMPUTER PROGRAMS. FOUR PROGRAMS FOR ANALYZING PARTICLE-SIZE DATA WERE COMPARED AND RESULTING DIFFERENCES STATISTICALLY EVALUATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *BIOMEDICAL + *COMPUTER PROGRAM + *PARTICLE SIZE DISTRIBUTION + CHEMICAL TOXICITY + INHALATION

7-18471

MUHLBAIER DR

STANDARDIZED NONDESTRUCTIVE TESTS OF CARBON BEDS FOR REACTOR CONFINEMENT APPLICATIONS. FINAL PROGRESS REPORT, FEBRUARY-JUNE 1966

SAVANNAH RIVER LABORATORY

DP-1082 +. 72 PAGES, 17 FIGURES, 3 TABLES, 14 REFERENCES, JULY 1967

A STANDARDIZED NONDESTRUCTIVE IN-PLACE TEST FOR DETECTING LEAKS IN INSTALLED CARBON BEDS WAS DEVELOPED AND DEMONSTRATED BY THE SAVANNAH RIVER LABORATORY. THIS WORK WAS PREVIOUSLY REPORTED IN DP-1053, AND THE TEST WAS DEMONSTRATED RECENTLY AT THE SEVENTH AND EIGHTH AEC IN-PLACE FILTER-TESTING WORKSHOPS. THIS REPORT PRESENTS DETAILED INFORMATION AND A CORRELATING EQUATION FOR GENERAL APPLICATION OF THE TEST TO CARBON BEDS OF DIFFERENT DESIGN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CHARCOAL + *CHARCOAL ADSORBER + *FILTER EFFICIENCY + *TEST, FILTER SYSTEM + *TEST, NONDESTRUCTIVE + FILTER TEST REQUIREMENT + FILTER, TRAP + TESTING

7-18474

COLLINS DA + COLLINS RD + TAYLOR R + MCINTOSH AE + ROYS WB

THE TEMPERATURE GRADIENT TUBE TECHNIQUE FOR CHARACTERISATION OF RELEASED FISSION PRODUCTS

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, WARRINGTON, LANCs

TRG-REPORT-1332(W) +. 26 PAGES, 4 FIGURES, 4 TABLES, 6 REFERENCES, 1967

IN PRINCIPLE, RELEASED FISSION PRODUCTS MAY BE CHARACTERISED ACCORDING TO THEIR VOLATILITY BY OBSERVING THE TEMPERATURE AT WHICH THEY DEPOSIT WHEN PASSED THROUGH A TUBE ALONG WHICH TEMPERATURE IS UNIFORMLY REDUCED. A MATHEMATICAL MODEL TO DESCRIBE THIS PROCESS HAS BEEN DEVELOPED WHICH CORRECTLY PREDICTS THE SHAPE OF THE DEPOSIT AND RELATES THE TEMPERATURE AT WHICH DEPOSITION STARTS TO THE VAPOUR PRESSURE CURVE OF THE COMPOUND CONCERNED. THE ADAPTATION OF THIS TECHNIQUE AS A SAMPLING METHOD FOR GENERAL USE IN FISSION PRODUCT TRANSPORT EXPERIMENTS HAS BEEN STUDIED USING CAESIUM IODIDE AS A TYPICAL FISSION PRODUCT COMPOUND. IT IS FOUND THAT ALTHOUGH UNDER CAREFULLY CONTROLLED CONDITIONS BEHAVIOUR FOLLOWS THAT PREDICTED BY THE MATHEMATICAL MODEL, IT IS VERY SUSCEPTIBLE TO DISTURBING FACTORS PARTICULARLY AT LOW MASS LEVELS OF CAESIUM IODIDE. APPLICATION TO THE STUDY OF FISSION PRODUCTS RELEASED FROM IRRADIATED URANIUM DIOXIDE IN LABORATORY EXPERIMENTS GAVE RESULTS THAT PROVED IMPOSSIBLE TO INTERPRET BECAUSE OF THE LOW MASS LEVELS CONCERNED. IT IS CONCLUDED THAT FOR APPLICATION TO MANY CONDITIONS OF INTEREST FURTHER DEVELOPMENT IS REQUIRED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, CALIBRATION + *DEPOSITION + *DIFFUSION + *FISSION PRODUCT RELEASE, GENERAL + *FISSION PRODUCT TRANSPORT + ANALYTICAL MODEL + CESIUM + IODINE + ORGANIC IODIDE + PIPING + SAMPLING + VAPOR, VAPOR PRESSURE

7-18476

PARKER GW + CREEK GE + BARTON CJ + MARTIN WJ + LORENZ RA

OUT-OF-PILE STUDIES OF FISSION-PRODUCT RELEASE FROM OVERHEATED REACTOR FUELS AT ORNL, 1955-1965

OAK RIDGE NATIONAL LAB., TENN.

PRESENTS A DISCUSSION OF FACTORS AFFECTING FISSION PRODUCT RELEASE, A DESCRIPTION OF TECHNIQUES DEVELOPED IN THESE STUDIES, A COMPILATION OF DATA OBTAINED IN THE 11-YEAR PERIOD COVERED BY THE REPORT, SOME ILLUSTRATIONS FOR FURTHER RESEARCH. OTHER ASPECTS OF THE OUT-OF-PILE FISSION-PRODUCT-RELEASE STUDIES, SUCH AS TRANSPORT BEHAVIOR, WILL BE COVERED BY FUTURE TOPICAL REPORTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FISSION PRODUCT RELEASE, GENERAL + *FISSION PRODUCT, IODINE + *FISSION PRODUCT, NONVOLATILE + *FISSION PRODUCT, VOLATILE + *FUEL MELTDOWN + *OUT OF PILE LOOPS AND EXPERIMENTS + ANALYTICAL TECHNIQUE, CALIBRATION + FISSION PRODUCT TRANSPORT + FUEL BURNUP

7-18477

DAY GM + TUCKER AB + TALBERT WL

PRELIMINARY STUDIES OF DELAYED NEUTRON EMISSION FROM SEPARATED ISOTOPES OF GASEOUS FISSION PRODUCTS

AMES LABORATORY, IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

IS-1567 +. 22 PAGES, 7 FIGURES, 1 TABLE, 8 REFERENCES, MAY 1967

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-18477 *CONTINUED*

DESCRIBES AN ON-LINE ISOTOPE-SEPARATOR SYSTEM DESIGNED FOR USE IN STUDIES OF SHORT-LIVED ACTIVITIES PRODUCED AT A REACTOR. DETAILED DESCRIPTION IS PRESENTED FOR THE USE OF THIS SYSTEM IN THE STUDY OF RADIOACTIVE DECAY AND DELAYED NEUTRON EMISSION FOR GASEOUS FISSION PRODUCTS FORMED IN FISSION OF U-235. EXPERIENCES WITH SAMPLE CONFIGURATION AND CHARACTERISTIC LIMITATIONS OF THE SYSTEM (SUCH AS HALF-LIFE) ARE DISCUSSED. PRELIMINARY RESULTS ARE PRESENTED REGARDING THE ASSIGNMENT OF DELAYED NEUTRON PRECURSORS TO MASS NUMBER (BY NEUTRON COUNTING) AND ELEMENT (BY HALF-LIFE DETERMINATION). AT PRESENT, DEFINITE ASSIGNMENTS HAVE BEEN MADE FOR KR-91, KR-92, RB-93, AND KR-93. INDICATIONS OF DELAYED NEUTRON EMISSION FOR MASSES 141 AND 142 ARE DISCUSSED. FUTURE PLANS FOR DELAYED NEUTRON STUDIES ARE DISCUSSED, AND NUCLEAR STRUCTURE STUDIES IN PROGRESS ARE OUTLINED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, CALIBRATION + *ANALYTICAL TECHNIQUE, GAS + *DELAYED NEUTRON +
*INSTRUMENTATION, NUCLEAR + *NOBLE GAS + *REACTOR OFFGAS + FISSION GAS RELEASE +
FISSION PRODUCT, VOLATILE + IN-PILE EXPERIMENT + INSTRUMENTATION, TESTING + RUBIDIUM + SAMPLING

7-18684 ALSO IN CATEGORY 17
PANISKO FE + SKAVDAHL RE + FRESHLEY M.D.
UO2-PUO2 HIGH-POWER-DENSITY FUEL-ELEMENT EXPERIENCE IN PRTR
BATTELLE-NORTHWEST LABORATORY
2 PAGES, ANS TRANS. 9(2) PAGES 397-8, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY, PITTSBURGH, PA., NOVEMBER 3, 1966

PRESENTS SOME RESULTS OF THE IRRADIATION PERFORMANCE OF VIBRATIONALLY PACKED AND PELLET-CONTAINING UO2-PUO2 FUELS OPERATING AT 20-27 KW/FT. BOTH TYPES OF FUEL RODS WERE OPERATED SUCH THAT MELTING OCCURRED IN A VOID FORMED IN THE CENTRAL REGION, AND BOTH EXHIBITED FUEL RELOCATION. CONVECTIVE MIXING WITHIN THE MOLTEN OXIDE WAS CONFIRMED. FISSION GAS RELEASES UP TO 88% OCCURRED.

*CENTERLINE MELTING + *IRRADIATION TESTING + *PLUTONIUM DIOXIDE + *URANIUM DIOXIDE + FISSION GAS RELEASE +
FUEL BURNUP + FUEL ELEMENT + PRTR (PLUTONIUM RECYCLE TEST REACTOR)

7-18752 ALSO IN CATEGORY 17
REMICK FJ
TENTH ANNUAL PROGRESS REPORT OF THE PENNSYLVANIA STATE UNIVERSITY NUCLEAR REACTOR FACILITY JULY 1, 1964 TO JUNE 30, 1965
PENNSYLVANIA STATE UNIVERSITY
NYO-1859-11 +. 61 PAGES, JUNE 1965

REPORTS THE USE OF REACTOR FOR EDUCATION AND RESEARCH. (PAGE 11) - ON SEPT. 2, 1964, A POLYETHYLENE-FUELED SAMPLE CONTAINER, CONTAINING 1 GM OF URANYL NITRATE CRYSTALS (SEALED IN PYREX TUBE) RUPTURED, APPARENTLY FROM INTERNAL PRESSURE, CAUSING A SMALL RELEASE OF FISSION PRODUCTS, WHICH RESULTED IN ABOUT 1108 X 10⁻⁴ THE MPC FOR UNRESTRICTED AREAS AND 0.068 MPC FOR RESTRICTED AREAS. NO PERSONNEL EXPOSURES RESULTED. REACTOR SAFEGUARDS COMMITTEE INITIATED PROCEDURES FOR FUELED EXPERIMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA. \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, GENERAL + *FISSION PRODUCT RELEASE, GENERAL + *PRESSURE, INTERNAL +
ADMINISTRATIVE CONTROLS AND PRACTICES + IRRADIATION TESTING + OPERATING EXPERIENCE +
OPERATIONS REPORT, GENERAL + OPERATIONS REPORT, GENERAL + REACTOR, POOL TYPE + REACTOR, RESEARCH

7-18813 ALSO IN CATEGORIES 9 AND 15
THOMAS DM
THE CALIBRATION OF CASCADE IMPACTORS. OPERATION ROLLER COASTER
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON (ENGLAND)
AWRE-0-94/64 +. 15 PAGES, FIGURES, TABLES, SEPTEMBER 10, 1964

CALIBRATION PARAMETERS FOR THE CASELLA AND ANDERSON IMPACTORS HAVE BEEN AGREED BETWEEN THE U.S. AND U.K. PARTS OF THE ROLLER COASTER TEAMS. THE PARAMETERS MOST SUITED FOR USE IN EVALUATING THE DATA ARE THE CHARACTERISTIC DIAMETERS. AGREED VALUES OF THESE FOR BOTH INSTRUMENTS AND OF THE M.M.D.S FOR THE CASELLA ARE GIVEN. NEITHER INSTRUMENT WILL NECESSARILY GIVE A CORRECT MEASURE OF THE AIRBORNE CONCENTRATION OF THE LARGER PARTICLES (GREATER THAN ABOUT 50 MICRONS) BECAUSE OF ORIFICE EFFECTS. IN ADDITION, THERE ARE LOSSES AT THE FIRST JET PLATES OF THE ANDERSON INSTRUMENT. IN A COMPARISON OF THE CASELLA AND ANDERSON DATA AND THE ESTIMATION OF A COMPLETE SIZE DISTRIBUTION OF THE AIRBORNE MATERIAL, OTHER INFORMATION, SUCH AS THAT OBTAINED WITH THE CYLINDRICAL COLLECTORS, MUST BE TAKEN INTO ACCOUNT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

FILTER, CASCADE IMPACTOR + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, AIR SAMPLING +
MONITOR, RADIATION, AIR + MONITOR, RADIATION, ENVIRONMENTAL + PARTICLE SIZE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-18947 ALSO IN CATEGORY 17
MUELLER RE + BEAUDRY RJ + FELDES JG
FISSION PRODUCT ACTIVITY ANALYSIS OF FERMI FUEL FAILURE
ATOMIC POWER DEVELOPMENT ASSOCIATED, INC.
CONF-670 602 +. 2 PAGES, 1 FIGURE, ANS TRANSACTIONS 10(1) PAGES 334-335, 1967 ANNUAL MEETING OF THE
AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DESCRIBES THE MEASUREMENTS, ANALYSIS TECHNIQUE, AND CONCLUSIONS FOR DETERMINING EXTENT OF FUEL
FAILURE. MEASUREMENTS OF THE FISSION PRODUCT ACTIVITY IN THE COOLANT AND COVER GAS INDICATED
2% OF THE CORE MELTED, AND AGREED WITH THE REACTIVITY LOSS. OTHER OBSERVATIONS WERE - (1)
NOBLE-GAS RELEASE WAS GREATER THAN THAT IN PREVIOUS EXPERIMENTS, 50% VS 10%, (2) PARTICULATE
RELEASE WAS GREATER THAN EXPECTED, (3) CONSIDERABLE PLATEOUT OCCURRED, (4) SODIUM ANALYSIS IS
LESS RELIABLE THAN COVER-GAS ANALYSIS.

*FAILURE, FUEL ELEMENT + *FISSION PRODUCT RELEASE, GENERAL + *RADIOCHEMICAL ANALYSIS +
ANALYTICAL TECHNIQUE, GENERAL + FERMI + FISSION PRODUCT ACTIVITY, GROSS + INCIDENT, ACTUAL, GENERAL +
MAIN COOLING SYSTEM + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED

7-19247 ALSO IN CATEGORY 18
REVISED SAR APPENDIX 5 - RECALCULATED MAXIMUM FISSION-PRODUCT RELEASE AFTER A FUEL ELEMENT FAILURE
MICHIGAN STATE UNIVERSITY
9 PAGES, 1 TABLE, SEPTEMBER 25, 1967, DOCKET NO. 50-294

RECALCULATIONS WITH A NEW RELEASE FACTOR (FUEL TO CLAD-FUEL GAP) OF 1.5×10^{-5} VS 1.4×10^{-2} (PREVIOUSLY USED, BASED ON UNREFERENCED G.A. EXPERIMENTS) AND ON 2% XENON SOLUBILITY
IN WATER VS 5%, DECREASES (1) MAXIMUM DOSE RATE IN REACTOR ROOM (1450 MR/HR TO 1.49), (2)
AVERAGE DOSE RATE IN 1 HR (575 MR/HR TO 0.75), AND (3) AVERAGE AIR ACTIVITY ASSUMING 1 FUEL
FAILURE PER YEAR (45.6×10^{-7}) TO 1.14×10^{-8} MICRO-C/CC). AN ADDITIONAL SECTION ON
CLAD FAILURE IN AIR CALCULATES A DOSE RATE OF 2.25 MR/HR, AND A THYROID DOSE OF 70 REM IN ONE
HOUR WITH NO VENTILATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DOSE + *FISSION GAS RELEASE + AIRBORNE RELEASE + FAILURE, FUEL ELEMENT + FISSION PRODUCT RETENTION +
FISSION PRODUCT, IODINE + FUEL ELEMENT + REACTOR, RESEARCH + SAFETY ANALYSIS REPORT, GENERAL +
TRIGA (TRAINING REACTOR, ISOTOPES, G.A.) + WATER, GENERAL + XENON

7-19841 ALSO IN CATEGORY 18
PAGE 80
ENGINEERING AND PERFORMANCE OF CANADAS UO₂ FUEL ASSEMBLIES FOR HEAVY WATER POWER REACTORS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO. CHALK RIVER NUCLEAR LABS.
AECL-2949 + CONF-670917-3 +. 23 PAGES, 5 FIGURES, 2 TABLES, 27 REFERENCES, SEPTEMBER 1967, PRESENTED AT
SYMPOSIUM ON HEAVY WATER POWER REACTORS, VIENNA, AUSTRIA

DISCUSSES DESIGN AND FABRICATION OF FUEL BUNDLES FOR CANADIAN REACTORS, INCLUDING THE USE OF
BRAZED SPACERS INSTEAD OF WIRE-WRAP SPACERS. GIVES RESULTS OF TESTING, INCLUDING ENDURANCE
TESTS UNDER SINGLE-PHASE FLOW AND 8.8-M/SEC VELOCITIES (WHICH SHOWED FRETTING WITHIN
ACCEPTABLE LIMITS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + CANADA + EXAMINATION + FABRICATION + FUEL BURNUP + REACTOR, HEAVY WATER + TESTING

7-19963 ALSO IN CATEGORY 17
FRANK PW
FISSION PRODUCT ACTIVITY LEVELS IN THE PRIMARY COOLANT OF PWR DURING CORE 1 AND SEED 1
BETTIS ATOMIC POWER LABORATORY, PITTSBURGH, PA.
WAPD-PWR-TE-79 +. 8 PAGES, 9 FIGURES, 3 TABLES, APRIL 1962

DISCUSSES THE LEVELS AND DISTRIBUTION OF FISSION PRODUCTS ATTRIBUTED TO U CONTAMINATION ON THE
CORE SURFACE OR IN THE ZIRCALOY AND TO A DEFECTED UO₂ BLANKET FUEL ELEMENT. THE EFFECT OF PH
ON THE SPECIFIC ACTIVITIES OF INSOLUBLE FISSION PRODUCTS WAS OBSERVED. THE SPECIFIC
ACTIVITIES OF SR-91 AND 92 DECREASED A FACTOR OF 2 FOR EACH 0.15 UNIT INCREASE IN PH, AND
BA-139 DECREASED THE SAME FOR EACH 0.55 UNIT INCREASE IN PH. THE DECREASES RESULT FROM
DEPOSITION ON SYSTEM SURFACES.

*ACTIVITY BUILDUP + *CONTAMINATION + *MAIN COOLING SYSTEM + BARIUM + COOLANT CHEMISTRY + CRUD +
DEPOSITION + FAILURE, FUEL ELEMENT + FISSION PRODUCT, NONVOLATILE + PH REACTIVITY EFFECT +
REACTOR, PRESSURIZED WATER + SHIPPINGPORT + STRONTIUM + SURFACE CONTAMINATION

7-20005 ALSO IN CATEGORY 2
KOZLOV VM + BOLOTIN YA + SERGEEV BV + FILATOV AS
SOURCES OF RADIOACTIVE OFF-GASES AND METHODS USED TO DECONTAMINATE THE GASES DURING THE OPERATION OF

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-20005 *CONTINUED*

SOVIET NUCLEAR POWER PLANTS

SM-89/47 + CONF-670 402 +. 18 PAGES, 6 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

RESULTS OF MEASUREMENT OF RADIOACTIVE OFF-GAS FROM TWO REACTOR PLANTS ARE GIVEN AND DISCUSSED WITH REGARD TO REACTOR AND FUEL DESIGN. LEAKAGE PATHS TO THE ATMOSPHERE ARE DISCUSSED, AND VARIOUS CLEAN-UP METHODS AND PROCEDURES ARE SUGGESTED AND EVALUATED. CONCENTRATIONS OF RELEASED GASES WERE EVALUATED, AND DILUTION AND MOVEMENT IN THE ATMOSPHERE WERE CALCULATED. IT WAS CONCLUDED THAT PRACTICALLY AN ADVERSE EFFECT ON THE ENVIRONMENT IN THE PLANT HAD OCCURRED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*REACTOR OFFGAS + *UNION OF SOVIET SOCIALIST REPUBLICS + ATMOSPHERIC DIFFUSION + DISPERSION + MONITOR, RADIATION, GAS + SCRUBBER + VENTILATION SYSTEM

7-20013

ALSO IN CATEGORY 11

SADDINGTON K

EXPERIMENTS ON RELEASE OF FISSION PRODUCTS FROM WINDSCALE ADVANCED GAS-COOLED REACTOR-FAILED FUEL ELEMENTS UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINDSCALE

SM-89/42 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

EXPERIMENTS ARE DESCRIBED TO DETERMINE THE FISSION-PRODUCT ACTIVITY RELEASED INTO THE COOLANT GAS WHEN A FUEL ELEMENT FAILS DURING NORMAL OPERATION. THESE EXPERIMENTS CONFIRM THAT THE ACTIVITY RELEASED IS SMALL AND THAT THE COOLANT CAN STILL BE REGARDED AS CLEAN EVEN IF SEVERAL FUEL ELEMENTS FAIL DURING NORMAL OPERATION. ACCIDENTAL RELEASE OF THIS CONTAMINATED COOLANT WOULD NOT PRESENT A PUBLIC HAZARD.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*FAILURE, FUEL ELEMENT + *FISSION PRODUCT RELEASE, GENERAL + *UNITED KINGDOM + *WINDSCALE AGR (UK) + EXPERIMENT, GENERAL

7-20016

ALSO IN CATEGORY 12

CHUBAKOV AA + LUZANOVA LM

COMBINED SYSTEM FOR REDUCING THE RELEASE OF RADIOACTIVE NOBLE GASES AT NUCLEAR POWER PLANTS USING BOILING WATER REACTORS

SM-89/50 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE AUTHORS POINT OUT THE RISK OF HIGH BURNUP RESULTING IN GREATER RELEASE OF RADIOACTIVE NOBLE GASES FROM BOILING-WATER REACTORS. THEY DESCRIBE A COMBINED SYSTEM FOR PURIFYING THE AIR OF RADIOACTIVE NOBLE GASES, USING A DELAY LINE (DRUMS OF AIR OR CARBON AT NORMAL TEMPERATURE) TO REDUCE KRYPTON ACTIVITY AND LOW-TEMPERATURE SORPTION ON CARBON TO REDUCE XENON ACTIVITY. THE BEST PARAMETERS FOR THE PROPOSED SYSTEM ARE CHOSEN ON THE BASIS OF A THEORETICAL ASSESSMENT OF THE ACTIVITY ENTERING THE LOOP AND THE ISOTOPIIC COMPOSITION OF THE RADIOACTIVE NOBLE GASES, GIVEN VARIOUS DEGREES OF LEAKAGE THROUGH THE FUEL ELEMENT CLADDING. THE AUTHORS INCLUDED EXPERIMENTAL DATA.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*FISSION PRODUCT RELEASE, GENERAL + *NOBLE GAS + *REACTOR, BOILING WATER + *UNION OF SOVIET SOCIALIST REPUBLICS + KRYPTON + XENON

7-20474

ALSO IN CATEGORY 17

EVESR-NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT THIRTEENTH QUARTERLY REPORT. JUNE--AUGUST 1965

GENERAL ELECTRIC, SAN JOSE

GEAP-4941 +. 125 PAGES; SEPTEMBER 1965

OPERATION WITH A DEFECTIVE FUEL BUNDLE SHOWED THAT THE RELEASE OF FISSION PRODUCTS WAS HIGHLY DEPENDENT ON BOTH REACTOR POWER AND EXIT STEAM TEMPERATURE. RADIATION LEVELS WHICH OCCURRED THROUGHOUT THE SYSTEM ARE GIVEN. I-131 RELEASE FROM THE CORE WAS ABOUT 10 MICROCURIES/SEC. CHARCOAL FILTERS REDUCED THIS A FACTOR OF 1000 TO 2000. A TEST SHOWED THAT ALTHOUGH CONSIDERABLE WATER PASSED THROUGH THE CHARCOAL FILTER, NO RELEASE OF IODINE INTO THE AIR PASSING THROUGH THE FILTER OCCURRED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *FILTER EFFICIENCY + *FISSION PRODUCT, IODINE + CHARCOAL + FILTER + FISSION PRODUCT RELEASE, GENERAL + OPERATIONS REPORT, GENERAL + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM + TEST, FILTER + VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA) + WATER VAPOR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-20499 ALSO IN CATEGORIES 17 AND 12
FAST REPORT ON PROGRESS OF ONBOARD FILTER TESTING PROGRAM
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, SEPTEMBER 15, 1967, DOCKET NO. 50-238

FILTERS ARE BEING TESTED BY WESTINGHOUSE TO DETERMINE CAUSE OF FAILURE. THE FREON-12 TEST WAS RUN AT WESTINGHOUSE BEFORE TRIED ABOARD SHIP. DIFFICULTIES DISCOVERED ARE BEING WORKED OUT SO THAT TESTS MAY BE MADE ON NEXT TRIP. FAST WILL NEXT REPORT ON THIS PROGRAM MARCH 15, 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FILTER + *TESTING + N S SAVANNAH + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

7-20544 ALSO IN CATEGORY 12
BILLARD F + BRION J
TESTING ON AIR CLEANING SYSTEMS - TESTING OF THE COMPONENTS IN-PLACE TESTS
COMMISSARIAT A L'ENERGIE ATOMIQUE, FONTENAY-AUX-ROSES, FRANCE
CEA-R-3227 +. 46 PAGES, 27 FIGURES, 17 REFERENCES, JUNE 1967

THE RELIABILITY OF AIR CLEANING SYSTEMS DEPENDS ON THE TESTING THEY ARE SUBMITTED TO. ALTHOUGH IN-PLACE TESTS ARE THE MOST IMPORTANT AS THEY ACT AS FINAL TESTS UPON ACHIEVED PLANTS, COMPONENT TESTS ARE NECESSARY TOO. THEY ALLOW DETECTION OF DEFECTIVE UNITS BEFORE THEY ARE INSTALLED, PARTITION OF UNIT DEFECTS FROM MOUNTING DEFECTS AND THEY ARE MORE SENSITIVE. FOR SIMILAR REASONS, MATERIAL TESTS ARE MOST USEFUL. THE VARIOUS TESTS ARE DESCRIBED, ASCUT AEROSOL FILTERS FOR ONE PART, IODINE TRAP FOR THE OTHER. THE CHECKED FEATURES ARE - MATERIALS NATURE, UNITS SIZES, EFFICIENCY, AIR RESISTANCE, FLAMMABILITY, HUMIDITY RESISTANCE, TEMPERATURE RESISTANCE, ADSORBENT FRIABILITY, ETC. ON IODINE-TRAPPING SYSTEMS, SMALL CHECK TRAPS, WORKING IN BYPASS WITH THE MAIN TRAP, ARE PERIODICALLY SUBJECTED TO EFFICIENCY TESTS. THIS CONTROL ALLOWS ONE TO CUT DOWN THE IN-PLACE TESTS FREQUENCY, PARTICULARLY WHEN POISONING FROM ORGANIC VAPOURS IS TO BE FEARED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FILTER INSPECTION + *FILTER INSTALLATION + *FILTER OPERATION + AIR CLEANING + FILTER +
FILTER CHARACTERISTICS

7-20545 ALSO IN CATEGORY 12
COLLINS RD + HILLARY JJ + TAYLOR JC
AIR CLEANING FOR REACTORS WITH VENTED CONTAINMENT
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
TRG-1318(W) +. 34 PAGES, 11 FIGURES, 5 TABLES, 9 REFERENCES, 1967

A PROGRAM OF EXPERIMENTAL WORK WAS CARRIED OUT UNDER CONDITIONS APPROPRIATE TO POSSIBLE DEPRESSURISATION-TYPE ACCIDENTS TO THE STEAM GENERATING HEAVY WATER REACTOR (SGHWR) AT WINFRITH, WHICH HAS VENTED CONTAINMENT. THE WORK INCLUDED SMALL-SCALE EXPERIMENTS IN GLASS OR SILICA APPARATUS IN WHICH MEASUREMENTS WERE MADE OF THE EXTENT AND FORM OF THE IODINE RELEASE FROM ZIRCALOY-CLAD UO₂ INTO STEAM UNDER MELTING CONDITIONS AND AT ABOUT 1000 C. A NUMBER OF TESTS WERE CONDUCTED WITH SIMULATED FORMS OF IODINE ON TWO LARGE-SCALE STEEL MODELS OF THE REACTOR WATER-LUTE STEAM-SUPPRESSION SYSTEM. TESTS WERE ALSO CARRIED OUT ON 1000-CFM FILTER UNITS TO DEVELOP DROPLET DISENTRAINMENT DEVICES. WORK ON THE DEVELOPMENT OF CHARCOALS TO DEAL WITH PENETRATING IODINE (METHYL IODIDE) UNDER WET CONDITIONS IS REPORTED SEPARATELY. THE RESULTS OF THIS WORK SHOW THAT - (A) AN EFFECTIVE TRAPPING PLANT CAN BE SPECIFIED TO DEAL WITH FISSION PRODUCT IODINE IN WET ATMOSPHERES. (B) WITH HIGHLY RATED FUEL, AT LEAST UP TO 1000-MWD/TEU FUEL BURNUP, AND AT A FAILURE TEMPERATURE UP TO 1000 C, A CAN-RETENTION FACTOR OF 10 APPLIES FOR IODINE EXPECTED TO BE FREE WITHING THE CAN. (C) PASSAGE THROUGH A WATER LUTE IS LIKELY TO REDUCE THE IODINE RELEASE (OTHER THAN METHYL IODIDE) BY A FURTHER FACTOR OF 10.

*AIR CLEANING + *CLAD + *FISSION PRODUCT, IODINE + *URANIUM DIOXIDE + ALLUJ + FUEL BURNUP + STEAM + ZIRCONIUM

7-20546
GENCO JM + BERRY DA + BERRY WE + ROSENBERG HS + CREMEANS GE + MORRISON DL
FISSION-PRODUCT DEPOSITION AND ITS ENHANCEMENT UNDER REACTOR ACCIDENT CONDITIONS. QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1966
BATTELLE MEMORIAL INSTITUTE
BMI-X-10186 + EURAEC-1809 +. 48 PAGES, 19 FIGURES, 16 TABLES, 8 REFERENCES, JAN. 1967

THE PRESENT PROGRAM WAS UNDERTAKEN IN THE PURSUIT OF TWO MAJOR OBJECTIVES - (1) THE PERFORMANCE OF EXPERIMENTAL AND ANALYTICAL WORK DIRECTED TOWARD OBTAINING DEFINITIVE INFORMATION ON THE CHEMICAL AND PHYSICAL PROCESSES WHICH AFFECT IODINE TRANSPORT AND DEPOSITION, AND (2) THE DEVELOPMENT OF PRACTICAL COATINGS WHICH WOULD RETAIN SIGNIFICANT FRACTIONS OF FISSION-PRODUCT IODINE RELEASED IN THE EVENT OF A SERIOUS ACCIDENT IN A WATER-COOLED REACTOR. PROGRESS ON THE PROGRAM DURING THE QUARTERLY PERIOD ENDING DEC. 31, 1966, IS DISCUSSED IN THIS REPORT. PREVIOUS REPORTS IN THIS SERIES ARE - EURAEC-1708, JULY 1, 1966, AND EURAEC-1747, OCTOBER 1, 1966.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-20546 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT MODEL + *DEPOSITION + *COATING + *FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, IODINE + *FUEL INTEGRITY + *ORGANIC IODIDE

7-20547 ALSO IN CATEGORY 4

HOPENFENFELD J + DARLEY D

DYNAMIC MASS TRANSFER OF STAINLESS STEEL IN SODIUM UNDER HIGH-HEAT-FLUX CONDITIONS

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12447 +. 54 PAGES, 14 FIGURES, 3 TABLES, 24 REFERENCES, JULY 15, 1967

PRESENTS EQUATIONS GOVERNING THE CORROSION RATE OF FUEL CLADDING MATERIAL IN SODIUM-COOLED REACTORS. USING CORROSION DATA OBTAINED FROM VARIOUS LOOP TESTS, ATTEMPTS WERE MADE TO EVALUATE THE MASS-TRANSFER COEFFICIENTS WHICH APPEAR IN THE BASIC EQUATIONS. IT WAS FOUND THAT AVAILABLE LOOP DATA ARE INADEQUATE TO PROVIDE THE NEEDED INFORMATION, MAINLY BECAUSE THE LOCAL BULK LIQUID CONCENTRATION OF THE CORROSION PRODUCTS CANNOT BE DETERMINED TO ANY DEGREE OF CERTAINTY IN THESE LOOPS. A TEST LOOP IS DESCRIBED WHERE THIS DIFFICULTY IS ELIMINATED BY SETTING UP CONCENTRATION GRADIENTS BETWEEN THE SURFACE AND THE BULK LIQUID BY MEANS OF HIGH-HEAT-FLUX HEATERS. PRELIMINARY DATA IS PRESENTED ON THE CORROSION BEHAVIOR OF TYPE 304 STAINLESS STEEL EXPOSED TO 1200 F SODIUM, WITH A 1250 F SURFACE TEMPERATURE. THE RESULTS DEMONSTRATE THE FEASIBILITY OF USING THE PRESENT METHOD TO STUDY MASS-TRANSFER MECHANISMS IN SODIUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*MASS TRANSFER + *METAL, LIQUID + *OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM + *STEEL, STAINLESS + *CORROSION

7-20548

SOUBBARAMAYER

LAWS GOVERNING THE FLOW OF GASES THROUGH POROUS MEDIA

CENTRE D ETUDES NUCLEAIRES DE SACLAY

CEA-BIB-91 +. 38 PAGES, 10 FIGURES, JUNE 1967. IN FRENCH

REVIEWED METHODS OF CALCULATING THE RATE OF FLOW OF A GAS THROUGH A POROUS MEDIUM. THE POROUS MATERIAL CAN BE REPLACED BY EITHER A CAPILLARY MODEL OR BY A BED-OF-SPHERES MODEL. IN THE CAPILLARY MODEL, THE THEORY IS DERIVED USING SIMPLE KINETIC THEORY OF GASES. IN THE BED-OF-SPHERES MODEL, ONE SOLVES THE BOLTZMAN EQUATION BY THE RANDOM-WALK APPROACH OR BY THE WELL-KNOWN CHAPMAN-ENSKOG EXPANSION METHOD.

AVAILABILITY - SERVICE DE DOCUMENTATION DU C.E.A., CENTRE D-ETUDES NUCLEAIRES DE SACLAY, B.P. NO. 2, 91 GIF-SUR-YVETTE, FRANCE

*POROUS DIFFUSION + *POROUS MEDIA + *ANALYTICAL MODEL + *DIFFUSION + *DIFFUSION COEFFICIENT

7-20549

SAUNDERS AW + PATTERSON RL + LOCKHART LB

STANDARDIZATION OF BETA COUNTING PROCEDURES USED AT NRL IN THE RADIOCHEMICAL ANALYSIS OF AIR FILTER SAMPLES

NAVAL RESEARCH LAB., WASHINGTON, D. C.

NRL-MEMO-1764 + 32 PAGES, TABLES, REFERENCES, MAY 1967

THE CALIBRATION OF BETA-COUNTING SYSTEMS USED FOR THE QUANTITATIVE DETERMINATION OF RADIONUCLIDES IN AIR-FILTER COLLECTIONS IS DESCRIBED. SOLID CALIBRATION STANDARDS ARE PREPARED FROM A VARIETY OF STANDARDIZED SOURCES OF RADIOISOTOPES OF DIFFERENT BETA ENERGIES BY MOUNTING IN A REPRODUCIBLE GEOMETRY 50.0- AND 25.0-MG QUANTITIES OF CARRIER MATERIAL CONTAINING KNOWN AMOUNTS OF RADIOACTIVITY. A CALIBRATION CURVE OF COUNTING EFFICIENCY VS BETA MAX. ENERGY IS CONSTRUCTED FOR EACH COUNTING SYSTEM, FROM WHICH THE COUNTING EFFICIENCY OF A WIDE VARIETY OF RADIONUCLIDES HAVING NONFORBIDDEN SPECTRA CAN BE DERIVED.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*ANALYTICAL TECHNIQUE, AIR + *ANALYTICAL TECHNIQUE, CALIBRATION + *BETA EMITTER + *RADIOISOTOPE + *FILTER + *SAMPLING

7-20552

NGUYEN DH + GROSSMAN LM

IONIZATION BY FISSION FRAGMENTS ESCAPING FROM A SOURCE MEDIUM

UNIVERSITY OF TEXAS, AUSTIN, TEXAS + UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF.

9 PAGES, FIGURES, TABLES, REFERENCES, NUCLEAR SCIENCE AND ENGINEERING, 30(2), PAGES 233-241 (NOVEMBER 1967)

THE SPACE-DEPENDENT ION-PRODUCTION RATE BY FISSION FRAGMENTS ESCAPING FROM A FUEL PLATE WAS STUDIED USING (1) THE BOHR STOPPING-EQUATION WITH THE THOMAS-FERMI APPROXIMATION OF THE EFFECTIVE CHARGE Z_{EFF} , (2) THE ALEXANDER-GAZDOK SEMI-EMPIRICAL VELOCITY-DISTANCE RELATIONSHIP FOR FISSION FRAGMENTS. THE ASSUMPTIONS ARE - (A) NO SCATTERING DURING SLOWING DOWN, (B) THE NONIONIZING ENERGY LOSS IN NUCLEAR RECOILS CAN BE TAKEN INTO ACCOUNT BY

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-20552 *CONTINUED*

INCREASING THE W VALUE FOR FISSION FRAGMENTS OVER THAT FOR ALPHA PARTICLES (C) A DELTA-FUNCTION MASS DISTRIBUTION FOR THE LIGHT AND HEAVY GROUP AND (D) A MONOENERGETIC SOURCE. THE ENERGY CURRENT CARRIED BY THE FRAGMENTS AT A POINT IN THE OUTER MEDIUM IS FIRST DERIVED, AND THE ENERGY DEPOSITION PER UNIT VOLUME PER SECOND IS OBTAINED BY TAKING THE GRADIENT OF THE ENERGY CURRENT. DIVIDING THE ENERGY DEPOSITION BY THE W VALUE FOR THE MEDIUM YIELDS THE ION PRODUCTION RATE BY FISSION FRAGMENTS IN THAT MEDIUM. THE RESULTS SHOW THAT THE SEMIEMPIRICAL VELOCITY-DISTANCE RELATIONSHIP GIVES A HIGHER ION PRODUCTION RATE THAN THAT GIVEN BY THE VELOCITY-DISTANCE RELATIONSHIP DERIVED FROM THE BOHR STOPPING EQUATION WITH THE THOMAS-FERMI APPROXIMATION OF THE EFFECTIVE CHARGE Z-EFF.

*FISSION GAS RELEASE + *FISSION RECOIL + *FUEL INTEGRITY + FISSION PRODUCT RELEASE, GENERAL

7-20553

GREGG SJ + SING KSW

ADSORPTION, SURFACE AREA AND POROSITY

DEPARTMENT OF CHEMISTRY, UNIVERSITY OF EXETER, ENGLAND + DEPARTMENT OF CHEMISTRY, BRUNEL UNIVERSITY, LONDON, ENGLAND

317 PAGES, FIGURES, TABLES, REFERENCES, 1967, ACADEMIC PRESS PUBLISHER

GIVES A CRITICAL EXPOSITION OF THE USE OF ADSORPTION DATA FOR THE EVALUATION OF THE SURFACE AREA AND PORE-SIZE DISTRIBUTION OF FINELY DIVIDED AND POROUS SOLIDS. THE MAJOR PART OF THE BOOK IS DEVOTED TO THE BRUNAUER-EMMETT-TELLER (BET) METHOD FOR THE DETERMINATION OF SPECIFIC SURFACE, AND THE USE OF THE KELVIN EQUATION FOR THE CALCULATION OF PORE-SIZE DISTRIBUTION, BUT DUE ATTENTION WAS ALSO GIVEN TO OTHER WELL-KNOWN METHODS FOR THE ESTIMATION OF SURFACE AREA FROM ADSORPTION MEASUREMENTS, VIZ., THOSE BASED ON ADSORPTION FROM SOLUTION, ON HEAT OF IMMERSSION, ON CHEMISORPTION, AND ON THE APPLICATION OF THE GIBBS ADSORPTION EQUATION TO GASEOUS ADSORPTION.

AVAILABILITY - ACADEMIC PRESS, 111 FIFTH AVENUE, NEW YORK, NEW YORK 10003

*ADSORPTION + *POROUS DIFFUSION + *POROUS MEDIA + ADSORPTION SURFACE + CARBON + CHARCOAL + CHEMISORPTION + MOLECULAR SIEVE + SURFACE, GENERAL

7-20554

SOKOLOV VA + TOROCHESNIKOV NS + KELTSSEV NV

MOLECULAR SIEVES AND THEIR USE

CROSFIELD CHEMICALS

131 PAGES, FIGURES, TABLES, TRANSLATED FROM RUSSIAN 1964, PUBLISHED BY JOSEPH CROSFIELD + SONS LIMITED

DESCRIBES THE ACTION AND THE USE OF MOLECULAR SIEVES, WHICH ARE VALUABLE NEW MATERIALS FOR THE PURIFICATION AND SEPARATION OF MIXTURES OF GASEOUS AND LIQUID COMPONENTS. DATA ARE GIVEN ON THE STRUCTURE OF NATURAL AND ARTIFICIAL ZEOLITES USED AS MOLECULAR SIEVES, ON METHODS OF THEIR PRACTICAL USE IN VARIOUS BRANCHES OF TECHNOLOGY FOR DRYING, PURIFICATION, AND SEPARATION OF HYDROCARBON MIXTURES. RESULTS ARE ALSO GIVEN OF EXPERIMENTAL WORK USING MEMBRANES AND SHEETS OF CERTAIN MATERIALS AS MOLECULAR SIEVES. THE BOOK IS INTENDED FOR ENGINEERS AND TECHNICIANS IN THE OIL, GAS, AND OIL-CHEMICAL INDUSTRIES.

AVAILABILITY - JOSEPH CROSFIELD + SONS LIMITED, WARRINGTON, ENGLAND

*ADSORPTION + *ADSORPTION SURFACE + *MOLECULAR SIEVE + *POROUS DIFFUSION + *POROUS MEDIA + ANALYTICAL TECHNIQUE, GAS + SURFACE, GENERAL

7-20555

ALSO IN CATEGORY 11

CAVE L + BRACEWELL GM

CONTAINMENT OF AN A.G.R.

ATOMIC POWER CONSTRUCTIONS LTD.

SM-89/31 +. 16 PAGES, 3 FIGURES, 13 REFERENCES, MARCH 10, 1967, PRESENTED AT THE IAEA SYMPOSIUM ON CONTAINMENT AND SITING OF NUCLEAR POWER STATIONS, VIENNA, 3-7 APRIL 1967

THE INHERENT FEATURES OF THE A.G.R. WHICH SERVE TO RETAIN FISSION PRODUCTS WITHIN THE SYSTEM ARE DESCRIBED. THE ROLES PLAYED BY THE FUEL, FUEL-CAN, AND PRIMARY PRESSURE CIRCUIT ARE DISCUSSED AND ILLUSTRATED BY REFERENCE TO THE DUNGENESS B REACTOR DESIGN. SOME POSSIBLE ADDITIONAL SAFETY FEATURES ARE DESCRIBED. THE EFFECTS OF POSSIBLE FAULT CONDITIONS ON THE RETENTION OF FISSION PRODUCTS WITHIN THE SYSTEM ARE DISCUSSED AND THE EXTENT TO WHICH THE SAFETY OF THE REACTOR DEPENDS ON DESIGN FEATURES IS EVALUATED. IT IS SHOWN THAT THE A.G.R. SYSTEM PROVIDES AN EXCEPTIONALLY HIGH DEGREE OF SAFETY AND THAT IT IS POTENTIALLY SUITABLE FOR USE ON URBAN SITES WITHOUT THE PROVISION OF A CONVENTIONAL PRESSURE RETAINING SECONDARY CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*CLAD + *CONTAINMENT RESEARCH AND DEVELOPMENT + *EMERGENCY COOLING CONSIDERATIONS + *FISSION PRODUCT, IODINE + *FUEL ELEMENT + *FUEL MELTDOWN + *SAFETY EVALUATION + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT TRANSPORT + FUEL ELEMENT + SAFETY STUDY

7-20556

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-20556 *CONTINUED*

BARTHOUX A

EXPERIMENTAL STUDIES ON PREVENTING THE ESCAPE OF CONTAMINATION FOLLOWING A NUCLEAR ACCIDENT
CENTRE D-ETUDES NUCLEAIRES DE CADARACHE, FRANCESM-89/17 +. 26 PAGES, 9 FIGURES, APRIL 1967, PRESENTED AT THE IAEA SYMPOSIUM ON CONTAINMENT AND SITING OF
NUCLEAR POWER PLANTS

A FUEL-MELTING EXPERIMENT IN THE CABRI REACTOR SHOWED A VERY HIGH RATE OF RETENTION (OVER 99.99%) IN THE WATER BUT ALSO PROVIDED EVIDENCE OF THE VERY PENETRATING NATURE OF THE IODINE COMPOUNDS RELEASED FROM THE WATER. AN INVESTIGATION OF THE MELTING OF IRRADIATED URANIUM IN LIQUID SODIUM PRODUCED A PARTITION COEFFICIENT FOR SODIUM AND ITS VAPOUR, WITH A VOLUMETRIC CONCENTRATION RATIO OF ABOUT 10(-5TH). SAMPLES TAKEN FROM GAS LOOPS CONTAINING DAMAGED FUEL ELEMENTS PROVIDED INFORMATION ON THE VARIOUS IODINE COMPOUNDS. THE RESULTS ALREADY OBTAINED SHOW, FOR A NUMBER OF PLANTS, HIGH SAFETY FACTORS, WHICH ARE INDICATED AND DISCUSSED IN THE PAPER.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST. NEW YORK, N.Y., 10016

*FISSION PRODUCT, IODINE + *FUEL MELTDOWN + *METAL, LIQUID + *OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM +
FISSION PRODUCT TRANSPORT + FUEL ELEMENT + SAFETY STUDY

7-20826

ALSO IN CATEGORIES 12 AND 14

SCHEEL H

REGARDING THE PROCEDURE AT EXTRA ORDINARY EVENTS WITH RADIOACTIVE SOURCES

STAATLICHE ZENTRALE FÜR STRAHLENSCHUTZ

SZS-4(1965) +. 18 PAGES, JUNE 1965, IN GERMAN

RULES TO BE APPLIED IN THE GERMAN DEMOCRATIC REPUBLIC IN CASE OF UNUSUAL EVENTS ENDANGERING PERSONNEL AND PROPERTY BY IONIZING RADIATION, SUCH AS FIRE, FLOOD, LOSS OF RADIOACTIVE MATERIAL, AND OTHER ACCIDENTS IN CONNECTION WITH SOURCES OF IONIZING RADIATION. PHASE I (PRIOR TO ARRIVAL OF TRAINED HELP), PHASE II (ACTIVITIES OF TRAINED HELP), PHASE III (RECOVERY).

*GERMANY + *RADIATION SAFETY AND CONTROL + DECONTAMINATION + FIRE + RADIATION PROTECTION, ORGANIZATION

7-21318

ALSO IN CATEGORIES 1 AND 11

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPT.-OCT. 1967

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2057 +. 131 PAGES, FIGURES, TABLES, NOVEMBER 27, 1967

INCLUDED IN THIS PROGRESS REPORT IS WORK ON VARIOUS CHEMICAL REACTIONS, AS WELL AS THE RELEASE, CHARACTERIZATION, AND TRANSPORT OF FISSION PRODUCTS IN CONTAINMENT SYSTEMS UNDER VARIOUS ACCIDENT CONDITIONS AND ON PROBLEMS ASSOCIATED WITH THE REMOVAL OF THESE FISSION PRODUCTS FROM GAS STREAMS. ALTHOUGH MOST OF THE WORK HAS BEEN AND CONTINUES TO BE IN GENERAL SUPPORT OF WATER POWER REACTOR TECHNOLOGY, INCLUDING SOME IN DIRECT SUPPORT OF THE LOFT AND CSE PROGRAMS, SEVERAL PROJECTS WERE STARTED IN THE FIRST OF THE CALENDAR YEAR IN SUPPORT OF THE HIGH-TEMPERATURE GAS-COOLED REACTOR (HTGR) PROGRAM. THESE PROJECTS INCLUDE BOTH IN-PILE AND OUT-PILE STUDIES OF REACTION RATES AND FISSION PRODUCT RELEASE AND TRANSPORT PHENOMENA RELEVANT TO POTENTIAL HTGR ACCIDENT SITUATIONS. OTHER MAJOR PROJECTS INCLUDE FUEL TRANSPORT SAFETY INVESTIGATIONS, A SERIES OF DISCUSSION PAPERS ON VARIOUS ASPECTS OF WATER REACTOR TECHNOLOGY, AND THE STUDIES ON PRESSURE VESSEL TECHNOLOGY. EXPERIMENTAL WORK RELATIVE TO PRESSURE VESSEL TECHNOLOGY INCLUDES INVESTIGATIONS OF THE ATTACHMENT OF NOZZLES TO SHELLS AND THE VARIABILITY OF IMPACT DATA ON LOW-ALLOY STEELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*CONTAINMENT, GENERAL + *CSE (CONTAINMENT SYSTEMS EXPERIMENT) + *FISSION PRODUCT RETENTION +
*FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *LOFT (LOSS OF FLUID TEST) +
*NOZZLE + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY +
FISSION PRODUCT RELEASE, GENERAL + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-16571 ALSO IN CATEGORY 5
WITTE L + HESSON J + IVINS RO + BAKER L + PAVLIK J + CASSULO J + SILVERMAN M
TRANSIENT HEAT TRANSFER STUDIES. MEASUREMENT OF HEAT FLUX FROM A HEATED METAL SPHERE MOVING THROUGH WATER AND LIQUID SODIUM.
ARGONNE NATIONAL LABORATORY, ILL.
ANL-7225 +. 9 PAGES, 11 FIGURES, 14 REFERENCES, PAGES 189-198, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1966, NOVEMBER 1966

FOR ANALYSIS OF CONSEQUENCES OF DISPERSION OF HOT FUEL INTO COOLANT (WATER OR SODIUM) FORCED-CONVECTION FILM BOILING FOR SPHERES IN BOTH MEDIA WAS STUDIED. THEORETICAL STUDIES INCLUDED CRITICAL SURVEY OF PERTINENT LITERATURE. EXPERIMENTS INVOLVED NICKEL BALL PASSING RAPIDLY THROUGH WATER, THE APPARATUS USED BEING A MODIFICATION OF THE ONE DESCRIBED IN ANL 7055, PAGE 206, AND ANL 7125, PAGE 193. AT SPHERE TEMPERATURES AROUND 300 C, THE MODIFICATION INDUCED SUBSTANTIAL CHANGES IN RESULTS. APPARATUS AND RESULTS FOR ANALOGOUS EXPERIMENTS IN SODIUM ARE GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT ANALYSIS + *DISPERSION + *FUEL MELTDOWN + HEAT TRANSFER ANALYSIS + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, BOILING + HEAT TRANSFER, CONVECTION + SODIUM + WATER, GENERAL

8-16574 ALSO IN CATEGORY 5
LEIBOWITZ L
SODIUM-AIR REACTIONS.
ARGONNE NATIONAL LAB., ILL.
ANL-7225 +. 3 PAGES, 4 FIGURES, 4 TABLES, 8 REFERENCES, PAGE 201-203, FROM CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1966, NOVEMBER 1966

RATIONAL SAFETY ANALYSES FOR FAST REACTORS REQUIRE KNOWLEDGE OF THE TEMPERATURES AND PRESSURES GENERATED DURING SODIUM COMBUSTION IN AIR. COMBUSTION OF BOTH POOLS AND SPRAYS OF SODIUM WILL HAVE TO BE CONSIDERED. BAKER AND TEVEBAUGH (ANL-7055, P. 208) POINTED OUT THAT REGARDLESS OF THE BURNING MECHANISM, THE PRESSURES AND TEMPERATURES ARE LIMITED BY THE THERMODYNAMIC PROPERTIES OF THE SYSTEM. CALCULATIONS HAVE BEEN CARRIED OUT FOR EQUILIBRIUM CONDITIONS IN SODIUM-AIR AND SODIUM-AIR-WATER MIXTURES, USING A COMPUTER PROGRAM DESIGNED TO MINIMIZE FREE ENERGY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FIRE + *SODIUM + ACCIDENT ANALYSIS + PRESSURE, INTERNAL

8-17802 ALSO IN CATEGORIES 5 AND 6
REDMAN JD + MCKEE G + RULE IC
AN EXPERIMENTAL STUDY OF TURBULENT FORCED CONVECTION HEAT TRANSFER TO GASES IN AXIAL FLOW ROD CLUSTER PASSAGES
REACTOR GROUP, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SELLAFIELD, ENGLAND + REACTOR, DEVELOPMENT LABORATORY, WINDSCALE, ENGLAND
IRG-REPORT-931 + JNPC-FEWP(65)/P-45 +. 70 PAGES, 31 FIGURES, 9 REFERENCES, NOVEMBER 11, 1965

FUEL ELEMENTS IN SEVERAL TYPES OF NUCLEAR REACTOR AND SOME CONVENTIONAL HEAT EXCHANGERS CONSIST OF CLUSTERS OF TUBES COOLED ON THE OUTSIDE BY AXIAL TURBULENT FLUID FLOW. THE HEAT TRANSFER IN FLOW PASSAGES OF THIS TYPE DEPENDS ON THE CLUSTER GEOMETRY, THE REYNOLDS NUMBER, AND THE BOUNDARY CONDITIONS AT THE SURFACES OF THE TUBES. EXPERIMENTAL WORK IS REPORTED ON THE INFLUENCE OF ALL THESE PARAMETERS ON FULLY DEVELOPED HEAT TRANSFER IN A SIMPLE CLUSTER.

AVAILABILITY - PUBLIC RELATIONS BRANCH, U.K.A.E.A. (REACTOR GROUP), RISLEY, WARRINGTON, LANCASHIRE

FLOW, AXIAL + FLOW, CROSS + FLOW, TURBULENT + FUEL ELEMENT + FUEL ELEMENT CLUSTER + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, CONVECTION + REACTOR, GENERAL

8-17804 ALSO IN CATEGORIES 5 AND 6
CLERICI GC + GARRIBA S + SALA R + TOZZI A
CRITICAL STUDIES ON STEADY BURNOUT. FINAL REPORT. PART 1. CORRELATION FOR NON UNIFORM HEATING. PART 2. STUDIES ON LINEAR CORRELATIONS
APPLICAZIONI E RICERCHE SCIENTIFICHE, MILAN, ITALY
EURAC-1833(PTS. 1 AND 2) + EUR-3356(PTS. 1 AND 2) +. 150 PAGES, REFERENCES, 1967

THE MANY CORRELATIONS FOR STEADY-STATE BURNOUT WERE COLLECTED AND COMPARED. THE CORRELATIONS WERE THEN PUT ON A STANDARD BASIS, COMPARING THE BURNOUT-CRITICAL HEAT FLUX WITH THE STEAM OUTLET QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + DNB (DEPARTURE FROM NUCLEATE BOILING) + EURATOM + HEAT TRANSFER CORRELATION + ITALY + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-17805 ALSO IN CATEGORIES 5 AND 6
MAYINGER F + SCHAD O + WEISS E
INVESTIGATIONS INTO THE CRITICAL HEAT FLUX IN BOILING. FINAL REPORT
MASCHINENFABRIK AUGSBURG-NUERNBERG A. G., NUREMBERG, WEST GERMANY
EURAC-1811 + EUR-3347 +. 359 PAGES, MAY 20, 1966

THE PURPOSE WAS TO MEASURE THE CRITICAL HEAT FLUX (BURNOUT) IN BOILING AND, PRIMARILY, THE EFFECTS OF THE HISTORY AND THE INLET CONDITIONS AS WELL AS THE L/D RATIO OF THE TEST CHANNEL ON NUCLEATE BOILING. THE INCEPTION OF FILM BOILING WAS ALSO INVESTIGATED. THE TESTS WERE MADE AT PRESSURES OF 70 TO 140 KGF/SQ. CM, USING INTERNALLY COOLED TUBES WITH DIAMETERS VARYING FROM 0.7 TO 1.5 CM. THE CONDITIONS AT THE CHANNEL INLETS COVERED MASS FLOWS BETWEEN 100 AND 350 G/SQ. CM/SEC BETWEEN A DEGREE OF SUBCOOLING OF 20%, AND 20% STEAM QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FLOW, PULSATING + FLOW, TWO PHASE + GERMANY + HEAT FLUX, CRITICAL + HEAT TRANSFER EXPERIMENT + REACTOR, BOILING WATER

8-17806 ALSO IN CATEGORIES 5 AND 6
HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT NO. 9, JANUARY 1-APRIL 1, 1966
TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS
EURAC-1672 + EUR-2864 + WW-015-R-100 +. 23 PAGES, REFERENCES, MAY 1966

DURING THIS QUARTER EXPERIMENTS WERE MADE ON A SEVEN-ROD CLUSTER ELEMENT TO DETERMINE THE INFLUENCE OF THE SHROUD DISTANCE AND MIXING BETWEEN THE FUEL CHANNEL AND SURROUNDING CHANNELS ON THE BURNOUT POWER. TECHNOLOGICAL TESTS WERE MADE WITH THE MIXING TEST SECTION IN THE PRESSURIZED LOOP, AMONG WHICH PERFORMANCE TESTS ON THE NEWLY INSTALLED VOID METERS WAS A MAIN ITEM. CONTINUED ARE THE CALIBRATIONS IN AN AIR-WATER LOOP AND A THEORETICAL STUDY ON THE HYDRAULIC COUPLING OF PARALLELED CHANNELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DNB (DEPARTURE FROM NUCLEATE BOILING) + FLOW, CROSS + FUEL ELEMENT CLUSTER + HYDRAULIC EXPERIMENT + REACTOR, PRESSURIZED WATER

8-17808 ALSO IN CATEGORIES 5 AND 6
HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS IN A PRESSURIZED WATER REACTOR. QUARTERLY PROGRESS REPORT NO. 8, OCTOBER 1, 1965-JANUARY 1, 1966
TECHNISCHE HOGESCHOOL, EINDHOVEN, NETHERLANDS
EUR-2856 + WW-015-R-96 + EURAC-1664 +. 27 PAGES, REFERENCES, JANUARY 1966

EXPERIMENTS WERE FINISHED ON A SINGLE-ROD SQUARE-ANNULUS GEOMETRY FOR DETERMINING THE INFLUENCE OF A COLD WALL AND MIXING BETWEEN THE FUEL CHANNEL AND A SURROUNDING CHANNEL ON THE BURNOUT POWER. EXPERIMENTS WERE MADE IN AN AIR-WATER LOOP ON A TWO-CHANNEL GEOMETRY BY MAKING MASS AND HEAT BALANCES IN TWO ADJACENT CHANNELS. (MEASUREMENTS WERE MADE ON VOID FRACTION IN THE AIR-WATER LOOP DURING NONSYMMETRIC INJECTIONS OF AIR AT DIFFERENT LEVELS. THE TEST SECTION ON THE TWO-CHANNEL GEOMETRY IN THE 140-ATM PRESSURIZED LOOP WAS FABRICATED). THE THEORETICAL STUDY ON THE HYDRAULIC COUPLING OF PARALLELED CHANNELS IS CONTINUING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BURNOUT HEAT FLUX + FLOW, CROSS + HEAT TRANSFER, BOILING + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

8-18333 ALSO IN CATEGORY 17
HUMBOLDT BAY SUPPLIES ADDITIONAL DISCUSSION ON METAL-WATER REACTION WITHOUT CORE COOLING IN PROPOSED NEW CORE
PACIFIC GAS AND ELECTRIC COMPANY, SAN FRANCISCO, CALIFORNIA
5 PAGES, 1 FIGURE, AUGUST 23, 1967, DOCKET NO. 50-133

ANALYSIS OF METAL-WATER REACTION (DUE TO LOSS-OF-COOLANT ACCIDENT, ASSUMING VARIOUS ZR-H₂O REACTION-TERMINATION TEMPERATURES) GIVES A MAXIMUM EXPECTED TEMPERATURE OF LESS THAN 1950 C, RESULTING IN 26.5-PSIG SUPPRESSION-CHAMBER PRESSURE (DESIGN - 25.0, TESTED AT 28.75). IF 2700 C (ZRO2 MELTING PT.) IS TAKEN AS PEAK TEMPERATURE, A MAXIMUM PRESSURE OF 38 PSIG WOULD RESULT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *METAL WATER REACTION + CLAD + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY + PRESSURE, INTERNAL + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS + ZIRCALOY

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-18490
THRUN E
THE KINETICS OF THE REACTIONS BETWEEN GRAPHITE AND WATER OR CARBON DIOXIDE
DEUTSCHE HOFFMANN-LA ROCHE AG, GRENZACH/BADEN
6 PAGES, 3 FIGURES, CHEM. ING. TECH 38(11), PAGE 1176, (NOVEMBER 1966), IN GERMAN

REVIEWS THE DATA AVAILABLE IN THE LITERATURE FOR THE REACTIONS BETWEEN WATER OR CARBON DIOXIDE AND NUCLEAR-GRADE GRAPHITE. BOTH THE THERMODYNAMICS AND THE KINETICS OF THE REACTIONS ARE CONSIDERED. THE APPLICATION OF THESE DATA TO THE GAS-COOLED REACTORS IS DISCUSSED ALSO.

*CARBON DIOXIDE + *CHEMICAL EQUILIBRIUM + *CHEMICAL KINETICS + *CHEMICAL REACTION + *GRAPHITE + *STEAM + CARBON + CARBON MONOXIDE + GERMANY + HYDROGEN + REACTOR, GAS COOLED

8-19182 ALSO IN CATEGORIES 5 AND 18
FORTESCUE P + SHANSTROM R + BRODJO J + STEIN JM + BAXTER A + FENECH H
SAFETY CHARACTERISTICS OF LARGE GAS-COOLED FAST POWER REACTORS
GENERAL ATOMIC, SAN DIEGO, CALIF. JOHN JAY HOPKINS LAB. FOR PURE AND APPLIED SCIENCE
GA-6732 + CONF-651009-5 +. 81 PAGES, OCTOBER 8, 1965, PRESENTED AT CONFERENCE ON SAFETY, FUELS AND CORE DESIGN IN LARGE FAST POWER REACTORS, ARGONNE, ILL.

DESCRIBES THE PRINCIPAL MECHANICAL FEATURES OF A REFERENCE DESIGN AND THEN ANALYZES SELECTED ACCIDENTS, INCLUDING LOSS OF COOLANT, REACTIVITY CHANGES CAUSED BY INTRODUCTION OF WATER INTO THE CORE, AND CONTROL-ROD WITHDRAWAL. OTHER TOPICS INCLUDE A STABILITY ANALYSIS AND MAXIMUM-ENERGY-RELEASE STUDIES FROM SEVERE ACCIDENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *REACTOR, GAS COOLED + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOSS OF COOLANT + ACCIDENT, REACTIVITY + REACTOR STABILITY + REACTOR, FAST

8-19419 ALSO IN CATEGORY 5
TODREAS NE + ROHSENOW WM
THE EFFECT OF NONUNIFORM AXIAL HEAT FLUX DISTRIBUTION
MASS. INST. OF TECHNOLOGY, CAMBRIDGE
NP-15622 +. 245 PAGES, 52 FIGURES, TABLES, 54 REFERENCES

A SYSTEMATIC EXPERIMENTAL AND ANALYTIC INVESTIGATION OF THE EFFECT OF NONUNIFORM AXIAL HEAT-FLUX DISTRIBUTION ON CRITICAL HEAT FLUX WAS PERFORMED WITH WATER IN THE QUALITY CONDITION. UTILIZING A MODEL WHICH ASCRIBES THE CRITICAL CONDITION, TO EITHER A NUCLEATION-INDUCED DISRUPTION OF THE ANNULAR LIQUID FILM OR ANNULAR FILM DRYOUT, THE EXPERIMENTAL RESULTS TAKEN AT LOW PRESSURES (50-200 PSIA) WERE CONFIRMED. APPLICATION OF THIS MODEL TO HIGHER PRESSURE CONDITIONS (500-200 PSIA) INDICATED QUALITATIVE AGREEMENT WITH AVAILABLE DATA OF OTHER INVESTIGATORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *HEAT GENERATION, NONUNIFORM + FLOW, ANNULAR + FLOW, TWO PHASE + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER

8-19421 ALSO IN CATEGORY 5
MCBRIDE BJ + GORDON S
FORTRAN IV PROGRAM FOR CALCULATION OF THERMODYNAMIC DATA
LEWIS RESEARCH CENTER, CLEVELAND
NASA-TN-D-4097 +. 129 PAGES, 1 FIGURE, 7 TABLES, 35 REFERENCES, AUGUST 1967

A FORTRAN IV PROGRAM IS DESCRIBED WHICH (1) CALCULATES THERMODYNAMIC FUNCTIONS (HEAT CAPACITY, ENTHALPY, ENTROPY, AND FREE ENERGY), (2) FITS THESE FUNCTIONS TO EMPIRICAL EQUATIONS, AND (3) CALCULATES, AS A FUNCTION OF TEMPERATURE, HEATS OF FORMATION AND EQUILIBRIUM CONSTANTS. THE PROGRAM PROVIDES SEVERAL METHODS FOR CALCULATING IDEAL GAS PROPERTIES. FOR MONATOMIC GASES, THREE METHODS ARE GIVEN WHICH DIFFER IN THE TECHNIQUE USED FOR TRUNCATING THE PARTITION FUNCTION. FOR DIATOMIC AND POLYATOMIC MOLECULES, FIVE METHODS ARE GIVEN WHICH DIFFER IN THE CORRECTIONS TO THE RIGID-ROTATOR HARMONIC-OSCILLATOR APPROXIMATION. IN ADDITION, THE PROGRAM PROVIDES FOR CALCULATING THERMODYNAMIC FUNCTIONS FOR SOLIDS, LIQUIDS, AND GASES FROM EMPIRICAL HEAT CAPACITY EQUATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *GAS + *LIQUID + *THERMAL PROPERTY + SOLID + THERMODYNAMICS

8-19540 ALSO IN CATEGORIES 5 AND 6

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-19540 *CONTINUED*

BOWRING RW

HAMBO. A COMPUTER PROGRAMME FOR THE SUBCHANNEL ANALYSIS OF THE HYDRAULIC AND BURNOUT CHARACTERISTICS OF ROD-CLUSTERS. PART I. GENERAL DESCRIPTION
ATOMIC ENERGY ESTABLISHMENT, WINFRITH, ENGLAND
AEW-R-524 +. 24 PAGES, 2 FIGURES, 1 TABLE, 16 REFERENCES, APRIL 1967

HAMBO IS A COMPUTER CODE FOR THE STEADY-STATE HYDRAULIC ANALYSIS OF A ROD-CLUSTER ASSEMBLY COOLED BY A BOILING FLUID, USING A SUBCHANNEL MODEL. THE CLUSTER BURNOUT POWER IS ASSESSED BY A SUBCHANNEL BURNOUT CORRELATION. CLUSTERS WHICH CAN BE REPRESENTED WITH 10 SUBCHANNELS, I.E., WITH UP TO 37 RODS IN A CYLINDRICAL PRESSURE TUBE, CAN BE ANALYSED WITH THE PRESENT VERSION OF THE PROGRAMME. THE CODE IS PRIMARILY A DESIGN TOOL FOR THE THERMAL PERFORMANCE ASSESSMENT OF FUEL ASSEMBLIES IN NUCLEAR REACTORS COOLED BY WATER-STEAM MIXTURES. IT CAN BE USED TO ASSESS THE EFFECT OF CHANGE IN CLUSTER RADIAL FLUX DEPRESSION, ROD PITCH, BOWING, AND ECCENTRICITY ON THE FLUID DENSITY AND BURNOUT POWER. THE HYDRAULIC MODEL INCLUDES THE FOLLOWING EFFECTS - (A) HEAT AND MOMENTUM TRANSFER BETWEEN ADJACENT COOLANT SUBCHANNELS BY MASS TRANSFER (CROSS-FLOW) AND BY TURBULENT MIXING, (B) SINGLE PHASE, SUBCOOLED BOILING AND BULK BOILING REGIMES, (C) ROD SPACING BY LOCALISED GRIDS OR BY WIRE WRAPS, (D) RADIAL AND AXIAL HEAT PROFILE, (E) LATERAL RESISTANCE TO CROSS FLOW. THE CODE IS WRITTEN IN EGTAN DIALECT OF FORTRAN FOR THE KDF 9 COMPUTER AND IS BEING TRANSLATED INTO FORTRAN S2 AND IV FOR THE IBM 7030 AND 7090 MACHINES RESPECTIVELY. TYPICAL RUNNING TIMES PER CASE ARE FROM 15 SEC FOR A 7-ROD CLUSTER TO 150 SEC FOR A 37-ROD CLUSTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS +
REACTOR, BOILING WATER + UNITED KINGDOM

8-19546

ALSO IN CATEGORIES 5 AND 6

ROWE DS

CROSS-FLOW MIXING BETWEEN PARALLEL FLOW CHANNELS DURING BOILING. PART 1. COBRA. COMPUTER PROGRAM FOR COOLANT BOILING IN ROD ARRAYS
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-371(Pt.1) +. 112 PAGES, 8 FIGURES, 3 TABLES, 27 REFERENCES, MARCH 1967

THIS REPORT PRESENTS A MATHEMATICAL MODEL AND DIGITAL COMPUTER PROGRAM FOR COMPUTING COOLANT FLOW AND ENTHALPY IN THE SUBCHANNELS OF ROD-BUNDLE FUEL ELEMENTS. ONE-DIMENSIONAL, TWO-PHASE, SLIP FLOW IN THE SUBCHANNELS PROVIDES THE BASIS FOR THE MATHEMATICAL MODEL. THE MODEL ALSO INCLUDES THE EFFECT OF MIXING THAT OCCURS THROUGH THE GAP BETWEEN ADJACENT SUBCHANNELS BY USING A TURBULENT (FLUCTUATING) CROSS-FLOW AND A DIVERSION CROSS-FLOW THAT RESULTS FROM FLOW REDISTRIBUTION. THE DIGITAL COMPUTER PROGRAM COBRA SOLVES THE MATHEMATICAL EQUATIONS BY USING NUMERICAL PROCEDURES SIMILAR TO THE MODIFIED EULER METHOD, BUT WITH AN ADDITIONAL FEATURE TO CONTROL DIVERSION CROSS-FLOW AND ENSURE A STABLE SOLUTION. COBRA CONSIDERS BOTH SINGLE AND TWO-PHASE FLOW IN ROD BUNDLES OF ARBITRARY GEOMETRY AND CAN CONSIDER UP TO 36 SUBCHANNELS AND 25 FUEL RODS. ARBITRARY HEAT-FLUX DISTRIBUTIONS ARE SPECIFIED BY THE AXIAL FLUX DISTRIBUTION, RELATIVE ROD POWER, AND FRACTION OF ROD POWER TO EACH ADJACENT SUBCHANNEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + FLOW, CROSS + FLOW, MIXING + FLOW, TWO PHASE + HEAT TRANSFER, BOILING +
REACTOR, BOILING WATER

8-19868

ALSO IN CATEGORIES 5 AND 6

THOMPSON DH + KOLB WL + SOWA ES

A LARGE LOOP FACILITY FOR THE MELTDOWN STUDY OF FAST-REACTOR FUEL ELEMENTS IN HIGH-TEMPERATURE FLOWING SODIUM
ARGONNE NATIONAL LABORATORY
CONF-670 602 +. 2 PAGES, 1 FIGURE, 1 TABLE, ANS TRANS. 10(1), PAGES 341-2 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DESCRIBES A LOOP CAPABLE OF PERFORMING IN-PILE MELTDOWN OF FUEL CLUSTERS FOR FAST REACTORS IN THE TREAT REACTOR.

ANL (ARGONNE NATIONAL LABORATORY) + FUEL ELEMENT CLUSTER + FUEL MELTDOWN + REACTOR, FAST +
REACTOR, GRAPHITE MODERATED + REACTOR, TEST + SODIUM + TREAT (TRANSIENT TEST REACTOR FACILITY)

8-19869

ALSO IN CATEGORIES 5 AND 6

GRIEBENOW ML + RICHERT KD

MACABRE II

IDAHO NUCLEAR CORP., IDAHO FALLS

IN-1107 +. 86 PAGES, 2 FIGURES, SEPTEMBER 1967

MACABRE II WAS WRITTEN FOR THE IBM 7040 COMPUTER IN USE AT THE NRTS. THE BASIC PROGRAMMING LANGUAGE IS FORTRAN IV, BUT SOME SYMBOLIC ROUTINES ARE USED IN THE 7040 VERSION. A VERSION PROGRAMMED IN FORTRAN IV FOR THE UNIVAC 1108 IS ALSO AVAILABLE. THIS VERSION CONTAINS SMALL SYMBOLIC ROUTINES FOR THE DATE, TIME, AND AUXILIARY STORAGE DEFINITIONS, AND SHOULD PRESENT NO PROBLEMS IN CONVERSION TO ANOTHER COMPUTER. MACABRE II IS CAPABLE OF SOLVING THE ISOTHERMAL HYDRAULICS AND NONISOTHERMAL HYDRAULICS AND HEAT TRANSFER OF MOST PLATE-TYPE

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-19869 *CONTINUED*

REACTOR FUEL ASSEMBLIES DIMENSIONAL, TIME-DEPENDENT (QUASI STEADY STATE) HEAT GENERATION RATES, AND HYDRAULIC COMMUNICATION BETWEEN THE PARALLEL COOLANT CHANNELS. IN ADDITION, MACABRE II WILL COMPUTE THE CORROSION OF THE ALUMINUM-CLAD HEAT-TRANSFER SURFACES (WHEN PRESENT) AND CAN HANDLE PARTIAL SLOUGHING OF THE BOEHMITE CORROSION PRODUCT. MACABRE II HAS BEEN USED IN MTR, ETR, ATR, AND EOCR FUEL ASSEMBLY ANALYSIS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + COMPUTER, DIGITAL + FUEL ELEMENT CLUSTER + HEAT TRANSFER ANALYSIS + HYDRAULIC ANALYSIS + REACTOR, POOL TYPE

8-19883 ALSO IN CATEGORY 5

COOPER MH + HANKEL RD

RE-ANALYSIS OF N.S. SAVANNAH LOSS-OF-COOLANT ACCIDENT

UNITED NUCLEAR CORPORATION, RESEARCH AND ENGINEERING CENTER, ELMSFORD, NEW YORK

UNC-5185 +. 133 PAGES, 40 FIGURES, 6 TABLES, 11 REFERENCES, AUGUST 1, 1967, DOCKET 50-238

VESSEL INLET PIPE WAS ASSUMED TO RUPTURE, WITH NO WATER INJECTION, AND CONTROL RODS STUCK OUT. BLOWDOWN (ANALYZED WITH FLASH) ENDED AT 10 SEC, WITH CONTAINMENT PRESSURE AT 189 PSIG. FUEL SLUMPING (ANALYZED WITH NURLOC) BEGAN AT 1180 SEC. AT 3800 SEC, FAILURE OF THE FLOW BAFFLE DEPOSITED THE WHOLE CORE ON THE BOTTOM HEAD. HYDROGEN WILL NOT BURN. REACTOR VESSEL (ANALYZED WITH TIGER) REACHES PEAK TEMPERATURE OF 1100 F AT ABOUT 10 HR, BUT CONTAINS THE FUEL. 50 PAGES OF COMPUTER INPUT/OUTPUT DATA, AND MODEL.

AVAILABILITY - IISAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + ANALYTICAL MODEL + BLOWDOWN + COMPUTER PROGRAM + CONTAINMENT DESIGN + CORE MELTDOWN + METAL WATER REACTION + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER

8-20540 ALSO IN CATEGORIES 5 AND 6

STAUB FW

HEAT TRANSFER AND HYDRAULICS. THE EFFECTS OF SUBCOOLED VOIDS. QUARTERLY REPORT NO. 1, FEBRUARY-JUNE 1967

GENERAL ELECTRIC CO., SCHENECTADY, N. Y. RESEARCH AND DEVELOPMENT CENTER

NYO-3679-1 + EURAEC-1911 +. 46 PAGES, FIGURES, REFERENCES, JULY 1967

FIRST QUARTERLY PROGRESS REPORT FROM JOINT U.S.-EURATOM PROGRAM DESIGNED TO DETERMINE THE VOID DISTRIBUTION, LOCATION OF THE INITIATION OF NET VAPOR GENERATION, PRESSURE-DROP AND HEAT-TRANSFER COEFFICIENTS IN SUBCOOLED WATER SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EURATOM + FLOW, TWO PHASE + HEAT TRANSFER + SUBCOOLING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-17701 ALSO IN CATEGORY 2
DOVE RC + BUTLER RI
THE SELECTION AND EVALUATION OF SHOCK TEST INSTRUMENTATION
SANDIA CORPORATION, ALBUQUERQUE, N. MEX. + NEW MEXICO UNIVERSITY, ALBUQUERQUE
SC-DC-66-1219 +. 27 PAGES, 51 FIGURES, REFERENCES, JANUARY 5, 1966

IN THIS PROGRAM, THE COMPONENTS USUALLY FOUND IN INSTRUMENT SYSTEMS USED FOR SHOCK TESTS ARE DISCUSSED, AND THE CHARACTERISTICS OF THE COMPONENTS ARE EXAMINED TO ESTABLISH HOW THEY CAN BEST BE USED AND HOW RESULTS SO OBTAINED CAN BE INTERPRETED. THE PAPER IS CONFINED TO ACCELEROMETERS (WITH EMPHASIS ON THE PIEZOELECTRIC TYPE) AND TO THE SYSTEMS USED TO CONDITION AND RECORD THE OUTPUT SIGNALS.

EARTHQUAKE + EARTHQUAKE ENGINEERING + INSTRUMENTATION, EARTHQUAKE

9-17801
SCHOW H
THE POSITIVE PERIOD METHOD OF CALIBRATING CONTROL RODS OF THE AFRI-TRIGA REACTOR USING THE AFRI DATA ACQUISITION SYSTEM
ARMED FORCES RADIOBIOLOGY RESEARCH INST., BETHESDA, MD.
AFRI-TN-66-3 +. 26 PAGES, 11 FIGURES, 3 TABLES, 7 REFERENCES, OCTOBER 1966

CONTROL RODS OF THE AFRI-TRIGA REACTOR ARE ROUTINELY CALIBRATED BY USE OF THE IN-HOUR RELATIONSHIP BETWEEN THE STABLE POSITIVE PERIOD AND REACTIVITY. THE ARMED FORCES RADIOBIOLOGY RESEARCH DATA ACQUISITION SYSTEM, AFTER RECEIVING THE AMPLIFIED SIGNAL FROM A COMPENSATED IONIZATION CHAMBER, SAMPLES AND DIGITIZES THE INPUT VOLTAGE EACH 4.2667 SEC. BOTH THE RAW DATA AND THE STABLE PERIOD ARE TYPED OUT. THE DESIGN STABLE PERIOD IS BETWEEN 30 TO 70 SEC, AND FROM 18 TO 22 INCREMENTED STEPS ARE NECESSARY TO CALIBRATE THE CENTRAL TRANSIENT ROD. THE CORE OF THE PERIOD CALCULATION PROGRAMMING IS BOARD PROGRAM BPNA (FUNCTION GENERATOR), WHICH IS LISTED AND DISCUSSED IN DETAIL.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

CONTROL ROD CALIBRATION + DATA PROCESSING + REACTOR CONTROL + REACTOR, PULSED

9-17834 ALSO IN CATEGORY 17
COX EL
CONTROL ROD DAMAGE AND FAILURE AT THE UNIVERSITY OF MISSOURI (COLUMBIA)
UNIVERSITY OF MISSOURI, COLUMBIA
11 PAGES, 5 FIGURES, JUNE 6, 1967, DOCKET NO. 50-186

DELAYS CAME FROM ACCIDENTAL DROPPING OF CONTROL RODS DUE TO FOREIGN MATTER IN BALL BEARINGS IN DRIVE. NO SOLUTION HAS YET BEEN FOUND. DURING REMOVAL OF ROD ASSEMBLIES WHILE TRYING TO CORRECT THIS PROBLEM, ROD A WAS IRREPARABLY DAMAGED. THE SUSPENSION OF THE BLADE-OFFSET MECHANISM HAD BEEN CHANGED AND TILTED DURING LIFTING, PUTTING TORQUE ON THE CONTROL BLADE, (STILL IN GUIDE SLOT), BREAKING WELD JOINT AT TOP OF BLADE AND DENTING BLADE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CONTROL ROD BURNUP + FAILURE, COMPONENT + FAILURE, DESIGN ERROR + FAILURE, MAINTENANCE ERROR + FAILURE, OPERATOR ERROR + FAILURE, SCRAM MECHANISM + OPERATING EXPERIENCE + REACTOR, FLUX TRAP + REACTOR, RESEARCH

9-17839 ALSO IN CATEGORY 17
IRIARTE M
BONUS PROPOSED CHANGE 2. REVISED PROCEDURE FOR DISCONNECTING CONTROL RODS
COMMONWEALTH OF PUERTO RICO, PUERTO RICO WATER RESOURCES AUTHORITY
3 PAGES, AUGUST 19, 1967, DOCKET NO. 115-4

BONUS REQUESTED CHANGE IN PROCEDURE DUE TO MODIFICATION OF CONTROL-ROD-RACK BUFFER UNIT. PURPOSE WAS TO ELIMINATE STRESSES DUE TO THERMAL EXPANSION, WHICH HAD CAUSED STRESS CORROSION AND CRACKING OF THE CONTROL-ROD-RACK ACME-THREADS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONTROL ROD DRIVE + *MODIFICATION, SYSTEM OR EQUIPMENT + *PROCEDURES AND MANUALS + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CORROSION + FAILURE, GENERAL + REACTOR, INTERNAL SUPERHEAT + SUPPORT STRUCTURE + TECHNICAL SPECIFICATIONS + THERMAL MECHANICAL EFFECT

9-17894 ALSO IN CATEGORY 10
NIELSEN P
INSTRUMENTATION AND CONTROL OF POWER PLANTS. A REVIEW
ATOMENERGIKOMMISSIONEN, RISØE, DENMARK. FORSØEGSINSTITUT
RISØ-M-312 +. 32 PAGES, SEPTEMBER 1965

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-17894 *CONTINUED*

REVIEWS TRENDS IN INSTRUMENTATION AND CONTROL OF POWER PLANTS. SPECIAL ATTENTION IS GIVEN TO THE PROBLEMS INVOLVED IN USING PROCESS COMPUTERS AND WIRED PROGRAM SYSTEMS MADE OF SOLID-STATE LOGIC MODULES. DETAILS ARE GIVEN OF BOTH SYSTEMS AS APPLIED TO INSTRUMENTATION AND CONTROL OF TURBINES.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

COMPUTER CONTROL + ELECTRIC POWER, GENERAL + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROCESS

9-17895

JACKSON CN

B-11 BETA CURRENT THERMAL NEUTRON FLUX DETECTOR

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON, PACIFIC NORTHWEST LAB.

BNWL-395 +. 30 PAGES, 12 FIGURES, 4 REFERENCES, APRIL 1967

DESCRIBES A SELF-POWERED BORON-11 BETA-CURRENT DETECTOR, INVESTIGATED IN AN EFFORT TO DEVELOP A USEFUL, RELIABLE, DURABLE, IN-CORE NUCLEAR DETECTOR. DESIGN CONCEPTS, TEST TECHNIQUES, AND EXPERIMENTAL PERFORMANCE CHARACTERISTICS ARE DESCRIBED AND ANALYZED. EXPERIMENTAL RESULTS, BETA-CURRENT CALCULATIONS, AND SOME RESULTS OBTAINED WITH A RHODIUM-103 SELF-POWERED DETECTOR ARE ALSO GIVEN. TEST INSTRUMENTATION AND IN-CORE CAPSULE DESIGN ARE DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FLUX, INTEGRATED + INSTRUMENTATION, IN CORE + INSTRUMENTATION, NUCLEAR + NEUTRON + THERMAL NEUTRON

9-17897

ALSO IN CATEGORY 10

PEDERSON OM

AUTOMATIC INSTRUMENTATION FOR NUCLEAR POWER PLANT

DANISH ATOMIC ENERGY COMMISSION, RISØ. RESEARCH ESTABLISHMENT

RISO-M-462 +. 8 PAGES, 22 REFERENCES, SEPTEMBER 1966

THIS REPORT REVIEWS THE INSTRUMENTATION AND AUTOMATION OF NUCLEAR POWER STATIONS, EXISTING AND PLANNED, NOTING EXPERIENCES AND TRENDS. THE TRENDS OF CONVENTIONAL POWER PLANTS IS ALSO COVERED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

ELECTRIC POWER, GENERAL + INSTRUMENTATION, CONTROL + INSTRUMENTATION, GENERAL + INSTRUMENTATION, PROCESS + REACTOR, POWER

9-17898

BULLOCK JB

COMPUTER CONTROL FOR REACTORS

OAK RIDGE NATIONAL LAB., TENN.

2 PAGES, 4 REFERENCES, NUCLEAR SAFETY 8(2), PAGE 138 AND 139, (DECEMBER 1966)

TWO PAPERS PRESENTED AT THE SYMPOSIUM ON THE USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES INDICATE THAT DIGITAL COMPUTERS ARE BEING USED FOR REACTOR CONTROL. THE APPLICATION OF DIGITAL COMPUTERS TO REACTOR SAFETY SYSTEMS IS STILL A SUBJECT OF DEBATE. THE USE OF A SINGLE COMPUTER TO PERFORM BOTH PRIMARY SAFETY- AND CONTROL-SYSTEM FUNCTIONS IS NOT RECOMMENDED IN THE LIGHT OF CURRENT SAFEGUARD-DESIGN POLICY.

COMPUTER CONTROL + COMPUTER, DIGITAL + REACTOR CONTROL + REACTOR SAFETY SYSTEM

9-18377

TUTTLE RJ

NEUTRON-IMPORTANCE MEASUREMENTS IN THE ADVANCED EPITHERMAL THORIUM REACTOR (AETR) CRITICAL EXPERIMENTS ATOMICS INTERNATIONAL, A DIVISION OF NORTH AMERICAN AVIATION, INC., CANOGA PARK, CALIFORNIA
12 PAGES, 11 FIGURES, 23 REFERENCES, NUCLEAR SCIENCE AND ENGINEERING 21(4), PAGE 451 THRU 462, (1965)

VALUES OF NEUTRON IMPORTANCE AT THE CENTER OF THE TEST REGIONS WERE MEASURED USING NEUTRON SOURCES AND A REACTIVITY OSCILLATOR. THE VARIATION OF NEUTRON IMPORTANCE WITH POSITION WAS DETERMINED USING NEUTRON SOURCES IN CONJUNCTION WITH A DYNAMIC REACTIVITY-MEASUREMENT TECHNIQUE. ANALYSIS OF DATA FROM SIMILAR BERYLLIUM- AND CARBON-MODERATED TEST REGIONS INDICATES THE SIGNIFICANCE OF THE BE(1N, 2N) REACTION. THE NEUTRON SOURCES USED IN THIS STUDY WERE PO-BE, PO-B-11, PO-CAF2, PO-L17, MOCK FISSION AND SB-BE. PUBLISHED SOURCE SPECTRA WERE USED IN THE ANALYSIS OF THE DATA. THE MOCK-FISSION-SOURCE SPECTRUM WAS DETERMINED BY GAMMA-RAY SPECTROSCOPY. RELATIVE YIELDS OF THESE SOURCES WERE DETERMINED BY CALIBRATION IN A MANGANESE SULFATE BATH.

CRITICALITY EXPERIMENT + REACTOR, FAST + SOURCE, NEUTRON

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18378
ALLRED DO + MORROW GW
A CONTINUOUS GAMMA MONITORING SYSTEM FOR DETECTING FUEL ELEMENT FAILURES IN HANFORDS NEW PRODUCTION REACTOR
GENERAL ELECTRIC CO., RICHLAND, WASHINGTON + GENERAL ELECTRIC CO., HUNTSVILLE, ALABAMA
CONF-701-4 + HW-SA-3633 +. 12 PAGES, 15 FIGURES, PRESENTED AT THE INSTRUMENT SOCIETY OF AMERICA 19TH
ANNUAL INSTRUMENT-AUTOMATION CONFERENCE AND EXHIBIT, NEW YORK, OCTOBER 1964

HIGH-PRESSURE COOLING WATER THAT HAS PASSED THROUGH THE 1004 PROCESS TUBES OF THE NEW
PRODUCTION REACTOR AT HANFORD IS SAMPLED CONTINUOUSLY, TUBE BY TUBE, TO DETECT ANY
RADIOACTIVE PARTICLES PICKED UP FROM FAILED FUEL ELEMENTS. GROSS GAMMA IS DETECTED BY
HALOGEN-QUENCHED GM TUBES, AND GAMMA-ENERGY SPECTRA ARE MEASURED BY SCINTILLATION DETECTORS.
SIGNIFICANT COUNT RATES ACTIVATE AN ANNUNCIATOR SO THAT FLOW FROM A TUBE WITH A DETECTED
FAILURE CAN BE DIVERTED RATHER THAN RECIRCULATED. SENSITIVITY IS 10 TO THE MINUS 8TH G/ML OF
DISSOLVED NATURAL URANIUM, WITH A DOSE OF LESS THAN 10 TO THE 17TH NVJ.

CHAMBER, GAMMA + FAILURE, FUEL ELEMENT + GROSS GAMMA + HANFORD PRODUCTION REACTOR +
INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + REACTOR, GAS COOLED + REACTOR, GRAPHITE MODERATED +
REACTOR, PRODUCTION

9-18380
APPLICATIONS OF ULTRASONIC ENERGY - ULTRASONIC INSTRUMENTATION FOR NUCLEAR APPLICATIONS. BIMONTHLY
PROGRESS REPORT NO. 28. APRIL 1, 1966 - MAY 31, 1966
AEROPROJECTS, INC., WEST CHESTER, PA.
NYO-3622-3 +. 14 PAGES, FIGURES, JUNE 1966

THIS PROGRESS REPORT IS ONE OF A SERIES CONCERNED WITH THE APPLICATION OF ULTRASONIC
TECHNIQUES TO MEASUREMENT PROBLEMS IN NUCLEAR REACTORS. THE NEW PROJECT BEGUN THIS ISSUE IS
- ULTRASONIC INSTRUMENTATION FOR THE MEASUREMENT OF TEMPERATURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, IN CORE + INSTRUMENTATION, TEMPERATURE + MEASUREMENT, TEMPERATURE

9-18381
LACROSSE BOILING WATER REACTOR RESEARCH AND DEVELOPMENT PROGRAM. QUARTERLY TECHNICAL PROGRESS REPORT.
NO. 4, JANUARY 1964, MARCH, 1964
ALLIS-CHALMERS MFG. CO., BETHESDA, MD.
ACNP-64572 +. 8 PAGES, JUNE 1964

THIS PROGRESS REPORT IS ONE OF A SERIES. SECTION IV IS CONCERNED WITH THE CONTROL-ROD-DRIVE
MECHANISM. NO FURTHER REPORTS IN THE SERIES WILL BE SUMMARIZED UNLESS A SIGNIFICANT CHANGE
IN THE PROGRAM OR A SIGNIFICANT ITEM OF INTEREST TO NSIC IS REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD DRIVE + CONTROL ROD FABRICATION + CONTROL ROD PROGRAM + LACROSSE + REACTOR, BOILING WATER

9-18382 ALSO IN CATEGORY 6
LEWINS J + BENHAM RD
TIME OPTIMAL XENON SHUTDOWN ON THE XENON BOUNDARY
PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-186 +. 34 PAGES, 11 FIGURES, 9 REFERENCES, MAY 1966

THE TIME-OPTIMAL FLUX PROGRAM TO SHUT DOWN A REACTOR WITHOUT LOSING RESTART CAPABILITY THROUGH
XENON POISONING IS REVIEWED. A MORE RIGOROUS PROOF OF THE OPTIMAL NATURE OF OPERATING ALONG
THE XENON BOUNDARY IS OFFERED, TOGETHER WITH A DISCUSSION OF SITUATIONS WHICH MIGHT NOT BE
OPTIMAL. IT IS CONCLUDED THAT FOR PRACTICAL PURPOSES OPERATION ALONG THE BOUNDARY WILL BE
OPTIMAL. PART OF THE PROOF CONSISTS OF ANALOG COMPUTATIONS, AND A DISCUSSION IS GIVEN OF THE
SUITABILITY OF THE OPTIMUM XENON STUDY TO ANALOG TECHNIQUES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ANALOG SIMULATION + POISON, BURNABLE + REACTOR CONTROL + SHUTDOWN MARGIN + XENON

9-18421
APPLICATIONS OF ULTRASONIC ENERGY - ULTRASONIC INSTRUMENTATION FOR NUCLEAR APPLICATIONS. BIMONTHLY
PROGRESS REPORT NO. 33, FEBRUARY 1 - MARCH 31, 1967
AEROPROJECTS, INC., WEST CHESTER, PA.
NYO-3622-8 +. 8 PAGES, 1 FIGURE, APRIL 1967

THIS PROGRESS REPORT IS ONE OF A SERIES CONCERNED WITH THE APPLICATION OF ULTRASONIC

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18421 *CONTINUED*

TECHNIQUES TO MEASUREMENT PROBLEMS IN NUCLEAR REACTORS. DEVELOPMENT OF INSTRUMENTATION HAS BEEN UNDERTAKEN BEGINNING WITH THEORY, DESIGNING A PROTOTYPE, THEN DEVELOPING AND TESTING A UNIT. TOPICS COVERED - (1) ULTRASONIC INSTRUMENTATION FOR THE DETECTION OF INCIPIENT BOILING IN MOLTEN METAL, (2) ULTRASONIC FLOWMETER FOR USE IN MOLTEN METAL OR FUSED SALT SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, FLOW + INSTRUMENTATION, IN CORE

9-18428

PLANTE J

PRESSURE REGULATOR FOR NUCLEAR REACTORS

COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE

CANADIAN PATENT 750-022 +. 11 PAGES, 4 FIGURES, JANUARY 3, 1967, PATENT (FOREIGN)

REACTOR CONTROL IS ACHIEVED BY VARYING THE PRESSURE OF A GASEOUS MIXTURE CONSISTING OF A NEUTRON ABSORBING GAS AND AN INERT GAS SUCH AS HE-3. THIS MIXTURE IS HELD IN VESSELS IN THE REACTOR CORE OR IN THE REFLECTOR. THE REACTIVITY IS CONTROLLED BY A PUMP AND A PRESSURE-REDUCING VALVE. THE DESIGN OF APPARATUS FOR REGULATING THE PRESSURE OF THE ABSORBENT GAS MIXTURE IN A CLOSED CIRCULATION LOOP IS THE OBJECT OF THE DEVICE. RAPID RESPONSE IS CLAIMED.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS A PAGE)

INSTRUMENTATION, PRESSURE + PATENT + REACTOR CONTROL + REACTOR, GAS COOLED + VALVE

9-18429

FORTESCUE P + NICOLL D

NEUTRONIC REACTOR WITH IMPROVED RELEASE MECHANISM BETWEEN CONTROL ROD AND ASSOCIATED DRIVE

U.S. PATENT 3-271-264 +. 6 PAGES, 13 FIGURES, SEPTEMBER 6, 1966, PATENT (U.S.)

RELATES GENERALLY TO REACTORS AND IS DIRECTED TO MEANS FOR LOADING AND UNLOADING FUEL ELEMENTS IN THE REACTOR AND FOR HANDLING THE REPLACEMENT OF THE CONTROL RODS. AN IMPROVED CONTROL-ROD MECHANISM WHICH AFFORDS SELECTIVE RELEASE OF THE CONTROL ROD RELATIVE TO ITS OPERATING MECHANISM IS ALSO DESCRIBED. AN IMPROVED LOCK AND RELEASE MECHANISM IS DESCRIBED FOR USE BETWEEN A CONTROL ROD AND ITS ASSOCIATED DRIVE MECHANISM. THE MECHANISM INCLUDES AN ANNULAR GROOVE IN THE END OF THE CONTROL ROD, A SLEEVE WITH BALL-CARRYING RECESSES, A COLLAR WITH RECESSES TO RECEIVE THE BALLS, AND MEANS FOR MOVING THE COLLAR RELATIVE TO THE SLEEVE.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.25 COPY

CONTROL ROD + PATENT + REACTOR, GAS COOLED + REFUELING

9-18432

FROMM LW + KELBER CN

METHOD FOR CONTROLLING A NUCLEAR REACTOR

U.S. PATENT 3-267-002 +. 6 PAGES, AUGUST 16, 1966, PATENT (U.S.)

PROVIDES A METHOD OF CONTROLLING A REACTOR WHICH REDUCES AXIAL FLOW DISTORTION CAUSED BY INSERTION OF THE CONTROL ELEMENTS. THIS METHOD IS FOR CONTROLLING A THERMAL OR EPITHERMAL REACTOR HAVING A HIGH POWER DENSITY. THE RATIO OF MAXIMUM HEAT FLUX AT ANY POINT IN THE CORE TO THE AVERAGE HEAT FLUX OVER THE ENTIRE CORE IS REDUCED. A CONTROL ELEMENT IS DESCRIBED FOR THIS METHOD.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.25 COPY

CONTROL ROD + CONTROL ROD INTERACTION + PATENT + REACTOR CONTROL

9-18433

REIK M

SAFETY PROBLEMS IN ELECTRICAL CIRCUITRY FOR NUCLEAR REACTOR SAFETY SYSTEMS

TECHNICAL SUPERVISORY ASSOCIATION, GERMANY

5 PAGES, 5 FIGURES, 8 REFERENCES, ATOMKERNENERGIE 10(5-6), PAGE 181 THRU 185, (1965), IN GERMAN

SPECIAL CIRCUITRY IS REQUIRED IN ELECTRICAL CIRCUITS TO INCREASE RELIABILITY IN REACTOR SAFETY SYSTEMS. THE ARTICLE PRESENTS IN THE BEGINNING A REVIEW OF TODAY'S CIRCUIT PHILOSOPHY. THE PROBLEM OF REAL MULTICHANNEL INSTRUMENTATION AND SYSTEM TESTING DURING REACTOR OPERATION IS DISCUSSED. SOLID-STATE DEVICES OFFER NEW ASPECTS FOR RELIABILITY. THE MAIN FEATURES OF THE NEW TECHNIQUE AND A GENERALIZED CIRCUIT OF A SELF-TESTING SYSTEM IS DESCRIBED.

CONTROL SYSTEM + INSTRUMENTATION, COINCIDENT + INSTRUMENTATION, REDUNDANT

9-18454

ALSO IN CATEGORIES 11 AND 17

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18454 *CONTINUED*

PLUM BROOK PROPOSED CHANGE 32. PENETRATION LEAK RATE, MAXIMUM FUEL BURNUP, AND CONTROL ROD DRIVES GUIDE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SANDUSKY, OHIO
5 PAGES, SEPTEMBER 7, 1967, DOCKET 50-30

(1) REQUESTS LONGER (YEARLY) LEAK-TEST INTERVAL ON UNMONITORED PENETRATIONS ON BASIS OF PAST EXPERIENCE. *** (2) INCREASE ALLOWED BURNUP FROM 100 TO 113 MWD ON BASIS OF OBSERVATION AT ORNL, WHERE 240 G ELEMENTS WERE DEPLETED TO 96 G U-235. *** (3) MODIFICATION OF CONTROL-ROD DRIVES TO PERMIT A PLANNED MODIFICATION OF CORE UPPER GRID (DIVIDING IT INTO 2 PARTS) TO FACILITATE RELOADING. ROLLER BEARING WILL BE REPLACED BY ROLLERLESS GUIDES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONTAINMENT PENETRATION, ELECTRICAL + *CONTROL ROD DRIVE + *FUEL BURNUP + *TEST INTERVAL + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + PLUM BROOK + REACTOR, RESEARCH + REACTOR, TEST + SUPPORT STRUCTURE + TECHNICAL SPECIFICATIONS + TEST, LEAK RATE

9-18611 ALSO IN CATEGORY 17

PIQUA CONTROL ROD TESTS

PIQUA NUCLEAR POWER FACILITY

COO-652-42 +. 9 PAGES, SEPTEMBER 19, 1967, DOCKET NO. 115-2, FROM PIQUA NUCLEAR POWER FACILITY. MONTHLY OPERATING REPORT NO. 52 FOR AUGUST 1967

DURING CONTROL-ROD COMPRESSION TESTS, PERSONNEL WERE EXPOSED AT 3 REMS/HR TRANSFERRING THE CENTRAL ROD TO THE TEST RIG. THE ROD READ 250 R/HR (GAMMA) AT 18 IN. MAX. DOSIMETER READING FOR THE MONTH WAS 0.4 REM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD BURNUP + MAINTENANCE AND REPAIR + OPERATING EXPERIENCE + OPERATIONS REPORT, GENERAL + PERSONNEL EXPOSURE, RADIATION + PIQUA + REACTOR, ORGANIC COOLED

9-18619 ALSO IN CATEGORY 6

TAKAHASHI J

CONTROL ROD DRIVE

JAPANESE PATENT 1966-3598 +. 3 PAGES, MARCH 2, 1966, PATENT (FOREIGN)

THE CONTROL-ROD DRIVE IS MADE SIMPLY. SHIM AND FINE-ADJUSTMENT OF A SINGLE CONTROL ROD AND EASE IN FABRICATION AND CONSTRUCTION AND HIGH RELIABILITY ARE SIMPLIFIED. THE LONG, THREADED ROD FOR MOVING A CONTROL ROD FOR BOTH THE SHIM AND FINE-ADJUSTMENT CONTROLS ENGAGES WITH THE TWO LONG NUTS FOR THE SHIM AND FINE-ADJUSTMENT RESPECTIVELY. THESE TWO NUTS ARE LOCATED UP AND DOWN ALONG THE THREADED ROD. FOR THE SHIM-CONTROL, THE UPPER NUT MOVES TOGETHER WITH THE THREADED ROD. FOR FINE-ADJUSTMENT, THE LOWER NUT MOVES WITH THE THREADED ROD. FOR THE LATTER, PROVISION IS MADE FOR CONTROLLING THE LENGTH OF THE UP OR DOWN MOVEMENT. THE SHIM AND THE FINE-ADJUSTMENT ROD MOVEMENT ARE ACHIEVED BY THE RESPECTIVE MECHANISMS, INCLUDING A WORM-WHEEL, A WORM, AN ELECTRIC MOTOR, ETC.

AVAILABILITY - PHOTOCOPIES MAY BE OBTAINED FROM THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 PER PAGE)

CONTROL ROD DRIVE + CONTROL ROD, SHIM SAFETY + JAPAN + PATENT

9-18648 ALSO IN CATEGORY 15

MANN JR + BISTLINE RW + JOHNSON VP

MEASUREMENTS OF PU-238

DOW CHEMICAL CO., GOLDEN, COLO. ROCKY FLATS DIVISION

RFP-954 +. 7 PAGES, 5 FIGURES, 4 TABLES, JUNE 30, 1967

EVALUATION HAS BEEN COMPLETED OF DETECTORS IN USE AT ROCKY FLATS FOR DETERMINING DETECTABLE PLUTONIUM AMOUNTS IN THE BODY. SPECIFICALLY, THE STUDY INCLUDED SAMPLE MEASUREMENTS OF PU-238, IN VIVO, WITH A SCINTILLATION SPECTROMETER DETECTOR. THE FINDINGS, USING A PHANTOM CHEST MODEL, SHOWED THAT FOUR TIMES THE MAXIMUM PERMISSIBLE LUNG BURDEN WAS THE MINIMUM WHICH COULD BE DETECTED. THE MINIMUM DETECTABLE AMOUNTS IN THE LIVER WERE LESS THAN ONE PERMISSIBLE LIVER BURDEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL + INSTRUMENTATION, RADIATION MONITORING + PLUTONIUM + RADIATION MODEL + ROCKY FLATS

9-18649

CHIRILOV B

DESIGN OF A LOW-NOISE, CHARGE-SENSITIVE PREAMPLIFIER WITH FIELD-EFFECT TRANSISTORS

DANISH ATOMIC ENERGY COMMISSION, RISØ. RESEARCH ESTABLISHMENT

RISØ-M-540 + R-4-67 +. 20 PAGES, APRIL 1967

THE PURPOSE OF THIS PAPER IS TO DEMONSTRATE THE APPLICATION OF FIELD-EFFECT TRANSISTORS IN

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18649 *CONTINUED*

NUCLEONIC CHARGE-SENSITIVE PREAMPLIFIERS. A SHORT DISCUSSION IS GIVEN OF THESE AMPLIFIERS. PARTICULARLY, THE NOISE PERFORMANCE IS CONSIDERED. ON THE ASSUMPTION OF SINGLE RC DIFFERENTIATING AND INTEGRATING NETWORKS WITH EQUAL TIME CONSTANTS, THE CONTRIBUTIONS TO THE EQUIVALENT NOISE CHARGE FROM THE DIFFERENT NOISE SOURCES ARE FOUND. IN ADDITION, THE IMPROVEMENT OF THE NOISE PERFORMANCE THAT MIGHT BE OBTAINED BY COOLING AND PARALLELING THE INPUT FET IS MENTIONED. FINALLY, THE EXPERIMENTAL RESULTS OBTAINED WITH A FEW SAMPLES OF DIFFERENT TYPES OF FIELD-EFFECT TRANSISTORS ARE PRESENTED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

INSTRUMENTATION, AMPLIFIER

9-18650

HENRY AF + VOTA AV

WIGL2 ADDENDUM 1 - A PROGRAM FOR THE SOLUTION OF THE ONE-DIMENSIONAL, TWO-GROUP, SPACE-TIME DIFFUSION EQUATIONS ACCOUNTING FOR TEMPERATURE, XENON, AND CONTROL FEEDBACK

BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.

WAPD-TM-932(ADD.1) +. 5 PAGES, 2 REFERENCES, JANUARY 1967

DESCRIBES THE MODIFICATIONS TO WIGL2, A ONE-DIMENSIONAL, TWO-GROUP, SPACE-TIME DIFFUSION-THEORY PROGRAM WRITTEN IN FORTRAN II AND COMPILED ON THE PHILCO-2000. THE PROGRAM WAS CONVERTED TO FORTRAN IV AND COMPILED ON THE CDC-6600 WITH THE CHANGES DESCRIBED IN THIS ADDENDUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ANALYTICAL MODEL + COMPUTER PROGRAM + REACTOR CONTROL + THEORETICAL INVESTIGATION

9-18651

JONES HM + ALCORN FM + PAULSON AE

ANALYSIS OF LUMPED BURNABLE POISON CRITICAL EXPERIMENTS

BABCOCK AND WILCOX CO., LYNCHBURG, VA. ATOMIC ENERGY DIVISION

BAW-3492-1(SUPPL. 1) + TRG-66-22 +. 29 PAGES, TABLES, REFERENCES, APRIL 1966

THE DEVELOPMENTAL WORK ON NUCLEAR ANALYTICAL METHODS FOR DISTRIBUTED CONTROL PINS (R&D STUDY NO. 41-0088) IS SUMMARIZED. ALL THE CALCULATIONS USED A NUCLEAR CODE PACKAGE SELECTED AFTER A COMPARATIVE STUDY OF AVAILABLE CODES. FOUR CRITICAL EXPERIMENTS WERE SELECTED AS TYPICAL OF THE BORON POISON PINS USED IN THE EXPERIMENTS. BORON CONCENTRATION, PIN SIZE, AND PIN DISTRIBUTION WERE CONSIDERED. THE REPORTED ERROR OF THE CALCULATED MULTIPLICATION CONSTANT INDICATES THE ADEQUACY OF THE ANALYTICAL MODEL. FURTHER WORK REQUIRED IN SOME AREAS IS DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ANALYTICAL MODEL + BORON + CODES AND STANDARDS + CONTROL ROD WORTH + POISON, BURNABLE + REACTOR, WATER

9-18652

ALSO IN CATEGORY 1

NELSON P + YOUNG G

MINIMIZING THE NATURAL FUEL REQUIREMENT FOR NUCLEAR REACTOR POWER SYSTEMS. A NONSTANDARD OPTIMAL CONTROL PROBLEM

OAK RIDGE NATIONAL LAB., TENN.

ORNL-P-3314 +. 25 PAGES, REFERENCES, 1967

THE PROBLEM STUDIED IS THE SYNTHESIS OF POLICIES OF MINIMUM NATURAL FUEL REQUIREMENT FOR A CERTAIN MODEL OF NUCLEAR POWER SYSTEM. THIS PROBLEM IS SOLVED COMPLETELY FOR A SYSTEM CONSISTING OF TWO REACTOR TYPES, AND MOST OF THE RESULTS ARE RESTRICTED TO SUCH TWO-COMPONENT SYSTEMS. THE PROBLEM CONSIDERED IS SHOWN TO BE EQUIVALENT TO A FIXED-TIME, VARIABLE-ENDPOINT LINEAR OPTIMAL CONTROL PROBLEM, BUT OF A RATHER NONSTANDARD TYPE IN THAT ONE OF THE CONTROL CONSTRAINTS DEPENDS ON THE STATE VARIABLE AND THE COST FUNCTIONAL DEPENDS ONLY ON THE LEFT ENDPOINT VALUE OF THE STATE VARIABLE. THE APPEARANCE OF THE STATE VARIABLE IN A CONTROL CONSTRAINT ESSENTIALLY RESULTS FROM THE BREEDING FEATURE OF NUCLEAR REACTORS.

ECONOMIC STUDY + FUEL BURNUP + THEORETICAL INVESTIGATION

9-18653

HUTTON PH

DETECTION OF FLAW GROWTH IN PRESSURE PIPING BY SENSING ACOUSTIC EMISSION

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-SA-1076 + CONF-661211-1 +. 11 PAGES, 1966

DESCRIBES A PROGRAM TO DEVELOP A SYSTEM TO DETECT FLAW GROWTH IN REACTOR PRESSURE PIPING BY SENSING THE ATTENDANT ACOUSTIC EMISSION, (ENERGY RELEASED IN METALS AS THEY DEFORM AND FRACTURE). A SIGNIFICANT AMOUNT OF THIS ENERGY IS AT A LEVEL SUFFICIENT TO BE DETECTED BY SURFACE MOUNTED TRANSDUCERS.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18653 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BATTELLE NORTHWEST + EXPERIMENT, GENERAL + FAILURE, PIPE + FLAW + FRACTURE TOUGHNESS

9-18655

WILLIS WL

DISTURBANCE OF CAPACITIVE LIQUID LEVEL GAUGES BY NUCLEAR RADIATION

LOS ALAMOS SCIENTIFIC LAB., UNIV. OF CALIFORNIA, N. MEX.

LA-DC-7654 + CONF-660605-5 +. 20 PAGES, FIGURES, REFERENCES, 1966

THE MAJOR DIFFICULTY WITH THE CAPACITANCE GAUGE IS THE HIGH IMPEDANCE OF THE PROBE UNITS. A SOLUTION APPEARS TO BE A SYSTEM CALLED TIME-DOMAIN REFLECTOMETRY. THIS MEASURES THE CHARACTERISTIC IMPEDANCE OF A TRANSMISSION LINE AND DETECTS THE GAS-LIQUID INTERFACE BY THE SUDDEN CHANGE IN IMPEDANCE. TESTS INDICATE THAT RADIATION DOES NOT DISTURB THIS SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, INSTRUMENT + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, LIQUID LEVEL DETECTION + RADIATION EFFECT

9-18656

STRAIT BG + LANG RM

NUCLEAR REACTOR CONTROL WITH STEPPING MOTOR ACTUATORS

LOS ALAMOS SCIENTIFIC LAB., UNIV. OF CALIFORNIA, N. MEX.

LA-DC-7244 + CONF-660608-7 +. 29 PAGES, FIGURES, TABLES, REFERENCES, 1966

DESCRIBES THE ELECTRIC STEPPING-MOTOR ACTUATOR SYSTEM DEVELOPED FOR THE PHOEBUS-2 ZEPO CRITICAL ASSEMBLY. THE SYSTEM FEATURES CONTROL-ROD SETTINGS TO 0.01 DEGREE, OPERATING EASE WHICH MINIMIZES THE TIME AND EFFORT REQUIRED TO EXECUTE EXPERIMENTS, A SAFETY POLICY BASED ON LIMITING THE RATE OF INCREASE OF REACTIVITY, AND A FAIL-SAFE SCRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD DRIVE + CONTROL ROD SCRAM MECHANISM + ROVER PROGRAM

9-18657

GALANIN AD

CONTROL THEORY FOR HETEROGENEOUS REACTORS

GOSUDARSTVENNYI KOMITET PO ISPOL-ZOVANIYU ATOMNOI ENERGII SSSR, MOSCOW. INSTITUT TEORETICHESKOI I EKSPERIMENTAL'NOI FIZIKI

AEC-TR-6848 + ITEF-406 +. 15 PAGES, 3 REFERENCES, 1965

THEORETICAL INVESTIGATION OF THE CONTROL EFFICIENCY FOR A HETEROGENEOUS REACTOR. THE ANALYSIS IS COMPLETELY CARRIED THROUGH FOR THE CASE OF A SUFFICIENTLY WEAK BLOCK EFFECT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ANALYTICAL MODEL + REACTOR CONTROL + THEORETICAL INVESTIGATION + UNION OF SOVIET SOCIALIST REPUBLICS

9-18658

ALSO IN CATEGORY 17

CATHOLIC U REPORTS SCRAM RELAY FAILURE DUE TO CIRCUIT MODIFICATION

THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON, D. C.

3 PAGES, SEPTEMBER 18, 1967, DOCKET NO. 50-77

ON 28 FEB. 67, SCRAM RELAY (K4) FAILED TO DEENERGIZE UPON OPENING OF AN INTERLOCK WHICH CAUSES 90 VOLTS TO BE COUPLED THROUGH A 220-K RESISTOR TO THE GRID OF THE 6L6 TUBE (WITH A GRID RESISTOR OF 470 K), WHICH NORMALLY ALLOWED ENOUGH VOLTAGE TO SHUT OFF RELAY CURRENT. HOWEVER, MODIFICATIONS MADE TO COMPLY WITH TECH. SPEC. 2.4 CAUSED ONLY ABOUT 10 VOLTS TO APPEAR ACROSS THE 6L6 TUBE, WHICH WAS INSUFFICIENT TO SHUT OFF THE TUBE. THE RODS HAD DROPPED, HOWEVER. CHANGES WERE MADE TO ALLOW PROPER OPERATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *REACTOR SAFETY SYSTEM + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + FAILURE, DESIGN ERROR + INSTRUMENTATION, INTERLOCK + INSTRUMENTATION, RELAY + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS

9-18659

ALSO IN CATEGORY 17

CATHOLIC U ANNUAL REPORT OF FACILITY MODIFICATION AND OPERATIONS FOR YEAR ENDED 25 AUG. 67

THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON, D. C.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18659 *CONTINUED*
3 PAGES, SEPTEMBER 18, 1967, DOCKET NO. 50-77

(13 MAR. 67) EXCESS REACTIVITY WAS SHOWN TO BE 0.44% DUE TO 20 C AMBIENT. GRAPHITE BEAM-TUBE FILLER BLOCK WAS REMOVED TO RETURN TO LICENSE LIMIT OF 0.25. EQUIPMENT FAILURES - (1) SCRAM ALARM BELL AND LIGHT FAILED TO OPERATE. (2) 4 FALSE INDICATIONS ON VARIAN RECORDED. (3) 9 CONTROL-ROD-DRIVE FAILURES (3 TIMES THE COARSE ROD WOULD NOT LEAVE LOWER LIMIT, 3 TIMES THE NO. 1 SAFETY DROPPED WHEN IT REACHED UPPER LIMIT, 2 TIMES THE NO. 2 SAFETY WOULD NOT LEAVE LOWER LIMIT, AND ONCE THE FINE ROD WOULD NOT LEAVE LOWER LIMIT). 6 OF THESE WERE 14-26 JULY 67. (5) SCRAM FAILED TO DEENERGIZE (RODS DROPPED FROM OTHER SOURCE) DUE TO MODIFICATION OF CIRCUIT WHICH HAD LEFT INTERLOCK OPEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + CONTROL ROD DRIVE + FAILURE, DESIGN ERROR + INSTRUMENTATION, ABNORMAL INDICATION + OPERATING EXPERIENCE + OPERATIONS REPORT, GENERAL + REACTIVITY, EXCESS + REACTOR SAFETY SYSTEM + REACTOR, TRAINING

9-18689 ALSO IN CATEGORY 17
MARSHALL RP + SELBY CL
FAILURE ANALYSES AND PROPERTIES OF SAFETY ROD GUIDE TUBES FROM THE HWCTR
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.
DP-1077 +. 21 PAGES, 7 FIGURES, 8 TABLES, 8 REFERENCES, APRIL 1967

FOUR OF SIX ROD-GUIDE TUBES DEVELOPED LONGITUDINAL AND TRANSVERSE CRACKS IN 1964 AFTER 6000 HR AT 200 C, FOUND WHEN ROD-DROP TIME INCREASED. THE ZIRCALOY FAILURES WERE CAUSED BY STRESS PULSES GENERATED IN THE TUBES DURING HYDRAULIC DECELERATION OF THE FALLING SAFETY RODS. THE CRACKS WERE STARTED BY LOW-CYCLE FATIGUE, DUE TO REPEATED DROPS AT ELEVATED TEMPERATURES, AND WERE PROPAGATED BY DROPS AT LOW TEMPERATURES. RESIDUAL STRESSES AND HIGH HYDROGEN CONTENTS, BOTH FROM FABRICATION AND FROM HIGH IN-PILE CORROSION RATES, WERE SIGNIFICANT CONTRIBUTING FACTORS. IN-PILE CORROSION RATES WERE THREE TO TEN TIMES THE RATES EXPECTED IN AUTOCLAVE TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FATIGUE + *FAILURE, SCRAM MECHANISM + *OPERATIONS REPORT, ANALYSIS + CORE COMPONENTS, MISCELLANEOUS + CORROSION + FAILURE, DESIGN ERROR + HWCTR (HEAVY WATER COMPONENT TEST REACTOR) + INCIDENT, ACTUAL, EQUIPMENT + REACTOR, PRESSURIZED WATER + ZIRCALOY

9-18720
WIMUNC EA
MULTI-SECTION CONTROL ROD WITH THERMAL EXPANSION JOINT
U. S. PATENT 3-264-192 +. 4 PAGES, 4 FIGURES, AUGUST 2, 1966, PATENT (U.S.)

THIS PATENT COVERS A CONTROL ROD FORMED OF MULTILEGGED BLADELIKE SECTIONS HAVING DIFFERENT RATES OF EXPANSION. THE SECTIONS OF THE GROOVES ENGAGING ONE ANOTHER WHILE BEING KEPT FREE OF CONNECTIONS THAT PREVENT RELATIVE MOVEMENT OF THE SECTIONS IN THE DIRECTIONS IN WHICH THE TONGUES AND GROOVES EXTEND. THE CONTROL-ROD SECTIONS ARE PRESSED TOGETHER LONGITUDINALLY AND ARE PREVENTED FROM HAVING RELATIVE TRANSVERSE MOVEMENT TRANSVERSE OF THE TONGUES AND GROOVES WHILE BEING FREE TO MOVE RELATIVELY IN THE DIRECTIONS OF THE TONGUES AND GROOVES. THUS, THE SECTIONS ARE HELD TOGETHER SUFFICIENTLY FOR NECESSARY LONGITUDINAL ADJUSTMENT OF THE CONTROL ROD INCIDENTAL TO REACTOR OPERATION AND YET ACCOMMODATE DIFFERENTIAL EXPANSION.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (0.25 PER COPY)

CONTROL ROD + CONTROL ROD FABRICATION + FUEL ELEMENT BOWING + PATENT + REACTIVITY EFFECT, EXPANSION + UNITED STATES

9-18721
HUTTER E + SULLIVAN TE
SEAL FOR A CONTROL ROD APPARATUS
U. S. PATENT 3-280-002 +. 4 PAGES, 3 FIGURES, OCTOBER 18, 1966, PATENT (U.S.)

THIS PATENT COVERS AN ARRANGEMENT FOR PERMITTING RAPID MOVEMENT OF A CONTROL ROD IN A REACTOR WHILE RETAINING EFFECTIVE SEALING THEREOF, BY PROVIDING A COMPOUND SEALING CONSTRUCTION THAT HAS ONE PORTION SEALING THE CONTROL ROD IN ITS WITHDRAWN POSITION DURING REACTOR OPERATION AND ANOTHER PORTION SEALING THE CONTROL ROD IN ITS INSERTED POSITION AT REACTOR SHUTDOWN AND THAT YET HAS NO SEALING ACTION DURING THE VERY SHORT PERIOD NEEDED FOR RAPID INSERTIONS OF THE CONTROL ROD FOR SHUTDOWN. THIS ABSENCE OF SEALING DURING THE RAPID INSERTION ENABLES THE RAPID INSERTION TO OCCUR.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (0.25 PER COPY)

CONTAINMENT PENETRATION, CLOSURE OF + CONTAINMENT PENETRATION, GENERAL + CONTROL ROD + PATENT + SEAL + UNITED STATES

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18722
HITCHCOCK AJ
NUCLEAR REACTOR CONTROL SYSTEM
U. S. PATENT 3-255-086 +. 4 PAGES, 5 FIGURES, JUNE 7, 1966, PATENT (U.S.)

RELATES TO REACTOR CONTROL RODS THAT HAVE GRADUATED SO THAT MOVEMENT OF THE CONTROL ROD CAN TAKE PLACE WITHOUT CREATING SIGNIFICANT ZONES OF STEPWISE CHANGE OF REACTIVITY IN THE CORE STRUCTURE. THE CONTROL ROD CAN BE MADE TAPERED, OR THE AMOUNT OF NEUTRON ABSORBING MATERIAL WITHIN THE CONTROL ROD CAN BE VARIED ALONG THE LENGTH OF THE ROD.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.25 PER COPY)

CONTROL ROD + PATENT + REACTOR CONTROL + UNITED STATES

9-18723
PARKER R
METHOD FOR DETERMINING THE RESPONSE OF TEMPERATURE SENSORS TO A RAPID TEMPERATURE RISE
LAWRENCE RADIATION LAB., UNIV. OF CALIFORNIA, LIVERMORE
UCRL-12484(REV.2) + CONF-661004-1 +. 11 PAGES, 4 REFERENCES, APRIL 28, 1966, FOR PRESENTATION AT THE INSTRUMENT SOCIETY OF AMERICA, FALL MEETING, NEW YORK

A CAPACITOR-DISCHARGE TECHNIQUE WAS USED TO PULSE-HEAT A METAL STRIP VERY QUICKLY (30 MICROSEC), AND THE RESPONSE OF A TEMPERATURE SENSOR BONDED TO THE STRIP WAS MEASURED TO GIVE THE TEMPERATURE RESPONSE OF THE SENSOR. THE ANALYTICAL SOLUTION FOR THE RESPONSE OF THE SENSOR WAS COMPARED WITH THE EXPERIMENTAL DATA, WITH VERY GOOD AGREEMENT. IT WAS CONCLUDED THAT THE GLUE-LINE AND BACKING-THICKNESSES GOVERN THE RESPONSE OF THE SENSOR. A POSSIBLE NONDESTRUCTIVE METHOD FOR DETERMINING THE RESPONSE OF A TEMPERATURE SENSOR AND A STRAIN GAGE, TO BE USED IN THE FIELD ON A STRUCTURE ENCOUNTERING PULSE-HEATING, IS PROPOSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, TEMPERATURE + MEASUREMENT, TEMPERATURE + REACTOR, PULSED

9-18809
REUSCHER JA
THERMAL SHOCK MEASUREMENTS ON THE WHITE SANDS MISSILE RANGE FAST-BURST REACTOR
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-RR-65-587 +. 16 PAGES, FIGURES, AUGUST 1966

STRAIN GAGES WERE USED TO MEASURE THE LOADS IMPOSED ON THE SUPPORT STRUCTURE OF THE WHITE SANDS MISSILE RANGE FAST-BURST REACTOR DURING BURST OPERATION. THIS REPORT SUMMARIZES THE DATA FOR A SERIES OF 17 BURSTS VARYING IN YIELD FROM 9.1×10^{15} TO 6.2×10^{16} FISSIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, FUEL ELEMENT + FAILURE, SCRAM MECHANISM + MEASUREMENT, STRAIN GAGE + REACTOR, FAST BURST + THERMAL EXPERIMENT

9-18810
BROOKS RO + GUZMAN JA
DISTORTIONS OF CONTROLLED TRANSIENTS BY SHOCK MONITORING SYSTEMS
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-OC-67-1833 + CONF-670903-4 +. 46 PAGES, REFERENCES, JUNE 1967, PRESENTED AT 22ND INSTRUMENT-AUTOMATION CONFERENCE AND EXHIBIT, CHICAGO, ILL.

A METHOD WAS DEVELOPED TO ELECTRONICALLY GENERATE CONTROLLED CLEAN AND NOISY TRANSIENTS. THESE TRANSIENTS ARE USED AS SUBSTITUTIONS OF POSSIBLE ACCELEROMETER OUTPUTS THAT MAY OCCUR DURING SHOCK TESTS. THE ELECTRICAL TRANSIENTS ARE FED INTO DIFFERENT SHOCK-MONITORING INSTRUMENTATION CIRCUITS, SOME OF WHICH DISTORT THE SIGNALS, PRODUCING ZERO SHIFT AND/OR FILTERED PULSE DISTORTIONS AND THEREBY AFFECTING RECORD INTERPRETATION. THE NOISY TRANSIENTS REVEALED THAT SOMETIMES THERE ARE CIRCUIT DEFICIENCIES NOT FOUND BY USING COMPARABLE SUSTAINED-WAVE OR CLEAN, SIMPLE, PULSE SIGNALS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, EARTHQUAKE + MEASUREMENT, NOISE + SEISMOLOGY + SHOCK WAVE

9-18811
TUERKAN E + DRAGT JB
EXPERIMENTAL STUDY OF DIFFERENT TECHNIQUES FOR ANALYSING REACTOR NOISE MEASURED BY A NEUTRON COUNTER
REACTOR CENTRUM NEDERLAND, PETTEN

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18811 *CONTINUED*
RCN-75 +. 35 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

FOR THE ANALYSIS OF REACTOR NOISE MEASURED BY MEANS OF A NEUTRON COUNTER A LOT OF EXPERIMENTAL METHODS EXIST. TO GET SOME INSIGHT INTO THE MERITS AND LIMITATIONS OF THE METHODS, WE MADE EXPERIMENTAL COMPARISONS BETWEEN SOME METHODS. THREE GROUPS OF METHODS WERE STUDIED. (1) METHODS CONCERNED WITH SECOND-ORDER MOMENTS OF THE PROBABILITY DISTRIBUTION OF NEUTRON COUNTS, VIZ., EVALUATION OF FEYNMANS VARIANCE-TO-MEAN RATIO, BENNETTS DELTA VARIANCE, AND THE AUTOCORRELATION FUNCTION (WHICH IS MORE OR LESS EQUIVALENT TO ROSSI-SLPHA EXPERIMENTS). (2) A THIRD-ORDER MOMENT ANALYSIS. (3) SOME P-METHODS, VIZ., THE EVALUATION OF THE PROBABILITIES FOR ZERO, ONE, AND AN EVEN NUMBER OF COUNTS IN GIVEN TIME INTERVALS.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

EXPERIMENT, GENERAL + INSTRUMENTATION, NUCLEAR + NEUTRON + NOISE

9-18812
PATANE M
THERMOCOUPLE FAILURES IN GRAPHITE IRRADIATION RIGS FOR BR 2 REACTOR, MOL.
CENTRE D-ETUDE DE L-ENERGIE NUCLEAIRE, MOL (BELGIUM)
EUR-3491.E +. 15 PAGES, FIGURES, MAY 11, 1967

THE AIM OF THIS PAPER IS TO DRAW THE ATTENTION OF PROJECT ENGINEERS TO THE PROPER USE OF MATERIALS DESTINED FOR THE CONSTRUCTION OF EXPERIMENTAL RIGS. ACCOUNTS ARE PRESENTED OF THE INFORMATION REQUIRED FOR THE UNDERSTANDING AND ELIMINATION OF THE PROBLEM OF INTERCRYSTALLINE DISINTEGRATION OF THERMOCOUPLE SHEATHS. TEMPERATURES REGISTERED DURING THE EXPERIMENT IRRADIATION PERIOD WAS ABOUT 500 C FOR BOTTOM LOCATIONS AND ABOUT 600 C FOR THE TOP. HOWEVER, TEMPERATURES MAY HAVE ACTUALLY REACHED ABOUT 900 C IN BOTH ZONES.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

EXPERIMENT, GENERAL + FAILURE, INSTRUMENT + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, TEMPERATURE + MEASUREMENT, TEMPERATURE

9-18813 ALSO IN CATEGORIES 15 AND 7
THOMAS DM
THE CALIBRATION OF CASCADE IMPACTORS. OPERATION ROLLER COASTER
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON (ENGLAND)
AWRE-0-94/64 +. 15 PAGES, FIGURES, TABLES, SEPTEMBER 10, 1964

CALIBRATION PARAMETERS FOR THE CASELLA AND ANDERSON IMPACTORS HAVE BEEN AGREED BETWEEN THE U.S. AND U.K. PARTS OF THE ROLLER COASTER TEAMS. THE PARAMETERS MOST SUITED FOR USE IN EVALUATING THE DATA ARE THE CHARACTERISTIC DIAMETERS. AGREED VALUES OF THESE FOR BOTH INSTRUMENTS AND OF THE M.M.D.s FOR THE CASELLA ARE GIVEN. NEITHER INSTRUMENT WILL NECESSARILY GIVE A CORRECT MEASURE OF THE AIRBORNE CONCENTRATION OF THE LARGER PARTICLES (GREATER THAN ABOUT 50 MICRONS) BECAUSE OF ORIFICE EFFECTS. IN ADDITION, THERE ARE LOSSES AT THE FIRST JET PLATES OF THE ANDERSON INSTRUMENT. IN A COMPARISON OF THE CASELLA AND ANDERSON DATA AND THE ESTIMATION OF A COMPLETE SIZE DISTRIBUTION OF THE AIRBORNE MATERIAL, OTHER INFORMATION, SUCH AS THAT OBTAINED WITH THE CYLINDRICAL COLLECTORS, MUST BE TAKEN INTO ACCOUNT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

FILTER, CASCADE IMPACTOR + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, AIR SAMPLING + MONITOR, RADIATION, AIR + MONITOR, RADIATION, ENVIRONMENTAL + PARTICLE SIZE

9-18814
SCOTT CC + HUEBOTTER PR + CALLEN RC
POTENTIAL APPLICATIONS FOR AN UNDER-SODIUM ULTRASONIC SCANNING DEVICE
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-205 +. 38 PAGES, FIGURES, REFERENCES, JULY 1967

PREVIOUS AEC-SPONSORED DEVELOPMENT WORK ON VARIOUS CONCEPTS OF UNDER-SODIUM SCANNING DEVICES RESULTED IN THE SELECTION OF A SINGLE APPROACH, DESCRIBED HERE, THAT REPRESENTS THE BEST COMPROMISE OF SIMPLICITY, FLEXIBILITY, RANGE, AND RESOLUTION. IN THE CONTEXT OF THE CAPABILITIES AND LIMITATIONS OF THIS APPROACH, WHICH EMPLOYS A NARROW-BEAM ULTRASONIC TRANSDUCER WITH A METALLIC FOCUSING LENS OPERABLE IN SODIUM AT 600 F, NUMEROUS APPLICATIONS IN EXISTING AND FUTURE SODIUM-COOLED REACTORS AND ASSOCIATED RESEARCH AND DEVELOPMENT PROJECTS ARE POSSIBLE. A SURVEY OF THESE APPLICATIONS HAS BEEN MADE, EVALUATED, AND REDUCED TO A SINGLE DEMONSTRATION OBJECTIVE WHICH REPRESENTS A COMMON DENOMINATOR OF MOST OF THE APPLICATIONS OF GREATEST POTENTIAL INTEREST IN THE LIQUID METAL FAST BREEDER REACTOR (LMFBR) DEVELOPMENT PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, FUEL ELEMENT + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, SURVEILLANCE + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + SODIUM + SURVEY, GENERAL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18815

MARKILLIE WR

EVALUATING CONTROL AND DATA HANDLING INSTRUMENTATION FOR THE FAST FLUX TEST FACILITY (FFTF)
BATTTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
CONF-670903-7 + BNWL-SA-1332 +. 21 PAGES, REFERENCES, JULY 12, 1967, PRESENTED AT 22ND
INSTRUMENT-AUTOMATION CONFERENCE AND EXHIBIT, CHICAGO, ILL.

THE FAST FLUX TEST FACILITY (FFTF), A FAST NEUTRON, LIQUID-METAL-COOLED TEST REACTOR, REQUIRES CONTROLS OVER ALL PROCESS AND TEST CONDITIONS TO ENSURE REACTOR SAFETY, TEST-DATA VALIDITY, AND PLANT AVAILABILITY. A FIGURE-OF-MERIT MODEL WAS DEVELOPED TO EVALUATE SEVERAL PROCESS-CONTROL AND DATA-HANDLING INSTRUMENT CONCEPTS QUALITATIVELY AND QUANTITATIVELY. THE MODEL INCLUDES THESE FEATURES OF PROCESS-CONTROL AND DATA-HANDLING INSTRUMENTS - SAFETY, OPERATING CONTINUITY, DATA HANDLING, CONTROL QUALITY, HUMAN FACTORS, AND FLEXIBILITY. THE RESULTS OF THE EVALUATIONS OF FOUR CONCEPTS WERE COMPARED TO DETERMINE THE BEST. THE COMPARISONS INDICATED THAT THE BEST CONCEPT IS ONE THAT CONSISTS OF A REDUNDANT ARRANGEMENT OF DIGITAL COMPUTERS FOR HANDLING ALL PROCESS AND EXPERIMENT DATA, FOR CONTROL OF MUCH OF THE PROCESS AND EXPERIMENT EQUIPMENT, AND FOR OPERATING ALARM AND DISPLAY EQUIPMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER, DIGITAL + DATA PROCESSING + FFTF (TR) + INSTRUMENTATION, CONTROL + INSTRUMENTATION, REDUNDANT +
IRRADIATION TESTING + REACTOR, FAST + REACTOR, TEST + TEST, SYSTEM OPERABILITY

9-18900

ALSO IN CATEGORY 17

THOMAS JT + CALLIHAN D

RADIATION EXCURSION AT ORNL CRITICAL EXPERIMENTS LABORATORY - FEBRUARY 1, 1956

OAK RIDGE NATIONAL LABORATORY

ORNL-2452 +. 6 PAGES 1 FIGURE, PAGES 28-33 OF RADIATION EXCURSIONS AT THE ORNL CRITICAL EXPERIMENTS
LABORATORY - FEBRUARY 1, 1956

A CYLINDRICAL CORE OF UO₂F₂ LIQUID FUEL WAS BROUGHT CRITICAL BY ADDING SMALL AMOUNTS OF FUEL, BUT THE OPERATOR ADDED TOO MUCH IN THE LAST INCREMENT, RESULTING IN A 30-SEC PERIOD. THE OPERATOR THEN SCRAMMED THE EXPERIMENT. THE SCRAM-BLADE-FALL SET UP WAVES WHICH CREATED A PROMPT CRITICAL ASSEMBLY, AND A 1.4-KWHR RELEASE. CONSIDERABLE SOLUTION WAS EJECTED, AND THE BOTTOM OF THE CYLINDER WAS NOTICEABLY DISTORTED. SINCE FUEL ADDITION AND DRAINING WERE THROUGH THE SAME VALVE, FUEL WAS PROBABLY ADDED EVEN AFTER SWITCH WAS TURNED TO DRAIN DUE TO THE TIME NECESSARY TO VENT AIR PRESSURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00
COPY, 0.65 MICROFICHE

*ACCIDENT, CRITICALITY + *FAILURE, DESIGN ERROR + *INCIDENT, ACTUAL, EQUIPMENT + CONTAMINATION +
CRITICAL ASSEMBLY FACILITY + FAILURE, OPERATOR ERROR + FAILURE, SCRAM MECHANISM +
INCIDENT, ACTUAL, HUMAN ERROR + LIQUID FUEL + OPERATIONS REPORT, ANALYSIS +
ORNL (OAK RIDGE NATIONAL LABORATORY)

9-18910

VAN HEUGTEN F + BURNETT IB

THERMAL NEUTRON FLUX MEASURING EQUIPMENT FOR THE REACTOR HIFAR

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS

AAEC/M-65(2ND ED.) +. 18 PAGES, FIGURES, DECEMBER 1966

THE EQUIPMENT FOR THERMAL NEUTRON FLUX MEASUREMENT IN HIFAR IS DESCRIBED. OPERATING INSTRUCTIONS ARE GIVEN FOR PARAMETRIC MEASUREMENTS WITH NICKEL WIRE AND ABSOLUTE FLUX DETERMINATION WITH GOLD SAMPLES. (THIS DOCUMENT WAS ORIGINALLY ISSUED IN JANUARY 1963 WITH THE TITLE, HIFAR FLUX SCANNING EQUIPMENT, BY F. VAN HEUGTEN. A RECENT MODIFICATION MADE NECESSARY THE REVISION OF THE ORIGINAL MANUAL.)

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN 54669

AUSTRALIA + FLUX, INTEGRATED + INSTRUMENTATION, IN CORE + INSTRUMENTATION, RADIATION MONITORING +
MONITORING SYSTEM, RADIATION + THERMAL NEUTRON

9-18917

FARLEY FJ

PROGRESS IN NUCLEAR TECHNIQUES AND INSTRUMENTATION VOL. 2

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH, CERN, GENEVA

328 PAGES, 14 FIGURES, TABLES, REFERENCES, NORTH-HOLLAND PUBLISHING CO., AMSTERDAM, 1967

IN THIS FOUR-PART VOLUME, THE FIRST THREE TRACE THE RECENT STEPS IN ION- AND PARTICLE-BEAM TECHNOLOGY. THE FOURTH IS IN THE FIELD OF BUBBLE CHAMBERS AND REVIEWS THE LOGICAL AND MATHEMATICAL STEPS NEEDED TO CONVERT THE INFORMATION ON THE PHOTOGRAPHS INTO PHYSICAL PARAMETERS SPECIFYING THE PARTICLES AND THEIR INTERACTIONS. EACH PART BEGINS WITH A BRIEF HISTORICAL STATE-OF-THE-ART REVIEW AND ENDS WITH A LENGTHY LIST OF REFERENCES. THE FOUR PARTS ARE TITLED - (1) THE PRODUCTION AND ACCELERATION OF ION BEAMS IN THE TANDEM

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18917 *CONTINUED*

ACCELERATOR, (III) PARTICLE SEPARATION AT HIGH ENERGIES - ELECTROSTATIC SEPARATION, (III) BEAM EXTRACTION TECHNIQUES FOR SYNCHROTRONS, (IV) BUBBLE CHAMBER MEASUREMENTS AND THEIR EVALUATIONS.

AVAILABILITY - NORTH-HOLLAND PUBLISHING COMPANY, AMSTERDAM

ACCELERATION + ACCELERATOR + BEAM HOLE + CHAMBER, ION + INSTRUMENTATION, NUCLEAR + ION EXCHANGE + SEPARATOR

9-18918 ALSO IN CATEGORY 12

GARRICK BJ + GEKLER WC

RELIABILITY ANALYSIS OF ENGINEERED SAFEGUARDS

HOLMES AND NARVER, INC.

10 PAGES, 3 FIGURES, 2 TABLES, 17 REFERENCES, NUCLEAR SAFETY 8(5), PAGE 470 THRU 479, (OCTOBER 1967)

THE REQUIREMENTS FOR ASSESSING RELIABILITY IN ENGINEERED SAFEGUARDS ARE REVIEWED, AN EXAMPLE OF RELIABILITY ANALYSIS IN A TYPICAL EMERGENCY CORE-COOLING SYSTEM IS GIVEN, AND A PLAN IS PRESENTED FOR USE OF RELIABILITY TECHNIQUES IN NUCLEAR SYSTEMS SAFETY ANALYSIS. RELIABILITY CAN NOW BE USED IN MANY WAYS IN NUCLEAR SAFETY, BUT, BEFORE IT CAN BE A TRULY EFFECTIVE TOOL, CERTAIN ADDITIONAL REQUIREMENTS MUST BE MET. RELEVANT PROBABILISTIC MODELS MUST BE DEVELOPED, AND REALISTIC STATISTICAL DATA ARE NEEDED. TECHNIQUES EXIST FOR DEVELOPING RELEVANT MODELS. STATISTICAL DATA NOW DERIVE LARGELY FROM OPERATING EXPERIENCE. THESE DATA, ALTHOUGH OF SOME USE, MUST BE IMPROVED TO PERMIT CONFIDENCE IN MATHEMATICAL EVALUATION OF RELIABILITY. THE IMPORTANCE OF RELIABILITY LIES NOT SO MUCH IN NUMBERS GENERATED AS IT DOES IN REQUIRING SYSTEMATIC GUIDANCE OF SAFETY ANALYSIS AND TESTING AND ACCIDENT-PREVENTION PROGRAMS.

RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + RELIABILITY, SYSTEM + SAFETY STUDY

9-18919 ALSO IN CATEGORIES 10 AND 17

SCOTT RL

RELIABILITY ESTIMATES AND REACTOR-SAFETY-SYSTEM OPERATION

OAK RIDGE NATIONAL LAB., TENN.

4 PAGES, 1 TABLE, 1 REFERENCE, NUCLEAR SAFETY 8(5), PAGE 479 THRU 482, (OCTOBER 1967)

SUMMARIZES TWO PAPERS PRESENTED AT THE WINTER 1966 MEETING OF THE AMERICAN NUCLEAR SOCIETY. ONE PAPER DISCUSSES DATA OBTAINED FROM FIVE POWER-REACTOR OPERATING AGENCIES IN ORDER TO MAKE RELIABILITY ESTIMATES. SINCE THE DATA WERE OBTAINED FOR PURPOSES OTHER THAN RELIABILITY PREDICTION, IT HAS LIMITED APPLICABILITY. RELIABILITY ESTIMATES ARE PRESENTED FOR EMERGENCY CORE-COOLING SYSTEMS, EMERGENCY POWER SYSTEMS, AND SECONDARY SHUTDOWN SYSTEMS. THE OTHER PAPER DISCUSSES REACTOR-SAFETY-SYSTEM OPERATION DATA OBTAINED FROM THE SAME FIVE POWER-GENERATING PLANTS. THE COMPOSITE DATA INDICATE THAT REAL AND SPURIOUS SCRAM RATES ARE EACH BETWEEN FIVE AND SIX PER YEAR. MOST OF THESE SCRAMS OCCURRED AT LOW REACTOR POWER AND PRODUCED ONLY ONE OR TWO POWER-GENERATION OUTAGES PER YEAR.

OPERATING EXPERIENCE + REACTOR, POWER + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM

9-18920

FOWLER KL + LEWIS M

OPERATING EXPERIENCE WITH IN-LINE WATER ANALYZERS AT N-REACTOR

GENERAL ELECTRIC CO., RICHLAND, WASHINGTON. HANFORD ATOMIC PRODUCT'S OPERATION

RL-SA-76 + CONF-670620-4 +. 8 PAGES, TABLES, JUNE 6, 1967, PRESENTED AT NORTHWEST REGIONAL MEETING OF THE AMERICAN CHEMICAL SOCIETY, RICHLAND, WASHINGTON

N-REACTOR, WHICH IS PRESENTLY SUPPLYING STEAM TO WASHINGTON PUBLIC POWER SUPPLY SYSTEMS 800-MEGAWATT ELECTRICAL GENERATING FACILITIES, HAS THREE DEMINERALIZED WATER LOOPS WHICH REQUIRE CONSTANT MONITORING. A \$500,000 ANALYZER PACKAGE WAS CONTRACTED FOR FROM BECKMAN INSTRUMENTS, INC. THE PACKAGE INCLUDED A SAMPLE-CONDITIONING SYSTEM FOR PRESSURE AND TEMPERATURE ADJUSTMENT, DESIGNATED ANALYZERS SELECTED BY GE SYSTEM ENGINEERS, AND A RECORDER PANEL CONTAINING MULTIPOINT RECORDERS, STEAM SELECTORS, AND ANNUNCIATORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CHEMICAL ANALYSIS + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, PROCESS + WATER TREATMENT

9-18948 ALSO IN CATEGORY 17

HTGR BASE PROGRAM QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING MAY 31, 1966

GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION

GA-7181 +. 38 PAGES, 6 FIGURES, 17 TABLES, JUNE 30, 1966

PROGRESS REPORT, ONE OF A SERIES RELATING TO THE FOLLOWING SUBJECTS - (1) PRESTRESSED-CONCRETE REACTOR-VESSEL DEVELOPMENT, (2) FISSION-PRODUCT RELEASE AND TRANSPORT, (3) MATHEMATICAL PHYSICS STUDIES, (4) CRITICALITY EXPERIMENTS, (5) FUEL-ELEMENT REPROCESSING, AND (6) IRRADIATION STUDIES OF COATED PARTICLES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-18948 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*FISSION PRODUCT RELEASE, GENERAL + *IRRADIATION TESTING + COATED PARTICLE + CONCRETE, PRESTRESSED + CRITICALITY EXPERIMENT + FISSION PRODUCT TRANSPORT + FUEL REPROCESSING + MATHEMATICAL STUDY + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS + RESEARCH AND DEVELOPMENT PROGRAM

9-18983 ALSO IN CATEGORY 17
GETR ANNUAL REPORT NO. 8
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA
52 PAGES, 4 FIGURES, TABLES, MAY 24, 1967, DOCKET NO. 50-70

SYSTEM CHANGES MADE IN SUPPORT OF THE POWER INCREASE FROM 30 TO 50 MW INCLUDE (1) INSTALLATION OF A GD NITRATE POISON-INJECTION SYSTEM, (2) INSTALLATION OF A REDESIGNED STATIC CONTAINMENT BUILDING VACUUM RELIEF SYSTEM, (3) A COOLING-WATER CIRCULATION SYSTEM FOR RETURNING TO THE POOL (REACTOR) ANY WATER DRAINING OUT OF THE PRESSURE VESSEL, AND (4) REDUNDANT ISOLATION VALVES WERE INSTALLED TO PROVIDE BACKUP PROTECTION. (APPENDIX A) - AN IN-CORE SHUTTLE-TUBE FACILITY WAS INSTALLED FOR INSERTING AND REMOVING IRRADIATION SPECIMENS DURING REACTOR OPERATION. (SUPPLEMENT A) - LISTS CAUSES OF REACTOR SHUTDOWNS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + *OPERATIONS SUMMARY FOR AEC + CONTAINMENT VACUUM BREAKER + GETR (GENERAL ELECTRIC TEST REACTOR) + INTEGRITY + IRRADIATION FACILITY + POWER UPRATING + REACTOR, TEST + SHUTDOWN SYSTEM, SECONDARY

9-19113 ALSO IN CATEGORY 17
SPEAS IG + COBB JS + GROOTHUIS SE
REVIEW OF HYDRAULIC PROBLEMS ON THE BONUS REACTOR PRESSURE CONTROL SYSTEM
UNION CARBIDE CORP., Y-12 PLANT, OAK RIDGE, TENN.
Y-1491 +. 44 PAGES, 7 FIGURES, JUNE 14, 1965

Y-12 ENGINEERING PERSONNEL STUDIED THE BONUS REACTOR PRESSURE CONTROL SYSTEM TO DETERMINE THE CAUSE OF MALFUNCTION OF THE HYDRAULIC CONTROLS ON THE MAJOR STEAM VALVES. IT WAS CONCLUDED THAT THE PRINCIPAL CONTRIBUTOR TO THE VALVE TROUBLE WAS THE HIGH MOISTURE CONTENT OF THE PHOSPHATE-ESTER HYDRAULIC FLUID. THIS EXCESSIVE MOISTURE REACTED WITH THE HYDRAULIC FLUID TO PRODUCE AN ACID WHICH, IN TURN, CORRODED THE STEEL COMPONENTS OF THE SYSTEM AND PRODUCED FINE ABRASIVE PARTICLES THAT ERODED THE SERVO-METERING SURFACES. MODIFICATIONS WERE RECOMMENDED TO ALLEVIATE THE PROBLEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTROL SYSTEM + FAILURE, INSTRUMENT + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT + VALVE

9-19114
TRENHOLME WM + KEEFE DJ + MCDOWELL WP
A VERSATILE FAIL-SAFE TRIP CIRCUIT FOR REACTOR SAFETY SYSTEMS
ARGONNE NATIONAL LABORATORY
2 PAGES, 1 FIGURE, IEEE TRANSACTIONS ON NUCLEAR SCIENCE 13(5), PAGES 6-7 (OCTOBER 1966)

DESCRIBES A TRANSISTORIZED TRIP CIRCUIT THAT USES A SIMPLE SELF-TESTING TECHNIQUE TO ACHIEVE A HIGH DEGREE OF FAILSAFENESS WITH A MINIMUM NUMBER OF COMPONENTS. OPERATES WITH D-C INPUT CURRENTS IN THE RANGE FROM 10 TO 100 MICROAMPERES AND CAN CONTROL UP TO 100 WATTS OF LOAD POWER. THE TRIP DIFFERENTIAL FOR A LOAD CHANGE FROM FULL POWER TO ZERO POWER IS LESS THAN 0.1 MICROAMPERE. THE TEMPERATURE STABILITY OF THE TRIP POINT IS BETTER THAN 0.02 A/DEG C. THIS TRIP CIRCUIT MAY BE USED WITH EITHER RELAY OR SOLID-STATE LOGIC AND POWER-SWITCHING CIRCUITS.

*INSTRUMENTATION, COMPONENT + INSTRUMENTATION, CURRENT + INSTRUMENTATION, PROTECTIVE

9-19115 ALSO IN CATEGORY 4
STEELE OP + KELLOGG LG + DEWART WG
DEVELOPMENT OF THE CONTROL SYSTEM FOR SNAP REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
18 PAGES, 26 FIGURES, 6 TABLES, IEEE TRANS. NUCL. SCIENCE 13(1), PAGES 206-223 (FEB. 1966)

THE SNAP 10A, 2, AND 8 NUCLEAR REACTOR SYSTEMS ARE DESIGNED TO PROVIDE ELECTRICAL POWER ON SPACE VEHICLES OR ENVIRONMENTS OF ULTRAHIGH VACUUM. ALTHOUGH EACH SYSTEM HAS DIFFERENT POWER CAPABILITIES, THE CONTROL COMPONENTS ARE BASICALLY THE SAME. DEVELOPMENT OF THE VARIOUS CONTROL COMPONENTS AND SUBCOMPONENTS IS DISCUSSED. THE ELECTROMECHANICAL ACTUATOR, BEARINGS, AND GEARS FOR EACH SNAP SYSTEM ARE REVIEWED IN DETAIL. A CONTROL-DRUM-DRIVE MECHANISM THAT PROVIDES FAIL SAFE SCRAM CAPABILITIES FOR GROUND TESTING OF THE REACTOR SYSTEM HAS BEEN DESIGNED AND PROOF TESTED. THE DETAILS OF THIS DESIGN AS IT APPLIES TO SNAP 10A SYSTEMS ARE PRESENTED.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19115 *CONTINUED*
CONTROL SYSTEM + REACTOR, LIQUID METAL COOLED + REACTOR, SPACE + REACTOR, SPACE + SERVOMECHANISM +
SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + SNAP 2 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) +
SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + TEST, COMPONENT

9-19116
NASYROV F + PASHKIN NF
AN IONIZATION CHAMBER FOR THE DETECTION OF FISSION FRAGMENTS AGAINST A HIGH ALPHA-PARTICLE BACKGROUND
2 PAGES, 3 FIGURES, 6 REFERENCES, INSTR. AND EXP. TECH. 2, PAGES 327-8 (MARCH 1966)

A FISSION-FRAGMENT DETECTOR IN THE FORM OF A PULSE IONIZATION CHAMBER WITH A PULSE-RISE TIME
OF ABOUT 25 NSEC IS DESCRIBED. THE CHAMBER HAS SATISFACTORY CHARACTERISTICS WHEN IT IS
LOADED WITH FISSIONABLE MATERIAL WITH AN OVERALL ALPHA ACTIVITY OF UP TO 8×10^{17} TH/SEC.

*FISSION PRODUCT ACTIVITY, GROSS + *INSTRUMENTATION, NUCLEAR + CHAMBER, FISSION +
UNION OF SOVIET SOCIALIST REPUBLICS

9-19117 ALSO IN CATEGORY 4
MALICK FS + RAMP RI + GIMMUP CA
NERVA NUCLEAR REACTOR INSTRUMENTATION
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
7 PAGES, 4 FIGURES, IEEE TRANS. NUCLEAR SCIENCE 13(1), PAGES 685-91 (FEBRUARY 1966)

THE ENVIRONMENTAL CONDITIONS EXISTING AT MANY OF THE POINTS AT WHICH MEASUREMENTS ARE REQUIRED
IN THE GROUND TESTING OF THE NERVA REACTORS ARE BEYOND THE CAPABILITIES OF COMMERCIAL
TRANSDUCERS. THE OBJECT OF THIS PAPER IS TO SHOW THE NATURE OF THE INSTRUMENTATION PROBLEMS
ASSOCIATED WITH THE DEVELOPMENT OF THE NUCLEAR REACTOR ONLY AND TO SHOW THE EXTENT OF THEIR
SOLUTION. IT DOES NOT DISCUSS THE INSTRUMENTATION PROBLEMS ASSOCIATED WITH THE OTHER NERVA
ENGINE COMPONENTS, SUCH AS THE PRESSURE VESSEL, NOZZEL, AND TURBO-PUMP. A DEVELOPMENT
PROGRAM HAS BEEN SUCCESSFUL TO THE EXTENT THAT TRANSDUCERS ARE AVAILABLE TO MAKE MANY OF THE
MEASUREMENTS REQUIRED FOR THE DEVELOPMENT OF THE PRESENT REACTOR. IMPROVEMENTS IN TRANSDUCER
ACCURACY AND LIFE ARE DESIRABLE AND EVERY TRANSDUCER HAS POTENTIAL FOR FURTHER DEVELOPMENT IN
THESE TWO RESPECTS.

*INSTRUMENTATION, GENERAL + *INSTRUMENTATION, IN CORE + *NERVA PROGRAM + DISPLACEMENT, GENERAL +
HIGH TEMPERATURE + INSTRUMENTATION, PRESSURE + NEUTRON + STRESS STRAIN DATA + THERMAL CONSIDERATION +
VIBRATION

9-19118 ALSO IN CATEGORY 4
KIRSCHBAUM HS + MORRIS WR + HOHMANN GL
NEW CONTROL TECHNIQUES FOR NERVA REACTORS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
6 PAGES, 5 FIGURES, 3 REFERENCES, IEEE TRANS. NUCLEAR SCIENCE 13(1), PAGES 670-75 (FEBRUARY 1966)

THE DEVELOPMENT OF THE NERVA REACTOR HAS REACHED THE POINT WHERE IT CAN BE OPERATED
PREDICTABLY FOR SUSTAINED TIMES. THIS SUCCESS IN MECHANICAL AND NUCLEAR DESIGN HAS GIVEN TO
THE CONTROL ENGINEERS THE OPPORTUNITY TO DESIGN AND EXPERIMENTALLY VERIFY IMPROVEMENTS IN
REACTOR CONTROL. THIS PAPER PRESENTS A SUMMARY OF THE CONTROL SYSTEMS USED TO TEST THE EARLY
KIWI AND NRX REACTORS. USING THESE REFERENCE CONTROLLERS, DESIGNS TO IMPROVE RELIABILITY AND
PERFORMANCE ARE DISCUSSED. THESE IMPROVEMENTS INCLUDE THE USE OF LIMITER CIRCUITS TO PROTECT
THE NUCLEAR SUBSYSTEM FROM CONTROLLER MALFUNCTIONS AND OFF-DESIGN OPERATION OF THE SYSTEM
WITHOUT RESORTING TO REACTOR SCRAMS AND THE ENSUING SYSTEM SHOCKS.

*CONTROL SYSTEM + *INSTRUMENTATION, CONTROL + *NERVA PROGRAM + *REACTOR CONTROL + KIWI +
NRX (CANADIAN NATURAL U-HEAVY WATER REACTOR) + REACTOR, HEAVY WATER + REACTOR, SPACE + ROVER PROGRAM

9-19119 ALSO IN CATEGORY 6
STACEY WM
LINEAR ANALYSIS OF XENON SPATIAL OSCILLATIONS
KNOLLS ATOMIC POWER LAB., SCHENECTADY
KAPL-M-6596 +, 37 PAGES, REFERENCES, FEBRUARY 6, 1967

MADE A LINEAR ANALYSIS OF XENON-INDUCED SPATIAL-POWER OSCILLATIONS. ALTHOUGH THIS ANALYSIS
PROCEEDS ALONG TRADITIONAL LINES (LINEARIZATION, LAPLACE TRANSFORMATION, MODAL EXPANSION), IT
IS UNIQUE IN THAT STATIC FEW-GROUP DIFFUSION THEORY CODES (E.G., KARE) MAY BE USED DIRECTLY
TO EVALUATE THE PERTINENT PARAMETERS, AND IN THAT THE POWER DISTRIBUTION, AS WELL AS THE
POWER LEVEL, IS INCORPORATED INTO THE FORMALISM. THUS, THE ANALYSIS IS APPLICABLE TO
PRACTICAL REACTOR MODELS. A CRITERION IS DEVELOPED FOR PREDICTING THOSE COMBINATIONS OF
POWER LEVEL AND DISTRIBUTION, POWER COEFFICIENT, AND SEPARATION OF FUNDAMENTAL AND FIRST
HARMONIC MODE EIGENVALUES FOR WHICH SPATIAL POWER OSCILLATIONS ARE JUST SUSTAINED (I.E.,
NEITHER GROW NOR DECAY). PREDICTIONS BASED ON THIS CRITERION AGREED WITH DIRECT NUMERICAL
SOLUTIONS OBTAINED WITH THE SPRITE DIGITAL CODE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*THEORETICAL INVESTIGATION + *XENON OSCILLATION + ANALYTICAL MODEL + COMPUTER PROGRAM + REACTOR POWER +
TRANSFER FUNCTION

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19128

BALDUCCI G + MARTINI M + VIGO A
SEMICONDUCTOR DETECTORS AND SMALL FISSION CHAMBERS FOR FAST NEUTRON SPECTRAL ANALYSIS
COMITATO NAZIONALE PER L'ENERGIA NUCLEARE, ROME
RT-FI-(66)-17 + CONF-650832-2 +. 21 PAGES, FROM INTERNATIONAL MEETING ON NUCLEAR SPECTROSCOPY
INSTRUMENTATION, HERCEG-NOVI, YUGOSLAVIA, 1966

DESCRIBES A MEASURING METHOD THAT CAN BE USED FOR IN-PILE FAST-NEUTRON-SPECTRA DETERMINATION,
UTILIZING SURFACE-BARRIER FISSION COUNTERS AND SMALL FISSION CHAMBERS WITH VARIOUS
FISSIONABLE MATERIALS. THE TECHNIQUE OF CONSTRUCTION AND DEVELOPMENT OF COUNTERS, THE
TECHNIQUE OF VACUUM-EVAPORATION AND WEIGHT DETERMINATION OF FISSIONABLE FILMS ARE DESCRIBED.
FISSION COUNTERS WERE EXAMINED AND COMPARED IN A NEUTRON FISSION SPECTRUM OBTAINED IN NATURAL
AND ENRICHED URANIUM CONVERTERS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*INSTRUMENTATION, IN CORE + COUNTER + IN CORE MEASUREMENT + NEUTRON

9-19129

ALSO IN CATEGORY 15

PENSKI J
OBSERVATION OF THE GAMMA-RAY BACKGROUND IN WARSAW WITH A SCINTILLATION STATIC MONITOR
CENTRALNE LABORATORIUM OCHRONY RADIOLOGICZNEJ, WARSAW
CLOR-500 +. 18 PAGES, 1966

SYSTEMATIC OBSERVATIONS OF GAMMA BACKGROUND DOSE RATES WERE CARRIED OUT DURING THE YEARS
1962-65 IN WARSAW. THE MEASUREMENTS WERE MADE BY MEANS OF A SCINTILLATION COUNTER
(NAI/TI, 2-1/4 IN. X 2 IN.). THE DOSE RATE IS GREATER IN SUMMER THAN IN WINTER. RAINSHOWERS
BRING THE TEMPORARY INCREASE OF GAMMA BACKGROUND, SOMETIMES TO ABOUT 80% OF THE MEAN VALUE.
THE DOSE RATE FROM FISSION PRODUCTS AMOUNTED TO ABOUT 25% OF NATURAL BACKGROUND RADIATION IN
THE AUTUMN 1962, TO ABOUT 70% IN THE SUMMER 1963, AND TO ABOUT 39% IN THE SUMMER 1964. THE
CONTRIBUTION TO GAMMA BACKGROUND RADIATION FROM RADON DAUGHTERS CONTAINED IN THE ATMOSPHERE
AMOUNTED TO ABOUT 1.8% IN THE SUMMER 1964, AND TO ABOUT 5.5% IN THE AUTUMN AND WINTER 1964/65.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN, 54669

*DOSE MEASUREMENT, EXTERNAL + *SURVEY, RADIATION, ENVIRONMENTAL + COUNTER + GAMMA +
INSTRUMENTATION, SURVEILLANCE + MONITOR, RADIATION, ENVIRONMENTAL + POLAND

9-19130

ALSO IN CATEGORY 6

WIBERG OM
OPTIMAL FEEDBACK CONTROL OF SPATIAL XENON OSCILLATIONS IN A NUCLEAR REACTOR
CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA
TID-21273 +. 177 PAGES, JUNE 26, 1964

PH.D. THESIS. THE SPECIFIC PROBLEM STUDIED WAS THE OSCILLATION OF THE POWER DENSITY IN A
NUCLEAR REACTOR, SUCH THAT A HOT SPOT MOVES FROM ONE REGION TO ANOTHER AND BACK AGAIN IN THE
COURSE OF TIME. THE REACTOR KINETICS PROCESSES WERE INVESTIGATED MATHEMATICALLY WITH THE
GOAL OF THE THESIS IN MIND, NAMELY, TO DEVELOP A METHOD OF CONTROLLING THESE OSCILLATIONS
WITH A FEEDBACK SYSTEM. THE OSCILLATIONS ARE DUE IN PART TO XE-135. THE MATHEMATICAL
FORMULATION OF THE PROBLEM CAN BE GENERALIZED TO INCLUDE OTHER EFFECTS IN ADDITION TO THE
XENON PROCESS. HOWEVER, FOR CLARITY AND UTILITY, ONLY THE XENON PROBLEM WAS FULLY ANALYZED,
WITH MANY EXTENSIONS INDICATED IN THE DEVELOPMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*THEORETICAL INVESTIGATION + *XENON OSCILLATION + ANALYTICAL MODEL + REACTOR, GENERAL

9-19134

NADACHOWSKI M
TIMING SINGLE CHANNEL PULSE HEIGHT ANALYZER
INSTITUTE OF NUCLEAR RESEARCH, WARSAW
INN-763/III/E +. 14 PAGES, NOVEMBER 1966

THE TRANSISTORIZED SINGLE-CHANNEL PULSE-HEIGHT ANALYZER WITH A FIXED DELAY OF THE OUTPUT PULSE
IS DESCRIBED. THE DELAY MAY BE ADJUSTED FROM 0.5 MICROSEC TO 1 MICROSEC. THE AMPLITUDE
RANGE OF THE ANALYZER IS 200 MV TO 10 V. THE BLOCK DIAGRAM, SOME CIRCUIT DETAILS, AND
CHARACTERISTICS OF THE ANALYZER ARE GIVEN.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*INSTRUMENTATION, PULSE + MEASUREMENT, GENERAL

9-19135

ALSO IN CATEGORY 6

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19135 *CONTINUED*

BABALA D

THEORY OF ROSSI-ALPHA EXPERIMENT IN REACTOR NOISE ANALYSIS

INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY

TID-23381 + KR-105 +. 24 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

EXPLAINS THE DISAGREEMENT BETWEEN THE ROSSI-ALPHA FORMULA AND THE CONDITIONAL COUNT PROBABILITY, OBSERVED BY SEVERAL AUTHORS IN MEASUREMENTS WITH A MULTICHANNEL TIME ANALYZER. SHOWS THAT THE ROSSI-ALPHA EXPERIMENTS CURRENTLY PERFORMED ARE TO TWO DISTINCT TYPES, GIVING DIFFERENT RESULTS - THE FIRST ONE IS BASED ON MEASUREMENTS OF DELAYED COINCIDENCES (ORNDGFF), THE SECOND ONE EMPLOYS A MULTICHANNEL TIME ANALYZER AS DESCRIBED IN THIS PAPER. ON THE BASIS OF KOLMOGOROV'S GENERAL THEORY OF CHAIN PROCESSES, A FORMULA FOR THE SECOND TYPE OF EXPERIMENT IS DERIVED, WHICH IS IN GOOD AGREEMENT WITH MEASUREMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*NOISE ANALYSIS + *ROSSI ALPHA + *THEORETICAL INVESTIGATION + INSTRUMENTATION, NUCLEAR + MEASUREMENT, NOISE

9-19136

AHMED MI

A TRANSISTORIZED AC CARRIED TYPE SHUTDOWN AMPLIFIER AS A PROTECTIVE DEVICE IN NUCLEAR POWER STATIONS
RANK RESEARCH LABORATORIES, LONDON, ENGLAND

7 PAGES, 8 FIGURES, 5 REFERENCES, IEEE TRANSACTIONS ON NUCLEAR SCIENCE 13(1), PAGES 589-95 (FEBRUARY 1966)

IT IS NECESSARY TO PROTECT A NUCLEAR REACTOR AGAINST EXCESS FLUX. THE SHUTDOWN AMPLIFIER OR EXCESS-FLUX-TRIP AMPLIFIER SUPPLIES INFORMATION TO THE SAFETY CIRCUIT SO AS TO PRODUCE A REACTOR SHUTDOWN WHEN THE POWER EXCEEDS A REFERENCE LEVEL. THE OPERATION IS REVIEWED, AND THE DESIGN REQUIREMENTS APPLICABLE TO SHUTDOWN AMPLIFIERS ARE DISCUSSED. THE THREE MOST ESSENTIAL DESIGN FEATURES OF THE SHUTDOWN AMPLIFIER ARE TO GIVE AN INDICATION OF THE DIFFERENCE BETWEEN THE REACTOR POWER LEVEL AND A REFERENCE LEVEL, TO CAUSE A TRIP WHEN THE REACTOR POWER EQUALS OR EXCEEDS THE REFERENCE LEVEL, AND TO GIVE A TRIP ON FAILURE OF ANY COMPONENT OR COMBINATION OF COMPONENTS IN THE SYSTEM AND ABSOLUTE RELIABILITY OF TRIP ACTION IN RESPONSE TO REACTOR POWER.

*INSTRUMENTATION, AMPLIFIER + FLUX, INTEGRATED + INSTRUMENTATION, PROTECTIVE

9-19137

ROUX DP

OPTIMIZATION OF REACTOR SHUTDOWN MARGIN MEASUREMENTS IN HIGH GAMMA FLUXES

OAK RIDGE NATIONAL LABORATORY

ORNL-P-3015 +. 19 PAGES, FIGURES, 1 TABLE, 7 REFERENCES, 1966

SINCE THE QUALITY OF SUBCRITICALITY MEASUREMENTS USING NEUTRON NOISE ANALYSIS IN POWER REACTORS IS DEGRADED BY HIGH GAMMA-RAY INTENSITIES PRODUCED BY RESIDUAL FISSION PRODUCTS, A STUDY WAS MADE TO DERIVE AN EQUATION THAT CAN BE USED TO QUANTITATIVELY PREDICT THIS DEGRADING EFFECT. THE CONSIDERATIONS PRESENTED IN THIS ARTICLE, WHILE DEVELOPED FOR SIMPLICITY ON THE BASIS OF ONE-DETECTOR MEASUREMENTS, ARE EQUALLY APPROPRIATE TO TWO-DETECTOR CROSS-CORRELATION MEASUREMENTS. FINALLY, EQUATIONS WERE DERIVED WHICH GAVE INSIGHT INTO THE BEHAVIOR OF IONIZATION CHAMBERS OPERATING IN HIGH GAMMA ENVIRONMENTS AND, IN CONJUNCTION WITH AN EXPERIMENTAL STUDY, LED TO THE DEVELOPMENT OF A RELATIVELY LOW-COST, OPTIMIZED CHAMBER.

*INSTRUMENTATION, FLUCTUATION + *INSTRUMENTATION, SHUTDOWN REACTIVITY + *MEASUREMENT, SUBCRITICALITY + MATHEMATICAL TREATMENT + NOISE ANALYSIS

9-19167

SWANSON CD + WOOD MR + CONE RR

FAST FLUX TEST FACILITY INSTRUMENTATION AND CONTROL PROGRAM

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1127 + CONF-670314-5 +. 11 PAGES, MARCH 1967, PRESENTED AT LIQUID METAL INSTRUMENTATION AND CONTROL SYMPOSIUM, IDAHO FALLS, IDAHO

GENERAL DESCRIPTION OF THE FACILITY AND A DETAILED VERBAL EXPLANATION OF THE INSTRUMENTS AND CONTROLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CONTROL SYSTEM + FFTF (TR) + INSTRUMENTATION, GENERAL + REACTOR, FAST + REACTOR, TEST

9-19168

ALSO IN CATEGORY 15

SHEEN EM

DEVELOPMENT OF PORTABLE GAMMA SPECTROMETERS FOR SAFEGUARDS USE

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-SA-1023 + CONF-670622-1 +. 16 PAGES, FIGURES, MAY 31, 1967, PRESENTED AT 8TH ANNUAL MEETING OF THE INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT, WASHINGTON, D. C.

A PORTABLE GAMMA SPECTROMETER WAS DEVELOPED FOR DETERMINING U-235 INVENTORIES IN UNIRRADIATED

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19168 *CONTINUED*

REACTOR FUEL ELEMENTS. THE INSTRUMENT USES SINGLE-CHANNEL ANALYSIS AND MAY BE USED IN OTHER FIELDS OF GAMMA SPECTROMETRY. PAPER DISCUSSES THE SPECIAL CONSIDERATIONS FOR PORTABLE-INSTRUMENT DESIGN AND DESCRIBES THE INSTRUMENT DEVELOPED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *SPECTROMETRY, GAMMA + CRITICALITY SAFETY + URANIUM

9-19169

DRIVER GE

THE LMFBR COMPUTER CONTROL CENTER

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-SA-1129 + CONF-670314-4 +. 5 PAGES, 1967, PRESENTED AT LIQUID METAL INSTRUMENTATION AND CONTROL SYMPOSIUM, IDAHO FALLS, IDAHO

DISCUSSES THE ENGINEERS PROBLEMS IN SELECTING THE PROPER COMPUTER FOR A SPECIFIC CONTROL JOB. THE FUNCTION AND ACTIVITIES OF THE CENTER ARE GIVEN. THE JOB OF THE LMFBR COMPUTER CONTROL CENTER IS TO HELP AND TO GUIDE INDUSTRY IN BRINGING THE ART OF COMPUTER CONTROL INTO THE REALM OF STANDARD ENGINEERING PRACTICE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL, COMPUTER + COMPUTER, DIGITAL + FFTF (TR) + REACTOR, FAST + REACTOR, TEST

9-19170

LENK PA + MCCREARY JC + BAZARNIC PR + WURSTER DE

OPERATING CHARACTERISTICS OF THE PRESENT PM-TYPE REACTOR INSTRUMENTATION. TASK 2 TOPICAL REPORT

BAILEY METER CO., WICKLIFFE, OHIO

NYO-3379-2 +. 434 PAGES, JANUARY 31, 1966

ANALYZES THE OPERATING CHARACTERISTICS OF THE PRESENT PM-TYPE REACTOR INSTRUMENTATION. NO ATTEMPT WAS MADE TO DISCUSS ALL FEATURES THAT FAVORABLY PERFORM THEIR INTENDED FUNCTION. IT SHOULD BE NOTED THAT THIS REPORT WAS PREPARED ON THE ASSUMPTION THAT THE READER IS WELL GROUNDED IN THE PRINCIPLES OF CIRCUIT THEORY AND PRESENT SYSTEM IMPLEMENTATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, GENERAL + INSTRUMENTATION, NUCLEAR + PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + PM 2A (PORTABLE MEDIUM NUCLEAR POWER PLANT) + PM 3A (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER

9-19172

RUTKOWSKI W + SZTEKE W + WIECZORKOWSKI M

SOME EXPERIMENTS ON VIBRATIONAL COMPACTING B4C FOR REACTOR CONTROL RODS

INSTITUTE OF NUCLEAR RESEARCH, WARSAW, POLAND

INR-701/XIV/PS +. 20 PAGES, FIGURES, MARCH 1966

PROBLEM - DEVELOP METHODS OF MANUFACTURING CONTROL RODS MADE OF B4C. APPROACH - SEVERAL MANUFACTURING TECHNIQUES WERE TRIED. VIBRATIONAL COMPACTING PROVED SATISFACTORY FOR APPLICATIONS REQUIRING LOWER DENSITIES OF B4C. RESULTS - VIBRATIONAL COMPACTION METHODS GAVE DENSITIES IN THE RANGE OF 65% OF THEORETICAL DENSITY.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*CONTROL ROD FABRICATION + CONTROL ROD

9-19173

BASHAM SJ + ZIELENBACH WJ + BRUBER HT + ALLGEIER JP

IRRADIATION OF HIGH-TEMPERATURE ACTUATOR ASSEMBLIES IN A VACUUM FOR THE SNAP-8 REACTOR SYSTEM

BATTELLE MEMORIAL INST., COLUMBUS, OHIO

BMI-X-10168 +. 22 PAGES, JUNE 15, 1966

TWO ACTUATOR AND POSITION-SENSING DEVICES WERE IRRADIATED TO INTEGRATED FAST-NEUTRON EXPOSURES IN A HIGH-VACUUM AT TEMPERATURES OF 800 TO 1000 F TO OBTAIN RADIATION-EFFECTS DATA FOR THE ATOMICS INTERNATIONAL SNAP-8 PROGRAM. DETAILED MEASUREMENTS OF THE NUCLEAR ENVIRONMENT WERE MADE TO AID IN THE STUDY OF RADIATION DAMAGE TO THE SPECIMENS. TEMPERATURES AND VACUUM LEVELS WERE MONITORED CONTINUOUSLY. ACTUATOR OPERATIONAL PERFORMANCE WAS MONITORED PERIODICALLY, AS WERE THE CHARACTERISTICS OF COMPONENTS (INSULATION RESISTANCE, RESISTANCE, IMPEDANCE), TO ESTABLISH DEGRADATION RATES AND DAMAGE THRESHOLDS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19173 *CONTINUED*

*CONTROL ROD + *SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + INSTRUMENTATION, NUCLEAR + TEST, CONTROL ROD DRIVE

9-19174 ALSO IN CATEGORY 4

PICKETT RT

ADVANCED TEST REACTOR SERVO REGULATOR ROD TEST PROGRAM. ATR SITE TESTS

BABCOCK AND WILCOX CO., LYNCHBURG, VA. ATOMIC ENERGY DIV.

ATR-IC-101 + TID-22547 +. 32 PAGES, FIGURES, SEPTEMBER 1965

THE ACCEPTANCE TEST OF THE SERVO-REGULATOR RODS AND CONTROL SYSTEMS ARE REPORTED. THE ROD MET THE TEST REQUIREMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ATR (ADVANCED TEST REACTOR - NRTS) + *CONTROL ROD + *TEST, INSTRUMENT RESPONSE + CONTROL SYSTEM + INSTRUMENTATION, TESTING + REACTOR, TEST + TEST, CONTROL ROD DRIVE

9-19177

RASTOGI V

HIGH TEMPERATURE STRAIN GAGES FOR USE IN SODIUM ENVIRONMENTS. RESEARCH REPORT NO. 5138

BABCOCK AND WILCOX CO., ALLIANCE, OHIO. RESEARCH CENTER

BAW-1280-41 +. 30 PAGES, FIGURES, REFERENCES, DECEMBER 20, 1966

STRAIN GAGES WERE SELECTED AND TECHNIQUES FOR THEIR USE DEVELOPED WHICH ARE SUITABLE FOR USE IN A SODIUM ENVIRONMENT AND TEMPERATURES FROM 600 TO 1000 F. GAGES AVAILABLE FOR HIGH-TEMPERATURE USE WERE EVALUATED FOR FEASIBILITY OF INSTALLATION, GAGE CHARACTERISTICS, AND INHERENT ENVIRONMENTAL PROTECTION. SUITABLE GAGES WERE TESTED AND COMPARED. A PRECALIBRATION TECHNIQUE WAS EVALUATED FOR DETERMINING BONDED-GAGE CHARACTERISTICS OF EACH GAGE BEFORE IT IS APPLIED TO THE STRUCTURE UNDER TEST. MICROBRAZING, NICKEL PLATING, AND HUT-TYPE ENCLOSURES WERE EVALUATED FOR PROTECTION OF THE GAGES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*SODIUM + INSTRUMENTATION, IN CORE + METAL, LIQUID + STRESS STRAIN DATA

9-19178

ALSO IN CATEGORY 15

FRIEND PC

NEUTRON SENSITIVE CRITICALITY DETECTOR

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-517 + CONF-661020-8 +. 7 PAGES, TABLES, OCTOBER 27, 1966, PRESENTED AT 13TH ANNUAL NUCLEAR SCIENCE SYMPOSIUM, BOSTON, MASS.

A SODIUM-STATE NEUTRON-MEASURING AND ALARM CIRCUIT IS DESCRIBED. THE SYSTEM IS MORE SENSITIVE TO THE GAMMA-MEASURING SYSTEMS AND EXCEEDS THE REQUIREMENTS OF APPLICABLE FEDERAL CODES. THE SYSTEM USED A BF3 DETECTOR AND CAN DETERMINE THE PERIOD AS WELL AS THE LEVEL OF THE NEUTRON SOURCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *INSTRUMENTATION, PULSE + INSTRUMENTATION, GENERAL + NEUTRON

9-19202

ALSO IN CATEGORY 12

SCOTT D + GRINDELL AG

COMPONENTS AND SYSTEMS DEVELOPMENT FOR MOLTEN SALT BREEDER REACTORS

OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-1855 +. 56 PAGES, 5 FIGURES, 5 TABLES, 19 REFERENCES, JUNE 30, 1967

STUDIED THERMAL MOLTEN-SALT BREEDER REACTORS (MSBR) TO IDENTIFY IMPORTANT DESIGN AND DEVELOPMENT PROBLEMS. THE PURPOSE WAS TO ORGANIZE THESE PROBLEMS INTO A PROGRAM WHICH WOULD PRODUCE COMPONENTS FOR USE IN A MOLTEN-SALT BREEDER EXPERIMENT (MSBE). THE REFERENCE-DESIGN CONCEPT IS A TWO-REGION TWO-FLUID SYSTEM WITH THE FUEL SALT SEPARATED FROM THE BLANKET SALT BY GRAPHITE TUBES. THE ENERGY PRODUCED IN THE REACTOR FLUID IS TRANSFERRED TO A SECONDARY COOLANT-SALT CIRCUIT, WHICH COUPLES THE REACTOR TO A SUPERCRITICAL STEAM CYCLE. THE SPECIFIC DEVELOPMENT PROBLEMS TO BE STUDIED INCLUDE THE REACTOR CORE AND HEAT EXCHANGER HYDRAULICS, PUMPS FOR THE THREE SALT SYSTEMS, HEAT TRANSFER IN THE HEAT EXCHANGERS AND BOILER-SUPERHEATER, MECHANICAL VALVES FOR SALT-FLOW CONTROL, CONTROL ROD AND DRIVE, PRESSURE RELIEF IN COOLANT SYSTEM, CELL INSULATION AND HEATERS, AND THE COVER-GAS SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD + CONTROL ROD DRIVE + HEAT EXCHANGER + HEAT TRANSFER + INSTRUMENTATION, COMPONENT + PUMP + REACTOR, BREEDER + REACTOR, MOLTEN SALT + REACTOR, THERMAL + SURVEY, GENERAL + VALVE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19203

BAILEY RE + PARTAIN CL

A DIRECT DIGITAL-CONTROL ALGORITHM FOR NUCLEAR REACTOR SYSTEMS

PURDUE UNIVERSITY

CONF-670-602 +. 8 PAGES, 1 TABLE, 11 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(1), PAGE 368, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

TIME-OPTIMAL CONTROL THEORY WITH MAGNITUDE CONSTRAINTS ON THE POSITION AND THE VELOCITY OF THE MANIPULATED VARIABLE WAS APPLIED TO THE REACTOR-STARTUP PROBLEM. THE SINGLE-ENERGY, ONE-EQUIVALENT-DELAYED-NEUTRON-GROUP, SPACE-INDEPENDENT REACTOR MODEL WAS USED AS THE BASIS FOR THIS STUDY. THIS PAPER DEVELOPS THE SWITCHING EQUATION, WHICH IS THE ALGORITHM THAT PROVIDES TIME-OPTIMAL CONTROL. SAMPLE CASE CALCULATIONS WERE PERFORMED, AND ATTENTION WAS GIVEN TO AN ERROR ANALYSIS.

*REACTOR STARTUP EXPERIENCE, INITIAL + *THEORETICAL INVESTIGATION + REACTOR CONTROL

9-19204

TUERKCAN E

DIGITAL REACTIVITY MEASUREMENTS BY A ROD DRIVE METHOD

REACTOR CENTRUM NEDERLAND, PETTEN

RCN-65 +. 16 PAGES, FIGURES, TABLES, FEBRUARY 1967

THE PURPOSE OF THIS METHOD IS TO FIND THE CONTROL-ROD WORTH IN A SHORT TIME. THE VALUE OF THE REACTIVITY CONTROLLED BY A CONTROL ROD CAN BE DEDUCED FROM AN ANALYSIS OF THE DIGITALLY MEASURED REACTOR RESPONSE TO A SLOW MOVEMENT OF THE CONTROL ROD, STARTING FROM A CRITICAL REACTOR.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*CONTROL ROD WORTH + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM

9-19205

MALMSTROM SA

ARMY GAS-COOLED REACTOR SYSTEMS PROGRAM. OFF-NORMAL SCRAM SYSTEM. FINAL DESIGN REPORT

AEROJET-GENERAL NUCLEONICS, SAN RAMON, CALIFORNIA

TID-22596 + AN-AGCR-962 +. 54 PAGES, DECEMBER 1965

THIS REPORT DESCRIBES THE FINAL DESIGN OF THE AUTOMATIC SYSTEM DEVELOPED TO PREVENT EXCESSIVE CORE TEMPERATURES DURING PERIODS OF TRANSIENT OPERATION. THE OFF-NORMAL SCRAM SYSTEM MONITORS THE REACTOR INLET AND OUTLET TEMPERATURES AND MASS FLOW RATE OF THE PRIMARY COOLANT. ELECTRICAL ANALOGS OF THESE PARAMETERS ARE SUPPLIED TO A CURVE-SYNTHESIS-AND-SHAPING COMPUTER WHICH GENERATES A MAXIMUM PERMISSIBLE REACTOR OUTLET TEMPERATURE ANALOG SIGNAL. A SOLID-STATE COMPARATOR COMPARES THE MAXIMUM PERMISSIBLE AND MEASURED REACTOR OUTLET TEMPERATURES AND INITIATES A SCRAM IF THE MEASURED OUTLET TEMPERATURE IS EXCESSIVE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *HOT SPOT + *MEASUREMENT, TEMPERATURE + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, GENERAL + REACTOR, GAS COOLED

9-19206

ZANOT JR

AS FOUND RELIABILITY ANALYSIS OF GETR SAFETY SYSTEMS

GENERAL ELECTRIC CO., IRRADIATION PROCESSING OPERATION, PLEASANTON, CALIF.

15 PAGES, 4 FIGURES, 1 REFERENCE, 1967

AT THE GETR, RELIABILITY ANALYSIS HAS PROVIDED SOME VALUABLE INFORMATION. IF ITS LIMITATIONS ARE RECOGNIZED, IT CAN BE HELPFUL IN IMPROVING PLANT PERFORMANCE. A RELIABILITY EVALUATION WAS MADE OF EVERY SCRAM CHANNEL IN THE GETR SYSTEM. AFTER DETERMINING THE RELIABILITY, A SECOND EVALUATION WAS MADE TO DETERMINE WHETHER THE ESTIMATED FAILURE RATE WAS COMPATIBLE WITH THE PROTECTIVE FUNCTIONS BEING SERVED. IN SEVERAL CASES, RELIABILITY WAS JUDGED TO BE INADEQUATE FOR THE FUNCTION PERFORMED. IN SUCH CASES, AN UPGRADING OF THE SYSTEMS WAS RECOMMENDED.

AVAILABILITY - J. R. ZANOT, GENERAL ELECTRIC CO., IRRADIATION PROCESSING OPERATION, PLEASANTON, CALIFORNIA

COMPARISON, THEORY AND EXPERIENCE + ENGINEERED SAFETY FEATURE + GETR (GENERAL ELECTRIC TEST REACTOR) + INSTRUMENTATION, COINCIDENT + REACTOR, TEST + RELIABILITY ANALYSIS

9-19249

ALSO IN CATEGORY 17

PATHFINDER REPORTS CONTROL ROD CRACKING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19249 *CONTINUED*
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
1 PAGES, OCTOBER 23, 1967, DOCKET NO. 50-130.

(LETTER TO DRL) INSPECTION OF TWO BORON/STAINLESS-STEEL CONTROL RODS SHOWED VISIBLE CRACKS NEAR FABRICATION WELDS ON THE NEUTRON-ABSORBER SECTION, INDICATING THAT THEY ARE NOT SUITABLE FOR POWER OPERATION. UNDER CONSIDERATION FOR USE ARE B4C PELLET-IN-TUBE RODS (DESIGNED FOR CORE II AND PRESENT AT SITE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BORON + *CONTROL ROD BURNUP + *FAILURE, EQUIPMENT + *WELDS + EXAMINATION +
MODIFICATION, SYSTEM OR EQUIPMENT + PATHFINDER + REACTOR, INTERNAL SUPERHEAT

9-19254 ALSO IN CATEGORY 17
SAXTON REPORTS CONTROL ROD STUCK IN CORE
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
21 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

(JUNE, JULY, AND AUGUST REPORTS) CONTROL ROD 5 FAILED TO RAISE MORE THAN 0.4 IN. DURING STARTUP. A MANUALLY OPERATED GEAR HOIST WAS USED TO FREE THE ROD WITH 162 LB FORCE. IT WAS LOWERED, AND THE ROD OPERATED PROPERLY. VISUAL INSPECTION SHOWED GOUGES (ABOUT 1/8 X 3/8 BY 1/16 IN. DEEP) IN THE ROD OPPOSITE THE CONTROL-ROD GUIDE BLOCK. THE BLOCK HAD BEEN SCORED ON THE VERTICAL EDGE, INDICATING THAT AN OBJECT HAD JAMMED BETWEEN THE ROD AND THE GUIDE BLOCK. ROD WAS OPERATED SUCCESSFULLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *INCIDENT, ACTUAL, EQUIPMENT + CONTROL ROD + EXAMINATION +
OPERATIONS SUMMARY FOR AEC + REACTOR, PRESSURIZED WATER + SAXTON

9-19255 ALSO IN CATEGORY 17
SAXTON REPORT DAMAGE TO FOLLOWER SECTION OF CONTROL ROD
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
7 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

SAXTON REPLACED THE FUEL-FOLLOWER SECTION OF CONTROL ROD 2 WHEN VISUAL INSPECTION REVEALED POSSIBLE CLAD FAILURES IN BLACK-RUB AREAS AND DENTS (FROM FABRICATION).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + CONTROL ROD + FAILURE, CLADDING + FAILURE, FABRICATION ERROR +
FAILURE, SCRAM MECHANISM + FUEL ELEMENT + OPERATIONS SUMMARY FOR AEC + REACTOR, PRESSURIZED WATER + SAXTON

9-19333
NUTT R + ANDERSON JL
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 2. CHAMBER HIGH VOLTAGE SUPPLY AND FLUX AMPLIFIER,
ORNL MODEL Q-2502
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-1638 +. 25 PAGES, 7 FIGURES, 2 TABLES, MAY 31, 1967

THE FLUX AMPLIFIER IS A LOW-LEVEL DC AMPLIFIER THAT AMPLIFIES CURRENT IN THE RANGE OF 10(-10TH) TO 10(-4TH) AMP FROM AN IONIZATION CHAMBER. ITS PRINCIPAL APPLICATION IS THE MEASUREMENT OF NEUTRON FLUX FOR THE SAFETY SYSTEM OF A NUCLEAR REACTOR. AN ION-CHAMBER HIGH-VOLTAGE SUPPLY, A DC-TO-DC CONVERTER, IS CONTAINED IN THE SAME MODULE TO SUPPLY THE ASSOCIATED ION CHAMBER WITH PLUS 250-V DC. THE INSTRUMENT IS A STANDARD PLUG-IN MODULE OF THE ORNL MODULAR REACTOR INSTRUMENTATION SERIES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, CURRENT + INSTRUMENTATION, NUCLEAR

9-19403 ALSO IN CATEGORY 4
MCCONVILLE JH + WALTON JW
SNAP-50/SPUR ELECTROMAGNETIC PUMP PROGRAM - CONCEPT SELECTION AND STATUS REPORT
PRATT AND WHITNEY AIRCRAFT, MIDDLETOWN, CONN.
TIM-911 +. 27 PAGES, FIGURES, REFERENCES, MAY 28, 1965

BASED ON THE RESULTS OF ANALYTICAL STUDIES USING LIMITED EXPERIMENTAL DATA, THE 3200-CPS RECTIFIER/CONDUCTION PUMP UNIT IS THE MOST PROMISING ELECTROMAGNETIC REACTOR COOLANT PUMP FOR THE SNAP-50/SPUR POWERPLANT. THE PUMP HAS BEEN SHOWN TO BE COMPETITIVE WITH THE FREQUENCY CONVERTER/MECHANICAL PUMP ON A PERFORMANCE BASIS. THE MAIN ADVANTAGES ARE ITS SIMPLE, RUGGED CONSTRUCTION, AS CHARACTERIZED BY THE ABSENCE OF ROTATING PARTS, MINIMIZATION OF CLOSE TOLERANCES, AND CONSERVATION OF COLUMBIUM ALLOY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19403 *CONTINUED*
EQUIPMENT DESIGN + PUMP + REACTOR, SPACE + SNAP 50 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)

9-19439
IONAITIS RR + KOLGANOVA LI
EXPERIMENTS ON INITIAL TRAVEL OF SAFETY ROD
4 PAGES, 5 FIGURES, 1 TABLE, 4 REFERENCES, AT. ENERG. (USSR), 22, PAGE 51 THRU 54, (JANUARY 1967), IN RUSSIAN

DATA WERE COLLECTED ON THE TRAVEL OF SAFETY RODS DURING SCRAMMING. IT WAS FOUND THAT THE VELOCITY OF THE ROD VARIED DURING THE RAPID INSERTION. OSCILLATIONS WERE NOTED. THEY BECAME LARGER AS THE ROD TRAVEL VELOCITY INCREASED. REMOVAL OF AIR FROM THE CHANNEL REDUCED THE AMPLITUDE OF THE OSCILLATION. THE RESULTS ALLOWED DERIVATION OF A NUMBER OF RELATIVELY SIMPLE BUT STILL SUFFICIENTLY PRECISE FORMULAS CONCERNING THE LAWS CONTROLLING THE DROPPING OF SCRAM RODS.

*TEST, DROP + COMPARISON, THEORY AND EXPERIENCE + TEST, CONTROL ROD DRIVE +
UNION OF SOVIET SOCIALIST REPUBLICS

9-19440
HAGEN O + SHERWOOD D
EVALUATION OF PM COLLETS. CONTROL ROD DRIVE MECHANISM STUDY. PHASE 1. ENGINEERING MEMORANDUM NO. 3474
WESTINGHOUSE ELECTRIC CORP., CHESWICK, PA. ATOMIC EQUIPMENT DIVISION
NYO-3370-4 +. 209 PAGES, FIGURES, 3 TABLES, JUNE 18, 1965

THE CONTROL-ROD ACTUATORS ON THE PM-1 AND PM-3A POWER PLANTS USE COLLETS TO LOCK THE CONTROL RODS TO THE ACTUATORS. THE COLLETS HAD DEFORMED AFTER USE. THEORETICAL AND TEST EVALUATIONS REVEAL THAT THE DEFORMATION WAS DUE TO HIGH SCRAM LOADS. THAT IS, THE COLLET DESIGN, IN TERMS OF MATERIAL SELECTION, CONFIGURATION, AND MODE OF LOADING COULD NOT SUSTAIN THE G LOADS IMPOSED BY THE BUFFER-SYSTEM DESIGN. THE LOADS DEFORMED A TEST COLLET MADE FROM AISI 304 SS BUT DID NOT NOTICEABLY DEFORM A TEST COLLET MADE FROM TEMPERED AISI 410 SS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD DRIVE + FAILURE, COMPONENT + FAILURE, DESIGN ERROR +
PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + PM 3A (PORTABLE MEDIUM NUCLEAR POWER PLANT) +
REACTOR, MILITARY

9-19441 ALSO IN CATEGORY 15
MILLER HL
RADIOLOGICAL SAFETY MEASUREMENTS OF X RAYS AND NEUTRONS FROM PULSED SOURCES
PRINCETON UNIV., N. J. PLASMA PHYSICS LAB.
MATT-347 + CONF-660512-7 +. 21 PAGES, FIGURES, JULY 1965, PRESENTED AT SYMPOSIUM ON ENGINEERING PROBLEMS OF CONTROLLED THERMONUCLEAR RESEARCH, LIVERMORE, CALIFORNIA

MONITORS WERE DEVELOPED FOR CONTINUOUS UNATTENDED RECORDING OF RADIATION DOSE AT RATES RANGING FROM STEADY STATE NEAR NATURAL BACKGROUND TO EXTREMELY HIGH INTENSITY AT LOW DUTY CYCLE. THE GAMMA AND X-RAY MONITORS WERE DESIGNED TO OPERATE WITH X-RAY PULSES AS INTENSE AS 8,000,000 MREM PER HR FOR 100 MICROSEC, OR PROPORTIONATELY LONGER AT LOWER INTENSITY. THE NEUTRON MONITOR WAS BUILT BASED ON THE BONNER SPHERE. A 0.3-MICROSEC PULSE RESULTS IN A 10% COINCIDENCE LOSS AT 267,000 MREM PER HR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

GAMMA + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, RADIATION MONITORING +
MONITOR, RADIATION, ENVIRONMENTAL + NEUTRON + X-RAY

9-19442
GLASGOW LE
ASSESSMENT OF THE SODIUM REACTOR EXPERIMENT RELIABILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NAA-SR-MEMO-12224 +. 10 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 31, 1966

THE AIM OF THE PROGRAM WAS TO COMPLETE THE CONVERSION OF THE SODIUM REACTOR EXPERIMENT FROM AN EXPERIMENTAL FACILITY INTO A ROUTINELY OPERABLE, HIGH-TEMPERATURE, SODIUM-COOLED, TEST FACILITY. CONSEQUENTLY, GREAT EMPHASIS WAS PLACED ON IMPROVING PLANT RELIABILITY. IN ADDITION TO CONSERVATIVE DESIGN, CONSIDERABLE ATTENTION WAS GIVEN TO QUALITY ASSURANCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

FAILURE, EQUIPMENT + INSTRUMENTATION, GENERAL + OPERATING EXPERIENCE + QUALITY CONTROL +
REACTOR, LIQUID METAL COOLED + RELIABILITY ANALYSIS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19443
CARSON CE + LAUGHON KO
EGCR CONTROL ROD STUDIES
TENNESSEE VALLEY AUTHORITY, OAK RIDGE
TID-22741 +. 37 PAGES, TABLES, REFERENCES, JUNE 3, 1965

SEVERAL COMPUTER CALCULATIONS WERE PERFORMED ON CONTROL-ROD WORTH FOR THE EXPERIMENTAL GAS-COOLED REACTOR. THESE WERE 2-GROUP DIFFUSION-THEORY CALCULATIONS, WITH SOME BEING PERFORMED IN R-Z GEOMETRY BUT THE MAJORITY IN X-Y. THE RESULTS PRESENT CONSIDERABLE INFORMATION REGARDING THE REACTIVITY WORTH OF NUMEROUS COMBINATIONS OF RODS, BOTH WITH AND WITHOUT ADDITIONAL RODS, IN PARTIALLY LOADED CORES AND IN THE FULLY LOADED CORE. IN ADDITION, ROD-WORTH CURVES AND ROD-SLOPE (DIFFERENTIAL WORTH) CURVES ARE PRESENTED FOR DIFFERENT GROUPS OF RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + CONTROL ROD WORTH + EGCR (EXPERIMENTAL GAS COOLED REACTOR) + REACTOR, GAS COOLED + THEORETICAL INVESTIGATION

9-19444
CONTROL CHARACTERISTICS OF THE VARIOUS TYPES OF NUCLEAR PLANTS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, ENGLAND
CONF-660-334 (PT.1) +. 26 PAGES, 9 FIGURES, 1966

CONTROL CHARACTERISTICS ARE DISCUSSED FOR THE DIFFERENT TYPES OF REACTORS USED AT PRESENT FOR POWER PRODUCTION IN THE UNITED KINGDOM. OUTLET GAS TEMPERATURE IS USED AS THE CONTROL PARAMETER OF MAGNOX-CLAD URANIUM-METAL-FUELED REACTORS. THE SAME IS TRUE FOR THE AGR. IN PRESSURIZED WATER REACTORS, BULK BOILING OF COOLANT DOES NOT OCCUR, AND TEMPERATURE RISE OF THE COOLANT IS AGAIN USED AS A MEASURE OF REACTOR POWER. DISCUSSION OF BOILING-WATER REACTORS IS BASED PRINCIPALLY ON THE STEAM-GENERATING HEAVY-WATER REACTOR. THE MAIN DIFFERENCE BETWEEN THIS REACTOR AND THE PRESSURE-VESSEL BWRs IS ITS MUCH LOWER REACTIVITY VOID COEFFICIENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL, GENERAL + *REACTOR CONTROL + *REACTOR POWER + *UNITED KINGDOM +
AGR (ADVANCED GASCOOLED REACTOR, WINDSCALE, UK) + REACTOR, BOILING WATER + REACTOR, GAS COOLED +
REACTOR, PRESSURIZED WATER

9-19476 ALSO IN CATEGORY 18
ADDITIONAL INFORMATION ON INSTRUMENTATION
JERSEY CENTRAL POWER AND LIGHT COMPANY
9 PAGES, PAGE II-1-1 THRU II-4-1, OCTOBER 16, 1967, DOCKET NO. 50-219, AMENDMENT 20

INFORMATION INCLUDES ENVIRONMENTAL SPECIFICATIONS FOR THE SOURCE-, INTERMEDIATE-, AND POWER-RANGE MONITOR SYSTEMS, AND THE AREA RADIATION MONITOR. ELECTROMATIC RELIEF VALVES (ACTUATED BY A DC SOLENOID) WILL OPERATE AT ACCIDENT CONDITIONS OF 62 PSIG SATURATED STEAM ATMOSPHERE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENVIRONMENTAL CONDITION + *INSTRUMENTATION, INTERMEDIATE RANGE + *INSTRUMENTATION, POWER RANGE +
*INSTRUMENTATION, STARTUP RANGE + *VALVE + AEC QUESTION + INSTRUMENTATION, GENERAL + OYSTER CREEK +
REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

9-19496
SIDNEY SINGER
GEIGER COUNTER CURRENT-LIMITING CIRCUIT
LOS ALAMOS SCIENTIFIC LAB, N. MEX.
2 PAGES, 1 FIGURE, REV. SCI. INSTRUM., 38, PAGES 443-4 (MARCH 1967)

A SIMPLE CURRENT-LIMITING CIRCUIT IS DESCRIBED FOR USE WITH A GEIGER COUNTER WITHOUT ADVERSELY AFFECTING THE OPERATING CHARACTERISTICS OF THE COUNTER. THUS, THE COUNTER CAN BE OPERATED FROM THE COMMON POWER SUPPLY WITH OTHER RADIATION-DETECTION INSTRUMENTS IN SPACE APPLICATIONS. A SHORT-CIRCUIT FAILURE IN THIS SENSOR CANNOT NOW DRAIN THE COMMON POWER SUPPLY, WHICH WOULD RENDER ALL SENSORS INOPERATIVE.

INSTRUMENTATION, COMPONENT + INSTRUMENTATION, CURRENT

9-19497
BATENBURG A + BUIS GR + MANGAN MA + STRITTMATTER JA
AUTOMATIC CONTROL OF ROD POSITION WITH BORON IN A CHEMICAL SHIM NUCLEAR PLANT

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19497 *CONTINUED*
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
WCAP-3269-54 +. 43 PAGES, FIGURES, 3 TABLES, MARCH 1966

A MEANS OF IMPLEMENTING CONTROL OF A PRESSURIZED WATER REACTOR IS BY VARYING THE CONCENTRATION OF BORON IN THE REACTOR COOLANT. A MODEL WAS DERIVED TO DESCRIBE THE CHEMICAL AND VOLUME CONTROL SYSTEM OF THE NUCLEAR PLANT. THE ANALOG SIMULATION OF THIS SYSTEM WAS COMBINED WITH AN ACCURATE SIMULATION OF A PRESSURIZED WATER REACTOR PLANT TO STUDY THE BEHAVIOR OF THE OVERALL PROCESS. THE IMPORTANT TRANSPORT TIME DELAYS ASSOCIATED WITH THE CHEMICAL AND VOLUME CONTROL SYSTEM WERE SIMULATED ON A DIGITAL COMPUTER. THE STUDY SHOWED THAT IT IS FEASIBLE TO MAINTAIN THE CONTROL RODS AT A REQUIRED POSITION BY VARYING THE CONCENTRATION OF BORON IN THE REACTOR COOLANT SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BORON + *REACTOR CONTROL + ANALOG SIMULATION + ANALYTICAL MODEL + CONTROL SYSTEM + REACTOR, PRESSURIZED WATER + SIMULATION

9-19498
PM-3A CONTROL ROD DRIVE MECHANISM AND CABLE REPAIR. SUMMARY REPORT
MARTIN CO., BALTIMORE, MD.
TID-22736 +. 73 PAGES, MARCH 8, 1965

THE REPAIR PROGRAM EFFECTED ON THE PM-3A CONTROL-ROD-DRIVE SYSTEM UNDER CONTRACT AT(30-1) 3512 ORIGINATED JAN. 27, 1965. THE DIFFICULTIES EXPERIENCED WERE - (1) DURING ROD-DROP-SPEED TESTS, A CONTROL ROD MALFUNCTIONED DUE TO A GROUND IN THE UNDERWATER CONNECTOR ON THE ACTUATOR. (2) CONTROL-ROD-DRIVE MECHANISMS WOULD NOT OPERATE IN BANK OR GROUP MODES BECAUSE OF CIRCUIT GROUNDS. (3) LOW INSULATION RESISTANCE ON ARMATURE COILS AND FEED CABLES. EQUIPMENT WAS RETURNED TO VENDOR FOR CORRECTION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD DRIVE + *FAILURE, COMPONENT + *FAILURE, EQUIPMENT + PM 3A (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY

9-19501 ALSO IN CATEGORIES 4 AND 14
BERTA VT
SNAPTRAN EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION
PHILLIPS PETROLEUM COMPANY, IDAHO
IDO-17205 +. 161 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967

THE SNAPTRAN EXPERIMENTAL PROGRAM WAS DESIGNED TO PROVIDE NUCLEAR-SAFETY INFORMATION APPLICABLE TO SNAP 10A/2 REACTOR SYSTEMS. THE SPECIFIC DESIGNATIONS FOR THE PROGRAMS ARE - SNAPTRAN-1 (FOR THE KINETICS STUDIES IN THE NONDESTRUCTIVE REGION), SNAPTRAN-2 (FOR THE KINETIC STUDIES IN THE DESTRUCTIVE REGION), AND SNAPTRAN-3 (FOR THE SAFETY STUDIES INVOLVING REACTOR DESTRUCTION DUE TO WATER IMMERSION). THE REACTORS FOR PERFORMING THESE TESTS WERE DESIGNED AND BUILT BY ATOMICS INTERNATIONAL. THIS REPORT CONTAINS A DETAILED DESCRIPTION OF THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION USED TO OBTAIN DATA FROM THE TESTS. ALSO INCLUDED ARE DETAILED DESCRIPTIONS OF THE REACTOR SYSTEMS AND THE THEORETICAL ANALYSES WHICH FORMED THE BASIS FOR THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION.

AVAILABILITY - CLEARINGHOUSE FOR SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*COMPARISON, THEORY AND EXPERIENCE + *SAFETY PRINCIPLES AND PHILOSOPHY + *SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + *SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES) + DOSIMETRY, GENERAL + INSTRUMENTATION, GENERAL + MEASUREMENT, GENERAL + MONITOR, RADIATION, GENERAL + REACTOR, SPACE + REACTOR, TEST

9-19517 ALSO IN CATEGORY 6
DRAGT JB
BIAS DUE TO FINITE MEASURING TIME IN NUCLEAR REACTOR NOISE ANALYSIS
REACTOR CENTRUM NEDERLAND, PETTEN
RCN-65 +. 19 PAGES, REFERENCES, FEBRUARY 1967

THE EFFECT OF FINITE MEASURING TIME ON THE ANALYSIS OF REACTOR NOISE, MEASURED BY MEANS OF A NEUTRON COUNTER, WAS INVESTIGATED IN A SYSTEMATIC WAY. IT WAS FOUND THAT THIS FINITE TIME INTRODUCED A SYSTEMATIC BIAS IN THE FEYNMAN, AUTOCORRELATION, AND POWER-SPECTRUM ANALYSIS, NOT IN THE BENNETT ANALYSIS. EXPRESSIONS FOR THE EFFECT ARE GIVEN, WHICH CAN BE USED FOR CORRECTING EXPERIMENTAL RESULTS. THE EFFECT APPEARS TO BE CLOSELY COUPLED TO THE DELAYED NEUTRON EFFECT. IT IS SHOWN THAT THIS FINITE TIME EFFECT REMOVES THE DIVERGENCE THAT OCCURS IN THE USUAL FORMULATIONS FOR FEYNMAN AND AUTOCORRELATION ANALYSIS FOR A CRITICAL REACTOR.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*NOISE ANALYSIS + *THEORETICAL INVESTIGATION + NOISE + NOISE CROSS CORRELATION + RESPONSE TIME + ROSSI ALPHA

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19518 ALSO IN CATEGORY 4
EAMES WF + FULTONBERG DN + ROSAL ER + FLETCHER WD + LOVING JJ
FEASIBILITY OF A CHEMICAL POISON LOOP SYSTEM. FINAL REPORT.
WESTINGHOUSE ELECTRIC CORP., ATOMIC POWER DIVISION, PITTSBURGH, PA.
WCAP-2993 + NASA-CR-72105 +. 75 PAGES, TABLES, FIGURES, SEPTEMBER 1966

A FINAL PROGRAM REPORT CONCLUDING THE FEASIBILITY OF UTILIZING A CHEMICAL POISON LOOP FOR THE REACTIVITY CONTROL OF A TUNGSTEN-WATER MODERATED ROCKET REACTOR. A SERIES OF DYNAMIC TESTS WAS PERFORMED TO SIMULATE THE REQUIRED STARTUPS AND SHUTDOWNS, WITH ANALYTICAL DATA TAKEN TO EVALUATE SYSTEM PERFORMANCE. SATISFACTORY PERFORMANCE WAS ACHIEVED IN ALL INSTANCES. AS TO OVERALL SYSTEM FEASIBILITY, IT IS CONCLUDED THAT THE DESIGN SYSTEM REQUIREMENTS ARE GENERALLY SATISFACTORILY MET. BECAUSE OF PROBLEMS WITH THERMAL STABILITY OF THE POISON SOLUTION, THE PERFORMANCE UNDER NORMAL OPERATION CONDITIONS MUST BE CONSIDERED MARGINAL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*DESIGN STUDY + REACTOR CONTROL + REACTOR, AIRCRAFT + REACTOR, SPACE + REACTOR, WATER + TUNGSTEN

9-19519 ALSO IN CATEGORY 6
BRICKSTOCK A + DAVIES AR
REP3 - A SPATIALLY DEPENDENT FISSION PRODUCT POISONING CODE FOR THE IBM 7030
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, ENGLAND
AWRE-O-69/66 +. 14 PAGES, JANUARY 1967

TRANSIENT PEAKS SUBSEQUENT TO SHUTDOWN OF A THERMAL REACTOR ARE NOT ALWAYS WELL ESTIMATED IN CORES WITH STRONGLY SPACED DEPENDENT FLUXES. PART OF THIS ERROR ARISES BECAUSE THE RATIO OF PEAK TO EQUILIBRIUM POISONING IS NOT A LINEAR FUNCTION OF FLUX DENSITY. IN THE RANGE OF FLUXES 0.25 TO 3.0×10^{13} TH, THE EQUILIBRIUM POISONING RISES CONSIDERABLY SLOWER WITH FLUX THAN DOES THE TRANSIENT PEAK. CONSEQUENTLY, THE RATIO PEAK/EQUILIBRIUM RISES RAPIDLY AT HIGHER FLUX LEVELS. A COMPUTER PROGRAM FOR THE IBM 7090 IS DEVELOPED TO COVER THIS ASPECT OF REACTOR CONTROL INVESTIGATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *COMPUTER, DIGITAL + REACTOR CONTROL + SAMARIUM + XENON

9-19566 ALSO IN CATEGORY 17
O.E.C.D. HALDEN REACTOR PROJECT. SEVENTH ANNUAL REPORT, 1965/66
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
NP-16803 +. 165 PAGES, FIGURES, TABLES, REFERENCES, 1966

SUMMARIZES THE RESEARCH ACTIVITIES ON REACTOR STATICS, DYNAMICS, WATER CHEMISTRY, FUEL IRRADIATION TESTING, AND OPERATIONAL ACTIVITIES. SIX FAILURES OF TEST ELEMENTS OCCURRED, BUT NONE DELAYED THE FUEL-TEST PROGRAM. REPORTS DEVELOPMENT WORK ON NOISE DETECTIONS FOR DETECTING APPROACH TO BURNOUT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*FAILURE, FUEL ELEMENT + *OPERATIONS REPORT, GENERAL + BURNOUT HEAT FLUX + FUEL ELEMENT + INSTRUMENTATION, POWER RANGE + IRRADIATION TESTING + NOISE + NORWAY + REACTOR DYNAMICS + RESEARCH AND DEVELOPMENT PROGRAM

9-19668 ALSO IN CATEGORIES 11 AND 17
SUPPLEMENTARY INFORMATION ON PLUMBROOK PROPOSED CHANGE 32
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LFWTS RESEARCH CENTER
4 PAGES, NOVEMBER 2, 1967, DOCKET 50-30

INFORMATION ON MODIFICATION OF UPPER GRID AND ROLLER GUIDES. INCLUDES A COMPARISON OF ROD-DROP TIMES WITH AND WITHOUT LOW AND WITH ROLLER AND ROLLERLESS GUIDES, EFFECT OF ROD LEAK, AND BEARING MATERIAL. LEAK RATES ACROSS HERMETICALLY SEALED ELECTRICAL PENETRATIONS INCLUDE LEAKS ACROSS DOUBLE O-RING SEALS IN MOUNTING PLATE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, ELECTRICAL + *MODIFICATION, SYSTEM OR EQUIPMENT + *TEST, LEAK RATE + AEC QUESTION + CONTROL ROD SCRAM MECHANISM + PLUMB BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

9-19679
QAZI MN + QURESHI MH
THERMAL NEUTRON FLUX MEASUREMENT AND POWER DETERMINATION IN THE PAKISTAN RESEARCH REACTOR AT NILORE
PAKISTAN INST. OF NUCLEAR SCIENCE AND TECHNOLOGY, ISLAMABAD

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19679 *CONTINUED*
PINSTECH/R.O.-02 +. 17 PAGES, 4 TABLES, 6 REFERENCES, NOVEMBER 1966

THE THERMAL NEUTRON FLUX IN THE PAKISTAN RESEARCH REACTOR AT NILORE WAS MEASURED BY FOIL ACTIVATION. COPPER STRIPS WERE USED FOR RELATIVE MEASUREMENTS, WHEREAS BARE AND CADMIUM-COVERED GOLD FOILS WERE USED FOR ABSOLUTE DETERMINATION. THIS INFORMATION WAS USED TO COMPUTE THE REACTOR POWER.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*COMPARISON, THEORY AND EXPERIENCE + *FLUX, INTEGRATED + *MEASUREMENT, REACTIVITY + *THERMAL NEUTRON + PAKISTAN + REACTOR, RESEARCH

9-19680 ALSO IN CATEGORY 6
TRINKO JR + HANAUER SH + ROUX DP + DE LORENZO JT
REACTOR NOISE ANALYSIS USING A PULSE TYPE DETECTOR
OAK RIDGE NATIONAL LABORATORY + UNIVERSITY OF TENNESSEE
ORNL-P-2880 + CONF-670602-5 +. 6 PAGES, FROM 13TH ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF.

REACTOR FLUCTUATION STUDIES USING PULSE DETECTORS WERE EXTENDED BY USING A NEW COUNTER WITH A COLLECTION TIME OF 60 NSEC. PULSES WERE APPLIED TO AMPLIFIERS AND A DISCRIMINATOR WITH 100-MHZ RESPONSE FOLLOWED BY CURRENT INTEGRATION IN A COUNTING-RATE METER WITH RC EQUAL TO 15 MICROSEC. THE OVERALL DOUBLE-PULSE RESOLVING TIME WAS ABOUT 130 NSEC. FLUCTUATIONS IN COUNTING RATE WERE ANALYZED FOR CURRENT FLUCTUATIONS. IT APPEARS THAT THE PULSE SYSTEM IS EQUIVALENT TO THE CURRENT SYSTEM AND THAT THE SYSTEMS HAVE DIFFERENT ADVANTAGES AND LIMITATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, PULSE + NOISE ANALYSIS + REACTOR TRANSIENT

9-19681
DELISLE JP
PRACTICAL TEST OF AUTOMATIC PLUGGING INDICATORS
CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE
ORNL-TR-1605 + CONF-661110-19 +. 23 PAGES, 12 FIGURES, PRESENTED AT THE IAEA SYMPOSIUM ON ALKALI METAL COOLANTS, CORROSION STUDIES, AND SYSTEM OPERATING EXPERIENCE, VIENNA, AUSTRIA, NOV. 25-DEC. 2, 1966

THE DEVELOPMENT AND TESTING OF THREE EXPERIMENTAL INSTRUMENTS TO INDICATE PLUGGING IN THE SODIUM-COOLED REACTOR LOOPS AT CADARACHE IS THE SUBJECT OF THIS REPORT. FROM THESE TESTS, THE INDICATORS FOR RAPSOODIE WERE DERIVED, AND A PROTOTYPE WAS CONSTRUCTED AND MOUNTED ON THE 1-MW EXPERIMENTAL PRIMARY LOOP.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, FLOW + FRANCE + REACTOR, MOLTEN SALT

9-19695 ALSO IN CATEGORIES 18 AND 2
SECOND SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT FOR POINT BEACH NUCLEAR PLANT
WISCONSIN MICHIGAN POWER COMPANY
150 PAGES, 18 FIGURES, 7 TABLES, 15 REFERENCES, FEBRUARY 3, 1967, DOCKET NO. 50-266

71 ANSWERS TO QUESTIONS ASKED BY DLR, DEC. 23, 1966. SOME DETAILED INFORMATION WILL BE SUBMITTED LATER. TABLE OF CONTENTS FORMAT - I. GENERAL (44 QUESTIONS), II. INSTRUMENTATION (11 QUESTIONS), III. SITE (9 QUESTIONS), IV. ACCIDENT ANALYSIS (7 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *INSTRUMENTATION, GENERAL + *SITING, REACTOR + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

9-19752 ALSO IN CATEGORY 18
DRL ASKS MORE INFORMATION OF DIABLO CANYON AFTER REVIEWING SUPPLEMENTS 1, 2, 3
DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
5 PAGES, OCTOBER 1967, DOCKET 50-275

(LETTER) FOUR ITEMS REMAIN UNRESOLVED - (A) SEISMIC DESIGN, (B) INSTRUMENTATION REGARDING PROPOSED INCREASED CORE POWER DENSITY, AND IN-CORE MONITORING AND PART-LENGTH CONTROL RODS, (C) EMERGENCY CORE COOLING, INCLUDING SINGLE PIPE LINES, (D) SEISMIC AND BLOWDOWN EFFECTS ON REACTIVITY. ***AN EVALUATION OF THE I AND C SYSTEM ON INFORMATION IN PSAR AND SUPPL. 2,3 WOULD BE LITTLE MORE THAN AN EVALUATION OF DESIGN CRITERIA. WE NEED SPECIFIC INFORMATION IN OUR QUESTION, INCLUDING A PRELIMINARY DESIGN, SO WE CAN EVALUATE THE APPROACH TO IMPLEMENTATION OF THE CRITERIA.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19752 *CONTINUED*
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DESIGN CRITERIA + *INSTRUMENTATION, NUCLEAR + *SYSTEM DESCRIPTION + AEC QUESTION + BLOWDOWN +
CONTROL ROD PROGRAM + DIABLO CANYON + EARTHQUAKE ENGINEERING + INSTRUMENTATION, IN CORE +
REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + XENON OSCILLATION

9-19774 ALSO IN CATEGORY 12
WEBER M
CONTROL SYSTEM FOR A STEAM GENERATOR RECEIVING HEAT FROM A NUCLEAR REACTOR
SULZER BROTHERS LTD.
CANADIAN PATENT 746,701 +. 20 PAGES, 5 FIGURES, NOV. 22, 1966

THE COOLANT FROM A REACTOR IS USED TO OPERATE A VAPOR GENERATOR WHICH CONTAINS A SUPERHEATER. THE TEMPERATURE OF THE COOLANT IS MAINTAINED APPROXIMATELY CONSTANT BY CONVENTIONAL DEVICES, AND ITS FLOW IS COUNTERCURRENT TO THAT IN THE VAPOR GENERATOR. STEADY OUTLET TEMPERATURE FROM THE VAPOR GENERATOR IS ACHIEVED BY REGULATING THE RATE OF FEED WATER SUPPLY TO THE GENERATOR IN RESPONSE TO THE TEMPERATURE OF AN INTERMEDIATE PORTION OF THE SUPERHEATER. A TEMPERATURE SENSOR PRODUCES A CONTROL SIGNAL WHICH REGULATES THE SUPPLY OF FEED WATER. IN THE VAPOR GENERATOR, THERE ARE TWO SETS OF COILS, THE SECOND INCLUDING A SUPERHEATER. A SYSTEM OF VALVES AND BYPASSES MAINTAINS CONTROL OF FLOW TO THE TURBINE.

*CONTROL SYSTEM + *REACTOR COOLANT + HEAT TRANSFER, CONDUCTION + MEASUREMENT, TEMPERATURE

9-19775
LITTAUER R + PFEFFER H
THE MULTIPLEX CONTROL SYSTEM FOR THE CORNELL 10-GEV SYNCHROTRON
CORNELL UNIVERSITY
3 PAGES, 3 FIGURES, IEEE TRANS NUCL. SCIENCE 14(3), PAGES 1050-52 (JUNE 1967)

THE OUTLINES OF A TIME-SHARING MULTIPLEX CONTROL SYSTEM FOR THE CORNELL 10-GEV ELECTRON SYNCHROTRON WERE PRESENTED AT THE FIRST NATIONAL PARTICLE ACCELERATOR CONFERENCE, MARCH 1965. THE SYNCHROTRON IS NOW NEARING COMPLETION. INJECTION STUDIES INVOLVING MORE THAN HALF THE GUIDE-FIELD RING WERE CARRIED OUT IN 1966. AT THAT TIME, THE MULTIPLEX CONTROL SYSTEM WAS WORKING FOR MOST OF THE NEEDED PARAMETERS. WE REPORT THE RESULTS OF THIS OPERATING EXPERIENCE. WE ALSO PRESENT AN OUTLINE OF THE STEPS WHICH ARE BEING TAKEN TO USE A COMPUTER FOR SUPERVISION AND CONTROL OF MANY OF THE ACCELERATOR COMPONENTS.

ACCELERATOR + CONTROL SYSTEM + CONTROL, COMPUTER + INSTRUMENTATION, CONTROL

9-19776 ALSO IN CATEGORY 6
MCVEAN RL + WEITZBERG A + KREMSER JA + LERIDON AM + LONG JK
CRITICAL STUDIES OF THE SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR (SEFOR) IN ZPR-3 (ASSEMBLY 47)
ARGONNE NATIONAL LABORATORY + GENERAL ELECTRIC, ADVANCED PRODUCTS OPERATION + CEA. CADARACHE
ANL-7248 +. 50 PAGES, 42 FIGURES, 13 TABLES, 7 REFERENCES, MARCH 1967

THE CRITICAL-STUDIES PROGRAM INVESTIGATED SEVEN OBJECTIVES - (1) TO DETERMINE THE PLUTONIUM ENRICHMENT OF THE SEFOR FUEL. (2) TO VERIFY THE ADEQUACY OF THE REFLECTOR CONTROL STRENGTH. (3) TO DETERMINE THE REACTIVITY EFFECT OF A SIMULATED AXIAL THERMAL EXPANSION OF THE FUEL, SUCH AS WOULD OCCUR DURING A SEFOR TRANSIENT MEASUREMENT. (4) TO VERIFY THE EXISTENCE OF A NEGATIVE SEFOR DOPPLER COEFFICIENT. (5) TO DETERMINE THE REACTIVITY EFFECT OF THE LOSS OF SODIUM COOLANT. (6) TO CHECK THE ACCURACY OF THE PHYSICS MODEL FOR SEFOR AND THE ACCURACY OF THE CALCULATIONAL TECHNIQUES EMPLOYED. (7) TO DETERMINE THE NEUTRON LIFETIME FOR THE SEFOR REACTOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CRITICAL ASSEMBLY FACILITY + CRITICALITY EXPERIMENT + DESIGN STUDY + REACTOR, BREEDER + REACTOR, FAST + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR) + ZPR 3 (ANL ZERO POWER REACTOR)

9-19777
ISKENDERIAN HP
EFFECTIVENESS OF CONTROL-ROD MATERIALS
ARGONNE NATIONAL LABORATORY
ANL-7303 +. 29 PAGES, 9 FIGURES, 7 TABLES, 9 REFERENCES, APRIL 1967

THIS REPORT IS AN EXTENSION OF A METHOD OF DETERMINING THE EFFECTIVENESS OF CONTROL-ROD MATERIALS, WITH SOME MODIFICATIONS AND MORE DETAILED ANALYSIS, AND GREATER VERIFICATION OF CALCULATIONS WITH EXPERIMENTAL DATA. THIS REPORT INDICATES THAT THE EFFECTIVENESS OF AN ABSORBING SLAB IS PROPORTIONAL TO ITS REACTIVITY WORTH, UNDER SOME SIMPLIFYING ASSUMPTIONS (WHICH HAVE FACILITATED THE EVALUATION OF THE EFFECTIVENESS). THESE ASSUMPTIONS ARE AS FOLLOWS - (1) THE NEUTRON FLUX HAS AN ISOTROPIC DISTRIBUTION AT THE SURFACE OF THE SLAB. (2) THIS INCIDENT NEUTRON FLUX HAS A MAXWELLIAN DISTRIBUTION AT THERMAL ENERGIES AND A 1/E TAIL AT EPITHERMAL ENERGIES. (3) THE SLAB ABSORBER OBEYS THE SINGLE-LEVEL BREIT-WIGNER LAW FOR ABSORPTION, WITH NEGLIGIBLE SCATTERING, AND ALLOWANCE IS MADE FOR OVERLAP OF RESONANCE LEVELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19777 *CONTINUED*
COPY, \$0.65 MICROFICHE

COMPARISON, THEORY AND EXPERIENCE + CONTROL ROD WORTH + MATHEMATICAL TREATMENT

9-19778

DRAPER WD
A MODIFIED INSTRUCTION SET FOR THE FFTF INSTRUMENTATION PROTOTYPE
BATTELLE NORTHWEST LABORATORY
BNWL-451 +. 14 PAGES, 3 FIGURES, AUGUST 1967

THE FFTF INSTRUMENTATION PROTOTYPE PROGRAMMING FLEXIBILITY HAS BEEN INCREASED BY MAKING SOME INEXPENSIVE HARDWARE CHANGES IN ITS INSTRUCTION SET. CHANGES INCLUDE THE ADDITION OF CAS (COMPARE AND THREE-WAY SKIP), SUB (ONES COMPLEMENT SUBTRACT), AND IAC (INCREMENT THE ACCUMULATOR) INSTRUCTIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + COMPUTER, DIGITAL + FFTF (TR) + INSTRUMENTATION, CONTROL + REACTOR, FAST + REACTOR, TEST

9-19779

DALFES A + BELIARD L + CAZEMAJOU J + FROELICHER B
CROSS-CORRELATION OF TWO DETECTORS IN A NUCLEAR REACTOR
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY, FRANCE

AUTO AND CROSS-CORRELATION FUNCTIONS OF SIGNALS GIVEN BY NEUTRON DETECTORS SITUATED IN A SUBCRITICAL NUCLEAR REACTOR ARE DETERMINED BY A NUMERICAL METHOD. VALUES OF THE DECAY CONSTANT OF PROMPT NEUTRONS OBTAINED BY MEANS OF THE AUTOCORRELATION FUNCTION OF EACH DETECTOR AND THE CROSS-CORRELATION FUNCTION OF THE TWO DETECTORS ARE COMPARED TO THE REFERENCE VALUE GIVEN BY A CLASSICAL PULSED NEUTRONS MEASUREMENT + AGREEMENT BETWEEN RESULTS SEEMS TO BE SATISFACTORY.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*TEST, INSTRUMENT RESPONSE + COMPARISON, THEORY AND EXPERIENCE + INSTRUMENTATION, NUCLEAR + PROMPT NEUTRON + PULSED NEUTRON TECHNIQUE

9-19780

MALLORY KB
THE CONTROL SYSTEM FOR THE STANFORD LINEAR ACCELERATOR
STANFORD UNIVERSITY
8 PAGES, 2 FIGURES, IEEE TRANS. ON NUCLEAR SCIENCE 14(3), PAGES 1022-29 (JUNE 1967)

THE CONTROL SYSTEM FOR THE SLAC ACCELERATOR WAS LARGELY SHAPED BY TWO SETS OF CRITERIA, ONE PHYSICAL AND ONE OPERATIONAL. THE PRIMARY PHYSICAL CRITERIA ARE THE 25-FOOT SHIELDING REQUIREMENT BETWEEN THE ACCELERATOR AND MAINTENANCE PEOPLE DURING OPERATION, THE TWO-MILE LENGTH OF THE MACHINE, AND THE PRESENCE OF A LARGE NUMBER OF NOISE SOURCES SUCH AS THE HIGH-POWER MODULATORS. THE PRINCIPAL OPERATIONAL CRITERIA ARE THE REQUIREMENT FOR MULTIPLE BEAMS AND THE NEED TO CENTRALIZE ENOUGH CONTROLS SO THAT ONE PERSON, POSSIBLY ASSISTED BY A COMPUTER, CAN OPERATE THE MACHINE.

ACCELERATOR + CONTROL, COMPUTER + INSTRUMENTATION, CONTROL + INSTRUMENTATION, RADIATION MONITORING

9-19781

BUTLER HS
COMPUTER CONTROL OF THE LOS ALAMOS LINEAR ACCELERATOR
LOS ALAMOS SCIENTIFIC LABORATORY
11 PAGES, 13 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE 14(3), PAGES 1030-41 (JUNE 1967)

THE CONCEPTS EMBODIED IN THE LOS ALAMOS MESON PHYSICS FACILITY COMPUTER-CONTROL SYSTEM ARE BEING TESTED AND EVALUATED IN A SERIES OF EXPERIMENTS REFERRED TO AS THE MOCKUP PROGRAM. THE STATUS OF THESE EXPERIMENTS AND THE ASSOCIATED HARDWARE ARE DESCRIBED.

ACCELERATOR + CONTROL, COMPUTER + INSTRUMENTATION, CONTROL

9-19782

FRANKEL R
EXPERIMENTS IN COMPUTER CONTROL AND ANALYSIS OF THE AGS
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
2 PAGES, 2 REFERENCES, IEEE TRANS. NUCLEAR SCIENCE 14(3), PAGES 1042-3 (JUNE 1967)

THE DEVELOPMENT, DESIGN, AND TEST OF COMPUTER INPUT/OUTPUT DEVICES AND PROGRAMING TECHNIQUES SUITABLE FOR USE IN ACCELERATOR ANALYSIS AND CONTROL ARE ANALYZED AS WELL AS CRITERIA FOR THE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19782 *CONTINUED*

SELECTION OF COMPUTERS ACCEPTABLE FOR ANALYSIS AND CONTROL WORK.

ACCELERATOR + COMPUTER PROGRAM + CONTROL, COMPUTER + INSTRUMENTATION, CONTROL

9-19783

KRASIN AK + KUKHAEV AI + LEVADNYI VA + NAUMOV VA + CHURKIN YI + YAKOSHEVICH OI
EFFICIENCY AND INTERFERENCE OF ROTATING COMPENSATING CYLINDERS AND ABSORPTION RODS IN URANIUM-WATER LATTICES

INST. OF NUCLEAR ENGINEERING, MINSK

9 PAGES, 5 FIGURES, 7 REFERENCES, SER. FIZ. TEKH, NAVUK, NO. 1, PAGES 9-17 (1967) IN RUSSIAN

ROTATING CYLINDERS COVERED WITH AN ADSORBING MATERIAL, WHICH ACTS AS A LATERAL REFLECTOR, IS USED TO CONTROL EXCESS REACTIVITY. THE RESULTS OF CALCULATIONS AND OF EXPERIMENTAL MEASUREMENTS SHOWED THAT THE COMPENSATING ROTATING CYLINDERS WOULD COMPENSATE ABOUT 8% EXCESS REACTIVITY.

COMPARISON, THEORY AND EXPERIENCE + REACTIVITY, EXCESS + REACTOR CONTROL + REACTOR, THERMAL + UNION OF SOVIET SOCIALIST REPUBLICS

9-19784

ALSO IN CATEGORIES 11 AND 17

LACBWR THIRD MONTHLY OPERATIONAL REPORT - SEPTEMBER 1967

ALLIS-CHALMERS, BETHESDA

ACNP-67537 +, 10 PAGES, FIGURES, TABLES, OCTOBER, 1967, DOCKET NO. 115-5

REACTOR WAS NOT OPERATED. (PAGE 1-1) VESSEL HEAD WAS INSTALLED AFTER LOW-POWER TESTING BEFORE CONSTRUCTION PERSONNEL WERE ALLOWED AT THAT LEVEL, TO REDUCE POSSIBILITY OF FOREIGN OBJECTS BEING DROPPED INTO REACTOR VESSEL. (2-1) RECIRCULATION PUMP HEAD-FLOW CURVES MEASURED. (PAGE 5-1) CONTROL-ROD PISTON G-T RINGS WERE CHANGED FROM BUTYL TO VITON, AND BACKUP RINGS FROM PHENOLIC TO TEFLON-BRONZE, TO PREVENT DAMAGE. (PAGE 5-2) POST-MCA CONTAINMENT TEMPERATURE, PRESSURE AND WATER-LEVEL INSTRUMENTS WERE INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + *FAILURE, SCRAM MECHANISM + *INSTRUMENTATION, IN CORE + CONTAINMENT INSTRUMENTATION + FLOW BLOCKAGE + LACROSSE + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

9-19785

ALSO IN CATEGORY 17

LACBWR SECOND MONTHLY OPERATIONAL REPORT ON THE LACROSSE BOILING WATER REACTOR FOR THE MONTH OF AUGUST 1967

ALLIS-CHALMERS, BETHESDA

45 PAGES, 21 FIGURES, 7 TABLES, AUGUST 1967, DOCKET NO. 115-5

REACTOR WAS OPERATED 62 HR AT LESS THAN 1.7 KW. (PAGE 2-1) THERE IS A 1.67-IN. DIFFERENCE BETWEEN ACTUAL AND INDICATED CONTROL-ROD POSITION. (PAGE 2-5) SHUTDOWN MARGIN AND EXCESS REACTIVITY TESTS. VOLUME INFERRED FROM BUKIC ACID ADDITIONS INDICATED SYSTEM VOLUME WAS INCREASING. AN UNDRAINABLE VOLUME (LOCATION UNIDENTIFIED) OF ABOUT 1500 GAL OUT OF 8500 GAL EXISTS. PEAK ROD-BANK WORTH IS \$3.50/IN. AT 12 IN., DECREASING TO \$0.10/IN. AT 50 IN. K-EFF COLD UNRODDED IS 1.20. (PAGE 2-35) AFTER INSERTING A 1900-CURIE SB-BE SOURCE, AN ATTEMPT WAS MADE TO GO CRITICAL, DISCONTINUED AFTER 79-ROD BANK WAS WITHIN 0.5 IN. OF PREDICTED CRITICALITY AND NO SIGNIFICANT CHANGE IN SUBCRITICAL COUNT RATE OBSERVED. STARTUP DETECTORS IN LOWER TUBES WERE SHIELDED FROM ACTIVE CORE BY 26 IN. OF RODDED CURE. BOTH SOURCE AND DETECTORS WERE MOVED CLOSER TO THE EFFECTIVE REGION. (PAGE A-2) AFTER TWO FUEL-ELEMENT GRIDS WERE DAMAGED IN HANDLING, A CABLE TENSIO METER WAS BOUGHT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP TESTING + *SOURCE, NEUTRON + CONTROL ROD WORTH + FAILURE, ADMINISTRATIVE CONTROL + FUEL HANDLING + INSTRUMENTATION, ABNORMAL INDICATION + LACROSSE + OPERATIONS REPORT, GENERAL + POISON, SHUTDOWN + REACTOR, BOILING WATER + SHUTDOWN MARGIN

9-19796

ALSO IN CATEGORY 4

KOTH CE + RYERSON CM + CONNOR JA + ANDERSON WB + DOSHAY I + WARNER WK + MEYER JC + BROWN DE + SGLTAU R + MOSKOVITZ AI

RELIABILITY IN SPACE VEHICLES

SPACE-GENERAL CORP.

118 PAGES, FIGURES, TABLES, ENGINEERING PUBLISHERS, ELIZABETH, NEW JERSEY, APRIL 2, 1965

THE MATERIAL PRESENTED IN THIS BOOK INCLUDES CONTRIBUTIONS TO AND CONTEMPORARY DATA ON RELIABILITY AS IT RELATES TO SPACE VEHICLES. IT IS PRESENTED BY ENGINEERS KNOWN TO HAVE MADE SIGNIFICANT PROGRESS IN TECHNIQUES AND APPLICATIONS OF RELIABILITY IN SPACE VEHICLES DURING 1964. MOST IMPORTANT TO RELIABILITY-ANALYSIS TECHNIQUES ARE THE APPLICATIONS PRESENTED HERE OF THE RECENT ADVANCES IN PRODUCT RELIABILITY MANAGEMENT, INTERPRETATION OF RELIABILITY K FACTORS, DEGRADATION ANALYSIS AND EFFECTIVE SCREENING TECHNIQUES, AND FAILURE ANALYSIS.

AVAILABILITY - ENGINEERING PUBLISHERS, ELIZABETH, NEW JERSEY, \$9.00 COPY

*AEROSPACE SAFETY + *RELIABILITY ANALYSIS + OPERATING EXPERIENCE + RELIABILITY, COMPONENT +

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19796 *CONTINUED*
RELIABILITY, SYSTEM

9-19797
ONDREJCIN RS
METALLURGICAL INVESTIGATION OF ALUMINUM-CLAD CADMIUM CONTROL RODS
SAVANNAH RIVER LAB.
DP-1101 +. 17 PAGES, 8 FIGURES, 4 REFERENCES, SEPT. 1967

CADMIUM (MP 321 C) CLAD WITH ALUMINUM WAS USED SATISFACTORILY FOR CONTROL RODS FOR A WATER-COOLED NUCLEAR REACTOR OPERATING AT A NEUTRON FLUX OF ABOUT 10^{15} TH. LABORATORY TESTS, TO ENSURE THE INTEGRITY OF THIS COMBINATION, HAD SHOWN THAT ALUMINUM IS ATTACKED VERY SLOWLY BY MOLTEN CADMIUM AT 400-600 C UNDER CONDITIONS OF STATIC STRESS AND ALSO UNDER CONTINUOUS STRAIN. THE ALUMINUM CLADDING OF TWO CONTROL RODS USED IN OPERATION AT HIGH FLUX WAS NOT ATTACKED EVEN THOUGH THE CADMIUM HAD PARTIALLY MELTED IN ONE ROD DURING REACTOR OPERATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*CONTROL ROD + ALUMINUM + CADMIUM + CLAD + SAVANNAH RIVER PRODUCTION REACTORS

9-19799
SHILLIDAY TS
PHYSICS OF FAILURE IN ELECTRONICS VOLUME 5
U.S. AIR FORCE + BATTELLE MEMORIAL INSTITUTE
AD-655-397 +. 557 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

FIFTH VOLUME IN A SERIES OF ANNUAL SYMPOSIA. PAPERS PRESENTED THIS YEAR CENTERED ALMOST EXCLUSIVELY ON INQUIRY INTO MATERIAL PROCESSES AND PHENOMENA INFLUENCING THE DEGRADATION AND FAILURE OF SOLID-STATE ELECTRONIC DEVICES AND RELATED STRUCTURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*FAILURE, COMPONENT + *FAILURE, INSTRUMENT + INSTRUMENTATION, COMPONENT + RADIATION DAMAGE +
SOLID STATE DEVICE

9-19837
FRENCH RL
SOME PRELIMINARY RESULTS AND COMMENTS ON THE USE OF NITROGEN-16 FOR MEASURING CHANNEL OUTLET TEMPERATURE IN GAS COOLED REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SELLAFIELD
PG-REPORT-790 +. 18 PAGES, 5 FIGURES, 1 TABLE, 1967

SOME PRELIMINARY MEASUREMENTS ARE MADE USING N-16 ACTIVITY AS AN ALTERNATIVE TO THERMOCOUPLES FOR MEASURING TEMPERATURE OF GAS IN A REACTOR CHANNEL. IT HAS THE ADVANTAGE THAT THE BURST-CARTRIDGE-DETECTION-GEAR SYSTEM CAN BE USED TO SAMPLE THE GAS. HENCE NO ADDITIONAL IN-PILE HARDWARE IS REQUIRED. MEASUREMENTS WERE MADE ON CALDER REACTOR 1.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*IN CORE MEASUREMENT + *NITROGEN + AGR (ADVANCED GASCOOLED REACTOR, WINDSCALE, UK) + CALDER HALL (UK) +
REACTOR, GAS COOLED + UNITED KINGDOM

9-19838
FENTON AW + DACEY R + EVANS EJ
THERMOCOUPLES - INSTABILITIES OF SEEBECK COEFFICIENT
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SPRINGFIELDS
TRG-REPORT-1447 +. 42 PAGES, 34 FIGURES, 13 REFERENCES, JANUARY 1967

A THEORY OF OPERATION OF THERMOCOUPLES, RELATING ERRORS TO THEIR CAUSE, IS DEVELOPED, AND EXPERIMENTAL WORK BASED ON THE THEORY IS DESCRIBED. THREE CONCLUSIONS ARISE - (1) A GREAT DEAL OF REPORTED INVESTIGATION INTO THERMOCOUPLES (INCLUDING IRRADIATION EFFECTS) HAS BEEN DONE BY METHODS WHICH SEVERELY LIMIT THE VALUE OF THE RESULTS, (2) MANY WHO MEASURE TEMPERATURE WITH THERMOCOUPLES ARE MISLED BY CONVENTIONAL APPLICATION OF THE CLASSICAL LAWS, AND (3) THE CONCEPT OF CALIBRATION ADOPTED BY STANDARDS LABORATORIES AND OTHERS IS DUBIOUS AND SHOULD BE RECONSIDERED AND PERHAPS REVISED.

*INSTRUMENTATION, TEMPERATURE + COMPARISON, THEORY AND EXPERIENCE + MEASUREMENT, TEMPERATURE

9-19839 ALSO IN CATEGORY 6
BUSLIK AJ + WEINREICH WA
VARIATIONAL CALCULATION OF COMPLEX NATURAL MODES OF XENON OSCILLATION (LW8-LSBR DEVELOPMENT PROGRAM)

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19839 *CONTINUED*
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, BETTIS ATOMIC POWER LAB
WAPD-TM-673 +. 14 PAGES, 1 FIGURE, 1 TABLE, 9 REFERENCES, SEPTEMBER 1967

PRESENTS A VARIATIONAL CALCULATION OF THE COMPLEX NATURAL MODES OF XENON OSCILLATION (PMODES). THE IODINE AND XENON COMPONENTS OF THE PMODES ARE ELIMINATED BEFORE THE FUNCTIONAL IS SET UP, ELIMINATING THE NEED FOR TRIAL FUNCTIONS FOR THESE VARIABLES. THE EIGENVALUES P ARE DETERMINED BY THE SOLUTION OF A POLYNOMIAL EQUATION. WHEN USED IN CONJUNCTION WITH A SINGLE MU-MODE TRIAL FUNCTION, AN IMPROVEMENT IN THE USUAL MU-MODE FORMALISM IS PRODUCED, SINCE FAST FISSION PRODUCTION OF XENON CAN BE TAKEN INTO ACCOUNT MORE EXACTLY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*XENON OSCILLATION + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-19847 ALSO IN CATEGORY 17
SEVENTH ANNUAL REPORT - HALDEN REACTOR PROJECT 1965-66
EUROPEAN NUCLEAR ENERGY AGENCY
OECD-FRI-81 +. 153 PAGES, 73 FIGURES, 14 TABLES, 22 REFERENCES, DEC. 1966

PART I - RESEARCH PROGRAM COVERS REACTOR STATICS, DYNAMICS, AND WATER CHEMISTRY. PART II - FUEL-IRRADIATION TEST PROGRAM AND DEVELOPMENT PROGRESS (IN-CORE INSTRUMENTATION EXPERIENCE, BURNOUT DETECTORS, ETC.). PART III - OPERATIONS. PART IV - ADMINISTRATION.

AVAILABILITY - ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, EUROPEAN NUCLEAR ENERGY AGENCY

*BURNOUT HEAT FLUX + *INSTRUMENTATION, IN CORE + NORWAY + OPERATIONS REPORT, GENERAL + REACTOR, HEAVY WATER + RESEARCH AND DEVELOPMENT PROGRAM

9-19855
RUSSELL JA + KNOWLES DJ
DESCRIPTION OF FACILITY RADIATION AND CONTAMINATION SYSTEMS INSTALLED IN THE MOLTEN-SALT REACTOR
EXPERIMENT BLDG. 7503
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-1127(REV. 1) +. 23 PAGES, 7 FIGURES, 2 TABLES, AUGUST 22, 1967

A RADIATION-MONITORING SYSTEM CONTINUOUSLY AND AUTOMATICALLY DETERMINES THE CONDITIONS IN THE ENTIRE FACILITY AND RECORDS THIS INFORMATION AT A CENTRAL CONTROL PANEL. WHEN PRESET VALUES ARE EXCEEDED, AUDIBLE AND VISUAL ALARMS INSIDE AND OUTSIDE OF THE BUILDING ARE ACTUATED. BETA-GAMMA CONSTANT AIR MONITORS SOUND CAUTION ALARMS AT 100 COUNTS/MIN AND HIGH-LEVEL ALARMS AT 4000 COUNTS/MIN. THE GAMMA MONITOR SOUNDS A BELL AT 7.5 MR/HR. BUILDING EVACUATION ALARMS ARE ACTUATED FROM 2-OUT-OF-6 COINCIDENCE MODULES. THIS REPORT SUPERSEDES ORNL-TM-1127 (5/12/65).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, RADIATION MONITORING + *MONITORING SYSTEM, RADIATION + INSTRUMENTATION, AIR SAMPLING + INSTRUMENTATION, REDUNDANT + MONITOR, RADIATION, AIR + MONITOR, RADIATION, ENVIRONMENTAL + MSRE (MOLTEN SALT REACTOR EXPERIMENT) + ORNL (OAK RIDGE NATIONAL LABORATORY) + REACTOR, MOLTEN SALT

9-19856
JOHNSON CF
DESIGNING FOR THE WORST OF WORST CASES--NUCLEAR WAR
THOMPSON RAND WOLLRIDGE
10 PAGES, FIGURES, 27 REFERENCES, ELECTRONICS 40(17), PAGES 99-108 (AUG. 21, 1967)

THROUGH HARDENING TECHNIQUES, CIRCUITS CAN BE BUILT TO WITHSTAND THE CRIPPLING EFFECTS OF RADIATION, ENABLING ELECTRONICS SYSTEMS TO SURVIVE AN ATOMIC HOLOCAUST.

INSTRUMENTATION, COMPONENT + RADIATION DAMAGE + RADIATION EFFECT + SHIELDING + SOLID STATE DEVICE

9-19857 ALSO IN CATEGORY 2
BALLARD RF
PROJECT PRE-GONDOLA I --STRUCTURES INSTRUMENTATION
ARMY ENGINEER WATERWAYS EXPERIMENT STATION, VICKSBURG, MISS.
PNE-1106 +. 72 PAGES, FIGURES, TABLES, 6 REFERENCES, MAY 1967

THREE MICROSEISMIC STATIONS WERE OPERATED BY THE U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION (WES) DURING THE PRE-GONDOLA I CRATERING CALIBRATION SERIES AT FORT PECK, MONTANA. THE SEISMIC STATIONS, LOCATED IN THE CENTER OF THE DAM, AT GATE CONTROL STRUCTURE NO. 3, AND ON THE SPILLWAY, WERE MONITORED TO DETERMINE STRUCTURE RESPONSE RESULTING FROM THE 20-TON CHARGES DETONATED ABOUT 12 MILES FROM THE DAM. PARTICLE VELOCITY DATA WERE RECORDED SIMULTANEOUSLY ON OSCILLOGRAPHS AND MAGNETIC TAPE. OSCILLOGRAMS WERE ANALYZED FOR MAXIMUM TRANSIENT ZERO TO PEAK PARTICLE VELOCITIES, AND THE TAPE WAS SUBJECTED TO LINEAR AND POWER SPECTRAL DENSITY ANALYSIS FROM 0.5 TO 20 HZ OVER A PERIOD OF 160 SEC. THE RESULTS OF THE STUDY INDICATE THAT THE AMPLITUDES RECORDED DURING THIS TEST SERIES EXCEEDED THE MOTIONS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19857 *CONTINUED*

RECORDED DURING THE 1000-LB CALIBRATION SERIES BY NEARLY 30 TIMES AT ALL STATIONS. THIS REPORT PRESENTS A DOCUMENTATION OF TEST DATA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*EXPLOSION + *TESTING + EARTHQUAKE ENGINEERING + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TESTING + PLOWSHARE PROGRAM

9-19858

MERCHIE F

SILOE--CALCULATION OF PRESSURE DROP IN THE SI-23 FORK-TYPE CONTROL RODS

COMMISSARIAT A L ENERGIE ATOMIQUE, GRENOBLE, FRANCE

NP-16621 +. 28 PAGES, DECEMBER 8, 1965. IN FRENCH

THE PRESSURE DROP IN THE SI-23 FORK-TYPE CONTROL ROD WAS CALCULATED. FOR THE CONSTRAINT OF EQUAL PRESSURE DROP, (1) POSITION OF THE ROD DOES NOT CAUSE THE COOLANT VELOCITY TO VARY, (2) THE VARIATION ON THE INPUT BETWEEN THE CALCULATED AND MEASURED VALUES IS ABOUT 4%, (3) THE INPUT IN THE FORK ROD ELEMENT IS WEAKER THAN IN THE STANDARD SILICON-23 ELEMENT, AND (4) THE VELOCITY BETWEEN PLATES OF THE FORK ELEMENT IS ABOUT 1%, CLOSE TO THAT OF THE STANDARD SILICON-23 CONTROL ROD.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

CONTROL ROD + FLOW DISTRIBUTION + FRANCE + PRESSURE DROP + SILICON

9-19859

DUNCANBE E

CONTROL SYSTEMS FOR OPTIMAL RESPONSE TO CHANGES IN LOAD DEMAND OF A NUCLEAR REACTOR PLANT

WESTINGHOUSE ELECTRIC CORP.

CONF-670 602 +. 2 PAGES, 1 FIGURE, 5 REFERENCES, ANS TRANS 10(1), PAGES 367-68 (JUNE 1967) 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

OPTIMAL CONTROL SYSTEMS WERE DEVELOPED, FOR A PRESSURIZED-WATER PLANT, WITH RESPECT TO LOAD-DEMAND CHANGES IN THE SECONDARY SYSTEM. A METHOD IS PRESENTED FOR CONTINUOUS DETERMINATION OF THE CONTROL-ROD MOVEMENT WHICH IS OPTIMAL FOR ANY ARBITRARY CHANGES IN POWER DEMAND. THE PRIMARY LOOP CONSISTS OF A NUCLEAR CORE AND A STEAM GENERATOR WITH TRANSPORT DELAY IN THE HOT AND COLD LEGS. THE SECONDARY LOOP IS REPRESENTED BY THE SECONDARY PORTION OF THE STEAM GENERATOR AND A STEAM FLOW CONTROLLER AT TURBINE INLET. THE CORE KINETICS AND THE PLANT SYSTEM ARE DESCRIBED BY CONVENTIONAL EQUATIONS.

*ANALOG SIMULATION + *CONTROL SYSTEM + MATHEMATICAL TREATMENT + REACTOR CONTROL + REACTOR, PRESSURIZED WATER + THEORETICAL INVESTIGATION

9-19864

ALSO IN CATEGORY 17

ACCIDENTAL INJECTION OF SUPPLEMENTARY SAFETY SYSTEM POISON INTO A PRODUCTION REACTOR AT SAVANNAH RIVER PLANT

USAEC, DIVISION OF OPERATIONAL SAFETY

2 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-13, OCTOBER 31, 1967

GADOLINIUM NITRATE WAS INJECTED WHILE THE REACTOR WAS AT FULL POWER. A MAINTENANCE CREW WAS CHECKING THE BATTERY-MONITORING VOLTMETERS ON A POISON-INJECTION SUBSYSTEM WHEN AN ALLIGATOR CLIP SLIPPED FROM A TERMINAL AND SHORTED AN UNRELATED 110-V TERMINAL, APPLYING 110-V AC TO THE DETONATOR OF THE EXPLOSIVE VALVE, RELEASING THE POISON SOLUTION. 22 HR WERE REQUIRED FOR CLEANUP THROUGH DEIONIZER BEDS TO OBTAIN SUFFICIENT REACTIVITY FOR STARTUP. THE INCIDENT WAS ATTRIBUTED TO A CIRCUIT-LAYOUT DEFICIENCY IN THAT THE 110-V TERMINAL WAS ONLY 1/4 IN. FROM THE METER TERMINAL.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + OPERATING EXPERIENCE + POISON, SOLUBLE + REACTOR, PRODUCTION + SAVANNAH RIVER PRODUCTION REACTORS + SCRAM, SPURIOUS + SHUTDOWN SYSTEM, SECONDARY

9-19874

ALSO IN CATEGORY 17

ZANOT JR

GETR STARTUP RANGE INSTRUMENT ANOMALIES

GENERAL ELECTRIC COMPANY, VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIFORNIA

2 PAGES, PAGE 9-10 OF RELATING OPERATING EXPERIENCE, PREVENTIVE MAINTENANCE AND RELIABILITY ANALYSES, PRESENTED AT ANS CONFERENCE ON REACTOR OPERATING EXPERIENCES, JULY 23-26, 1967

ON OCTOBER 7, 1966, DURING THE INITIAL STARTUP TO 50 MW, CONTROL RODS WERE WITHDRAWN TO THE UPPER LIMIT OF ESTIMATED CRITICAL POSITION, WITH NO SIGNIFICANT CHANGE IN COUNT RATE BECAUSE OF A LOOSE CONNECTION. AN SOP NOW REQUIRES A COUNT-RATE INCREASE OF 5 BEFORE CRITICALITY. *** THE FISSION CHAMBER IS LOWERED MANUALLY INTO THE POOL NEAR THE CORE UNTIL THE COUNT RATE IS JUDGED ACCEPTABLE BY THE CONTROL-ROOM OPERATOR. NO FIXED REFERENCE POSITION WAS PROVIDED. THE CIRCUIT WAS SUBJECT TO NOISE-ONLY INDICATION, OR TO HELPFUL READJUSTMENT OF THE DISCRIMINATOR. A REFERENCE POSITION IS NEEDED FOR CYCLE-TO-CYCLE STARTUP CHECK.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19874 *CONTINUED*
AVAILABILITY - JOHN R. ZANOT, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA

*INSTRUMENTATION, ABNORMAL INDICATION + *INSTRUMENTATION, STARTUP RANGE + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + GETR (GENERAL ELECTRIC TEST REACTOR) + INCIDENT, ACTUAL, HUMAN ERROR + NOISE + REACTOR, TEST

9-19898
TOOMB DS
RELIABILITY AND CIRCUIT ANALYSIS OF THERMOPILES WITH REDUNDANT ELEMENTS
AEROJET-GENERAL NUCLEONICS
12 PAGES, 12 FIGURES, 2 TABLES, IEEE TRANS. NUCL. SCI., 14(4), PAGE 17-28, (AUGUST 1967)

ANALYZES THE RELIABILITY OF THREE INTERCONNECTION MODES FOR THERMOCOUPLES. COMPARISONS ARE MADE BETWEEN THE SIMPLE SERIES, THE PARALLEL/SERIES, AND THE SERIES/PARALLEL MODES. RESULTS ARE PRESENTED AS A FUNCTION OF INDIVIDUAL COUPLE RELIABILITY AND THE NUMBER OF COUPLES DETERMINING THE NO-LOAD POTENTIAL. THE SERIES/PARALLEL CONNECTION SCHEME IS SHOWN TO YIELD THE HIGHEST RELIABILITY, AND AN ARRAY SO CONNECTED CAN PROVIDE A RELATIVELY CONSTANT POWER AND VOLTAGE OUTPUT DESPITE THE FAILURE OF SEVERAL ELEMENTS.

*INSTRUMENTATION, TEMPERATURE + *RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, COMPONENT

9-19899
LA COUR CHRISTENSEN P
ROUTINES FOR HYBRID COMPUTATIONS WITH EAL 680 AND PDP 8
DANISH ATOMIC ENERGY COMMISSION, RISØ
RISØ-M-595 +. 19 PAGES, JULY 1967

A SET OF STANDARD ROUTINES FOR HYBRID COMPUTATIONS ARE DESCRIBED. THE ROUTINES COVER ANALOG INPUT AND OUTPUT, RELAY CONTROLLED POTENTIOMETER SETTING, INTERRUPT IDENTIFICATION FOR THE HYBRID INTERFACE EQUIPMENT, AND CONVERSION FROM FIXED- TO FLOATING-POINT NUMBERS AND VICE VERSA.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*COMPUTER PROGRAM + COMPUTER, ANALOG + COMPUTER, DIGITAL + CONTROL, COMPUTER + DATA PROCESSING

9-19900
LEONARD JH
DIRECT RADIATION EFFECTS ON THERMOCOUPLES
UNIVERSITY OF CINCINNATI, CINCINNATI, OHIO
10 PAGES, 6 FIGURES, 5 TABLES, 15 REFERENCES, NUCLEAR APPLICATIONS 3(12), PAGE 718-727, (DECEMBER 1967)

SHEATHED CHROMEL/ALUMEL AND IRON/CONSTANTAN THERMOCOUPLES OF VARIOUS CONFIGURATIONS WERE EXPOSED TO VARYING RADIATION LEVELS FROM A REACTOR WHILE IMMersed IN A CONSTANT-TEMPERATURE MEDIUM. EMF MEASUREMENTS INDICATED TRANSIENT CHANGES IN THERMOCOUPLE CALIBRATION OF AS MUCH AS 18 F OCCURRING OVER PERIODS OF SEVERAL HOURS AFTER A CHANGE IN RADIATION LEVEL. AFTER FURTHER EXPOSURE (10(18TH) N/SQ. CM FOR FAST NEUTRONS), THE SIZE OF THE TRANSIENT DECALIBRATION EFFECT HAD DIMINISHED. THIS BEHAVIOR IS CONSISTENT WITH A MECHANISM INVOLVING CHANGES IN ELECTRON MOBILITY IN THE TWO THERMOELECTRIC MATERIALS DUE TO THE APPEARANCE OF RADIATION-PRODUCED SCATTERING CENTERS FOLLOWED BY SELF-ANNEALING.

*INSTRUMENTATION, TEMPERATURE + *IRRADIATION TESTING + *TEST, INSTRUMENT RESPONSE + INSTRUMENTATION, ABNORMAL INDICATION + MEASUREMENT, TEMPERATURE + RADIATION EFFECT

9-19902
LAWRENCE LA + SCOTCHER RJ
A STUDY OF SERVOMECHANISM RELIABILITY IN NUCLEAR REACTOR AND PLANT CONTROL SYSTEMS
12 PAGES, FIGURES, TABLES, REFERENCES, FROM AUTOMATIC AND REMOTE CONTROL, PUBLISHED BY BUTTERWORTHS, LONDON AND OLDENBOURG, MUNICH. PROCEEDINGS OF THE SECOND CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, BASLE, SWITZERLAND, 1963

THE MAXIMUM BENEFIT FROM REDUNDANCY IS OBTAINED WHEN SELF-MONITORING DEVICES ARE USED TO DETECT MALFUNCTIONS AND TO INITIATE A SELF-ADJUSTMENT ACTION WHICH INVOLVES THE PROMPT REMOVAL OF A FAULTY CHANNEL. TWO TYPES OF SELF-MONITORING DEVICES ARE DISCUSSED AND COMPARED - PASSIVE AND ACTIVE. FURTHER IMPROVEMENTS IN RELIABILITY ARE OBTAINED IF REPAIR OF A FAILED CHANNEL IS MADE WITHIN A CERTAIN TIME LIMIT. REFERENCE IS MADE TO SOME PRACTICAL DEVELOPMENTS THAT HAVE ENABLED THE METHODS DISCUSSED TO BE TESTED ON A SIMULATED NUCLEAR REACTOR.

*RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, COMPONENT + RELIABILITY, SYSTEM + SIMULATION

9-19920
DOIREAU M + COCHE A + FERTIN J + SERVENT JM + LEGRAND J + PIETRI G + PETIT R + SICARD F + POTTIER J + LACOUR J + SALA A + D-HARCOURT A

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19920 *CONTINUED*
INSTRUMENTATION NUCLEAIRE NO. 29
COMMISSARIAT A L-ENERGIE ATOMIQUE
87 PAGES, FIGURES, TABLES, REFERENCES, SUPPLEMENT AU BULLETIN D-INFORMATIONS SCIENTIFIQUES ET TECHNIQUES
115 (MAY 1967). IN FRENCH

A SERIES OF SHORT DESCRIPTIONS OF CURRENT WORK ON (1) SEMICONDUCTOR FABRICATION AND THEIR APPLICATION IN BETA-GAMMA DETECTION (4 PAPERS, 31 PAGE), (2) PHOTOMULTIPLIER TUBE APPLICATION IN NUCLEAR PHYSICS (3 PAPERS, 25 PAGES), (3) INTEGRATED CIRCUITS CURRENT STATUS (2 PAPERS, 8 PAGES), (4) CONTROL INSTRUMENTATION OF OSIRIS (13 PAGES), AND (5) RELIABILITY OVER THE LIFETIME OF ELECTRONIC MATERIAL (5 PAGES). ALL APPEAR TO BE EITHER RATHER GENERAL INTRODUCTORY DISCUSSIONS OR QUITE DETAILED DESCRIPTIONS OF A PARTICULAR COMPONENT MODEL. (ALL ARE IN FRENCH, NO ENGLISH ABSTRACTS.)

*INSTRUMENTATION, NUCLEAR + FRANCE + RELIABILITY, COMPONENT + SYSTEM DESCRIPTION

9-19921
SALA A
CONTROL APPARATUS OF THE REACTOR OSIRIS
COMMISSARIAT A L-ENERGIE ATOMIQUE
13 PAGES, 7 FIGURES, PAGE 70-82 OF INSTRUMENTATION NUCLEAIRE 29, SUPPLEMENT AU BULLETIN D-INFORMATIONS SCIENTIFIQUES ET TECHNIQUES 115 (MAY 1967)

(IN FRENCH, NO ENGLISH ABSTRACT.) DESCRIBES NUCLEAR (MOVABLE FISSION CHAMBER GIVING TRUE POWER BY A COMBINATION OF FLUX AND POSITION INDICATION) AND PROCESS INSTRUMENTATION OF 50-MWTH SWIMMING-POOL TESTING REACTOR. USES BF3 DETECTORS FOR DELAYED NEUTRONS FROM RUPTURED FUEL ELEMENTS. CONTINUED PULSE TESTING OF SAFETY CIRCUITS WHICH ARE IN 2/3 COINCIDENCE. AUTOMATIC PILOT AND SAFETY SYSTEM DESCRIBED.

*INSTRUMENTATION, NUCLEAR + *SYSTEM DESCRIPTION + CONTROLLER + FRANCE + INSTRUMENTATION, COINCIDENT + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + INSTRUMENTATION, STARTUP RANGE + REACTOR POWER + REACTOR SAFETY SYSTEM + REACTOR, POOL TYPE + REACTOR, TEST + TEST, SYSTEM OPERABILITY

9-19922
JOFFRE H
INSTRUMENTATION NUCLEAIRE NO. 27
COMMISSARIAT A L-ENERGIE ATOMIQUE
52 PAGES, FIGURES, TABLES, REFERENCES, SUPPLEMENT AU BULLETIN D-INFORMATIONS SCIENTIFIQUES ET TECHNIQUES
111 (JANUARY 1967). IN FRENCH

(IN FRENCH, NO ENGLISH ABSTRACT.) ESSENTIALLY NINE 3-PAGE DESCRIPTIONS WITH ILLUSTRATIONS OF ELECTRONIC COMPONENTS (FAST PULSE-AMPLIFIER, DISCRIMINATOR, COINCIDENCE SWITCHES, ALPHA-BETA ACTIVITY COUNTER, TISSUE-EQUIVALENT ION CHAMBER, PERSONNEL DOSIMETER, URANIUM MINERAL ASSAYER, DELAY-TIME MEASURER FOR COAXIAL CABLE, R-20 MASS SPECTROMETER, SEMICONDUCTOR AMPLIFIER). FIVE PAGES OF COMMENT ON CAMPBELLING INSTRUMENTATION FOR REACTOR CONTROL.

*SYSTEM DESCRIPTION + FRANCE + INSTRUMENTATION, CAMPBELLING + INSTRUMENTATION, NUCLEAR

9-19923
KUHHAEV AI
REVIEW OF CALCULATION METHODS OF THE EFFICIENCY OF CONTROL RODS AND CORRELATION OF CALCULATED AND EXPERIMENTAL DATA
INST. OF NUCLEAR ENGINEERING, MINSK
10 PAGES, 1 TABLE, 14 REFERENCES, SER. FIZ. TEKH. NAVUK 1, PAGE 30-40, (1967) IN RUSSIAN

THE EFFICIENCY OF AN ABSORBER IS ESTIMATED BY FULLY IMMERGING THE ROD IN THE CENTER OF A SMALL ACTIVE ZONE THAT IS WATER-MODERATED. NEUTRONS ARE ALL THERMAL. CALCULATION OF ROD EFFICIENCY BY A TWO-GROUP DIFFUSION APPROXIMATION SHOWS AN ERROR OF ABOUT 10%, IN GOOD AGREEMENT WITH THE EXPERIMENTAL VALUE. THE LARGE ERROR (30%) OBTAINED IN CALCULATING THE EFFICIENCY BY THE USE OF PERTURBATION THEORY CAN BE EXPLAINED BY THE SUBSTANTIAL CHANGES IN REACTIVITY, CRITICAL VOLUME, AND THERMAL NEUTRON FLUX CAUSED BY INSERTION OF THE ROD. THE ERROR OF CALCULATING BY A THREE-GROUP NUMERICAL METHOD IS ONLY 15 TO 25%.

*CONTROL ROD CALIBRATION + *CONTROL ROD WORTH + COMPARISON, THEORY AND EXPERIENCE + MATHEMATICAL TREATMENT + UNION OF SOVIET SOCIALIST REPUBLICS

9-19924
RASETTI M + VALLAURI M
APPLICATION TO THE NUCLEAR FIELD OF NEW METHODS OF THE THEORY OF AUTOMATIC CONTROL
ISTITUTO DI FISICA SPERIMENTALE DEL POLITECNICO + SEZIONE ENERGIA NUCLEARE, FIAT, ITALY
12 PAGES, 2 FIGURES, 10 REFERENCES, ENERGIA NUCLEARE (MILAN) 13, PAGE 668-678, (DECEMBER 1966)

VARIATIONAL FORMULATIONS ARE DESCRIBED FOR USE IN THE DEVELOPMENT OF OPTIMAL CONTROL FOR NUCLEAR PLANTS. STATE VARIABLES IS THE FUNDAMENTAL CONCEPT OF THESE METHODS. THE BASIC STEPS OF THE METHOD ARE DESCRIBED, AND PROOF OF THE TECHNIQUE IS PRESENTED. THE METHOD ALLOWS SYNTHESIS OF OPTIMUM CONTROL SYSTEMS FOR A LARGE RANGE OF INPUT PERTURBATIONS. THE POSSIBILITY IF EXAMINED OF PROGRAMMING THE OPERATION OF CONTROL SYSTEMS DESIGNED USING THIS METHOD.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19924 *CONTINUED*
*CONTROL SYSTEM + *REACTOR CONTROL + ITALY + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-19925
BUZACOTT JA + WEAVING AH + WESOLOWSKI-LOW TA
QUANTITATIVE SAFETY
UNIVERSITY OF BIRMINGHAM + GREAT BRITAIN, CENTRAL ELECTRICITY GENERATING BOARD
18 PAGES, 10 FIGURES, 3 TABLES, 8 REFERENCES, TRANS. SOC. INSTR. TECH. 19(2), PAGE 60-77, (JUNE 1967)

A METHOD FOR EVALUATING THE SAFETY AND AVAILABILITY OF A PROTECTIVE SYSTEM UTILIZING PARTIAL REDUNDANCY IS PRESENTED. IT IS BASED ON A LOGICAL REDUCTION OF THE RELIABILITY DIAGRAMS AND ON CALCULATIONS OF THE PROBABILITIES OF SAFE AND DANGEROUS FAILURES AND THE FAIL-SAFETY RATES OF THE SYSTEM. THE METHOD WAS DEVELOPED TO ASSESS POWER-REACTOR SAFETY SYSTEMS. A TYPICAL EXAMPLE OF SUCH A SYSTEM IS GIVEN, AND ITS SIMPLIFIED VERSION IS ANALYZED. LADDIC GATES PERFORM THE N/M LOGICAL FUNCTIONS IN THE SYSTEM. THEIR RELIABILITY IS DISCUSSED, AND THE RECORDED HISTORY OF THEIR PERFORMANCE IS USED TO ARRIVE AT A VALUE OF THEIR FAILURE RATES.

*RELIABILITY ANALYSIS + *SAFETY ANALYSIS + SAFETY PRINCIPLES AND PHILOSOPHY + SAFETY STUDY

9-19926
CHOU A + RAY WH + ARIS R
SIMPLE CONTROL POLICIES FOR REACTORS WITH CATALYST DECAY
UNIVERSITY OF MINNESOTA
7 PAGES, 5 FIGURES, 8 REFERENCES, TRANS. INSTN. CHEM. ENGRS. 45(4), PAGE T153 THRU T159, (MAY 1967)

THE GENERAL PROBLEM OF CONTROLLING THE TEMPERATURE PROFILE IN A REACTOR SO THAT THE TOTAL YIELD OVER A PERIOD OF CATALYST DECAY IS A MAXIMUM IS A DIFFICULT ONE. HOWEVER, WHEN (A) DECAY IS DUE TO A REACTION DEPENDING ONLY ON THE TEMPERATURE AND NOT ON THE EXTENT OF THE MAIN REACTION, AND (B) THE RATE OF THE MAIN REACTION IS A FUNCTION OF ONLY ONE RATE CONSTANT, THE OPTIMAL CONTROL POLICY IS TO MAINTAIN A CONSTANT CONVERSION. ECONOMIC CONSIDERATIONS THAT MIGHT DETERMINE THIS CONVERSION ARE DISCUSSED AND SOME EXTENSIONS NOTED.

*ECONOMICS + *INSTRUMENTATION, CONTROL + *REACTOR CONTROL + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-19927
DOSE G
LOADING FACILITIES FOR THE KARLSRUHE FAST ZERO-ENERGY CRITICAL ASSEMBLY (SNEAK)
KRUPP-ARDELT
5 PAGES, 9 FIGURES, 2 REFERENCES, KERntechnik 9, PAGE 132-136, (MAR.-APR. 1967) IN GERMAN

A NEW PROCEDURE WAS ADOPTED FOR CHANGING THE SNEAK CORE BECAUSE THE CORE ARRANGEMENT DOES NOT ALLOW INSERTING THE FUEL ELEMENTS FROM THE UPPER SIDE. THEREFORE TWO CHARGING MACHINES ARE NEEDED (THE UPPER ONE FOR LIFTING THE ELEMENTS AND THE LOWER ONE FOR POSITIONING THE ELEMENTS AND FOR SAFETY PURPOSES). THE TRANSPORT OF THE FUEL ELEMENTS FROM THE STOCK TO THE LOWER MACHINE IS DONE BY AN INCLINED SLUICE WHICH BRIDGES OVER THE DISTANCE AND THE DIFFERENCE OF ALTITUDE.

*FUEL HANDLING MACHINE + GERMANY

9-19928
INSTRUMENTATION NUCLEAIRE NO. 28
COMMISSARIAT A L-ENERGIE ATOMIQUE
52 PAGES, FIGURES, TABLES, REFERENCES, SUPPLEMENT AU BULLETIN D-INFORMATIONS SCIENTIFIQUES ET TECHNIQUES, (APRIL 1967). IN FRENCH

A SERIES OF 3-PAGE COMPONENT DESCRIPTIONS, ADEQUATE TO DETERMINE IF MORE INFORMATION SHOULD BE SOUGHT, BEGUN BY A 5-PAGE DISCUSSION OF RELIABILITY TECHNIQUE. MTBF CALCULATIONS WERE ABOUT HALF OBSERVED FOR SEVERAL KINDS OF AMPLIFIERS. FISSION CHAMBER (FU-A2), BF3 PROPORTIONAL ION CHAMBER (PB-10), FISSION-PRODUCT DETECTOR, OSIRIS FAILED-ELEMENT DELAYED-NEUTRON DETECTOR, SOLID-STATE ALPHA DETECTOR, CRITICALITY MONITOR, AND VARIOUS OTHER NONNUCLEAR ELECTRONICS CHASSIS.

*INSTRUMENTATION, NUCLEAR + FRANCE + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + RELIABILITY, SYSTEM + SYSTEM DESCRIPTION

9-19929 ALSO IN CATEGORY 5
TEMLER J
A SIMPLE ESTIMATION OF FAILURE RATE
2 PAGES, 1 TABLE, MICROELECTRONICS AND RELIABILITY 6(3), PAGE 239 AND 240, (JUNE 1967)

THE UPPER LIMIT OF FAILURE RATE AT 50% CONFIDENCE LEVEL, BASED ON A TEST OF N ITEMS, TERMINATED AFTER TIME T, IS GIVEN BY THE SIMPLE RATIO OF THE NUMBER OF FAILURES PLUS 0.68 TO THE ELAPSED TIME. FOR CASES WITH REPLACEMENT OR REPAIR, THE DENOMINATOR BECOMES THE PRODUCT OF N AND T.

CATEGORY - 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19929 *CONTINUED*

*RELIABILITY ANALYSIS + *RELIABILITY, COMPONENT + FAILURE, COMPONENT + MATHEMATICAL TREATMENT

9-19930

HICK CE

THERMOCOUPLE DEVELOPMENT FOR THE FAST FLUX TEST FACILITY

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1227 + CONF-670903-11 +. 11 PAGES, FIGURES, REFERENCES, AUGUST 21, 1967, PRESENTED AT 22ND INSTRUMENT-AUTOMATION CONFERENCE AND EXHIBIT, CHICAGO, ILL.

24 THERMOCOUPLES OF VARIOUS TYPES WERE ASSEMBLED INTO TWO FUEL PIN-SIZE CAPSULES, BT-1 AND BT-2, AND ARE NOW BEING EXPOSED TO A NEUTRON FLUX DENSITY LEVEL OF ABOUT $10(15TH)$ IN EBR-II. THE PURPOSE OF THE TESTS IS TO DETERMINE THE EFFECTS OF EXPOSURE OF SEVERAL TYPES OF THERMOCOUPLES TO FAST NEUTRON FLUENCES OF ABOUT $3 \times 10(22ND)$ NVT, ALONG WITH THE CONCURRENT EFFECTS OF HIGH TEMPERATURES AND HIGH GAMMA RADIATION FIELDS EXPECTED TO BE ENCOUNTERED IN ABOUT ONE YEAR OF FFTF OPERATION. CHROMEL/ALUMEL, GEMINOL-P/GEMINOL-N, PLATINUM/PLATINUM-10% RHODIUM, TUNGSTEN/TUNGSTEN-26% RHENIUM, AND TUNGSTEN-5% RHENIUM/TUNGSTEN-25% RHENIUM THERMOCOUPLES ARE INCLUDED IN THESE TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EBR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS) + FFTF (TRI) + HIGH TEMPERATURE + INSTRUMENTATION, TEMPERATURE + IRRADIATION TESTING + REACTOR, BREEDER + REACTOR, FAST + REACTOR, TEST + TESTING

9-19931

PARKER E

THE OPERATIONAL RELIABILITY OF AEA MAGNOX REACTORS

UKAEA, LANCASHIRE (RISLEY)

5 PAGES, 3 FIGURES, 6 TABLES, 2 REFERENCES, J. BRIT. NUCLE. ENERG. SOC. 6(2), PAGE 122-126, (JUNE 1967)

RELIABILITY AND PROGRESSIVE IMPROVEMENT IN PERFORMANCE OF THE CALDER AND CHAPELCROSS REACTORS ARE BRIEFLY SUMMARIZED. THE ANALYSIS SHOWS THAT NUCLEAR (COMPARED WITH CONVENTIONAL) ITEMS OF PLANT CONTRIBUTE ONLY ABOUT 14.5% OF THE OUTAGE TIME DUE TO FAULT OCCURRENCES. ALTHOUGH CONTROL ELECTRICAL SYSTEMS AND INSTRUMENTATION PROVIDE THE LARGEST SINGLE CONTRIBUTION TO NUMERICAL FAULT TOTALS, THE ASSOCIATED OUTAGE TIME IS VERY SMALL. THE MAJOR PART OF THE OUTAGE TIME DUE TO FAULTS AROSE IN THE FIELD OF COOLING SYSTEMS, NOTABLY FROM MAIN BLOWERS. ONLY 96 DAYS (2.4 DAYS PER REACTOR PER YEAR) WERE LOST DURING THE PERIOD UNDER REVIEW AS A RESULT OF PLANT AND EQUIPMENT FAULTS.

*OPERATING EXPERIENCE + *RELIABILITY, SYSTEM + CALDER HALL (UK) + REACTOR, GAS COOLED + REVIEW + UNITED KINGDOM

9-19932

EVANS RA + HOLT J

CALIBRATION DRIFT EFFECTS IN NICKEL-ALLOY THERMOCOUPLES

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY (ENGLAND). REACTOR GROUP

TRG-REPORT-1510(R) +. 35 PAGES, 23 FIGURES, 6 TABLES, 1967

CALIBRATION DRIFT TESTS WERE CARRIED OUT ON NICKEL-ALLOY THERMOCOUPLES AT TEMPERATURES FROM 200 TO 650 C, WITH TEMPERATURE PROFILES TYPICAL OF AGR AND MAGNOX REACTORS. THE EXPERIMENTS SHOWED THAT CALIBRATION DRIFT DOES NOT TAKE PLACE BELOW 280 C BUT CAN REACH PLUS 1 TO PLUS 4 DEG C IN 100 DAYS AT 400 C. IT IS DEDUCED THAT THIS DRIFT TAKES PLACE IN THE POSITIVE (CHROMEL) LEG OF THE THERMOCOUPLE. IT IS SHOWN THAT DRIFTS AT 400 C CAN BE PREVENTED BY HEAT TREATMENT OF THE WHOLE CABLE BEFORE PUTTING IT INTO SERVICE. THE MAIN CONTENTS OF THIS REPORT WERE ORIGINALLY ISSUED IN MARCH 1965.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, TEMPERATURE + *TESTING + HIGH TEMPERATURE + TEST, INSTRUMENT RESPONSE + UNITED KINGDOM

9-19940

ALSO IN CATEGORIES 6 AND 18

SECTION 6 - CORE REACTIVITY-DESIGN MODIFICATION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

4 PAGES, 1 FIGURE, PAGE 6-1 THRU 6-4 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

(1) THE INITIAL FUEL LOADING WILL HAVE AN INTERIOR CHECKERBOARD OF 2.2 AND 2.7 W/O ENRICHMENTS WITH THE OUTER ROW OF 3.2 W/O. (2) FIXED BURNABLE-POISON RODS USED IN THE FIRST CYCLE WILL MAINTAIN A NEGATIVE MODERATOR COEFFICIENT AND ASSUME THAT DIAMETRAL AND AZIMUTHAL XENON OSCILLATIONS ARE DAMPED. IN SUCCEEDING CYCLES, THE COEFFICIENT IS NEGATIVE WITHOUT POISON, AND XENON OSCILLATIONS ARE DAMPED. (3) PART-LENGTH ABSORBER RODS WILL BE USED TO CONTROL AXIAL XENON OSCILLATIONS. WCAP 7072 AND 7113 ARE APPENDED FOR DETAILS. ADDITION OF FIXED POISON MAKES THE REACTIVITY FROM FUEL BOWING (AT END OF CYCLE) A MAXIMUM OF 0.33%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-19940 *CONTINUED*
*POISON, BURNABLE + *POISON, FIXED + *REFUELING + *XENON OSCILLATION + CONTROL ROD, SHIM SAFETY + INDIAN POINT 2 + MODERATOR COEFFICIENT + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

9-19941 ALSO IN CATEGORY 16
SECTION 5 - REACTOR COOLANT SYSTEM LEAK DETECTION
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
6 PAGES, PAGE 5-1 THRU 5-6 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

VALVE-STEM LEAK OF LINE AND INSTRUMENT-SEALS ARE EQUIPPED WITH THERMOCOUPLES TO INDICATE LEAKS. (1) THE MAIN LEAK DETECTOR IS THE CONTAINMENT-AIR-PARTICULATE MONITOR, SENSITIVE TO CORROSION PRODUCTS, WITH AN APPROXIMATE SENSITIVITY OF 1/2 LITER/MIN. (2) BACKUP IS THE RADIOGAS MONITOR, WHERE ARGON WOULD DOUBLE THE READING, IN ONE HOUR TIME, FROM 3 GPM. (3) CONDENSATE IS MEASURED FROM CONTAINMENT AIR COOLING (4) A 2-GPM INCREASE IN LEAK RATE WOULD INCREASE THE HUMIDITY-DETECTOR DEW POINT 1 F. THE LATTER TWO ARE SENSITIVE TO STEAM AND FEEDWATER LEAKAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*INSTRUMENTATION, PROCESS + *LEAK + *MAIN COOLING SYSTEM + *WATER VAPOR + CONTAINMENT AIR COOLING + CONTAINMENT INSTRUMENTATION + CRUD + INDIAN POINT 2 + MONITOR, RADIATION, AIR + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TEST, LEAK RATE

9-19943 ALSO IN CATEGORIES 6 AND 18
WOOD PM + GALLAGHER JM + MENTZ RM + DEAN RA
USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE PRESSURIZED WATER REACTORS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
WCAP-7072 +. 29 PAGES, 11 FIGURES, APPENDIX A OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, JUNE 1967

(APPENDIX A OF INDIAN POINT 2 SEVENTH PSAR SUPPLEMENT.) 8 STANDARD ROD-CLUSTERS WILL HAVE ALL BUT THE LOWER 36 IN. FILLED WITH A1203 AND BE USED FOR OTHER AXIAL POWER-SHAPING OR OVERCOMING AXIAL XENON OSCILLATION. DROPPING ONE COULD ADD 0.3% DELTA K AND AFFECT HOT-SPOT FACTOR. SENA LONG-ION-CHAMBER RESULTS SHOW THEY INDICATE ABOUT 13% LESS IMBALANCE WHEN CONTROL GROUP INSERTED 55%. DETAILED SAFETY ANALYSIS BEING PREPARED, ALONG WITH CONTROL ROD PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD, SHIM SAFETY + *XENON OSCILLATION + CONTROL ROD PROGRAM + INDIAN POINT 2 + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, POWER RANGE + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER

9-20010
WINSCHKE WE
SPECTRAL SHIFT REACTOR CONTROL
U.S. PATENT 3,310,473 +. 4 PAGES, 2 FIGURES, REFERENCES, MARCH 31, 1967

DESCRIBES A CONTROL ARRANGEMENT FOR A FAST FISSION REACTOR IN WHICH THE NEUTRON CROSS-SECTION SPECTRUM OF THE COOLANT IS ALTERED. THE REACTOR IS COOLED BY LIQUID NA, WHOSE NUCLEAR CROSS-SECTION IS VARIED FOR CONTROL PURPOSES BY ALTERING THE AMOUNT OF LI IN SOLUTION. A DEVICE LOCATED IN A BYPASS STREAM OF THE NA SELECTIVELY INCREASES AND DECREASES THE LI CONTENT BY ESTABLISHING LI-RICH AND NA-RICH PHASES OF THE LIQUID METAL MIXTURES AND USES TEMPERATURE TO EFFECT THE PARTICULAR COMPOSITIONS OF THESE PHASES.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D. C. (25 COPY)

*REACTOR CONTROL + *REACTOR, FAST + *REACTOR, MOLYBDENE SALT + COOLANT QUALITY + LITHIUM + PATENT + REACTOR COOLANT + SODIUM + UNITED STATES

9-20019
DEVICE FOR REGULATING THE POWER OF A NUCLEAR REACTOR
COMMISSARIAT A L ENERGIE ATOMIQUE
BRITISH PATENT 1,064,382 +. 9 PAGES, 6 FIGURES, APRIL 5, 1967

GIVES A DESIGN FOR A POWER-REGULATING DEVICE FOR A REACTOR. THE DEVICE CONSISTS OF A ROD, DRIVEN FROM THE BOTTOM, WHICH IS POSITIONED IN A DETACHABLE CONTAINER IN THE WITHDRAWN POSITION.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND .49 PER COPY

CONTROL ROD + PATENT + REACTOR CONTROL + REACTOR, POWER + UNITED KINGDOM

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20020
HAINZELIN J + CLAUSSE R
HANDLING MACHINE FOR NUCLEAR REACTORS
ELECTRICITE DE FRANCE
BRITISH PATENT 1,064,820 +. 17 PAGES, FIGURES, APRIL 12, 1967

DESCRIBES A FUEL-HANDLING-MACHINE DESIGN FOR USE WITH GAS-COOLED GRAPHITE-MODERATED REACTORS IN WHICH THE FUEL CARTRIDGES ARE STACKED INSIDE VERTICAL CHANNELS AND EITHER CHARGED OR DISCHARGED DURING SERVICE BY THE MACHINE, WHICH IS LOCATED ABOVE THE PRESSURE VESSEL. THE LOADING MACHINE HAS ACCESS TO THE PRESSURE-VESSEL INTERIOR THROUGH STANDPIPES OR CHARGE CHUTES. METHODS OF COMPONENT REPLACEMENT AND MACHINE MAINTENANCE ARE ALSO DESCRIBED. DRAWINGS INCLUDED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND, .49 COPY

*FUEL HANDLING MACHINE + EQUIPMENT DESIGN + FUEL HANDLING + PATENT + REACTOR, GAS COOLED + UNITED KINGDOM

9-20021
IMPROVEMENTS IN AND RELATING TO NUCLEAR REACTORS OF THE POOL TYPE
SOCIETE GRENOBLOISE ETUDES ET APPLICATIONS HYDRAULIQUES
BRITISH PATENT 1,061,276 +. 8 PAGES, 6 FIGURES, MARCH 8, 1967

GIVES DESIGN FOR A SWIMMING-POOL REACTOR IN WHICH THE WATER IS CIRCULATED SUCH THAT HIGHLY CONTAMINATED WATER NEVER REACHES THE SURFACE OF THE POOL. THE CORE IS PLACED INSIDE A VERTICAL CAISSON LOCATED IN THE CENTER OF THE POOL. THE COOLING WATER IS CIRCULATED THROUGH THE CAISSON AND OUT OF THE POOL, BEING SO DIRECTED AS TO PREVENT ANY HIGH LEVEL CONTAMINATION FROM RISING TO THE SURFACE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BLDG., LONDON, W.C. 2, ENGLAND, .49 COPY

*COOLANT PURIFICATION SYSTEM + *WATER TREATMENT + FLOW, ANNULAR + PATENT + REACTOR COOLANT + REACTOR, POOL TYPE + UNITED KINGDOM

9-20023
RILEY PJ
EXPERIENCE WITH IN-PILE THERMOCOUPLES AT HBWR
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
HPR-74 +. 34 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967

MOST IN-PILE TEMPERATURE MEASUREMENTS AT HBWR HAVE USED STANDARD CHROMEL/ALUMEL THERMOCOUPLES WITH INCONEL SHEATHS AND ALUMINA INSULATION. CAREFUL IN-PILE CALIBRATIONS HAVE SHOWN THAT THE SPREAD OF THERMOCOUPLE CORRECTIONS IS WITHIN PLUS OR MINUS 0.5 C AND THAT THIS IS UNAFFECTED BY RADIATION UP TO 10(20TH) NVT (THERMAL NEUTRONS). THE OVERALL FAILURE RATE HAS BEEN ABOUT 7%. A SPECIAL TECHNIQUE USING ELECTRON-BEAM WELDING WAS DEVELOPED FOR ATTACHING THERMOCOUPLES TO THE FUEL CANNING. FOR MEASUREMENTS OF UO2 FUEL TEMPERATURES, TUNGSTEN-RHENIUM ALLOY THERMOCOUPLES WITH MOLYBDENUM SHEATHS AND MAGNESIA INSULATION HAVE BEEN USED. THESE WERE SATISFACTORY FOR INITIAL MEASUREMENTS UP TO ABOUT 1900 C BUT USUALLY HAVE FAILED EARLY.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FAILURE, INSTRUMENT + *INSTRUMENTATION, IN CORE + *INSTRUMENTATION, TEMPERATURE + HBWR (HALDEN BOILING WATER REACTOR) + HIGH TEMPERATURE + MEASUREMENT, TEMPERATURE + OPERATING EXPERIENCE + REACTOR, BOILING WATER

9-20024
POPPER GF
COUNTING AND CAMPBELLING - A NEW APPROACH TO NEUTRON-DETECTION SYSTEM
ARGONNE NATIONAL LABORATORY
8 PAGES, 11 FIGURES, 31 REFERENCES, REACTOR AND FUEL-PROCESSING TECHNOLOGY 10(3), PAGES 199-207 (SUMMER 1967)

IN CONVENTIONAL DETECTION SYSTEMS, D-C RESPONSE IS DIRECTLY PROPORTIONAL TO THE PRODUCT OF PULSE RATE AND MEAN CHARGE PER PULSE. IN A CAMPBELLING DETECTION SYSTEM (ALSO CALLED A MEAN-SQUARE VOLTAGE SYSTEM), RMS RESPONSE IS PROPORTIONAL TO THE SQUARE ROOT OF THE PRODUCT OF PULSE RATE AND MEAN-SQUARE CHARGE PER PULSE. WITH APPROPRIATE ELECTRONICS, CONVENTIONAL COUNTING AND CAMPBELLING CAN BE WITH A SINGLE FISSION CHAMBER.

*INSTRUMENTATION, CAMPBELLING + *INSTRUMENTATION, NUCLEAR + COUNTER + NEUTRON + THEORETICAL INVESTIGATION

9-20033 ALSO IN CATEGORY 10
HORN L
NUCLEAR STANDARD GUIDE FOR CLASSIFYING ELECTRICAL INSULATING MATERIAL EXPOSED TO NEUTRON AND GAMMA RADIATION

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20033 *CONTINUED*

UNDERWRITERS LABORATORIES, INC., NORTHBROOK, ILLINOIS
5 PAGES, 1 TABLE, IEEE TRANS. NUCLEAR SCIENCE 14(4), PAGES 67-71 (AUGUST 1967)

THE PURPOSE OF THIS GUIDE IS TO CLASSIFY THE ENVIRONMENTAL CONDITIONS OF GAMMA RADIATION, NEUTRON FLUX, AND TEMPERATURE IN WHICH ELECTRICAL INSULATING MATERIALS MUST OPERATE. THESE ENVIRONMENTAL CLASSIFICATIONS ARE APPLICABLE TO THE SPECIFICATION AND SELECTION OF THE APPROPRIATE TYPES OF ELECTRICAL INSULATION FOR NONMILITARY EQUIPMENT AND DEVICES WHICH WILL BE EXPOSED TO NUCLEAR RADIATION.

*DESIGN CRITERIA + *EQUIPMENT DESIGN + *INSTRUMENTATION, COMPONENT + MATERIAL

9-20034

TAKAHASHI Y + TAKAMATSU S + MONTA K
COMPUTER CONTROL OF RESEARCH REACTOR TTR-1
TOKYO SHIBAURA ELECTRIC CO., LTD., + NIPPON ATOMIC INDUSTRY GROUP CO., LTD.
7 PAGES, 7 FIGURES, TOSHIBA REVIEW, SPRING 1966

A STORED-PROGRAM COMPUTER CONTROLS A SMALL SWIMMING-POOL RESEARCH REACTOR. STARTUP IS WITH MANUAL AID FOR SAFETY PURPOSES. THE COMPUTER (TOSBAC-3225A) OTHERWISE CONTROLS, MONITORS, AND LOGS THE DATA FROM BOTH THE OPERATIONS AND THE EXPERIMENT.

*CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + COMPUTER, DIGITAL + JAPAN + REACTOR, RESEARCH

9-20035

ROD-HANDLING EQUIPMENT FOR A NUCLEAR REACTOR
GENERAL DYNAMICS CORP.
FRENCH PATENT 1,417,193 + U.S. PATENT 3,090,499 +. 24 PAGES, 30 FIGURES, OCTOBER 4, 1965

A REFUELING MACHINE ADAPTED FOR HANDLING REACTOR ROD ELEMENTS IS PLACED TO OPERATE IN AN ACCESS OPENING EXTENDING UPWARDLY FROM THE REACTOR CORE. THE MACHINE IS ADAPTED TO GRASP AND SUPPORT A SELECTED ROD ELEMENT AT THE LOWER END OF THE ROD TO MAINTAIN THE ROD ELEMENT IN COMPRESSION WHEN THE ROD IS BEING HANDLED. AT THEIR LOWER ENDS, THE ROD ELEMENTS ARE SUPPORTED ON FIXED SEATS WHICH ARE POSITIONED IN THE BOTTOM OF THE CORE AND PERMIT ONLY UPWARD SLIDING MOVEMENT OF THE RODS. THE UPPER END OF THE ROD ELEMENT REMAINS FREE TO BE ENGAGED BY OTHER HANDLING MEANS. WHILE BEING MOVED, THE ROD ELEMENTS ARE ALSO RESTRAINED AT THEIR UPPER ENDS, SO THAT THEY ARE SECURELY RETAINED FROM DISPLACEMENT EVEN WHEN MOVED AT RELATIVELY HIGH SPEED.

AVAILABILITY - U. S. PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D. C., 30 CENTS PER PAGE

*FUEL HANDLING MACHINE + CONTROL ROD + FRANCE + PATENT + REFUELING

9-20036

NAKAMURA S
ELEMENTS CONSTITUTING A REACTOR CONTROL ROD
HITACHI LTD.
JAPANESE PATENT 1966-7519 +. 17 PAGES, FIGURES, APRIL 16, 1966

THE NEUTRON-ABSORBING POWER OF A CONTROL ROD CAN BE INCREASED. A RECTANGULAR CLADDING TUBE OF A CONTROL ROD IS USED INSTEAD OF THE USUAL CIRCULAR ONE. THE CONTROL ELEMENT, IN THE SHAPE OF A CUBE, IS PRODUCED BY SINTERING NEUTRON-ABSORBING MATERIAL WITH SMALL QUANTITIES OF GRAPHITE AND CLAY. THE RECTANGULAR CLADDING TUBE IS PACKED WITH THESE CONTROL ELEMENTS.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)

*CONTROL ROD + *EQUIPMENT DESIGN + CLAD + JAPAN + PATENT

9-20037

SASAKI S + ISHII Y
SHOCK ABSORBER FOR USE IN THE CONTROL ROD DRIVE
HITACHI, LTD.
JAPANESE PATENT 1966-6799 +. 7 PAGES, 2 FIGURES, APRIL 6, 1966

DESCRIBES AN IMPROVED SHOCK ABSORBER FOR THE RAPID INSERTION OF A REACTOR CONTROL ROD. WHEN A CONTROL ROD IS RAPIDLY INSERTED INTO THE REACTOR CORE, THE ARMATURE DROPS, THE PLUNGER IS LOWERED THROUGH THE ACTUATOR, AND OIL IS DISPLACED THROUGH A NARROW GAP CONNECTED TO A RESERVOIR OPEN TO THE ATMOSPHERE. AN OIL SEPARATOR AND AN AIR FILTER ARE INCORPORATED IN THE RESERVOIR.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)

*CONTROL ROD DRIVE + *CONTROL ROD SCRAM MECHANISM + *EQUIPMENT DESIGN + JAPAN + PATENT

9-20038

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20038 *CONTINUED*

KOMURO T
REACTOR CONTROL ROD
HITACHI, LTD.
JAPANESE PATENT 1966-7520 +. 2 PAGES, 1 FIGURE, APRIL 16, 1966

DESCRIBES A REACTOR CONTROL ROD. THROUGH THE AXIS OF THE CONTROL ROD IS INSTALLED A TUBE WITH HOLES PENETRATING THE WALL. THE GAS PRODUCED IN THE CONTROL MATERIAL FLOWS THROUGH THESE HOLES INTO THE CENTRAL TUBE.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)

*CONTROL ROD + *FUEL ELEMENT + CONTROL ROD FABRICATION + JAPAN + PATENT

9-20039

NAKAMURA S
REACTOR CONTROL ROD
HITACHI, LTD.
JAPANESE PATENT 1966-7518 +. 2 PAGES, 1 FIGURE, APRIL 16, 1966

DESCRIBES AN IMPROVED HOLLOW CONTROL ROD. NEUTRON-ABSORBING POWDER FILLS THE SPACE FORMED BETWEEN THE OUTER AND INNER CANS. BY THE USE OF THIS NEUTRON-ABSORBING POWDER, THE WEIGHT OF THE CONTROL ROD IS REDUCED, AND A MEANS IS PROVIDED TO PREVENT THE OCCURRENCE OF A CAVITY DUE TO THE VIBRATIONS. A NUMBER OF ANNULAR SPACERS IS INSTALLED BETWEEN THE OUTER AND INNER CANS THROUGH THE LENGTH OF THE CONTROL ROD. BOTH EDGES OF THE ANNULAR SPACE ARE IN CONTACT WITH THE TWO WALLS. THE REMAINING SPACE IS FILLED WITH NEUTRON-ABSORBING POWDER.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)

CONTROL ROD + CONTROL ROD FABRICATION + FUEL ELEMENT + JAPAN + PATENT

9-20040

MASUDA Y + TSUJI A
DEVICE FOR CONNECTING A CONTROL ROD TO THE DRIVE
TOKYO SHIBAURA ELECTRIC CO., LTD.
JAPANESE PATENT 1966-6800 +. 2 PAGES, 1 FIGURE, APRIL 6, 1966

THE REACTOR CORE INCLUDES MANY FUEL RODS, THE CONTROL RODS INSERTED AMONG THE FUEL RODS, THE DRIVE FOR MOVING THE CONTROL RODS UP AND DOWN, AND THE DEVICES FOR CONNECTING THE DRIVE AND THE CONTROL ROD IS BORED A HOLE ALONG ITS AXIS, AND THROUGH THIS HOLE IS RUN A WIRE. BY MEANS OF THIS WIRE, THE CONTROL ROD IS CONNECTED TO OR RELEASED FROM THE CONNECTING DEVICE, WHICH CONNECTS TO THE CONTROL ROD DRIVE.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)

*ACTUATOR + *CONTROL ROD SCRAM MECHANISM + CONTROL ROD DRIVE + JAPAN + PATENT

9-20041

ALSO IN CATEGORY 5
COLLOQUIUM ON RELIABILITY. PROCEEDINGS 1964-65. VOLUME 179. PART 3K
THE INSTITUTION OF MECHANICAL ENGINEERS
26 PAGES, A COLLOQUIUM ARRANGED BY THE INSTITUTION OF MECHANICAL ENGINEERS FOR THE NATIONAL COUNCIL FOR QUALITY AND RELIABILITY, NOVEMBER 10-11, 1964, DOCUMENT PUBLISHED IN 1966 BY THE INSTITUTION OF MECHANICAL ENGINEERS

THE COLLOQUIUM WAS ORGANIZED TO EMPHASIZE THE IMPORTANCE OF RELIABILITY TO ALL FACETS OF UK INDUSTRY. DEFINITIONS AND CONNOTATIONS FOR THE MEANING OF RELIABILITY WERE DISCUSSED IN RELATION TO THE MANUFACTURER AND THE CUSTOMER. THE GENERAL UNRELIABILITY OF STATISTICAL INFERENCE IN THIS FIELD WAS STRESSED. THE OPINIONS PRESENTED WERE GENERAL TO THE MANUFACTURING INDUSTRIES AND WERE NONTECHNICAL IN CONTENT.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, WESTMINSTER, LONDON S.W.

COMPARISON, THEORY AND EXPERIENCE + RELIABILITY ANALYSIS + RELIABILITY, COMPONENT

9-20042

GOBEN CA + SMITS FM + WIRTH JL
NEUTRON RADIATION DAMAGE IN SILICON TRANSISTORS
SANDIA CORP., ALBUQUERQUE, N. MEXICO
SC-RR-67-312 +. 42 PAGES, 12 FIGURES, REFERENCES, AUGUST 1967

FROM A STUDY OF BASE AND COLLECTOR CURRENT AS A FUNCTION OF THE EMITTER-TO-BASE VOLTAGE, IT HAS BEEN FOUND THAT NEUTRON-INDUCED BASE CURRENT HAS COMPONENTS ORIGINATING IN THE EMITTER SPACE-CHARGE REGION AS WELL AS THE NEUTRAL BASE REGION. AT LOW INJECTION LEVELS, THE NEUTRON-INDUCED BASE CURRENT IS DOMINATED BY THE SPACE-CHARGE COMPONENT, WHEREAS THE HIGH-INJECTION BEHAVIOR APPEARS TO BE CONTROLLED BY RECOMBINATION IN THE NEUTRAL BASE REGION. ADDITIONAL EXPERIMENTS PERFORMED IN SPECIAL TETRODE TRANSISTORS AND VAN DER PAUW-TYPE SAMPLES INDICATE THAT CHANGES IN COLLECTOR CURRENT ARE DOMINATED BY RECOMBINATION IN THE NEUTRAL BASE, WHILE CHANGES IN BASE DOPING AND MOBILITY HAVE ONLY A SECONDARY EFFECT. THESE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20042 *CONTINUED*

CONCLUSIONS ARE REACHED FROM EXPERIMENTS ON TRANSISTORS WITH A RING EMITTER, ON TETRODE-TYPE TEST TRANSISTORS, AND ON SPECIAL HALL-EFFECT DEVICES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*IRRADIATION TESTING + *NEUTRON + *SOLID STATE DEVICE + FAILURE, COMPONENT + FAILURE, INSTRUMENT + INSTRUMENTATION, ABNORMAL INDICATION

9-20043 ALSO IN CATEGORY 6

KAPLAN S

NATURAL MODES OF THE XENON PROBLEM WITH TEMPERATURE AND CONTROL FEEDBACK
BETTS ATOMIC POWER LABORATORY, PITTSBURGH, PA.

WAPD-TM-695 +. 14 PAGES, MAY 1967

THE P-MODE FORMALISM, WHICH IDENTIFIES THE NATURAL MOTIONS AND TIME CONSTANTS OF A REACTOR IN THE PRESENCE OF XENON FEEDBACK, IS EXTENDED TO THE CASE WHERE TEMPERATURE AND CONTROL FEEDBACKS ARE ALSO PRESENT. TWO METHODS ARE DISCUSSED BY WHICH THESE MODES MIGHT BE NUMERICALLY COMPUTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, CONTROL + *XENON + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-20044

CHALLENGER RS + PUGH MC + WHITE WP

IMPROVEMENTS IN OR RELATING ACTUATORS FOR NUCLEAR REACTOR CONTROL
UNITED KINGDOM ATOMIC ENERGY AUTHORITY

BRITISH PATENT 1,066,014 +. 7 PAGES, FIGURES, APRIL 19, 1967

AN ACTUATOR IS DESIGNED TO CAUSE EITHER A FAST OR A SLOW CONTROL-ROD INSERTION INTO THE CORE AND TO ENSURE CONTROLLED WITHDRAWAL OF THE CONTROL ROD.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND, .49 PER COPY

*CONTROL ROD DRIVE + *CONTROL ROD SCRAM MECHANISM + PATENT + UNITED KINGDOM

9-20049 ALSO IN CATEGORY 17

GARIGLIANO NUCLEAR POWER PLANT. OPERATION REPORT FOR THE 4TH QUARTER OF 1966.

ENTE NAZIONALE PER L'ENERGIA ELETTRICA, ROME, ITALY

TID-23770 +. 22 PAGES, DECEMBER 31, 1966

PLANT SHUTDOWNS WERE CAUSED BY (1) REDUCTION OF FLOW TO CONDENSER CAUSED BY CLOGGED SCREENS FROM DEBRIS IN FLOODING RIVER, (2) RECIRCULATING PUMP LEAK CAUSING INCREASED CONTAINMENT ACTIVITY LEVEL, AND (3) REPLACEMENT OF IN-CORE CHAMBERS. EXPERIENCE INDICATES THAT AT THIS HIGHER FLUX LEVEL, IN-CORE IGN CHAMBERS SHOULD BE REPLACED EVERY 24 FULL-POWER MONTHS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, EQUIPMENT + FAILURE, INSTRUMENT + ITALY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA' ELETTRONUCLEARE NAZIONALE)

9-20447 ALSO IN CATEGORY 17

NORRIS EB + IRELAND DR

INSPECTION OF BORON CARBIDE REGULATING AND CONTROL RODS IN THE ELK RIVER REACTOR
SOUTHWEST RESEARCH INST., SAN ANTONIO, TEX.

SWRI-1228P9-14 +. 16 PAGES, 8 FIGURES, REFERENCES, AUGUST 4, 1967

RESULTS OF S.W. RESEARCH INSTITUTE--ELK RIVER INSPECTION SHOWED THAT WHAT APPEARED TO BE HOLES IN THE INCONEL-600 B4C TUBES WERE SHADOWS CAUSED BY A LOOSE DEPOSIT. A SAMPLE OF THE DEPOSIT WAS TAKEN. RODS APPEARED STRUCTURALLY ADEQUATE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD + *EXAMINATION + *SURFACE FILM DEPOSIT + CONTROL ROD BURNUP + ELK RIVER + REACTOR, BOILING WATER

9-20451

DEIGHTON MO

CALCULATION OF NOISE/SIGNAL RATIO OF A NUCLEAR PULSE AMPLIFIER EMPLOYING GATED ACTIVE INTEGRATION
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20451 *CONTINUED*
AERE-R-5021 +. 55 PAGES, 17 FIGURES, REFERENCES, MAY 1967

A METHOD OF CALCULATING NOISE IN PULSE-AMPLIFYING SYSTEMS IS PRESENTED. THE METHOD IS A TIME-DOMAIN ONE AND IS THUS SPECIALLY SUITABLE FOR CASES WHERE THE PULSE PROCESSING INVOLVES A MIXTURE OF ANALOGUE AND DIGITAL TECHNIQUES. IT ALSO HAS POSITIVE ADVANTAGES WHEN APPLIED TO CERTAIN MORE CONVENTIONAL ARRANGEMENTS, FOR EXAMPLE THOSE EMPLOYING SINGLE OR MULTIPLE DELAY-LINE SHAPING. TWO TYPES OF INTEGRATOR ARE ANALYSED, IN ONE OF WHICH THE CR COUPLING TIME CONSTANT IS SWITCHED. THE LATTER SYSTEM, WITH PROPER CHOICE OF PARAMETERS, YIELDS A NOISE/SIGNAL RATIO ONLY 1.6% GREATER THAN THE IDEAL CUSP-RESPONSE AMPLIFIER. RESULTS ARE PRESENTED IN THE FORM OF NOISE MAPS FOR EACH OF FIVE VERSIONS OF THE ACTIVE INTEGRATOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, CAMPBELLING + *NOISE ANALYSIS + INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, PULSE + SPECTROMETRY, NEUTRON + THEORETICAL INVESTIGATION

9-20452 ALSO IN CATEGORY 5
WAGGENER JP + HERRICK PC
TUBE FAILURE AND ANALYSIS PROGRAM ON THE ADVANCED TEST REACTOR PRIMARY HEAT EXCHANGER. PHASE II, FINAL REPORT
FRANKLIN INST. RESEARCH LABS., PHILADELPHIA, PA.
TID-22616 +. 126 PAGES, 61 FIGURES, SEPTEMBER 3, 1965

THIS REPORT IS THE FINAL ONE OF A SERIES OF THREE. ALL REPORTS HAVE BEEN WRITTEN AS PART OF A PROGRAM TO DETERMINE THE CAUSE OF THE EARLY FAILURE OF THE ADVANCED TEST REACTOR PRIMARY HEAT EXCHANGERS AND TO GUIDE THE DESIGN OF RELIABLE REPLACEMENT EQUIPMENT.

AVAILABILITY - USAEC, DIVISION OF TECHNICAL INFORMATION EXTENSION, OAK RIDGE, TENN.

*FAILURE, TUBING + *HEAT EXCHANGER + FREQUENCY SPECTRA + IDAHO FALLS + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, PRESSURE + INSTRUMENTATION, TESTING + REACTOR TEST FACILITY + VIBRATION

9-20457 ALSO IN CATEGORIES 17 AND 6
RUDY GC + STONE JT
PATHFINDER ATOMIC POWER PLANT. PILE OSCILLATOR ROD ASSEMBLY, AND MEASUREMENTS OF REACTOR TRANSFER FUNCTIONS
ALLIS-CHALMERS MFG. CO., BETHESDA
ACNP-67522 +. 133 PAGES, FIGURES, TABLES, JULY 1967

DESCRIBES SPECIAL OSCILLATOR-ROD ASSEMBLY AND LOW-POWER INITIAL CALIBRATION TESTS. TESTING AT HIGHER POWER LEVELS WAS NOT DONE BECAUSE OF CURTAILMENT OF PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*OSCILLATOR, REACTIVITY + *REACTOR STABILITY + *TEST, PHYSICS + NOISE ANALYSIS + PATHFINDER + REACTOR, INTERNAL SUPERHEAT

9-20458 ALSO IN CATEGORIES 17 AND 15
RUSSELL JA + KNOWLES DJ
DESCRIPTION OF FACILITY RADIATION AND CONTAMINATION ALARM SYSTEMS INSTALLED IN THE BULK SHIELDING FACILITY, BUILDING 3010
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-1874 +. 23 PAGES, 8 FIGURES, AUGUST 22, 1967

DESCRIPTION OF SYSTEM TO CONTINUOUSLY AND AUTOMATICALLY MONITOR GAMMA RADIATION AND AIR CONTAMINATION THROUGHOUT THE FACILITY. ALARM SOUNDS FOR CAUTION LEVEL, AND A SECOND WARNING IS GIVEN WHEN HIGH RADIATION LEVEL IS DETECTED. THE BUILDING EVACUATION AND CONTAINMENT SYSTEMS OPERATE AUTOMATICALLY WHEN TWO OR MORE MONITORS OR TWO OR MORE AIR MONITORS DETECT A HIGH RADIATION LEVEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*MONITOR, RADIATION, AIR + *MONITOR, RADIATION, EMERGENCY + BSR (BULK SHIELDING REACTOR)

9-20486 ALSO IN CATEGORY 17
PROOF TEST FACILITY AMENDMENT 2 - MODIFICATION OF TECH. SPEC.
UNITED NUCLEAR CORPORATION, ELMSFORD, NEW YORK
3 PAGES, OCTOBER 30, 1967, DOCKET 50-290

AMENDMENT 2 CONTAINS MODIFICATIONS TO TECH. SPEC. FIRST DRAFT OF 30 AUG. 1967 AND CONCERNS SECTION 11 (OPERATIONS) AND A CHANGE IN SCRAM CIRCUITS (MOVEMENT OF MANUAL SCRAM CONTACTS FROM RELAY-COIL POWER LINES TO MAIN-CONTROL POWER LINE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20486 *CONTINUED*
CRITICAL ASSEMBLY FACILITY + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR SAFETY SYSTEM +
TECHNICAL SPECIFICATIONS

9-20510 ALSO IN CATEGORY 17
U OF MICHIGAN SUPPLIES ADDITIONAL INFORMATION IN SUPPORT OF LICENSE AMENDMENT
UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN
4 PAGES, OCTOBER 31, 1967, DOCKET 50-2

INFORMATION SUPPLEMENTS APPLICATION OF 3 OCT. 67. CITES REPORTS SWRI-1228-9-9 ON ELK RIVER
CONTROL-ROD INSPECTION, AND ACNP 63006 ON PATHFINDER 2% BORON/SS CONTROL-ROD-BURNUP LIMITS.
(ELK RIVER) - AT 1.7 X 10(20TH), REGULATING ROD SHOWED NO DEFECTS. AT 3.4 X 10(20TH), SEVERE
CRACKING WAS FOUND. (PATHFINDER) - STUDY CONCLUSIONS WERE THAT RODS COULD SUSTAIN AT LEAST
1.8 X 10(20TH) NVT (THERMAL), BASED ON LIMITATIONS ON SWELLING. PRESENT U OF MICH. RODS ARE
1.5% AND HAVE A MAXIMUM BURNUP OF 1.7 X 10(20TH).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD BURNUP + BORON + REACTOR, RESEARCH + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

9-20517 ALSO IN CATEGORY 5
KARR CH + SWANSON L
RELIABILITY ANALYSIS AND PREDICTION
MARTIN CO., BALTIMORE, MD.
MND-3607-123 +. 36 PAGES, NOVEMBER 1966

PROGRESS REPORT, ONE OF A SERIES (MND-3607-1). THIS ISSUE (4/66-10/66) INCLUDES A DETAILED
FAILURE-MODE-AND-EFFECTS ANALYSIS, AND THE LATEST UPDATED RELIABILITY MATHEMATICAL MODEL AND
PREDICTION. TO SUPPORT THE VALIDITY OF PIECE-PART RELIABILITY DATA, THE STATUS AND MEANS OF
QUALIFYING EACH PART IS DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
\$3.00 COPY, \$0.65 MICROFICHE

*RELIABILITY ANALYSIS + *RESEARCH AND DEVELOPMENT PROGRAM +
*SNAP 19 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + ANALYTICAL MODEL + ISOTOPIC GENERATOR + MODEL TESTING +
RELIABILITY, COMPONENT

9-20543
NUCLEAR ELECTRONICS. PROCEEDINGS SERIES.
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA
STI-PUB-115 + CONF-651105 +. 664 PAGES, JUNE 1966, PROCEEDINGS OF A CONFERENCE HELD IN BOMBAY, NOVEMBER
22-26, 1965

PROCEEDINGS OF A CONFERENCE ON NUCLEAR ELECTRONICS HELD BY THE INTERNATIONAL ATOMIC ENERGY
AGENCY IN BOMBAY, NOVEMBER 22-26, 1965. PRESENTS BOTH THE TEXT AND THE DISCUSSIONS OF THE
PAPERS ON THE USE OF NUCLEAR ELECTRONICS IN REACTOR CONTROL AND SAFETY. THE FOLLOWING TOPICS
WERE TREATED - I. NEUTRON FLUX AND POWER MEASUREMENTS, II. THERMODYNAMIC MEASUREMENTS, III.
COOLANT MEASUREMENTS, IV. BURST SLUG DETECTION, V. REACTOR OPERATIONS, VI. REVIEW OF
REACTOR SAFETY, VII. DATA PROCESSING AND OPTIMIZATION, VIII. SERVO MECHANISMS, VARIOUS
ELECTRONIC CIRCUITS AND MISCELLANEOUS

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.
10016

CHAMBER, ION + CONTROL SYSTEM + COOLANT QUALITY + DATA PROCESSING + DESIGN STUDY + FAILURE, FUEL ELEMENT +
FLUX, INTEGRATED + INSTRUMENTATION, LUNIKUL + INSTRUMENTATION, COOLANT QUALITY +
INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + INSTRUMENTATION, IN CORE + MEASUREMENT, TEMPERATURE +
NEUTRON + OPERATING EXPERIENCE + POWER DISTRIBUTION + REACTOR CONTROL + REACTOR POWER +
REACTOR SAFETY SYSTEM + RELIABILITY, SYSTEM + SAFETY EVALUATION + SERVOMECHANISM + SOLID STATE DEVICE

9-20562
SCHENK K
TURBINE FLOW METERS FOR IN-CORE APPLICATION
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY. OECD HALDEN REAKTOR PROSJEKT
HPR-72 +. 21 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

TURBINE FLOW METERS OF THE STANDARD HBWR DESIGN HAVE BEEN EXTENSIVELY USED IN-CORE DURING
1964-66 AND HAVE BEEN ACCURATE AND RELIABLE. OF THE FAILURES EXPERIENCED, MOST WERE IN THE
PICK-UP COIL. ALL INSTRUMENTS ARE THEREFORE SUPPLIED WITH TWO PICK-UPS. ONLY A FEW TURBINE
ROTOR FAILURES HAVE OCCURRED, AND MOST OF THESE WERE IN FORCED CIRCULATION FUEL ASSEMBLIES
EXPERIENCING STRONG FLOW FLUCTUATIONS, WHICH INCREASED THE WEAR ON THE BEARINGS.
MODIFICATIONS OF THE BASIC DESIGN HAVE BEEN MADE TO PERMIT OPERATION IN CHANNELS OF DIFFERENT
SIZE AND DIFFERENT FLOW RATES. THESE MODIFIED INSTRUMENTS HAVE ALSO PERFORMED WELL.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN 54669

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20562 *CONTINUED*

*FLOW, AXIAL + *INSTRUMENTATION, FLOW + IN CORE MEASUREMENT + INSTRUMENTATION, IN CORE + NORWAY +
OECD (ORG. FOR ECONOMIC COOPERATION AND DEV.) + REACTOR, HEAVY WATER

9-20563

SCHENK K

DEVELOPMENT OF AN IN-PILE VOID GAUGE

INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY. OECD HALDEN REAKTOR PROSJEKT
HPR-75 +. 21 PAGES, FIGURES, TABLES, REFERENCES, MAY 1967

A VOID GAUGE WHICH DYNAMICALLY MEASURES EXIT-VOID FRACTIONS IN FUEL ASSEMBLY CHANNELS WAS DEVELOPED AND SUCCESSFULLY USED IN-CORE AT THE HALDEN HEAVY WATER BOILING REACTOR. THE PRESENT VOID-GAUGE DESIGN DOES NOT REQUIRE A METAL-TO-CERAMIC SEAL AT THE COAX CABLE END AS DID THE DESIGN PREVIOUSLY DESCRIBED. THE DESIGN OF THE NEW INSTRUMENT IS PRESENTED, AND PERFORMANCE DATA OF BOTH VOID-GAUGE TYPES ARE GIVEN.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN 54669

*FLOW, TWO PHASE + *INSTRUMENTATION, FLOW + IN CORE MEASUREMENT + INSTRUMENTATION, IN CORE + NORWAY +
OECD (ORG. FOR ECONOMIC COOPERATION AND DEV.) + REACTOR, HEAVY WATER

9-20564

ENGLANDER M

THE DEVELOPMENT OF METALLIC FUEL ELEMENTS FOR THE FRENCH POWER INDUSTRY

METALLURGY DEPARTMENT, CENTRE D-ETUDES NUCLEAIRES DE SACLAY

15 PAGES, 12 FIGURES, 8 TABLES, 20 REFERENCES, THE JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY 6(2),
PAGE 102-116, (APRIL 1967)

SINCE 1956, FRANCE HAS BUILT SIX DIFFERENTLY SHAPED AND POWERED THERMAL NEUTRON REACTORS. CHARACTERISTICS OF THE FUEL-ELEMENT COMPONENTS WERE MODIFIED (SIZE, SHAPE, AND MATERIALS). SUCCESSIVE DEVELOPMENT OF METALLIC FUEL ELEMENTS RESULTED IN STEADILY IMPROVING VALUES OF THERMAL POWER RELEASED PER CHANNEL AS A FUNCTION OF THE COOLANT TEMPERATURE.

*DESIGN STUDY + *FUEL ELEMENT + EQUIPMENT DESIGN + FRANCE + REACTOR, GAS COOLED

9-20566

ALSO IN CATEGORY 10

PARRISH JR + ROY GM + BAILY FG

NUCLEAR PLANT DETAILS

GENERAL ELECTRIC, SCHENECTADY + GENERAL ELECTRIC, PLEASANTON, CALIF. + TENNESSEE VALLEY AUTHORITY
3 PAGES, 2 FIGURES, POWER ENGINEERING 71(11), PAGE 48-50, (NOV. 1967)

MAIN CONTROL ROOM WILL CONTAIN THE EQUIPMENT FOR CONTROL, RECORDING, INDICATING, AND ANNUNCIATION OF REACTOR AND STEAM SYSTEMS. STARTUP AND UNIT STATION SERVICE TRANSFORMERS WILL HAVE DOUBLE SECONDARY WINDINGS TO PREVENT EXCESSIVE INTERRUPTING DUTY BEING IMPOSED ON THE LOAD-SIDE CIRCUIT BREAKERS. EMERGENCY GENERATORS WILL PROVIDE POWER FOR SAFE REACTOR AND TURBOGENERATOR SHUTDOWN. THIS INCLUDES SUCH EQUIPMENT AS RESIDUAL-HEAT REMOVAL AND CORE-SPRAY PUMPS, STANDBY GAS-TREATMENT FANS, BATTERY CHARGERS, AND EMERGENCY LIGHTING. ALL ELEMENTS OF THE AUXILIARY POWER SYSTEM WILL HAVE ENOUGH REDUNDANCY TO ENSURE SAFE OPERATION OF THE PLANT. TWO 120-CELL, 250-V STORAGE BATTERIES WILL PROVIDE POWER FOR EMERGENCY LIGHTING, CONTROL DEVICES, SWITCHGEAR, AND OTHER EQUIPMENT THAT MUST HAVE AN UNINTERRUPTED POWER SUPPLY.

ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + ELECTRIC POWER, SHUTDOWN +
ELECTRIC POWER, VITAL + INSTRUMENTATION, CONTROL

9-20717

DAHL RE + JACKSON JL

MEASUREMENT OF NEUTRON FLUX IN FAST REACTOR EXPERIMENTS

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1102 + CONF-670314-6 +. 18 PAGES, FIGURES, MARCH 1967, PRESENTED AT LIQUID METAL INSTRUMENTATION
AND CONTROL SYMPOSIUM, IDAHO FALLS, IDAHO

DISCUSSES THE EFFECT OF A FAST-REACTOR SPECTRUM ON THE ACTIVATION-MONITOR RESPONSE, THE CRITERIA FOR SELECTING FLUX MONITORS, SOME POSSIBLE APPLICATIONS, AND THE INFORMATION NEEDED TO CONVERT AN ACTIVATION-MONITOR ACTIVITY TO A FLUX VALUE. MEASUREMENTS MADE TO DATE INDICATE THAT THE ENTIRE RANGE OF NEUTRON ENERGIES CAN BE MONITORED WITH MONITORS SUITABLE FOR EXTENDED IRRADIATIONS. CROSS-SECTION UNCERTAINTIES CAN BE RESOLVED TO SOME EXTENT BY USE OF SEVERAL TYPES OF MONITORS TO PROVIDE GREATER ACCURACY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

FFTF (TR) + FLUX DISTRIBUTION + INSTRUMENTATION, RADIATION MONITORING + IRRADIATION TESTING + NEUTRON +
REACTOR, FAST + REACTOR, FAST + REACTOR, TEST + TEST, INSTRUMENT RESPONSE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20750
WELSHOURNE D
DATA PROCESSING AND CONTROL BY A COMPUTER AT WYLFA NUCLEAR POWER STATION
THE ENGLISH ELECTRIC CO., WHETSTONE, LEICESTER
10 PAGES, 7 FIGURES, PAGES 92-101 FROM ADVANCES IN AUTOMATIC CONTROL - PROCEEDINGS OF INSTITUTE OF MECHANICAL ENGINEERS VOL 179, PT. 3H, PAPER 16, APRIL 1965

THE WYLFA STATION INVESTS MORE THAN 85% OF ALL ALARMS AND INDICATIONS IN THE DATA-PROCESSING SYSTEM, WITH ONLY THOSE ALARMS AND INDICATIONS ESSENTIAL FOR SAFETY AT COMPUTER FAILURE BEING RETAINED ON CONVENTIONAL ANNUNCIATORS AND INDICATORS. FOR BOTH ECONOMIC AND TECHNICAL REASONS, THE FUEL CONTROL AND PROCESSING OF THE BURST-CAN-DETECTION SYSTEM AND THE COMPLETE RUN-UP CONTROL OF THE TURBINES WERE ALSO INVESTED IN THE COMPUTER.

AVAILABILITY - INSTITUTE OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, WESTMINSTER, LONDON S.W. 1, ENGLAND

CONTROL, COMPUTER + DATA PROCESSING + INSTRUMENTATION, CONTROL +
INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + REACTOR CONTROL + REACTOR, GAS COOLED + UNITED KINGDOM + WYLFA (UK)

9-20751
PEARSON A
THE NRU COMPUTER-CONTROL EXPERIMENT
CHALK RIVER NUCLEAR LABORATORIES, CHALK RIVER, ONTARIO, CANADA
CONF-660527 +. 12 PAGES, 8 FIGURES, 6 REFERENCES, PAGES 21-32 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY ARGONNE, ILLINOIS, MAY 4-6, 1966

PROBLEM - APPLYING GENERAL-PURPOSE DIGITAL COMPUTERS TO THE CONTROL AND INSTRUMENTATIONS OF A NUCLEAR REACTOR PLANT. APPROACH - A COMPUTER-CONTROL EXPERIMENT WAS RUN AT NRU. CLOSED-LOOP POWER CONTROL, MONITORING, PROCESSING OF IN-CORE FLUX DETECTOR MEASUREMENTS, DISPLAY TECHNIQUES, AND SYSTEMS RELIABILITY WERE EXPLORED. CONCLUSION - USE OF A CONTROL COMPUTER IS FEASIBLE, BUT TWO PROBLEMS REMAIN - (1) WHAT TYPE OF REDUNDANCY SHOULD BE USED FOR THOSE FUNCTIONS WHOSE INTERRUPTIONS WOULD REQUIRE A REACTOR TRIP, (2) WHAT TYPE OF PERSONNEL WILL BE REQUIRED TO DIAGNOSE FAULTS AND MODIFY THE PROGRAMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + *REACTOR CONTROL + CANADA + CHALK RIVER + COMPUTER, DIGITAL + NRU (CHALK RIVER NATURAL URANIUM REACTOR)

9-20752
WHALEN JF
A COMPLETELY AUTOMATED VAN DE GRAAFF ACCELERATOR
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
CONF-660527 +. 5 PAGES, 4 FIGURES, 1 REFERENCE, PAGES 37-41 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS, MAY 4-6, 1966

AT ARGONNE AN ON-LINE DUAL COMPUTER SYSTEM IS USED TO CONTROL THE MAJOR PARAMETERS OF A VAN DE GRAAFF ACCELERATOR. THIS COMPUTER SYSTEM SIMULTANEOUSLY ACCUMULATES AND PROCESSES EXPERIMENTAL DATA. THE EXECUTIVE PROGRAM EXERCISES SPECIFIC METHODS OF CONTROL DURING CLOSED LOOP EXPERIMENTS. SEVERAL CURRENTLY OPERATING EXPERIMENTS INVOLVE PROGRAMMED EXECUTIVE CONTROL BY THE COMPUTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*ACCELERATOR + *INSTRUMENTATION, CONTROL + COMPUTER, DIGITAL + NEUTRON + OPERATING EXPERIENCE

9-20753 ALSO IN CATEGORIES 11 AND 14
DRIVER GE
PROCESS COMPUTER APPLICATIONS AT BATTELLE-NORTHWEST
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
CONF-660527 +. 5 PAGES, PAGES 43-37 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS, MAY 4-6, 1966

APPLIED DIGITAL-COMPUTER TECHNOLOGY TO ON-LINE DATA ACQUISITION FROM EXPERIMENTS AND TO THE AUTOMATIC CONTROL OF NUCLEAR PROCESSES. EXPERIMENTS ARE BEING PERFORMED IN THE AREAS OF CONTAINMENT-SYSTEM-TESTING, MASS-SPECTROMETER CONTROL, AND REACTOR CONTROL. A COMPUTER IS PRESENTLY CONTROLLING A URANIUM SOLVENT-EXTRACTION PROCESS AND LOGGING DATA ON THE MASS-ENERGY BALANCES IN A LIQUID-WASTE SOLIDIFICATION PROCESS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20753 *CONTINUED*

*COMPUTER PROGRAM + *CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + BATTELLE NORTHWEST +
CONTAINMENT INSTRUMENTATION + CONTAINMENT RESEARCH AND DEVELOPMENT + FFTF (TR) + HIGH TEMPERATURE +
INSTRUMENTATION, TEMPERATURE + REACTOR, FAST + REACTOR, TEST

9-20754

COHN CE

AUTOMATED DATA ANALYSIS AND CONTROL FOR CRITICAL FACILITIES

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

CONF-660527 +. 18 PAGES, 9 FIGURES, 5 REFERENCES, PAGES 49-66 OF USE OF COMPUTERS IN ANALYSIS OF
EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL
LABORATORY, ARGONNE, ILLINOIS, MAY 4-6, 1966

A DDP-24 COMPUTER IS USED FOR ON-LINE DATA ANALYSIS AND FOR CONTROL OF A NUMBER OF CRITICAL
FACILITIES. NEUTRON FLUX DATA ARE FITTED TO ASYMPTOTIC PERIODS OR ARE TREATED TO YIELD
REACTIVITY VS TIME. CONTROL-ELEMENT POSITIONS ARE CONTINUOUSLY MONITORED. THE SYSTEM CAN BE
USED FOR CONTROL-ROD CALIBRATIONS, SPACE-DEPENDENT SAMPLE REACTIVITY WORTHS, OR MEASUREMENTS
OF SHUTDOWN REACTIVITY AS A FUNCTION OF TIME AFTER SCRAM. THE COMPUTER HAS ALSO BEEN USED TO
TAKE AN ASSEMBLY THROUGH CRITICAL AND UP TO A DEMAND POWER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER, DIGITAL + *CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + CONTROL ROD CALIBRATION +
CONTROL ROD WORTH + DATA PROCESSING + SHUTDOWN MARGIN

9-20755

ZARTMAN IF

NUCLEAR REACTORS AND CRITICAL ASSEMBLIES

USAEC, WASHINGTON, D. C.

CONF-660527 +. 4 PAGES, PAGES 235-238 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE
CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY, ARGONNE,
ILLINOIS, MAY 4-6, 1966

IN THE AREA OF CRITICAL-ASSEMBLY ACTIVITIES, INTEREST IS LARGELY IN AUTOMATED DATA PROCUREMENT
AND ANALYSIS. LITTLE INTEREST IN COMPUTER CONTROL BECAUSE OF SAFETY CONSIDERATIONS
(RELIABILITY OF THE AUTOMATIC CONTROL SYSTEM AND THE COMPUTER NOT YET SUFFICIENTLY
DEMONSTRATED).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

COMPUTER PROGRAM + CONTROL SYSTEM + CONTROL, COMPUTER + INSTRUMENTATION, CONTROL + REACTOR CONTROL

9-20776

ALSO IN CATEGORIES 12 AND 17

HANSON CL + COOPS MS + PARKISON CD

TRANSFER SYSTEMS FOR THE LIVERMORE NEUTRON CELLS

LAWRENCE RADIATION LAB., CALIFORNIA UNIV., LIVERMORE, CALIFORNIA

UCRL-70494 + CONF-671102-19 +. 18 PAGES, 9 FIGURES, REFERENCES, JULY 10, 1967, FROM 15TH CONFERENCE ON
REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

SPECIAL TRANSFER SYSTEMS ARE REQUIRED TO HANDLE FISSION SOURCES IN THE NEUTRON CELLS BEING
BUILT AT LIVERMORE. THESE SYSTEMS ARE REMOTELY OPERATED BEHIND 4-FT-THICK NEUTRON SHIELDING.
SEVERAL TRANSFER SYSTEMS ARE DIRECTLY CONNECTED TO THE CELL LINERS WHICH CONTAIN THE INTENSE
ALPHA ACTIVITY. COMPONENTS ARE BUILT IN MODULES TO PERMIT EASY REPLACEMENT. SEVERAL DEVICES
WERE DESIGNED TO PERMIT REMOTE REPLACEMENT OF PLASTIC BOOTING TO ENSURE CONTINUED OPERATIONS
IN THE CELLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

EQUIPMENT DESIGN + INSTRUMENTATION, CONTROL + TRANSPORTATION AND HANDLING

9-20777

BYARS RF

AECL IN-CORE FLUX MONITORS

SAVANNAH RIVER LABORATORIES, DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C.

DSPU-67-30-5 +. 13 PAGES, 4 REFERENCES, SEPT. 1967

AN IRRADIATION TEST OF IN-CORE FLUX MONITORS HAS BEEN COMPLETED. FOUR FLUX DETECTORS AND SIX
CABLES WITH DIFFERENT MINERAL INSULATIONS WERE FURNISHED BY AECL FOR TESTING AT SRP. THE
COBALT AND VANADIUM DETECTORS OPERATED SATISFACTORILY AFTER AN EQUIVALENT OF ONE YEAR IN A
FLUX OF 10(15TH). THE ZIRCALOY DETECTOR FAILED DURING THE FIRST FEW DAYS OF THE TEST. THE
RHODIUM DETECTOR WAS DAMAGED BEYOND REPAIR DURING FABRICATION. CURRENT OUTPUTS OF FIVE OF
THE SIX CABLES (2 MGO, 2 A12O3, AND 1 BEO2 INSULATED) WERE REPRODUCIBLE THROUGHOUT THE TEST.
ONE OF THE CABLES WITH BEO2 INSULATION GAVE ERRATIC CURRENT OUTPUT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20777 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, IN CORE + *INSTRUMENTATION, NUCLEAR + *IRRADIATION TESTING + FLUX, INTEGRATED +
IN CORE MEASUREMENT + SAVANNAH RIVER PLANT + TEST, COMPONENT

9-20782
O BRIEN HG
POSTACCIDENT INSTRUMENTATION
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
5 PAGES, 20 REFERENCES, NUCLEAR SAFETY, 8(6), PAGE 559-564 (NOV.-DEC. 1967)

THE NUCLEAR ACCIDENT RECOVERY PROGRAM WAS ESTABLISHED BY THE AEC TO DEVELOP TECHNIQUES AND EQUIPMENT THAT WOULD BE EFFECTIVE IN RESCUING PERSONNEL, PLACING THE FACILITY IN A SAFE CONDITION, AND SALVAGING THE FACILITY. SPECIAL BUILT-IN INSTRUMENTATION SEEMS TO OFFER THE BEST MEANS OF DETERMINING THE CONDITIONS IN THE REACTOR AND CONTAINMENT BUILDING AND THE SEQUENCE OF THE ACCIDENT. SEVERAL PORTABLE SYSTEMS ARE ALSO BEING DEVELOPED. NOISE-ANALYSIS SYSTEMS ARE BEING EVALUATED AS TOOLS FOR MEASURING THE REACTIVITY. HOWEVER, THEY DO NOT APPEAR TO BE PRACTICAL. OTHER SYSTEMS INCLUDE A TELEVISION VIEWING SYSTEM, REMOTELY CONTROLLED SERVICE VEHICLES, ALARMING DOSIMETERS, AIR MONITORS, AERIAL TRACKING SYSTEMS, AND DIRECTIONAL GAMMA SENSORS.

*ACCIDENT, MONITOR + *INSTRUMENTATION, GENERAL + *RADIATION SAFETY AND CONTROL +
INSTRUMENTATION, INDEPENDENT + INSTRUMENTATION, RADIATION MONITORING + INSTRUMENTATION, SURVEILLANCE +
MONITOR, RADIATION, EMERGENCY + MONITOR, RADIATION, GENERAL PRACTICE + MONITOR, RADIATION, TELEMETRY

9-20841 ALSO IN CATEGORY 17
GULF GENERAL ATOMIC SUPPLIES INFORMATION ON CONTROL ROD R AND D PROGRAM
GULF GENERAL ATOMIC INCORPORATED
5 PAGES, 2 FIGURES, DOCKET 50-240, NOVEMBER 22, 1967

(1) COMPARISON OF SINGLE-UNIT CONTROL ROD AND MODULAR (SEGMENTED) ROD (HTGR TYPE). (2) DETERMINATION OF INTERACTION OF CONTROL RODS AS A FUNCTION OF DISTANCE BETWEEN THEM TO CHECK EXISTING ANALYTICAL TECHNIQUES (FOR FT. ST. VRAIN DUAL-ELEMENT CONTROL RODS). (3) BURNABLE-POISON INTERACTION STUDIES. (1) AND (3) WILL BE CONDUCTED WITH THE HTGR HEXAGONAL-LATTICE CORE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD INTERACTION + *POISON, BURNABLE + *RESEARCH AND DEVELOPMENT PROGRAM + CONTROL ROD WORTH +
CRITICAL ASSEMBLY FACILITY + REACTOR, HIGH TEMP. GAS

9-20843 ALSO IN CATEGORY 17
BONUS PROPOSED CHANGE 6--CONTROL ROD MODIFICATIONS
PUERTO RICO WATER RESOURCES AUTHORITY
4 PAGES, DOCKET NO. 115-4, NOVEMBER 19, 1967

MODIFICATION OF REMAINING 17 RODS IN SAME WAY AS FOR TWO PERIPHERAL RODS (CHANGE 3). INCLUDES ADDITION OF A TORQUE SPRING ON DRIVE-MOTOR ASSEMBLY AND AN OIL RESERVOIR FOR THE SHOCK ABSORBER. OBJECT WAS TO LOWER ROD-DROP TIMES CONSIDERABLY. FULL-OUT DROP TIMES FOR MODIFIED RODS WERE BETWEEN 1.3 AND 1.5 SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD SCRAM MECHANISM + *MODIFICATION, SYSTEM OR EQUIPMENT + *RESPONSE TIME +
BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

9-20845 ALSO IN CATEGORIES 17 AND 6
GULF GENERAL ATOMIC TRIGA MARK III PROPOSED CHANGE--DIFFERENT METHOD OF SHUTDOWN MARGIN DETERMINATION
GULF GENERAL ATOMIC
3 PAGES, DOCKET 50-227, NOVEMBER 16, 1967

ASKS TO REPLACE PRESENT NEGATIVE-PERIOD-MEASUREMENT TECHNIQUE BY DIFFERENTIAL ROD-DROP METHOD DESCRIBED ON PAGES 256-257, TECHNOLOGY OF NUCLEAR REACTOR SAFETY, REACTOR PHYSICS AND CONTROL, VOL. 1. CHANGE WOULD ALLOW EITHER TECHNIQUE TO BE USED TO ENSURE A 10 CENT SHUTDOWN MARGIN EVEN WITH THE MOST REACTIVE ROD STUCK OUT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD WORTH + *MEASUREMENT, REACTIVITY + *SHUTDOWN MARGIN + REACTOR, RESEARCH +
TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

9-20846 ALSO IN CATEGORY 17
COLUMBIA UNIVERSITY OF NEW YORK SUBMITS MODIFIED SCRAM CIRCUIT DIAGRAM INCLUDING LOW POOL LEVEL TRIP
COLUMBIA UNIVERSITY, NEW YORK

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-20846 *CONTINUED*
2 PAGES, 1 FIGURE, DOCKET 50-208, NOVEMBER 22, 1967

IN RESPONSE TO AEC QUESTIONS, A REVISED FIGURE 2 (MAGNET AND SCRAM CIRCUIT) OF FAILURE-MODE ANALYSIS WAS SUBMITTED SEPTEMBER 28, 1967. ***GENERAL ATOMIC ASSURES THAT CHASSIS GROUND AND AC NEUTRAL ARE COMPLETELY SEPARATE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*INSTRUMENTATION, LIQUID-LEVEL DETECTION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.).

9-21095
PWR-2 AXIAL FLUX MEASUREMENT SYSTEM EQUIPMENT SPECIFICATION 568319. INSTRUCTION BOOK
EAMCO, INC., HATBORO, PA.
WAPD-PWR-2226 +. 193 PAGES, MARCH 1966

PRESENTS DESCRIPTION, INSTALLATION, OPERATIONAL INSTRUCTIONS, AND MAINTENANCE PROCEDURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, NUCLEAR + FLUX DISTRIBUTION + MAINTENANCE AND REPAIR + NEUTRON + OPERATION + PROCEDURES AND MANUALS + REACTOR, PRESSURIZED WATER + SHIPPINGPORT

9-21150
PLANTE J
APPARATUS FOR CONTROLLING A NUCLEAR REACTOR BY ABSORBENT GAS AND DEVICE FOR ITS APPLICATION
COMMISSARIAT A L ENERGIE ATOMIQUE
BRITISH PATENT 1,057,397 +. 4 PAGES, 4 FIGURES, FEBRUARY 1, 1967

PRESSURE VARIATION OF A NEUTRON-ABSORBENT GAS MIXTURE EITHER IN THE CORE OR REFLECTOR IS USED TO CONTROL THE REACTOR. THE GASEOUS MIXTURE IS INCLUDED IN THE PRIMARY COOLANT STREAM. METHODS AND APPARATUS ARE DESCRIBED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C., 2, ENGLAND, \$0.49 COPY

*INSTRUMENTATION, CONTROL + *INSTRUMENTATION, FLOW + *INSTRUMENTATION, PRESSURE + *REACTOR CONTROL + NEUTRON + NOZZLE + PATENT + UNITED KINGDOM + VALVE

9-21151
AOKI R
REACTOR CONTROL DEVICE
HITACHI, LTD.
JAPANESE PATENT 1966-3597 +. 4 PAGES, 5 FIGURES, MARCH 2, 1966

THE REACTOR CONTROL DEVICE UTILIZES THE FACT THAT WHEN THE NEUTRONS PENETRATE THROUGH BODIES OF FE, CO, ETC., HIGHLY MAGNETIZED IN CERTAIN DIRECTIONS, THE PENETRATION AND REFLECTION OF THE NEUTRONS DIFFER, DEPENDING UPON THE DIRECTION OF SPIN DEFLECTION OF THE NEUTRONS. WITHIN OR SURROUNDING THE REACTOR CORE, TWO LAYERS OF HIGHLY MAGNETIZED BODIES ARE INSTALLED. THE NEUTRON DENSITY IN THE CORE CAN BE CONTROLLED BY CHANGING ELECTRICALLY THE MAGNETIC INTENSITIES AND/OR MAGNETIZING DIRECTIONS OF THE TWO LAYERS.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

*NEUTRON INTERACTION + *REACTOR CONTROL + JAPAN + NEUTRON + PATENT

9-21152
IWAI S
DEVICE FOR RELEASING A REACTOR SAFETY ROD
MITSUBISHI ATOMIC POWER INDUSTRIES, LTD.
JAPANESE PATENT 1965-27275 +. 4 PAGES, 3 FIGURES, NOVEMBER 30, 1965

THE DEVICE CONSISTS OF AN INTERMEDIATE MEMBER INSERTED AROUND THE SUPPORT ROD OF A SAFETY ROD. A CONTACT MEMBER IS DRIVEN BY THE ELECTROMAGNET AND HOLDS UP THE INTERMEDIATE MEMBER WHEN IT ENGAGES WITH THE LATTER, AND RELEASES IT DOWN WHEN DISENGAGED. A HOOK, SUPPORTED BY A FIXED MEMBER, ENGAGES WITH THE SAFETY-ROD SUPPORT ROD IN THE NORMAL CONDITION (THE HOLDING-UP CONDITION). THE INTERMEDIATE MOVABLE MEMBER AND THE HOOK ARE SO ARRANGED THAT WHEN THE FORMER DROPS, THE HOOK DISENGAGES FROM THE ROD SUPPORT, THEREBY PERMITTING THE SAFETY ROD TO DROP DOWN FOR REACTOR SCRAM.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

*CONTROL ROD SCRAM MECHANISM + JAPAN + PATENT

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-21153
HOEHNE P
METHOD AND DEVICE FOR THE CONTROL OF NUCLEAR REACTORS
SIEMENS-SCHUCKERTWERKE AKTIENGESSELLSCHAFT
GERMAN PATENT 1,217,517 +. 3 PAGES, MAY 26, 1966

THE METHOD FOR CONTROLLING SMALL POWER REACTORS BY MEANS OF CONTROL RODS CONSISTS IN INTEGRATING A VALUE OF A CURRENT PRODUCED BY A DETECTOR LOCATED NEAR THE CORE OF THE REACTOR DURING EQUAL AND SUCCESSIVE INTERVALS OF TIME, AND CHANGING THE POSITION OF THE CONTROL RODS ACCORDINGLY DURING EQUAL INTERVALS. THE DEVICE COMPRISES AN ANALOG-DIGITAL TRANSDUCER FOR THE INTEGRATION SIGNALS, COMPARATORS FOR THE LOGIC EVALUATION OF SUCCESSIVE INTEGRATION SIGNALS, AND A COMMON TIME TAPPER.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

*IN CORE MEASUREMENT + *INSTRUMENTATION, IN CORE + GERMANY + INSTRUMENTATION, CURRENT + PATENT

9-21154
SPIES J
ELECTROMAGNETIC COLLISION IMPULSE TRANSMITTER FOR SHUTDOWN DEVICES OF NUCLEAR REACTORS
GESELLSCHAFT FUER KERNFORSCHUNG MBH
GERMAN PATENT 1,216,449 +. 2 PAGES, 1 FIGURE, MAY 12, 1966

AN ELECTROMAGNETIC COLLISION MOMENTUM GENERATING DEVICE WHICH COMPRISES A COIL, A FERRO-MAGNETIC YOKE, AND A PERMANENT MAGNET ADJACENT TO THE YOKE TO WHICH THE CONTROL ROD IS ATTACHED ACCORDING TO PATENT 1,206,536 IS IMPROVED IN THAT A MUTUAL INDUCTION CONSTRUCTED IN THE SHAPE OF A SHORT-CIRCUITING RING IS ATTACHED TO THE PERMANENT MAGNET.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

*EQUIPMENT DESIGN + *INSTRUMENTATION, CONTROL + *SHUTDOWN MECHANISM, SELF + GERMANY + PATENT

9-21155
VON EICKE A + STUERMER W
DEVICE FOR BRAKING A SHUTDOWN ROD IN A NUCLEAR REACTOR
BROWN, BOVERI/KRUPP REAKTORBAU GMBH
GERMAN PATENT 1,216,448 +. 3 PAGES, MAY 12, 1963

A CONTROL ROD FALLING TO THE CLOSED LOWER END OF A CONTROL TUBE IS PROVIDED WITH A PAIR OF FRICTION PLATES AT ITS LOWER END FOR ENGAGEMENT WITH THE WALL OF THE TUBE. THE FRICTION PLATES AND A PISTON BELOW THE FRICTION PLATES AND FREELY SLIDABLE IN THE TUBE FORM THE MOVABLE LINKS OF A PARALLELOGRAM LINK MECHANISM, AND THE LOWER END OF THE CONTROL ROD CONSTITUTES THE FIXED LINK OF THE MECHANISM.

AVAILABILITY - U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

*CONTROL ROD SCRAM MECHANISM + GERMANY + PATENT

9-21839 ALSO IN CATEGORY 18
DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
INDIANA AND MICHIGAN ELECTRIC COMPANY
273 PAGES, 38 TABLES, 87 FIGURES, REFERENCES, DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, DECEMBER 18, 1967, DOCKET 50-315/316

VOL. II CONTAINS (6) ENGINEERED SAFETY FEATURES, (7) 1 AND C, (8) ELECTRICAL SYSTEMS, (9) AUX. AND EMERGENCY SYSTEMS, (10) STEAM SYSTEMS, (10) STEAM SYSTEM AND (11) WASTE-DISPOSAL SYSTEM. ENGINEERED SAFETY FEATURES INCLUDE (A) EMERGENCY CORE COOLING SYSTEM (BORATED WATER INJECTION), AND (B) CONTAINMENT SPRAY (WITH AN IODINE-REMOVAL ADDITIVE). ISOLATION OF REDUNDANT PROTECTION-SYSTEM CHANNELS IS DONE BY SEPARATION OF PROCESS SENSORS, BY USING SEPARATE WIRE WAYS, CABLE TRAYS, CONDUIT RUNS, AND PENETRATION, AND BY USING SEPARATE PROTECTION RACK FOR THE ANALOG EQUIPMENT. EACH ANALOG UNIT DRIVES TWO LOGIC RELAYS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENGINEERED SAFETY FEATURE + *INDEPENDENCE + *REDUNDANCE + COOK 1 AND 2 (PWR) + FAILURE, SEQUENTIAL + INSTRUMENTATION, PROTECTIVE + PLANT PROTECTIVE SYSTEM + REACTOR SAFETY SYSTEM + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

9-21840 ALSO IN CATEGORY 18
COOK 1 + 2 TURBINE LOADING AND CENTRAL LOAD CONTROL
INDIANA AND MICHIGAN ELECTRIC COMPANY
4 PAGES, PAGE 7.3-13 TO 7.3-16 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, DECEMBER 18, 1967, DOCKET 50-315/316

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-21840 *CONTINUED*

STEAM SUPPLY SYSTEM IS DESIGNED TO ACCEPT, WITHOUT A PLANT TRIP, A 10% LOAD CHANGE AND AUTOMATIC RAMP LOADING AND UNLOADING BETWEEN 15 AND 100% FULL POWER. SYSTEM LOAD CONTROL BY AEP USES A CENTRAL COMPUTER, LOCATED AT CANTON, OHIO, AND CONSIDERS FUEL COSTS AND TRANSMISSION LOSSES. CONTROL SIGNAL IS A PULSE (PROPORTIONAL TO THE DESIRED CHANGE), WHOSE DURATION CAN BE VARIED FROM 0.2 TO 1.2 SEC AND CAN BE REPEATED AS OFTEN AS EVERY 25 SEC. PULSE LENGTH IS DETERMINED BY THE RESPONSE RATE OF THE PARTICULAR FACILITY. AT THE COMPUTER, A CONTROL PANEL FOR EACH UNIT INCLUDES MANUAL ADJUSTMENTS FOR UPPER LIMIT, LOWER LIMIT, AND NORMAL GENERATION SET POINTS (SIMILAR PANEL AT THE REACTOR). THE CONTROL PULSES OPERATE THE TURBINE-GOVERNOR MOTOR. OPERATOR ACTION TAKES THE SYSTEM OUT OF COMPUTER CONTROL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 2043

*REACTOR POWER + COMPUTER CONTROL + COOK 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURBINE

9-21848 ALSO IN CATEGORY 17

N.S. SAVANNAH ANSWERS 5 QUESTIONS ON PROPOSED CHANGE 8--CONTROL ROD FAILURE
FIRST ATOMIC SHIP TRANSPORT INC.

10 PAGES, 1 FIGURE, 2 TABLES, DOCKET 50-238 TYPE--PWR, MFG--B+W, AE--G.G. SHARP, DECEMBER 13, 1967

PROPOSED CHANGE COVERS OPERATION WITH DISABLED CONTROL-ROD DRIVES AND/OR STUCK CONTROL RODS. QUESTIONS WERE CONTAINED IN AN OCTOBER 9, 1967, DRL LETTER. ORIGINAL PROPOSED CHANGE REQUESTED THAT OPERATION BE PERMITTED IF A CERTAIN SHUTDOWN MARGIN LIMIT WAS EXCEEDED (2% IN START MODE, 5% IN RUN MODE). HOWEVER, THEY WISH TO MODIFY THIS TO MAKE THE LIMITS 5% COMPLETELY WITHDRAWN SCRAMBLE RODS IN START MODE AND 8% COMPLETELY SCRAMMABLE RODS IN RUN MODE. MINIMUM WORTH OF 5 RODS AT 68 F IS 1.99%. MINIMUM WORTH OF 8 RODS AT 508 F IS 4.89%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *SHUTDOWN MARGIN + AEC QUESTION + CONTROL ROD DRIVE + CONTROL ROD WORTH + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

9-21849 ALSO IN CATEGORY 17

QUESTION 1--CALCULATIONS TO DETERMINE SHUTDOWN CAPABILITY
FIRST ATOMIC SHIP TRANSPORT INC.

1 PAGE, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP, DECEMBER 13, 1967

DISCUSS THE ACCURACY OF THE CALCULATIONAL PROCEDURE TO BE USED BY THE OPERATOR IN DETERMINING THE CORE SHUTDOWN CAPABILITIES AND WHETHER OR NOT CONTINUED REACTOR OPERATION WILL BE PERMITTED. ***(ANSWER) ROD WORTHS WERE CALCULATED DURING DESIGN AND CHECKED BY EXPERIMENT. TOTAL ROD-WORTH VALUES AGREE VERY WELL, BUT THERE IS AS MUCH AS 5% ERROR IN SHAPE OF ROD-WORTH CURVE. IT IS ASSUMED THAT READOUT ERROR IS 5%, RESULTING IN A POSSIBLE 10% ERROR AT THE MIDPOINT BUT ONLY 1-2% AT FULL WITHDRAWN. TOTAL ROD WORTH WAS FOUND TO BE 16% (VS 15% PRESENTLY IN TECHNICAL SPECIFICATIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ERROR ANALYSIS + *FAILURE, SCRAM MECHANISM + *SHUTDOWN MARGIN + CONTROL ROD WORTH + MATHEMATICAL TREATMENT + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER

9-21899

HILBORN HS

USAEC-AECL COOPERATIVE PROGRAM MONTHLY PROGRESS REPORT. JULY 1966

SAVANNAH RIVER LABORATORY

DPST-66-83-7 +. 9 PAGES, FIGURE, TABLES, AUGUST 8, 1966

SAVANNAH RIVER LABORATORY--MONTHLY PROGRESS REPORT FOR JULY 1966. THIS REPORT IS ONE OF A SERIES OF SUCH REPORTS CONCERNING THE COOPERATIVE EFFORTS BETWEEN THE U.S. AND CANADIAN GOVERNMENTS ON THE DEVELOPMENT OF HEAVY-WATER-MODERATED POWER REACTORS. THE TOPICS COVERED ARE - (1) PHYSICS EXPERIMENTS WITH FUEL ASSEMBLIES SIMULATING BURNED-UP FUEL, (2) AECL IN-CORE FLUX MONITORS, AND (3) SIEVE-TRAY TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CANADA + FLUX, INTEGRATED + FUEL BURNUP + HEAT TRANSFER + INSTRUMENTATION, IN CORE + IRRADIATION TESTING + REACTOR, HEAVY WATER + SAVANNAH RIVER PLANT + TESTING + UNITED STATES

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-17894 ALSO IN CATEGORY 9
NIELSEN P
INSTRUMENTATION AND CONTROL OF POWER PLANTS. A REVIEW
ATOMENERGIKOMMISSIONEN, RISØE, DENMARK. FORSØEGSINSTITUT
RISO-M-312 +. 32 PAGES, SEPTEMBER 1965

REVIEWS TRENDS IN INSTRUMENTATION AND CONTROL OF POWER PLANTS. SPECIAL ATTENTION IS GIVEN TO THE PROBLEMS INVOLVED IN USING PROCESS COMPUTERS AND WIRED PROGRAM SYSTEMS MADE OF SOLID-STATE LOGIC MODULES. DETAILS ARE GIVEN OF BOTH SYSTEMS AS APPLIED TO INSTRUMENTATION AND CONTROL OF TURBINES.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

COMPUTER CONTROL + ELECTRIC POWER, GENERAL + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROCESS

10-17897 ALSO IN CATEGORY 9
PEDERSON OM
AUTOMATIC INSTRUMENTATION FOR NUCLEAR POWER PLANT
DANISH ATOMIC ENERGY COMMISSION, RISØE. RESEARCH ESTABLISHMENT
RISO-M-462 +. 8 PAGES, 22 REFERENCES, SEPTEMBER 1966

THIS REPORT REVIEWS THE INSTRUMENTATION AND AUTOMATION OF NUCLEAR POWER STATIONS, EXISTING AND PLANNED, NOTING EXPERIENCES AND TRENDS. THE TRENDS OF CONVENTIONAL POWER PLANTS IS ALSO COVERED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

ELECTRIC POWER, GENERAL + INSTRUMENTATION, CONTROL + INSTRUMENTATION, GENERAL + INSTRUMENTATION, PROCESS + REACTOR, POWER

10-18456 ALSO IN CATEGORY 17
EMERGENCY GENERATOR FAILURE AT IRL
INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
3 PAGES, JULY 14, 1967, DOCKET NO. 50-17

(LETTER, JULY 14) GENERATOR (3 PHASE, 50 KW, 62.5 KVA, 174 AMPS/PHASE) FAILED TO START AUTOMATICALLY AFTER A POWER OUTAGE (22 JUNE 67) DUE TO OVERLOADING (PHASE A - 210 AMPS, B - 190, C - 200). LOAD WAS REDUCED TO 166, 134, AND 146 RESPECTIVELY. EQUIPMENT HAD BEEN TESTED 6 TIMES IN LAST 13 MONTHS (3 TIMES IN LAST MONTH), 4 OF WHICH WERE ACTUAL POWER OUTAGES, WITH SATISFACTORY RESULTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAILURE, EQUIPMENT + *TEST INTERVAL + EMERGENCY POWER, ELECTRIC + GENERATOR, DIESEL + REACTOR, POOL TYPE + REACTOR, RESEARCH

10-18459 ALSO IN CATEGORY 17
PLUM BROOK CHANGE 21. EMERGENCY GENERATOR REPLACE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, CLEVELAND, OHIO
1 PAGE, SEPTEMBER 11, 1967, DOCKET 50-30

DRL ALLOWS PLUM BROOK TO REPLACE 4 OLD DIESEL GENERATORS FOR 2 LARGER NEW ONES. FORMER UNITS (3 - 187 KVA, 1 - 100 KVA) REQUIRED EXCESSIVE MAINTENANCE. ONE OF THE NEW UNITS (625 KVA EACH) WILL BE OPERATED CONTINUOUSLY AT A LOAD EQUAL TO THE EMERGENCY LOAD WHENEVER REACTOR OPERATES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*EMERGENCY POWER, ELECTRIC + GENERATOR, DIESEL + PLUM BROOK + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

10-18505
KING AE
DESIGN STUDY - ELECTRICAL COMPONENT TECHNOLOGY FOR 0.25 TO 10.0 MEGAWATT SPACE POWER SYSTEMS. QUARTERLY TECHNICAL PROGRESS REPORT NO. 3
WESTINGHOUSE ELECTRIC CORP., LIMA, OHIO
SAN-679-3 +. 93 PAGES, FIGURES, TABLES, MAY 31, 1967

ONE OF A SERIES OF PROGRESS REPORTS DIRECTED TOWARD DEFINING REPRESENTATIVE RANKINE NUCLEAR SPACE POWER ELECTRICAL SYSTEMS, THE ELECTRICAL COMPONENTS THEREIN, AND THEIR DEVELOPMENT PROBLEMS. ELECTRICAL POWER SYSTEMS ARE PRESENTED TO ILLUSTRATE ELECTRICAL LOAD BREAKDOWN ON PROBABLE MISSIONS REQUIRING 0.25 TO 10.0 MW OF POWER. NO FURTHER REPORTS IN THIS SERIES WILL

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-18505 *CONTINUED*
BE SUMMARIZED UNLESS A SIGNIFICANT CHANGE IN THE PROGRAM OR A SIGNIFICANT ITEM OF INTEREST TO NSIC IS REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + SPACECRAFT

10-18919 ALSO IN CATEGORIES 9 AND 17
SCOTT RL
RELIABILITY ESTIMATES AND REACTOR-SAFETY-SYSTEM OPERATION
OAK RIDGE NATIONAL LAB., TENN.
4 PAGES, 1 TABLE, 1 REFERENCE, NUCLEAR SAFETY 8(5), PAGE 479 THRU 482, (OCTOBER 1967)

SUMMARIZES TWO PAPERS PRESENTED AT THE WINTER 1966 MEETING OF THE AMERICAN NUCLEAR SOCIETY. ONE PAPER DISCUSSES DATA OBTAINED FROM FIVE POWER-REACTOR OPERATING AGENCIES IN ORDER TO MAKE RELIABILITY ESTIMATES. SINCE THE DATA WERE OBTAINED FOR PURPOSES OTHER THAN RELIABILITY PREDICTION, IT HAS LIMITED APPLICABILITY. RELIABILITY ESTIMATES ARE PRESENTED FOR EMERGENCY CORE-COOLING SYSTEMS, EMERGENCY POWER SYSTEMS, AND SECONDARY SHUTDOWN SYSTEMS. THE OTHER PAPER DISCUSSES REACTOR-SAFETY-SYSTEM OPERATION DATA OBTAINED FROM THE SAME FIVE POWER-GENERATING PLANTS. THE COMPOSITE DATA INDICATE THAT REAL AND SPURIOUS SCRAM RATES ARE EACH BETWEEN FIVE AND SIX PER YEAR. MOST OF THESE SCRAMS OCCURRED AT LOW REACTOR POWER AND PRODUCED ONLY ONE OR TWO POWER-GENERATION OUTAGES PER YEAR.

OPERATING EXPERIENCE + REACTOR, POWER + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM

10-19288 ALSO IN CATEGORIES 12 AND 18
AMENDMENT 18-5 - SINGLE FAILURE IN DC POWER SYSTEMS FOR ENGINEERED SAFEGUARDS
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 5-1, OCTOBER 1967, DOCKET NO. 50-219

ASSERTS DC POWER SYSTEM MEETS SINGLE-FAILURE CRITERION FOR REDUNDANCY OF CIRCUITRY AND COMPONENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY POWER, ELECTRIC + *ENGINEERED SAFETY FEATURE + *SINGLE FAILURE CRITERION + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

10-19289 ALSO IN CATEGORY 18
AMENDMENT 18-6 - DIESEL FUEL OIL SUPPLY AND REPLENISHMENT
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 6-1, OCTOBER 1967, DOCKET NO. 50-219

A 15,000-GAL STORAGE TANK IS BEING PROVIDED, SUFFICIENT FOR 3 DAYS AT FULL LOAD FOR ONE 2.5-KW DIESEL. MONTHLY TEST OPERATION WILL CONSUME 500 GAL, AND TANK WILL BE KEPT FULL. TRUCK DELIVERY CAN BE MADE FROM A VARIETY OF PLACES IN 2-3000-GAL LUIS. THE 75,000 GAL HEATING BOILER SUPPLY ON SITE COULD BE USED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENERGY SOURCE + *GENERATOR, DIESEL + FUEL BURNUP + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

10-20022
EMERGENCY GAS TURBINES FOR OLOBURY, THREE 2.5MW SETS IN SERVICE
2 PAGES, 2 FIGURES, ELECTRICAL TIMES 151, PAGES 378-9 (MARCH 9, 1967)

DESCRIBES THE EMERGENCY POWER SUPPLY SYSTEM FOR THE 600-MW(IE) NUCLEAR POWER STATION. EACH SET COMPRISES AN OPEN-CYCLE, TWIN-SHAFT, PROTEUS GAS TURBINE DEVELOPING 4,250 HP. THE 1,000-RPM 50-CPS ALTERNATOR IS DRIVEN BY AN INDEPENDENT TWO-STAGE AXIAL LOW-PRESSURE TURBINE. KEROSENE IS USED TO AVOID COLD-STARTING PROBLEMS.

*ELECTRIC POWER, AUXILIARY + *EMERGENCY POWER, ELECTRIC + ELECTRIC POWER, VITAL + OLOBURY (UK) + REACTOR, GAS COOLED + REACTOR, POWER + UNITED KINGDOM

10-20033 ALSO IN CATEGORY 9
HORN L
NUCLEAR STANDARD GUIDE FOR CLASSIFYING ELECTRICAL INSULATING MATERIAL EXPOSED TO NEUTRON AND GAMMA RADIATION
UNDERWRITERS LABORATORIES, INC., NORTHBROOK, ILLINOIS
5 PAGES, 1 TABLE, IEEE TRANS. NUCLEAR SCIENCE 14(4), PAGES 67-71 (AUGUST 1967)

THE PURPOSE OF THIS GUIDE IS TO CLASSIFY THE ENVIRONMENTAL CONDITIONS OF GAMMA RADIATION,

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-20033 *CONTINUED*

NEUTRON FLUX, AND TEMPERATURE IN WHICH ELECTRICAL INSULATING MATERIALS MUST OPERATE. THESE ENVIRONMENTAL CLASSIFICATIONS ARE APPLICABLE TO THE SPECIFICATION AND SELECTION OF THE APPROPRIATE TYPES OF ELECTRICAL INSULATION FOR NONMILITARY EQUIPMENT AND DEVICES WHICH WILL BE EXPOSED TO NUCLEAR RADIATION.

*DESIGN CRITERIA + *EQUIPMENT DESIGN + *INSTRUMENTATION, COMPONENT + MATERIAL

10-20448 ALSO IN CATEGORY 17
FAILURE OF EMERGENCY GENERATOR AT ONSET OF OFF-SITE POWER FAILURE
AEC, DIVISION OF OPERATIONAL SAFETY
2 PAGES, REACTOR SAFETY OPERATING EXPERIENCE 67-15, NOVEMBER 17, 1967

LOAD ON 3-PHASE 50-KW GENERATOR HAD BEEN GRADUALLY INCREASED TO 67 KW BY EQUIPMENT ADDITIONS, CAUSING IT TO REJECT LOAD AT START OF 1.67-HR POWER OUTAGE AT A RESEARCH REACTOR. A THERMAL OVERLOAD SWITCH ON HIGH STATION TEMPERATURE IS PRESUMED TO HAVE SHUT DOWN THE GENERATOR. PREVIOUSLY, SIMULATED AND ACTUAL POWER FAILURES HAD STARTED THE GENERATOR. EACH ADDITION SHOULD DETERMINE IF LOAD IS ESSENTIAL, DOES NOT OVERLOAD GENERATOR (USING STARTING CURRENT), AND DOES NOT INCREASE PROBABILITY OF BUS FAILURE.

AVAILABILITY AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*EMERGENCY POWER, ELECTRIC + *FAILURE, EQUIPMENT + *GENERATOR, DIESEL + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, ACTUAL, HUMAN ERROR + REACTOR, RESEARCH

10-20513 ALSO IN CATEGORY 17
INDIAN POINT 1 CHANGE 32
DIVISION OF REACTOR LICENSING, AEC
1 PAGE, NOVEMBER 8, 1967, DOCKET 50-3

DRL ALLOWS CHANGE IN SITE DESCRIPTION FROM 250 TO 235 ACRES TO REFLECT CEDING OF A PORTION OF THE NW CORNER TO THE VILLAGE OF BUCHANAN FOR PARK AND RECREATIONAL PURPOSES. PARK BOUNDARY IS 2100 FT, VS 1600 FT FOR EXCLUSION RADIUS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*SITING, REACTOR + INDIAN POINT 1 + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

10-20519 ALSO IN CATEGORY 17
BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT NO. 6
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
18 PAGES, 3 TABLES, JUNE 1967, DOCKET NO. 115-4

TWO SCRAMS OCCURRED FROM FAILURES ASSOCIATED WITH THE M-G SET SUPPLYING THE INSTRUMENTATION BUS LOAD, ONE DUE TO RECTIFIER FAILURE, OTHER DUE TO ARCING AT COLLECTOR RING BRUSHES. MAIN PROBLEM WITH M G SET IS SHIFT ON COLLECTOR RING ECCENTRICITY. ONE SCRAM RESULTED WHEN OPERATOR FAILED TO DEACTIVATE THE MINIMUM-FLOW BYPASS-VALVE SCRAM SWITCH WHEN SHUTTING DOWN. MODIFICATIONS TO 2 CONTROL-ROD-DRIVE ASSEMBLIES FOR IMPROVED OPERATION WERE COMPLETED. CONTAINMENT-REDUCING AIR ACTIVITY CONTINUED TO INCREASE AFTER SCRAMS OR TRANSIENT CONDITIONS DUE TO LEAKAGE AROUND VARIOUS VALVE PACKINGS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, EQUIPMENT + AIRBORNE RELEASE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTAINMENT, GENERAL + CONTROL ROD DRIVE + ELECTRIC POWER, VITAL + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS REPORT, GENERAL + REACTOR, INTERNAL SUPERHEAT + SCRAM, SPURIOUS

10-20566 ALSO IN CATEGORY 9
PARRISH JR + ROY GM + BAILY FG
NUCLEAR PLANT DETAILS
GENERAL ELECTRIC, SCHENECTADY + GENERAL ELECTRIC, PLEASANTON, CALIF. + TENNESSEE VALLEY AUTHORITY
3 PAGES, 2 FIGURES, POWER ENGINEERING 71(11), PAGE 48-50, (NOV. 1967)

MAIN CONTROL ROOM WILL CONTAIN THE EQUIPMENT FOR CONTROL, RECORDING, INDICATING, AND ANNUNCIATION OF REACTOR AND STEAM SYSTEMS. STARTUP AND UNIT STATION SERVICE TRANSFORMERS WILL HAVE DOUBLE SECONDARY WINDINGS TO PREVENT EXCESSIVE INTERRUPTING DUTY BEING IMPOSED ON THE LOAD-SIDE CIRCUIT BREAKERS. EMERGENCY GENERATORS WILL PROVIDE POWER FOR SAFE REACTOR AND TURBOGENERATOR SHUTDOWN. THIS INCLUDES SUCH EQUIPMENT AS RESIDUAL-HEAT REMOVAL AND CORE-SPRAY PUMPS, STANDBY GAS-TREATMENT FANS, BATTERY CHARGERS, AND EMERGENCY LIGHTING. ALL ELEMENTS OF THE AUXILIARY POWER SYSTEM WILL HAVE ENOUGH REDUNDANCY TO ENSURE SAFE OPERATION OF THE PLANT. TWO 120-CELL, 250-V STORAGE BATTERIES WILL PROVIDE POWER FOR EMERGENCY LIGHTING, CONTROL DEVICES, SWITCHGEAR, AND OTHER EQUIPMENT THAT MUST HAVE AN UNINTERRUPTED POWER SUPPLY.

ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + ELECTRIC POWER, SHUTDOWN + ELECTRIC POWER, VITAL + INSTRUMENTATION, CONTROL

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-20567

BRATZLER GE + MCMURRAY TR
GENERATOR SET AVAILABILITY
BECHTEL CORPORATION

4 PAGES, 2 FIGURES, 3 TABLES, POWER ENGINEERING 71(11), PAGE 51-54, (NOV. 1967)

IN DESIGNING A POWER PLANT FOR HIGH RELIABILITY, ESTIMATES OF MAINTENANCE AND SPARE UNIT REQUIREMENTS MUST BE QUITE ACCURATE. THE MONTE CARLO TECHNIQUE EFFECTIVELY SIMULATES RANDOM EQUIPMENT FAILURES, AND ITS COST IS LOW. AN EXAMPLE IS PRESENTED FOR DIESEL ENGINE AND GAS-TURBINE PRIME-MOVERS.

*DESIGN CRITERIA + *ELECTRIC POWER, AUXILIARY + *RELIABILITY ANALYSIS + MONTE CARLO +
THEORETICAL INVESTIGATION

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-15857
UTKU S
COMPUTATION OF STRESSES IN TRIANGULAR FINITE ELEMENTS
CALIFORNIA INSTITUTE OF TECHNOLOGY
JPL-TR-32-948 +. 29 PAGES, FIGURES, 3 TABLES, 7 REFERENCES, JUNE 15, 1966

DESCRIBES THE CALCULATION OF STRESSES IN LINEAR THIN SHELLS OF ANISOTROPIC MATERIAL, USING THE DEFLECTIONS OBTAINED BY THE FINITE-ELEMENT METHOD. THE STRESS-STRAIN AND FORCE-DEFLECTION RELATIONS FOR AN INDIVIDUAL ELEMENT ARE DERIVED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 CPY, 0.65 MICROFICHE

*ELASTICITY + *SHELL + *STRESS ANALYSIS + COMPUTER PROGRAM + STRESS

11-16576 ALSO IN CATEGORY 18
SUPPLEMENT TO SRE SAFETY ANALYSIS REPORT. A PLAN FOR USE OF A FAST-REACTOR FUEL TEST SECTION IN THE SRE ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-11234 +. 78 PAGES, FIGURES, MAY 3, 1965

SRE MODIFICATIONS INCLUDE REPLACEMENT OF THE CENTRAL SEVEN PEP MODERATOR ELEMENTS BY A FAST-FUEL FLUX-TRAP TEST SECTION, ADDITION OF A 20-MW(T) HEAT SINK TO THE HEAT-TRANSFER SYSTEM TO ALLOW 50-MW(T) OPERATION, IMPROVEMENT OF ENVIRONMENTAL CONTROL AROUND FAST FUEL ELEMENTS DURING FUEL HANDLING, AND CHANGES IN SERVICE FACILITIES. CONCLUSIONS - (1) TECHNICALLY, NO ADDITIONAL BUILDING CONTAINMENT NEEDED BECAUSE OF ADDITION OF FAST TEST SECTION. (2) FOR UNMODIFIED REACTOR, ENERGY RELEASE OF UP TO 50 LB OF TNT WILL NOT LIFT THE LOADING FACE SHIELD OR DAMAGE CORE TANKS. (3) ADDITIONAL CONSTRAINT OF LOADING-FACE SHIELD NEEDED FOR LARGER RELEASES, BUT THOSE UP TO 200 LB OF TNT CAN BE CONTAINED. (4) PRESENCE OF PU DOES NOT MATERIALLY AFFECT SITE-BOUNDARY DOSE RATE WITH NONCREDIBLE DETONATION ACCIDENT OF UP TO 50 LB OF TNT. (5) ADDITION OF PUO2 FUEL DOES NOT SUBSTANTIALLY ALTER RADIOLOGICAL CONSIDERATIONS AT SITE BOUNDARY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*IN PILE EXPERIMENT + CONTAINMENT DESIGN + IRRADIATION TESTING + REACTOR, FLUX TRAP + REACTOR, LIQUID METAL COOLED + SAFETY ANALYSIS REPORT, GENERAL + SRE (SODIUM REACTOR EXPERIMENT)

11-17541 ALSO IN CATEGORY 17
YANKEE CHANGE 75. CONTAINMENT LEAKAGE RATE RETEST SPECIFICATIONS
AEC, DIVISION OF REACTOR LICENSING
21 PAGES, 2 FIGURES, 1 TABLE, MARCH 28, 1967, DOCKET NO. 50-29, YANKEE ATOMIC ELECTRIC CO.

YANKEE INSTITUTES TESTING OF CONTAINMENT LEAKAGE RATES IN ACCORDANCE WITH AEC GUIDELINES. INTEGRATED-LEAK-RATE TESTS AT 22 PSIG (NORMAL PRESSURE, 34.5 PSIG) WILL BE MADE AT LESS THAN 4-YEAR INTERVALS. CALCULATIONS OF MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE ARE BASED ON DATA IN YAE-1007.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT, HIGH PRESSURE + *TEST, LEAK RATE + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + YANKEE

11-17840 ALSO IN CATEGORY 17
IRIATE M
BONUS ASKS PERMISSION TO DELAY BUILDING LEAK TEST
PUERTO RICO WATER RESOURCES AUTHORITY
2 PAGES, AUGUST 8, 1967, DOCKET NO. 115-4

BONUS ASKS DELAY OF SEPT. 1967 TEST UNTIL DEC. 1967, WHEN A LONG-TERM SHUTDOWN IS SCHEDULED TO REPLACE THE CENTER CONTROL ROD. SEPT. 1964 TESTS SHOWED LEAK RATE TO BE 0.1% OF BUILDING VOLUME PER DAY (VS. 0.4% ALLOWED IN TECH. SPECS.), AND THERE IS NO REASON TO BELIEVE THAT THIS HAS CHANGED SIGNIFICANTLY. THE TEST REQUIRES REACTOR SHUTDOWN AND DEPRESSURIZATION FOR THREE WEEKS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONTAINMENT, LOW PRESSURE + *TEST INTERVAL + *TEST, LEAK RATE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTROL ROD BURNUP + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

11-18383
PRESTRESSED CONCRETE REACTOR VESSEL MODEL 2
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-18383 *CONTINUED*

GA-7150 +. 338 PAGES, 130 FIGURES, TABLES, REFERENCES, NOVEMBER 4, 1966

PCRV MODEL 2 WAS PRESSURIZED HYDRAULICALLY UP TO ITS REFERENCE PRESSURE OF 705 PSIG SEVERAL TIMES. PROGRESSIVE PRESSURE LEVELS WERE APPLIED TO THE VESSEL IN 100-PSI INCREMENTS BEFORE THE 705-PSIG REFERENCE PRESSURE WAS REACHED. FROM 3 TO 10 PRESSURE CYCLES WERE MADE AT EACH INCREMENT. 705 PSIG WAS HELD FOR 24 HR. DATA INDICATED THAT THE VESSEL WAS RESPONDING AS PREDICTED. THE VESSEL WAS ALSO PNEUMATICALLY TESTED TO 705 PSIG WITHOUT LEAKAGE OR CHANGE IN STRUCTURAL RESPONSE. PCRV MODEL 2 WILL EVENTUALLY BE HEATED INTERNALLY TO THE TEMPERATURE CONDITIONS THAT THE CONCRETE IS EXPECTED TO EXPERIENCE IN THE FORT ST. VRAIN VESSEL, AND TESTED AGAIN TO 705 PSIG. AFTER COOLDOWN, THE VESSEL WILL BE TESTED TO FAILURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + CONTAINMENT INSTRUMENTATION + CONTAINMENT VESSEL LOADING + REACTOR, GAS COOLED + STRESS ANALYSIS + TEST, PRESSURE VESSEL

11-18384

RASHID YR + OPLE FS

ANALYTICAL AND EXPERIMENTAL DETERMINATION OF TIME-DEPENDENT DEFORMATIONS OF PRESTRESSED CONCRETE REACTOR VESSELS

GENERAL DYNAMICS, GENERAL ATOMIC DIVISION, SAN DIEGO, CALIFORNIA

CONF-670-602 +. 1 PAGE, 1 FIGURE, 3 REFERENCES, TRANSACTIONS 10(1), PAGE 322, PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

AN ACCURATE EVALUATION OF THE TIME-DEPENDENT RESPONSE OF PRESTRESSED CONCRETE REACTOR VESSELS IS AN IMPORTANT CONSIDERATION FOR AN ADEQUATE DESIGN AND SURVEILLANCE OF SUCH STRUCTURES. THIS PRESENTATION DEALS WITH THE ANALYTICAL AND EXPERIMENTAL ASPECTS OF THIS TIME-DEPENDENT RESPONSE, WHICH IS GENERALLY CAUSED BY CREEP AND SHRINKAGE OF THE CONCRETE.

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + *STRESS ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + CONTAINMENT VESSEL LOADING + TEST, PRESSURE VESSEL

11-18454

ALSO IN CATEGORIES 9 AND 17

PLUM BROOK PROPOSED CHANGE 32. PENETRATION LEAK RATE, MAXIMUM FUEL BURNUP, AND CONTROL ROD DRIVES GUIDE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SANDUSKY, OHIO
5 PAGES, SEPTEMBER 7, 1967, DOCKET 50-30

(1) REQUESTS LONGER (YEARLY) LEAK-TEST INTERVAL ON UNMONITORED PENETRATIONS ON BASIS OF PAST EXPERIENCE. *** (2) INCREASE ALLOWED BURNUP FROM 100 TO 113 MWd ON BASIS OF OBSERVATION AT ORNL, WHERE 240 G ELEMENTS WERE DEPLETED TO 96 G U-235. *** (3) MODIFICATION OF CONTROL-ROD DRIVES TO PERMIT A PLANNED MODIFICATION OF CORE UPPER GRID (DIVIDING IT INTO 2 PARTS) TO FACILITATE RELOADING. ROLLER BEARING WILL BE REPLACED BY ROLLERLESS GUIDES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONTAINMENT PENETRATION, ELECTRICAL + *CONTROL ROD DRIVE + *FUEL BURNUP + *TEST INTERVAL + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + PLUM BROOK + REACTOR, RESEARCH + REACTOR, TEST + SUPPORT STRUCTURE + TECHNICAL SPECIFICATIONS + TEST, LEAK RATE

11-18478

ROCKENHAUSER W + NORTHUP TE + MARSH RO

A PCPV MODEL - PRESSURE TEST AND EVALUATION

GENERAL ATOMIC, DIVISION OF GENERAL DYNAMICS, SAN DIEGO, CALIFORNIA

GA-7301 +. 38 PAGES, 18 FIGURES, 1 TABLE, 9 REFERENCES, SEPTEMBER 1966, PAPER PRESENTED AT THE CONFERENCE ON PRESTRESSED PRESSURE VESSELS IN LONDON, MARCH 1967

THE MODEL PCPV DISCUSSED HERE HAS BEEN TESTED HYDRAULICALLY IN A SERIES OF INCREASING PRESSURE CYCLES TO 1720 PSIG (121 ATM), A PRESSURE ABOUT 3.5 TIMES THE HYPOTHETICAL OPERATING PRESSURE SET FOR THE VESSEL. THE TEST WAS TERMINATED BEFORE THE ULTIMATE STRUCTURAL STRENGTH OF THE VESSEL COULD BE REACHED BECAUSE OF FLUID LEAKAGE THROUGH A LINER CRACK. RESULTS FROM THE PRESSURE TESTS SHOWED THAT THE STATE OF STRAIN IN A PCPV SUBJECTED TO INTERNAL PRESSURE LOADING CAN BE PREDICTED QUITE ACCURATELY BY ELASTIC ANALYSIS IF SUITABLE MODIFICATIONS ARE MADE TO TAKE INTO ACCOUNT INITIAL INELASTIC EFFECTS. IT WAS ALSO FOUND THAT RELATIVELY CONVENTIONAL LIMIT-DESIGN TECHNIQUES CAN BE USED TO PREDICT THE APPROXIMATE FAILURE MODE AND PRESSURE LEVEL OF A PCPV.

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + COMPARISON, THEORY AND EXPERIENCE + CONTAINMENT INSTRUMENTATION + CONTAINMENT VESSEL LOADING + FAILURE, PRESSURE VESSEL + STRESS ANALYSIS + TEST, PRESSURE VESSEL + TEST, PROOF

11-18479

CAMPBELL-ALLEN D + DESAI PM

THE INFLUENCE OF AGGREGATE ON THE BEHAVIOUR OF CONCRETE AT ELEVATED TEMPERATURES

SCHOOL OF CIVIL ENGINEERING, UNIVERSITY OF SYDNEY, SYDNEY, N.S.W., AUSTRALIA

13 PAGES, 6 FIGURES, 9 TABLES, 9 REFERENCES, NUCLEAR SCIENCE AND ENGINEERING 6(1), PAGE 65 THRU 77, (AUGUST 1967)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-18479 *CONTINUED*

THREE AGGREGATES, A LIGHTWEIGHT EXPANDED SHALE, A FIRECLAY BRICK, AND A PURE LIMESTONE, WERE USED IN HIGH-STRENGTH CONCRETE SUBJECTED TO CYCLES OF TEMPERATURE UP TO 300 C. ALL CONCRETES SHOWED MARKED DETERIORATION OF MECHANICAL PROPERTIES, BUT THE EXTENT OF THE DETERIORATION WAS GOVERNED BY THE BREAKDOWN OF BOND BETWEEN THE AGGREGATE AND THE MORTAR. THIS BREAKDOWN WAS LEAST FOR THE FIRECLAY BRICK AND GREATEST FOR THE LIMESTONE, APPARENTLY OWING TO ALTERATION OF SMALL TRACES OF IRON COMPOUNDS. THE LIMESTONE CONCRETE SHOWED SOME DETERIORATION OF PROPERTIES AT 65 C, AND THE EXTENT WAS INFLUENCED BY THE CHEMICAL COMPOSITION OF THE CEMENT USED. EVIDENCE WAS FOUND OF CHANGES IN THE CEMENT AT THIS TEMPERATURE. ATTENTION IS DRAWN TO THE MAJOR IMPORTANCE OF AGGREGATE STABILITY ON THE PERFORMANCE OF CONCRETE AT ELEVATED TEMPERATURES.

*CONCRETE + *PROPERTY, PHYSICAL + TEMPERATURE GRADIENT + TENSILE PROPERTY

11-18490

BLUNDELL R

COMPARISON TESTS ON CONCRETE DEFORMATION USING GENERAL ATOMIC ANDESITE AND DOLOMITE COARSE AGGREGATES COMPARED WITH WYLFA LIMESTONE. REPORT NO. 148/66/1177
TAYLOR WOODROW CONSTRUCTION LTD., SOUTHAL, ENGLAND
GA-7450 +. 17 PAGES, 4 FIGURES, 2 TABLES, APRIL 1966

AN ANALYSIS OF TEST DATA OBTAINED BY TAYLOR WOODROW CONSTRUCTION LIMITED FROM GENERAL ATOMIC WAS MADE TO DETERMINE THE SUITABILITY OF SELECTED CONCRETE AGGREGATES FOR THE PCRV. THE RESULTS INDICATE THAT THE ELASTIC AND CREEP DEFORMATION BEHAVIOR OF CONCRETE MADE WITH THE TWO FINALLY SELECTED COARSE AGGREGATED (CRUSHED ANDESITE AND CRUSHED DOLOMITE) IS SIMILAR TO THAT OF THE CONCRETE USED IN THE WYLFA CREEP PROGRAM. HOWEVER, IT WAS CONSIDERED ADVISABLE TO FURTHER VERIFY THIS BEHAVIOR TO ENABLE GENERAL ATOMIC TO USE THE WYLFA-CREEP-PROGRAM DATA FOR PRELIMINARY VESSEL DESIGN PURPOSES DURING THE INTERIM WHILE GENERAL ATOMIC IS ESTABLISHING FINAL MIX DESIGNS AND CONDUCTING CONCRETE PROPERTIES TESTS. TO ACCOMPLISH THIS OBJECTIVE THE SHRINKAGE AND SHORT-TERM LOAD DEFORMATIONS WERE DETERMINED FOR CONCRETE SPECIMENS MADE FROM THE WYLFA CONCRETE MIX FOR COMPARISON WITH CONCRETE SPECIMENS MADE WITH THE ANDESITE AND DOLOMITE MATERIALS. THE WYLFA-CONCRETE-MIX DESIGN WAS USED TO DETERMINE THE PROPORTIONS OF MATERIALS FOR ALL SPECIMENS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *CREEP BEHAVIOR + *ELASTICITY + CONTAINMENT VESSEL LOADING + PRESSURE VESSEL

11-18640

VINCK W + MAURER H

SOME EXAMPLES OF THE RELATIONSHIP BETWEEN CONTAINMENT AND OTHER ENGINEERED SAFEGUARDS REQUIREMENTS, ACCIDENT ANALYSES AND SITE CONDITIONS
EURATOM, BRUSSELS, BELGIUM
SM-89/58 + CONF-670-402 +. 34 PAGES, 2 TABLES, 24 REFERENCES, APRIL 1967

THE PAPER PRIMARILY REFERS TO NUCLEAR POWER REACTORS FOR WHICH EURATOM HAS BEEN INVOLVED IN SAFETY REVIEWS. COMPARATIVE DATA ARE TABULATED ON A NUMBER OF CONTAINMENT CONCEPTS AND OTHER ENGINEERED SAFEGUARDS TO PROTECT AGAINST OR TO LIMIT THE CONSEQUENCES OF MAJOR HYPOTHETICAL ACCIDENTS FOR A NUMBER OF POWER REACTORS. MAIN ENVIRONMENTAL DATA, SUCH AS MAGNITUDES OF EXCLUSION AREAS AND POPULATION DENSITIES, ARE ALSO PRESENTED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N. Y. 10016

*CONTAINMENT, GENERAL + *EMERGENCY COOLING CONSIDERATIONS + *EURATOM + *POPULATION DISTRIBUTION + ACCIDENT ANALYSIS + CONTAINMENT CONSTRUCTION + CONTAINMENT, MULTIPLE + DESIGN CRITERIA + ENGINEERED SAFETY FEATURE + SITING, REACTOR + TEST, LEAK RATE

11-10671

ALSO IN CATEGORY 17

RHODE ISLAND NUCLEAR SCIENCE CENTER REPORTS FACILITY MODIFICATIONS
RHODE ISLAND NUCLEAR SCIENCE CENTER, NARRAGANSETT, R. I.
2 PAGES, OCTOBER 2, 1967, DOCKET 50-193

MODIFICATIONS INCLUDE (1) NEW VENT LINE FOR DELAY TANK, (2) SUBSTITUTION OF PNEUMATIC BUTTERFLY VALVE WITH NITROGEN-BOTTLE BACKUP TO AIR COMPRESSOR IN PLACE OF VENETIAN-BLIND-TYPE DAMPER FOR EXHAUST-FAN ISOLATION, (3) ELIMINATION OF BUILDING PENETRATION TO STACK BY VENTING EXPERIMENT OFF-GAS SYSTEM TO MAIN BUILDING EXHAUST, (4) THERMAL-COLUMN COOLANT-LINE-FLOW SWITCH INSTALLED BUT NOT CONNECTED TO SAFETY SYSTEM YET, AND (5) POOL OVERFLOW DRAIN TO WASTE SYSTEM INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + *OPERATING EXPERIENCE + CONTAINMENT PENETRATION, CLOSURE OF + CONTAINMENT PENETRATION, PIPE + EMERGENCY POWER, NONELECTRIC + REACTOR OFFGAS + REACTOR, POOL TYPE + REACTOR, RESEARCH + VALVE + VENTILATION SYSTEM

11-18690

ALSO IN CATEGORY 17

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-18690 *CONTINUED*

O-DONNELL WJ

FRACTURE OF CYLINDRICAL FUEL ROD CLADDING DUE TO PLASTIC INSTABILITY

WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB., PITTSBURGH

WAPD-TM-651 +. 12 PAGES, 2 FIGURES, 7 REFERENCES, APRIL 1967, ANS TRANSACTIONS 10(1) PAGES 163-4

A FAILURE MECHANISM FOR THE CLADDING OF CYLINDRICAL FUEL RODS WHEREBY FRACTURE OCCURS AS A CONSEQUENCE OF PLASTIC INSTABILITY INDUCED BY FUEL SWELLING. THE LOSS OF WORK-HARDENING CAPACITY FROM IRRADIATION DAMAGE REDUCES THE NOMINAL FAILURE STRAIN BY AN ORDER OF MAGNITUDE, RESULTING IN FRACTURE AT NOMINAL STRAINS OF ABOUT 2% WITH ZIRCALOY CLADDING. WHEN RECENTLY REPORTED LSBR IN-PILE FUEL-ROD-FAILURE EXPERIMENTS ARE COMPARED WITH THEORETICAL PREDICTIONS, GOOD AGREEMENT RESULTS. THIS WORK PROVIDES A BASIS FOR SETTING ALLOWABLE CLAD-STRAIN DESIGN LIMITS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EXPANSION + *FAILURE, CLADDING + *FAULT + *FUEL ELEMENT + *MATHEMATICAL TREATMENT + COMPARISON, THEORY AND EXPERIENCE + REACTOR, LARGE SEED BLANKET + REACTOR, WATER + STRESS STRAIN DATA + ZIRCALOY

11-18873 ALSO IN CATEGORY 17

SAFETY EVALUATION REPORT SM-1A NUCLEAR POWER PLANT, FORT GREELY, ALASKA - ANNEALING OF THE SM-1A REACTOR VESSEL

U. S. ARMY, SAFETY OFFICE OF THE CHIEF OF ENGINEERS

ARCHS 67-5 +. 34 PAGES, 3 FIGURES, 11 REFERENCES, APRIL 1967

VESSEL ANEALING (USING REACTOR AS HEAT SOURCE) WILL PARTIALLY RECOVER RADIATION DAMAGE BY HOLDING 600 F FOR 1 WEEK. FULL RECOVERY OF NOTCH DUCTILITY CAN BE ACHIEVED AT ABOVE 700 F, BUT VESSEL DESIGN PRESSURE (1500 PSIG) LIMITS THE REACTOR TO 597.5 F. PROPOSED PLANS ARE FOR 598-F ANNEALING, RESULTING IN A VESSEL-WALL TEMPERATURE OF 585 F. INLET-OUTLET TEMPERATURE-DIFFERENCE SCRAM WILL BE SET AT 2.5 F. ARCHS SUGGESTS LOWERING TEMPERATURES 10 F TO ALLOW LARGER TOLERANCES.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPT. OF THE ARMY, WASHINGTON, D. C.

*BRITTLE FRACTURE + *HEAT TREATMENT + *PRESSURE VESSEL + *RADIATION DAMAGE + INSTRUMENTATION, TEMPERATURE + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA)

11-18875 ALSO IN CATEGORY 17

PLUMBROOK CHANGE REPORT 33 - ADDITIONAL REACTOR TANK PENETRATIONS

LEWIS RESEARCH CENTER, SANDUSKY, OHIO

3 PAGES, OCTOBER 13, 1967, DOCKET NO. 50-30

(LETTER, OCTOBER 13, 1967) 11 NEW 4-IN. PENETRATIONS FOR EXPERIMENTAL AND REACTOR INSTRUMENTATION ARE TO BE ADDED TO THE DISHED HEAD. MINIMUM CLAD THICKNESS ON WALL AND HEADS OF TANK TO BE CHANGED TO 0.075 AND 0.062 IN., RESPECTIVELY, TO CORRECT AN ERROR IN PRESENT TECHNICAL SPECIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, ELECTRICAL + *MODIFICATION, SYSTEM OR EQUIPMENT + *PRESSURE VESSEL + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

11-18906 ALSO IN CATEGORIES 12 AND 17

SAFETY EVALUATION REPORT. SM-1A NUCLEAR POWER PLANT, FORT GREELY, ALASKA. CONTAINMENT LEAKAGE

REQUIREMENTS BY THE ARMY REACTOR SYSTEMS HEALTH AND SAFETY REVIEW COMMITTEE

DEPARTMENT OF THE ARMY

ARCHS 67-7 +. 23 PAGES, 4 FIGURES, 6 REFERENCES, APRIL 1967

TECHNICAL SPECIFICATIONS LEAK-RATE LIMIT OF 0.016% AT ACCIDENT CONDITIONS COULD NOT BE REASONABLY MET, AND 0.50% AT 10 PSIG WAS PROPOSED. TEST SHOWED (AFTER SOME EFFORT TO TIGHTEN CONTAINMENT) A 0.17% LEAK RATE. MCA IS RUPTURE OF PRIMARY AND SECONDARY VESSELS. BLOWDOWN TAKES ABOUT 1.3 MIN. CONTAINMENT SPRAY SYSTEM IS BEING INSTALLED. ARCHS APPROVES NEW LEAK RATE UNDER THESE CONDITIONS - (1) EVACUATION PROCEDURES FOR NEARBY DIESEL PLANT MUST BE CONSIDERED, (2) ELIMINATE REACTOR RE-ENTRY AFTER MCA, (3) ESTABLISH A LEAK-RATE TEST SCHEDULE.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, WASHINGTON, D. C. 20315

*CONTAINMENT SPRAY + *EMERGENCY PROCEDURE + *TEST, LEAK RATE + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT, HIGH PRESSURE + DOSE + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA) + TECHNICAL SPECIFICATIONS

11-19144 ALSO IN CATEGORY 17

HUMBOLDT BAY PROPOSED CHANGE - DEFERMENT OF LEAK RATE TEST

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19144 *CONTINUED*
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
1 PAGE, OCTOBER 16, 1967, DOCKET NO. 50-133

PG AND E REQUESTS DEFERMENT OF TEST UNTIL NO LATER THAN DEC. 1968. A LEAK-RATE-TEST PROGRAM IS UNDER REVIEW (PROPOSED CHANGE 21). CHANGE 22 DEFERRED A LEAK-RATE TEST TO JUNE 20, 1967, AND SUPPLEMENT 1 TO THAT CHANGE DEFERRED IT TO OCT. 20, 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

11-19145 ALSO IN CATEGORY 17
BONUS CHANGE 4 - DEFERMENT OF LEAK RATE TEST
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
1 PAGE, SEPTEMBER 15, 1967, DOCKET NO. 115-4

DRL ALLOWS DEFERMENT OF TEST (DUE IN SEPT. 67). TEST IS TO BE PERFORMED BEFORE STARTUP AFTER THE CURRENT SHUTDOWN. FUTURE TEST SCHEDULE NOT CHANGED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTAINMENT, LOW PRESSURE + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

11-19147 ALSO IN CATEGORY 17
PLUM BROOK REPORTS RESULTS OF CONTAINMENT LEAK RATE TESTS
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO
2 PAGES, OCTOBER 13, 1967, DOCKET NO. 50-30

9/67 TEST SHOWED AN AS-IS LEAK RATE OF 92% OF THE ALLOWABLE VALUE OF .450 CU. FT/DAY AT 0.3 PSI OVERPRESSURE, DETERMINED BY TWO METHODS - (1) ABSOLUTE TEMP.-PRESSURE METHOD (TID-20583) AND (2) CONSTANT P-V-T METHOD. RESULTS WERE WITHIN 3% OF EACH OTHER. AFTER THE TESTS, LEAKS IN THE TEST FLOWMETER AND A CONTROL AIR PENETRATION WERE STOPPED. LEAKAGE THEN WAS 40% ALLOWABLE. A CALIBRATED LEAK WAS THEN INTRODUCED (58% OF ALLOWABLE) AND RESULTED IN A 98% LEAKAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT, HIGH PRESSURE + *TEST, LEAK RATE + CONTAINMENT ABSOLUTE MEASURING SYSTEM + CONTAINMENT REFERENCE MEASURING SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + PLUM BROOK + PRESSURE, INTERNAL + REACTOR, TEST

11-19185 ALSO IN CATEGORY 17
PURCELL RH
CONTAINMENT VESSEL LEAK TESTING
BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-SA-557 + CONF-660516-1 1. 3 PAGES, PAGE 34 THRU 36 OF PLUTONIUM RECYCLE TEST REACTOR EXPERIENCE, 1962-1966, APRIL 15, 1966, PRESENTED AT ANNUAL CONFERENCE ON ORGANIC AND HEAVY WATER REACTORS, WINNIPEG, CANADA

DURING LEAK TESTS IN 1963-1964, ELECTRICAL PENETRATIONS FILLED WITH EPOXY RESIN FAILED BECAUSE OF INCOMPLETE HARDENING. BULKHEAD FITTINGS ARE TO BE USED ON ALL NEW PENETRATIONS, WITH DESIGNS PERMITTING ISOLATED LEAK TESTS ON THE PENETRATION.

AVAILABILITY CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT PENETRATION, ELECTRICAL + *FAILURE, GENERAL + CONTAINMENT INSPECTION AND MAINTENANCE + CONTAINMENT INTEGRITY + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + RESIN + TEST, LEAK RATE

11-19193
CLABAUGH WJ
PRESTRESSED CONCRETE PRESSURE VESSEL FOR BOILING WATER REACTORS. 1000 MW(E) BWR REFERENCE DESIGN STUDY
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA. ADVANCED PRODUCTS OPERATION
GEAP-5201 + EURAEC-1718 +. 89 PAGES, FIGURES, TABLES, JULY 1966

STUDIES IN THE UNITED STATES HAVE UNCOVERED NO REASON WHY PRESTRESSED CONCRETE WOULD NOT BE SUITABLE FOR APPLICATION TO THE BOILING-WATER REACTOR SYSTEM. PRELIMINARY STUDIES HAVE INDICATED A NUMBER OF POTENTIAL ADVANTAGES AND COST INCENTIVES IF FULL ADVANTAGE IS TAKEN OF THE USE OF PRESTRESSED CONCRETE FOR VESSEL CONSTRUCTION. THE ELIMINATION OF THE EXTERNAL RECIRCULATION LOOPS AND THE EXPECTED NONCATASTROPHIC MODE OF CONCRETE VESSEL FAILURE WOULD PERMIT SIMPLIFICATION OF THE REACTOR BUILDING STRUCTURE SINCE PRESTRESSED CONCRETE STRUCTURE WOULD ALSO PROVIDE THE NECESSARY REACTOR SHIELDING AND PRIMARY CONTAINMENT. IT ALSO APPEARED THAT THE USE OF THE CONCRETE VESSEL WOULD PRESENT THE OPPORTUNITY FOR CONSIDERING REACTOR ARRANGEMENTS AND INNOVATION, SUCH AS ON-LINE REFUELING, WHICH IS NOT PRACTICAL WITH STEEL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19193 *CONTINUED*

VESSELS. THE STUDY BY GENERAL ELECTRIC INDICATED, HOWEVER, THAT THE POTENTIAL ADVANTAGES OF CONCRETE VESSEL CONSTRUCTION COULD NOT BE FULLY EVALUATED WITHOUT A THOROUGH STUDY OF VESSEL SIZES AND SHAPES AND BOILING-WATER-REACTOR CONCEPTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *CONTAINMENT RESEARCH AND DEVELOPMENT + *CONTAINMENT, PRESSURE SUPPRESSION + CONTAINMENT PENETRATION, PIPE + DESIGN CRITERIA + ECONOMICS + REACTOR, BOILING WATER + THERMAL INSULATION

11-19194

STUDY OF PRESTRESSED CONCRETE CAISSON FOR A 1000 MWE BOILING WATER REACTOR, QUARTERLY REPORT NO. 4, APRIL-JUNE 1966
SOCIETE BERTIN, PARIS, FRANCE + SOCIETE D-ETUDES ET D-EQUIPMENTS D-ENTREPRISES, PARIS, FRANCE + SOCIETE FIVES-PENHOET, PARIS, FRANCE
EURAC-1688 + EUR-2875 +. 7 PAGES, JULY 1966

THE PRESENT STUDY CONSISTS IN APPLYING THE PRESTRESSED-CONCRETE CAISSON TECHNIQUE TO A BOILING-WATER SYSTEM. THE POWER SELECTED FOR THE REACTOR STUDIED IS 1000 MWE. GE IS ALSO RESPONSIBLE FOR STUDYING THE LAGGING (THERMAL INSULATION) OF THE CAISSON. THIS LAGGING MUST BE ADAPTED TO THE USE WHICH WILL BE MADE OF IT IN THE WATER-VAPOR PHASE. THE DESIGN OF THE COOLING CIRCUIT IS DIRECTLY DEPENDENT ON THE PROPERTIES OF THIS LAGGING. DESIGN OF THE PRESTRESSED-CONCRETE STRUCTURE AND THE CASING ARE MUCH LESS CLOSELY BOUND TO THESE PROPERTIES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *CONTAINMENT, PRESSURE SUPPRESSION + CONTAINMENT RESEARCH AND DEVELOPMENT + REACTOR, BOILING WATER + THERMAL INSULATION

11-19240

ALSO IN CATEGORY 17

PATHFINDER REPORTS FAILURE OF MAIN STEAM ISOLATION VALVE TO CLOSE
NORTHERN STATES POWER COMPANY
2 PAGES, DOCKET NO. 50-130, OCTOBER 24, 1967

DURING ISOLATION SCRAM TEST (SEPT. 8, 1967), VALVE FAILED TO CLOSE AUTOMATICALLY OR MANUALLY DUE TO RUSTED BRAKE-PRESSURE PLATE IN THE ELECTRIC MOTOR. WATER HAD SPRAYED ON MOTOR THE PREVIOUS WEEK FROM A FAULTY INSTRUMENT PENETRATION. MOTOR WAS CHECKED, BUT WATER PROOF BRAKE HOUSING WAS NOT REMOVED. WATER ENTERED HOUSING AROUND THE EDGES OF A SMALL UNSEALED INSPECTION PLATE. VALVE WAS LAST TESTED SEPTEMBER 3, 1967. *** INCIDENT WAS NOT REPORTED FOR A MONTH AND A HALF BECAUSE PATHFINDER CONSIDERED IT NOT A POSSIBLE UNSAFE CONDITION AND INTENDED TO REPORT IN 6-MONTH SUMMARY AS MALFUNCTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + FAILURE, DESIGN ERROR + FAILURE, MAINTENANCE ERROR + INCIDENT, ACTUAL, EQUIPMENT + MAIN COOLING SYSTEM + PATHFINDER + REACTOR. INTERNAL SUPERHEAT + SEAL + TEST, SYSTEM OPERABILITY + VALVE

11-19248

ALSO IN CATEGORY 17

ORL REQUESTS ADDITIONAL INFORMATION ON NASA CHANGE REPORT 32
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
3 PAGES, OCTOBER 23, 1967, DOCKET NO. 50-30

ORL ASKS 7 QUESTIONS, INCLUDING 2 ON RELAXING THE TESTING AND REPORTING REQUIREMENTS FOR THE HERMETICALLY SEALED ELECTRICAL PENETRATIONS, ONE ON INCREASE OF THE ALLOWABLE FUEL BURNUP TO 113 MW/ELEMENT, AND 4 ON ROD-GUIDE REPLACEMENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + AEC QUESTION + CONTAINMENT PENETRATION, ELECTRICAL + CONTROL ROD + FUEL BURNUP + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS + TEST INTERVAL

11-19253

ALSO IN CATEGORY 17

SAXTON REPORTS RESULTS OF TESTS FOR REACTOR VESSEL CRACKING
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
8 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

(1) 36 HEAD STUDS AND NUTS WERE ULTRASONICALLY INSPECTED. MAGNETIC-PARTICLE TESTS SHOWED NO CRACKS OR DISCONTINUITIES IN THE 9 STUDS TESTED OR THE CRANE HOOK. (2) 6 X 12 IN. OF THE S.S. CLADDING ON THE REACTOR VESSEL INNER SURFACE WAS TESTED FOR CRACKING WITH DYE PENETRANTS. NO CRACKS WERE FOUND.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST, PRESSURE VESSEL + *TESTING + INTEGRITY + OPERATIONS SUMMARY FOR AEC + PRESSURE VESSEL + REACTOR, PRESSURIZED WATER + SAXTON + TEST, NONDESTRUCTIVE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19268 ALSO IN CATEGORY 17
DRESDEN 1 SHUTDOWN TO INVESTIGATE FLAWS IN PRIMARY PIPING
COMMONWEALTH EDISON CO., CHICAGO, ILLINOIS
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 12, (NOVEMBER 6, 1967), DOCKET NO. 50-10, LETTER FROM P. A. MORRIS, DRL, TO COMMONWEALTH EDISON

(LTR. OCT. 25) NOTES PA MORRIS (DRL) UNDERSTANDING OF SHUTDOWN FOR THOROUGH EXAMINATION OF PIPING, INCLUDING ULTRASONIC TEST OF ALL 6- AND 8-INCH PRIMARY PIPING THAT CANNOT BE ISOLATED BY VALVES. THESE FLAWS WERE RECENTLY DISCOVERED IN SECTIONS OF THE PRIMARY PIPING REMOVED EARLY IN 67.

AVAILABILITY - PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, PIPE + *FLAW + *MAIN COOLING SYSTEM + *PIPING + DRESDEN 1 + REACTOR, BOILING WATER + TEST, NONDESTRUCTIVE

11-19269 ALSO IN CATEGORY 17
PATHFINDER CONDENSER-TUBE FAILURE, SEPTEMBER 16, 1967
NORTHERN STATES POWER CO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 16, (NOVEMBER 6, 1967), DOCKET NO. 50-130

(LTR. OCT. 27, FROM G. H. NEILS) A TUBE FAILED ON STARTUP AT 40% POWER, AND REACTOR WAS SHUT DOWN WITHOUT REFLOODING SUPERHEATER TO AVOID CONTACTING FUEL WITH HIGHER-CONDUCTIVITY CONDENSER WATER. FAILURE WAS A CIRCUMFERENTIAL BREAK NEAR TUBE SHEET. LEAK WAS ONE OF MOST SEVERE IN OUR EXPERIENCE, BUT LEAKAGE TO COOLING TOWER AND DISCHARGE WAS WITHIN ACCEPTABLE LIMITS. BEFORE STARTUP, PROCEDURES WILL BE IMPROVED TO MINIMIZE LEAK TO COOLING TOWER SYSTEM, AND ACCIDENTAL RELEASE.

*FAILURE, TUBING + *TURBINE + HEAT SINK + PATHFINDER + REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, RIVER

11-19287 ALSO IN CATEGORY 18
AMENDMENT 18-4 - ISOLATION PROVISION FOR REACTOR BUILDING CORNER ROOMS
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 4-1, OCTOBER 1967, DOCKET NO. 50-219

LOWEST-LEVEL CORNER ROOMS WILL BE SEALED (WT DOORS, CHECK VALVES IN FLOOR DRAINS, SEALED PIPING PENETRATIONS) SO NO POSSIBILITY OF TORUS WATER ENTERING. EVEN THEN VOLUMES ARE SUCH THAT ADEQUATE NPISH IS MAINTAINED FOR CORE AND CONTAINMENT SPRAY PUMPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BUILDING + CONTAINMENT SPRAY + CONTAINMENT, PRESSURE SUPPRESSION + CORE SPRAY + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

11-19665 ALSO IN CATEGORIES 2 AND 18
TEN ITEMS OF ADDITIONAL PALISADES INFORMATION
CONSUMERS POWER COMPANY
11 PAGES, 1 TABLE, JANUARY 1967, DOCKET 50-255, AMENDMENT 7

(1) STUDY SHOWS THAT PC CHECK VALVES SHOULD BE REMOVED, AS THEY SHORTEN FLOW COASTDOWN. (2) A PARALLEL SELECTOR VALVE IS ADDED TO COMPONENT COOL-WATER SYSTEM. (3) HORIZONTAL AND VERTICAL SEISMIC MOTION ARE ADDITIVE. (4) CRANE WILL BE RESTRAINED. (5,7) CLASS-1 ACCELERATIONS WILL BE DETERMINED FROM EARTHQUAKE-RESPONSE CURVES AND WILL ALLOW SAFE SHUTDOWN FROM 0.2 G. (6) CONTAINMENT MEMBRANE TENSION WILL NOT EXCEED 3 X SQ. ROOT OF FC. (7) NO MOTOR-OPERATED VALVES WILL BE USED FOR CONTAINMENT ISOLATION. TURBINE-REHEAT STOP-VALVES WILL BE USED FOR MAIN STEAM LINE AND WILL CLOSE IN 4-8 SEC. (9) CLASS-1 CRITERIA OUTLINED. (10) FOR THE 0.2-G EARTHQUAKE, 5% STRUCTURAL DAMPING WILL BE USED. DYNAMIC TESTS WILL BE MADE AT THE SITE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF FLOW + *CONTAINMENT PENETRATION, CLOSURE OF + *EARTHQUAKE ENGINEERING + AEC QUESTION + PALISADES POINT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + VALVE

11-19668 ALSO IN CATEGORIES 9 AND 17
SUPPLEMENTARY INFORMATION ON PLUMBROOK PROPOSED CHANGE 32
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER
4 PAGES, NOVEMBER 2, 1967, DOCKET 50-30

INFORMATION ON MODIFICATION OF UPPER GRID AND ROLLER GUIDES. INCLUDES A COMPARISON OF ROD-DROP TIMES WITH AND WITHOUT LOW AND WITH ROLLER AND ROLLERLESS GUIDES, EFFECT OF ROD LEAK, AND BEARING MATERIAL. LEAK RATES ACROSS HERMETICALLY SEALED ELECTRICAL PENETRATIONS INCLUDE LEAKS ACROSS DOUBLE O-RING SEALS IN MOUNTING PLATE.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19668 *CONTINUED*

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, ELECTRICAL + *MODIFICATION, SYSTEM OR EQUIPMENT + *TEST, LEAK RATE +
AEC QUESTION + CONTROL ROD SCRAM MECHANISM + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

11-19670 ALSO IN CATEGORY 17

HUMBOLDT BAY CHANGE 22, SUPPLEMENT 2 - DEFERMENT OF DRYWELL AND SUPPRESSION CHAMBER LEAK TEST
DIVISION OF REACTOR LICENSING, AEC

1 PAGE, NOVEMBER 1, 1967, DOCKET 50-133

DRL ALLOWS TEST TO BE FURTHER DEFERRED UNTIL FEB. 20, 1968. SUPPLEMENT 1 DEFERRED THE TEST
UNTIL NO LATER THAN OCT. 20, 1967. PROPOSED CHANGE 21, WHICH CONCERNS LEAK-RATE TESTING, IS
UNDER AEC REVIEW. PG AND E HAD ASKED THAT THE DEFERMENT BE UNTIL DEC. 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY +
REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

11-19691

HOFFMAN RC + STRONG GH

PENETRATION SEALS FOR N-REACTOR PLANT

HANFORD ATOMIC PRODUCTS OPERATION + BATTELLE - NORTHWEST

RL-SA-25 +. 36 PAGES, MARCH 8, 1965

GAS-TIGHT SEALS BETWEEN REACTOR VENTILATION SYSTEM ZONES ARE A REQUIREMENT FOR
ELECTRICAL-SYSTEM WALL PENETRATIONS. BASED ON EXPERIENCE ON THE DESIGN OF PENETRATION SEALS
AT N-REACTOR, THE FOLLOWING AND OTHER OBSERVATIONS WERE MADE - (1) PENETRATION-SEALING
STUDIES SHOULD BE STARTED AS PART OF THE FIRST DESIGN EFFORT. (2) ALL CABLE SPECIFICATIONS
SHOULD BE REVIEWED BY THE SEAL DESIGNERS. (3) BULKHEAD-TYPE GAS-TIGHT CONNECTORS SHOULD BE
USED FOR ALL POSSIBLE LOCATIONS. (4) COMPLEX CABLES SUCH AS USED FOR TV, NUCLEAR, AND
SPECIAL INSTRUMENTATION, SPECIAL SHIELDED GROUPS OF WIRES, AND VERY LARGE AND HIGH-VOLTAGE
POWER CONDUCTORS SHOULD BE IDENTIFIED AS SPECIAL AT THE EARLIEST POSSIBLE DATE IN THE DESIGN
PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*CONTAINMENT PENETRATION, GENERAL + *ELECTRIC POWER, GENERAL + CONTAINMENT, PRESSURE RELIEF +
DESIGN CRITERIA + HANFORD SITE + REACTOR, PRODUCTION

11-19692

ALSO IN CATEGORY 19

SEBILLE J.

PROCEEDINGS OF THE COLLOQUIUM ON BRITTLE FRACTURE AND SAFETY PROBLEMS IN NUCLEAR PRESSURE VESSELS,

BRUSSELS, JANUARY 11-13, 1966

EUROPEAN ATOMIC ENERGY COMMUNITY

EUR-3121.D,F,E + CONF-660117 +. 791 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 1966

A COMPILATION OF 33 PAPERS PRESENTED AT THE SUBJECT CONFERENCE. SESSIONS COVERED THE
FOLLOWING TOPICS - (A) TYPES OF EMBRITTLEMENT (B) BRITTLE-FRACTURE TESTING METHODS, (C)
BRITTLE FRACTURE, EXPERIMENTAL RESULTS, (D) BRITTLE FRACTURE, EXPERIMENTAL RESULTS OBTAINED
IN OTHER PROGRAMS, (E) SAFETY IN THE USE OF MATERIALS REACTOR SAFETY CODES.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*BRITTLE FRACTURE + *EMBRITTLEMENT + *PRESSURE VESSEL + CODES AND STANDARDS + FRACTURE TOUGHNESS +
IRRADIATION TESTING + NDT DATA (NIL DUCTILITY TRANSITION) + STEEL + TEST, NONDESTRUCTIVE + TESTING

11-19693

WHITMAN GD

TECHNOLOGY OF STEEL PRESSURE VESSELS FOR WATER-COOLED NUCLEAR REACTORS

OAK RIDGE NATIONAL LABORATORY

14 PAGES, 1 FIGURE, 5 TABLES, 18 REFERENCES, NUCLEAR SAFETY 8(5), PAGES 429-442 (SEPT.-OCT. 1967)

CURRENT DESIGNS OF PRESSURIZED-WATER-REACTOR VESSELS ARE BASED ON OPERATING CONDITIONS OF 650
F AND 2500 PSIG, AND BOILING-WATER-REACTOR VESSELS, ON CONDITIONS OF 575 F AND 1250 PSIG. A
MN-MO STEEL, ASTM A-533, IS BEING USED. IT IS SATISFACTORY FOR SECTIONS UP TO 12 IN. THICK.
AS REACTOR VESSELS EVOLVE AND GROW IN SIZE, HIGHER-STRENGTH STEEL ALLOYS WILL BE REQUIRED. A
CR-MO ALLOY AND A NI-CR-MO ALLOY ARE UNDER STUDY FOR THIS PURPOSE. THE MECHANICAL PROPERTIES
OF METALS MAY DETERIORATE UPON EXPOSURE TO NUCLEAR RADIATION TO A DEGREE THAT IS OF
CONSIDERABLE ENGINEERING SIGNIFICANCE. STUDIES TO DATE OF SUCH RADIATION DAMAGE HAVE MADE A
SUBSTANTIAL CONTRIBUTION, BUT MORE INFORMATION IS REQUIRED TO OBTAIN A BASIC UNDERSTANDING OF
THE PHENOMENA INVOLVED.

*PRESSURE VESSEL + *STEEL + CODES AND STANDARDS + CORROSION + DESIGN CRITERIA + EMBRITTLEMENT +
FABRICATION + IRRADIATION TESTING + QUALITY CONTROL + RADIATION EFFECT + REACTOR, WATER +
TEST, NONDESTRUCTIVE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19694
GUTHRIE CE
PLANT SAFETY FEATURES
OAK RIDGE NATIONAL LABORATORY
7 PAGES, 13 REFERENCES, NUCLEAR SAFETY 8(5), PAGES 483-489 (SEPT. - OCT. 1967)

SEVERAL TYPES OF HIGH-PRESSURE CONTAINMENT SYSTEMS MAY BE USED FOR WATER REACTORS - DIRECT PRESSURE, DOUBLE OR MULTIPLE WALL, PRESSURE SUPPRESSION, OR PRESSURE RELIEF. MAINTENANCE OF INTEGRITY OF THE CONTAINMENT STRUCTURE REQUIRES THAT IT BE DESIGNED AND BUILT TO WITHSTAND THE TEMPERATURES AND PRESSURES RESULTING FROM COOLANT DISCHARGE IN THE MAXIMUM CREDIBLE ACCIDENT. PROGRAMS ARE UNDER WAY OR BEING PROPOSED TO STUDY CONTAINMENT PRESSURIZATION, CONTAINMENT-SHELL RESPONSE, BRITTLE FRACTURE, CONTAINMENT-PRESSURE REDUCTION, LEAKAGE TESTING, MISSILE AND SHOCK PROTECTION, AND ANTISEISMIC DESIGN.

*CONTAINMENT ANALYSIS + *CONTAINMENT INTEGRITY + *CONTAINMENT RESEARCH AND DEVELOPMENT + BRITTLE FRACTURE + COMPUTER PROGRAM + CONTAINMENT, HIGH PRESSURE + CONTAINMENT, SHOCK GENERATION AND PROTECTION + EARTHQUAKE ENGINEERING + MISSILE GENERATION AND PROTECTION + REACTOR, WATER + TEST, LEAK RATE

11-19784 ALSO IN CATEGORIES 9 AND 17
LACBWR THIRD MONTHLY OPERATIONAL REPORT - SEPTEMBER 1967
ALLIS-CHALMERS, BETHESDA
ACNP-67532 +. 10 PAGES, FIGURES, TABLES, OCTOBER, 1967, DOCKET NO. 115-5

REACTOR WAS NOT OPERATED. (PAGE 1-1) VESSEL HEAD WAS INSTALLED AFTER LOW-POWER TESTING BEFORE CONSTRUCTION PERSONNEL WERE ALLOWED AT THAT LEVEL, TO REDUCE POSSIBILITY OF FOREIGN OBJECTS BEING DROPPED INTO REACTOR VESSEL. (2-1) RECIRCULATION PUMP HEAD-FLOW CURVES MEASURED. (PAGE 5-1) CONTROL-ROD PISTON G-T PINGS WERE CHANGED FROM BUTYL TO VITON, AND BACKUP RINGS FROM PHENOLIC TO TEFLON-BRONZE, TO PREVENT DAMAGE. (PAGE 5-2) POST-MCA CONTAINMENT TEMPERATURE, PRESSURE AND WATER-LEVEL INSTRUMENTS WERE INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + *FAILURE, SCRAM MECHANISM + *INSTRUMENTATION, IN CORE + CONTAINMENT INSTRUMENTATION + FLOW BLOCKAGE + LACROSSE + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

11-19789
STUDY ON SLIGHT LEAKAGE FROM A REACTOR CONTAINMENT VESSEL - REPORT OF THE SUB-COMMITTEE ON SLIGHT LEAKAGE
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
NSJ-TR-87 +. 37 PAGES, 1965, TRANSLATED FROM NIPPON KIKAI GAKKAISHI 68 PAGES 1321-32 (1965)

TEST SPECIMENS WITH LEAK-HOLES, RESEMBLING AS CLOSELY AS POSSIBLE THE ACTUAL WELDING DEFECTS, WERE PREPARED. THE AMOUNT OF HELIUM, CARBON DIOXIDE, NITROGEN, AND WATER LEAKING THROUGH TEST SPECIMENS AT 20 TO 200 C FROM THE ATMOSPHERE OF 1 TO 100 ATM INTO A VACUUM WAS MEASURED BY THE PRESSURE-INCREASING METHOD. RESULTS ARE AS FOLLOWS - (1) THE CROSS-SECTIONAL SHAPE ON THE LEAK-HOLES IS A SLIT RATHER THAN A CIRCLE, AND WITH INCREASING SIZE OF THE HOLES, IT APPROACHES A CIRCULAR CROSS-SECTION. THE CURRENT OF A GAS THROUGH THE HOLES IS NEARLY THAT OF MOLECULES, AND, AS IT BECOMES LARGER, A VISCOUS CURRENT BECOMES INVOLVED. (2) THE INFLUENCE OF TEMPERATURE ON THE GAS LEAKAGE CAN BE NEGLECTED FROM 20 TO 200 C. (3) THE MECHANISM OF LEAKAGE OF WATER THROUGH A MINUTE HOLE IS QUITE DIFFERENT FROM THAT OF GASES, WITH THE STATE (VAPOR) OF WATER BEING INVOLVED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT RESEARCH AND DEVELOPMENT + *TEST, LEAK RATE + EXTRAPOLATION FACTOR + HELIUM + TEMPERATURE GRADIENT + TEST, LEAK LOCATION

11-19790 ALSO IN CATEGORY 17
REPORT ON THE BRITTLE FRACTURE OF A HIGH-PRESSURE BOILER DRUM AT COCKENZIE POWER STATION
SOUTH OF SCOTLAND ELECTRICITY BOARD
38 PAGES, 47 FIGURES, 10 TABLES, JANUARY 1967, COCKENZIE REPORT

THE DRUM AT THE NONNUCLEAR COCKENZIE POWER STATION FAILED BY BRITTLE FRACTURE DURING HYDRAULIC TESTING DUE TO THE PRESENCE OF A PRE-EXISTING, ARRESTED BRITTLE CRACK. THERE WAS NO DEFECT FOUND IN THE PLATE MATERIAL OR WELD METAL WHICH COULD HAVE INITIATED SUCH A CRACK. THE CHARACTER OF THE CRACK WAS TYPICAL OF THAT ASSOCIATED WITH STRESS CRACKING OF HIGHLY RESTRAINED NOZZLE WELDS. THE CRACK WAS ASSOCIATED WITH AN ECONOMISER NOZZLE WHICH HAD BEEN REPLACED DURING DRUM MANUFACTURE, BUT THERE WAS NO EVIDENCE TO SUGGEST THAT THE NOZZLE REPLACEMENT CONTRIBUTED TO THE FORMATION OF THE CRACK. THE PRESENCE OF AN ANGLE BRACKET WELDED TO THE SHELL IMMEDIATELY ADJACENT TO THE NOZZLE PROBABLY RESULTED IN AN UNDESIRABLE STRESS CONCENTRATION IN THE ZONE WHERE THE CRACK WAS INITIATED. THE CRACK WAS PRESENT DURING THE STRESS-RELIEVING TREATMENT WHICH THIS SECTION OF THE DRUM RECEIVED, AND THE EVIDENCE TENDS TO INDICATE THAT THE CRACK OCCURRED DURING THE INITIAL HEATING-UP STAGES OF THE STRESS-RELIEVING TREATMENT.

AVAILABILITY - SOUTH OF SCOTLAND ELECTRICITY BOARD

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19790 *CONTINUED*

*BRITTLE FRACTURE + *FAILURE, EQUIPMENT + *TEST, PROOF + FAILURE, PRESSURE VESSEL + NOZZLE

11-19791 ALSO IN CATEGORY 1

FRENCH REGULATIONS CONCERNING PRESTRESSED CONCRETE REACTOR PRESSURE VESSELS

FRANCE MINISTRY OF INDUSTRY

ORNL-TR-1678 +. 34 PAGES, 1966, TRANSLATION FROM FRENCH

A FRENCH CODE OF STANDARDS IS PRESENTED, WITH LIMITING CONDITIONS FOR NUCLEAR SERVICE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*CODES AND STANDARDS + *CONCRETE, PRESTRESSED + *FRANCE + *PRESSURE VESSEL

11-19792 ALSO IN CATEGORY 17

EACIE DM

THE BEHAVIOUR OF THE OLDBURY NO. 1 REACTOR PRESSURE VESSEL DURING PRESTRESSING AND PROOF PRESSURE TEST
SIR ROBERT MCALPINE AND SONS, LTD.

12 PAGES, 14 FIGURES, 3 TABLES, 3 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(3), PAGES 295-310 (MAY 1967)

DESCRIBES THE PRESTRESSING OF THE OLDBURY NO. 1 PRESSURE VESSEL, THE CHECKS ON TENDON ANCHORAGE LOADS, AND THE READINGS TAKEN FROM THE STRAIN GAUGES WITHIN THE CONCRETE. THE READINGS WERE COMPARED WITH THEORETICALLY PREDICTED RESULTS BASED ON COMPUTER ANALYSIS IN COMBINATION WITH THE MEASURED TENDON ANCHORAGE LOADS AND ASSUMED VALUES FOR YOUNG'S MODULUS, POISSON'S RATIO, AND SPECIFIC CREEP-TIME FUNCTIONS. FROM THIS COMPARISON, REASONABLE VALUES WERE OBTAINED FOR INSTANTANEOUS E VALUES AND SPECIFIC CREEP-TIME FUNCTIONS PERTAINING TO THE OLDBURY VESSELS AT AMBIENT TEMPERATURE. THE PROOF PRESSURE TEST IS DESCRIBED, AND THE VARIOUS READINGS OBTAINED ARE COMPARED WITH ANTICIPATED VALUES.

*OLDBURY (UK) + *PRESSURE VESSEL + *TEST, PROOF + CONCRETE, PRESTRESSED + CREEP BEHAVIOR + MEASUREMENT, STRAIN GAGE + STRESS ANALYSIS + UNITED KINGDOM

11-19793

VERSTRAETE P + LEHMANN D + LAFITTE R

CONTAINMENT FOR A GAS COOLED HEAVY WATER MODERATED REACTOR (250 MWE)

BONNARD AND GARDEL

26 PAGES, 11 FIGURES, 12 TABLES, 18 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(4), PAGES 486-511 (JULY 1967)

SEVERAL TYPES OF CONTAINMENT FOR A GAS-COOLED HEAVY-WATER-MODERATED REACTOR (250 MWE) WERE STUDIED WITH THE PURPOSE OF DEFINING THEIR COST AND EFFICIENCY. SECTION 2 IS A DESCRIPTION OF THE TWO TYPES OF REACTORS STUDIED, ONE CONVENTIONAL WITH PRESSURE TUBES, THE OTHER INTEGRATED IN A PRESTRESSED CONCRETE PRESSURE VESSEL. SECTION 3 GIVES A DESCRIPTION OF THE SAFETY FEATURES OF GAS COOLED REACTORS AND A MAXIMUM CREDIBLE ACCIDENT WITH 5% FUEL MELT-OUT IS DEFINED. SECTION 4 ANALYSES QUALITATIVELY THE CONSEQUENCES OF THIS ACCIDENT IN THE INSTALLATION AND IN THE NEIGHBORHOOD OF THE NUCLEAR POWER PLANT. SECTION 5 REVIEWS THE STANDARDS AND PRESCRIPTIONS APPLICABLE TO NUCLEAR POWER STATION ACCIDENTS AND CRITERIA ENABLING TO JUDGE THE EFFICIENCY OF THE DIFFERENT CONTAINMENTS ARE SET UP. A METHOD OF CALCULATION OF THE CONTAINMENT EFFICIENCY FOR THE MAXIMUM CREDIBLE ACCIDENT IS PRESENTED.

*CONTAINMENT ANALYSIS + *CONTAINMENT, GENERAL + *REACTOR, GAS COOLED + CONCRETE, PRESTRESSED + CONTAINMENT, HIGH PRESSURE + CONTAINMENT, MULTIPLE + CONTAINMENT, UNDERGROUND + ECONOMIC STUDY + STEEL

11-19852 ALSO IN CATEGORY 18

SECTION 4 - PRIMARY SYSTEM DESIGN AND FABRICATION TECHNIQUE, AND INSERVICE INSPECTION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

8 PAGES, 1 TABLE FROM THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET 50-247, APRIL 18, 1967

GENERAL DISCUSSION, WITH REFERENCE TO APPLICABLE CODE ANALYSES. INDICATES VARIOUS NONDESTRUCTIVE TESTS TO BE APPLIED TO VARIOUS PRIMARY-SYSTEM COMPONENTS AT VARIOUS STAGES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*PIPING + *QUALITY CONTROL + *TEST, NONDESTRUCTIVE + EXAMINATION + INDIAN POINT 2 + MAIN COOLING SYSTEM + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

11-19939 ALSO IN CATEGORY 18

SECTION 4 - REACTOR SYSTEM INSPECTION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

9 PAGES, 1 FIGURE, 2 TABLES, PAGE 4-1 THRU 4-9 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

FIGURE SHOWS LOCATION AND COMPONENTS WHERE DESTRUCTIVE TESTS AND INSPECTION ARE REQUIRED BY

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-19939 *CONTINUED*
WESTINGHOUSE. IN-SERVICE TESTS (AT REFUELING) ON REACTOR VESSEL ARE LISTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EXAMINATION + *MAIN COOLING SYSTEM + *QUALITY CONTROL + CODES AND STANDARDS + INDIAN POINT 2 + PIPING +
PRESSURE VESSEL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY +
STRUCTURAL INTEGRITY + TEST, NONDESTRUCTIVE

11-19945 ALSO IN CATEGORIES 18 AND 12
DRL ASK OYSTER CREEK FOR INFORMATION ON EMERGENCY CORE COOLING AND CONTROL ROD SUPPORT FAILURE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
2 PAGES, NOVEMBER 17, 1967, DOCKET NO. 50-219

ACRS AND DRL BELIEVE THAT A HIGH-PRESSURE COOLANT-INJECTION CAPABILITY FOR BREAKS LESS THAN
0.2 SQ. FT IS NEEDED TO PREVENT ACTUATION OF AUTO-RELIEF SYSTEM, LIMIT CLAD TEMPERATURE TO
2000 F, AND PREVENT CLAD FAILURE OVER A PORTION OF THE BREAK-SIZE SPECTRUM UP TO 0.02 SQ. FT.
DRL REQUESTS ADDITIONAL INFORMATION ON CRACKING OF SOME WELDS JOINING CONTROL-ROD-DRIVE
GUIDE-TUBE STUBS TO THE REACTOR VESSEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *CONTROL ROD BURNUP + *EMERGENCY COOLING CONSIDERATIONS +
*FAILURE, EQUIPMENT + *WELDS + ENGINEERED SAFETY FEATURE + OYSTER CREEK + REACTOR, BOILING WATER

11-19996 ALSO IN CATEGORY 2
BOYD FC
CONTAINMENT AND SITING REQUIREMENTS IN CANADA
ATOMIC ENERGY CONTROL BOARD, OTTAWA, ONTARIO, CANADA
SM-89/22 + CONF-670 402 +. 13 PAGES, 9 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM
ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

IN CONSIDERING THE SUITABILITY OF A SITE AND THE ADEQUACY OF THE CONTAINMENT PROVISIONS, THE
ATOMIC ENERGY CONTROL BOARD HAS DEVELOPED SITING CRITERIA WHICH CONSIDER - (1) NORMAL
RELEASES OF RADIOACTIVE MATERIAL FROM THE PLANT, (2) THE SIZE OF POTENTIAL ACCIDENTAL
RELEASES, (3) THE PROBABILITY OF ACCIDENTS, AND (4) THE DENSITY OF SURROUNDING POPULATION.
DESIGN GUIDE VALUES ARE GIVEN FOR THE RADIATION EXPOSURE BOTH OF INDIVIDUALS AND THE TOTAL
POPULATION AT RISK FOR THREE CONDITIONS - (1) NORMAL OPERATION, (2) FAILURES OF OPERATING OR
PROCESS EQUIPMENT ONLY, (3) COMBINED FAILURES OF PROCESS AND PROTECTIVE EQUIPMENT. FROM THE
APPLICATION OF KNOWN OR STATED METEOROLOGICAL CONDITIONS AN ACCEPTABLE RELEASE FROM THE PLANT
CAN BE DETERMINED. WHEN COMBINED WITH PREDICTED RELEASES FROM THE REACTOR FOR VARIOUS
ACCIDENTS WITHIN THE LAST TWO CATEGORIES ABOVE, THIS WILL GIVE THE TOTAL ALLOWABLE FRACTIONAL
RELEASE FROM THE CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N. Y.
10016

*CANADA + *CONTAINMENT, GENERAL + *SITING, GENERAL + DOSE + FISSION PRODUCT RELEASE, GENERAL +
POPULATION DISTRIBUTION + PROBABILITY

11-20013 ALSO IN CATEGORY 7
SADDINGTON K
EXPERIMENTS ON RELEASE OF FISSION PRODUCTS FROM WINDSCALE ADVANCED GAS-COOLED REACTOR-FAILED FUEL ELEMENTS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINDSCALE
SM-89/42 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT
AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

EXPERIMENTS ARE DESCRIBED TO DETERMINE THE FISSION-PRODUCT ACTIVITY RELEASED INTO THE COOLANT
GAS WHEN A FUEL ELEMENT FAILS DURING NORMAL OPERATION. THESE EXPERIMENTS CONFIRM THAT THE
ACTIVITY RELEASED IS SMALL AND THAT THE COOLANT CAN STILL BE REGARDED AS CLEAN EVEN IF
SEVERAL FUEL ELEMENTS FAIL DURING NORMAL OPERATION. ACCIDENTAL RELEASE OF THIS CONTAMINATED
COOLANT WOULD NOT PRESENT A PUBLIC HAZARD.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y.
10016

*FAILURE, FUEL ELEMENT + *FISSION PRODUCT RELEASE, GENERAL + *UNITED KINGDOM + *WINDSCALE AGR (UK) +
EXPERIMENT, GENERAL

11-20015 ALSO IN CATEGORY 2
SHERSHLEV ST
CONTAINMENT INTEGRITY AND THE SITING OF NUCLEAR PLANTS
SM-89/49 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT
AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SOME GENERAL PRINCIPLES FOR USE IN SELECTING APPROPRIATE DESIGNS FOR SECONDARY CONTAINMENT IN
RELATION TO THE LOCATION OF THE REACTOR AND THE BASIC CORRELATION BETWEEN THE PARAMETERS
DETERMINING CONTAINMENT INTEGRITY AND THE RELATIVE REMOTENESS (TERRITORIAL LOCATION) OF THE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-20015 *CONTINUED*

NUCLEAR PLANT ARE GIVEN. A DISCUSSION OF SAFETY PROBLEMS IN VIEW OF ACCEPTED HAZARDS FROM GENERAL INDUSTRY IS GIVEN. GENERAL RELATIONSHIPS ARE PRESENTED WHICH ESTIMATE THE INTEGRITY AND EFFECTIVENESS OF SECONDARY CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*CONTAINMENT, GENERAL + *SITING, REACTOR + *UNION OF SOVIET SOCIALIST REPUBLICS + ENVIRONMENTAL CONDITION + INTEGRITY + MATHEMATICAL TREATMENT

11-20031 ALSO IN CATEGORY 18

PILGRIM STATION ALLOWED TO DO ON-SITE WORK BEFORE CONSTRUCTION PERMIT
DIVISION OF REACTOR LICENSING, AEC

1 PAGE, NOVEMBER 16, 1967, DOCKET 50-293

FOUR ITEMS AGREED BY DRL AS NOT REQUIRING AN EXEMPTION FROM A CONSTRUCTION PERMIT ARE - (1) EXCAVATION AND POURING FOUNDATIONS FOR TURBINES AND NONNUCLEAR FACILITIES, (2) POURING A CONCRETE LEVELING MAT BELOW REACTOR BUILDING FOUNDATIONS, (3) FORM ERECTION AND LOOSE PLACEMENT OF RE-BARS FOR EXTERNAL WALLS OF PRESSURE-SUPPRESSION CHAMBER, AND (4) SAME AS (3) FOR INTERNAL WALLS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ON SITE WORK + CONTAINMENT CONSTRUCTION + PILGRIM STATION + REACTOR, BOILING WATER

11-20424 ALSO IN CATEGORY 18

APPENDIX C--SPECIFICATION FOR TENDON SYSTEM
FLORIDA POWER AND LIGHT COMPANY

19 PAGES, PAGES C-1 THROUGH C-19 OF SUPPLEMENT 8 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT, NOV. 4, 1966, DOCKET 50-250 AND 50-251

REPORT IS IN GERMAN. NO ABSTRACT CAN BE GIVEN HERE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONCRETE, PRESTRESSED + *CONTAINMENT CONSTRUCTION + *CONTAINMENT DESIGN + AEC QUESTION + EXAMINATION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TESTING + TURKEY POINT 3 AND 4

11-20526 ALSO IN CATEGORY 18

QUESTION 6 (SUPPLEMENT 8)--SAFE SHUTDOWN UNDER DESIGN BASIS ACCIDENT PLUS EARTHQUAKE LOADINGS
FLORIDA POWER AND LIGHT COMPANY

10 PAGES, 7 FIGURES, PAGES 1 THROUGH 10 OF SUPPLEMENT 11 TO LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT FOR FLORIDA POWER AND LIGHT COMPANY, TURKEY POINT NUCLEAR PLANT, DOCKETS NO. 50-250 AND NO. 50-251, JANUARY 4, 1967

IT IS THOUGHT THAT A FACTORED-LOAD CONDITION IS REQUIRED WHICH CONSIDERS THAT A SAFE SHUTDOWN CAN BE ASSURED UNDER THE COMBINED EFFECTS OF THE DESIGN BASIS ACCIDENT AND A SEISMIC INADING FOR TWICE THE DESIGN EARTHQUAKE. PROVIDE AN EQUATION THAT WILL BE INCLUDED IN THE DESIGN OF THE CONTAINMENT STRUCTURE WHICH REFLECTS THE FOREGOING. ***ADDITIONAL INFORMATION SUPPLIED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT VESSEL LOADING + *EARTHQUAKE ENGINEERING + *EQUATION, GENERAL + AEC QUESTION + ANALYTICAL MODEL + CONTAINMENT ANALYSIS + REACTOR, PRESSURIZED WATER + RESPONSE SPECTRUM + SAFETY ANALYSIS REPORT, PRELIMINARY + SYSTEM OPERABILITY IN ACCIDENT CONDITIONS + TURKEY POINT 3 AND 4

11-20555 ALSO IN CATEGORY 7

CAVE L + BRACEWELL GM,
CONTAINMENT OF AN A.G.R.
ATOMIC POWER CONSTRUCTIONS LTD.

SM-89/31 +. 16 PAGES, 3 FIGURES, 13 REFERENCES, MARCH 10, 1967, PRESENTED AT THE IAEA SYMPOSIUM ON CONTAINMENT AND SITING OF NUCLEAR POWER STATIONS, VIENNA, 3-7 APRIL 1967

THE INHERENT FEATURES OF THE A.G.R. WHICH SERVE TO RETAIN FISSION PRODUCTS WITHIN THE SYSTEM ARE DESCRIBED. THE ROLES PLAYED BY THE FUEL, FUEL-CAN, AND PRIMARY PRESSURE CIRCUIT ARE DISCUSSED AND ILLUSTRATED BY REFERENCE TO THE DUNGENESS B REACTOR DESIGN. SOME POSSIBLE ADDITIONAL SAFETY FEATURES ARE DESCRIBED. THE EFFECTS OF POSSIBLE FAULT CONDITIONS ON THE RETENTION OF FISSION PRODUCTS WITHIN THE SYSTEM ARE DISCUSSED AND THE EXTENT TO WHICH THE SAFETY OF THE REACTOR DEPENDS ON DESIGN FEATURES IS EVALUATED. IT IS SHOWN THAT THE A.G.R. SYSTEM PROVIDES AN EXCEPTIONALLY HIGH DEGREE OF SAFETY AND THAT IT IS POTENTIALLY SUITABLE FOR USE ON URBAN SITES WITHOUT THE PROVISION OF A CONVENTIONAL PRESSURE RETAINING SECONDARY CONTAINMENT.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*CLAD + *CONTAINMENT RESEARCH AND DEVELOPMENT + *EMERGENCY COOLING CONSIDERATIONS +

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-20555 *CONTINUED*

*FISSION PRODUCT, IODINE + *FUEL ELEMENT + *FUEL MELTDOWN + *SAFETY EVALUATION +
FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT TRANSPORT + FUEL ELEMENT + SAFETY STUDY

11-20753 ALSO IN CATEGORIES 9 AND 14

DRIVER GE

PROCESS COMPUTER APPLICATIONS AT BATTELLE-NORTHWEST

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON

CONF-660527 +. 5 PAGES, PAGES 43-37 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL
OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS, MAY
4-6, 1966

APPLIED DIGITAL-COMPUTER TECHNOLOGY TO ON-LINE DATA ACQUISITION FROM EXPERIMENTS AND TO THE
AUTOMATIC CONTROL OF NUCLEAR PROCESSES. EXPERIMENTS ARE BEING PERFORMED IN THE AREAS OF
CONTAINMENT-SYSTEM-TESTING, MASS-SPECTROMETER CONTROL, AND REACTOR CONTROL. A COMPUTER IS
PRESENTLY CONTROLLING A URANIUM SOLVENT-EXTRACTION PROCESS AND LOGGING DATA ON THE
MASS-ENERGY BALANCES IN A LIQUID-WASTE SOLIDIFICATION PROCESS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + BATTELLE NORTHWEST +
CONTAINMENT INSTRUMENTATION + CONTAINMENT RESEARCH AND DEVELOPMENT + FFTF (TR) + HIGH TEMPERATURE +
INSTRUMENTATION, TEMPERATURE + REACTOR, FAST + REACTOR, TEST

11-20818 ALSO IN CATEGORY 4

POSEY JC

CONSEQUENCES OF INTERNAL HEAT FLOW IN RADIOISOTOPE HEAT SOURCES

OAK RIDGE NATIONAL LABORATORY

ORNL-P-3189 + CONF-670714-5 +. 7 PAGES, FROM 2ND INTERNATIONAL SYMPOSIUM ON NUCLEONICS IN AEROSPACE,
COLUMBUS, OHIO, 1967

EQUATIONS RELATING THE MAXIMUM INTERNAL TEMPERATURES OF VARIOUS-SHAPED FUEL FORMS AND OTHER
SOURCE PARAMETERS ARE GIVEN. BY USING CALCULATED RESULTS, THE USE OF CERMETS IS COMPARED
WITH THE USE OF OXIDE-METAL LAMINAR STRUCTURES AS METHODS OF DECREASING THE RESISTANCE TO
HEAT FLOW IN THE INTERIOR OF HEAT SOURCES AND ACHIEVING HIGHER SURFACE HEAT FLUXES WITHOUT
EXCEEDING MAXIMUM ALLOWABLE INTERNAL TEMPERATURES. THE LAMINAR COMPOSITE FUEL FORM IS
MODERATELY SUPERIOR. THE EXPECTED VAPOR PHASE MIGRATION AND EQUILIBRIUM DISTRIBUTION OF A
VOLATILE RADIOACTIVE FUEL INSIDE A HEAT SOURCE CAPSULE IS DESCRIBED. REDISTRIBUTION DOES NOT
ALWAYS RESULT IN SERIOUS PROBLEMS AND CAN REDUCE THE COST OF SOURCE FABRICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*AEROSPACE SAFETY + HEAT CONDUCTANCE, FUEL TO CLAD + HEAT GENERATION, INTERNAL + HEAT TRANSFER, CONDUCTION

11-21072

MANSON SS + HIRSCHBERG MH

LOW CYCLE FATIGUE OF NOTCHED SPECIMENS BY CONSIDERATION OF CRACK INITIATION AND PROPAGATION

NASA. LEWIS RESEARCH CENTER, CLEVELAND, OHIO

NASA-TN-D-3146 +. 27 PAGES, TABLES, 16 REFERENCES, JUNE 1967

AN APPROXIMATE ANALYSIS WAS DEVELOPED WHEREBY THE NUMBER OF CYCLES REQUIRED TO START AN
ENGINEERING-SIZE CRACK AND THE NUMBER OF CYCLES REQUIRED TO PROPAGATE THIS CRACK TO FAILURE
COULD BE ESTIMATED FOR A NOTCHED SPECIMEN FROM A KNOWLEDGE OF THE FATIGUE BEHAVIOR OF
UNNOTCHED SPECIMENS. CRACKS ARE ASSUMED TO OCCUR AT THE ROOT OF A NOTCH IN A NUMBER OF
CYCLES WHICH DEPENDS ONLY ON THE LOCALIZED SURFACE STRAIN. PROPAGATION OF THE CRACK, ONCE
STARTED, IS ASSUMED TO PROCEED IN A MANNER SIMILAR TO THAT IN AN UNNOTCHED SPECIMEN.
REASONABLY GOOD PREDICTIONS OF CRACK INITIATION, PROPAGATION, AND TOTAL LIFE WERE OBTAINED
FOR ANNEALED 4340 STEEL AND 7075 T6 ALUMINUM NOTCHED SPECIMENS WITH ELASTIC STRESS
CONCENTRATION FACTORS OF 2 AND 3.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*FAILURE, FATIGUE + *FLAW + BRITTLE FRACTURE + FAILURE, PIPE + FAILURE, PRESSURE VESSEL + PLASTICITY +
PRESSURE VESSEL + STEEL + STRESS

11-21146

PIGGOTT MR

THE PROPAGATION OF CRACKS OF FINITE WIDTH

ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO

AECL-2847 +. 25 PAGES, 8 FIGURES, 9 REFERENCES, JANUARY 1967

IN MOST MATERIALS, AND ESPECIALLY METALS, PLASTIC FLOW OCCURS AT A STRESS WELL BELOW THE
THEORETICAL STRENGTH. CRACKS IN A STRESSED MATERIAL CAN THEREFORE ALWAYS BE EXPECTED TO HAVE
A FINITE WIDTH. AN ATTEMPT IS MADE HERE TO DEVELOP A THEORY FOR THE PROPAGATION OF SUCH
CRACKS IN AN IDEAL ELASTIC-PLASTIC MATERIAL. THE ANALYSIS INDICATES THAT CRACKS THAT ARE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-21146 *CONTINUED*

VERY MUCH LONGER THAN THE CRITICAL LENGTH CAN BE STABLE, AND THAT IN ALL MATERIALS THERE IS A STRESS BELOW WHICH CRACKS OF ANY LENGTH CAN BE PRESENT WITHOUT THE MATERIAL FAILING. HOWEVER, THE OBSERVED RELATION BETWEEN FAILURE STRENGTH AND CRACK LENGTH IN METALS CAN ONLY BE EXPLAINED IF IT IS ASSUMED THAT THE PLASTIC WORK DONE WHEN AN INFINITELY THIN CRACK IS PROPAGATED IS PROPORTIONAL TO CRACK LENGTH AND INDEPENDENT OF APPLIED STRESS. A CRITERION FOR BRITTLENESS IS DERIVED WHICH ACCORDS WELL WITH THE COMMON OBSERVATION THAT HARD MATERIALS ARE USUALLY BRITTLE.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO, \$1.00 COPY

*FLAW + *FRACTURE TOUGHNESS + *MATHEMATICAL STUDY + *STRESS + BRITTLE FRACTURE + ELASTICITY + FAILURE, PIPE + FAILURE, PRESSURE VESSEL + INTEGRITY + PLASTICITY + PRESSURE VESSEL + STEEL

11-21147

HOAGLAND RG + BEMENT AL + ROWE RG

APPLICATIONS OF FRACTURE MECHANICS IN EVALUATING THE INITIATION AND PROPAGATION OF BRITTLE FRACTURE IN REACTOR STRUCTURAL COMPONENTS

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-SA-377 + CONF-660607-7 +. 30 PAGES, FROM 3RD INTERNATIONAL SYMPOSIUM ON THE EFFECTS OF IRRADIATION ON STRUCTURAL METALS, ATLANTIC CITY, MARCH 30, 1966

TESTING PROCEDURES WERE DEVELOPED FOR MEASURING PLANE STRAIN FRACTURE TOUGHNESS FOR CRACK INITIATION AND CRACK ARREST OVER A WIDE TEMPERATURE RANGE. THE DOUBLE-CANTILEVER BEAM SPECIMEN IS USED, AND ITS ADVANTAGES ARE DISCUSSED. TECHNIQUES ARE DESCRIBED FOR MEASURING THE FRACTURE-TOUGHNESS PROFILE ACROSS A WELDMENT. THE EFFECTS OF IRRADIATION ON FRACTURE TOUGHNESS AND SUBCRITICAL CRACK GROWTH ARE DISCUSSED. EXPERIMENTAL DATA ARE PRESENTED, AND THEIR APPLICATION TO REACTOR STRUCTURAL DESIGN IS DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BRITTLE FRACTURE + *EMBRITTEMENT + *FLAW + *FRACTURE TOUGHNESS + *PRESSURE VESSEL + *WELDS + CLAD + ELASTICITY + FAILURE, CLADDING + FAILURE, PRESSURE VESSEL + STEEL + STRESS

11-21318 ALSO IN CATEGORIES 1 AND 7

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPT.-OCT. 1967

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2057 +. 131 PAGES, FIGURES, TABLES, NOVEMBER 27, 1967

INCLUDED IN THIS PROGRESS REPORT IS WORK ON VARIOUS CHEMICAL REACTIONS, AS WELL AS THE RELEASE, CHARACTERIZATION, AND TRANSPORT OF FISSION PRODUCTS IN CONTAINMENT SYSTEMS UNDER VARIOUS ACCIDENT CONDITIONS AND ON PROBLEMS ASSOCIATED WITH THE REMOVAL OF THESE FISSION PRODUCTS FROM GAS STREAMS. ALTHOUGH MOST OF THE WORK HAS BEEN AND CONTINUES TO BE IN GENERAL SUPPORT OF WATER POWER REACTOR TECHNOLOGY, INCLUDING SOME IN DIRECT SUPPORT OF THE LOFT AND CSE PROGRAMS, SEVERAL PROJECTS WERE STARTED IN THE FIRST OF THE CALENDAR YEAR IN SUPPORT OF THE HIGH-TEMPERATURE GAS-COOLED REACTOR (HTGR) PROGRAM. THESE PROJECTS INCLUDE BOTH IN-PILE AND OUT-PILE STUDIES OF REACTION RATES AND FISSION PRODUCT RELEASE AND TRANSPORT PHENOMENA RELEVANT TO POTENTIAL HIGH ACCIDENT SITUATIONS. OTHER MAJOR PROJECTS INCLUDE FIHFI, TRANSPORT SAFETY INVESTIGATIONS, A SERIES OF DISCUSSION PAPERS ON VARIOUS ASPECTS OF WATER REACTOR TECHNOLOGY, AND THE STUDIES ON PRESSURE VESSEL TECHNOLOGY. EXPERIMENTAL WORK RELATIVE TO PRESSURE VESSEL TECHNOLOGY INCLUDES INVESTIGATIONS OF THE ATTACHMENT OF NOZZLES TO SHELLS AND THE VARIABILITY OF IMPACT DATA ON LOW-ALLOY STEELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*CONTAINMENT, GENERAL + *CSE (CONTAINMENT SYSTEMS EXPERIMENT) + *FISSION PRODUCT RETENTION + *FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *LOFT (LOSS OF FLUID TEST) + *NOZZLE + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY + FISSION PRODUCT RELEASE, GENERAL + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS

11-21654 ALSO IN CATEGORY 17

AMENDMENT 29. STATUS REPORT ON REACTOR VESSEL REPAIR PROGRAM

JERSEY CENTRAL POWER AND LIGHT CO.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 25 AND 26, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER DEC. 7) CONCLUSION REGARDING TRACK MECHANISM IS THAT IT IS STRESS-ASSISTED CORROSION CRACKING. STUB-TUBE SURFACES SHOWN TO BE CRACKED (DYE-PENETRANT TESTS) WILL BE GROUND OUT AND REWELDED. SAMPLES WILL BE REMOVED FOR LAB ANALYSIS, AND TWO TUBES LEFT UNTOUCHED FOR FINAL REASSESSMENT.

*FAULT + *MAINTENANCE AND REPAIR + *PRESSURE VESSEL + OYSTER CREEK + REACTOR, BOILING WATER + WELDING

11-21837 ALSO IN CATEGORIES 18 AND 12

COOK 1 AND 2 ICE CONDENSER CONTAINMENT SYSTEM DESCRIPTION

INDIANA + MICHIGAN ELECTRIC COMPANY

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-21837 *CONTINUED*

118 PAGES, 23 FIGURES, 7 TABLES, REFERENCES, PAGES 5.1-1 TO 5.7-4 OF VOLUME 1, PAGES 14.3-1 TO 14.3-42 OF VOLUME 3 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, DECEMBER 18, 1967, DOCKET 50-315/316

CONTAINMENT SYSTEM IS DIVIDED INTO AN UPPER AND LOWER REGION, BY AN ANNULAR RING AROUND THE CONTAINMENT WALL WHICH CONTAINS BORATED ICE IN OPEN-MESH BASKETS. REACTOR AND ASSOCIATED PIPING IS IN THE LOWER REGION. UPON LOSS OF COOLANT, PRESSURE INCREASE OPENS DOORS AT BOTTOM OF ICE CONDENSER, THE STEAM IS QUENCHED, AND THE AIR PASSES TO THE UPPER REGION. THE INSIDE DIMENSIONS OF THE CONTAINMENT ARE ABOUT 166 FT TALL BY 115 FT DIA. VS 140 AND 212 FOR ZION STATION, WHICH IS NEARLY IDENTICAL. PROPRIETARY REPORTS WCAP-2951, -7040, -7079, AND -7079 SUPPLEMENTS 1 AND 2, COVER VARIOUS TESTS RELATING TO THIS TYPE OF CONTAINMENT. CONDENSATION OF STEAM IN THE ICE TRAPS 96% OF THE HALOGENS FROM A LOSS-OF-COOLANT ACCIDENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FISSION PRODUCT RETENTION + ACCIDENT, LOSS OF COOLANT + CONDENSATION + CONTAINMENT, ICE CONDENSER + COOK 1 AND 2 (PWR) + FISSION PRODUCT, IODINE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SYSTEM DESCRIPTION

11-21845 ALSO IN CATEGORY 18

COOK 1 + 2 PSAR APPENDIX D - DETERMINATION OF REACTOR PRESSURE VESSEL. NDTT INDIANA AND MICHIGAN POWER COMPANY

9 PAGES, 6 REFERENCES, PAGE D-1 TO D-9 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

DESCRIBES THE PROCEDURE FOR MEASURING THE INTEGRATED FAST NEUTRON FLUX AT IRRADIATION SAMPLES, USING DOSIMETERS AND THE PIM6 CODE TO DETERMINE THE FAST SPECTRUM AND USING THE FE-54 (N,P) MN-54 REACTION FOR FAST-FLUX MEASUREMENT. INITIAL NDTT IS MEASURED BY EITHER THE ASTM E208 DROPWEIGHT TEST OR THE ASTM E23 CHARPY V-NOTCH TEST. BOTH METHODS ARE DISCUSSED, INCLUDING ERROR BOUNDS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BRITTLE FRACTURE + *SURVEILLANCE PROGRAM + COOK 1 AND 2 (PWR) + IRRADIATION TESTING + PRESSURE VESSEL + RADIATION DAMAGE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

11-22126

HAY JD

IMPROVED HIGH-PRESSURE VESSEL CONSTRUCTED OF PRESTRESSED CONCRETE

SIR ROBERT MCALPINE AND SONS, LTD., ENGLAND

BRITISH PATENT 1,066,387 +. 3 PAGES, 7 FIGURES, APRIL 1967, PATENT (BRITISH)

A PRESSURE VESSEL COMPRISES A MONOLITHIC CONCRETE BODY INCLUDING A CYLINDER AND CLOSING END SLABS WITH PRESTRESSED TENSION CABLES CONSTITUTING AN ARRAY DISTRIBUTED ABOUT THE CIRCUMFERENCE OF THE BODY. THE INDIVIDUAL CABLES OF THE ARRAY ARE DISPOSED WITHIN PASSAGES PREFORMED IN THE CONCRETE. THE PASSAGES CONFORM TO PARTS OF RIGHT- AND LEFT-HAND HELICES ABOUT THE AXIS OF THE VESSEL, AND EACH CABLE EMBRACES ONLY A PART OF THE CIRCUMFERENCE OF THE VESSEL. THE ENDS OF THE CABLES EXTEND THROUGH THE END SLABS, AND THE TENSIONED CABLES ARE ANCHORED AT BOTH ENDS BY ANCHORAGES LOCATED AT THE ENDS OF THE VESSEL.

AVAILABILITY - THE PATENT OFFICE, 25 SUITHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + PATENT

11-22127

REACTOR CONTAINMENT VESSEL

UNITED STATES ATOMIC ENERGY COMMISSION

FRENCH PATENT 1,456,189 +. 2 PAGES, 8 FIGURES, NOVEMBER 1965, IN FRENCH

A REINFORCING ROD IS LONGITUDINALLY MOVABLE WITH RESPECT TO ITS JACKET, AND THUS WITH RESPECT TO THE CONCRETE MASS OF A REACTOR CONTAINMENT VESSEL, FROM WHICH THE ROD IS SEPARATED BY THE JACKET. BECAUSE THE ROD HAS THIS LONGITUDINAL FREEDOM, THE STRESS IMPOSED BY LOCALIZED CRACKING OF THE VESSEL DUE TO AN EXPLOSION, IS NOT ABSORBED ONLY BY THE IMMEDIATELY ADJACENT PORTIONS OF THE ROD, BUT IS ABSORBED BY THE ENTIRE LENGTH OF THE ROD. CONSEQUENTLY THE ROD IS NOT LIKELY TO BREAK.

AVAILABILITY - PHOTOCOPIES MAY BE OBTAINED FROM THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 PER PAGE)

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + FAILURE, PRESSURE VESSEL + PATENT

CATEGORY 12
PLANT SAFETY FEATURES

12-16584 ALSO IN CATEGORY 13

WATSON CD + WEST GA

RADIATION EFFECTS ON PAINTS. EFFECTIVE COATINGS VITAL TO NUCLEAR INDUSTRY

OAK RIDGE NATIONAL LAB., TENN.

6 PAGES, 8 FIGURES, 21 REFERENCES, MATERIALS PROTECTION 6(2), PAGES 44-49, (FEBRUARY 1967)

THE AUTHORS DISCUSS SOME OF THE ADVANCES MADE DURING THE PAST 10 YEARS IN PROTECTIVE COATINGS USED BY THE NUCLEAR INDUSTRY. ALTHOUGH NO INTENSIVE STUDIES HAVE BEEN MADE OF COATINGS EXPOSED TO NUCLEAR ENVIRONMENTS, ENOUGH TESTING HAS BEEN DONE TO PERMIT SUCCESSFUL APPLICATION OF COATINGS TO REACTOR CONTAINMENT SHELLS, TO PLANTS FOR RECOVERING SPENT NUCLEAR FUEL, RADIOISOTOPE PRODUCTION UNITS, SHIPPING CONTAINERS, AND OTHERS. THE AUTHORS SHOW SOME OF THE EFFECTS OF RADIATION ON COATINGS AND DISCUSS SOME OF THE FUTURE NEEDS.

*COATING, SURFACE + *RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + DECONTAMINATION + ORNL (OAK RIDGE NATIONAL LABORATORY)

12-16631 ALSO IN CATEGORY 5

FERRELL JK + MCGEE JW

TWO-PHASE FLOW THROUGH ABRUPT EXPANSIONS AND CONTRACTIONS. FINAL REPORT. VOLUME III ON A STUDY OF CONVECTION BOILING INSIDE CHANNELS

NORTH CAROLINA STATE UNIVERSITY, RALEIGH

TID-23394(VOL. 3) +. 230 PAGES, FIGURES, TABLES, JUNE 1966

PRESSURE DROP AND VOID FRACTION DATA WERE OBTAINED FOR ADIABATIC TWO-PHASE FLOW OF WATER-STEAM MIXTURES THROUGH SUDDEN EXPANSIONS AND CONTRACTIONS AND UNIFORM-DIAMETER CHANNELS. THE DATA WERE OBTAINED FOR UPFLOW IN TUBES. SUDDEN EXPANSIONS WITH AREA RATIOS OF 0.332, 0.543, AND 0.608, SUDDEN CONTRACTIONS WITH AREA RATIOS OF 0.546, AND 0.608, AND UNIFORM CHANNELS OF 0.460-IN AND 0.340-IN DIAMETERS WERE INVESTIGATED. THE RANGE OF VARIABLES ENCOMPASSED PRESSURES FROM 60 TO 240 PSIA, MASS VELOCITIES FROM 67 TO 506 LB/FT SQUARED-SEC, AND QUALITIES FROM SUBCOOLED CONDITIONS TO 0.32. FOR THE UNIFORM-DIAMETER CHANNELS A DEFINITE CORRELATION EXISTED BETWEEN THE SLIP RATIO AND THE FLOW REGIME. THE SLIP RATIO INCREASED WITH QUALITY IN THE SLUG- AND CHURN-FLOW REGIMES, REACHED A MAXIMUM AT A QUALITY NEAR TRANSITION FROM CHURN TO ANNULAR FLOW, AND DECREASED WITH INCREASING QUALITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

FLOW THEORY AND EXPERIMENTS + FLOW, MIST + FLOW, TUBE + FLOW, TWO PHASE + HYDRAULIC EXPERIMENT + PIPING, CONTRACTION + PIPING, EXPANSION

12-18608 ALSO IN CATEGORY 17

STEVENSON CN + FELDMAN MJ + HAMPSON DC + KLEFFNER JO + PAIGE DM

MAINTENANCE AND REPAIR OF CONTAMINATED EQUIPMENT FOR THE EBR-II FUELCYCLE FACILITY

ARGONNE NATIONAL LABORATORY

7 PAGES, 4 FIGURES, 6 REFERENCES, PAGES 149-155, PROCEEDINGS OF THE 14TH CONF. ON REMOTE SYSTEMS TECHNOLOGY, ANS WINTER MEETING, PITTSBURGH, 1966, ABSTRACT IN ANS TRANSACTIONS 9(2) PAGE 621 (WINTER 1966)

IN-CELL EQUIPMENT IS REPAIRED BY REMOVAL AND REPLACEMENT OF COMPONENTS WITH MANIPULATORS AND EITHER REWORKING THE COMPONENTS AT A TABLE WITHIN THE CELLS, OR REMOVAL, BAGGING, AND DECONTAMINATION FOR CONTACT REPAIR. GLOVE BOXES WERE DEVELOPED FOR MODEL-A MANIPULATOR SLAVE AND THROUGH-TUBE REPAIR, BUT IT HAS BEEN FOUND NECESSARY TO DECONTAMINATE THE SLAVES FOR ADEQUATE RECONDITIONING. MAINTENANCE OF CONTAMINATED AUXILIARY EQUIPMENT REQUIRES FULL PROTECTIVE CLOTHING AND LIMITED WORKING TIME.

*MAINTENANCE AND REPAIR + *MAINTENANCE, REMOTE + *REMOTE MANIPULATING AND VIEWING + ANL (ARGONNE NATIONAL LABORATORY) + EBR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS) + EQUIPMENT, GENERAL + FUEL REPROCESSING + HOT CELL

12-18664 ALSO IN CATEGORY 17

HADDAM NECK PROPOSED CHANGE - STEAM LINE ISOLATION VALVE CLOSURE TIME

CONNECTICUT YANKEE ATOMIC POWER COMPANY, BOSTON, MASS.

2 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-213

REQUESTS CHANGE FROM CLOSURE TIME OF 1 SEC TO 10 SEC. THE VALVES ARE DESIGNED FOR RAPID CLOSURE UNDER HIGH STEAM FLOW. MEASURED CLOSURE TIMES AT SUBSTANTIAL STEAM FLOW HAS BEEN BETWEEN 1.5 AND 4.6 SEC, AVERAGING 2.8. TESTS CANNOT BE RUN UNDER ACCIDENT AT WHICH SHORTER CLOSURE TIMES ARE EXPECTED. POSITIVE MODERATOR COEFFICIENT PROTECTS AGAINST REACTIVITY INCREASE DUE TO BLOWDOWN. THEREFORE, THE PROPOSED CHANGE WOULD BE IN EFFECT ONLY WHILE THE MODERATOR COEFFICIENT IS POSITIVE. FURTHER ANALYSIS WILL BE MADE AND SUBMITTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, CLOSURE OF + *EMERGENCY COOLING CONSIDERATIONS + *MAIN COOLING SYSTEM + *MODERATOR COEFFICIENT + *RESPONSE TIME + COMPARISON, THEORY AND EXPERIENCE + HADDAM NECK + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS + TESTING + VALVE

CATEGORY 12
PLANT SAFETY FEATURES

12-18874 ALSO IN CATEGORY 17
LACROSSE PROPOSED AMENDMENT 33 TO CONSTRUCTION PERMIT - LOW POWER TESTING PRIOR TO PLANT COMPLETION
ALLIS-CHALMERS MANUFACTURING CO.
6 PAGES, MARCH 8, 1967, DOCKET 115-5

REQUESTS FOR PERMISSION FOR FUEL LOADING AND LOW-POWER TESTING BEFORE INSTALLING CERTAIN EQUIPMENT (INCLUDING CONTROL-ROD-NOZZLE SUPPORTS, SHUTDOWN-CONDENSER EMERGENCY VENTS, INSTRUMENTATION FOR USE DURING AN MCA, IN-CORE FLUX-MONITORING SYSTEM, ALTERNATE CORE SPRAY SYSTEM AND FEEDWATER CHECK VALVE). TESTING (UP TO 1 MW) INCLUDES APPROACH TO CRITICALITY, LOADING TO A FULL CORE, ROD CALIBRATION, SHUTDOWN MARGIN, EXCESS REACTIVITY, FLUX-DISTRIBUTION DETERMINATIONS, AND REACTIVITY OPTIMIZATION. HEAD OF THE REACTOR VESSEL WILL BE REMOVED DURING TESTING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP TESTING + *TEST, PHYSICS + *TEST, PREOPERATIONAL + ACCIDENT, MAXIMUM CREDIBLE (MCA) + ENGINEERED SAFETY FEATURE + LACROSSE + REACTOR, BOILING WATER

12-18906 ALSO IN CATEGORIES 11 AND 17
SAFETY EVALUATION REPORT. SM-1A NUCLEAR POWER PLANT, FORT GREELY, ALASKA. CONTAINMENT LEAKAGE REQUIREMENTS BY THE ARMY REACTOR SYSTEMS HEALTH AND SAFETY REVIEW COMMITTEE
DEPARTMENT OF THE ARMY
ARCHS 67-7 +. 23 PAGES, 4 FIGURES, 6 REFERENCES, APRIL 1967

TECHNICAL SPECIFICATIONS LEAK-RATE LIMIT OF 0.016% AT ACCIDENT CONDITIONS COULD NOT BE REASONABLY MET, AND 0.50% AT 10 PSIG WAS PROPOSED. TEST SHOWED (AFTER SOME EFFORT TO TIGHTEN CONTAINMENT) A 0.17% LEAK RATE. MCA IS RUPTURE OF PRIMARY AND SECONDARY VESSELS. BLOWDOWN TAKES ABOUT 1.3 MIN. CONTAINMENT SPRAY SYSTEM IS BEING INSTALLED. ARCHS APPROVES NEW LEAK RATE UNDER THESE CONDITIONS - (1) EVACUATION PROCEDURES FOR NEARBY DIESEL PLANT MUST BE CONSIDERED, (2) ELIMINATE REACTOR RE-ENTRY AFTER MCA, (3) ESTABLISH A LEAK-RATE TEST SCHEDULE.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, WASHINGTON, D. C. 20315

*CONTAINMENT SPRAY + *EMERGENCY PROCEDURE + *TEST, LEAK RATE + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT, HIGH PRESSURE + DISE + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA) + TECHNICAL SPECIFICATIONS

12-18908 ALSO IN CATEGORIES 14 AND 17
FREEDMAN MB
PM-1 RADIOACTIVE WASTE DISPOSAL SYSTEM HAZARDS ANALYSIS ADDENDUM
AMF ATOMICS, YORK, PA.
TID-23865 +. 53 PAGES, 7 FIGURES, 1 TABLE, MAY 1967

EVAPORATIVE-TYPE SYSTEM BASED ON CLOSED-LOOP, RECYCLING-EVAPORATION, RAY-DI-PAK PROCESS. WASTE IS CYCLED THROUGH A CONCENTRATOR UNTIL DESIRED CONCENTRATION IS REACHED. IT IS THEN PUMPED TO A DRUMMING STATION WHERE SOLID WASTES ARE FILTERED OUT AND WASTE IS STORED. PORTABLE SHIELDS ARE USED AS NECESSARY. NORMAL WASTE IS 0.01 MICROCURIE/CC. CONCENTRATOR USES 185-F WATER FOR HEATING AND OPERATES AT NEGATIVE PRESSURE. COOLING WATER IS AN INDEPENDENT SYSTEM. LISTS 18 SAFETY FEATURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*WASTE DISPOSAL, LIQUID + *WASTE HANDLING + EVAPORATION + PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

12-18918 ALSO IN CATEGORY 9
GARRICK DJ + GEKLER WC
RELIABILITY ANALYSIS OF ENGINEERED SAFEGUARDS
HOLMES AND NARVER, INC.
10 PAGES, 3 FIGURES, 2 TABLES, 17 REFERENCES, NUCLEAR SAFETY 8(5), PAGE 470 THRU 479, (OCTOBER 1967)

THE REQUIREMENTS FOR ASSESSING RELIABILITY IN ENGINEERED SAFEGUARDS ARE REVIEWED, AN EXAMPLE OF RELIABILITY ANALYSIS IN A TYPICAL EMERGENCY CORE-COOLING SYSTEM IS GIVEN, AND A PLAN IS PRESENTED FOR USE OF RELIABILITY TECHNIQUES IN NUCLEAR SYSTEMS SAFETY ANALYSIS. RELIABILITY CAN NOW BE USED IN MANY WAYS IN NUCLEAR SAFETY, BUT, BEFORE IT CAN BE A TRULY EFFECTIVE TOOL, CERTAIN ADDITIONAL REQUIREMENTS MUST BE MET. RELEVANT PROBABILISTIC MODELS MUST BE DEVELOPED, AND REALISTIC STATISTICAL DATA ARE NEEDED. TECHNIQUES EXIST FOR DEVELOPING RELEVANT MODELS. STATISTICAL DATA NOW DERIVE LARGELY FROM OPERATING EXPERIENCE. THESE DATA, ALTHOUGH OF SOME USE, MUST BE IMPROVED TO PERMIT CONFIDENCE IN MATHEMATICAL EVALUATION OF RELIABILITY. THE IMPORTANCE OF RELIABILITY LIES NOT SO MUCH IN NUMBERS GENERATED AS IT DOES IN REQUIRING SYSTEMATIC GUIDANCE OF SAFETY ANALYSIS AND TESTING AND ACCIDENT-PREVENTION PROGRAMS.

RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + RELIABILITY, SYSTEM + SAFETY STUDY

CATEGORY 12
PLANT SAFETY FEATURES

12-18944 ALSO IN CATEGORY 17
REDFIELD JA + MARGOLIS SG + PRESCOP V
PRESSURIZER PERFORMANCE DURING LOAD DROP TESTS AT SHIPPINGPORT - ANALYSIS AND TEST
WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER
CONF-670 602 +. 1 PAGE, 1 FIGURE, 1 TABLE, 3 REFERENCES, ANS TRANSACTIONS 10(1), PAGE 323, 1967 ANNUAL
MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO CALIF., JUNE 11-15, 1967

PRESENTS A COMPARISON BETWEEN DIGITAL-COMPUTER CALCULATIONS AND EXPERIMENTAL DATA. INCLUDED
ARE THE EFFECTS OF WATER SPRAY, ELECTRIC HEATERS, AND RELIEF VALVES AND THEIR ASSOCIATED
CONTROL SYSTEMS. THE MODEL IS BASED ON MASS AND ENERGY BALANCES FOR THE LIQUID AND VAPOR
PHASES, TOGETHER WITH A HEAT BALANCE ON THE METAL VESSEL. GOOD RESULTS WERE OBTAINED IN
THREE TESTS.

*PRESSURIZER + *TEST, PROOF + COMPARISON, THEORY AND EXPERIENCE + COMPUTER, DIGITAL +
MATHEMATICAL TREATMENT + PRESSURE, INTERNAL + REACTOR, PRESSURIZED WATER + SHIPPINGPORT

12-19097 ALSO IN CATEGORIES 14 AND 17
FAILURE OF WASTE-RETENTION DAM AT AMERICAN METAL CLIMAX, COLORADO
AMERICAN METAL CLIMAX
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 10-12 (OCTOBER 30, 1967)

(LETTER, JULY 24) CEASE AND DESIST ORDER FROM AEC TO STOP USING ANY WASTE-RETENTION FACILITY
AT GRAND JUNCTION MILL NOT AUTHORIZED. ON JULY 2, 1967, AN UNAUTHORIZED EARTHEN
WASTE-RETENTION DAM RUPTURED AFTER 20 DAYS USE. (REPLY TO LETTER, AUG. 21) LIQUID-WASTE
RETENTION IS NOW IN ACCORDANCE WITH LICENSE EXCEPT FOR DIVISION OF EAST POND INTO 2 PONDS,
AND WATER EROSION. FLOW INTO PONDS IS BEING CONTROLLED BETTER. A DITCH AND PUMP ARE
STOPPING SEEPAGE FLOW.

*FAILURE, GENERAL + *IMPOUNDMENT + *WASTE DISPOSAL, TERRESTRIAL + INCIDENT, ACTUAL, GENERAL +
INSPECTION AND COMPLIANCE + MILLING

12-19098 ALSO IN CATEGORIES 14 AND 17
SEEPAGE CONTROL FROM AMERICAN METAL CLIMAX EARTHEN WASTE-RETENTION DAMS
AMERICAN METAL CLIMAX
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 12-13 (OCTOBER 30, 1967)

(LETTER, AUGUST 25) SEEPAGE AT 75 GPM IS CONTROLLED BY A PUMP. A DITCH WOULD HOLD WATER FOR 7
HOURS BEFORE OVERFLOW. THE AREA WILL BE FENCED. (OCTOBER 5, AEC LETTER) ASKS WHEN OTHER
DIKES WILL BE RESTORED FROM EROSION CAUSED BY WAVE ACTION. SUGGESTS THAT 4-FT MINIMUM
FREEBOARD IS INADEQUATE, AND REFERS TO AEC LICENSING GUIDE (QUOTE) INFORMATION REQUIRED AND
CRITERIA USED TO EVALUATE EMBANKMENT RETENTION SYSTEMS (UNQUOTE).

*LEAK + *WASTE DISPOSAL, TERRESTRIAL + IMPOUNDMENT + MILLING + REGULATION, AEC

12-19099 ALSO IN CATEGORIES 15 AND 17
SAXE D
INHALATIONS OF AIRBORNE URANIUM AT A-I FUEL FABRICATION FACILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
7 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 13-19 (OCTOBER 30, 1967)

(LETTER, AUGUST 15) GENERAL DISCUSSION OF THE AIRBORNE URANIUM PROBLEM, WHEREIN URINALYSIS
SURVEILLANCE INDICATES A GRADUAL WORSENING SINCE ETR/ATR FUEL-ALLOY FABRICATION BEGAN IN
1965. DISCUSSES PROCESS, SURVEILLANCE PROGRAM, AND VARIOUS STEPS TO MINIMIZE AIRBORNE
ACTIVITY (GLOVE BOX AND FURNACE VENTILATION, ETC.).

*AIRBORNE RELEASE + *FABRICATION + *URANIUM + FUEL, METALLIC TYPE + GLOVE BOX + INHALATION +
OPERATIONS REPORT, ANALYSIS + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

12-19101 ALSO IN CATEGORIES 15 AND 17
MONSANTO CITED FOR NON COMPLIANCE REGARDING PU-BE SOURCE
MONSANTO RESEARCH CORP., ST. LOUIS, MO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 20-21 (OCTOBER 30, 1967)

(LETTER AUGUST 10) CITATION FOR EXCEEDING QUARTERLY WHOLE-BODY DOSE LIMIT FOR 6 EMPLOYEES,
INADEQUATE SURVEYS, AND INADEQUATE HAND DOSIMETRY. SUGGESTS LACK OF ADMINISTRATIVE CONTROL
DUE TO REPEATED EXPOSURES, INCLUDING 1965. (REPLY LETTER, AUGUST 18) UNDERESTIMATION WAS DUE
TO FIRST-TIME CIRCUMSTANCE. WORK IS NOW CONTRACTED OUT. IN 3 OVEREXPOSURES, FAST-NEUTRON
DOSIMETERS WERE ASTONISHINGLY MISLEADING, EVEN THEN THERE WAS ONLY 10% OVEREXPOSURE ON FILM
BADGES. EXTREMITY-MONITORING HAS IN THE PAST PROVIDED DATA SO ERRATIC AS TO BE MEANINGLESS.

*INCIDENT, ACTUAL, NONREACTOR + *MONITOR, RADIATION, PERSONNEL + DOSIMETRY, GENERAL + FABRICATION +
FAILURE, ADMINISTRATIVE CONTROL + FAILURE, INSTRUMENT + RADIATION SAFETY AND CONTROL + SOURCE, NEUTRON

CATEGORY 12
PLANT SAFETY FEATURES

12-19106 ALSO IN CATEGORY 18
INFORMATION ON CONOWINGO DAM AS A HEAT SINK
PHILADELPHIA ELECTRIC CO., PHILADELPHIA, PA.
12 PAGES, 2 FIGURES, SEPTEMBER 1967, DOCKET NO. 50-277/278

RESPONSE TO SEPT. 20, 1967, ACRS QUESTIONS. (1) SHUTDOWN COOLING FOLLOWING CONOWINGO DAM FAILURE WOULD BE BY LEFT-OVER WATER POOLS, AIR-COOLED HEAT EXCHANGERS, OR ON-SITE WATER TRAPS. (2) CLOSED-CYCLE COOLING TOWERS ARE BEING CONSIDERED. TRITIUM AND OTHER CONTAMINANTS DISCHARGED THRU THE TOWER PLUMES WILL BE MANY ORDERS OF MAGNITUDE BELOW MPC. (3) FAILURE OF UP-RIVER HOLTHOOD DAM WAS COMPARED WITH OTHER DAM FAILURES. WATER WOULD BE RELEASED AT 100,000 CFS AND WOULD RAISE CONOWINGO 1 FT/HR FOR 8-10 HR. PLANT COULD BE SAFELY SHUTDOWN EVEN IF CONOWINGO GATES WERE NOT LOWERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HEAT SINK + *SOURCE, CONTINUOUS + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19107 ALSO IN CATEGORIES 5 AND 18
PALLADINO NJ
ACRS REPORT ON PEACH BOTTOM 2 AND 3
ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
PRESS REL. K-246 +. 3 PAGES, LETTER TO DR. SEABORG FROM PALLADINO, OCTOBER 12, 1967, DOCKET NO. 50-277/8

ACRS SUGGESTS DRL REVIEW (1) SOURCES OF WATER IN CASE CONOWINGO DAM BREAKS AND (2) MODIFICATION TO RING HEADER SUPPLYING TORUS WATER TO EMERGENCY CORE COOLING. ACRS RECOMMENDS FURTHER EXPERIMENTS ON FILM-CONDENSATION COEFFICIENT USED IN DEPRESSURIZATION PREDICTIONS FOR HPCI SYSTEM, A CAREFUL STARTUP PROGRAM, AND REFERS TO MARCH 14, 1967 LETTER ON BROWNS FERRY AS APPLICABLE HERE. ACRS APPROVES REACTOR CONSTRUCTION.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*CORE SPRAY + *HEAT TRANSFER EXPERIMENT + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + CONTAINMENT, PRESSURE SUPPRESSION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

12-19108 ALSO IN CATEGORY 18
PALLADINO NJ
ACRS COMMENT ON VERMONT YANKEE COOLING TOWERS
ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
PRESS REL. K-246 +. 2 PAGES, LETTER TO DR. SEABORG FROM PALLADINO, OCTOBER 12, 1967, DOCKET NO. 50-277/8

USE OF COOLING TOWERS FOR A PORTION OF THE CONDENSER COOLING WATER IS ACCEPTABLE.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*HEAT SINK + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + THERMAL POLLUTION + VERMONT YANKEE

12-19202 ALSO IN CATEGORY 9
SCOTT D + GRINDELL AG
COMPONENTS AND SYSTEMS DEVELOPMENT FOR MOLTEN SALT BREEDER REACTORS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1855 +. 56 PAGES, 5 FIGURES, 5 TABLES, 19 REFERENCES, JUNE 30, 1967

STUDIED THERMAL MOLTEN-SALT BREEDER REACTORS (MSBR) TO IDENTIFY IMPORTANT DESIGN AND DEVELOPMENT PROBLEMS. THE PURPOSE WAS TO ORGANIZE THESE PROBLEMS INTO A PROGRAM WHICH WOULD PRODUCE COMPONENTS FOR USE IN A MOLTEN-SALT BREEDER EXPERIMENT (MSBE). THE REFERENCE-DESIGN CONCEPT IS A TWO-REGION TWO-FLUID SYSTEM WITH THE FUEL SALT SEPARATED FROM THE BLANKET SALT BY GRAPHITE TUBES. THE ENERGY PRODUCED IN THE REACTOR FLUID IS TRANSFERRED TO A SECONDARY COOLANT-SALT CIRCUIT, WHICH COUPLES THE REACTOR TO A SUPERCRITICAL STEAM CYCLE. THE SPECIFIC DEVELOPMENT PROBLEMS TO BE STUDIED INCLUDE THE REACTOR CORE AND HEAT EXCHANGER HYDRAULICS, PUMPS FOR THE THREE SALT SYSTEMS, HEAT TRANSFER IN THE HEAT EXCHANGERS AND BOILER-SUPERHEATER, MECHANICAL VALVES FOR SALT-FLOW CONTROL, CONTROL ROD AND DRIVE, PRESSURE RELIEF IN COOLANT SYSTEM, CELL INSULATION AND HEATERS, AND THE COVER-GAS SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD + CONTROL ROD DRIVE + HEAT EXCHANGER + HEAT TRANSFER + INSTRUMENTATION, COMPONENT + PUMP + REACTOR, BREEDER + REACTOR, MOLTEN SALT + REACTOR, THERMAL + SURVEY, GENERAL + VALVE

12-19283 ALSO IN CATEGORY 18
AMENDMENT 18 - ADDITIONAL INFORMATION-STANDBY CORE COOLING SYSTEMS DESIGN

CATEGORY 12
PLANT SAFETY FEATURES

12-19283 *CONTINUED*

JERSEY CENTRAL POWER AND LIGHT COMPANY
16 PAGES, 5 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

PROVIDES ADDITIONAL INFORMATION ON (1) CONTROL-DRIVE PUMP USED FOR SMALL BREAKS, (2) CORE-SPRAY-SYSTEM STRUCTURAL REQUIREMENTS, (3) WATER INJECTION INTO A HOT CORE-SPRAY SPARGER RING, (4) ISOLATION PROVISION FOR REACTOR-BUILDING CORNER ROOMS, (5) SINGLE FAILURES IN DC POWER SYSTEMS FOR ENGINEERED SAFEGUARDS, (6) DIESEL-GENERATOR FUEL-OIL SUPPLY AND REPLENISHMENT CAPABILITY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY COOLING CONSIDERATIONS + *EMERGENCY POWER, ELECTRIC + CORE SPRAY + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL + THERMAL MECHANICAL EFFECT

12-19284 ALSO IN CATEGORY 18

AMENDMENT 18-1 - USE OF ROD DRIVE PUMP FOR SMALL BREAKS
JERSEY CENTRAL POWER AND LIGHT COMPANY
2 PAGES, PAGE 1-1 AND 1-2, 2 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

AUTO-RELIEF VALVES CAN BE PREVENTED FROM LIFTING FOR BREAKS LESS THAN 0.002 SQ. FT (BY PLACING PUMP MOTOR ON DIESEL BUS, AND LOWERING LOW-LOW RELIEF-VALVE TRIP) SO ROD-DRIVE PUMP WILL KEEP CORE COVERED (RELIEF-VALVE USAGE IN THIS SITUATION WOULD UNCOVER CORE MOMENTARILY). NEW TRIP POINT DOES NOT AFFECT RELIEF-VALVE FUNCTION ABOVE 0.002 SQ. FT, AND RESULTS IN IMPROVEMENT ON CALCULATED PEAK-CLAD-TEMP.-VS-BREAK-SIZE GRAPH.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD DRIVE + *CORE REFLOODING SYSTEM + *PRESSURE RELIEF + ACCIDENT, LOSS OF COOLANT + EMERGENCY POWER, ELECTRIC + OYSTER CREEK + PUMP + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

12-19285 ALSO IN CATEGORY 18

AMENDMENT 18-2 - CORE SPRAY SYSTEM STRUCTURAL REQUIREMENTS
JERSEY CENTRAL POWER AND LIGHT COMPANY
2 PAGES, PAGE 2-2 AND 2-3, OCTOBER 1967, DOCKET NO. 50-219

DISCUSSES DESIGN CRITERIA (NORMAL TRANSIENTS, MAX. EARTHQUAKE LOADING, ACCIDENT LOADING) AND ASSERTS THAT PIPING AND STRUCTURE MEET CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *EARTHQUAKE ENGINEERING + DESIGN CRITERIA + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL + VIBRATION

12-19286 ALSO IN CATEGORY 18

AMENDMENT 18-3 - TESTS ON BACK PRESSURE OF WATER INJECTION INTO A HOT CORE SPRAY SPARGER RING
JERSEY CENTRAL POWER AND LIGHT COMPANY
5 PAGES, PAGE 3-1 AND 3-2, 3 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

QUARTER-SECTION TESTS SIMULATING ACCIDENT USAGE INDICATED A SLIGHT FLOW REDUCTION (DUE TO STEAM FORMATION) BETWEEN 2-5 SEC AFTER INITIATION, BUT, BY 12 SEC, FULL FLOW HAD BEEN REACHED. REFERENCE TO BONUS SPRAY-RING TESTS IN 1961. FLOW PERTURBATIONS CONSIDERED WELL UNDERSTOOD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *FLOW ORIFICE OR RESTRICTION + *MOCKUP + *TESTING + ACCIDENT, LOSS OF COOLANT + FLOW, TWO PHASE + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

12-19288 ALSO IN CATEGORIES 10 AND 18

AMENDMENT 18-5 - SINGLE FAILURE IN DC POWER SYSTEMS FOR ENGINEERED SAFEGUARDS
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 5-1, OCTOBER 1967, DOCKET NO. 50-219

ASSERTS DC POWER SYSTEM MEETS SINGLE-FAILURE CRITERION FOR REDUNDANCY OF CIRCUITRY AND COMPONENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY POWER, ELECTRIC + *ENGINEERED SAFETY FEATURE + *SINGLE FAILURE CRITERION + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

12-19447 ALSO IN CATEGORY 18

OYSTER CREEK AMENDMENT 22 - TEN ANSWERS TO QUESTIONS ON CONTAINMENT
JERSEY CENTRAL POWER AND LIGHT COMPANY

CATEGORY 12
PLANT SAFETY FEATURES

12-19447 *CONTINUED*
29 PAGES, 2 FIGURES, 7 TABLES, OCTOBER 16, 1967, DOCKET NO. 50-219

IN ADDITION TO ANSWERS ON CONTAINMENT, OYSTER CREEK IS PREPARED TO INSTALL ADDITIONAL HIGH-PRESSURE COOLANT-INJECTION CAPABILITY UNDER LOSS OF OFF-SITE POWER IF AEC STAFF FEEL PRESENT CORE-SPRAY SYSTEM IS INSUFFICIENT. G.E. HAS AGREED TO INVESTIGATE WAYS TO INCREASE FLOODING CAPABILITY OF REACTOR VESSEL. RESULTS WILL BE REPORTED TO AEC WHEN AVAILABLE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE REFLOODING SYSTEM + *CORE SPRAY + *EMERGENCY COOLING CONSIDERATIONS + AEC QUESTION + MODIFICATION, SYSTEM OR EQUIPMENT + OYSTER CREEK + PRESSURE, INTERNAL + REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + SAFETY ANALYSIS REPORT, GENERAL

12-19567

MUENCHOW HD + CHASE WL

AN INVESTIGATION OF TUBE WASTAGE CAUSED BY SMALL LEAKS OF WATER IN SODIUM-HEATED STEAM GENERATORS ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN
SM-85/24 +. 21 PAGES, FIGURES, TABLES, PRESENTED AT THE IAEA SYMPOSIUM ON ALKALI METAL COOLANTS, CORROSION STUDIES AND SYSTEM OPERATING EXPERIENCE, VIENNA, 28 NOVEMBER - 2 DECEMBER 1966

DESCRIBES THE TEST EQUIPMENT, INITIAL TEST RESULTS, AND THE BEGINNING OF A PROGRAM FOR STUDYING THE MECHANISMS OF METAL REMOVAL BY CORROSION, EROSION, OR OTHER PROCESSES IN A SODIUM-HEATED STEAM GENERATOR. GENERAL CONCLUSIONS ARE (1) LARGE QUANTITIES OF HYDROGEN COULD BE VENTED, THUS REDUCING THE SHELL-DESIGN REQUIREMENTS, AND (2) SIMPLE DESIGN INNOVATIONS MAY BE MADE TO THE TUBE BUNDLES TO PREVENT TUBES ADJACENT TO A SMALL LEAK FROM EXPERIENCING HIGH REACTION TEMPERATURES AND THUS PROPAGATING THE LEAK INTO A CHAIN-REACTION.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY (NEW YORK OR GENEVA)

*FAILURE, TUBING + *TESTING + CHEMICAL REACTION + CORROSION + DESIGN CRITERIA + EROSION + HEAT EXCHANGER + REACTOR, LIQUID METAL COOLED + SODIUM + STEAM GENERATOR + WATER, GENERAL

12-19669

ALSO IN CATEGORY 17

LACROSSE REPORTS MODIFICATION OF ALTERNATE CORE SPRAY SYSTEM
ALLIS-CHALMERS MFG. CO.

7 PAGES, 3 FIGURES, OCTOBER 26, 1967, DOCKET NO. 115-5

6-IN.-DIAM PIPING (INSTEAD OF 8) WAS USED TO AVOID A 3-MONTH DELAY IN PIPE DELIVERY. INCREASED PRESSURE DROP IS SUFFICIENTLY SMALL NOT TO NEGATE THE 900-GPM FLOW RATE. *** EACH DIESEL PUMP HAS A SEPARATE DUPLEX STRAINER TO PROVIDE REDUNDANCY. ATTACHED IS A 7-PAGE DESCRIPTION OF THIS ALTERNATIVE CORE-SPRAY SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *MODIFICATION, SYSTEM OR EQUIPMENT + *REDUNDANCE + LACROSSE + PIPING + PRESSURE DROP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

12-19774

ALSO IN CATEGORY 9

WEBER M

CONTROL SYSTEM FOR A STEAM GENERATOR RECEIVING HEAT FROM A NUCLEAR REACTOR

SULZER BROTHERS LTD.

CANADIAN PATENT 746,701 +. 20 PAGES, 5 FIGURES, NOV. 22, 1966

THE COOLANT FROM A REACTOR IS USED TO OPERATE A VAPOR GENERATOR WHICH CONTAINS A SUPERHEATER. THE TEMPERATURE OF THE COOLANT IS MAINTAINED APPROXIMATELY CONSTANT BY CONVENTIONAL DEVICES, AND ITS FLOW IS COUNTERCURRENT TO THAT IN THE VAPOR GENERATOR. STEADY OUTLET TEMPERATURE FROM THE VAPOR GENERATOR IS ACHIEVED BY REGULATING THE RATE OF FEED WATER SUPPLY TO THE GENERATOR IN RESPONSE TO THE TEMPERATURE OF AN INTERMEDIATE PORTION OF THE SUPERHEATER. A TEMPERATURE SENSOR PRODUCES A CONTROL SIGNAL WHICH REGULATES THE SUPPLY OF FEED WATER. IN THE VAPOR GENERATOR, THERE ARE TWO SETS OF COILS, THE SECOND INCLUDING A SUPERHEATER. A SYSTEM OF VALVES AND BYPASSES MAINTAINS CONTROL OF FLOW TO THE TURBINE.

*CONTROL SYSTEM + *REACTOR COOLANT + HEAT TRANSFER, CONDUCTION + MEASUREMENT, TEMPERATURE

12-19849

ALSO IN CATEGORY 18

SIXTH SUPPLEMENT TO - PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
55 PAGES, DOCKET 50-247, APRIL 18, 1967

ANSWERS ACRS LETTER OF AUGUST 16, 1966, WITH INFORMATION ON INCREASE OF EMERGENCY CORE-COOLING CAPACITY (56 PG), EFFECT OF MAXIMUM LOSS-OF-COOLANT ACCIDENT ON INTEGRITY OF REACTOR CORE AND PRESSURE VESSEL INTERNAL COMPONENTS (16 PG), AND PRIMARY-SYSTEM-DESIGN FABRICATION TECHNIQUES AND IN-SERVICE INSPECTIONS (8 PG).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

CATEGORY 12
PLANT SAFETY FEATURES

12-19849 *CONTINUED*

*EMERGENCY COOLING CONSIDERATIONS + *MAIN COOLING SYSTEM + *QUALITY CONTROL + ACCIDENT, CONSEQUENCES + ACCIDENT, LOSS OF COOLANT + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19850 ALSO IN CATEGORIES 5 AND 18
SECTION 2 - EMERGENCY CORE COOLING SYSTEM ANALYSIS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

56 PAGES, 18 FIGURES FROM THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 16, 1967

AN ACCUMULATOR WAS ADDED AND FUNCTIONING OF ENTIRE SYSTEM BRIEFLY DESCRIBED. DESCRIBES FLASH, CHIC-KIN, LOCTA-R2, AND SATAN COMPUTER CODE USAGE IN LOSS-OF-COOLANT ANALYSIS TO FIX COOLING-SYSTEM REQUIREMENTS. A SMALL BREAK GENERATES THE MOST ENERGY BEFORE ROD INSERTION. EFFECT OF FILM-COEFFICIENT VARIATION WAS STUDIED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ACCUMULATOR + *BLOWDOWN + COMPUTER PROGRAM + CORE REFLOODING SYSTEM + ERROR ANALYSIS + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19853 ALSO IN CATEGORY 18
TAB 1 - RELIABILITY OF EMERGENCY CORE COOLING
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

38 PAGES, FROM FIFTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, JULY 18, 1967

GIVES TWO DESIGN AND SEVEN RELIABILITY CRITERIA, AND 20 PAGES OF SPECIFICATIONS FOR PUMPS, VALVES, PIPING, AND HEAT EXCHANGERS. OUTLINES QUALITY CONTROL AND TESTING PROGRAMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE REFLOODING SYSTEM + *RELIABILITY, SYSTEM + DESIGN CRITERIA + INDIAN POINT 2 + QUALITY CONTROL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19854 ALSO IN CATEGORIES 6 AND 18
TAB 2 - REACTOR PIT CRUCIBLE
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

12 PAGES, 2 FIGURES, 2 TABLES, 3 REFERENCES, FROM FIFTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-257, JULY 28, 1967

AN MGO-LINED STEEL CRUCIBLE WILL BACK UP THE EMERGENCY CORE-COOLING SYSTEMS SHOULD THE CORE MELT THRU THE REACTOR VESSEL. HEAT-TRANSFER ANALYSIS OF TEMPERATURE INDICATES UO2 RANGES BETWEEN 6000 AND 4500 F, MGO AVERAGE IS 2400 F, AND STEEL AVERAGES 500. EXACT EXPERIMENTAL HEAT-TRANSFER DATA IS NOT AVAILABLE. HOWEVER, CRUCIBLE SYSTEMS OF THIS KIND ARE WELL KNOWN IN THE METAL-CASTING INDUSTRY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE MELTDOWN + *ENGINEERED SAFETY FEATURE + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + REFRACTORY MATERIAL + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19934 ALSO IN CATEGORIES 6 AND 18
SEVENTH SUPPLEMENT TO INDIAN POINT 2. PRELIMINARY SAFETY ANALYSIS REPORT. EXHIBIT B-7
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
166 PAGES, 54 FIGURES, 6 TABLES, OCTOBER 16, 1967, DOCKET NO. 50-247

GIVES ADDITIONAL INFORMATION IN RESPONSE TO ACRS LETTER OF 16 AUG. 1966. (SECTION 1, 60 PG) SAFETY INJECTION SYSTEM FINAL DESIGN. (SECTION 2, 12 PG) REACTOR INTERNALS AND BLOWDOWN EFFECTS. (SECT 3, 4 PG) ADEQUACY OF REACTOR SYSTEM DESIGN AND INSPECTION. (SECT 4, 9 PG) REACTOR SYSTEM INSPECTION. (SECT 5, 6 PG) REACTOR COOLANT SYSTEM LEAK DETECTION. (SECT 6, 4 PG) FINAL LOADING PATTERN AND NONPOSITIVE TEMP COEFF. (SECT 7, 15 PG) REACTOR-PIT CRUCIBLE. (APPENDIX A - WCAP 7072) USE OF PART LENGTH ADSORBER RODS IN WESTINGHOUSE PWRS. (APPENDIX B - WCAP 7113) USE OF BURNABLE POISONS IN WESTINGHOUSE PWRS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19935 ALSO IN CATEGORY 18
SECTION 1 - SAFETY INJECTION SYSTEM FINAL DESIGN
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

CATEGORY 12
PLANT SAFETY FEATURES

12-19935 *CONTINUED*

33 PAGES, 1 TABLE, PAGE 1-1 THRU 1-33 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

BASED ON ANALYSES IN 6TH SUPPLEMENT, WHICH WILL BE REPEATED WITH FINAL PARAMETERS. THE THREE MODES ARE 4 ACCUMULATOR TANKS, 3 HIGH-HEAD SAFETY INJECTION PUMPS, AND 2 LOW-HEAD RESIDUAL-HEAT-REMOVAL PUMPS AND HEAT EXCHANGERS. ACCUMULATORS ARE CHARGED TO 660 PSIG BY NITROGEN. A 215G-GAL INJECTION TANK PROVIDES 20,000 PPM BORON, DRIVEN BY NITROGEN AT 70 PSIG. RESTRAINTS PREVENT BREAKING MOTIONS DURING PIPING RECOIL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY COOLING CONSIDERATIONS + *SYSTEM DESCRIPTION + ACCUMULATOR + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + CCRE REFLOODING SYSTEM + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

12-19942 ALSO IN CATEGORY 18

SECTION 7 - REACTOR-PIT CRUCIBLE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

14 PAGES, 3 FIGURES, 2 TABLES, PAGE 7-1 THRU 7-14 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

ADDITION OF ACCUMULATORS RELEGATES CRUCIBLE TO A ROLE WHICH WILL NEVER BE NEEDED EVEN UNDER THE WORST ACCIDENT HYPOTHESIZED. ALUMINA AND SILICON CARBIDE ARE BEING CONSIDERED. THE MOLTEN VOLUME INCLUDES THE LOWER CORE SUPPORT AND LOWER HEAD. MECHANICAL AND STRUCTURAL DESIGN DESCRIBED. A REFINED RECALCULATION OF THE THERMAL ANALYSIS USES DESIGN PARAMETERS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE MELTDOWN + *ENGINEERED SAFETY FEATURE + *SYSTEM DESCRIPTION + HEAT TRANSFER, BOILING + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + REFRACTORY MATERIAL + SAFETY ANALYSIS REPORT, PRELIMINARY + THERMAL ANALYSIS

12-19945 ALSO IN CATEGORIES 18 AND 11

DRL ASK OYSTER CREEK FOR INFORMATION ON EMERGENCY CORE COOLING AND CONTROL ROD SUPPORT FAILURE AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

2 PAGES, NOVEMBER 17, 1967, DOCKET NO. 50-219

ACRS AND DRL BELIEVE THAT A HIGH-PRESSURE COOLANT-INJECTION CAPABILITY FOR BREAKS LESS THAN 0.2 SQ. FT IS NEEDED TO PREVENT ACTUATION OF AUTO-RELIEF SYSTEM, LIMIT CLAD TEMPERATURE TO 2000 F, AND PREVENT CLAD FAILURE OVER A PORTION OF THE BREAK-SIZE SPECTRUM UP TO 0.02 SQ. FT. DRL REQUESTS ADDITIONAL INFORMATION ON CRACKING OF SOME WELDS JOINING CONTROL-ROD-DRIVE GUIDE-TUBE STUBS TO THE REACTOR VESSEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *CONTROL ROD BURNUP + *EMERGENCY COOLING CONSIDERATIONS + *FAILURE, EQUIPMENT + *WELDS + ENGINEERED SAFETY FEATURE + OYSTER CREEK + REACTOR, BOILING WATER

12-19946 ALSO IN CATEGORY 18

NINE MILE PT. COMPLETION DATE POSTPONED DUE TO DELAYS

LEBOEUF, LAMB AND LEIBY, WASHINGTON, D. C.

1 PAGE, OCTOBER 17, 1967, DOCKET NO. 50-220

DELAYS DUE TO SERIOUS LACK OF SKILLED MAN POWER AND NECESSITY FOR EXTENDED ANALYSIS AND INVESTIGATION OF THE EMERGENCY CORE-COOLING SYSTEMS AND OTHER SAFEGUARD FEATURES HAVE FORCED POSTPONMENT OF LATEST DATE OF COMPLETION TO 1 AUG. 68.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENGINEERED SAFETY FEATURE + CORE REFLOODING SYSTEM + NINE MILE POINT + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

12-20008

ALSO IN CATEGORY 2

BECK CK

TRENDS IN REACTOR SAFETY AND SITING CRITERIA - CRITERIA FOR SEISMIC AREAS

U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

SM-89/54 + CONF-670 402 +. 9 PAGES PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

CONSIDERABLE PROGRESS HAS BEEN MADE IN DEVELOPMENT OF SAFETY CRITERIA FOR EVALUATION OF REACTOR DESIGNS, SOME NEW ADVANCES HAVE BEEN MADE IN CODE DEVELOPMENT, AND PRELIMINARY CRITERIA HAVE BEEN DRAFTED FOR LOCATION AND DESIGN OF REACTORS IN SEISMIC AREAS. CRITERIA INVOLVING GENERAL PLANT DESIGN, SAFETY DESIGN, BOILER AND PRESSURE VESSELS, SEISMIC-AREA CONSTRUCTION, AND VARIOUS WORK IN CODES AND STANDARDS IS DISCUSSED.

AVAILABILITY - NUCLEAR AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

CATEGORY 12
PLANT SAFETY FEATURES

12-20008 *CONTINUED*

*EARTHQUAKE + *EARTHQUAKE ENGINEERING + *SITING, REACTOR + *UNITED STATES +
ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + CODES AND STANDARDS + DESIGN CRITERIA

12-20016 ALSO IN CATEGORY 7

CHUBAKOV AA + LUZANOVA LM

COMBINED SYSTEM FOR REDUCING THE RELEASE OF RADIOACTIVE NOBLE GASES AT NUCLEAR POWER PLANTS USING BOILING WATER REACTORS

SM-89/50 + CONF-670 402 +. 1 PAGE, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

THE AUTHORS POINT OUT THE RISK OF HIGH BURNUP RESULTING IN GREATER RELEASE OF RADIOACTIVE NOBLE GASES FROM BOILING-WATER REACTORS. THEY DESCRIBE A COMBINED SYSTEM FOR PURIFYING THE AIR OF RADIOACTIVE NOBLE GASES, USING A DELAY LINE (DRUMS OF AIR OR CARBON AT NORMAL TEMPERATURE) TO REDUCE KRYPTON ACTIVITY AND LOW-TEMPERATURE SORPTION ON CARBON TO REDUCE XENON ACTIVITY. THE BEST PARAMETERS FOR THE PROPOSED SYSTEM ARE CHOSEN ON THE BASIS OF A THEORETICAL ASSESSMENT OF THE ACTIVITY ENTERING THE LOOP AND THE ISOTOPIC COMPOSITION OF THE RADIOACTIVE NOBLE GASES, GIVEN VARIOUS DEGREES OF LEAKAGE THROUGH THE FUEL ELEMENT CLADDING. THE AUTHORS INCLUDED EXPERIMENTAL DATA.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*FISSION PRODUCT RELEASE, GENERAL + *NOBLE GAS + *REACTOR, BOILING WATER +
*UNION OF SOVIET SOCIALIST REPUBLICS + KRYPTON + XENON

12-20068 ALSO IN CATEGORY 14

SUGALSKI A + JAGIELSKI E J.

EXPERIENCES WITH LATEX-TYPE MATERIALS AS DECONTAMINATING AGENTS

KNOLLS ATOMIC POWER LAB., SCHENECTADY, N. Y.

KAPL-P-3366 + CONF-671102-12 +. 7 PAGES, REFERENCES, PRESENTED AT 15TH CONF. ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

STRIPPABLE LATEX WAS VERY EFFECTIVE FOR REMOVING LOOSE CONTAMINATION FROM SURFACES EXPOSED DURING HOT-CELL OPERATIONS AT KAPL. THE MATERIAL WILL CONFINE CONTAMINATION AND, WHEN STRIPPED FROM THE SURFACE, EFFECTIVELY REMOVES A LARGE AMOUNT OF THE CONTAMINATION. THE STRIPPED MATERIAL CAN BE DISCARDED AS SOLID WASTE WITHOUT FURTHER TREATMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + EQUIPMENT, GENERAL + HOT CELL + KAPL (KNOLLS ATOMIC POWER LABORATORY)

12-20427 ALSO IN CATEGORY 13

MATHERNE JL + COLLINS ED + EVANS WW

PROBLEMS AND SUCCESSSES IN THE FIRST MAJOR MAINTENANCE PERFORMED IN THE TRANSURANIUM PROCESSING PLANT OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-P-3229 + CONF-671102-10 +. 12 PAGES, TABLES, FIGURES, REFERENCES, 1966, FROM 15TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

MAJOR MAINTENANCE PERFORMED AFTER SEVEN MONTHS OF OPERATION DEMONSTRATED THAT WE COULD SUCCESSFULLY HANDLE ALL THE MAINTENANCE PROBLEMS AND TECHNIQUES EXPECTED TO BE ENCOUNTERED IN THE FORESEEABLE FUTURE IN THE TRANSURANIUM PROCESSING PLANT. THE EQUIPMENT RACKS IN ONE PROCESSING CUBICLE WERE REMOVED AND MODIFIED, AND EXTENSIVE REVISIONS AND REPLACEMENTS WERE MADE IN THE CORRESPONDING TANK PIT. THE MAINTENANCE WAS ACCOMPLISHED WITHOUT SIGNIFICANT MECHANICAL, RADIATION, OR CONTAMINATION PROBLEMS, AND THE FACILITY WAS RETURNED TO FULL-SCALE OPERATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EQUIPMENT, GENERAL + *MAINTENANCE AND REPAIR + *MAINTENANCE, REMOTE +
*ORNL (OAK RIDGE NATIONAL LABORATORY) + *RADIOCHEMICAL PLANT SAFETY + *TRANSURANIUM PROGRAM +
TRANSURANIUM ELEMENT

12-20429

SILVER L

SCREENING FOR CHEMICAL PROCESS HAZARDS

MERCK SHARP + DOHME RESEARCH LABORATORIES, RAHWAY, N. J.

7 PAGES, FIGURES, REFERENCES, CHEMICAL ENGINEERING PROGRESS, 63(8), PAGES 43-49 (AUGUST 1967)

EXPLOSIONS INVOLVING ORGANIC CHEMICALS IN MERCK CHEMICAL PLANTS ARE EXPLAINED IN THIS ARTICLE, AND METHODS OF SCREENING TO DETECT POTENTIAL PROCESS HAZARDS ARE PRESENTED. THE EQUIPMENT ITEMS INVOLVED WERE A VACUUM STILL AND A REACTOR VESSEL.

*CHEMICAL REACTION + *EXPLOSION + INCIDENT, ACTUAL, NONNUCLEAR

CATEGORY 12
PLANT SAFETY FEATURES

12-20499 ALSO IN CATEGORIES 17 AND 7
FAST REPORT ON PROGRESS OF ONBOARD FILTER TESTING PROGRAM
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, SEPTEMBER 15, 1967, DOCKET NO. 50-238

FILTERS ARE BEING TESTED BY WESTINGHOUSE TO DETERMINE CAUSE OF FAILURE. THE FREON-12 TEST WAS RUN AT WESTINGHOUSE BEFORE TRIED ABOARD SHIP. DIFFICULTIES DISCOVERED ARE BEING WORKED OUT SO THAT TESTS MAY BE MADE ON NEXT TRIP. FAST WILL NEXT REPORT ON THIS PROGRAM MARCH 15, 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FILTER + *TESTING + N S SAVANNAH + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

12-20544 ALSO IN CATEGORY 7
BILLARD F + BRION J
TESTING ON AIR CLEANING SYSTEMS - TESTING OF THE COMPONENTS IN-PLACE TESTS
COMMISSARIAT A L'ENERGIE ATOMIQUE, FONTENAY-AUX-ROSES, FRANCE
CEA-R-3227 +. 46 PAGES, 27 FIGURES, 17 REFERENCES, JUNE 1967

THE RELIABILITY OF AIR CLEANING SYSTEMS DEPENDS ON THE TESTING THEY ARE SUBMITTED TO. ALTHOUGH IN-PLACE TESTS ARE THE MOST IMPORTANT AS THEY ACT AS FINAL TESTS UPON ACHIEVED PLANTS, COMPONENT TESTS ARE NECESSARY TOO. THEY ALLOW DETECTION OF DEFECTIVE UNITS BEFORE THEY ARE INSTALLED, PARTITION OF UNIT DEFECTS FROM MOUNTING DEFECTS AND THEY ARE MORE SENSITIVE. FOR SIMILAR REASONS, MATERIAL TESTS ARE MOST USEFUL. THE VARIOUS TESTS ARE DESCRIBED, ABOUT AEROSOL FILTERS FOR ONE PART, IODINE TRAP FOR THE OTHER. THE CHECKED FEATURES ARE - MATERIALS NATURE, UNITS SIZES, EFFICIENCY, AIR RESISTANCE, FLAMMABILITY, HUMIDITY RESISTANCE, TEMPERATURE RESISTANCE, ADSORBENT FRIABILITY, ETC. ON IODINE-TRAPPING SYSTEMS, SMALL CHECK TRAPS, WORKING IN BYPASS WITH THE MAIN TRAP, ARE PERIODICALLY SUBJECTED TO EFFICIENCY TESTS. THIS CONTROL ALLOWS ONE TO CUT DOWN THE IN-PLACE TESTS FREQUENCY, PARTICULARLY WHEN POISONING FROM ORGANIC VAPOURS IS TO BE FEARED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FILTER INSPECTION + *FILTER INSTALLATION + *FILTER OPERATION + AIR CLEANING + FILTER +
FILTER CHARACTERISTICS

12-20545 ALSO IN CATEGORY 7
COLLINS RD + HILLARY JJ + TAYLOR JC
AIR CLEANING FOR REACTORS WITH VENTED CONTAINMENT
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
TRG-1318(W) +. 34 PAGES, 11 FIGURES, 5 TABLES, 9 REFERENCES, 1967

A PROGRAM OF EXPERIMENTAL WORK WAS CARRIED OUT UNDER CONDITIONS APPROPRIATE TO POSSIBLE DEPRESSURISATION-TYPE ACCIDENTS TO THE STEAM GENERATING HEAVY WATER REACTOR (SGHWR) AT WINFRITH, WHICH HAS VENTED CONTAINMENT. THE WORK INCLUDED SMALL-SCALE EXPERIMENTS IN GLASS OR SILICA APPARATUS IN WHICH MEASUREMENTS WERE MADE OF THE EXTENT AND FORM OF THE IODINE RELEASE FROM ZIRCALOY-CLAD UO₂ INTO STEAM UNDER MELTING CONDITIONS AND AT ABOUT 1000 C. A NUMBER OF TESTS WERE CONDUCTED WITH SIMULATED FORMS OF IODINE ON TWO LARGE-SCALE STEEL MODELS OF THE REACTOR WATER-LUTE STEAM-SUPPRESSION SYSTEM. TESTS WERE ALSO CARRIED OUT ON 1000-CFM FILTER UNITS TO DEVELOP DROPLET DISENTRAINMENT DEVICES. WORK ON THE DEVELOPMENT OF CHARCOALS TO DEAL WITH PENETRATING IODINE (METHYL IODIDE) UNDER WET CONDITIONS IS REPORTED SEPARATELY. THE RESULTS OF THIS WORK SHOW THAT - (A) AN EFFECTIVE TRAPPING PLANT CAN BE SPECIFIED TO DEAL WITH FISSION PRODUCT IODINE IN WET ATMOSPHERES. (B) WITH HIGHLY RATED FUEL, AT LEAST UP TO 1000-MWD/TEU FUEL BURNUP, AND AT A FAILURE TEMPERATURE UP TO 1000 C, A CAN-RETENTION FACTOR OF 10 APPLIES FOR IODINE EXPECTED TO BE FREE WITHIN THE CAN. (C) PASSAGE THROUGH A WATER LUTE IS LIKELY TO REDUCE THE IODINE RELEASE (OTHER THAN METHYL IODIDE) BY A FURTHER FACTOR OF 10.

*AIR CLEANING + *CLAD + *FISSION PRODUCT, IODINE + *URANIUM DIOXIDE + ALLUOY + FUEL BURNUP + STEAM +
ZIRCONIUM

12-20776 ALSO IN CATEGORIES 9 AND 17
HANSON CL + COOPS MS + PARKISON CD
TRANSFER SYSTEMS FOR THE LIVERMORE NEUTRON CELLS
LAWRENCE RADIATION LAB., CALIFORNIA UNIV., LIVERMORE, CALIFORNIA
UCRL-70494 + CONF-671102-19 +. 18 PAGES, 9 FIGURES, REFERENCES, JULY 10, 1967, FROM 15TH CONFERENCE ON
REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

SPECIAL TRANSFER SYSTEMS ARE REQUIRED TO HANDLE FISSION SOURCES IN THE NEUTRON CELLS BEING BUILT AT LIVERMORE. THESE SYSTEMS ARE REMOTELY OPERATED BEHIND 4-FT-THICK NEUTRON SHIELDING. SEVERAL TRANSFER SYSTEMS ARE DIRECTLY CONNECTED TO THE CELL LINERS WHICH CONTAIN THE INTENSE ALPHA ACTIVITY. COMPONENTS ARE BUILT IN MODULES TO PERMIT EASY REPLACEMENT. SEVERAL DEVICES WERE DESIGNED TO PERMIT REMOTE REPLACEMENT OF PLASTIC BOOTING TO ENSURE CONTINUED OPERATIONS IN THE CELLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 12
PLANT SAFETY FEATURES

12-20776 *CONTINUED*
EQUIPMENT DESIGN + INSTRUMENTATION, CONTROL + TRANSPORTATION AND HANDLING

12-20826 ALSO IN CATEGORIES 7 AND 14
SCHEEL H
REGARDING THE PROCEDURE AT EXTRA ORDINARY EVENTS WITH RADIOACTIVE SOURCES
STAATLICHE ZENTRALE FÜR STRAHLENSCHUTZ
SZS-4(1965) +. 18 PAGES, JUNE 1965, IN GERMAN

RULES TO BE APPLIED IN THE GERMAN DEMOCRATIC REPUBLIC IN CASE OF UNUSUAL EVENTS ENDANGERING PERSONNEL AND PROPERTY BY IONIZING RADIATION, SUCH AS FIRE, FLOOD, LOSS OF RADIOACTIVE MATERIAL, AND OTHER ACCIDENTS IN CONNECTION WITH SOURCES OF IONIZING RADIATION. PHASE I (PRIOR TO ARRIVAL OF TRAINED HELP), PHASE II (ACTIVITIES OF TRAINED HELP), PHASE III (RECOVERY).

*GERMANY + *RADIATION SAFETY AND CONTROL + DECONTAMINATION + FIRE + RADIATION PROTECTION, ORGANIZATION

12-21836 ALSO IN CATEGORY 18
WESTINGHOUSE RESEARCH AND DEVELOPMENT FOR COOK 1 + 2
INDIANA + MICHIGAN ELECTRIC COMPANY
8 PAGES OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1, PAGE 1.6-1 TO 1.6-8, DECEMBER 18, 1967, DOCKET 50-315/316

R AND D PROGRAM INCLUDES WORK ON CONTAINMENT-SPRAY ADDITIVES. PRELIMINARY RESULTS ON 3 SOLUTIONS, (1) 1 W/O SODIUM THIOSULPHATE IN 3000-PPM BORON, (2) SAME AS 1 EXCEPT NAOH ADDED TO GIVE PH OF 9, AND (3) NAOH IN 3000-PPM BORON TO GIVE PH OF 9.5. SOLUTION 1 IS OXIDIZED BY AIR AT ACCIDENT CONDITIONS, DESTROYING IODINE RETENTION AND PRODUCING AN ACID BYPRODUCT WHICH ATTACKS CU, AL, BRASS, CARBON STEEL, AND GALVANIZED SURFACES. SOLUTION 2 IS STABLE CHEMICALLY AND ATTACKS ONLY COPPER, BRASS, AND AL. SOLUTION 3 IS STABLE AND ATTACKS ONLY AL. IODINE RETENTION OF EACH IS COMPARABLE. SOLUTION 3 HOWEVER LOSES SOME OF ITS IODINE RETENTION IF PH IS BELOW 9.5. SOLUTIONS 1 AND 2 UNDERGO RADIOLYTICAL DECOMPOSITION UNDER GAMMA RADIATION, SOLUTION 3 IS RADIOLYTICALLY STABLE AND RESULTS IN LESS NET HYDROGEN LIBERATION. FURTHER STUDY IS BEING DONE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADDITIVE + *CONTAINMENT SPRAY + *FISSION PRODUCT, IODINE + COOK 1 AND 2 (PWR) +
FISSION PRODUCT RETENTION + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM +
SAFETY ANALYSIS REPORT, PRELIMINARY

12-21837 ALSO IN CATEGORIES 18 AND 11
COOK 1 AND 2 ICE CONDENSER CONTAINMENT SYSTEM DESCRIPTION
INDIANA + MICHIGAN ELECTRIC COMPANY
118 PAGES, 23 FIGURES, 7 TABLES, REFERENCES, PAGES 5.1-1 TO 5.7-4 OF VOLUME 1, PAGES 14.3-1 TO 14.3-42 OF VOLUME 3 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, DECEMBER 18, 1967, DOCKET 50-315/316

CONTAINMENT SYSTEM IS DIVIDED INTO AN UPPER AND LOWER REGION, BY AN ANNULAR RING AROUND THE CONTAINMENT WALL WHICH CONTAINS BORATED ICE IN OPEN-MESH BASKETS. REACTOR AND ASSOCIATED PIPING IS IN THE LOWER REGION. UPON LOSS OF COOLANT, PRESSURE INCREASE OPENS DOORS AT BOTTOM OF ICE CONDENSER, THE STEAM IS QUENCHED, AND THE AIR PASSES TO THE UPPER REGION. THE INSIDE DIMENSIONS OF THE CONTAINMENT ARE ABOUT 166 FT TALL BY 115 FT DIA. VS 140 AND 212 FOR ZION STATION, WHICH IS NEARLY IDENTICAL. PROPRIETARY REPORTS WCAP-2951, -7040, -7079, AND -7079 SUPPLEMENTS 1 AND 2, COVER VARIOUS TESTS RELATING TO THIS TYPE OF CONTAINMENT. CONDENSATION OF STEAM IN THE ICE TRAPS 96% OF THE HALOGENS FROM A LOSS-OF-COOLANT ACCIDENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FISSION PRODUCT RETENTION + ACCIDENT, LOSS OF COOLANT + CONDENSATION + CONTAINMENT; ICE CONDENSER +
COOK 1 AND 2 (PWR) + FISSION PRODUCT, IODINE + REACTOR, PRESSURIZED WATER +
SAFETY ANALYSIS REPORT, PRELIMINARY + SYSTEM DESCRIPTION

12-22773 ALSO IN CATEGORIES 5 AND 18
SECTION XV - SAFETY ANALYSIS OF CORE AND COOLANT BOUNDARY PROTECTION
OMAHA PUBLIC POWER DISTRICT
16 PAGES, 3 FIGURES, 1 TABLE, PAGES XV-1-1 THRU XV-4-8 OF FORT CALHOUN 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 2, 1967, DOCKET 50-285, TYPE--PWR, MFG.--C.E., AE--GIBBS + HILL

PRESENTS PRELIMINARY EVALUATION MAINLY BY DEFINING THE ACCIDENT TO DETERMINE THE CRITERIA FOR SAFETY AND TO CONSIDER SAFEGUARD FEATURES WHICH WILL BE INCORPORATED TO MEET THE CRITERIA. ACCIDENTS CONSIDERED INCLUDE STARTUP, CORE-BARREL FAILURE, BORON DILUTION OR COLD WATER, POWER-TO-FLOW MISMATCH, LOSS OF LOAD, STEAM-LINE BREAK, AND LOSS OF FEEDWATER FLOW. THESE ACCIDENTS DO NOT COMPROMISE THE COOLANT-SYSTEM BOUNDARY, AND NO GROSS FAILURES OF FUEL RODS OCCUR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY ANALYSIS + ACCIDENT, COLD COOLANT + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOAD REJECTION +

CATEGORY 12
PLANT SAFETY FEATURES

12-22773 *CONTINUED*

ACCIDENT, REACTIVITY + ACCIDENT, STEAM LINE RUPTURE + ENGINEERED SAFETY FEATURE + FT. CALHOUN +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS, REPORT, PRELIMINARY

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-16584 ALSO IN CATEGORY 12
WATSON CD + WEST GA
RADIATION EFFECTS ON PAINTS. EFFECTIVE COATINGS VITAL TO NUCLEAR INDUSTRY
OAK RIDGE NATIONAL LAB., TENN.
6 PAGES, 8 FIGURES, 21 REFERENCES, MATERIALS PROTECTION 6(2), PAGES 44-49, (FEBRUARY 1967)

THE AUTHORS DISCUSS SOME OF THE ADVANCES MADE DURING THE PAST 10 YEARS IN PROTECTIVE COATINGS USED BY THE NUCLEAR INDUSTRY. ALTHOUGH NO INTENSIVE STUDIES HAVE BEEN MADE OF COATINGS EXPOSED TO NUCLEAR ENVIRONMENTS, ENOUGH TESTING HAS BEEN DONE TO PERMIT SUCCESSFUL APPLICATION OF COATINGS TO REACTOR CONTAINMENT SHELLS, TO PLANTS FOR RECOVERING SPENT NUCLEAR FUEL, RADIOISOTOPE PRODUCTION UNITS, SHIPPING CONTAINERS, AND OTHERS. THE AUTHORS SHOW SOME OF THE EFFECTS OF RADIATION ON COATINGS AND DISCUSS SOME OF THE FUTURE NEEDS.

*COATING, SURFACE + *RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + DECONTAMINATION + ORNL (OAK RIDGE NATIONAL LABORATORY)

13-18799 ALSO IN CATEGORY 17
ANDERSON HJ + BENNETT CA + BUDD RO + GRANQUIST DP
APPLICATIONS OF SAFEGUARDS TO NUCLEAR FUEL-FABRICATING PLANTS
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-458 +. 44 PAGES, REFERENCES, JUNE 1967

THERE ARE THREE MAIN PROBLEMS IN APPLYING SAFEGUARDS TO NUCLEAR FUEL-FABRICATING FACILITIES - (1) MEASURING THE FUEL CONTENT OF A FINISHED PRODUCT, (2) EVALUATION OF THE FUEL MATERIAL IN THE SCRAP, AND (3) THE MANY DIFFERENT FABRICATION PROCESSES AND FUEL DESIGNS, WHICH REQUIRE CONSIDERABLE PERSONNEL CAPABLE OF INSPECTING AND APPLYING SAFEGUARD PROCEDURES AND PRINCIPLES. THESE ITEMS ARE DISCUSSED IN DETAIL, GIVING THE READER AN INSIGHT OF THE COMPLEX PROBLEMS INVOLVED IN THIS WORK.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FABRICATION + *FUEL ELEMENT + FABRICATION FACILITY + RADIOCHEMICAL PLANT SAFETY + SAFETY ANALYSIS REPORT, GENERAL + WASTE HANDLING

13-19102 ALSO IN CATEGORIES 15 AND 17
NUCLEAR FUEL SERVICES CITED FOR NON COMPLIANCE
NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 22 (OCTOBER 30, 1967)

(LETTER, AUGUST 28) CITATIONS INCLUDE NOT SAMPLING WHEN STACK MONITOR AND SPARE WERE INOPERATIVE, LOCKED DOORS NOT USED FOR CONTROLLING ACCESS, NEITHER POLYETHYLENE NOR STAINLESS-STEEL BOTTLES WERE FULLY TESTED. ASKS FOR INFORMATION ON EROSION OF LAGOON AND ON DELAY IN URINE-MONITORING RESULTS.

*INSPECTION AND COMPLIANCE + ANALYTICAL TECHNIQUE, URINE + FAILURE, ADMINISTRATIVE CONTROL + FUEL REPROCESSING + FUEL STORAGE + IMPOUNDMENT + MONITOR, RADIATION, STACK + NFS (NUCLEAR FUEL SERVICES) + SOURCE MATERIAL + STORAGE CONTAINER + TESTING

13-19103 ALSO IN CATEGORIES 15 AND 17
CALDWELL RD
NUMEC AIRBORNE EXPOSURE JUNE-JULY 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 23 (OCTOBER 30, 1967)

(LETTER, SEPT. 15) SEVERAL APOLLO-PLANT CRYSTAL OPERATORS WERE EXPOSED 1035 TO 44.5 MPC HRS. SINCE THEN THE URANYL NITRATE CRYSTALLIZATION HAS BEEN DONE IN GLOVE BOXES. THE RESPIRATORS USED WILSON R-520 FILTERS (WHICH TESTS SHOWED WERE EXCESSIVELY PENETRATED BY URANYL NITRATE CRYSTAL AEROSOL) AND A WILSON 43 CHEMICAL CARTRIDGE.

*FILTER EFFICIENCY + *INHALATION + *PERSONNEL EXPOSURE, RADIATION + AEROSOL PROPERTIES + AIRBORNE RELEASE + FILTER, HIGH EFFICIENCY

13-19276 ALSO IN CATEGORY 17
NFS REPORTS A POSSIBLE EXCESSIVE INTERNAL PLUTONIUM EXPOSURE
NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 25, (NOVEMBER 6, 1967)

(LETTER, OCT. 17) NFS REPORTS URINE SAMPLES COLLECTED OCT. 4-8. THE LAST SAMPLE, 10 DAYS AFTER THE INCIDENT, INDICATED AN EXCRETION OF 26 DPM PER DAY.

*PERSONNEL EXPOSURE, RADIATION + *PLUTONIUM + ANALYTICAL TECHNIQUE, URINE + INCIDENT, ACTUAL, GENERAL

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-19278 ALSO IN CATEGORY 17
NUMEC APOLLO PLANT AIR CONTAMINATION OVER EXPOSURES
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 26 AND 27, (NOVEMBER 6, 1967)

(LTR, JUNE 1) THREE MEN WERE EXPOSED TO AIR CONCENTRATIONS EXCEEDING 40 MPC-HOURS/WEEK (49.2, 198 AND 95.9, AND 58). NO CREDIT IS TAKEN FOR RESPIRATORS AT HAMMERMILL AND FURNACE. HAMMERMILL AND POWDER HANDLING ARE BEING REVISED FOR ENCLOSED OPERATIONS. SPEX MILL TRANSFERS WILL NO LONGER BE MADE AFTER DAMP-WIPING EACH CONTAINER. A PLASTIC BAG WILL BE USED.

*INHALATION + *PERSONNEL EXPOSURE, RADIATION + AIRBORNE RELEASE + GLOVE BOX + VENTILATION SYSTEM

13-19279 ALSO IN CATEGORY 17
NUMEC PLUTONIUM-RELEASE OVER EXPOSURE MAY 4, 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27, (NOVEMBER 6, 1967)

(LETTER, JUNE 2) 5 TECHNICIANS WERE OVER EXPOSED (150, 120, 120, 120, AND 80 MPC-HOURS) TO PLUTONIUM RELEASED BY A PUMP LOCATED IN A NITRIC ACID SYSTEM WHICH CONTAINS PLUTONIUM. THE PUMP, A MINOR SOURCE OF CONTAMINATION, HAD BEEN ENCLOSED IN A PLASTIC TENT. NOW A PERMANENT GLOVE BOX HAS BEEN INSTALLED. DURING THE RELEASE, BREATHING-ZONE SAMPLERS INDICATED THAT SOLUBLE PU ROSE TO 60 MPCA NEAR THE PUMP, WHILE THE FABRICATION AREA LEVELS REMAINED BELOW 10 MPCA.

*AIRBORNE RELEASE + *PLUTONIUM + FUEL REPROCESSING + GLOVE BOX + INCIDENT, ACTUAL, EQUIPMENT + LEAK + PERSONNEL EXPOSURE, RADIATION + PUMP + VENTILATION SYSTEM

13-19280 ALSO IN CATEGORIES 14 AND 17
NUMEC DISCHARGE OF 600 GRAMS U-235 FROM LIQUID WASTE TANK
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27 THRU 29, (NOV. 6, 1967)

(LETTER, JUNE 2) ON APRIL 24, 1967, A 1000-GAL WASTE-TANK SAMPLE ALPHA COUNT INDICATED 1.2 G/LITER OF U-235. VALVES AND AREA WERE ISOLATED, AND MIXER KEPT RUNNING. WASTE WAS DRAINED INTO 3 GALLON BOTTLES FOR REPROCESSING. LATER, ABNORMALLY LOW LIQUID LEVEL LED TO DISCOVERY OF OPEN INTERCONNECTION VALVE TO NEXT TANK, WHICH WAS BEING DUMPED TO RIVER BY A DIFFERENT CREW. ESTIMATED LOSS WAS 175 GAL OF HIGH WASTE. WASTE SYSTEM IS BEING EVALUATED FOR FIXED POISONING AND GAMMA MONITORS. SOURCE WAS APPARENTLY 4-INCH SOLVENT-EXTRACTION FACILITY AND EVAPORATORS, THROUGH SOME UNKNOWN MECHANISM.

*FAILURE, OPERATOR ERROR + *FUEL REPROCESSING + *WASTE DISPOSAL, LIQUID + CRITICALITY SAFETY + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, ACTUAL, HUMAN ERROR + SPECIAL NUCLEAR MATERIAL + URANIUM + VALVE

13-19281 ALSO IN CATEGORIES 15 AND 17
MMM REPORTS TECHNICAL OVEREXPOSURE TO 4 DURING HOT CELL CLEANUP
MINNESOTA MINING AND MANUFACTURING CO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 14) OVEREXPOSURES TO SR-90 (4.8, 12, 53, AND 17.2 TIMES MPC) WAS LESS THAN 2.7 HR AUG. 18-24. EACH WAS IN RESPIRATOR AND PROTECTIVE CLOTHING. THE WORK INVOLVED OPENING HOT-CELL DOORS TO REMOVE CONTAMINATED MATERIAL FOR WASTE DISPOSAL. LETTER OF MAY 26, 1967, REPORTED SIMILAR INCIDENTS AND POINTED OUT HOT-CELL CLEANUP WILL BE A QUARTERLY PROBLEM. WE FIRMLY BELIEVE THAT ACTUAL EXPOSURES ARE NOT TAKING PLACE BECAUSE OF PROTECTIVE EQUIPMENT, AND THAT THESE REPORTS CONCERN TECHNICAL OVEREXPOSURE DUE TO 10 CFR 20.103 DEFINITION OF EXPOSE.

*HOT CELL + *PERSONNEL EXPOSURE, RADIATION + *PERSONNEL PROTECTIVE DEVICE + *REGULATION, AEC + *WASTE DISPOSAL, SOLID + AIRBORNE RELEASE + INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + STRONTIUM

13-19417
TEBBERT H
THE GERMAN REPROCESSING PLANT WAK
1 PAGE, ATOMWIRTSCHAFT, 12(4) PAGE 200 (APRIL 1967) IN GERMAN

WAK WILL USE THE PUREX SOLVENT EXTRACTION PROCESS. THE GENERAL SAFETY FEATURES OF SOLVENT EXTRACTION PLANTS ARE DISCUSSED IN THIS DESIGN REPORT.

*PLUTONIUM + RADIOCHEMICAL PLANT SAFETY + RADIOCHEMICAL PROCESSING + SHIELDING + SOLVENT EXTRACTION PROCESS + URANIUM DIOXIDE

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-19418
ROSINGER VS
ADVANCED CO-60 IRRADIATION PLANT FOR RADIATION CHEMISTRY
5 PAGES, 6 FIGURES, ATOMWIRTSCHAFT, 12(6) PAGES 295-99 (JUNE 1967) IN GERMAN

THE GERMAN CO-60 IRRADIATION PLANT WAS DESIGNED TO HANDLE THE USUAL EXPERIMENTAL APPARATUS FOUND IN CHEMICAL LABORATORIES. THE EQUIPMENT IS CONTROLLED FROM AN ADJACENT ROOM DESIGNED TO KEEP DOSE RATES BELOW 0.2 MR/HR WHILE USING A 10,000-CURIE CO-60 SOURCE. REPORT IS IN GERMAN.

*COBALT + *HOT CELL + *IRRADIATION TESTING + GERMANY + RADIOCHEMICAL PLANT SAFETY

13-19505 ALSO IN CATEGORIES 1 AND 17
STRATTON WR
REVIEW OF CRITICALITY ACCIDENTS
LOS ALAMOS SCIENTIFIC LAB., N. MEXICO
LA-3611 +. 111 PAGES, 9 FIGURES, 2 TABLES, 70 REFERENCES, JANUARY 1967

THIRD EDITION OF THE 1960-61 REVIEWS, CURRENT TO JAN. 1967. BRIEF SUMMARIES AND REFERENCES TO 34 ACCIDENTS (TEN WITH WATER SOLUTIONS, NINE WITH UNMODERATED METAL ASSEMBLIES, NINE WITH MODERATED REACTORS, AND FIVE WITH MISC. ASSEMBLIES). DESCRIPTIONS ARE GOOD BASIC TRAINING MATERIAL FOR THOSE WHO WILL DESIGN AND OPERATE SIMILAR SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *INCIDENT, ACTUAL, GENERAL + CRITICAL ASSEMBLY FACILITY + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + FUEL REPROCESSING + REACTOR, WATER + WASTE DISPOSAL, LIQUID

13-19832
AUCHAPT P + BOUZOU G + SAUTERAY R
EVAPORATOR FOR PROCESSING RADIOACTIVE SOLUTIONS
COMMISSARIAT A L-ENERGIE ATOMIQUE
CANADIAN PATENT 742,921 +. 18 PAGES, 3 FIGURES, SEPTEMBER 20, 1966

THIS PATENT IS FOR AN EVAPORATOR TO CONCENTRATE PLUTONIUM SOLUTIONS. THE PATENT CLAIMS THIS INVENTION WILL PERMIT THE CONCENTRATION OF LARGE VOLUMES OF PLUTONIUM SOLUTIONS AT FAST RATES WITHOUT THE DANGER OF CRITICALITY.

AVAILABILITY - U.S. PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D. C., \$0.30 PER COPY

*CRITICALITY SAFETY + *EVAPORATION + *PATENT + *PLUTONIUM + *RADIOCHEMICAL PROCESSING + CANADA + RADIOCHEMICAL PLANT SAFETY

13-19835
SAFETY EVALUATION BY THE DIVISION OF MATERIALS LICENSING UNITED STATES ATOMIC ENERGY COMMISSION IN THE MATTER OF GENERAL ELECTRIC COMPANY MIDWEST FUEL RECOVERY PLANT.
GENERAL ELECTRIC COMPANY
80 PAGES, FIGURES, REFERENCES, OCTOBER 6, 1967, DOCKET NO. 50-268

SAFETY EVALUATION REPORT BY AEC MATERIALS LICENSING DIVISION RESPONDS TO GENERAL ELECTRIC COMPANY'S APPLICATION FOR A CONSTRUCTION PERMIT AND AEC LICENSE FOR THE MIDWEST FUEL RECOVERY PLANT (MFRP). PLANT USES THE GENERAL ELECTRIC AQUAFUOR PROCESS FOR THE SEPARATION AND PURIFICATION OF URANIUM AND PLUTONIUM PRODUCT MATERIALS FROM SPENT UO₂ REACTOR FUEL ELEMENTS CLAD WITH STAINLESS STEEL OR ZIRCONIUM ALLOYS. AQUAFUOR USES THE FOLLOWING UNIT OPERATIONS - MECHANICAL DISASSEMBLY, CHEMICAL LEACHING, SOLVENT EXTRACTION, ION EXCHANGE, AND FLUID-BED FLUORINATION. REPORT COVERS ALL PHASES OF HAZARDS INVOLVING CRITICALITY, RADIOACTIVE CONTAMINATION, CHEMICAL, AND MECHANICAL OPERATIONS THAT ARE REQUIRED FOR OPERATION OF THE RADIOCHEMICAL PROCESSING PLANT. REF. - NSIC 13525 AND 16930.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + *SAFETY ANALYSIS REPORT, GENERAL + *WASTE DISPOSAL, GENERAL + CONTAINMENT, GENERAL + CRITICALITY SAFETY + FUEL REPROCESSING + MFRP (MIDWEST FUEL RECOVERY PLANT) + PLUTONIUM + URANIUM DIOXIDE + WASTE DISPOSAL, ATMOSPHERIC

13-19836
AUCHAPT P + JACQUOTTE M + SAUTRAY R
EVAPORATING SYSTEM HAVING LEVEL CONTROL
COMMISSARIAT A L-ENERGIE ATOMIQUE
BRITISH PATENT 1,063,195 +. 4 PAGES, 3 FIGURES, AUGUST 28, 1964

AN EVAPORATING SYSTEM CAPABLE OF CONCENTRATING RADIOACTIVE SOLUTIONS IS DESCRIBED. THE SYSTEM

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-19836 *CONTINUED*

CONSISTS OF A BOILER CONNECTED TO A LIQUID VAPOR SEPARATOR. LEVEL CONTROL IS PROVIDED BY TWO CONNECTED VESSELS, ONE OF WHICH IS CONNECTED TO THE BOILER AND SEPARATOR AND THE OTHER IS ONLY CONNECTED TO THE SEPARATOR. THE VESSELS ARE INTERCONNECTED BY A SIPHON, AND LEVEL CONTROL IS ACHIEVED BY THE OPERATION OF THE BASIC LAWS GOVERNING THE BALANCE OF FLUIDS. MECHANICAL VALVES ARE NOT USED, THUS AVOIDING VALVE MAINTENANCE AND REPLACEMENT.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (.49 COPY)

*EVAPORATION + *PATENT + *RADIOCHEMICAL PROCESSING

13-20427 ALSO IN CATEGORY 12

MATHERNE JL + COLLINS ED + EVANS WW
PROBLEMS AND SUCCESSES IN THE FIRST MAJOR MAINTENANCE PERFORMED IN THE TRANSURANIUM PROCESSING PLANT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-P-3229 + CONF-671102-10 +. 12 PAGES, TABLES, FIGURES, REFERENCES, 1966, FROM 15TH CONFERENCE ON
REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

MAJOR MAINTENANCE PERFORMED AFTER SEVEN MONTHS OF OPERATION DEMONSTRATED THAT WE COULD SUCCESSFULLY HANDLE ALL THE MAINTENANCE PROBLEMS AND TECHNIQUES EXPECTED TO BE ENCOUNTERED IN THE FORESEEABLE FUTURE IN THE TRANSURANIUM PROCESSING PLANT. THE EQUIPMENT RACKS IN ONE PROCESSING CUBICLE WERE REMOVED AND MODIFIED, AND EXTENSIVE REVISIONS AND REPLACEMENTS WERE MADE IN THE CORRESPONDING TANK PIT. THE MAINTENANCE WAS ACCOMPLISHED WITHOUT SIGNIFICANT MECHANICAL, RADIATION, OR CONTAMINATION PROBLEMS, AND THE FACILITY WAS RETURNED TO FULL-SCALE OPERATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EQUIPMENT, GENERAL + *MAINTENANCE AND REPAIR + *MAINTENANCE, REMOTE +
*ORNL (OAK RIDGE NATIONAL LABORATORY) + *RADIOCHEMICAL PLANT SAFETY + *TRANSURANIUM PROGRAM +
TRANSURANIUM ELEMENT

13-22446 ALSO IN CATEGORIES 3 AND 18

AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION
NUCLEAR FUEL SERVICES, INC.

200 PAGES, TABLES, FIGURES, REFERENCES, AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION
(NEPTUNIUM RECOVERY FACILITY), NOVEMBER 15, 1967, DOCKET 50-201

THIS DOCUMENT (NINE SECTIONS PLUS APPENDIXES) REPRESENTS A DESCRIPTION AND SAFETY ANALYSIS OF THE ADDITIONAL PROCESSING STEPS TO BE PERFORMED AS PART OF THE OVERALL REPROCESSING OPERATIONS AT THE WESTERN NEW YORK NUCLEAR SERVICE CENTER TO RECOVER NEPTUNIUM AS WELL AS THE PRESENT PRODUCTS, PLUTONIUM AND URANIUM. THESE ADDITIONAL PROCESSING STEPS WILL BE PERFORMED IN STRUCTURES AND EQUIPMENT (THE NEPTUNIUM-RECOVERY FACILITY OR NRF) WHICH NUCLEAR FUEL SERVICES, INC. (NFS) AND THE NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY (ASDA) PLAN TO ADD TO THE WEST VALLEY REPROCESSING PLANT (WVRP) PRESENTLY BEING OPERATED UNDER AEC LICENSE NO. CFS-1.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HAZARDS ANALYSIS + *NEPTUNIUM + *NFS (NUCLEAR FUEL SERVICES) + LICENSING STATUS OF NUCLEAR PROJECTS +
PROCEDURES AND MANUALS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-16640 ALSO IN CATEGORY 15

MORK HM + BERTA FJ
ENVIRONMENTAL CONTAMINATION FROM A NUCLEAR REACTOR AT THE NEVADA TEST SITE.
UNIVERSITY OF CALIFORNIA, LOS ANGELES
UCLA-12-615 +. 22 PAGES, 2 FIGURES, 5 TABLES, 4 REFERENCES, DECEMBER 1966

AFTER THE TEST OF THE KIWI-A REACTOR ON 1 JULY 1959, THE ENVIRONMENTAL CONTAMINATION FROM THE EFFLUENT WAS ASSESSED. THE FALLOUT PATTERN WAS VERY NARROW AND EXTENDED ON AN APPROXIMATE BEARING OF 350 DEGREES FROM THE TEST CELL, AREA 400. THE MAXIMUM LEVEL OF CONTAMINATION (16.2 MICROCURIES/FT SQ. AT H PLUS 12 HR) WAS MEASURED AT APPROXIMATELY 1.5 MILES. THE LEVELS OF RADIOACTIVITY OBSERVED AFTER THE KIWI-A TEST WERE MUCH LESS THAN THOSE OBSERVED FOLLOWING WEAPONS TESTS. HOWEVER, THE DATA SUGGESTED THAT A LARGER PERCENTAGE OF THE RADIOACTIVE DEBRIS FROM KIWI-A THAN FROM WEAPONS TESTS WAS AVAILABLE TO THE BIOLOGICAL INDICATORS (NATIVE RODENTS AND JACK RABBITS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *KIWI + AIRBORNE RELEASE + BIOLOGICAL CONCENTRATION, ANIMAL + GROSS BETA + GROSS GAMMA + NUCLEAR EXPLOSION DEBRIS + NUCLEAR ROCKET + PARTICLE SIZE + PARTICLE, RADIOACTIVE + PARTICULATE + REACTOR, SPACE + ROVER PROGRAM + SAMPLING + SPACECRAFT + SURVEY, RADIATION, ENVIRONMENTAL + TESTING

14-16641 ALSO IN CATEGORY 15

HULL AP
1964 ENVIRONMENTAL MONITORING RADIATION LEVELS AT BROOKHAVEN NATIONAL LAB
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNL-50001 +. 31 PAGES, 16 FIGURES, 27 TABLES, 13 REFERENCES, JUNE 1966

MEASUREMENTS OF NATURAL BACKGROUND RADIATION LEVELS (INCLUDING FALLOUT CONTRIBUTIONS) AND OF PERTURBATIONS IN THIS BACKGROUND ATTRIBUTABLE TO LABORATORY OPERATIONS WERE OBTAINED ON SITE AND IN THE VICINITY OF BNL. THESE PERTURBATIONS INCLUDE CONTRIBUTIONS FROM THE GASEOUS AND AIR PARTICULATE EFFLUENT OF THE STACK OF THE BROOKHAVEN GRAPHITE RESEARCH REACTOR, FROM MULTICURIE FIELD GAMMA SOURCES, AND FROM THE DISCHARGE OF LOW-LEVEL LIQUID WASTES INTO THE HEADWATERS OF THE PECONIC RIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BNL (BROOKHAVEN NATIONAL LABORATORY) + *FALLOUT + *SURVEY, RADIATION, ENVIRONMENTAL + AIRBORNE RELEASE + ARGON + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, MILK + BIOLOGICAL CONCENTRATION, VEGETATION + CERIUM + CESIUM + COBALT + GROSS BETA + GROUND WATER, NUCLIDE OCCURRENCE + IODINE + MANGANESE + PARTICULATE + POTASSIUM + RAINOUT + RUTHENIUM + SAMPLING + SOIL, NUCLIDE OCCURRENCE + STACK + SURFACE WATER, NUCLIDE OCCURRENCE + SURFACE WATER, SEDIMENT + THORIUM + URANIUM + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, RIVER

14-16643 ALSO IN CATEGORY 15

WOMELSDUFF RE
FALLOUT REPORT--BETA-GAMMA RADIOACTIVITY IN AIR AT SANDIA LABORATORY, JULY THRU DECEMBER 1964
SANDIA CORP., ALBUQUERQUE, N. MEXICO
SC-RR-65-184 +. 11 PAGES, 17 REFERENCES, APRIL 1965

A REPORT OF THE GROSS BETA-GAMMA RADIOACTIVITY (EXPRESSED AS MICRO-MICROCURIES PER CUBIC METER) OF AIR SAMPLES COLLECTED BY THE HEALTH PHYSICS DIVISION OF THE SANDIA LABORATORY OF SANDIA CORP. DURING THE SECOND HALF OF 1964.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *MONITOR, RADIATION, AIR + AIR + FILTER + GROSS BETA + GROSS GAMMA + SAMPLING

14-16645 ALSO IN CATEGORY 15

LAI JR + O CONNER JD + CROCKER GR + PASCUAL JN + FREILING EC
RADIOCHEMICAL AND PHYSIOCHEMICAL STUDIES OF KIWI-TNT DEBRIS
NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIF.
USNRDL-TR-1100 +. 136 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 29, 1966

FIVE SAMPLES OF DEBRIS FROM THE KIWI-TNT EVENT WERE STUDIED FOR PROPERTIES RELATING TO BIOLOGICAL HAZARD - PARTICLE PROPERTIES, RADIATION PROPERTIES, RADIOCHEMICAL COMPOSITION, AND RADIONUCLIDE SOLUBILITY. THE SAMPLES INCLUDED THREE CLOUD SAMPLES, ONE GROUND-FILTER SAMPLE, AND A FALLOUT SAMPLE. RADIOCHEMICAL ANALYSIS SHOWED THAT THE GROUND-FILTER SAMPLE WAS HIGHLY ENRICHED IN VOLATILES (SR-89-90, I-131, TE-132, CS-137). THE CLOUD SAMPLES WERE SOMEWHAT ENRICHED IN VOLATILES, BUT RELATIVELY REPRESENTATIVE. THE FALLOUT SAMPLE SHOWED A DEPLETION OF VOLATILES. THIS DEPLETION INCREASED AS THE PARTICLE SIZE DIMINISHED AND AS THE PARTICLE SHAPE BECAME MORE SPHEROIDAL. DISTILLED WATER, 0.8% SALINE, AND 0.1N HCl WERE TESTED FOR THEIR ABILITY TO LEACH ACTIVITY FROM THE DEBRIS. THE ACID WAS BEST.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-16645 *CONTINUED*
STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *KIWI TNT (TRANSIENT NUCLEAR TEST) + *PARTICLE, RADIOACTIVE + ANALYTICAL TECHNIQUE, AIR + ANALYTICAL TECHNIQUE, SOLID + CESIUM + FILTER, PAPER + GROSS GAMMA + IODINE + ISOTOPIC FRACTIONATION + NUCLEAR DETONATION + NUCLEAR EXPLOSION DEBRIS + NUCLEAR ROCKET + PARTICLE SIZE + PARTICULATE + REACTOR, SPACE + ROVER PROGRAM + SAMPLING + SPACECRAFT + STRONTIUM + TELLURIUM

14-17546

VAN DE VOORDE N + DEJONGHE P
INSOLUBILIZATION OF RADIOACTIVE CONCENTRATES BY INCORPORATION INTO ASPHALT
MOL, BELGIUM. CENTRE D ETUDE DE L-ENERGIE NUCLEAIRE
ORNL-TR-1431 + STI/PUB/116 + SM/71/4 +. 36 PAGES, TRANSLATED BY R. G. MANSFIELD (OAK RIDGE NATIONAL LAB., TENN.), FROM PP. 569-97 OF STI/PUB/116

A PROCESS WAS DEVELOPED FOR FIXING RADIOACTIVE CONCENTRATES (LIQUIDS OR SOLIDS) WITH LIQUID ASPHALT AT 250 C. THE WATER EVAPORATES AND IS REMOVED BY CONDENSATION. THE HOMOGENEOUS MIXTURE PRODUCED IS POURED INTO METAL DRUMS WHERE IT COOLS TO A SOLID WHICH IS EXCEPTIONALLY RESISTANT TO LEACHING. A DUAL-PURPOSE INSTALLATION WHICH SERVES BOTH AS A PRODUCTION UNIT HANDLING 30 CU. METERS/HR AND AS AN EXPERIMENTAL UNIT FOR RESEARCH ON THE PROCESS WAS BUILT.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD. ST., CHICAGO, ILLINOIS 60616, \$3.60 COPY, \$1.28 MICROFICHE

*WASTE TREATMENT, FIXATION + BELGIUM + WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID

14-17547

TAMURA T
REACTIONS OF CESIUM-137 AND STRONTIUM-90 WITH SOIL MINERALS AND SESQUIOXIDES
OAK RIDGE NATIONAL LAB., TENN.
ORNL-P-438 + CONF-712-1 +. 25 PAGES, REFERENCES, AUGUST 31, 1964 FROM 8TH INTERNATIONAL CONGRESS OF SOIL SCIENCE, BUCHAREST, ROMANIA, AUGUST - SEPTEMBER 1964

SELECTIVE SORPTION OF CESIUM IN MICROCONCENTRATION RANGE IS STRONGLY FAVORED BY A 10A 001 SPACING OF THE 2/1 LAYER LATTICE SILICATES. CHEMICAL AND HEAT TREATMENTS WHICH ALTER THE 001 SPACING OF THESE MINERALS CAN DRASTICALLY CHANGE THE DISTRIBUTION COEFFICIENT FOR CESIUM. THE INFLUENCE OF POTASSIUM TREATMENTS ON CESIUM SORPTION IN SOILS IS EXPLAINED ON THE BASIS OF THE LATTICE CONCEPT OF SELECTIVITY. SORPTION DATA FOR STRONTIUM ARE PRESENTED FOR SEVERAL REFERENCE CLAY MINERALS AND ACTIVATED ALUMINA. THE POSSIBLE STRONG INFLUENCE OF SOIL SESQUIOXIDE IN SORBING STRONTIUM FROM RADIOACTIVE WASTE SOLUTIONS IS SUGGESTED FROM DATA ON SOIL MATERIALS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CESIUM + *SORPTION + *STRONTIUM + ION EXCHANGE + MINERAL EXCHANGE + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, LIQUID

14-17540

HUGHES-CALEY F
COOLING WATER FOR FALLOUT SHELTERS. FINAL REPORT
STANFORD RESEARCH INST., MENLO PARK, CALIFORNIA
AD-641199 +. 68 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1966

SHELTERS FOR PROTECTING THE POPULATION FROM NUCLEAR FALLOUT REQUIRED FORCED VENTILATION. HOWEVER, IN CERTAIN AREAS, OUTSIDE AIR IS TOO HOT TO BE USED DIRECTLY DURING THE SUMMER MONTHS. THIS REPORT COVERS A STUDY OF THE FEASIBILITY OF FINDING AND RECOVERING GROUND WATER FROM WITHIN NORMAL SHELTER BOUNDARIES. IT APPEARS THAT IN-SHELTER WELL CONSTRUCTION IS NOT FEASIBLE BECAUSE OF (1) THE SEVERE LIMITATIONS IMPOSED BY THE PHYSICAL (CONFIGURATIONAL) ENVIRONMENT LIKELY TO BE ENCOUNTERED AND (2) THE LIMITED PROBABILITY THAT A RELIABLE PRE-ATTACK PREDICTION CAN BE MADE THAT GROUND WATER IS ACCESSIBLE BENEATH A SHELTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CIVIL DEFENSE + *FALLOUT + AIR + VENTILATION SYSTEM + WATER, GENERAL

14-17691

FINEMAN
SECTION IV. WASTE DISPOSAL. TREATMENT OF LOW-AND INTERMEDIATE-LEVEL-ACTIVITY WASTES
ARGONNE NATIONAL LABORATORY
11 PAGES, 7 FIGURES, 32 REFERENCES, REACTOR FUEL PROCESSING 9(1), PAGES 40 THRU 50, (WINTER 1965-1966)

A SURVEY OF CURRENT WORK ON WASTE DISPOSAL. INCLUDES THE FOLLOWING INFORMATION - (1) ION-EXCHANGE TREATMENT OF LOW-LEVEL WASTE WATER AT IDAHO CHEMICAL PROCESSING PLANT, PACIFIC NORTHWEST LABORATORY, AND HARWELL, (2) FLUIDIZED-BED CALCINATION AND CONVERSION TO GLASS OF HIGH-LEVEL WASTES, (3) ECONOMIC STUDIES OF PERPETUAL TANK STORAGE, AND (4) FISSION-PRODUCT RECOVERY.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-17591 *CONTINUED*

*WASTE DISPOSAL, GENERAL + *WASTE TREATMENT, GENERAL + BATTELLE NORTHWEST + CALCINATION + FISSION PRODUCT, SEPARATION FROM WASTE + IDAHO FALLS + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, ECONOMICS + WASTE STORAGE + WASTE TREATMENT, FIXATION + WASTE TREATMENT, LIQUID

14-17817

KISTNER G

THE APPEARANCE OF ACTIVATION PRODUCTS FROM NEUTRON EXPLOSIONS IN FOOD (MANGANESE-54)
2 PAGES, 2 FIGURES, 10 REFERENCES, ATOMPRAXIS 12(1) PAGES 59-60 (JANUARY 1966)

FALLOUT FROM HIGH-YIELD EXPLOSIONS MAY CONTAIN ACTIVATION PRODUCTS AS WELL AS FISSION PRODUCTS. MN-54 CONCENTRATION IN THE ATMOSPHERE HAS BEEN SIGNIFICANT IN RECENT YEARS. STUDIES OF SAMPLES OF FOODS GROWN IN 1962, 1963, AND 1964 SHOW MN-54 IN BARLEY, WHEAT RYE, AND TEA LEAVES.

*FALLOUT + ACTIVATION PRODUCT + ANALYTICAL TECHNIQUE, FOOD + ATMOSPHERIC POLLUTION + BIOLOGICAL CONCENTRATION, FOOD + MANGANESE

14-17820

BUNNEY LR + SAM D

EXPOSURE RATES FROM THE PRODUCTS OF FAST NEUTRON FISSION OF U-235 AND U-238 AT SELECTED TIMES AFTER FISSION
NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO., CALIF.
USNRDL-TR-1105 +. 19 PAGES, 2 FIGURES, 2 TABLES, 10 REFERENCES, OCTOBER 28, 1966

THE RADIATION EXPOSURE RATE ABOVE A UNIFORMLY CONTAMINATED PLANE IS IMPORTANT IN FALLOUT STUDIES AND HAZARDS EVALUATION. THE EXPOSURE RATES PER FISSION PER SQ. CM AT 3 FT ABOVE A UNIFORMLY CONTAMINATED PLANE WERE CALCULATED FOR NINE SELECTED TIMES (1/4 TO 72 HR) AFTER FAST NEUTRON FISSION OF U-235 AND U-238. THE CALCULATIONS WERE MADE FROM EXPERIMENTALLY DETERMINED GAMMA-RAY SPECTRA TO THE FISSION PRODUCTS.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VA.

*DOSIMETRY, GENERAL + DOSE CALCULATION, EXTERNAL + FALLOUT + NRDL (NAVAL RADIOLOGICAL DEFENSE LABORATORY)

14-17821

ALSO IN CATEGORY 15

DATA FROM RADIATION PROTECTION PROGRAMS. VOLUME 4. NUMBER 7
DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, ONTARIO
NP-16324 +. 26 PAGES, JULY 1966

AVERAGE FALLOUT VALUES FOR JUNE 1966 WERE BELOW THOSE OF MAY. AVERAGE CONCENTRATIONS OF CS-137 AND SR-90 IN LIQUID MILK WERE 50 PCI/L AND 20.3 PCI/L RESPECTIVELY, COMPARED WITH 70 AND 20.7 IN MAY 1966. ACTIVITY LEVELS OF SAMPLES TAKEN IN THE VICINITIES OF CANADIAN REACTORS WERE IN GENERAL AGREEMENT WITH OBSERVATIONS OF THE FALLOUT PROGRAM AND DID NOT SHOW ANY ANOMALIES THAT COULD BE ATTRIBUTED TO A RELEASE OF CONTAMINATION FROM THE REACTORS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FALLOUT + CANADA + MONITORING PROGRAM, ENVIRONMENTAL

14-17822

SMALL BOY PROJECT CEX 62808 AERORADIOACTIVITY SURVEY

EDGERTON, GERMESHAUSEN AND GRIER, INC., SANTA BARBARA, CALIF.

CEX-62.808 + EGG-1193-2060 +. 17 PAGES, 4 FIGURES, 8 REFERENCES, NOVEMBER 1965

PRESHOT AND POSTSHOT AERIAL RADIOMETRIC SURVEYS WERE MADE FOR THE SMALL BOY OPERATION. PRESHOT SURVEYS EXTENDED TO 300 MILES FROM GROUND ZERO. POSTSHOT EXTENDED FROM D PLUS 2 TO D PLUS 5 OVER AN AREA 15 TO 125 MILES FROM GROUND ZERO AND IN A FALLOUT AREA ABOUT 350 MILES FROM GROUND ZERO. THE TESTS SHOWED THE EFFECTIVENESS OF AERIAL RADIOMETRIC SURVEYS FOR LOCATING AND STUDYING FALLOUT PATTERNS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + CIVIL DEFENSE + DOSE + TEST, WEAPONS (HP ASPECTS)

14-17823

SEDAN PROJECT 62.80C AERORADIOACTIVITY SURVEY

EDGERTON, GERMESHAUSEN AND GRIER, INC., SANTA BARBARA, CALIF.

CEX-62.80C + EGG-1193-2062 +. 16 PGS, 1 FIGURE, 1 TABLE, 7 REFERENCES, NOVEMBER 1965

THE PRIMARY OBJECTIVE OF THE CIVIL-EFFECTS TEST OPERATIONS (CETO) PROJECT 62.80C, AERIAL RADIOMETRIC SURVEYS, TO DETERMINE THE AERIAL DISTRIBUTION OF SEDAN FALLOUT DEPOSITED ON THE GROUND FROM 10 TO 200 MILES FROM GROUND ZERO, WAS ACCOMPLISHED. THE FALLOUT PATTERN IS SHOWN BY THE DOSE-RATE CONTOURS TO BE ASYMMETRIC, WITH A STEEP GRADIENT WEST OF THE MIDLINE AND A VERY GRADUAL GRADIENT ON THE EAST. GAMMA-ENERGY SPECTRAL MEASUREMENTS MADE 100 FT ABOVE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-17823 *CONTINUED*

GROUND SURFACE RESULTED IN THE IDENTIFICATION OF I-131, TE-132, I-132, W-187, AND BA-140/LA-140.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + CIVIL DEFENSE + DOSE + TEST, WEAPONS (HP ASPECTS)

14-17829

ALSO IN CATEGORIES 7 AND 15

POSNER S + ETTINGER HJ + PRATT OR + MOORE R

EVALUATION OF PARTICLE SIZING TECHNIQUES, COMPARISON OF COMPUTER PARTICLE SIZING PROGRAMS

LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, NEW MEXICO

LF-30 +. 11 PAGES, 2 FIGURES, 3 TABLES, 8 REFERENCES, JULY 1966

AEROSOL SAMPLING AND SIZING TECHNIQUES FROM SEVERAL DIFFERENT LABORATORIES WERE COMPARED IN PART I OF OUR EVALUATION. RESULTS FROM THE PARTICIPANTS AGREED WITHIN PLUS OR MINUS 10 PERCENT IN DEFINING COUNT MEDIAN DIAMETER AND GEOMETRIC STANDARD DEVIATION. THESE WERE OBTAINED VIA HAND CALCULATION. PART II DEALS WITH COMPARING THE SAME OR SIMILAR DATA BY COMPUTER PROGRAMS. FOUR PROGRAMS FOR ANALYZING PARTICLE-SIZE DATA WERE COMPARED AND RESULTING DIFFERENCES STATISTICALLY EVALUATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *BIOMEDICAL + *COMPUTER PROGRAM + *PARTICLE SIZE DISTRIBUTION + CHEMICAL TOXICITY + INHALATION

14-17958

IZRAEL YA

CONDITIONS OF THE FORMATION OF PARTICLES OF RADIOACTIVE FALLOUT AND FRACTIONING OF ISOTOPES IN AN UNDERGROUND NUCLEAR BURST WITH THE ESCAPE OF GASES FROM THE GROUND

INSTITUT ATOMNOI ENERGII, AKADEMIYA NAUK USSR

JPRS-38744 + IT-66-35168 +. 6 PAGES, NOVEMBER 22, 1966, TRANSLATED FROM DOKL. AKAD. NAUK SSSR, 169. 573-6 (1966)

THE FORMATION OF RADIOACTIVE PARTICLES, INCLUDING THEIR ISOTOPIC COMPOSITION, IN AN UNDERGROUND NUCLEAR EXPLOSION IN WHICH GAS IS DISCHARGED FROM THE GROUND, IS COMPARED TO GROUND AND ATMOSPHERIC EXPLOSIONS. CALCULATIONS INDICATED THAT IN A CAVITY THE HIGH TEMPERATURES PRODUCED BY AN UNDERGROUND EXPLOSION, WITH GAS DISCHARGE FROM THE GROUND, IS MAINTAINED FOR A PROLONGED PERIOD OF TIME. THE TEMPERATURE OF ABOUT 1500 C EQUALS THE MELTING POINT OF THE GROUND. THIS PRODUCES WEAK FRACTIONATION OF RADIOACTIVE PRODUCTS. THE MOST HIGHLY PULVERIZED FRAGMENTS ARE IN THE UPPER PART OF THE CLOUD, FINER FRACTIONS MAY BE EXPECTED IN THE SHORT-RANGE TRAIL, AND MINIMUM FRACTIONS IN THE CRATER ZONE, WHERE FALLOUT OCCURS FROM A ZONE THAT HAS RETAINED A HIGH TEMPERATURE FOR A LONG TIME.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*GEOLOGICAL CONSIDERATION, GENERAL + *ISOTOPIC FRACTIONATION + *NUCLEAR EXPLOSION DEBRIS + EARTH MATERIAL, DYNAMIC PROPERTY + FALLOUT + TROPOSPHERE + UNION OF SOVIET SOCIALIST REPUBLICS

14-17960

KOYANAKA Y

STUDIES ON THE TREATMENT OF RADIO-ACTIVE LIQUID WASTES BY FLOTATION METHOD

KROTO UNIVERSITY, JAPAN

KFK-TR-206 +. 15 PAGES, NOVEMBER 1965, TRANSLATED INTO GERMAN BY PETER BURIKS (KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GER., FROM NIPPON GENSHIYOKU GAKKAISHI 7, 621-6 (1965)

THE REMOVAL OF CE-141, ZR-95, NB-95, RU-106, AND RH-106 FROM DILUTE AQUEOUS SOLUTIONS WAS INVESTIGATED USING THE TECHNIQUE OF SOAP FLOTATION. CERIUM NITRATE, ZIRCONIUM OXYCHLORIDE, AND RUTHENIUM CHLORIDE WERE USED AS INACTIVE CARRIER MATERIALS. FROM ALKALINE DILUTE SOLUTIONS, 99.0% OF THE CE-141, 99.5% OF THE ZR-95 AND NB-95, AND 99.5% OF THE RU-106 AND RH-106 WERE REMOVED BY SOAP FLOTATION METHOD USING SODIUM OLEATE AS FLOTATION COLLECTOR AND FERRIC CHLORIDE AS COPRECIPITATING REAGENT.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD. ST., CHICAGO, ILLINOIS 60616, \$1.60 COPY, \$0.80 MICROFICHE

*PRECIPITATION + CERIUM + COBALT + ION EXCHANGE + IRON + NIOBIUM + RHODIUM + RUTHENIUM + WASTE DISPOSAL, LIQUID + WASTE TREATMENT, LIQUID + ZIRCONIUM

14-18056

CLARK WE

ADDITION OF LITHIUM VALUES IN CONVERSION OF FISSION-PRODUCT WASTES TO A GLASS-LIKE SOLID FOR DISPOSAL US PATENT 3 265 627 +. 6 PAGES, 3 REFERENCES, AUGUST 9, 1966

RELATES TO METHODS OF DISPOSING OF RADIOACTIVE WASTES IN THE FORM OF A SOLID MASS. IN ACCORDANCE WITH THIS INVENTION, AN IMPROVED GLASS-LIKE COMPOSITION HAS BEEN PRODUCED BY

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18056 *CONTINUED*

ADDING LITHIUM AND SODIUM VALUES IN A LITHIUM-TO-SODIUM RATIO OF 0.75-1 TO 1.5-1 TO A GLASS-FORMING MIXTURE CONTAINING RADIOACTIVE WASTES AND THEN HEATING THE RESULTING MIXTURE TO ITS MELTING POINT. THE ADDITION OF LITHIUM AND SODIUM REDUCES THE MELTING TEMPERATURE OF THE SOLIDS AND DECREASES THE WATER-SOLUBILITY OF THE VITREOUS MASS PRODUCED.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*WASTE TREATMENT, FIXATION + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID

14-18374

DEZSI Z

AN EMANOMETER FOR THE DETERMINATION OF RADON IN NATURAL WATERS

AEC-TR-6731 +. 7 PAGES, FIGURES, TRANSLATED FROM AT. KOZLEM., 4, PAGE 51 THRU 55, (1962)

AN INSTRUMENT WAS DEVELOPED FOR DETERMINING RADON AND THORON (EMANATION) IN NATURAL WATERS CONTAINING HIGH CONCENTRATIONS OF URANIUM. THE INSTRUMENT IS BASED ON A QUARTZ-FILAMENT LAURITZEN-TYPE ELECTROSCOPE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADON + *THORON + HUNGARY + INSTRUMENTATION, NUCLEAR

14-18394

DMITRIEV MT

EFFECT OF IONIZING RADIATION ON THE COMPOSITION OF THE AIR WITHIN A FACTORY.

RESEARCH INSTITUTE FOR HYDROMETEOROLOGICAL INSTRUMENTS, MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 7-PAGES, 1 FIGURE, 2 TABLES, PAGE 44 THRU 50 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

A STUDY WAS MADE OF THE EFFICIENCY OF THE PROCESSES LEADING TO THE PRODUCTION OF NITROGEN OXIDES AND OZONE IN THE AIR UNDER THE ACTION OF IONIZING RADIATION AND NEUTRONS. A COMPARISON OF THE DATA OBTAINED WITH CONCENTRATIONS OF NITROGEN DIOXIDE AND OZONE, FORMED IN THE AIR UNDER NATURAL CONDITIONS, MADE IT POSSIBLE TO SET THE MAXIMUM PERMISSIBLE DOSES OF IONIZING RADIATION AND THAT OF THE INTEGRAL NEUTRON CURRENT IN THE AIR OF INDUSTRIAL PREMISES. THE STANDARD VALUES OF VENTILATION REQUIRED IN INDUSTRIAL PREMISES CONTAINING RADIOACTIVE ISOTOPES ARE GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

ATMOSPHERIC POLLUTION + NITROGEN + OXIDE + OZONE + RADIATION EFFECT + UNION OF SOVIET SOCIALIST REPUBLICS

14-18395

ALSO IN CATEGORY 15

TERNOV VI

THE EFFECT OF LONG-TERM ADMINISTRATION OF SMALL DOSES OF CALCIUM-45 ON CERTAIN INDICES OF NATURAL IMMUNITY INSTITUTE OF LABOR HYGIENE AND OCCUPATIONAL DISEASES OF THE ACADEMY OF MEDICAL SCIENCES OF THE U.S.S.R., MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 8 PAGES, 2 FIGURES, 7 REFERENCES, PAGE 53 THRU 60 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

ACUTE AND CHRONIC RADIATION INJURY IS KNOWN TO RESULT INEVITABLY IN IMPAIRMENT OF IMMUNITY AND CONSEQUENTLY IN THE DEVELOPMENT OF INFECTIOUS COMPLICATIONS. TESTS WITH 248 WHITE RATS SHOW - (1) THE DAILY INTRODUCTION OF 1000 TIMES MPC OF CA-45 IN WATER (0.09 MICROCURIE/KG) CAUSES CLEAR SIGNS OF CHRONIC RADIATION ENERGY FROM AS EARLY AS THE THIRD MONTH ON, (2) CA-45 IN A DOSE ONE HUNDRED TIMES MPC INDUCES THE FIRST SIGNS OF RADIATION INJURIES IN TEN AND A HALF MONTHS OF INTRODUCING IT INTO THE ORGANISM OF WHITE RATS, (3) THE DAILY INTRODUCTION OF CA-45 INTO WHITE RATS IN A DOSE OF 0.0009 MICROCURIE/KG (TEN TIMES MPC) FOR NINE MONTHS INDUCES NEGLIGIBLE FUNCTIONAL CHANGES INVOLVING CERTAIN IMMUNITY FACTORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + CALCIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-18396

ALSO IN CATEGORY 15

DAMASKIN PT

WORKING CONDITIONS FOR PERSONS USING SOURCES OF IONIZING RADIATIONS

DNEPROPETROVSK REGIONAL SANITARY-EPIDEMIOLOGICAL CENTER

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 5 PAGES, 1 TABLE, PAGE 81 THRU 85 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

DESCRIBES METHODS FOR CONTROLLING EXPOSURES FROM RADIOISOTOPES USED IN INDUSTRY, MEDICINE, AND RESEARCH IN THE USSR. NORMAL DOSES ARE GIVEN FOR MOST OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18396 *CONTINUED*

*DOSE MEASUREMENT, EXTERNAL + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + UNION OF SOVIET SOCIALIST REPUBLICS

14-18397

SOBOLEV IA + KHOMCHIK LM

COMBINED BURIAL OF SOLID AND LIQUID RADIOACTIVE WASTES

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 3 PAGES, 2 FIGURES, 1 REFERENCE, PAGE 92 THRU 94 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

IN THE USSR, THE SANITARY REGULATIONS FOR WORK WITH RADIOACTIVE SUBSTANCES AND SOURCES OF IONIZING RADIATIONS NO. 333-60 SPECIFY THAT SUCH WASTES MUST BE BURIED IN SPECIAL UNDERGROUND VAULTS FOR LIQUID AND SOLID WASTES HAS BEEN CHANGED TO USE OF ONE VAULT WITH SOLIDS AND LIQUIDS INCORPORATED INTO A SOLID MASS. COMBINING LIQUIDS AND SOLID WASTES IN CONCRETE IS A MORE EFFICIENT USE OF SPACE AND REQUIRES LESS GROUND AREA. MIGRATION OF RADIOACTIVE SUBSTANCES INTO THE ENVIRONMENT IS PRACTICALLY IMPOSSIBLE. COST OF COMBINED BURIAL OF LIQUID WASTES IN CONCRETE IS ABOUT 40 TO 50% LESS THAN FOR LIQUID WASTES ALONE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE STORAGE + UNION OF SOVIET SOCIALIST REPUBLICS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID

14-18398

KHVOSTOV NN

MAXIMUM PERMISSIBLE LEVELS OF SURFACE CONTAMINATION BY RADIOACTIVE SUBSTANCES

DEPARTMENT OF RADIATION HYGIENE, CENTRAL GRADUATE MEDICAL INSTITUTE, MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 5 PAGES, 2 FIGURES, 1 TABLE, 8 REFERENCES, PAGE 113 THRU 117 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

PROPOSED MAXIMUM PERMISSIBLE LEVELS OF SURFACE CONTAMINATION IN THE USSR ARE OUTLINED AS A BASIS FOR FUTURE STUDY. PRESENT STANDARDS IN USSR ARE STATED TO BE MORE RIGID THAN ELSEWHERE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAMINATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + PERSONNEL EXPOSURE, RADIATION + SURFACE CONTAMINATION + UNION OF SOVIET SOCIALIST REPUBLICS

14-18400

PAVLOVSKAYA NA + SKRIPCHENKO ES

THE DECONTAMINATION OF SURFACES CONTAMINATED BY THORIUM COMPOUNDS

OCCUPATIONAL HEALTH RESEARCH INSTITUTE OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR AND THE MOSCOW BRANCH OF THE ALL-UNION FAT RESEARCH INSTITUTE

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 6 PAGES, 4 TABLES, 6 REFERENCES, PAGE 216 THRU 223 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

THE EFFICIENCY OF VARIOUS DETERGENTS IN THE DECONTAMINATION OF LINOLEUMS AND PLASTIC SURFACES CONTAMINATED WITH THORIUM NITRATE WAS INVESTIGATED. RESIDUAL ACTIVITY WAS REDUCED TO 0.8% FOR LINOLEUM, AND 0.2% TO 4% FOR PLASTICS, DEPENDING ON THEIR NATURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + SURFACE, GENERAL + THORIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-18401

KII7MICHFA MN

THE DETERMINATION OF VANADIUM IN AIR

ERISMAN RESEARCH INSTITUTE OF HYGIENE, MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 3 PAGES, PAGE 239 THRU 241 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

THE WIDESPREAD AND INCREASING USE OF RADIOACTIVE ISOTOPES AND OTHER SOURCES OF IONIZING RADIATION HAS CREATED WASTE-DISPOSAL PROBLEMS. THE OPERATION OF A DISPOSAL SERVICE IS DESCRIBED. THE MECHANICS OF COLLECTION, TRANSFER, AND PROCEDURAL ARRANGEMENTS ARE COVERED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE DISPOSAL, GENERAL + UNION OF SOVIET SOCIALIST REPUBLICS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID + WASTE MANAGEMENT

14-18402

MOISEITSEV PI + SEREDIN YV

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18402 *CONTINUED*

ASSESSMENT OF THE EFFICIENCY OF VENTILATION OF ATOMIC REACTORS OF THE TYPE IRT-2000
OCCUPATIONAL HEALTH RESEARCH INSTITUTE, MOSCOW
TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 4 PAGES, 2 TABLES, 3 REFERENCES, PAGE 426 THRU 429 OF HYGIENE
AND SANITATION 30(4-6), APRIL 1965

ENGINEERING AND SANITARY-HYGIENIC TESTS WERE MADE ON SEVERAL REACTORS OF THE IRT-2000 TYPE.
IT WAS FOUND THAT THOSE RESPONSIBLE FOR VENTILATION OF ATOMIC REACTORS SHOULD PAY SPECIAL
ATTENTION TO THE QUALITY OF ASSEMBLY, OPERATION, AND ADJUSTMENT OF THE SYSTEMS. AN EXCESS OF
EXHAUST OVER INFLUX CAPACITY OF 25-30% SHOULD BE PROVIDED TO PREVENT PENETRATION OF
RADIOACTIVE SUBSTANCES INTO INHABITED AREAS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*VENTILATION SYSTEM + REACTOR OFFGAS + UNION OF SOVIET SOCIALIST REPUBLICS

14-18460 ALSO IN CATEGORY 15

CHEMICAL RADIOPROTECTORS. ANNUAL REPORT, APRIL 1, 1964-APRIL 1, 1965
LIEGE UNIVERSITY, BELGIUM
EUR-2548.F +. 8 PAGES, APRIL 1965

THE IMPORTANCE OF THE BIOCHEMICAL EFFECTS OF SULFUR-CONTAINING CHEMICAL PROTECTORS WAS
CONFIRMED BY SEVERAL STUDIES. A DETAILED STUDY WAS ALSO MADE ON THE ACTION OF VARIOUS
PROTECTORS ON HAIR GROWTH AND ON HAIR BULB IN NORMAL AND IRRADIATED ANIMALS, AND CERTAIN
CURIOUS ANOMALIES IN THE CHEMICAL-PROTECTION PHENOMENA ON THAT PARTICULAR TEST WERE
ELUCIDATED. OTHER STUDIES WERE MADE OF THE PROTECTIVE EFFECTS OF VARIOUS INORGANIC SALTS ON
SEEDS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM WISCONSIN 54669

*RADIATION PROTECTION, CHEMICAL + BELGIUM + SULFUR + X-RAY

14-18462

ANNUAL REPORT, 1965-66.
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
AECRL-16 +. 80 PAGES, SEPTEMBER 1966

SEPARATE ABSTRACTS WERE PREPARED FOR THE THREE SECTIONS OF THE REPORT. FOUR APPENDICES GIVING
RESULTS OF SURVEYS ON CESIUM-137 AND STRONTIUM-90 IN MILK ARE INCLUDED.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., NEW YORK, N.Y. 10022, \$1.70 COPY

*FALLOUT + CESIUM + IODINE + MONITORING PROGRAM, ENVIRONMENTAL + STRONTIUM + UNITED KINGDOM

14-18463 ALSO IN CATEGORY 15

RADIOACTIVITY IN HUMAN DIET, 1965
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ACRL-16 +. 18 PAGES, PAGES 3-20 FROM ANNUAL REPORT 1965-66, SEPTEMBER 1966

RESULTS OF MEASUREMENTS ON RADIOACTIVITY DEPOSITION IN RAIN ARE REPORTED. THESE DATA GIVE AN
EARLY INDICATION OF CHANGES IN THE EXTENT OF ENVIRONMENTAL CONTAMINATION. INVESTIGATIONS OF
CONTAMINATION OF HUMAN DIET WITH RADIOACTIVITY FROM WORLD-WIDE FALLOUT ARE REPORTED. THE
COMPLETE RESULTS OF SURVEYS OF SR-90 AND CS-137 IN HUMAN DIET DURING 1965 ARE GIVEN AND, IN
ADDITION, RESULTS FOR MILK UNTIL JUNE 1966. MAPS AND TABLES SHOW RESULTS OF A COUNTRY-WIDE
SURVEY OF SR-90 IN MILK, CHEESE, VEGETABLES, AND FLOUR. RESULTS OF SURVEYS OF SR-90 IN FLOUR
PRODUCED IN AUSTRALIA AND SR-90 IN ITEMS OF DIET IN HONG KONG ARE ALSO PRESENTED.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N.Y. 10022, \$1.70 COPY

*FALLOUT + CESIUM + DIETARY HABIT + RAINOUT + STRONTIUM + UNITED KINGDOM

14-18464 ALSO IN CATEGORY 15

SURVEYS OF ENVIRONMENTAL RADIOACTIVITY - A REVIEW OF REQUIREMENTS
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ACRL-16 +. 5 PAGES, PAGES 21-25 FROM ANNUAL REPORT, 1965-66, SEPTEMBER 1966

THE PRIMARY REQUIREMENT OF SURVEYS OF ENVIRONMENTAL CONTAMINATION BY RADIOACTIVE MATERIALS IS
TO OBTAIN ADEQUATE INFORMATION FOR MEDICAL ASSESSMENT. ANOTHER OBJECTIVE IS TO OBTAIN
INFORMATION ON FOOD-CHAIN MECHANISMS. THE SIGNIFICANCE OF EXPOSURES FROM FALLOUT IN
CONSEQUENCE OF PAST WEAPONS TESTS IS DISCUSSED. OTHER TOPICS DISCUSSED ARE THE TRANSFER OF
RADIOACTIVITY TO DIET, FUTURE INVESTIGATIONS OF SR-90 AND CS-137 IN DIET, AND SURVEYS OF
I-131.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N.Y. 10022, \$1.70 COPY

*MONITORING PROGRAM, ENVIRONMENTAL + CESIUM + ENVIRONMENTAL CONDITION + IODINE + RADIOISOTOPE + STRONTIUM + UNITED KINGDOM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18465 ALSO IN CATEGORY 15
EXPERIMENTAL STUDIES
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ARCRL-16 +. 43 PAGES, PAGES 27-69 FROM ANNUAL REPORT, 1965-66, SEPTEMBER 1966

PROGRESS IS REPORTED IN THE FOLLOWING STUDIES - THE EFFECT OF VARIATIONS IN THE RATIO OF STRONTIUM TO CALCIUM SUPPLIED TO PLANTS ON RELATIVE UPTAKE OF THESE IONS FROM SOLUTION, DISTRIBUTION IN POTATOES OF STRONTIUM AND CALCIUM ABSORBED FROM DIFFERENT DEPTHS IN THE SOIL, THE EFFECT OF ELECTROLYTES ON THE SELF-DIFFUSION OF STRONTIUM IN SOIL, RELATIVE MOVEMENT OF CS-137 AND SR-89 THROUGH SOILS, THE EFFECT OF GAMMA IRRADIATION ON THE GROWTH AND YIELD OF CROP PLANTS, AND PREDICTION OF FUTURE LEVELS OF LONG-LIVED FISSION PRODUCTS IN MILK AND THE AVERAGE MIXED DIET.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N.Y. 10022, \$1.70 COPY

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *RADIATION EFFECT + CALCIUM + CESIUM + ENVIRONMENTAL CONDITION + GAMMA + PHOSPHATE + POTASSIUM + STRONTIUM + UNITED KINGDOM

14-18466 ALSO IN CATEGORY 15
CONARD RA + MEYER LM + SUTOW WW
MEDICAL SURVEY OF THE PEOPLE OF RONGELAP AND UTIRIK ISLANDS ELEVEN AND TWELVE YEARS AFTER EXPOSURE TO FALLOUT RADIATION (MARCH 1965 AND MARCH 1966)
BROOKHAVEN NATIONAL LABORATORY
BNL-50029 +. 170 PAGES, FIGURES, TABLES, APRIL 1967

THE RONGELAP PEOPLE HAVE BEEN IN GENERALLY GOOD HEALTH, WITH NO UNUSUAL EPIDEMICS. ON UTIRIK, HEALTH LEVEL WAS GOOD AND BIRTH AND DEATH RATES WERE SIMILAR TO THOSE ON RONGELAP. THYROID ABNORMALITIES INCREASED TO 18 CASES (16 WITH NODULES AND 2 WITH HYPOTHYROIDISM). SURGERY IN 11 CASES REVEALED 9 CHILDREN AND 1 ADULT WITH ADENOMATOUS GOITERS, AND 1 ADULT WITH A MIXED PAPILLARY AND FOLLICULAR CARCINOMA. THERE APPEARS TO BE A TREND TOWARD GROWTH RETARDATION IN EXPOSED CHILDREN. HEMATOLOGICAL STUDIES SHOW THAT LEUKOCYTE AND PLATELET LEVELS OF THE PERIPHERAL BLOOD OF THE RONGELAP PEOPLE SEEM TO HAVE RECOVERED TO LEVELS EQUAL TO THOSE OF THE UNEXPOSED POPULATION. THE BLOOD OF THE UTIRIK POPULATION SHOWED NO OBVIOUS ABNORMALITIES. CHROMOSOME STUDIES OF WHITE CELLS SHOWED SOME INCIDENCE OF 2-HIT ABERRATIONS IN THE EXPOSED PEOPLE, WHICH WAS QUITE SIGNIFICANT IN VIEW OF THE ABSENCE OF SUCH ABERRATIONS IN THE COMPARISON POPULATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS; U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *TEST, WEAPONS (HP ASPECTS) + BIOMEDICAL + BNL (BROOKHAVEN NATIONAL LABORATORY) + DOSE MEASUREMENT, INTERNAL + RADIOBIOLOGY

14-18482
TUCHSCHEERER T
PROBLEM OF INDUCED RADIOACTIVITY IN FOOD PRODUCTS
STI-PUB-127 + CONF-660609 + SM-73-12 +. 10 PAGES, 1 FIGURE, 6 TABLES, PAGE 243 THRU 252 OF FOOD IRRADIATION PROCEEDINGS SERIFS, NOVEMBER 1966, PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM HELD IN KARLSRUHE, JUNE 6-10, 1966

RADIOACTIVITY INDUCED BY IRRADIATION OF FOODS IS CAUSED BY THE INTERACTION OF HIGH-ENERGY RADIATION WITH NUCLEI OF FOOD ELEMENTS. ELECTRONS AND GAMMA RAYS ARE EQUIVALENT IN THE PRODUCTION OF INDUCED RADIOACTIVITY. IN THE ENERGY RANGE OF 0.05 TO 10 MEV, INDUCED RADIOACTIVITY IS DUE TO STIMULATION OF ISOMERS. IN THIS RANGE THE GAMMA-RAY REACTION IS RESPONSIBLE FOR THE GREATEST PART OF THE INDUCED ACTIVITY. BY A NEW SIMPLIFIED METHOD OF CALCULATION, THE EXPECTED INDUCED RADIOACTIVITY IS ESTIMATED, AND IT IS CONCLUDED THAT THE ACTIVITY OF THESE ISOMERS PRESENTS NO HEALTH HAZARD.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, NEW YORK OR GENEVA, \$20.00 COPY

ACTIVATION PRODUCT + GAMMA + UNION OF SOVIET SOCIALIST REPUBLICS

14-18484
BACKGROUND FOR MILK RADIOACTIVITY REPORTS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, DIVISION OF RADIOLOGICAL HEALTH
PRESS REL. HEW-Q68 +. 5 PAGES, JUNE 17, 1967

THE PUBLIC HEALTH SERVICE RELEASED TABULATIONS SHOWING LATEST AVAILABLE DATA ON RADIOACTIVITY IN MILK SAMPLES COLLECTED BY THE NATIONAL PASTEURIZED MILK NETWORK. EVERY STATE IS REPRESENTED. AVERAGE DAILY CONCENTRATIONS ARE GIVEN FOR I-131 IN MARCH 1967 AND FOR SR-89 AND SR-90 FOR FEBRUARY 1967. ALSO, 12-MONTH TOTALS ARE GIVEN FOR I-131 AND SR-90. WITH THE TABULATIONS, AN EXPLANATION OF THE RELATION OF THE REPORTED RADIOACTIVITY LEVELS TO THE RADIATION PROTECTION GUIDES AND PROTECTIVE ACTION GUIDES OF THE FEDERAL RADIATION COUNCIL.

*FALLOUT + BIOLOGICAL CONCENTRATION, MILK + IODINE + STRONTIUM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18485

BOWEN VT + NOSHKIN VE + SUGIHARA TT
TRANSPORT OF STRONTIUM-90 TOWARDS THE EQUATOR AT MIDDREPTHS IN THE ATLANTIC OCEAN
WOODS HOLE OCEANOGRAPHIC INSTITUTION + DEPARTMENT OF CHEMISTRY, WORCESTER, MASSACHUSETTS
2 PAGES, 2 FIGURES, 1 TABLE, NATURE 212(5060), PAGE 383 THRU 384, (OCTOBER 22, 1966)

STUDIES IN PHYSICAL OCEANOGRAPHY (OBSERVATIONAL AND THEORETICAL) LED TO THE DEVELOPMENT OF THE
CONCEPT OF RELATIVELY RAPIDLY FLOWING CURRENTS TRANSPORTING CONSIDERABLE MASSES OF WATER AT
INTERMEDIATE DEPTHS NORTHWARD OR SOUTHWARD TO AND ACROSS THE EQUATOR. SAMPLES TAKEN IN
1961-62 AND IN 1963 INDICATE A MARKED INCREASE IN SR-90 CONCENTRATION AT MID-DEPTH (1000 TO
1900 M).

*OCEAN AND SEA + FALLOUT + STRONTIUM

14-18486

ADLEY FE + ROLIE AG
RELATIONSHIP OF EFFICIENCY TO PRESSURE DROP OF RESPIRATOR CARTRIDGES WITH INTRODUCED DEFECTS
HANFORD OCCUPATIONAL HEALTH FOUNDATION, RICHLAND, WASHINGTON. OCCUPATIONAL HYGIENE DEPARTMENT
HOHF-3 +. 6 PAGES, 1 FIGURE, FEBRUARY 1967

PRESENTS A STUDY OF THE RELATION BETWEEN PRESSURE DROP AND THE EFFICIENCY OF HIGH-EFFICIENCY
FILTER CARTRIDGES TO DETERMINE WHETHER PRESSURE DROP IS A SATISFACTORY SCREENING TEST FOR
CARTRIDGE EFFICIENCY. RESULTS SHOW THAT THE DIFFERENCE IN PRESSURE DROP BETWEEN CARTRIDGES
IS CONSIDERABLY GREATER THAN THAT CAUSED BY A DEFECT WHICH WOULD CAUSE THE CARTRIDGE TO BE
UNSAFE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AIR CLEANING + AEROSOL + FILTER EFFICIENCY + TEST, FILTER

14-18487

PRINZ WH + HUEBNER H
STRONTIUM DISTRIBUTION IN GOATS MILK AND MILK DECONTAMINATION. REPORT 2
TIERAERZTLICHE HOCHSCHULE, HANOVER
4 PAGES, 3 FIGURES, ARCH. LEBENSMITTELHYG 15, PAGE 62 THRU 66, (MARCH 20, 1964), IN GERMAN

AFTER PERORAL ADMINISTRATION OF SR-89 TO GOATS, 20% OR LESS WAS FOUND IN MILK OF LACTATING
GOATS, OF WHICH 75 TO 80% WAS BOUND TO THE CASEIN FRACTION, WHILE 4 TO 4% WAS IN THE FAT
FRACTION. AFTER IN VIVO INCORPORATION, SR-89 IS BOUND MORE FIRMLY BY CASEIN THAN IS CA. IT
IS NOT DEFINITELY ESTABLISHED THAT SR-89 IS QUANTITATIVELY RELEASED FROM CASEIN BY SHIFTING
THE PH OF MILK TO 5.2 OR 5.4. WITH LARGE VOLUMES OF MILK IT IS DIFFICULT TO SHIFT THE PH TO
THESE VALUES BECAUSE THE BETA AND GAMMA CASEIN TEND TO BE PRECIPITATED. THESE TWO FORMS OF
CASEIN MAKE UP MORE THAN 30% OF THE TOTAL CASEIN. RUMINANTS HAVE THE CAPABILITY OF
DECREASING THE SR-89/CA RATIO IN MILK AS COMPARED TO THIS RATIO IN FEED. THIS RATIO CAN BE
IMPROVED FURTHER BY DOUBLING THE CA CONCENTRATION OF THE FEED. THE COSTS OF DECONTAMINATION
OF MILK BY MEANS OF ION EXCHANGE PROCEDURES MIGHT INCREASE THE PRICE OF MILK 20 TO 30%.

*BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + GERMANY + ION EXCHANGE + STRONTIUM

14-18488

DADILLON J + GEISSE G
DIFFUSION OF IODINE IN WATER. THE PIREE EXPERIMENT
COMMISSARIAT A L-ENERGIE ATOMIQUE, CADARACHE, FRANCE. CENTRE D-ETUDES NUCLEAIRES
CEA-R-3199 +. 22 PAGES, 12 FIGURES, 4 TABLES, 8 REFERENCES, APRIL 1967, IN FRENCH

THIS LARGE-SCALE OUT-OF-PILE EXPERIMENT IS PART OF A GENERAL PROGRAM OF WATER-COOLED-REACTOR
SAFETY STUDIES. AT THE BOTTOM OF A 1200-CU/FT TANK, FULL OF DEMINERALIZED WATER, CARBON
DIOXIDE, CONTAMINATED WITH IODINE, IS INJECTED AT ABOUT 300 PSI AND 400 C. UNDER THESE
CONDITIONS, ONLY 0.1% OF THE IODINE REACHES THE SURFACE AND IS RELEASED IN AIR.
NEVERTHELESS, EXCHANGE CONDITIONS BETWEEN WATER AND AIR CAUSE AN ADDITIONAL IODINE RELEASE
PROPORTIONAL TO TIME.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN 54669

*REACTOR, WATER + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT, IODINE + FRANCE + IODINE

14-18489

RUSSELL RS
RADIOACTIVITY AND HUMAN DIET
552 PAGES, FIGURES, TABLES, PERGAMON PRESS, NEW YORK, 1966

RESEARCH DURING THE PAST DECADE HAS RESULTED IN IMPROVED UNDERSTANDING OF THE MANNER IN WHICH

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18489 *CONTINUED*

RADIOACTIVE SUBSTANCES, BOTH NATURAL AND MAN-MADE, ENTER FOODSTUFFS AND BECOME SOURCES OF INTERNAL RADIATION. THIS TEXTBOOK IS INTENDED TO SERVE AS AN INTRODUCTION TO THE SUBJECT AND AS A REFERENCE. AREAS COVERED INCLUDE - AN INTRODUCTION, FOOD CHAINS ON DRY LAND, GENERAL PRINCIPLES, FOOD CHAINS ON DRY LAND (STRONTIUM), FOOD CHAINS ON DRY LAND (EXCLUDING STRONTIUM), AQUATIC FOOD CHAINS, AND PRACTICAL ASPECTS OF THE ASSESSMENT AND CONTROL OF DIETARY CONTAMINATION.

AVAILABILITY - PERGAMON PRESS INC., 44-01 21ST ST. LONG ISLAND CITY, NEW YORK

*BIOLOGICAL CONCENTRATION, FOOD + CESIUM + DIETARY HABIT + FISSION PRODUCT TRANSPORT + RADIOISOTOPE + STRONTIUM + THORIUM + UNITED KINGDOM + URANIUM

14-18492

ALSO IN CATEGORY 16

ALONSO A

GENERALIZATION OF HOLLANDS METHOD TO ASSESS GAMMA DOSES FROM RADIOACTIVE CLOUDS
NUCLEAR SAFETY GROUP, JUNTA DE ENERGIA, NUCLEAR, MADRID SPAIN
8 PAGES, 4 FIGURES, 12 REFERENCES, HEALTH PHYSICS 13, PAGE 487 THRU 494, (1967)

A METHOD TO ASSESS WHOLE-BODY GAMMA DOSES FROM RADIOACTIVE CLOUDS IS PRESENTED. THE CALCULATIONS ARE CARRIED OUT BY MEANS OF SIMPLE NOMOGRAMS WHICH YIELD A GEOMETRY CORRECTION FACTOR TO BE APPLIED TO THE INFINITE-CLOUD MODEL. THE PROCEDURE IS BASED ON A GENERALIZATION OF HOLLANDS SOLUTION TO INCLUDE NON-ISOTROPIC GAUSSIAN CLOUDS. THIS METHOD IS CAPABLE OF RENDERING ACCURATE VALUES WITHOUT USING ELABORATE DIGITAL CODES, AND IT IS A USEFUL TOOL FOR A RAPID EVALUATION OF WHOLE-BODY GAMMA DOSES FROM CLOUDS OF REACTOR DEBRIS.

ATMOSPHERIC DIFFUSION + FALLOUT + GAUSSIAN PLUME FORMULA + SOURCE, ELEVATED + SOURCE, GROUND LEVEL

14-18493

ALSO IN CATEGORY 16

MAMURO T + MATSUNAMI T

STUDIES ON FALLOUT PARTICLES. VII

9 PAGES, 6 FIGURES, 5 TABLES, 18 REFERENCES, NIPPON GENSHIYOKU GAKKAISHI 3, PAGE 416 THRU 423, (1966), IN JAPANESE

FALLOUT FROM A SOVIET LARGE-SCALE AIR BURST, CHINESE SMALL-SCALE LAND-SURFACE BURST, AND CHINESE SMALL-SCALE AIR BURST WAS MEASURED FOR VARIOUS RADIOACTIVE NUCLIDES. DIFFERENCES BETWEEN THE SPECIFIC ACTIVITIES OF THESE NUCLIDES ARE DISCUSSED IN CONNECTION WITH THE CONDITIONS OF THE EXPLOSIONS FROM WHICH THEY ORIGINATED. THE RATIO OF ALPHA ACTIVITY TO TOTAL ACTIVITY WAS CONSIDERABLY SMALLER IN THE COLLECTED PARTICLES THAN IN THE RAIN-WATER SAMPLES BEFORE AND AFTER THE COLLECTION.

ATMOSPHERIC DIFFUSION + CONCENTRATION, AREA + FALLOUT + RAINOUT + WASHOUT

14-18558

ALSO IN CATEGORY 15

LENGEMANN FW

PREDICTING THE TOTAL PROJECTED INTAKE OF RADIOIODINE FROM MILK BY MAN - MODIFICATION OF THE ORIGINAL EQUATION

NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY

2 PAGES, 1 TABLE, 2 REFERENCES, HEALTH PHYSICS 13(5) PAGES 521-22 (MAY 1967)

THE AUTHOR PREVIOUSLY PUBLISHED AN EQUATION BY WHICH THE RADIOIODINE INTAKE FROM MILK BY MAN MAY BE ESTIMATED. THIS NOTE PRESENTS A MODIFICATION OF THE ORIGINAL EQUATION, WHICH INCLUDES A FACTOR FOR THE TIME FROM INGESTION OF ISOTOPE BY THE COW UNTIL CONSUMPTION BY MAN.

*BIOLOGICAL CONCENTRATION, MILK + DOSE CALCULATION, INTERNAL + IODINE

14-18616

ALSO IN CATEGORIES 16 AND 17

FORD NUCLEAR REACTOR PROPOSED AMENDMENT 17. AIRBORNE ACTIVITY RELEASE

THE UNIVERSITY OF MICHIGAN, PHOENIX MEMORIAL LABORATORY

10 PAGES, 1 FIGURE, 2 TABLES, MAY 22, 1967, DOCKET NO. 50-2

U OF MICHIGAN REQUESTS INCREASE IN RELEASE LIMITS (16 TO BECOME 400 TIMES 10 CFR 20 LIMITS THROUGH STACK, AND 1 TO BECOME 4 TIMES 10 CFR 20 LIMITS THROUGH BUILDING EXHAUST). REQUEST IS BASED ON A THESIS (MMPP 272, CORRELATION OF WIND-TUNNEL AND FIELD MEASUREMENTS OF GAS DIFFUSION USING KR-85 TRACER) AND METEOROLOGICAL OBSERVATIONS, WHICH SHOWED MINIMUM DILUTION FACTORS OF 400 AND 4 FOR THE STACK AND EXHAUST.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *SOURCE, CONTINUOUS + DILUTION + MODEL TESTING + RADIOACTIVITY, RELEASE + REACTOR, POOL TYPE + REACTOR, RESEARCH + STACK + TECHNICAL SPECIFICATIONS + VENTILATION SYSTEM

14-18632

ALSO IN CATEGORY 16

IR DEVICE SCANS SMOKESTACK

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18632 *CONTINUED*
1 PAGE, 1 FIGURE, CHEM. AND ENG. NEWS 45(7), PAGE 54, (FEBRUARY 13, 1967)

INFRARED DEVICE SCANS SMOKESTACK EFFLUENT FROM TRUCK-MOUNTED ASSEMBLY AT A DISTANCE OF AT LEAST HALF A MILE. OFFERS A POTENTIALLY VALUABLE APPROACH TO AIR-POLLUTION STUDIES.

*INSTRUMENTATION, METEOROLOGICAL + *SOURCE, AREA + ATMOSPHERIC POLLUTION + DIFFUSION

14-18665 ALSO IN CATEGORY 17
HADDAM NECK SUPPLIES SUPPLEMENTAL INFORMATION ON MAIN STEAM ISOLATION VALVES
CONNECTICUT YANKEE ATOMIC POWER COMPANY
1 PAGE, OCTOBER 9, 1967, DOCKET NO. 50-213

(TWX) EVALUATION OF MAIN STEAM BREAK (ASSUMING VALVE-CLOSURE TIME OF 10 SEC) SHOWS A SITE-BOUNDARY DOSE OF LESS THAN 0.05 REM, WITH THE FOLLOWING ASSUMPTIONS - 1% FAILED FUEL, 3-GPM LEAKAGE TO SECONDARY SYSTEM, 5% MOISTURE CARRYOVER, PASQUILL F METEOROLOGY AT 1 M/SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, STEAM LINE RUPTURE + AIRBORNE RELEASE + DOSE + HADDAM NECK + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

14-18785 ALSO IN CATEGORY 15
ROMNEY EM + STEEN AJ + WOOD RA + RHOADS WA
CONCENTRATION OF RADIONUCLIDES BY PLANTS GROWN ON EJECTA FROM THE SEDAN THERMONUCLEAR CRATERING DETONATION
UNIVERSITY OF CALIFORNIA, LOS ANGELES
8 PAGES, 3 FIGURES, 2 TABLES, 27 REFERENCES, RADIOECOLOGICAL CONCENTRATION PROCESSES, PAGE 391 THRU 398, (APRIL 29, 1966)

PROJECT SEDAN, AN EVENT IN THE PLOWSHARE PROGRAM DESIGNED TO STUDY PEACEFUL USES OF NUCLEAR EXPLOSIVES FOR EXCAVATION PURPOSES, INVOLVED THE DETONATION OF A 100-KT THERMONUCLEAR DEVICE AT A DEPTH OF 194 M IN THE DESERT ALLUVIUM OF YUCCA FLAT, NEVADA, ON 6 JULY, 1962. THE EXPLOSION EJECTED NEARLY 5 MILLION CU. METERS OF MATERIAL, FORMING A SYMMETRICAL CRATER 364 M IN DIAMETER AND 99 M DEEP. MOST OF THE RADIOACTIVITY WAS CONFINED WITHIN THE CRATER AND THE EJECTA DEPOSITED OVER AN AREA OF ABOUT 2500 ACRES SURROUNDING THE CRATER. SEDAN PROVIDED UNIQUE OPPORTUNITIES TO STUDY BIOLOGICAL EFFECTS ARISING FROM THE USE OF NUCLEAR ENERGY IN LARGE-SCALE EARTH-MOVING PROJECTS. WORK REPORTED HEREIN CHIEFLY INVOLVED A STUDY OF RADIONUCLIDE CONCENTRATION BY PLANTS GROWN ON SEDAN EJECTA.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *EXPLOSION + *TUNGSTEN + ECOLOGICAL CONSIDERATION + FALLOUT + PLOWSHARE PROGRAM + RADIOCHEMICAL ANALYSIS + RADIONUCLIDE, INDUCED + SAMPLING + SPECTROMETRY, GAMMA

14-18786 ALSO IN CATEGORY 15
HUNN JB
IN VIVO UPTAKE OF RADIOIODIDE BY RAINBOW TROUT
FISH AND WILDLIFE SERVICE, LA CROSSE, WIS.
5 PAGES, 3 TABLES, 13 REFERENCES, J. WATER POLLUT. CONTR. FEDERATION 20, PAGE 1201 THRU 1205, (DECEMBER 1966)

RAINBOW TROUT (SALMO GAIRDNERI) WEIGHING FROM 31 TO 203 G WERE EXPOSED TO CARRIER-FREE NA-131 I (0.2 TO 5.5 MICROCURIES/1) IN 2 LITERS OF SOLUTION IN COVERED PLASTIC CONTAINERS, WITH CONSTANT AERATION AND ILLUMINATION. RESULTS SHOWED THAT RADIOIODIDE IS TAKEN UP BY TROUT VIA THE GILLS, A PROCESS NOT AFFECTED PER SE BY THE OSMOTIC GRADIENT BETWEEN THE FISH AND THE MEDIUM. UPTAKE WAS INVERSELY RELATED TO THE CA CONCENTRATION OF THE MEDIUM. THIOURACIL COMPETITIVELY INHIBITED I-131 UPTAKE BY THE GILL, BUT THIOURACIL GIVEN INTRAPERITONEALLY WAS WITHOUT EFFECT DURING THE 24-HR. EXPERIMENTAL PERIOD. THE RELATIVE DISTRIBUTION OF I-131 INDICATED THAT THE LOWER JAW (THYROID) WAS THE ONLY TISSUE STUDIED IN WHICH RADIOIODIDE ATTAINED A CONCENTRATION ABOVE THAT OF THE BLOOD. THYROIDAL I-131 UPTAKE WAS INHIBITED BY NASCN, BUT THIOURACIL HAD NO EFFECT ON UPTAKE FOR AT LEAST 24 HR. AFTER INJECTION.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *IODINE + CALCIUM + ENVIRONMENTAL CONDITION + HYDROLOGICAL CONSIDERATION, QUALITY OF WATER + RADIOBIOLOGY + RADIONUCLIDE, INDUCED

14-18787 ALSO IN CATEGORY 15
WEAVER L
STREAM SURVEILLANCE PROGRAMS
PUBLIC HEALTH SERVICE, WASHINGTON, D. C.
11 PAGES, 9 FIGURES, 1 REFERENCE, J. WATER POLLUT. CONTR. FED., 38, PAGE 1334 THRU 1344, (AUGUST 1966)

THE DESIGN OF STREAM-SURVEILLANCE SYSTEMS IS DISCUSSED IN RELATION TO EXPERIENCE OF THE PUBLIC HEALTH SERVICES DIVISION OF WATER SUPPLY AND POLLUTION CONTRL. EFFECTIVE SURVEILLANCE PROGRAMS SHOULD BE DYNAMIC AND FITTED TO THE NEEDS OF THE DATA USER. AN EXAMPLE OF CHANGING SURVEILLANCE NEEDS IS THE MONITORING OF ALPHA AND BETA RADIATION LEVELS IN SURFACE WATERS. FACETS OF PROGRAM PLANNING FOR CONTROL OF STREAM POLLUTION ARE DISCUSSED.

*GROUND WATER, NUCLIDE OCCURRENCE + *POPULATION EXPOSURE + *SURVEILLANCE PROGRAM + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + DESIGN CRITERIA + FALLOUT + GROSS ALPHA + GROSS BETA +

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18787 *CONTINUED*
WATER POLLUTION

14-18788 ALSO IN CATEGORY 15

RECHEN HJ

MONTHLY TABULATION OF FINDINGS, PUBLIC HEALTH SERVICE RADIATION SURVEILLANCE NETWORK FOR THE PERIOD JULY 1-31, 1966

PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

NP-16330 +. 56 PAGES, SEPTEMBER 6, 1966

PRESENTS A MONTHLY TABULATION OF THE FINDINGS OF THE USPHS RADIATION SURVEILLANCE NETWORK, CONSISTING OF 74 STATIONS. SIX OF THE STATIONS ARE OPERATED BY THE PUBLIC HEALTH SERVICE AND 68 BY VARIOUS OTHER FEDERAL, STATE, OR LOCAL AGENCIES. THE DATA CONSISTS OF WEIGHTED AVERAGES OF GROSS BETA ACTIVITY IN SURFACE AIR AND PRECIPITATION FOR STATIONS LOCATED AT VARIOUS GEOGRAPHIC COORDINATES AND ELEVATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*MONITOR, RADIATION, ENVIRONMENTAL + *PRECIPITATION + *SURVEILLANCE PROGRAM + ENVIRONMENTAL CONDITION + FALLOUT + GROSS BETA + RAINOUT

14-18789 ALSO IN CATEGORY 15

POPTER CR + KAHN B + CARTER MW + REHNBERG GL + PEPPER EW

DETERMINATION OF RADIOSTRONTIUM IN FOOD AND OTHER ENVIRONMENTAL SAMPLES

NATIONAL CENTER FOR RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE, U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, ROCKVILLE, MD.

8 PAGES, 7 FIGURES, 4 TABLES, 32 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 1 (9) PAGES 745 THRU 752 (SEPTEMBER 1967)

RADIOSTRONTIUM IN ENVIRONMENTAL SAMPLES IS SEPARATED FROM THE OTHER ALKALINE EARTHS IN AN EDTA MEDIUM. EARLIER METHODS USING ION-EXCHANGE WERE MODIFIED TO PERMIT ANALYSIS OF LARGE SAMPLES, TO PROVIDE QUANTITATIVE SEPARATION FROM CALCIUM IN THE WIDE RANGE OF CONCENTRATIONS NORMALLY ENCOUNTERED, TO RECOVER STRONTIUM IN HIGH YIELD, AND TO ACCOMMODATE MULTIPLE ANALYSES. THE SENSITIVITY OF THE PROCEDURE IS 0.1 PC. PER GRAM OF ASH WHEN SAMPLES ARE COUNTED FOR 50 MINUTES IN A LOW-BACKGROUND BETA COUNTER. THE AVERAGE STRONTIUM YIELD IS 70%. DECONTAMINATION FACTORS ARE 50,000 FROM CALCIUM AND AT LEAST 10,000 FROM MAJOR RADIONUCLIDES IN FALLOUT OTHER THAN BARIUM. BARIUM DECONTAMINATION IS 130. A PROCEDURE FOR THE ANALYSIS OF THE BARIUM PLUS RADIUM FRACTION IS ALSO GIVEN.

*BIOLOGICAL CONCENTRATION, FOOD + *ENVIRONMENTAL CONDITION + *STRONTIUM + BARIUM + CALCIUM + DECONTAMINATION + DIETARY HABIT + FALLOUT + RADIOCHEMICAL ANALYSIS

14-18790 ALSO IN CATEGORY 15

HEMS G

ACCEPTABLE CONCENTRATION OF RADON IN DRINKING WATER

RADIOLOGICAL PROTECTION SERVICE, SUTTON, ENGLAND

7 PAGES, 1 TABLE, 10 REFERENCES, INT. J. AIR WATER POLLUT., 10, PAGE 769 THRU 775, (OCTOBER 1966)

RECOMMENDATIONS ARE MADE FOR ACCEPTABLE CONCENTRATIONS OF RN IN DOMESTIC WATER SUPPLIES. FOLLOWING INGESTION OF RN IN WATER, THE STOMACH RECEIVES THE HIGHEST DOSE. THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION RECOMMENDED THAT FOR THE GENERAL POPULATION THE DOSE TO THE STOMACH SHOULD NOT EXCEED 0.5 REM/YR. RADON IS POORLY SOLUBLE IN WATER, AND IS READILY LOST BY AERATION. THE INTAKE OF RN, BY MOUTH, WOULD BE DETERMINED BY THE AMOUNT OF RAW WATER DRUNK. IN TEMPERATURE CLIMATES, A REASONABLE AVERAGE FIGURE WOULD BE 300 ML/DAY. A FURTHER FACTOR IN CALCULATING THE DAILY INTAKE OF RN IS THE LOSS OF RN BY AERATION WHEN COLLECTING THE WATER AT THE TAP, AND ALSO DURING SWALLOWING.

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *RADON + *WATER, DRINKING + BIOLOGICAL CONCENTRATION, MAN + DIETARY HABIT + DOSE CALCULATION, INTERNAL + INGESTION + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL, UNITED KINGDOM

14-18792 ALSO IN CATEGORY 15

ERISKAT H

RADIATION RISKS AND RADIATION PROTECTION

5 PAGES, 1 TABLE, NEUE TECH., 8, PAGE 360 THRU 364, (DECEMBER 1966), IN GERMAN

THE BASIC STANDARDS OF EURATOM ON PERMISSIBLE RADIATION DOSES ARE OUTLINED, AND THE PROCEDURES USED FOR THE APPLICATION AND TESTING OF THESE STANDARDS ARE GIVEN. THE SPECIAL RISKS ENTAILED IN SEPARATING RADIOACTIVE MATERIALS, AND METHODS USED FOR MONITORING ENVIRONMENTAL RADIOACTIVITY, ARE DISCUSSED. RESEARCH ACTIVITIES IN THE FIELD OF RADIOPROTECTION ARE BRIEFLY DESCRIBED.

*RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM + DOSE + MAXIMUM PERMISSIBLE DOSE (MPD) + MONITOR, RADIATION, ENVIRONMENTAL + RESEARCH AND DEVELOPMENT PROGRAM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18793

GENTRY RV

ALPHA RADIOACTIVITY OF UNKNOWN ORIGIN AND THE DISCOVERY OF A NEW PLEOCHROIC HALO
INSTITUTE OF PLANETARY SCIENCE, COLUMBIA UNION COLLEGE, TAKOMA PARK, MARYLAND
2 PAGES, 1 FIGURE, 7 REFERENCES, EARTH PLANET SCI. LETT., 1, PAGE 453 AND 454, (NOVEMBER 1966)

SEVERAL PLEOCHROIC HALOS OF ANOMALOUS RADII WERE FOUND. IN GENERAL IT IS NOT POSSIBLE TO
RELATE THESE HALOS TO THE URANIUM OR THORIUM DECAY SERIES ALPHA EMITTERS. THE DISCOVERY OF A
NEW HALO (TYPE G) CORROBORATES PREVIOUS EVIDENCE OF PRESENTLY UNKNOWN ALPHA RADIOACTIVITY IN
CRUSTAL ROCKS.

*ALPHA EMITTER + *ELEMENTS AND ISOTOPES + *GEOLOGICAL CONSIDERATION, STRATIGRAPHY

14-18794

HAMILTON EI

THE ISOTOPIC COMPOSITION OF STRONTIUM IN ATLANTIC OCEAN WATER
DEPARTMENT OF GEOLOGY AND MINERALOGY, OXFORD
2 PAGES, 1 TABLE, 9 REFERENCES, EARTH AND PLANETARY SCIENCE LETTERS 1, PAGE 435 AND 436, (NOVEMBER 1966)

NO SIGNIFICANT VARIATIONS WERE OBSERVED FOR THE ISOTOPIC COMPOSITION OF SR IN OPEN OCEAN
WATER. THE RESULTS FOR ATLANTIC WATER, WHICH ARE TABULATED, CONFIRMED THAT THE RATIO
SR-87/SR-86 IS CONSTANT FOR SAMPLES TAKEN AT DEPTH AND FOR BIOLOGICAL SPECIES COMMON TO
VARIOUS DEPTHS.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *HYDROLOGICAL CONSIDERATION, GENERAL + *STRONTIUM +
FALLOUT + TRACER, RADIOACTIVE + WASTE DISPOSAL, OCEAN

14-18795

ALSO IN CATEGORY 15

SASSER LB + HAWLEY CA

SECRETION OF I-131 INTO MILK UNDER CONDITIONS OF ENVIRONMENTAL CONTAMINATION OF PASTURE
DEPARTMENT OF ANIMAL SCIENCE, COLORADO STATE UNIVERSITY, FORT COLLINS
6 PAGES, 5 FIGURES, 2 TABLES, 21 REFERENCES, J. DAIRY SCI., 49, PAGE 1505 THRU 1510, (DECEMBER 1966)

DEALS WITH THE UPTAKE AND SECRETION OF I-131 INTO THE MILK OF DAIRY COWS CONFINED TO A
I-131-CONTAMINATED PASTURE. THE PASTURE WAS CONTAMINATED BY RELEASING 1 CURIE OF I-131, IN
THE FORM OF IODIDE GAS, INTO THE ATMOSPHERE OVER THE PASTURE. SIX HOLSTEIN COWS WERE ALLOWED
TO GRAZE THE CONTAMINATED PASTURE. GRASS SAMPLES WERE COLLECTED DAILY, ALONG WITH MILK,
URINE, AND FECES SAMPLES, AND ANALYZED FOR GROSS GAMMA ACTIVITY. PASTURE ACTIVITIES DECLINED
DAILY OVER THE 14-DAY PERIOD, WITH AN EFFECTIVE HALF-TIME OF 5.5 DAYS. THE MILK LEVELS OF
I-131 INCREASED RAPIDLY AND PEAKED IN TWO TO THREE DAYS. THERE WERE FOURFOLD VARIATIONS
AMONG COWS IN THE I-131 LEVELS OF THEIR MILK, AND THE PERCENTAGE OF THE DAILY INGESTED I-131
SECRETED IN THE MILK RANGED FROM 4.4 TO 29.7 (MEAN 12.8). FECES AND URINE I-131 LEVELS
PARALLELED MILK, BUT THE FECES SHOWED LITTLE VARIATION BETWEEN COWS.

*BIOLOGICAL CONCENTRATION, MILK + *IODINE + BIOLOGICAL CONCENTRATION, ANIMAL FEED + DIETARY HABIT +
FALLOUT + INGESTION + MONITOR, RADIATION, SAMPLING + NRTS (NATIONAL REACTOR TEST STATION) +
RADIONUCLIDE, INDUCED

14-18816

ALSO IN CATEGORY 15

MURAYAMA N

MEAN LEVEL OF NATURAL RADIOACTIVITY IN THE SURFACE AIR IN JAPAN
METEOROLOGICAL AGENCY, TOKYO

7 PAGES, 1 FIGURE, 1 TABLE, 13 REFERENCES, J. RADIAT. RES., 7, PAGE 1-7, (MARCH-1966)

MONTHLY MEAN CONCENTRATION OF RADON DAUGHTERS IN SURFACE AIR RESULTING FROM NATURAL
RADIOACTIVITY WAS ESTIMATED BY USE OF THE SURVEY DATA OF RADIOACTIVITY OBTAINED AT FIVE
STATIONS IN JAPAN FOR THE PAST TEN YEARS AND ASSUMING THE RADIOACTIVE EQUILIBRIUM. AN
OVERALL MEAN WAS $90 \times 10^{(-18)}$ CI/CC OF THE AIR. DATA ON PB-214 IN SURFACE AIR ARE TABULATED.
CAUSES OF ERRORS ACCOMPANYING THE MEASUREMENT AND ESTIMATION ARE DISCUSSED.

*CONCENTRATION, AREA + *GROSS BETA + *RADON + CONCENTRATION, GROUND LEVEL + COSMIC RADIATION + FALLOUT +
FILTER + METEOROLOGICAL SUPPORT + RADIOLOGY

14-18817

ALSO IN CATEGORY 15

AKAISHI J + KASAI A + FUJITA M

TRENDS WITH TIME OF FALLOUT SR-90, CS-137, AND ZR-95/NB-95 IN TOTAL DIET AND THE CONCENTRATION IN THE AIR
JAPAN, ATOMIC ENERGY COMMISSION
10 PAGES, 6 FIGURES, 1 TABLE, 18 REFERENCES, J. RADIAT. RES. 7, PAGE 8-17, (MARCH 1966)

THE CHANGES WITH TIME OF THE DIETARY LEVELS OF FALLOUT SR-90, CS-137, AND ZR-95/NB-95 AT
TOKAI-MURA, IBARAKI PREF., JAPAN, WERE DETERMINED DURING 1962 TO 1965. DURING THESE FOUR
YEARS, TOTAL DIETS WERE COLLECTED FOR 13 PERIODS, EACH PERIOD CONSISTING OF 5 CONSECUTIVE
DAYS. THE MEAN DAILY INTAKES FOR 5 DAYS WERE DETERMINED. ALSO, SURFACE-AIR DUST WAS
CONTINUOUSLY COLLECTED AND MEAN MONTHLY CONCENTRATION MEASURED. THE LEVELS OF THESE NUCLIDES

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18817 *CONTINUED*

IN THE DIETS AND THE AIR WERE MINIMUM IN THE SUMMER OF 1962. THE AIR CONCENTRATION OF ZR-95/NB-95 REACHED THE MAXIMUM IN THE SPRING OF 1963. THIS VARIATION OF ZR-95/NB-95 WITH TIME WAS SIMILAR TO THAT OF THE DIETARY LEVEL. THE LEVEL OF CS-137 IN THE DIET INCREASED SINCE THE SUMMER OF 1962, REACHING ABOUT 10 TIMES HIGHER LEVEL IN 1964. THE DIETARY LEVEL OF SR-90 ALSO INCREASED BUT IT WAS NOT SO CONSPICUOUS AS CS-137, BUT BOTH CHANGED IN PARALLEL TO CONCENTRATIONS IN THE AIR.

*CESIUM + *DIETARY HABIT + *STRONTIUM + ANALYTICAL TECHNIQUE, AIR + ANALYTICAL TECHNIQUE, FOOD + CONCENTRATION, AREA + CONCENTRATION, GROUND LEVEL + FALLOUT + NIOBIUM + SPECTROMETRY, GAMMA + ZIRCONIUM

14-18819 ALSO IN CATEGORY 15

ANDREEV SV

ACCUMULATION OF LONG-LIVED DAUGHTER PRODUCTS OF RADON IN HUMAN BODY AFTER DRINKING OF RADON WATERS
CENTRAL INSTITUTE OF RADIOLOGY AND PHYSIOTHERAPY, MOSCOW
7 PAGES, 1 FIGURE, 3 TABLES, REFERENCES, GIG. SANIT., 10, PAGE 36-42, (OCTOBER 1966)

THE PAPER DEALS WITH ASSESSMENT OF THE POSSIBILITY OF ACCUMULATION IN THE HUMAN BODY OF LONG-LIVED DAUGHTER PRODUCTS OF RADON AS A RESULT OF DRINKING RADON WATERS. ANALYSIS OF THE DATA SHOWS THAT SUCH AN ACCUMULATION OF ISOTOPES IS QUITE INSIGNIFICANT, AND, UNDER ORDINARY CONDITIONS, IT CANNOT LEAD TO APPEARANCE IN HUMAN BODY OF RAD (PB-210), RAE (BI-210) AND PO-210 IN CONCENTRATIONS APPROACHING THE MAXIMAL PERMISSIBLE VALUES.

*RADON + *WATER, DRINKING + ADSORPTION + BIOLOGICAL CONCENTRATION, MAN

14-18820 ALSO IN CATEGORY 15

SHALAEV IL

THE CONTROL OF RADIOACTIVE CONTAMINATION OF WATER AND AIR DUE TO URANIUM TOGETHER WITH ITS DAUGHTER PRODUCTS
7 PAGES, 3 REFERENCES, GIG. SANIT., 10, PAGE 42-46, (OCTOBER 1966)

ON THE BASIS OF THE CALCULATED MAXIMUM PERMISSIBLE CONCENTRATION OF URANIUM AND THE ACTINIUM SERIES OF ISOTOPES, IT IS DEMONSTRATED THAT IN CERTAIN CASES THE RADIATION HAZARD OF WATER AND AIR CONTAMINATION WITH URANIUM AND ITS DAUGHTER PRODUCTS IS ACTUALLY DETERMINED LESS BY THE URANIUM ITSELF THAN BY ITS DAUGHTER PRODUCTS, SUCH AS IONIUM, POLONIUM, RADIUM (IN THE AIR) AND RAD, PO, RA (IN THE WATER). IT IS POSSIBLE TO DETECT ANY MEMBER OF THE SERIES, BUT IT IS NECESSARY TO KNOW THE CONCENTRATION OF ALL THE ISOTOPES THAT DETERMINE THE VALUE OF THE MAXIMUM PERMISSIBLE CONCENTRATION OF THE MIXTURE, AND IT IS POSSIBLE TO CONTROL THE EXTENT OF THE CONTAMINATION BY DETERMINING THE TOTAL ACTIVITY. EQUATIONS ARE GIVEN FOR DETERMINING THE MAXIMUM PERMISSIBLE CONCENTRATION BOTH WITH AND WITHOUT REGARD FOR THE TYPE OF ISOTOPE DISTRIBUTION IN THE HUMAN BODY.

*ENVIRONMENTAL CONDITION + *EQUATION OF STATE + *IONIUM + *POLONIUM + *RADIUM + *URANIUM + MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

14-18821 ALSO IN CATEGORY 15

RASHMAKOVA TA + SUKALEKAYA SY + NIKIFOROVA OA + PERMYAKOV AA

RADIATION-HYGIENIC ASSESSMENT OF GROUND BURIAL PLACES FOR RADIOACTIVE WASTES
5 PAGES, 3 TABLES, 3 REFERENCES, GIG. SANIT., 11, PAGE 78-81, (NOV. 1966)

CONTAMINATION OF THE AREA SURROUNDING THE WASTE-DISPOSAL BURIAL PLACES WAS MEASURED IN SPECIMENS OF SETTLED DUSTS AND PLANTS AT VARIOUS SEASONS OF THE YEAR. AFTER 2 YEARS OF OPERATION WITHOUT ANY SPECIAL CLEANING, THE SEWAGE DID NOT AFFECT THE COASTAL ZONE OF THE OPEN WATER BASIN. A FEW CASES OF CONTAMINATION WERE RELATED TO THE VENTILATION EXPULSION. THE CONTAMINATION WAS OF LOW LEVEL AND DID NOT EXTEND BEYOND THE SANITATION-PROTECTION ZONE. RADIATION DOSES ABSORBED BY PERSONNEL HANDLING THE WASTES WERE BELOW PERMISSIBLE VALUES, AND NO OBVIOUS EFFECTS TO THEIR HEALTH WERE DETECTED.

*MONITOR, RADIATION, PERSONNEL + *WASTE DISPOSAL, LIQUID + *WASTE DISPOSAL, SOLID + AEROSOL, RADIOACTIVE + GROUND WATER, GENERAL + MAXIMUM PERMISSIBLE DOSE (MPD) + MONITOR, RADIATION, ENVIRONMENTAL + SURVEILLANCE PROGRAM + WASTE HANDLING + WASTE TRANSPORTATION

14-18824 ALSO IN CATEGORY 15

JAMIESON HD + TRIPP CG + SANDERSON FL

ENVIRONMENTAL IONIZING RADIATION IN DUNEDIN, NEW ZEALAND

WAKARI HOSPITAL, DUNEDIN, N. ZEAL.

10 PAGES, 5 TABLES, 11 REFERENCES, N.Z.J. SCI., 9, PAGE 674-683, (SEPT. 1966)

TO CHECK LOCAL GAMMA RADIATION LEVELS AFTER REPORTS OF HIGH-ACTIVITY ROCK IN THE AREA, A PORTABLE SCINTILLOMETER WAS CALIBRATED AND USED TO MAKE MEASUREMENTS OVER AN EXTENSIVE AREA IN DUNEDIN AND IN PARTS OF OTAGO. RESULTS WERE EVALUATED IN TERMS OF ANNUAL DOSE TO GONADS AND BONE MARROW, AND THESE VALUES WERE COMPARED WITH RECENT MEASUREMENTS MADE IN THE U.K. IT WAS CONCLUDED THAT THE DUNEDIN MEASUREMENTS WERE NOT SIGNIFICANTLY DIFFERENT FROM AVERAGE GAMMA RADIATION LEVELS RECORDED ELSEWHERE. APART FROM VARIATIONS IN WORKING SITUATIONS, THERE WERE CONSIDERABLE VARIATIONS BETWEEN HOUSES CONSTRUCTED OF VARIOUS MATERIALS, AND ALSO VARIATIONS IN THE COSMIC-RAY DOSE RATE OVER THE RANGE OF ALTITUDES WHERE PEOPLE LIVE.

*CONCRETE + *RADIATION EFFECT + COUNTER + DOSE CALCULATION, INTERNAL + ENVIRONMENTAL CONDITION + FALLOUT +

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18824 *CONTINUED*
GROSS GAMMA + MAXIMUM PERMISSIBLE DOSE (MPD) + POPULATION EXPOSURE

14-18825
BAPTIST JP
UPTAKE OF MIXED FISSION PRODUCTS BY MARINE FISHES
BUREAU OF COMMERCIAL FISHERIES RADIOBIOLOGICAL LAB., BEAUFORT, N. C.
8 PAGES, 3 FIGURES, 6 TABLES, 17 REFERENCES, TRANS. AMER. FISHERIES SOC., 95, PAGE 145-152, (APRIL 1966)

LABORATORY EXPERIMENTS WERE CONDUCTED TO MEASURE UPTAKE OF FISSION PRODUCTS BY FISH FROM WATER AND FROM ORAL DOSES. AVAILABILITY OF FISSION PRODUCTS TO THE FISH WAS CURTAILED CONSIDERABLY BY THE FORMATION AND SETTLING OF RADIOACTIVE PARTICLES IN THE WATER AND BY SORPTION TO ABIOTIC SURFACES. SPOT (LEIOSTOMUS XANTHURUS) AND ATLANTIC CROAKER (MICROPOGON UNDULATUS) ACCUMULATED RELATIVELY LOW LEVELS OF RADIOACTIVE MATERIAL FROM SEAWATER. FOLLOWING A SINGLE ORAL DOSE, CROAKER ASSIMILATED ONLY 3% OF THE CUMULATIVE DOSE OF MIXED FISSION PRODUCTS ADMINISTERED IN SHRIMP MEAT ON ALTERNATE DAYS FOR 55 DAYS. OF THE AMOUNT ASSIMILATED FROM ORAL DOSES BY CROAKER AND BLUEFISH, THE LARGEST CONCENTRATIONS WERE FOUND IN THE INTERNAL ORGANS.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *DOSE MEASUREMENT, INTERNAL + ENVIRONMENTAL CONDITION + FILTER + FISSION PRODUCT RELEASE, GENERAL + GROSS BETA + GROSS GAMMA + PARTICULATE

14-18827
FRERE MH + CHAMPION DF
CHARACTERIZATION OF FIXED STRONTIUM IN SESQUIOXIDE GEL-KAOLINITE CLAY SYSTEMS
DEPT. OF AGRICULTURE, BELTSVILLE, MD.
4 PAGES, 4 FIGURES, 1 TABLE, 6 REFERENCES, SOIL SCI. SOC. AMER., PROC., 31, PAGE 188-191, (APRIL 1967)

FIXED SR IS DEFINED BY THE AMOUNT OF RADIOACTIVE SR REMAINING WITH THE SOLID PHASE AFTER THREE EXTRACTIONS WITH 1-N SR(NO3)2. THE AMOUNT OF SR FIXED IN A SOIL-WATER SUSPENSION INCREASES WITH TIME IN A MANNER CHARACTERISTIC OF A SLOW DIFFUSION PROCESS. EXPERIMENTS WITH FE OR AL GEL-KAOLINITE CLAY SUSPENSIONS SHOWED A SIMILAR BEHAVIOR. THE AMOUNT OF FIXATION IN GEL-CLAY SUSPENSIONS INCREASED WITH PH TO A LEVEL OF ABOUT 6% OF THE ADSORBED SR AT PH 8. THE REACTION WAS INSENSITIVE TO THE AMOUNT OF GEL AND DECREASED WITH THE AGING OF THE GEL-CLAY SUSPENSION. THE LEVEL OF FIXATION IN THE GEL-CLAY SUSPENSIONS WAS CONSIDERABLY LESS THAN OBSERVED IN SOILS, PARTICULARLY WHEN ACID PHS AND AGED SYSTEMS ARE CONSIDERED. SEVERAL EXPLORATORY EXPERIMENTS INDICATE A SILICATE INTERFACE MAY BE IMPORTANT IN THE FIXATION MECHANISM.

*ADSORPTION + *STRONTIUM + *WASTE TREATMENT, FIXATION + ALUMINUM + GEOLOGICAL CONSIDERATION, GENERAL + IRON + SOIL

14-18850 ALSO IN CATEGORY 15
AARKROG A + LIPPERT J
COMPARISON OF RELATIVE RADIONUCLIDE RATIOS IN DEBRIS FROM THE THIRD AND THE FIFTH CHINESE NUCLEAR TEST EXPLOSIONS
ATOMIC ENERGY COMMISSION, RISØ, DENMARK
2 PAGES, 4 FIGURES, 2 TABLES, 5 REFERENCES, NATURE 213, PAGES 1001-2 (MARCH 11, 1967)

CHINESE NUCLEAR TEST EXPLOSIONS OCCURRED ON MAY 9 AND DEC. 28, 1966. BOTH EXPLOSIONS CORRESPONDED TO THE FEW-HUNDRED-KILOTON RANGE. SINCE A WEAPON IN THIS INTERMEDIATE RANGE MIGHT BE A THERMONUCLEAR DEVICE, SPECIAL INTEREST ATTACHES TO THE DEBRIS FROM THESE TWO TESTS. AIR FILTER AND SMEAR TESTS WERE TAKEN, THE FORMER AT GROUND LEVEL AT RISØ AND THE LATTER FROM AIRCRAFT. EXAMINATION OF SAMPLES WAS BY GAMMA SPECTROMETRIC ANALYSIS. DATA ARE GIVEN FOR ZR-95, MO-99, RU-103, I-131, BA-140, CE-141, CE-144, NO-147, U-237 AND NP-139. CE-141 WAS USED AS A REFERENCE NUCLIDE FOR COMPARISON BETWEEN THE TWO TESTS. COMPARISON OF THE DEBRIS FROM THE THIRD EXPLOSION WITH THAT FROM THE FIFTH EXPLOSION SHOWED THAT DEBRIS FROM THE FIFTH EXPLOSION WAS ENRICHED IN NUCLIDES BELONGING TO VOLATILE DECAY CHAINS (NP-239, RU-103, I-131, BA-140) AS COMPARED WITH THE LESS VOLATILE MO-99, NO-147, ZR-95. U-237 WAS MORE ABUNDANT IN THE THIRD EXPLOSION.

*NUCLEAR DETONATION + *NUCLEAR EXPLOSION DEBRIS + FILTER + MONITOR, RADIATION, GROUND SURFACE + NUCLEAR INCIDENT DOSIMETER + SAMPLING, HIGH ALTITUDE + SPECTROMETRY, GAMMA

14-18851 ALSO IN CATEGORY 15
JACKSON WA + LUGO HM + CRAIG D
CESIUM UPTAKE FROM DILUTE SOLUTIONS BY YOUNG WHEAT SEEDLINGS AS AFFECTED BY SELECTED CATIONS
NORTH CAROLINA STATE COLLEGE, RALEIGH
21 PAGES, 7 FIGURES, 6 TABLES, 24 REFERENCES, PLANT SOIL 24, PAGES 33-53 (FEB. 1966)

EXPERIMENTS WERE CONDUCTED WITH YOUNG WHEAT SEEDLINGS TO DETERMINE THE EFFECTS OF SELECTED CATIONS ON CS UPTAKE BY ROOTS AND SUBSEQUENT TRANSPORT TO SHOOTS. UPTAKE BY ROOTS WAS REDUCED BY PRIOR K TREATMENT AND SIMULTANEOUS PRESENCE OF K, RB, AND NH4. ADDITION OF CA AT PH 4 INCREASED CS UPTAKE BY ROOTS. TRANSPORT TO SHOOTS WAS REDUCED BY CA AT PH 6 BY NH4, AND BY K AND RB WHEN THE K CONTENT OF THE TISSUE WAS HIGH. WHEN THE K CONTENT OF THE TISSUE WAS LOW, LITTLE CS TRANSPORT OCCURRED, AND SOLUTION CONCENTRATIONS OF K UP TO 0.01 MEQ/LITER INCREASED CS TRANSPORT. THE DATA SUGGEST THAT SEPARATE PROCESSES WERE INVOLVED IN CS UPTAKE AND TRANSPORT, WITH COMPETITION EXISTING BETWEEN THE TWO PROCESSES FOR THE ENTERING CS.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18851 *CONTINUED*

AMMONIUM IONS INHIBITED BOTH UPTAKE AND TRANSPORT TO ABOUT THE SAME EXTENT, WHEREAS K INHIBITED UPTAKE MORE THAN TRANSPORT.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *CESIUM + DIFFUSION + DILUTION + POTASSIUM + TRANSPORT PROPERTY

14-18852 ALSO IN CATEGORY 15

KLUTZ WS + QUIRK AI

PRACTICING PHYSICIAN AND THE NUCLEAR REACTOR

ROGER WILLIAMS GENERAL HOSPITAL, PROVIDENCE

3 PAGES, 2 FIGURES, RHODE ISLAND MED. JOURNAL 49, PAGES 176-8 (MARCH 1966)

THE REACTOR AT THE RHODE ISLAND NUCLEAR SCIENCE CENTER AND ITS ASSOCIATED FACILITIES FOR RESEARCH ARE DESCRIBED, AND ITS POSSIBLE MEDICAL APPLICATIONS ARE DISCUSSED. THE CORE OF THE REACTOR, CONSISTING OF 3 KG OF U-235, IS LOCATED AT THE BOTTOM OF HIGHLY PURIFIED LIGHT-WATER TANK 32 FT DEEP. A SPECIAL FACILITY IS AVAILABLE FOR THE IRRADIATION OF MATERIALS AND SMALL ANIMALS. A RADIOCHEMISTRY LABORATORY, PART OF THE REACTOR COMPLEX, IS EQUIPPED WITH A 512-CHANNEL ANALYZER, PROVIDING FOR THE RAPID AND PRECISE IDENTIFICATION VARIOUS ELEMENTS THROUGH ACTIVATION ANALYSIS. USE OF THE REACTOR FOR PRODUCTION OF SHORT-LIVED ISOTOPES AND FOR STUDYING NEUTRON-CAPTURE THEORY IS ALSO DESCRIBED.

*BIOMEDICAL + *REACTOR TEST FACILITY + *RESEARCH AND DEVELOPMENT PROGRAM + ACTIVATION + GROSS GAMMA + RADIOCHEMICAL ANALYSIS + RADIOISOTOPE + REACTOR DESCRIPTION + URANIUM

14-18853 ALSO IN CATEGORY 15

DATA FROM RADIATION PROTECTION PROGRAMS. VOLUME 5 NO. 2

DEPT. OF NATIONAL HEALTH AND WELFARE, OTTAWA, ONTARIO

NP-16730 +. 28 PAGES, FEBRUARY 1967

DATA FROM RADIATION PROTECTION PROGRAMS IN CANADA ARE GIVEN, INCLUDING FALLOUT MONITORING OF AIRBORNE PARTICLES, PRECIPITATION, MILK, WATER, WHEAT, SOIL, AND HUMAN BONE. A REPORT ON REACTOR-ENVIRONMENT MONITORING IN CANADA FOR JANUARY 1967 IS INCLUDED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *RADIATION SAFETY AND CONTROL + CANADA + FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + PARTICULATE + PRECIPITATION

14-18860 ALSO IN CATEGORY 15

KOMATSU T

DECONTAMINATION OF RADIOACTIVE WATER BY COPRECIPITATION WITH TITANIUM HYDROXIDE

HOKKAIDO UNIVERSITY, SAPPORO

5 PAGES, 3 FIGURES, 4 TABLES, 6 REFERENCES, J. WATER POLLUT. CONTR. FEDERATION 39, PAGES 123-7 (JANUARY 1967)

REMOVAL OF RADIOSTRONTIUM AND MIXED FISSION PRODUCTS FROM WATER BY COPRECIPITATION WITH TITANIUM HYDROXIDE WAS STUDIED. LITTLE RADIOSTRONTIUM COPRECIPITATED ON FERRIC HYDROXIDE OR ALUMINUM HYDROXIDE FROM NEUTRAL SOLUTION. TITANIUM HYDROXIDE REMOVED ABOUT 5 TIMES THE AMOUNT OF RADIOSTRONTIUM THAT COULD BE REMOVED BY COPRECIPITATION WITH OTHER HYDROXIDES UNDER THE SAME CONDITIONS. ABOUT 30% OF THE MIXED FISSION PRODUCTS WAS REMOVED FROM NEUTRAL SOLUTION BY COPRECIPITATION WITH FERRIC OR ALUMINUM HYDROXIDE, WHILE ABOUT 70% WAS REMOVED WITH TITANIUM HYDROXIDE.

*PRECIPITATION + *STRONTIUM + *WATER TREATMENT + ALUMINUM + FISSION PRODUCT RETENTION + RADIOCHEMICAL PROCESSING + TITANIUM

14-18908 ALSO IN CATEGORIES 12 AND 17

FREEDMAN MD

PM-1 RADIOACTIVE WASTE DISPOSAL SYSTEM HAZARDS ANALYSIS ADDENDUM

AMF ATOMICS, YORK, PA.

T10-23865 +. 53 PAGES, 7 FIGURES, 1 TABLE, MAY 1967

EVAPORATIVE-TYPE SYSTEM BASED ON CLOSED-LOOP, RECYCLING-EVAPORATION, RAY-DI-PAK PROCESS. WASTE IS CYCLED THROUGH A CONCENTRATOR UNTIL DESIRED CONCENTRATION IS REACHED. IT IS THEN PUMPED TO A DRUMMING STATION WHERE SOLID WASTES ARE FILTERED OUT AND WASTE IS STORED. PORTABLE SHIELDS ARE USED AS NECESSARY. NORMAL WASTE IS 0.01 MICROCURIE/CC. CONCENTRATOR USES 185-F WATER FOR HEATING AND OPERATES AT NEGATIVE PRESSURE. COOLING WATER IS AN INDEPENDENT SYSTEM. LISTS 18 SAFETY FEATURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*WASTE DISPOSAL, LIQUID + *WASTE HANDLING + EVAPORATION + PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-18909 ALSO IN CATEGORY 15

DENHAM DH

HEALTH PHYSICS AT THE LRL-LIVERMORE TRANSURANIC PROCESSING FACILITY

CALIFORNIA UNIV., LIVERMORE. LAWRENCE RADIATION LAB.

UCRL-70284 + CONF-671102-4 +. 26 PAGES, 4 FIGURES, 1 TABLE, 16 REFERENCES, JULY 10, 1967, PRESENTED AT 15TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

THIS REPORT IS AN ACCOUNT OF THE LRL-TRANSURANIC FACILITY AND THE OPERATIONS CONDUCTED THEREIN. DESCRIBES THE LIVERMORE FACILITY, DISCUSSES THE HEALTH PHYSICS CONTROLS USED TO LIMIT PERSONNEL EXPOSURE AND TO MAINTAIN THE BASIC CONCEPT OF COMPLETE CONFINEMENT OF THE HIGHLY RADIOACTIVE AND RADIOTOXIC MATERIALS, AND ENUMERATES SOME OF THE SPECIAL HAZARDS OF HANDLING THE TRANSURANIC ELEMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY; \$0.65 MICROFICHE

*RADIATION SAFETY AND CONTROL + *TRANSURANIC PROGRAM + DECONTAMINATION + ENVIRONMENTAL CONDITION + MONITOR, RADIATION, ENVIRONMENTAL + PERSONNEL EXPOSURE, RADIATION + RESEARCH AND DEVELOPMENT PROGRAM + WASTE DISPOSAL, SOLID + WASTE HANDLING + WASTE TREATMENT, SOLID

14-19097 ALSO IN CATEGORIES 12 AND 17

FAILURE OF WASTE-RETENTION DAM AT AMERICAN METAL CLIMAX, COLORADO

AMERICAN METAL CLIMAX

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 10-12 (OCTOBER 30, 1967)

(LETTER, JULY 24) CEASE AND DESIST ORDER FROM AEC TO STOP USING ANY WASTE-RETENTION FACILITY AT GRAND JUNCTION MILL NOT AUTHORIZED. ON JULY 2, 1967, AN UNAUTHORIZED EARTHEN WASTE-RETENTION DAM RUPTURED AFTER 20 DAYS USE. (REPLY TO LETTER, AUG. 21) LIQUID-WASTE RETENTION IS NOW IN ACCORDANCE WITH LICENSE EXCEPT FOR DIVISION OF EAST POND INTO 2 PONDS, AND WATER EROSION. FLOW INTO PONDS IS BEING CONTROLLED BETTER. A DITCH AND PUMP ARE STOPPING SEEPAGE FLOW.

*FAILURE, GENERAL + *IMPOUNDMENT + *WASTE DISPOSAL, TERRESTRIAL + INCIDENT, ACTUAL, GENERAL + INSPECTION AND COMPLIANCE + MILLING

14-19098 ALSO IN CATEGORIES 12 AND 17

SEEPAGE CONTROL FROM AMERICAN METAL CLIMAX EARTHEN WASTE-RETENTION DAMS

AMERICAN METAL CLIMAX

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 12-13 (OCTOBER 30, 1967)

(LETTER, AUGUST 25) SEEPAGE AT 75 GPM IS CONTROLLED BY A PUMP. A DITCH WOULD HOLD WATER FOR 7 HOURS BEFORE OVERFLOW. THE AREA WILL BE FENCED. (OCTOBER 5, AEC LETTER) ASKS WHEN OTHER DIKES WILL BE RESTORED FROM EROSION CAUSED BY WAVE ACTION. SUGGESTS THAT 4-FT MINIMUM FREEBOARD IS INADEQUATE, AND REFERS TO AEC LICENSING GUIDE (QUOTE) INFORMATION REQUIRED AND CRITERIA USED TO EVALUATE EMBANKMENT RETENTION SYSTEMS (UNQUOTE).

*LEAK + *WASTE DISPOSAL, TERRESTRIAL + IMPOUNDMENT + MILLING + REGULATION, AEC

14-19153

OVINGTON JD + LAWRENCE DB

STRONTIUM 90 IN MAIZE FIELD, CATTAIL MARSH AND OAKWOOD ECOSYSTEMS

DEPARTMENT OF BOTANY, UNIVERSITY OF MINNESOTA, MINNEAPOLIS

7 PAGES, 2 FIGURES, 2 TABLES, 9 REFERENCES, J. APPL. ECOL., 1, PAGE 175 THRU 181, (MAY 1964)

IN MINNESOTA IN LATE 1959, A STUDY INDICATED THAT MUCH OF THE SR-90 FALLOUT IS PRESENT IN THE SOIL RATHER THAN THE LIVING PLANTS OF MAIZE FIELD AND CATTAIL MARSH SYSTEMS, WHICH CONTAINED 4.4 AND 2.8 MICROCURIES/HA OF STRONTIUM, RESPECTIVELY. IN CONTRAST, THE TREES OF AN OAKWOOD CONTAIN MUCH MORE SR-90 (48.2 MICROCURIES/HA) THAN THE LIVING PLANTS OF THE OTHER ECOSYSTEMS. THE OAKWOOD DIFFERS GREATLY FROM THE HERBACEOUS ECOSYSTEMS IN RESPECT TO THE DISTRIBUTION AND ANTICIPATED RATE OF MOVEMENT OF SR-90.

*FALLOUT + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, VEGETATION + ECOLOGICAL CONSIDERATION + STRONTIUM

14-19154

WARD GM + JOHNSON JE + WILSON DW

DEPOSITION OF FALLOUT CESIUM-137 ON FORAGE AND TRANSFER TO MILK

COLORADO STATE UNIVERSITY

7 PAGES, 2 FIGURES, 1 TABLE, 26 REFERENCES, PUBLIC HEALTH REPORTS 81, PAGE 639 THRU 645, (JULY 1966)

MILK SAMPLES WERE COLLECTED FROM 12 COWS ON PASTURE AND 100 FED ON DRYLOT IN 1962, 1963, AND 1964, AT COLORADO STATE UNIVERSITY. CONCURRENT SAMPLES OF FEED INTAKE AND MILK PRODUCTION FROM EACH COW, DAILY AIR SAMPLES, AND RAINFALL SAMPLES WERE COLLECTED AND ANALYZED FOR CS-137. THE MAXIMUM LEVELS OF CS-137 IN MILK FROM COWS ON PASTURE WERE ABOUT 200 PICOCURIES

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19154 *CONTINUED*

PER LITER IN 1962 AND 1963, WHILE THE MAXIMUM LEVELS IN MILK FROM COWS FED ON DRYLOT WERE ABOUT 170 PICOCURIES PER LITER. LEVELS OF CS-137 IN MILK WERE LOWER DURING THE WINTER BECAUSE HAY WITH LOW CS-137 ACTIVITY WAS FED ALL COWS. TRANSFER COEFFICIENTS, THE PERCENTAGE OF INGESTED CESIUM 137 FOUND PER LITER OF MILK WERE HIGHER FOR HIGH-GRAIN DIETS (0.58) THAN FOR PREDOMINANTLY HAY DIETS.

*FALLOUT + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, MILK + CESIUM

14-19156

VOLCHOK HL

SR-90 DEPOSITION IN NEW YORK CITY

ATOMIC ENERGY COMMISSION, NEW YORK

3 PAGES, 1 FIGURE, 2 TABLES, 12 REFERENCES, SCIENCE 156, PAGE 1487 THRU 1488, (JUNE 16, 1967)

MEASUREMENTS OF SR-90 DEPOSITED IN NEW YORK CITY OVER THE PAST 12 YEARS MAKE FOR BROADER UNDERSTANDING OF THE FALLOUT PHENOMENON. THE DATA INDICATE A STRATOSPHERIC HALF-RESIDENCE TIME OF 8 TO 10 MONTHS. THE SEASONAL OSCILLATION OF SR-90 FALLOUT IS VERY SYMMETRICAL AND CONSISTENT FROM YEAR TO YEAR AND COMPLETELY INDEPENDENT OF THE TIMING AND MAGNITUDE OF NUCLEAR TESTS. THE PREDICTED FALLOUT OF SR-90 IN 1970 IS LESS THAN 1 % OF THAT DURING THE PEAK YEAR 1963.

*FALLOUT + STRATOSPHERE + STRONTIUM

14-19157

FAIRMAN WD + SEDLET J

A RAPID AND SENSITIVE METHOD FOR THE DETERMINATION OF IODINE-131 IN MILK BY ION EXCHANGE ON SILVER CHLORIDE

ARGONNE NATIONAL LAB., ARGONNE, ILL.

5 PAGES, 1 FIGURE, 2 TABLES, 12 REFERENCES, ANALYTICAL CHEMISTRY 38(9), PAGE 1171 THRU 1175, (AUGUST 1966)

IODINE-131, AS IODIDE ION, IS SEPARATED FROM OTHER MILK CONSTITUENTS BY ION EXCHANGE ON A SILVER CHLORIDE COLUMN. AFTER ELUTION AS IODIC ACID BY ACIDIFIED CHLORINE WATER, THE ELUATE CAN BE DIRECTLY ANALYZED BY GAMMA COUNTING. A 1-LITER SAMPLE CAN BE PROCESSED IN 30 MINUTES (EXCLUSIVE OF COUNTING TIME). IF BETA COUNTING OR INCREASED SENSITIVITY IS REQUIRED, THE IODINE IS SUBJECTED TO TWO OXIDATION-REDUCTION SOLVENT-EXTRACTION CYCLES AND FINALLY PRECIPITATED AS SILVER IODIDE PRIOR TO COUNTING. CHEMICAL AND RADIOCHEMICAL YIELDS FOR ADDED AND FOR METABOLIZED IODIDE ARE 90 TO 95% FOR HOMOGENIZED MILK AND 89 TO 95% FOR RAW MILK. LESS THAN 2 PICOCURIES OF IODINE-131 CAN BE DETECTED IN 1 LITER OF MILK USING THE COMPLETE PROCEDURE.

*ANALYTICAL TECHNIQUE, MILK + IODINE + ION EXCHANGE + RADIOCHEMICAL ANALYSIS

14-19159

ALSO IN CATEGORY 15

YOSHIDA Y + TATSUTA H + RYUFUKU H + KITANO K + FUKUDA S

A PRACTICAL METHOD FOR EVALUATING THE NEUTRON DOSE EQUIVALENT RATE

JAPAN, ATOMIC ENERGY COMMISSION, ATOMIC ENERGY RESEARCH INSTITUTE

6 PAGES, 5 FIGURES, 2 TABLES, 18 REFERENCES, JOURNAL OF NUCLEAR SCIENCE AND TECHNOLOGY 3(11), PAGE 473 THRU 478, (NOVEMBER 1966)

PRESENTS A PRACTICAL METHOD FOR FIELD MONITORING WITH SURVEY INSTRUMENTS. PERMITS EVALUATION OF THE DOSE EQUIVALENT RATE FOR NEUTRONS OF UNKNOWN SPECTRUM BUT WITH ENERGY RANGING FROM EPITHERMAL TO FAST. THE DETECTORS CONSIST OF A BF₃ PROPORTIONAL COUNTER WITH PARAFFIN MODERATORS 6.5 CM AND 1.0 CM THICK, SHEATHED IN 0.5-MM-THICK CD, AND A SCINTILLATION (ZNS AND PLASTIC) COUNTER. THE ERROR IN EVALUATING THE DOSE-EQUIVALENT RATE BY THE METHOD WAS CALCULATED TO BE AT MOST 60% FOR TYPICAL NEUTRON SPECTRA IN THE ENERGY RANGE FROM EPITHERMAL TO 10 MEV.

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + NEUTRON

14-19160

BROWN DG + REYNOLDS RA + JOHNSON DF

LATE EFFECTS IN CATTLE EXPOSED TO RADIOACTIVE FALLOUT

UNIVERSITY OF TENNESSEE

6 PAGES, 3 FIGURES, 3 TABLES, AMER. J. VET. RES., 27, PAGE 1509 THRU 1514, (NOVEMBER 1966)

SIXTY HEREFORD CATTLE, UNINTENTIONALLY EXPOSED TO RADIOACTIVE FALLOUT FROM THE FIRST ATOMIC BOMB TEST IN JULY 1945, WERE STUDIED FOR SEVERAL YEARS PAST EXPOSURE. THE RADIATION DOSE WAS ESTIMATED TO HAVE BEEN 150 R OF PENETRATING RADIATION AND 37,000 RAD OF BETA RADIATION TO THE SURFACE OF THE SKIN OVER THE BACK. ALL EXCEPT 11 OF THE CATTLE WERE DESTROYED IN 1951 BECAUSE OF ANAPLASMOSIS. THE LAST COW DIED IN NOVEMBER 1964. DURING 114 POSSIBLE BREEDING YEARS BEGINNING IN 1948, FOR THE 11 COWS, 94 CALVES WERE WEANED, 4 NORMAL CALVES DIED BEFORE WEANING, AND TWO WERE BORN DEAD. THE SIGNIFICANT DAMAGE ASSOCIATED WITH IRRADIATION WAS AREAS OR ZONES OF HYPERKERATOSIS IN THE FORM OF PLAQUES AND CUTANEOUS HORNS ON THE SKIN OF THE BACK. THE BREEDING EFFICIENCY AND HEALTH AND GROWTH OF OFFSPRING WERE EQUAL TO OR ABOVE AVERAGE.

*FALLOUT + RADIATION EFFECT + TEST, WEAPONS (HP ASPECTS)

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19161 ALSO IN CATEGORY 15
THE NATIONAL RADIATION ADVISORY COMMITTEE. REPORT TO THE PRIME MINISTER
14 PAGES, 6 FIGURES, 16 REFERENCES, AUSTRAL. J. SCI., 29, PAGE 59 THRU 72, (SEPTEMBER 1966)

INCLUDES REVIEWS AND BRIEF OUTLINES OF CURRENT SCIENTIFIC KNOWLEDGE ON THE EFFECTS OF IONIZING RADIATION ON MAN, THE REVISIONS AND CONFIRMATIONS OF RADIATION PROTECTION STANDARDS AND GUIDES, THE MEANS FOR MINIMIZING THE DEGREE OF RADIATION EXPOSURE INCURRED IN MASS MINIATURE X-RAY SURVEYS, FOR THE EARLY DETECTION OF TUBERCULOSIS, THE METHODS FOR SAFE AND PERMANENT DISPOSAL OF RADIOACTIVE WASTES, AND THE STUDY OF THE PRECAUTIONS THAT ARE TO BE OBSERVED IN RELATION TO VISITS BY NUCLEAR POWERED VESSELS. THE NATURE OF RADIOACTIVE FALLOUT FROM NUCLEAR WEAPONS TESTS AND THE POSSIBLE CONSEQUENCES TO THE POPULATION WERE DEALT WITH IN CONSIDERABLE DETAIL. THE OVERALL FALLOUT SITUATION IN RELATION TO CURRENT DATA IS REASSESSED AND DISCUSSED.

*RADIATION PROTECTION, ORGANIZATION + AUSTRALIA + FALLOUT + MONITORING PROGRAM, ENVIRONMENTAL + WASTE DISPOSAL, GENERAL + X-RAY

14-19207 ALSO IN CATEGORY 16
SHEM-I-ZADE AE
CORRELATION OF THE CONCENTRATION OF RADIOACTIVE NATURAL AND FALLOUT AEROSOLS IN THE LOWER ATMOSPHERE
2 PAGES, 1 FIGURE, 4 REFERENCES, AT. ENERG. (USSR) 22, PAGE 67 AND 68. (JANUARY 1967) IN RUSSIAN

SAMPLES WERE COLLECTED 1.5 M ABOVE THE GROUND. COMPARISON OF THE DAILY DATA OBTAINED FROM FEBRUARY TO APRIL 1962 INDICATED A CORRELATION FACTOR OF 0.780 BETWEEN THE CONCENTRATIONS OF THE NATURAL AND ARTIFICIAL BETA-ACTIVE AEROSOLS. THE FACTOR WAS 0.184 FOR SAMPLES COLLECTED DURING JUNE TO AUGUST 1963, AND 0.171 FOR FEBRUARY 1964. THIS MAY BE DUE TO THE GENERAL REDUCTION OF THE FISSION-PRODUCT CONCENTRATION IN THE ATMOSPHERE, OR TO CHANGES IN THE DISPERSIVITY OF THE AEROSOLS.

AEROSOL, RADIOACTIVE + DEPOSITION + FALLOUT + RADON + SAMPLING

14-19211 ALSO IN CATEGORY 16
IMAI K + IIJIMA T
EXTERNAL EXPOSURE TO ARGON-41 RELEASED FROM MULTIPLE SOURCES
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
6 PAGES, 4 FIGURES, 2 TABLES, 4 REFERENCES, J. NUCL. SCI. TECHNOL. (TOKYO), 3, PAGE 522 THRU 527, (DECEMBER 1966)

A CODE WAS DEVELOPED FOR CALCULATING EXTERNAL EXPOSURE TO RADIOACTIVE CLOUD FROM SEVERAL REACTORS WITH DIFFERENT STACK HEIGHTS AND RELEASE RATES. USING THIS CODE, THE RESULTANT EXPOSURE RATES FOR AR-41 RELEASED FROM THREE REACTORS WITH ASSUMED RELEASE RATES WERE OBTAINED TO COVER THE AREA IN AND AROUND THE TOKAI NUCLEAR SITE.

*COMPUTER PROGRAM, METEOROLOGICAL + *SOURCE, AREA + ATMOSPHERIC DIFFUSION + CONCENTRATION, ISOPLETH + DOSE CALCULATION, EXTERNAL

14-19221 ALSO IN CATEGORY 16
HARDY EP + RIVERA J
FALLOUT PROGRAM QUARTERLY SUMMARY REPORT, MARCH 1, 1967-JUNE 1, 1967
NEW YORK OPERATIONS OFFICE (AEC), NEW YORK HEALTH AND SAFETY LAB.
HASL-182 + HASL-182(APP.) +. 371 PAGES, FIGURES, TABLES, REFERENCES, JULY 1, 1967

PRESENTS CURRENT DATA FROM THE HASL FALLOUT PROGRAM, ISOTOPES, INC., EURATOM JOINT NUCLEAR RESEARCH CENTER, ARGONNE NATIONAL LABORATORY, AND THE NATIONAL RADIATION LABORATORY IN NEW ZEALAND. RADIONUCLIDE LEVELS IN STRATOSPHERIC AIR, SURFACE AIR, FALLOUT, MILK, OTHER DIET COMPONENTS, AND TAP WATER, ARE GIVEN IN TABULAR FORM. THE INITIAL SECTION CONSISTS OF INTERPRETIVE REPORTS AND NOTES COVERING THE FOLLOWING TOPICS - FALLOUT OF SNAP-9A DEBRIS, THE RATIO OF CS-137 TO SR-90 IN MONTHLY FALLOUT, AND SR-90 IN HUMAN VERTEBRAE. A BIBLIOGRAPHY OF RECENT PUBLICATIONS RELATED TO RADIONUCLIDE STUDIES IS ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, GENERAL + *FALLOUT + CESIUM + DEPOSITION + STRONTIUM

14-19225 ALSO IN CATEGORY 15
DOUGHERTY TF
RESEARCH IN RADIOBIOLOGY SEMI-ANNUAL REPORT OF PROGRESS IN THE INTERNAL IRRADIATION PROGRAM
UTAH UNIV., SALT LAKE CITY. RADIOBIOLOGY DIVISION
COO-119-235 +. 144 PAGES, TABLES, SEPTEMBER 30, 1966

THIS PROGRESS REPORT PRESENTS RESULTS OF EXPERIMENTS WITH INJECTION OF RA-226, PU-239, RA-228, TH-228, SR-90, RA-224, AND AM-241 INTO DOGS. DOSIMETRY CALCULATIONS ARE DISCUSSED. IN ADDITION, OTHER STUDIES ARE GIVEN ON PLUTONIUM (IV) REACTION IN THE HUMAN BLOOD SYSTEM,

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19225 *CONTINUED*
POTASSIUM STUDIES IN HUMANS, HALF-TIMES OF CS-137 IN PREGNANT WOMEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*RADIOBIOLOGY + AMERICIUM + DOSE + DOSE CALCULATION, INTERNAL + PLUTONIUM + RADIUM + STRONTIUM +
TRACER, RADIOACTIVE

14-19231
RICKARD WH
CESIUM-137 IN BROMUS TECTORUM L. IN RELATION TO PRECIPITATION REGIMES AND HARVEST YIELDS
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY
BNWL-SA-77 +. 1 PAGE, 1 TABLE, 2 REFERENCES, J. RANGE MGT 18(6), PAGE 343 (NOVEMBER 1965)

THE CONCENTRATION OF CS-137 IN DOWNY BROME GROWING ON A FIELD ON THE HANFORD RESERVATION WAS
STUDIED IN 1962-63 AND 1963-64. CESIUM CONCENTRATIONS WERE ESSENTIALLY THE SAME FOR THE TWO
SEASONS, ALTHOUGH RAINFALL AND YIELD WERE MUCH HIGHER IN 1962-63. IT APPEARS THAT SPRING
SAMPLING IS A USEFUL MEANS OF ESTIMATING THE ANNUAL INCREMENT OF WORLDWIDE FALLOUT DEPOSITED
OVER ANNUAL GRASS PASTURES.

*FALLOUT + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM

14-19232
ENVIRONMENTAL RADIOACTIVITY IN NEW ZEALAND. QUARTERLY REPORT, JULY-SEPT. 1966
NATIONAL RADIATION LAB., CHRISTCHURCH, NEW ZEALAND
NRL-F22 +. 55 PAGES, 1966

THE LONG-LIVED FALLOUT PRODUCTS SR-90 AND CS-137 IN RAINWATER AND MILK CHANGED LITTLE FROM
PRECEDING QUARTER. THE LOW LEVEL OF SR-89 FROM THE FRENCH TESTS MEASURED IN RAINWATER AND
MILK, AND THE LOW VALUE FOR THE SP-89 TO SR-90 RATIO INDICATED MOST OF THE SR-90 CAME FROM
THE STRATOSPHERIC RESERVOIR. THE LEVEL OF SR-90 IN RAIN DURING THE QUARTER WAS LESS THAN ONE
FIFTH THE PREVIOUS HIGH (FIRST QUARTER 1965). THE LEVEL OF SR-90 IN MILK DURING JULY-AUGUST
WAS ABOUT ONE HALF THE PREVIOUS HIGH IN JULY-AUGUST 1964, AND CS-137 IN MILK FOR THE SAME
PERIOD WAS ALSO LESS THAN HALF THE PREVIOUS HIGH (MARCH-APRIL 1965). THE FALLOUT LEVELS IN
AIR AND WATER FROM SHORT-LIVED DEBRIS FROM THE FRENCH TESTS WERE FOUR TIMES HIGHER THAN THOSE
IN RAINWATER.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN, 54669

*FALLOUT + CESIUM + MONITORING PROGRAM, ENVIRONMENTAL + RAINCUT + STRONTIUM

14-19233
DAHL AH + WHICKER FW + FARRIS GC + HAKONSON TE
A STUDY OF THE FOOD CHAIN PATTERNS OF SR-90, CS-137, AND I-131 IN A WILD DEER POPULATION. TECHNICAL
PROGRESS REPORT NO. 5, JANUARY 1, 1966-DECEMBER 31, 1966.
COLORADO STATE UNIVERSITY, FORT COLLINS
COO-1156-22 +. 71 PAGES, FEBRUARY 1, 1967

THIS STUDY IS AN ATTEMPT TO ELUCIDATE AND INCREASE KNOWLEDGE OF THE PROCESSES THAT LEAD TO THE
ACCUMULATION OF CERTAIN FALLOUT RADIONUCLIDES IN THE MULE DEER AS A REPRESENTATIVE WILD
GRAZING ANIMAL. ITS FOOD HABITS CAUSE IT TO ACCUMULATE MEASURABLE QUANTITIES OF FISSION
PRODUCTS SUCH AS SR-90, CS-137, AND I-131. DURING THIS PERIOD, THE ANALYSIS FOR SR-90 AND
STABLE STRONTIUM IN BONE AND FORAGE PLANTS WAS COMPLETED, AND CESIUM METABOLISM IN CAPTIVE
DEER WAS STUDIED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + IODINE +
STRONTIUM

14-19246 ALSO IN CATEGORIES 15 AND 17
U OF VIRGINIA SUPPLIES ADDITIONAL INFORMATION ON WASTE DISPOSAL AND RADIATION LEVELS AT PROPOSED 2 MWT
UNIVERSITY OF VIRGINIA, SCHOOL OF ENGINEERING AND APPLIED SCIENCE, CHARLOTTESVILLE
5 PAGES, 1 FIGURE, OCTOBER 20, 1967, DOCKET NO. 50-62

IN RESPONSE TO AEC QUESTIONS - (1) MENS ROOM IS NOW DESIGNATED A RADIATION AREA, AS LEVEL WILL
BE ABOUT 10 MR/HR. (2) DEMINERALIZER-ROOM HIGH-RADIATION ALARM AND BRIDGE-MONITOR SETPOINTS
WILL BE RAISED TO PREVENT SPURIOUS SCRAMS AND ALARMS. EXPECTED LEVELS ARE 100 MR/HR AND 10,
RESPECTIVELY. WASTE-DISPOSAL SYSTEM DESCRIBED. WASTE TRAVELS THROUGH TWO TANKS, (INSTALLED
MAY 67) FOR SETTLING AND DILUTION, TO A POND WHOSE OUTLET IS CONTROLLED. THE POND BOTTOM NOW
CONTAINS LONG-LIVED ACTIVITY FROM HAVING PREVIOUSLY RECEIVED WASTE DIRECTLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POWER UPGRATING + *REACTOR SAFETY SYSTEM + *TECHNICAL SPECIFICATIONS + *WASTE DISPOSAL, LIQUID +
AEC QUESTION + INSTRUMENTATION, RADIATION MONITORING + MODIFICATION, SYSTEM OR EQUIPMENT +

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19246. *CONTINUED*
REACTOR, RESEARCH

14-19256 ALSO IN CATEGORY 15
ATOMIC BOMB CASUALTY COMMISSION ANNUAL REPORT, JULY 1, 1964-JUNE 30, 1965
ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA, JAPAN
ABCC-64-65 +. 130 PAGES, 1965, IN ENGLISH AND JAPANESE

CONTAINS ABSTRACTS OF MANY STUDIES OF THE INDIVIDUALS WHO MAY HAVE BEEN AFFECTED BY THE NUCLEAR WEAPONS DETONATED AT HIROSHIMA AND NAGASAKI. ANCILLARY ACTIVITIES OF THE ABCC ARE ALSO COVERED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + JAPAN + NUCLEAR DETONATION

14-19261
WOOD R + BURDEN BA
ACCUMULATION OF RADIONUCLIDES IN WATER WORKS FILTER BED MATERIAL
LABORATORY OF THE GOVERNMENT CHEMIST, MINISTRY OF TECHNOLOGY, STAMFORD STREET, LONDON, S.E.1.
2 PAGES, 3 FIGURES, 2 TABLES, 3 REFERENCES, NATURE 213(5076), PAGE 637 AND 638, (FEBRUARY 11, 1967)

NATURALLY OCCURRING MnO_2 IN WATER CAN LEAD TO FORMATION OF DEPOSITS ON SAND FILTERS. MN-54 HAS BEEN FOUND TO BE PRESENT IN THESE DEPOSITS DUE TO FALLOUT FROM SOVIET NUCLEAR TESTS. RADIOASSAY OF THE SLUDGE SHOWED THAT MN-54 COMPRISED ABOUT 25% OF THE ACTIVITY. REMAINDER CONSISTED PRINCIPALLY OF U, RA, AND PU, WITH TH BEING ABSENT.

*FALLOUT + FILTRATION + MANGANESE + PLUTONIUM + RADIUM + RAINOUT + UNITED KINGDOM + URANIUM + WATER TREATMENT

14-19262 ALSO IN CATEGORY 15
KONIG LA
THE LIMITATION OF THE SURFACE CONTAMINATION ON HANDLING UNPROTECTED RADIOACTIVE SUBSTANCES
1 PAGE, ATOMPRAXIS 12(11), PAGE 555, (1966)

THE PRESENT STATUS OF GUIDELINES FOR SURFACE CONTAMINATION IS UNSATISFACTORY. LIMIT VALUES LISTED ARE IN THE RANGE $10(-4TH)$ TO $10(-6TH)$ MICROCURIE/SQ. CM. FOR ALPHA EMITTERS AND $10(-3RD)$ TO $5 \times 10(-5TH)$ MICROCURIE/SQ. CM. FOR BETA EMITTERS. CLASSIFICATIONS ARE BASED ON INACTIVE AND ACTIVE ZONES (TOTAL QUANTITY OF ACTIVITY PRESENT) AS WELL AS ON CLOTHING AND SKIN. IN SOME CASES, THE TOXICITY OF THE RADIONUCLIDES HAS ALSO BEEN TAKEN INTO ACCOUNT. EFFORTS ARE IN PROGRESS TOWARD THE ESTABLISHMENT OF NEW GUIDELINE VALUES.

ALPHA EMITTER + GERMANY + SURFACE CONTAMINATION

14-19263
JONES PM + HUTCHESON CG
ADSORPTION OF THREE HYDROGEN ISOTOPES ON CHARCOAL
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, ENGLAND
2 PAGES, 1 FIGURE, 1 TABLE, 2 REFERENCES, NATURE 213, PAGE 490 AND 491, (FEBRUARY 4, 1967)

PREVIOUS STUDIES WITH HYDROGEN AND DEUTERIUM WERE EXTENDED TO TRITIUM. APPARATUS AND EXPERIMENTAL DETAILS ARE OUTLINED. PLOTS OF EQUILIBRIUM PRESSURES AGAINST VOLUMES OF ADSORBED GAS AT LIQUID NITROGEN TEMPERATURE WERE GOOD STRAIGHT LINES FOR ALL THREE ISOTOPES AT PRESSURES GREATER THAN 100 MM, INDICATING THAT THE ADSORPTION FOLLOWS THE LANGMUIR ISOTHERM.

*CHARCOAL ADSORBER + DEUTERIUM + HYDROGEN + TRITIUM + UNITED KINGDOM

14-19264 ALSO IN CATEGORY 15
PROGRESS REPORT NO. 26, HAZARDS CONTROL (SEPTEMBER-DECEMBER 1966) AND INDEX TO HAZARDS CONTROL PROGRESS
REPORTS NOS. 24 THROUGH 26
CALIFORNIA UNIVERSITY, LAWRENCE RADIATION LAB., LIVERMORE, CALIFORNIA
UCRL-50,007-66-2 +. 55 PAGES, 27 FIGURES, 15 TABLES, 44 REFERENCES, 1966

THE STUDIES INCLUDE THE FOLLOWING SUBJECTS - (1) PLUTONIUM SURVEY WITH X-RAY DETECTORS, (2) AN ENERGY-INDEPENDENT FOIL-ACTIVATION SYSTEM FOR RAPID ASSESSMENT OF PULSED NEUTRON DOSE, (3) ACTIVATED-SILVER PULSED-NEUTRON DETECTOR, (4) POCKET-DOSIMETER RESPONSE IN PULSED RADIATION FIELDS, (5) ENERGY DEPENDENCE OF COBALT GLASS, (6) USE OF THE ALPHA-BETA RATIO TO REDUCE AIR FILTER PAPER DECAY PERIODS, (7) PROTON-RECOIL-TRACK COUNTING BY TELEVISION, (8) STRIPCOAT REMOVAL OF ALPHA CONTAMINATION OF FLOORS, (9) EFFECT OF HUMIDITY ON THE CAPACITY OF CHARCOAL TO ABSORB METHYL IODIDE. OTHER REPORTS ARE ON NONNUCLEAR SAFETY PROBLEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19264 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + *DOSIMETRY, GENERAL + *SURVEY, RADIATION, GENERAL + ACTIVATION + ALPHA EMITTER + CONTAMINATION + DOSE MEASUREMENT, EXTERNAL + GAMMA + NEUTRON + PLUTONIUM + X-RAY

14-19266
PILLAI KC + GANAPATHY S + DESAI MV + GANGULY AK
EVALUATION OF ACCEPTABLE LIMITS FOR RADIOACTIVE CONTAINMENTS IN THE CHAMBAL RIVER-RANA PRATAP SAGAR
ATOMIC ENERGY ESTABLISHMENT, TROMBAY, BOMBAY, INDIA
AEET/HP/R-13 +. 80 PAGES, 24 FIGURES, 7 TABLES, 16 REFERENCES, 1966

MAXIMUM PERMISSIBLE DISCHARGE LIMIT TO THE RIVER WAS DETERMINED TO BE 90 MC OF SP-90 (OR EQUIVALENT ACTIVITY) PER DAY FOR EVERY 1000 CUSECS OF FLOW RATE OF THE RIVER. THE CALCULATIONS ARE BASED ON EXPERIMENT AND ON ICRP STANDARDS. THE STANDARD MAN IS ADJUSTED TO THE INDIAN BY A RATIO OF 5/7 TO ALLOW FOR THE NORMALLY SMALL STATURE OF INDIANS.

AVAILABILITY - ATOMIC ENERGY ESTABLISHMENT TROMBAY, BOMBAY, INDIA

*CONTAMINATION + ENVIRONMENTAL CONDITION + INDIA + WASTE DISPOSAL, RIVER

14-19267 ALSO IN CATEGORY 15
RADIUM AND MESOTHORIUM POISONING AND DOSIMETRY AND INSTRUMENTATION TECHNIQUES IN APPLIED RADIOACTIVITY.
ANNUAL PROGRESS REPORT
MASSACHUSETTS INST. OF TECH., CAMBRIDGE
MIT-952-3 +. 484 PAGES, 129 FIGURES, 56 TABLES, MAY 1966

COVERS WORK AT MIT UNDER CONTRACT AT(30-1)-952 WITH THE ATOMIC ENERGY COMMISSION. STUDIES INCLUDE - (A) RADIUM AND MESOTHORIUM TOXICITY IN HUMAN BEINGS (STUDY OF RADIUM-DIAL PAINTERS AND OTHER EXPOSED INDIVIDUALS), (B) THE METABOLISM OF INTRAVENOUSLY ADMINISTERED RADIUM AND THORIUM IN HUMAN BEINGS, AND THE RELATIVE ABSORPTION FROM THE HUMAN GASTROINTESTINAL TRACT OF RADIUM AND THORIUM IN SIMULATED RADIUM DIAL PAINTS, (C) GENERAL RADIOBIOLOGY, (D) NUCLEAR PHYSICS, (E) INSTRUMENTATION TECHNIQUES, AND (F) NUCLEAR GEOCHEMISTRY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + CESIUM + DOSE + DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL + GEOLOGICAL CONSIDERATION, GEOCHEMICAL + POTASSIUM + RADIOBIOLOGY + RADIUM + THORIUM

14-19271 ALSO IN CATEGORY 17
PENN STATE LOSES U-235 PLATED CYLINDER
PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 19, (NOVEMBER 6, 1967), DOCKET NO. 70-242

(LTR, OCT. 12) 0.057 GRAM OF U-235 WAS IN ONE OF TWO IDENTICAL ASSEMBLIES. SOMETIME IN THE PAST 5 YEARS ONE WAS DISCARDED THRU NORMAL PROCEDURES, AND THE IDENTIFYING TAGS WERE INTERCHANGED, CAUSING THE WRONG ASSEMBLY TO BE RETAINED. WE RECENTLY CUT OPEN THE ASSEMBLY TO RECLAIM IT, AND DISCOVERED THE LOSS.

*SOURCE MATERIAL + *SOURCE, RADIATION, LOST + *URANIUM + FAILURE, ADMINISTRATIVE CONTROL + WASTE DISPOSAL, SOLID

14-19280 ALSO IN CATEGORIES 13 AND 17
NUMEC DISCHARGE OF 600 GRAMS U-235 FROM LIQUID WASTE TANK
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27 THRU 29, (NOV. 6, 1967)

(LETTER, JUNE 2) ON APRIL 24, 1967, A 1000-GAL WASTE-TANK SAMPLE ALPHA COUNT INDICATED 1.2 G/LITER OF U-235. VALVES AND AREA WERE ISOLATED, AND MIXER KEPT RUNNING. WASTE WAS DRAINED INTO 3 GALLON BOTTLES FOR REPROCESSING. LATER, ABNORMALLY LOW LIQUID LEVEL LED TO DISCOVERY OF OPEN INTERCONNECTION VALVE TO NEXT TANK, WHICH WAS BEING DUMPED TO RIVER BY A DIFFERENT CREW. ESTIMATED LOSS WAS 175 GAL OF HIGH WASTE. WASTE SYSTEM IS BEING EVALUATED FOR FIXED POISONING AND GAMMA MONITORS. SOURCE WAS APPARENTLY 4-INCH SOLVENT-EXTRACTION FACILITY AND EVAPORATORS, THROUGH SOME UNKNOWN MECHANISM.

*FAILURE, OPERATOR ERROR + *FUEL REPROCESSING + *WASTE DISPOSAL, LIQUID + CRITICALITY SAFETY + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, ACTUAL, HUMAN ERROR + SPECIAL NUCLEAR MATERIAL + URANIUM + VALVE

14-19290 ALSO IN CATEGORY 15
PNI IKARPOV GG
RADIOECOLOGY OF AQUATIC ORGANISMS. THE ACCUMULATION AND BIOLOGICAL EFFECT OF RADIOACTIVE SUBSTANCES
314 PAGES, 36 FIGURES, 68 TABLES, REFERENCES, 1966, REINHOLD BOOK DIVISION, NEW YORK, TRANSLATED FROM RUSSIAN

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19290. *CONTINUED*

TRANSLATION OF G. G. POLIKARPOVS BOOK, ORIGINALLY PUBLISHED IN 1964 AND REVISED AND ENLARGED IN 1965. THE BOOK IS DIVIDED INTO - I INTRODUCTION (THE SUBJECT MATTER AND SCOPE OF MARINE RADIOECOLOGY), II ACCUMULATION OF RADIOACTIVE SUBSTANCES BY MARINE ORGANISMS, III THE EFFECT OF NUCLEAR RADIATION ON MARINE ORGANISMS, IV CONCLUSIONS.

AVAILABILITY - REINHOLD BOOK DIVISION, NEW YORK

*ECOLOGICAL CONSIDERATION + OCEAN AND SEA + RADIOBIOLOGY + RADIOISOTOPE + UNION OF SOVIET SOCIALIST REPUBLICS

14-19291

ALBERT RE

THORIUM. ITS INDUSTRIAL HYGIENE ASPECTS

NEW YORK UNIVERSITY

222 PAGES, 92 FIGURES, 37 TABLES, 289 REFERENCES, 1966, NEW YORK ACADEMIC PRESS, NEW YORK

THORIUM IS UNUSUAL IN THAT THE HEALTH HAZARDS ARISE FROM ISOTOPES OF A VARIETY OF ELEMENTS PRESENT IN THE DECAY CHAIN OF TH-232. THESE ISOTOPES ENCOMPASS A WIDE RANGE OF METABOLIC, PHYSICAL, AND RADIOLOGICAL PROPERTIES, AND THE CONTROL OF THORIUM HAZARDS INVOLVES MANY TYPES OF RADIOLOGICAL HEALTH PROTECTION PROBLEMS. THE MAJOR TECHNICAL USES OF THORIUM ARE SUMMARIZED, AND OTHER ASPECTS OF THORIUM ARE DISCUSSED, SUCH AS HAZARDS COMMON TO THE VARIOUS INDUSTRIAL PROCESSES, THE TECHNIQUES AND OBJECTIVES FOR THE CONTROL OF THESE HAZARDS, AND THE BIOLOGICAL AND MEDICAL FOUNDATIONS ON WHICH THESE HAZARD CONTROLS ARE BASED.

AVAILABILITY - NEW YORK ACADEMIC PRESS, NEW YORK, \$7.00 COPY

*THORIUM + BIOLOGICAL CONCENTRATION, MAN

14-19293

KIRCHMANN RJ + BOULENGER RR

IMPORTANCE OF THE DIRECT RETENTION AND OF THE PRODUCTIVITY OF PASTURES IN THE CONTAMINATION OF MILK BY RADIOACTIVE FALLOUT

CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE, MOL, BELG.

14 PAGES, 3 FIGURES, 6 TABLES, 6 REFERENCES, MEDEDEL. LANDBOUWHOGESCHOOL OPZOEKINGSSTAAT GENT, 30, PAGE 1227 THRU 1240, (1965), IN FRENCH

EXPERIMENTS ON THE CONTAMINATION OF PASTURES BY RADIOACTIVE FALLOUT UNDER FIELD CONDITIONS ARE DESCRIBED FOR THE PERIOD 1958 TO 1963. VARIOUS FACTORS WHICH INFLUENCE THE TRANSFER OF THE FOLLOWING FALLOUT RADIONUCLIDES TO MILK WERE EXAMINED - SR-90, I-131, CS-137, RU-103, ZR/NB-95, CE-141, AND ND-147. THE EFFECTS OF THE NATURE OF THE VEGETATION, ITS DENSITY, AND RAINFALL WERE EXAMINED PARTICULARLY. THE STUDY INCLUDED A CONTROL FIELD, COVERED WITH A POLYETHYLENE SHEET, AND THUS UNCONTAMINATED WITH RADIONUCLIDES.

*BIOLOGICAL CONCENTRATION, MILK + *FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, VEGETATION + CEN (CENTER, STUDY OF NUCLEAR ENERGY, BELGIUM) + CERIUM + CESIUM + IODINE + NEODYMIUM + NIOBIUM + RUTHENIUM + STRONTIUM + ZIRCONIUM

14-19295

RADICHEVA MA + MISHEV IT

STUDY OF THE DEPOSITION OF RADIOACTIVE FALLOUT IN CERTAIN PLACES IN BULGARIA

6 PAGES, 4 TABLES, REFERENCES, IZV. FIZ. INST. ANEB, BULG. AKADE. NAUK., 15, PAGE 5 THRU 10, (1966), IN RUSSIAN

DESCRIBES A NUMBER OF INVESTIGATIONS INTO THE PRESENT ACTIVITY OF VEGETATION, SOIL, AND WATER SAMPLES TAKEN FROM VARIOUS PLACES IN BULGARIA. IN GENERAL, AN INCREASE IN ALTITUDE OVER SEA LEVEL RESULTS IN AN INCREASE IN THE QUANTITY OF THE FALLOUT WHICH REACHES THE SOIL AND THE PLANTS ON IT, AND THE HIGHER PLACES ARE MORE ABUNDANTLY COVERED WITH RADIOACTIVE FALLOUT. THE ACTIVE COMPONENT OF FALLOUT IS RAPIDLY REDUCED AFTER NUCLEAR TESTS ARE DISCONTINUED.

*FALLOUT + BULGARIA

14-19296

SHOAF RE + GALLOWAY HL + MULLINS LR

DETERMINATION OF URANIUM ALPHA ACTIVITY IN URINE

GOODYEAR ATOMIC CORPORATION, PIKETON, OHIO

GAT-520 +. 6 PAGES, 2 TABLES, 3 REFERENCES, SEPTEMBER 1, 1966

PRESENTS A PROCEDURE FOR DETERMINING URANIUM ALPHA ACTIVITY IN URINE. OUTSTANDING FEATURE OF THE PROCEDURE IS THE CONVENIENT ION-EXCHANGE SEPARATION OF URANIUM FROM RAW URINE. THIS SEPARATION GIVES THE METHOD A DISTINCT ADVANTAGE OVER OTHER METHODS IN WHICH THE URANIUM IS SEPARATED BY TEDIOUS CHEMICAL PROCESSES. IT ALSO PERMITS THE HANDLING OF A LARGE NUMBER OF SAMPLES SIMULTANEOUSLY BY ONE ANALYST, THUS, THE METHOD IS READILY ADAPTED TO A ROUTINE LABORATORY OPERATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19296 *CONTINUED*

*ANALYTICAL TECHNIQUE, URINE + ANALYTICAL TECHNIQUE, LIQUID + ION EXCHANGE + PORTSMOUTH PLANT + URANIUM

14-19298

GUSTAFSON PF + BRAR SS + MUNIAK SE
CAESIUM 137 IN EDIBLE FRESHWATER FISH
ARGONNE NATIONAL LAB., ARGONNE, ILL.

2 PAGES, 1 TABLE, 13 REFERENCES, NATURE 211(5051), PAGE 843 AND 844, (AUGUST 20, 1966)

STUDIED THE CS-137 IN EDIBLE FRESHWATER FISH AVAILABLE IN THE CHICAGO MARKET. ANALYSES SHOWED A HIGH OF 3.974 PC/KG WET WEIGHT FOR LAKE TROUT, DOWN TO 330 PC/KG WET WEIGHT FOR SMELTS. SALT-WATER FISH WERE 10 TO 100 TIMES LOWER. IF A 70-KG MAN (STANDARD MAN) SHOULD REGULARLY CONSUME 1 POUND OF CARNIVOROUS FRESH-WATER FISH, HIS BODY BURDEN OF CS-137 COULD APPROACH THE LEVEL OF ARCTIC AND SUB-ARCTIC PEOPLE WHO DEPEND ON CARIBOU OR REINDEER AS A PRIME SOURCE OF MEAT.

*BIOLOGICAL CONCENTRATION, FOOD + ANL (ARGONNE NATIONAL LABORATORY) +
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + CESIUM + FALLOUT

14-19299

ALSO IN CATEGORY 15

HANSON WC

CESIUM-137 BODY BURDENS IN ALASKAN ESKIMOS DURING THE SUMMER OF 1965
BIOL. DEPT., BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

2 PAGES, 2 TABLES, 8 REFERENCES, SCIENCE 153(3735), PAGE 525 AND 526, (JULY 29, 1966)

CS-137 BODY BURDENS OF ANAKTUVUK PASS, ALASKA, RESIDENTS DURING THE SUMMER OF 1965 WERE ABOUT 30 PERCENT LESS THAN DURING 1964. LOWER AMOUNTS OF CS-137 IN THE PEOPLE REFLECTED A SIMILAR DECREASE OF THIS ISOTOPE IN CARIBOU FLESH, WHICH SERVES AS THE PRINCIPAL FOOD.

*BIOLOGICAL CONCENTRATION, MAN + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL +
BIOLOGICAL CONCENTRATION, FOOD + CESIUM + FALLOUT

14-19300

TSO TC + HARLEY N + ALEXANDER LT

SOURCE OF LEAD-210 AND POLONIUM-210 IN TOBACCO

U.S. DEPT. OF AGRICULTURE + U.S. ATOMIC ENERGY COMMISSION, NEW YORK

3 PAGES, 2 TABLES, 9 REFERENCES, SCIENCE 153(3738), PAGES 880-82 (AUGUST 19, 1966)

TEST PLANTS WERE GROWN WITHIN A CHAMBER ENRICHED WITH RADON-222 IN THE ATMOSPHERE, IN TOBACCO FIELDS WITH DIFFERENT SOURCES OF PHOSPHATE-CONTAINING FERTILIZER, AND IN CULTURES CONTAINING LEAD-210 IN THE NUTRIENT SOLUTION. HARVESTED LEAVES WERE SUBJECTED TO THREE CURING CONDITIONS. THE MAJOR PORTION OF THE LEAD-210 IN THE PLANT WAS PROBABLY ABSORBED THROUGH THE ROOTS. AIRBORNE RADON-222 AND ITS DAUGHTERS CONTRIBUTED MUCH LESS TO THE PLANTS CONTENT OF LEAD-210 AND OF POLONIUM-210. THE STAGE OF LEAF DEVELOPMENT AND THE METHODS USED TO CURE THE LEAF AFFECTED THE FINAL AMOUNT OF POLONIUM-210 IN TOBACCO LEAF.

*BIOLOGICAL CONCENTRATION, VEGETATION + LEAD + POLONIUM

14-19327

PESTNER JF + LOVE DL

PULSED REACTOR SIMULATION OF UNDERWATER NUCLEAR EXPLOSIONS

NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO

USNRDL-TR-67-45 + 23 PAGES, 4 FIGURES, 1 TABLE, 2 REFERENCES, APRIL 13, 1967

AN UNDERWATER NUCLEAR EXPLOSION WAS SIMULATED BY PULSING A 10-MG FOIL (RICH IN U-235) WITH THERMAL NEUTRONS FROM THE KEWB REACTOR AT ATOMICS INTERNATIONAL. THE PURPOSE WAS TO PRODUCE THE PHYSICAL-CHEMICAL SPECIES OF FISSION PRODUCTS AS CLOSELY AS POSSIBLE TO THOSE PRODUCED IN A REAL UNDERWATER NUCLEAR EXPLOSION. MOVING PICTURES AND TEMPERATURE MEASUREMENTS OF THE EVENT SHOWED THAT COMPLETE VAPORIZATION WAS NOT ACHIEVED, ALTHOUGH MELTING DID OCCUR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*FISSION PRODUCT RELEASE, GENERAL + OCEAN AND SEA + REACTOR, PULSED + UNITED STATES + URANIUM

14-19401

PUSCH WM

OPTIMUM SIZE OF GAS FLOW COUNTERS FOR WATER SAMPLE COUNTING

ÖSTERREICHISCHE STUDIENGESellschaft FÜR ATOMENERGIE, VIENNA

6 PAGES, 8 FIGURES, 3 REFERENCES, ATOMKERNENERGIE, 12, (516) PAGES 193-8 (MAY-JUNE 67) IN GERMAN

A METHOD FOR DETERMINING THE OPTIMUM SIZE OF GAS-FLOW COUNTERS IS DESCRIBED. LOW-ACTIVITY WASTE WATER IS EVAPORATED AND THE ACTIVITY OF THE REMAINING SOLIDS IS THEN COUNTED WITH A GAS-FLOW COUNTER. THE EFFICIENCY OF SUCH COUNTERS IS CALCULATED BASED ON THE SAMPLE WEIGHT PER UNIT AREA AND FROM THAT THE QUALITY FACTOR G AS A FUNCTION OF TOTAL SAMPLE WEIGHT, BETA

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19401 *CONTINUED*

ENERGY, AND SIZE OF COUNTER WINDOW OR PLANCHETS. IF A SAMPLE WEIGHT IS KNOWN, THE SIZE OF THE WINDOW OR THE PLANCHET DIA WHICH WILL GIVE THE SHORTEST COUNTING TIME MAY BE DETERMINED FROM GRAPHS, WHICH ARE INCLUDED.

*ANALYTICAL TECHNIQUE, WATER + AUSTRIA + INSTRUMENTATION, RADIATION MONITORING

14-19424

SCHILLING G + RICHTER D

ON THE CONTENT OF STRONTIUM-90 AND YTTRIUM-90 IN SOIL IN CENTRAL GERMANY

FRIEDRICH-SCHILLER UNIVERSITY, JENA, GERMANY

19 PAGES, 2 FIGURES, 10 TABLES, 35 REFERENCES, ALBRECHT-THAER-ARCHIV. BAND 8, PAGES 107-125, (1964). IN GERMAN

THE BEHAVIOR OF SR-90 AND Y-90 WAS STUDIED IN SOILS AND IN CORRESPONDING MODEL SUBSTANCES (FERRIC HYDROXIDE, ALUMINUM HYDROXIDE, QUARTZ SAND, AND OTHERS). BOTH SOILS AND MODEL SUBSTANCES ABSORB SR AND Y. THEY ARE ALMOST IMPOSSIBLE TO EXTRACT WITH H₂O AT NEUTRAL PH. ABSORBED Y CAN BE DISPLACED BY ONLY SALINE SOLUTIONS UP TO PH 5.0. STRONTIUM WAS ALWAYS EXCHANGEABLE AND WAS SLIGHTLY MORE DIFFICULT TO DISPLACE WITH CATIONS OTHER THAN CALCIUM. WASHING-OUT EXPERIMENTS IN NATURAL SITES INDICATED THAT THE DEPTHS TO WHICH STRONTIUM PENETRATES INTO THE SOIL AND THE DANGER OF ITS BEING WASHED OUT DEPEND ON THE EXCHANGE CAPACITY OF THE SOIL AND ON THE ELECTROLYT CONTENT OF THE SOIL SOLUTION.

*SOIL, RADIONUCLIDE MOVEMENT THROUGH + GERMANY + STRONTIUM + YTTRIUM

14-19426

SHALAEV IL

THE CONTROL OF RADIOACTIVE CONTAMINATION OF WATER AND AIR DUE TO URANIUM TOGETHER WITH ITS DAUGHTER PRODUCTS

INSTITUT ATOMNOI ENERGII, AKADEMIYA NAUK SSSR

TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 7 PAGES, 1 TABLE, 3 REFERENCES, HYGIENE AND SANITATION, PAGE 48-54, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

ON THE BASIS OF THE CALCULATED MAXIMUM PERMISSIBLE CONCENTRATION OF URANIUM AND THE ACTINIUM ROW OF ISOTOPES, IT IS DEMONSTRATED THAT IN CERTAIN CASES THE RADIATION HAZARD OF WATER AND AIR CONTAMINATION WITH URANIUM AND ITS DAUGHTER PRODUCTS IS ACTUALLY DETERMINED LESS BY THE URANIUM ITSELF THAN BY ITS DAUGHTER PRODUCTS, SUCH AS IONIUM, POLONIUM, RADIUM (IN THE AIR), AND RAD, PO, RA (IN THE WATER). EQUATIONS ARE GIVEN FOR DETERMINING THE MAXIMUM PERMISSIBLE CONCENTRATION BOTH WITH AND WITHOUT REGARD FOR THE TYPE OF ISOTOPE DISTRIBUTION IN THE HUMAN BODY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AIR + *WATER, GENERAL + POLONIUM + PROTACTINIUM + RADIUM + UNION OF SOVIET SOCIALIST REPUBLICS + URANIUM

14-19427

ZATSEPINA LN + SAPARLYEV CH + PAVLOTSKAYA FO

THE DETERMINATION OF SR-90 IN PLANT MATERIAL

INSTITUT ATOMNOI ENERGII, AKADEMIYA NAUK SSSR

TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 3 PAGES, 1 TABLE, 5 REFERENCES, HYGIENE AND SANITATION, PAGE 76-78, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

DESCRIBES AN ANALYTICAL METHOD FOR DETERMINING SR-90 IN VEGETATION. METHOD IS APPLICABLE TO SPECIMENS THAT DO NOT CONTAIN FRESH FISSION PRODUCTS, I.E., 4 MONTHS AND MORE AFTER SAMPLING OR AFTER NUCLEAR TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, VEGETATION + RADIOCHEMICAL ANALYSIS + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS.

14-19428

GOLUINIVA MM + KAZAKOVA TA

THE CONTENT OF LONG-LIVED FISSION PRODUCTS IN WATER FROM THE MOSCOW WATERWORKS

TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 4 PAGES, 2 FIGURES, 7 REFERENCES, HYGIENE AND SANITATION, PAGE 131-134, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE FOLLOWING WAS DETERMINED RELATIVE TO MOSCOW WATER - (1) THE MEAN ANNUAL CONCENTRATION OF STRONTIUM-90 IN WATER FROM THE MOSCOW WATERWORKS IN 1964 WAS FOUND TO BE $1.6 \times 10^{(-12)}$ TH CURIE/L, WHILE THAT OF CESIUM-137 WAS $1.5 \times 10^{(-13)}$ TH CURIE/L. (2) THE MAXIMUM CONCENTRATIONS OF BOTH ISOTOPES DURING MARCH-MAY 1964 WAS NOT MORE THAN 3 TIMES THE MEAN ANNUAL CONCENTRATION. (3) THE MEAN ANNUAL CONCENTRATIONS OF STRONTIUM-90 AND CESIUM-137 IN WATER FROM THE MOSCOW WATERWORKS WERE FOUND TO BE 1/20 AND 1/7000 OF THE RESPECTIVE MAXIMUM PERMISSIBLE CONCENTRATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19428 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*WATER, DRINKING + CESIUM + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS + WATER TREATMENT

14-19429 ALSO IN CATEGORY 15
MAREI AN + YARTSEV EI + MOISEENKO EI
DISTRIBUTION OF STRONTIUM-90 IN THE SKELETON OF ADULTS
LENINGRAD HYDROMETEOROLOGICAL INSTITUTE
TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 5 PAGES, 3 TABLES, 9 REFERENCES, HYGIENE AND SANITATION, PAGE 195-199, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE AUTHORS STUDIED THE DISTRIBUTION OF SR-90 (GLOBAL PRECIPITATION) IN THE SKELETON OF 20 ADULTS. A DEFINITE RELATION NOTED BETWEEN THE ISOTOPE CONCENTRATION IN CERTAIN BONES AND THAT OF ITS AVERAGE CONCENTRATION IN ALL OF THE SKELETON.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-19430
GUSKOVA VN + ZASEDATELEV AA + KUPRIYANOVA VM + SHAMOV VP
EXPERIMENTAL DETERMINATION OF THE BIOLOGICAL CONSTANTS OF SOLUBLE URANIUM COMPOUNDS ON ALBINO RATS
TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 6 PAGES, 1 FIGURE, 2 TABLES, 5 REFERENCES, HYGIENE AND SANITATION, PAGE 199-204, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE AUTHORS STUDIED THE ABSORPTION, DISTRIBUTION, AND EXCRETION OF URANIUM SOLUBLE SALTS IN RATS BODIES. THE ANIMALS WERE KILLED IN THE COURSE OF A YEAR AT DIFFERENT INTERVALS FROM THE BEGINNING OF THE EXPERIMENT. THE EXCRETION OF URANIUM FROM THE KIDNEYS OCCURS AT BIOLOGICAL PERIODS OF PARTIAL EXCRETION, COMPRISING 1.8 (43%) AND 15.5 DAYS (57%). THAT FROM THE BONE TISSUE WAS ELIMINATED IN 24 (76%) AND 400 DAYS (24%), AND THAT FROM THE WHOLE BODY IN 20 (85%) AND 400 DAYS (15%).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + UNION OF SOVIET SOCIALIST REPUBLICS + URANIUM

14-19431 ALSO IN CATEGORY 15
GALIBIN GP + POZDNYAKOV AL + MURAVEVA LI
BIOLOGICAL EFFECTS OF AMMONIUM DIURANATE FOLLOWING PROLONGED INHALATION
TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 8 PAGES, 4 FIGURES, 12 REFERENCES, HYGIENE AND SANITATION, PAGE 339-345, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE AUTHORS STUDIED THE BIOLOGICAL EFFECT OF AMMONIUM DIURANATE (DA) ON ITS LONG-TERM ADMINISTRATION BY THE INHALATION ROUTE TO RATS AT A CONCENTRATION OF 36 MG/M³. THE EARLY SIGNS OF DA TOXICITY ARE THE FALL OF BODY WEIGHT AND THE DISTURBANCES OF LIVER AND KIDNEYS FUNCTION. THESE SYMPTOMS MAY BE DETECTED FROM THE 3RD TO 7TH DAY OF THE TEST AND ARE ACCOMPANIED BY PRONOUNCED MORPHOLOGICAL CHANGES IN THE PERIPHERAL BLOOD COMPOSITION. THE PATHOMORPHOLOGICAL CHANGES DEVELOPING IN POISONING BY THE INHALATION ROUTE ARE CHARACTERIZED BY THE DEVELOPMENT OF INTERSTITIAL PNEUMONIA AND BY HAEMODYNAMIC DISTURBANCES MOSTLY PRONOUNCED IN THE KIDNEYS AND THE LIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + UNION OF SOVIET SOCIALIST REPUBLICS + URANIUM

14-19432
ZLOBIN VS
ACCUMULATION OF RADIOACTIVE STRONTIUM BY BROWN MARINE ALGAE
TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 4 PAGES, 1 FIGURE, 2 TABLES, 4 REFERENCES, HYGIENE AND SANITATION, PAGE 417-420, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THESE ALGAE FROM THE BARENTS SEA WERE STUDIED IN AQUARIA. CONCLUSIONS WERE - (1) EQUILIBRIUM EXCHANGE OF STRONTIUM IN BROWN ALGAE FUCUS VESICULOSUS ET SERRATUS AND A SCOPHYLLUM NODOSUM TAKES 5 TO 7 DAYS. (2) THE HALF-ELIMINATION TIME FOR SR-89 IS 6-8 HR, THE HALF-ELIMINATION CURVE APPROXIMATING AN EXPONENTIAL CURVE. (3) AN INCREASE IN THE CONCENTRATION OF STABLE STRONTIUM IN SEA WATER UP TO 0.16 G/L REDUCES THE COEFFICIENT OF ACCUMULATION OF SR-89 BY FUCUS SERRATUS BY A FACTOR OF 3.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19433 ALSO IN CATEGORY 15

THOMPSON RC + SWEZEA EG
PACIFIC NORTHWEST LABORATORY ANNUAL REPORT, 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-480 +. 207 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

THIS REPORT COVERS WORK ON RADIATION EFFECTS - GENERAL, TOXICITY OF RADIUELEMENTS, INHALATION STUDIES, SPACE NUCLEAR SYSTEMS, COMBATING DETRIMENTAL EFFECTS OF RADIATION, MOLECULAR AND CELLULAR LEVEL STUDIES. ENVIRONMENTAL RADIATION STUDIES (TERRESTRIAL), AND ENVIRONMENTAL RADIATION STUDIES (AQUATIC). MATERIAL FROM EACH STUDY IS PRESENTED BRIEFLY. DETAILED INFORMATION WILL BE FOUND IN OPEN-LITERATURE PUBLICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, GENERAL + *RADIATION EFFECT + BATTELLE NORTHWEST +
BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS +
BIOLOGICAL CONCENTRATION, VEGETATION + INHALATION + PLUTONIUM

14-19434 ALSO IN CATEGORY 15

JOHNSTON JE
HEALTH PHYSICS AND MEDICAL DIVISION RESEARCH PROGRESS REPORT, JANUARY - DECEMBER 1966
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-PR-HPM-11 +. 61 PAGES, MARCH 1967

COVERS RESEARCH ON AEROSOLS, RADIATION PHYSICS (INCLUDING DOSIMETRY AND FALLOUT), METABOLIC STUDIES, BIOLOGICAL MEASUREMENTS, ANALYTICAL DEVELOPMENT, AND MEDICAL SERVICES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + *DOSIMETRY, GENERAL + AEROSOL + CESIUM + FALLOUT + GAMMA + IRON +
NEUTRON + POTASSIUM + RADIOLOGY + RADIUM + STRONTIUM + TRITIUM + UNITED KINGDOM

14-19436

POLACKI Z + GRODEL M
RADIOLUMINESCENCE OF STYRENE-METHYL METHACRYLATE COPOLYMERS
AEC-R-6494 +. 76 PAGES, FIGURES, REFERENCES, NUKLEONIKA 10(8), PAGE 469 THRU 540, (1965)

RADIOLUMINESCENT EFFICIENCY OF STYRENE DISSOLVED IN METHYL METHACRYLATE WAS INVESTIGATED BEFORE AND AFTER POLYMERIZATION IN RELATION TO CONCENTRATION. THE EFFICIENCY WAS FOLLOWED INDIRECTLY IN TERMS OF RELATIVE INTENSITY OF LIGHT EMISSION OF 2-(1-NAPHTHYL)-5-PHENYLOXAZOLE, WHICH HAD BEEN ADDED TO THE SOLUTIONS INVESTIGATED IN A CONSTANT PROPORTION. AS THE CONCENTRATION OF STYRENE WAS DECREASED BY DILUTION WITH METHYL METHACRYLATE, THE RADIOLUMINESCENT EFFICIENCY DIMINISHED. THEREFORE, METHYL METHACRYLATE MAY BE REGARDED AS SUBSTANCE QUENCHING THE RADIOLUMINESCENCE OF THE SOLUTION. WITH (CA 80%, 20%) STYRENE-METHYL METHACRYLATE SOLID SOLUTIONS, THE EFFICIENCY WAS EQUAL TO THAT OF POLYSTYRENE SOLUTIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DOSIMETRY, RADIOPHOTOLUMINESCENCE + POLAND

14-19482 ALSO IN CATEGORY 15

ZIRCONIUM-95 AND NIOBIUM-95 IN HUMAN LUNGS AND ATMOSPHERIC DUST DURING 1963
FRANCE. SERVICE CENTRAL DE PROTECTION CONTRE LES RAYONNEMENTS IONIS
2. PAGES, 1 TABLE, 6 REFERENCES, NATURE 212(5063), PAGE 702 AND 703, (NOVEMBER 12, 1966)

THE ACTIVITY OF ZR-95 AND NB-95 IN DAILY SAMPLES OF ATMOSPHERIC DUST AND IN POST-MORTEM LUNGS FROM PEOPLE WHO LIVED IN THE SAME AREA (NANCY, FRANCE) WERE STUDIED FOR 1963. TWENTY-FOUR AUTOPSIES WERE DONE DURING JANUARY-AUGUST (A PERIOD OF HIGH RADIOACTIVITY LEVELS) AND 20 DURING SEPTEMBER-DECEMBER (A PERIOD OF LOW LEVELS). MEASURED PULMONARY RADIOACTIVITY WAS 209.5 PICOCURIES AND 72.8 PICOCURIES FOR HIGH AND LOW PERIODS, RESPECTIVELY, COMPARED WITH 296.2 AND 69.4 FOR ICRP CALCULATION, AND 783.5 AND 253.8 FOR RUNDOS CALCULATIONS BY A MODIFICATION OF THE ICRP METHOD.

*FALLOUT + AIR + DOSE MEASUREMENT, INTERNAL + FRANCE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) +
NIOBIUM + ZIRCONIUM

14-19487

ALSO IN CATEGORY 15

COWPER G
PURPOSES, INTERPRETATION AND REQUIRED ACCURACY IN RADIATION MONITORING OF THE WORKING ENVIRONMENT
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19487 *CONTINUED*
AECL-2900 +. 7 PAGES, MAY 1967

THE PURPOSES, INTERPRETATION, AND ACCURACY REQUIRED IN THE RADIATION MONITORING OF THE WORKING ENVIRONMENT MUST CONTINUE, AS ALWAYS, TO BE BASED UPON THE BEST UNDERSTANDING OF THE ADVERSE EFFECTS OF IONIZING RADIATION UPON MAN. THE CONSENSUS OF THE BEST AVAILABLE EXPERT OPINION HAS LED TO THE RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION FOR RADIOLOGICAL PROTECTION AND IN THE MATTER OF FORMULATING CONTROLS AND CARRYING OUT PRACTICES FOR THE MONITORING OF THE WORKING ENVIRONMENT, THE FACT THAT OUR ENDEAVOURS STEM FROM THESE RECOMMENDATIONS MUST ALWAYS BE KEPT IN MIND. THE PURPOSE OF RADIATION MONITORING IS TO ASSIST THE USERS OF RADIATION TO HAVE THE HIGHEST PRODUCTIVITY AND SAFE, SATISFACTORY, WORKING CONDITIONS. THE ACCURACY OF OUR MEASUREMENTS AND THE INTERPRETATIONS WE DRAW FROM THEM MUST BE DESIGNED TO ACCOMPLISH THIS PURPOSE.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO, \$0.05 COPY

*CANADA + *MONITORING PROGRAM, ENVIRONMENTAL + CHALK RIVER + RADIATION IN PERSPECTIVE + RADIATION PROTECTION, ORGANIZATION

14-19488
FOSTER RS
INCINERATION OF PLUTONIUM CONTAMINATED WASTE MATERIALS
DOW CHEMICAL COMPANY, GOLDEN, COLO.
RFP-735 +. 27 PAGES, 1 FIGURE, 3 TABLES, 14 REFERENCES, MAY 9, 1966

PRESENT CONTAMINATED WASTE-INCINERATOR DESIGN TRENDS ARE PRESENTED ALONG WITH REFERENCES TO RECENT INCINERATION LITERATURE. CONSTANT HEAT RELEASE IS RECOMMENDED AS A BASIS FOR DESIGN OF WASTE INCINERATORS. INCINERATION COSTS WERE FOUND TO BE ONLY A SMALL PORTION OF OVERALL COSTS ASSOCIATED WITH RECOVERY OF PLUTONIUM FROM COMBUSTIBLE WASTES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE.

*INCINERATION + PLUTONIUM + ROCKY FLATS + WASTE DISPOSAL, SOLID

14-19489 ALSO IN CATEGORY 15
SIMMONS RB
DESIGN FOR RADIATION PROTECTION AT DOUGLAS POINT
ATOMIC ENERGY OF CANADA LIMITED, SHERIDAN PARK
AECL-2877 +. 49 PAGES, 19 FIGURES, TABLES, MAY 1967

SUMMARIZES THE CONSIDERATIONS IN THE DOUGLAS POINT DESIGN WHICH PROVIDE RADIATION PROTECTION FOR THE PLANT STAFF DURING NORMAL OPERATIONS. TWO BASIC ASPECTS ARE CONSIDERED - THE SHIELDING AND EXCLUSION OF PERSONNEL FROM HIGH RADIATION AREAS, AND THE LIMITATION OF THEIR CONTACT WITH CONTAMINATION.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, SHERIDAN PARK, ONTARIO, \$1.50 COPY

*RADIATION PROTECTION, ORGANIZATION + CANADA + CONTAMINATION + DECONTAMINATION + MONITORING SYSTEM, RADIATION + REACTOR DESCRIPTION + SHIELDING + VENTILATION SYSTEM + WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID

14-19490 ALSO IN CATEGORY 15
MORKEN DA + SCOTT JK
THE EFFECTS ON MICE OF CONTINUAL EXPOSURE TO RADON AND ITS DECAY PRODUCTS ON DUST
ROCHESTER UNIVERSITY
UR-669 +. 134 PAGES, FIGURES, TABLES, 79 REFERENCES, NOVEMBER 30, 1966

MICE OF THE CAF-1 STRAIN WERE EXPOSED CONTINUOUSLY BY INHALATION THROUGHOUT LIFE TO AN ATMOSPHERE OF RADON AND ITS DISINTEGRATION PRODUCTS, IN WHICH THE RADIOACTIVITY CONTENT WAS ABOUT 14,000 TIMES THE MAXIMUM AMOUNT RECOMMENDED FOR HUMAN OCCUPATIONAL EXPOSURE. THE MEDIAN LIFE SPAN DURING EXPOSURE WAS 35 WEEKS, COMPARED WITH 90 WEEKS FOR CONTROL MICE. THE ACCUMULATED LUNG DOSE OF 35 WEEKS WAS 10,000 RADS, AND ACCUMULATED WHOLE BODY DOSE 200 RADS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE.

*RADIOBIOLOGY + AEROSOL + AIR + ALPHA EMITTER + RADON + UNITED STATES

14-19493
GODBEE HW + BLANCO RE + FREDERICK EJ + CLARK WE + RAJAN
LABORATORY DEVELOPMENT OF A PROCESS FOR INCORPORATION OF RADIOACTIVE WASTE SOLUTIONS AND SLURRIES IN EMULSIFIED ASPHALT
OAK RIDGE NATIONAL LABORATORY
ORNL-4003 +. 45 PAGES, 8 FIGURES, 10 TABLES, 22 REFERENCES, JULY 1967

A PROCESS WAS DEVELOPED FOR INCORPORATING AQUEOUS INTERMEDIATE- AND LOW-LEVEL RADIOACTIVE WASTES IN ASPHALT. THE PROCESS IS DESIGNED TO PREPARE ALL THESE WASTE TYPES FOR ULTIMATE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19493 *CONTINUED*

DISPOSAL BY BURIAL OR STORAGE. ASPHALT-SALT MIXTURES CONTAINING 10 TO 80 WT% SALTS WERE PREPARED FROM THREE SIMULATED WASTES (ORNL EVAPORATOR CONCENTRATES, ALUMINUM CLADDING SOLUTIONS, AND A PUREX SECOND-PLUTONIUM CYCLE RAFFINATE, AND THREE TYPES OF COMMERCIAL EMULSIFIED ASPHALTS). PRODUCTS CONTAINING 60% SALTS REPRESENTED A GOOD COMPROMISE OF PROPERTIES (VOLUME REDUCTION - ABOUT 2, HOMOGENEITY, AND VISCOSITY - FREE FLOWING AT 130 C). THE LEACH RATES WERE 50 TO 100 TIMES LESS THAN CEMENT PRODUCTS CONTAINING SIMILAR AMOUNTS OF WASTE SALTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*WASTE TREATMENT, GENERAL + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE MANAGEMENT + WASTE SOURCE AND TYPE + WASTE TREATMENT, FIXATION

14-19494 ALSO IN CATEGORY 15

HARLEY JH

MANUAL OF STANDARD PROCEDURES

NEW YORK OPERATIONS OFFICE, AEC

NYO-4700(2ND ED.) +. 540 PAGES, FIGURES, TABLES, 1967

THIS IS A REVISED EDITION OF THE HEALTH AND SAFETY LABORATORY MANUAL OF STANDARD PROCEDURES. IT IS DIVIDED INTO SEVEN SECTIONS HAVING THE FOLLOWING HEADINGS - GENERAL, DATA SECTION, RADIATION MEASUREMENTS, SAMPLING, CHEMICAL PROCEDURES, FALLOUT METHODS, AND SPECIFICATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, GENERAL + CHEMICAL ANALYSIS + RADIOCHEMICAL ANALYSIS + SAMPLING

14-19495

WASTE MANAGEMENT RESEARCH ABSTRACTS NO. 3

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

103 PAGES, 1967, INTERNATIONAL ATOMIC ENERGY AGENCY

THIS DOCUMENT IS A COMPILATION OF ABSTRACTS OF WASTE-MANAGEMENT RESEARCH COMPLETED IN 1966 AND FORWARDED TO THE IAEA. INCLUDES CONTRIBUTIONS FROM 10 COUNTRIES. GENERAL AREAS COVERED ARE - GASEOUS WASTES TREATMENT AND DISPOSAL, LIQUID WASTE TREATMENT, SOLID WASTE TREATMENT, STORAGE AND DISCHARGE STUDIES, AND ECONOMIC STUDIES.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

*WASTE DISPOSAL, GENERAL + *WASTE MANAGEMENT + *WASTE TREATMENT, GENERAL + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + MONITORING PROGRAM, ENVIRONMENTAL + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, OCEAN + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, SOLID + WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, GAS + WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID

14-19501

ALSO IN CATEGORIES 9 AND 4

BERTA VT

SNAPTRAN EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION

PHILLIPS PETROLEUM COMPANY, IDAHO

IDO-17205 +. 161 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967

THE SNAPTRAN EXPERIMENTAL PROGRAM WAS DESIGNED TO PROVIDE NUCLEAR-SAFETY INFORMATION APPLICABLE TO SNAP 10A/2 REACTOR SYSTEMS. THE SPECIFIC DESIGNATIONS FOR THE PROGRAMS ARE - SNAPTRAN-1 (FOR THE KINETICS STUDIES IN THE NONDESTRUCTIVE REGION), SNAPTRAN-2 (FOR THE KINETIC STUDIES IN THE DESTRUCTIVE REGION), AND SNAPTRAN-3 (FOR THE SAFETY STUDIES INVOLVING REACTOR DESTRUCTION DUE TO WATER IMMERSION). THE REACTORS FOR PERFORMING THESE TESTS WERE DESIGNED AND BUILT BY ATOMIC INTERNATIONAL. THIS REPORT CONTAINS A DETAILED DESCRIPTION OF THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION USED TO OBTAIN DATA FROM THE TESTS. ALSO INCLUDED ARE DETAILED DESCRIPTIONS OF THE REACTOR SYSTEMS AND THE THEORETICAL ANALYSES WHICH FORMED THE BASIS FOR THE EXPERIMENTAL MEASUREMENTS AND INSTRUMENTATION.

AVAILABILITY - CLEARINGHOUSE FOR SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*COMPARISON, THEORY AND EXPERIENCE + *SAFETY PRINCIPLES AND PHILOSOPHY + *SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + *SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES) + DOSIMETRY, GENERAL + INSTRUMENTATION, GENERAL + MEASUREMENT, GENERAL + MONITOR, RADIATION, GENERAL + REACTOR, SPACE + REACTOR, TEST

14-19506

VAN AS AD

ENVIRONMENTAL RADIOACTIVITY AT THE NATIONAL NUCLEAR RESEARCH CENTRE, PELINDABA

ATOMIC ENERGY BOARD, PELINDABA, SOUTH AFRICA

PEL-89 +. 28 PAGES, 13 FIGURES, 16 TABLES, 11 REFERENCES, JULY 1965

REPORTS THE PREOPERATIONAL SURVEY OF ENVIRONMENTAL RADIOACTIVITY IN AND AROUND PELINDABA, THE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19506 *CONTINUED*

SITE OF THE SOUTH AFRICAN FUNDAMENTAL ATOMIC REACTOR INSTALLATION (SAFARI-I) DURING 1964. CRITICALITY OF THE REACTOR OCCURRED MARCH 18, 1965. THE ENVIRONMENTAL MONITORING PROGRAM INCLUDED STUDY OF THE AQUATIC FLORA AND FAUNA, WATER, SEDIMENT, SOIL, AIR, MILK, AND BACKGROUND.

*MONITORING PROGRAM, ENVIRONMENTAL + AIR + RIVER, GENERAL + SOIL + SOUTH AFRICA + WATER, GENERAL

14-19507 ALSO IN CATEGORY 15

SEMIANNUAL PROGRESS REPORT (ON NUCLEAR MEDICINE AND RADIATION BIOLOGY) FOR THE PERIOD ENDING, JUNE 30, 1967
UNIVERSITY OF CALIFORNIA, LOS ANGELES
UCLA-12-640 +. 90 PAGES 2 TABLES, JUNE 30, 1967

RESEARCH IS REPORTED IN THE FIELDS OF NUCLEAR MEDICINE, BIOPHYSICS, ENVIRONMENTAL RADIATION, RADIOBIOLOGY, AND BIOCHEMISTRY. SEVENTY STUDIES ARE REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

BIOMEDICAL + MONITORING PROGRAM, ENVIRONMENTAL + RADIOBIOLOGY + RADIOLOGY

14-19508

BAI D

RADIOACTIVE CONTAMINATION OF THE ATMOSPHERE, SOILS AND AGRICULTURAL PRODUCTS IN KOREA, 1961-1966
INSTITUTE OF PLANT ENVIRONMENT, KOREA
BNL-11,613 CONF-670503-19 +. 13 PAGES, 3 FIGURES, 5 TABLES, 12 REFERENCES, MAY 1967

BETWEEN 1961 AND 1966, COINCIDING WITH THE RESUMPTION OF NUCLEAR TESTS BY THE USSR ON SEPTEMBER 1, 1961, AND INCLUDING THE U.S. TEST SERIES IN 1962 AND THE THREE NUCLEAR EXPLOSIONS BY COMMUNIST CHINA, RADIOACTIVITY IN AIR, DUST, RAIN, SOILS, CROPS, AND MILK HAS BEEN MEASURED SYSTEMATICALLY THROUGHOUT THE COUNTRY OF KOREA. THE RESULTS COVERING SIX YEARS ARE SUMMARIZED IN TABLES AND FIGURES, AND BIOLOGICAL HAZARDS ARE EVALUATED. IN GENERAL, RADIOACTIVE CONTAMINATION CAN BE TRACED PRINCIPALLY TO THE NUCLEAR DETONATIONS BY RUSSIA AND RED CHINA SINCE THE HIGHEST ATMOSPHERIC CONTAMINATIONS HAVE OCCURRED WITHIN A FEW DAYS OF TESTS BY THESE COUNTRIES, ALTHOUGH AN APPRECIABLE AMOUNT OF RADIOACTIVITY WAS ALSO DETECTED IN KOREA AFTER THE U.S. TESTS.

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + MONITORING PROGRAM, ENVIRONMENTAL + SOIL + WATER, GENERAL

14-19509

FETT W

VARIATION OF ENVIRONMENTAL RADIATION DUE TO FALLOUT DEPOSITION NEAR THE EARTH'S SURFACE
5 PAGES, FIGURES, REFERENCES, ATOMPRAXIS 12(11), PP. 559-563 (1966), IN GERMAN

STUDIED THE NATURAL BACKGROUND LEVEL AND THE INCREMENT ADDED BY FALLOUT.

*ENVIRONMENTAL CONDITION + FALLOUT + GERMANY

14-19510

DEBORTOLI MC

RADIOCHEMICAL DETERMINATION OF PLUTONIUM IN SOIL AND OTHER ENVIRONMENTAL SAMPLES
EURATOM, ISPRA, ITALY
3 PAGES, 1 TABLE, REFERENCES, ANAL. CHEM., 39, PP. 375-7 (MARCH 1967)

SEVERAL PREVIOUSLY REPORTED PROCEDURES WERE TESTED, AND A RAPID AND QUANTITATIVE ELECTRODEPOSITION METHOD WAS USED FOR THE DETERMINATION OF PLUTONIUM IN AIR FILTERS AND SOIL SAMPLES. THE SEPARATION OF PLUTONIUM FROM AIR FILTERS WAS DONE BY AN ANIONIC EXCHANGE PROCEDURE BASED ON THE ADSORPTION OF IRON AND PLUTONIUM FROM 9M HCl AND ON THE SELECTIVE ELUTION OF PLUTONIUM WITH AN NCL-HF MIXTURE. A NEW ION EXCHANGE PROCEDURE, BASED ON DIFFERING STABILITIES OF THE COMPLEXES FORMED BY PLUTONIUM AND IRON WITH EDTA, WAS DEVELOPED TO SEPARATE PLUTONIUM FROM THE BULK OF IRON IN SOIL SAMPLES. THE AVERAGE CHEMICAL RECOVERY IN SOIL SAMPLES WAS 67.9%, WITH A STANDARD DEVIATION OF THE MEAN OF 32.2%. AIR FILTER SAMPLES YIELDED FOR THE CHEMICAL RECOVERY A VALUE OF 79.9%, WITH A STANDARD DEVIATION OF 15.5%.

*ANALYTICAL TECHNIQUE, GENERAL + EURATOM + ION EXCHANGE + PLUTONIUM + SOIL

14-19512

ALSO IN CATEGORY 15

OLIVER R

THE BRITISH RADIOLOGICAL PROTECTION ASSOCIATION AND THE JOINT HEALTH PHYSICS COMMITTEE
1 PAGE, NATURE, 209(5026), PP. 862 (FEBRUARY 26, 1966)

THIS NOTE OUTLINES THE EVENTS LEADING UP TO FORMATION OF THE INTERNATIONAL RADIATION PROTECTION ASSOCIATION AND DESCRIBES THE RELATION OF THE CONSTITUENT BRITISH SOCIETIES.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19512 *CONTINUED*
RADIATION PROTECTION, ORGANIZATION + UNITED KINGDOM

14-19522
GRUNDY RD + SNAVELY DR
FALLOUT FROM THE THIRD CHINESE NUCLEAR TEST - MAY 9, 1966
US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
16 PAGES, TABLES, FIGURES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(6), PP. 301-316 (JUNE 1967)

FRESH FISSION-PRODUCT DEBRIS WAS DETECTED IN THE UNITED STATES IN SELECTED ENVIRONMENTAL MEDIA AFTER THE THIRD CHINESE ATMOSPHERIC NUCLEAR DETONATION OF MAY 9, 1966. PEAK CONCENTRATIONS IN AIR, PRECIPITATION DEPOSITION, BOVINE THYROIDS, AND MILK OCCURRED IN THE CENTRAL AND SOUTHERN STATES. LEVELS OF IODINE-131 IN MILK AS OBSERVED BY 4 STATE SAMPLING PROGRAMS AND 18 U.S. PUBLIC HEALTH SERVICE PASTEURIZED MILK NETWORK STATIONS PROVIDED THE BASIS FOR CALCULATING IODINE-131 PASTURE-WEATHERING HALF-TIMES OF 4 TO 58 DAYS. A PEAK IODINE-131 MILK CONCENTRATION OF 920 PCI/LITER WAS OBSERVED IN ARKANSAS ON MAY 21, 1966. THE RESULTANT CUMULATIVE IODINE-131 INTAKE AT THIS LOCATION BASED UPON AN ASSUMED DAILY MILK CONSUMPTION OF 1 LITER, WAS CALCULATED TO CORRESPOND TO 1.7 PERCENT OF THE PROTECTIVE ACTION GUIDE AS ESTABLISHED BY THE FEDERAL RADIATION COUNCIL.

*FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, MILK + MONITORING PROGRAM, ENVIRONMENTAL + TEST, WEAPONS (HP ASPECTS)

14-19523
DATA SECTION
US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
38 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(6), PP. 317-354 (JUNE 1967)

DATA FOR ENVIRONMENTAL RADIOACTIVITY OVER VARIOUS PERIODS ARE PRESENTED IN THE FOLLOWING CATEGORIES - NATIONAL AND INTERNATIONAL SURVEILLANCE OF MILK AND FOOD; RADIOACTIVITY IN RAW SURFACE WATER AND IN DOMESTIC WATER SUPPLIES, NATIONAL AND INTERNATIONAL SAMPLING OF AIRBORNE RADIOACTIVITY, AND ENVIRONMENTAL LEVELS OF RADIOACTIVITY AT CERTAIN AEC INSTALLATIONS (BROOKHAVEN NATIONAL LABORATORY AND LAWRENCE RADIATION LABORATORY). IN ADDITION, A NOTE IS GIVEN ON A SUCCESSFUL TEST OF A COMMERCIAL SYSTEM FOR REMOVAL OF SR-90 FROM MILK. DURING MAY 1967, FOUR UNDERGROUND NUCLEAR TESTS WERE CONDUCTED AT THE AEC NEVADA TEST SITE.

*FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + MONITORING PROGRAM, ENVIRONMENTAL + WATER, DRINKING + WATER, GENERAL

14-19525
PLATT AM
FIXATION OF RADIOACTIVE RESIDUES. RESEARCH AND DEVELOPMENT ACTIVITIES QUARTERLY PROGRESS REPORT, JANUARY-MARCH 1967.
BATTELLE-NORTHWEST
BNWL-434 +. 29 PAGES, 2 FIGURES, 5 TABLES, JUNE 1967

APPROXIMATELY 800,000 CI OF RADIOACTIVITY WERE PROCESSED IN TWO POT-SOLIDIFICATION RUNS. SELF-GENERATING HEAT DENSITIES OF 16.5 AND 30 WATTS/LITER IN THE CALCINE WERE ACHIEVED IN A 12- AND AN 8-IN. POT RESPECTIVELY. THE CESIUM LEACH RATE OF MORTAR PREPARED FROM GLASS-MELTER CONDENSATE WAS REDUCED BY A FACTOR OF 10 WHEN POWDERED ZEOLITE SELECTIVE FOR CESIUM WAS ADDED. SORPTION BY HYDROUS MnO_2 IS BEING INVESTIGATED FROM THE STANDPOINT OF ION-EXCHANGE THEORY. ADSORPTION OF CE-137 AND THE INTERFERENCES OF ALKALI METAL CATIONS WITH CESIUM ADSORPTION LEND SUPPORT TO THIS INTERPRETATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00. COPY, \$0.65 MICROFICHE

*WASTE TREATMENT, FIXATION + BATTELLE NORTHWEST + WASTE TREATMENT, EQUIPMENT + WASTE TREATMENT, LIQUID

14-19526
SANDALLS FJ
THE DETERMINATION OF CALCIUM-45 IN URINE BY LIQUID SCINTILLATION COUNTING
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-M-1845 +. 6 PAGES, 2 FIGURES, 3 TABLES, 6 REFERENCES, APRIL 1967

DESCRIBES A SIMPLE METHOD FOR DETERMINING CA-45 IN URINE IN WHICH A BUFFERED SOLUTION OF AMMONIUM OXALATE IS ADDED TO 50 ML OF URINE TO PRODUCE A PRECIPITATE OF CALCIUM OXALATE. THIS PRECIPITATE IS DISSOLVED IN ACID, REPRECIPITATED AND COUNTED AS A GEL SUSPENSION IN A LIQUID SCINTILLATION COUNTER. THE OVERALL RECOVERY OF CA-45 IS QUANTITATIVE AND, WITH A PACKARD TRICARB 3214 LIQUID SCINTILLATION SPECTROMETER, A COUNTING EFFICIENCY OF 90% IS ACHIEVED. THE COUNTING EFFICIENCY IS INSENSITIVE TO QUITE LARGE VARIATIONS IN THE WEIGHT OF OXALATE PRECIPITATE. THE MINIMUM LEVEL OF DETECTION IS 22 PCI/1400 ML OF URINE, WHICH IS LOWER THAN THE INVESTIGATION LEVEL BY A FACTOR OF GREATER THAN 100.

AVAILABILITY - HER MAJESTY'S STATIONERY OFFICE, LONDON

*ANALYTICAL TECHNIQUE, URINE + CALCIUM + COUNTER + HARWELL (UK) + RADIOCHEMICAL ANALYSIS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19531

HOOD DS

A PROBABILISTIC TREATMENT OF A RADIOISOTOPIC FUEL RELEASE IN SHALLOW WATER
MARTIN COMPANY

2 PAGES, 1 TABLE, 4 REFERENCES, ANS TRANS. 10(1), PAGES 5-6, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

THE GENERAL PROBABILISTIC TREATMENT OF HAZARDS FROM SPACE APPLICATION OF NUCLEAR SYSTEMS (RURVE AND ANDERSON) PROVIDED FOR COMPARISON OF RISKS FROM VARIOUS HAZARDS. THE EXPECTED NUMBER OF PEOPLE INVOLVED IN A HAZARD WAS DEFINED AS THE PRODUCT OF THE NUMBER OF PEOPLE RECEIVING A PARTICULAR DOSE AND THEIR PROBABILITY OF RECEIVING THE DOSE. THIS APPROACH HAS BEEN APPLIED TO INGESTION HAZARD AFTER RELEASE OF PO-210 IN SHALLOW OCEAN. THE EXPECTED NUMBERS OF PEOPLE INVOLVED ARE LESS THAN LIMITS EXTRACTED FROM TENTATIVE GUIDELINES.

*DOSE CALCULATION, INTERNAL + POLONIUM + RADIOISOTOPE

14-19532

PERKINS RW + NIELSEN JM

DEPOSITION OF A WIDE SPECTRUM OF RADIONUCLIDES IN THE FOOD CHAIN BY NUCLEAR PRODUCTION AND TESTING OPERATIONS

BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-SA-993 + CONF-670313-1 +. 18 PAGES, FIGURES, TABLES, FROM INTERNATIONAL CONFERENCE ON ENVIRONMENTAL RADIOLOGICAL PROTECTION CONNECTED WITH THE DEVELOPMENT OF THE PEACEFUL USES OF NUCLEAR ENERGY, TOULOUSE, FRANCE, FEB. 20, 1967

RADIONUCLIDE DISTRIBUTIONS AND CONCENTRATIONS WERE MEASURED IN THE ALASKAN FOOD CHAIN, OLYMPIC NATIONAL PARK, COLUMBIA RIVER FISH, FARM PRODUCE IRRIGATED WITH COLUMBIA RIVER WATER, AND SURFACE WATER AND MARINE ORGANISMS IN THE COLUMBIA RIVER PLUME. THROUGH RECENT DEVELOPMENTS IN MULTIDIMENSIONAL GAMMA-RAY SPECTROMETRY, IT IS POSSIBLE TO MAKE DIRECT QUANTITATIVE MEASUREMENTS OF SOME RADIONUCLIDES AT CONCENTRATIONS OF A FEW TENTHS OF A MICROMICROCURIE IN THE PRESENCE OF SEVERAL-THOUSAND-TIMES-GREATER CONCENTRATIONS OF OTHER RADIONUCLIDES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *SPECTROMETRY, GAMMA + BATTTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + CHROMIUM + COBALT + ECOLOGICAL CONSIDERATION + SCANDIUM + SODIUM + WATER, IRRIGATION + ZINC

14-19533

ROMNEY EM + MORK HM

AIR-BORNE RADIOACTIVITY IN FALLOUT AREAS

UNIVERSITY OF CALIFORNIA SCHOOL OF MEDICINE

UCLA-12-628 +. 16 PAGES, 7 TABLES, 4 REFERENCES

MEASUREMENTS OF AIRBORNE RADIOACTIVITY WERE INCLUDED IN ASSESSMENT PROGRAMS TO CHARACTERIZE FALLOUT FROM NUCLEAR DETONATIONS DURING THE 1952, 1953, 1955, AND 1957 WEAPONS-TESTING SERIES CONDUCTED AT NEVADA TEST SITE. SUMMARIZED ARE SOME FINDINGS ON THE PERSISTENCE OF AIRBORNE RADIOACTIVITY IN FALLOUT AREAS, SOME PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE RADIOACTIVE AEROSOL, AND SOME LIMITATIONS OF CONVENTIONAL AIR-SAMPLING DEVICES FOR MEASURING CONCENTRATIONS OF AIRBORNE RADIOACTIVITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + AIR + AIRBORNE RELEASE + TEST, WEAPONS (HP ASPECTS)

14-19534

LAI JR + FREILING EC

RADIONUCLIDE FRACTIONATION AND LEACHING OF TRANSIENT NUCLEAR TEST DEBRIS

NAVAL RADIOLOGICAL DEFENSE LABORATORY

CONF-670 602 +. 2 PAGES, 1 TABLE, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967, ANS TRANS. 10(1) PAGES 3-4

THE TRANSIENT NUCLEAR TEST, WHICH WAS CONDUCTED BY LOS ALAMOS SCIENTIFIC LABORATORY (LASL) ON JANUARY 12, 1965, OFFERED AN OPPORTUNITY TO STUDY PROPERTIES OF DEBRIS FROM A NUCLEAR TYPE OF DESTRUCT. CONSEQUENTLY, SELECTED DEBRIS SAMPLES WERE EXAMINED FOR PARTICLE PROPERTIES, RADIATION PROPERTIES, RADIOCHEMICAL COMPOSITION, AND RADIONUCLIDE SOLUBILITY.

*FALLOUT + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + TEST (TRANSIENT TEST REACTOR FACILITY)

14-19535

ALSO IN CATEGORY 15

DUSH WR

CATEGORY 14
RADIOISOTOPE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19535 *CONTINUED*
TRITIUM HAZARDS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER
AECL-2594 +. 16 PAGES, JUNE 1966

THIS LECTURE WAS BASED ON VARIOUS TALKS ON THE RADIATION HAZARDS OF TRITIUM OXIDE WHICH HAVE BEEN GIVEN BY THE AUTHOR TO PROCESS OPERATORS AND SUPERVISORS, LABORATORY TECHNICIANS, AND MECHANICAL TRADESMEN. THE ABSORPTION OF TRITIUM OXIDE INTO THE BODY THROUGH THE SKIN AND LUNGS, ITS EXCRETION IN URINE, AND THE ADMINISTRATIVE CONTROLS (REMOVAL, CAUTION, MINOR, AND NEGLIGIBLE) ARE DESCRIBED. THE CONCENTRATION OF TRITIUM IN AIR, EXPRESSED AS MPCA, AND THE RADIATION DOSE RESULTING FROM A NUMBER OF MPCA-HOURS OF EXPOSURE ARE EXPLAINED. FINALLY, THE METHODS FOR PROTECTING AGAINST TRITIUM (VENTILATION, AIR-SUPPLIED MASKS, AND PLASTIC CLOTHING) ARE DISCUSSED.

AVAILABILITY - ATOMIC ENERGY OF CANADA LTD., \$.50 COPY

*TRITIUM + AIRBORNE RELEASE + CHALK RIVER + CONTAMINATION + DOSE

14-19537
DAVIS BM + SEBBA F
THE REMOVAL OF RADIOACTIVE CAESIUM CONTAMINANTS FROM SIMPLE AQUEOUS SOLUTIONS
UNIVERSITY OF WITWATERSRAND, SOUTH AFRICA
4 PAGES, 6 FIGURES, 7 REF., J. APPLIED CHEMISTRY (LONDON), 17(2), PAGE 40-43, (FEBRUARY 1967)

CS IONS CAN BE REMOVED FROM AQUEOUS SOLUTIONS BY FORMING A PRECIPITATE OF COPPER FERROCYANIDE WHICH, HAVING OCCLUDED THE CS IONS, CAN IN TURN BE FLOATED BY MEANS OF AN ANIONIC COLLECTOR. COLLECTION WAS ACHIEVED WITH EITHER ALPHA-SULPHOPALMITIC ACID OR SODIUM DODECYL SULPHATE, DEPENDING ON WHAT INTERFERING IONS WERE PRESENT IN THE SOLUTION. RECOVERIES OF 98-99% WERE OBTAINED IN BATCH-SCALE EXPERIMENTS, AND 97.5-98.5% IN CONTINUOUS OPERATION. THE INVESTIGATIONS OF THE FLOTATION PARAMETERS OF PH, GAS RATE, CONCENTRATIONS OF PRECIPITATING REAGENTS AND COLLECTOR, AS WELL AS THE INTERFERENCE EFFECTS OF OTHER IONS ARE DISCUSSED. USING DATA OBTAINED IN BATCH-SCALE TESTS, CONTINUOUS EXPERIMENTS WERE DESIGNED AND OPERATED.

*RADIOCHEMICAL PROCESSING + CESIUM + SOUTH AFRICA

14-19538
TADMOR J + GALRON H
RELATIVE HAZARDS OF FISSION PRODUCTS IN THE ENVIRONMENTAL HAZARDS EVALUATION OF NUCLEAR REACTORS
ISRAEL ATOMIC ENERGY COMMISSION, YAVNE, SOREQ NUCLEAR RESEARCH CENTER
IA-1090 +. 35 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 1966

THE STUDY PRESENTS THE ABSOLUTE AND RELATIVE HAZARDS OF THE DIFFERENT FISSION PRODUCTS, FROM THE POINT OF VIEW OF THE HAZARDS EVALUATION OF NUCLEAR REACTORS, TAKING INTO CONSIDERATION EXTERNAL IRRADIATION FROM A CLOUD AND FROM CONTAMINATED LAND, AND INTERNAL IRRADIATION FROM RADIOISOTOPES THAT ENTER THE HUMAN BODY VIA THE RESPIRATORY SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FISSION PRODUCT RELEASE, GENERAL + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + HAZARDS ANALYSIS + ISRAEL

14-19539
CORDES OL + BUNCH DF + FIELDING JR + WARKENTIN JK
RADIOLOGICAL ASPECTS OF THE SNAPTRAN-2 DESTRUCTIVE TEST
PHILLIPS PETROLEUM CO.
IDC-17203 +. 45 PAGES, 30 FIGURES, 10 TABLES, 14 REFERENCES, FEBRUARY 1967

RADIOLOGICAL INFORMATION OBTAINED FROM MONITORING A PLANNED DESTRUCTIVE EXCURSION OF A MODIFIED SNAP 10A/2 REACTOR IS DESCRIBED IN THIS REPORT ALONG WITH THE SAMPLING AND ANALYTICAL TECHNIQUES USED TO OBTAIN THE INFORMATION. AN ANALYSIS OF THE DATA IS INCLUDED WHICH INDICATES THAT ONLY 21 PERCENT OF THE FISSION PRODUCTS WERE RELEASED, THAT THE RADIATION HAZARDS WERE LOW, AND THAT THE BERYLLIUM FROM THE REACTOR DRUMS AND REFLECTORS DID NOT PRODUCE A HEALTH HAZARD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIOACTIVITY, RELEASE + IDAHO FALLS + METEOROLOGICAL SUPPORT + MONITORING PROGRAM, ENVIRONMENTAL + REACTOR, SAFETY RESEARCH + SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES)

14-19657
DOGGETT WO + BRYAN FA + JOHNSON T
RADIOLOGICAL RECOVERY REQUIREMENTS, STRUCTURES, AND OPERATIONS RESEARCH. VOLUME I. CALCULATIONAL TECHNIQUE FOR DETERMINING IMPORTANCE OF LIMITED STRIP DECONTAMINATION PROCEDURES. VOLUME II. DAMAGED PF MULTIPLIER
RESEARCH TRIANGLE INST., DURHAM, N. C.
R-OU-266 (VOL. 1 AND 2) + USNRDL-TRC-67-2 AND 4 +. 265 PAGES, FIGURES, TABLES, REFERENCES, MAY 1967

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19657 *CONTINUED*

VOL. I OF THIS REPORT CONTAINS A DESCRIPTION OF THE CONSTIP III COMPUTER PROGRAM. THIS PROGRAM CALCULATES THE PENETRATION OF RADIATION FROM A UNIFORMLY CONTAMINATED HORIZONTAL RECTANGULAR SOURCE AREA THROUGH A SHIELDING WALL TO A POINT DETECTOR. THE PROGRAM WAS COMPLETELY CHECKED AGAINST HAND CALCULATIONS, AND THE OUTPUT WAS COMPARED WITH PUBLISHED EXPERIMENTAL AND THEORETICAL RESULTS FOR SEVERAL REPRESENTATIVE PROBLEMS. THE PROGRAM IS SHOWN TO BE IN GOOD AGREEMENT WITH THESE OTHER DATA AND IS BELIEVED TO BE AN IMPROVEMENT OVER PREVIOUS TECHNIQUES FOR SOLUTION OF THE BARRIER SHIELD PROBLEM. VOL. II CONTAINS THE THEORETICAL DEVELOPMENT AND A DEMONSTRATION OF A DAMAGED-PROTECTION-FACTOR MULTIPLIER. THE MULTIPLIER IS PREPARED FOR MULTIPLYING THE UNDAAGED PROTECTION FACTOR TO OBTAIN AN ESTIMATE OF THE PROTECTION FACTOR AFTER STRUCTURAL DAMAGE. THE VARIABLES SELECTED OFFER PROMISE OF EXPLAINING A LARGE FRACTION OF THE CHANGE IN PROTECTION FACTOR CAUSED BY DAMAGE TO A STRUCTURE. METHODS OF TESTING THE MODEL ARE PRESENTED.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*CIVIL DEFENSE + COMPUTER PROGRAM + COMPUTER, DIGITAL + DECONTAMINATION + UNITED STATES

14-19658 ALSO IN CATEGORY 15

WONG P

A FORTRAN PROGRAM TO DETERMINE ABSORBED ORGAN DOSE DUE TO INHALATION OF RADIONUCLIDES
NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIF.
USNRDL-TR-67-7 +. 115 PAGES, FIGURES, TABLES, 16 REFERENCES, JANUARY 11, 1967

A FORTRAN COMPUTER PROGRAM SYSTEM WAS DEVELOPED TO DETERMINE THE MAXIMUM INTERNAL DOSE RECEIVED BY A GIVEN BODY ORGAN AS A RESULT OF INHALATION OF SPECIFIC RADIONUCLIDES. THE PROGRAM, BASED ON EQUATIONS REPORTED IN THE LITERATURE, DETERMINES THE EFFECTIVE ENERGY ABSORBED BY THE BODY ORGAN PER DISINTEGRATION OF THE RADIONUCLIDE AND COMPUTES THE ABSORBED ORGAN DOSE FOR VARIOUS PERIODS OF INTAKE FOR SINGLE OR CONTINUOUS RELEASE AND FOR VARIOUS PERIODS OF INTERNAL EXPOSURE. THE ORGAN DOSE INCLUDES EFFECTS FROM ALL DESCENDANTS OF THE NUCLIDE ORIGINALLY CONSIDERED TO HAVE ENTERED THE BODY ORGAN. TABULATED RESULTS FOR 133 RADIONUCLIDES AND THEIR CONTRIBUTIONS TO THE DOSE TO SEVEN BODY ORGANS AND THE WHOLE BODY ARE PRESENTED. INPUT TO THE FORTRAN COMPUTER PROGRAM MAY BE MODIFIED TO YIELD RESULTS FOR OTHER RADIONUCLIDES OR BODY ORGANS. THE PROGRAM MAY ALSO BE USED TO DETERMINE (BY SUMMING) THE TOTAL ABSORBED ORGAN DOSE FOR A MIXTURE OF FISSION PRODUCTS IF THE CONCENTRATION IN AIR OF EACH MAJOR CONTRIBUTOR AT INITIAL INTAKE TIME IS KNOWN.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*DOSE CALCULATION, INTERNAL + COMPUTER PROGRAM + COMPUTER, DIGITAL + UNITED STATES

14-19659 ALSO IN CATEGORY 15

PERMISSIBLE LEVELS OF RADIATION

1 PAGE, 5 REFERENCES, BRITISH MEDICAL JOURNAL 1, PAGE 1374 (JUNE 4, 1966)

THE EVENTUAL RADIATION DOSE INCURRED BY THE POPULATION OF THE UNITED KINGDOM FROM NUCLEAR WEAPON TESTS CARRIED OUT UP TO THE END OF 1965 WILL BE MUCH LESS THAN THE DOSE DELIVERED BY THE NATURAL BACKGROUND OF COSMIC RAYS AND TERRESTRIAL RADIOACTIVITY. THE NUMBER OF CASES OF LEUKEMIA AND OTHER MALIGNANT DISEASES ATTRIBUTABLE TO FALLOUT FROM THESE TESTS SHOULD NOT EXCEED FIVE PER MILLION OF POPULATION AND MAY BE MUCH LESS. THE INCIDENCE OF VISIBLE GENETIC ABNORMALITY IN THE NEXT GENERATION MAY BE ABOUT ONE CASE PER MILLION OF EXPOSED POPULATION. COUNTERMEASURES AGAINST FALLOUT ARE NOT PRACTICABLE ON A LARGE SCALE.

*FALLOUT + DOSE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + STRONTIUM + TEST, WEAPONS (HP ASPECTS) + UNITED KINGDOM

14-19660 ALSO IN CATEGORY 15

FALLOUT RADIATION AND GROWTH

1 PAGE, 2 REFERENCES, BRITISH MEDICAL JOURNAL 1, PAGE 1132 (MAY 7, 1966)

SEVERAL RECENT REPORTS ON GROWTH RETARDATION OF IRRADIATED CHILDREN ARE REVIEWED BRIEFLY. STUDIES OF THE EFFECTS OF THE ATOMIC EXPLOSIONS IN NAGASAKI AND HIROSHIMA HAVE SHOWN, AMONG OTHER THINGS, THE RISK OF ANENCEPHALY OR MICROCEPHALY IN CHILDREN BORN TO MOTHERS EXPOSED IN EARLY PREGNANCY. GROWTH RETARDATION OCCURRED IN CHILDREN WHO WERE EXPOSED TO HEAVY FALLOUT RADIATION ON TWO ATOLLS IN THE MARSHALL ISLANDS IN MARCH 1954 AFTER THE EXPERIMENTAL DETONATION OF A THERMONUCLEAR DEVICE OVER BIKINI ATOLL. RETARDATION WAS FOUND IN BOTH STATURE AND SKELETAL MATURATION IN BOYS WHO WERE LESS THAN 5 YEARS OLD WHEN EXPOSED TO THE RADIOACTIVITY, AND THIS WAS MOST EVIDENT IN THOSE WHO WERE EXPOSED AT AGES BETWEEN 12 AND 18 MONTHS. THERE WAS NO SIGNIFICANT DIFFERENCE BETWEEN EXPOSED GIRLS AND THE CONTROLS.

*FALLOUT + RADIATION EFFECT + RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY + TEST, WEAPONS (HP ASPECTS) + UNITED KINGDOM

14-19661

PRESS RELEASE - PHS - HEW, RADIOACTIVITY IN MILK
U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE
HEW-R46 +. 4 PAGES, AUGUST 4, 1967

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19661 *CONTINUED*

THIS PRESS RELEASE INCLUDES VALUES, IN PICOCURIES PER LITER OF PASTURIZED MILK, FOR (1) AVERAGE DAILY CONCENTRATIONS OF I-131 FOR MAY 1967 AND SR-89 AND SR-90 FOR APRIL 1967, (2) 12-MONTH TOTALS FOR I-131 AND SR-90 INCLUSIVE OF THE DATA PROVIDED IN THIS RELEASE. NO VALUES CAUSED CONCERN.

AVAILABILITY - U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE, WASHINGTON, D. C. 20201

*FALLOUT + BIOLOGICAL CONCENTRATION, MILK + IODINE + STRONTIUM

14-19662

CARLESON G

HIGH LEVEL RADIOACTIVE WASTES

AKTIEBOLAGET ATOMENERGI, SWEDEN

6 PAGES, 3 FIGURES, 19 REFERENCES, SVENSK KEM TIDS 79(2) PAGES 136-141 (1967) IN SWEDISH

SURVEYS THE RESEARCH AND DEVELOPMENT WORK PERFORMED AT THE SWEDISH ATOMIC ENERGY COMPANY FOR THE HANDLING, SEPARATION, CONCENTRATION, AND ULTIMATE DISPOSAL OF MEDIUM AND HIGH ACTIVITY WASTES WHICH ARE OBTAINED AT A RESEARCH STATION, A REACTOR SITE, OR A REPROCESSING FACILITY. MOST OF THE DEVELOPMENT WORK HAS BEEN DIRECTED TO STUDIES OF WAYS FOR THE CONCENTRATION OF WASTES BY ION EXCHANGE OR FREEZING TECHNIQUES WHICH ARE PRESENTED MORE IN DETAIL.

FUEL REPROCESSING + SWEDEN + WASTE DISPOSAL, GENERAL + WASTE-MANAGEMENT

14-19666

ALSO IN CATEGORY 17

PATHFINDER REPORTS MAIN CONDENSER TUBE-LEAK

NORTHERN STATES POWER COMPANY

3 PAGES, OCTOBER 27, 1967, DOCKET 50-130

(LETTER OCT. 27, 1967 TO AEC) - (SEPT. 16, 1967) CIRCUMFERENTIAL BREAK NEAR TUBE SHEET CAUSED SHUTDOWN. DURING DRAINING OF CONDENSER-WATER BOXES, RADIOACTIVITY REACHED THE COOLING TOWER AFTER THE SAMPLE WAS TAKEN ON WHICH A ROUTINE DISCHARGE WAS BASED. COOLING-TOWER BLOWDOWN WAS THEN USED TO DILUTE A SCHEDULED WASTE RELEASE, RESULTING IN A HIGHER-THAN-NORMAL RELEASE. SAMPLES PLACED AN UPPER LIMIT ON THE EFFLUENT. CONCENTRATION AT 2.64×10^{-5} TH) MICROCURIE/CC, MOSTLY ZN-65 (2.46×10^{-5} TH) AND NA-24 (1.8×10^{-6} TH).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HEAT EXCHANGER + *INCIDENT, ACTUAL, EQUIPMENT + *INCIDENT, ACTUAL, HUMAN ERROR + *RADIOACTIVITY, RELEASE + *WASTE DISPOSAL, LIQUID + FAILURE, TUBING + HEAT SINK + PATHFINDER + REACTOR, INTERNAL SUPERHEAT + ZINC

14-19686

ALSO IN CATEGORY 16

BYKHOVSKY AV + ZARAEV OM

OBSERVATION OF HOT RADIOACTIVE PARTICLES IN THE ATMOSPHERIC AIR DURING 1962-64

7 PAGES, 5 FIGURES, 2 TABLES, GIGIENA Y SANITARIIA 30(11), PAGES 47-54 (NOVEMBER 1965)

PRESENTS FINDINGS OF SYSTEMATIC OBSERVATIONS OVER THE CONTENT OF RADIOACTIVE AEROSOLS IN THE ATMOSPHERE. THE FILTERS, THROUGH WHICH 150-200 THOUSAND CUBIC METERS OF THE AIR WERE DRAWN, WERE ASSAYED AUTORADIOGRAPHICALLY. SEPARATE HOT PARTICLES WERE ISOLATED FROM THE FILTER AND SUBJECTED TO GAMMA SPECTROMETRY. BY MEANS OF A SECOND AUTORADIOGRAPHY, A NOMOGRAPH WAS DRAWN FOR CONVERTING THE RESULTS OF AUTORADIOGRAPHIC ASSAY OF FILTERS INTO VALUES EXPRESSING THE ACTIVITY OF SEPARATE AEROSOL PARTICLES. THE DATA POINT TO AN ABRUPT FALL IN THE CONCENTRATION OF HOT AEROSOL PARTICLES IN THE ATMOSPHERE DURING THE PERIOD 1963-64, WHEN THE TESTS OF NUCLEAR WEAPONS IN THE ATMOSPHERE WERE CEASED.

*AEROSOL, RADIOACTIVE + *SAMPLING + *UNION OF SOVIET SOCIALIST REPUBLICS + CONCENTRATION, AREA + FALLOUT + NUCLEAR EXPLOSION DEBRIS

14-19765

DUTTON JW

DETECTION OF THORIUM-234/PROTACTINIUM-234M IN SEDIMENTS FROM THE RIBBLE ESTUARY, LANCASHIRE ENGLAND

MINISTRY OF AGRICULTURE, FISHERIES, AND FOOD, LOWESTOFT, ENGLAND

2 PAGES, 3 FIGURES, 1 TABLE, 2 REFERENCES, NATURE 211, PAGES 1395-6 (SEPT. 24, 1966)

GAMMA SPECTROMETRIC ANALYSIS OF DRIED SAMPLES OF SILT AND SAND COLLECTED AT THE ESTUARY OF THE RIBBLE RIVER CONFIRMED THE PRESENCE OF NATURALLY OCCURRING K-40 AND RU-106 AND ZR-95 FROM THE WINDSCALE REACTOR EFFLUENTS. ALL THE ACTIVITY CONCENTRATIONS WERE CONSIDERABLY LESS THAN THOSE WHICH COULD RESULT IN A SIGNIFICANT RADIATION DOSE TO PEOPLE OR TO MARINE ORGANISMS.

*MONITORING PROGRAM, ENVIRONMENTAL + ESTUARY + PROTACTINIUM + RADIOACTIVITY, RELEASE + THORIUM + UNITED KINGDOM

14-19767

PARKER FL

DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTES INTO THE OCEANS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19767 *CONTINUED*
OAK RIDGE NATIONAL LABORATORY
7 PAGES, 3 TABLES, 60 REFERENCES, NUCLEAR SAFETY 8(4), PAGES 376-382 (SUMMER 1967)

DISPOSAL OF LOW-LEVEL RADIOACTIVE WASTES INTO THE OCEANS IS INCREASING, BUT TO DATE SUCH DISPOSALS ARE NEGLIGIBLE IN COMPARISON WITH FALLOUT IN THE OCEAN. INTERNAL DOSES TO POPULATIONS HAVE LIMITED DISCHARGE IN SOME CASES, BUT EXTERNAL DOSES HAVE ALSO LIMITED THE DISCHARGES FROM OTHER SITES. THE EFFECT OF SUCH DISCHARGES ON THE BIOTA HAS NOT YET BEEN RESOLVED.

*DOSE + *WASTE DISPOSAL, OCEAN + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + OCEAN AND SEA + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID

14-19768 ALSO IN CATEGORY 15
AUXIER JA
DOSIMETRY AND EXPOSURES IN NUCLEAR ACCIDENTS
OAK RIDGE NATIONAL LABORATORY
4 PAGES, 2 FIGURES, 2 TABLES, 12 REFERENCES, NUCLEAR SAFETY 8(4), PAGES 382-85 (SUMMER 1967)

DURING THE PAST 2 YEARS, THERE HAVE BEEN SEVERAL DEVELOPMENTS IN DOSIMETRY FOR NUCLEAR ACCIDENTS, AND THERE HAS BEEN ONE REACTOR ACCIDENT. THE MOST IMPORTANT DOSIMETRIC DEVELOPMENT WAS THE SOLID-STATE TRACK DETECTOR FOR USE WITH THE FISSION-FOIL DETECTOR. LITTLE SPECIFIC INFORMATION HAS BEEN MADE AVAILABLE ON THE NUCLEAR ACCIDENT, WHICH OCCURRED AT MOL, BELGIUM, ON DEC. 30, 1965.

*ACCIDENT, CRITICALITY + *DOSIMETRY, GENERAL + ACCIDENT, CONTROL ROD WITHDRAWAL + BELGIUM + DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, EXTERNAL + NEUTRON + ORNL (OAK RIDGE NATIONAL LABORATORY) + SOLID STATE DEVICE

14-19769
BROOKSBANK RE + MCDUFFIE WT
CURRENT PRACTICES IN THE DISPOSAL OF RADIOACTIVE WASTES FROM FUEL-FABRICATION FACILITIES
OAK RIDGE NATIONAL LABORATORY
6 PAGES, 2 TABLES, 15 REFERENCES, NUCLEAR SAFETY 8(4), PAGES 385-90 (SUMMER 1967)

REVIEWS CURRENT PRACTICES OF TYPICAL COMMERCIAL NUCLEAR FUEL-FABRICATION FIRMS IN THE U.S. IN STORING AND HANDLING WASTES. BOTH THE SOURCES AND THE TYPES OF WASTE GENERATED IN NORMAL FUEL FABRICATIONS BY A 12-MEMBER GROUP OF FIRMS SURVEYED BY QUESTIONNAIRE AND PERSONAL CONTACT ARE DESCRIBED. TYPICAL PRACTICES AND TECHNIQUES IN HANDLING, STORAGE, AND DISPOSAL OF WASTES, INCLUDE BALING AND/OR DRUMMING OF COMPRESSIBLE WASTES, INCINERATION OF COMBUSTIBLE WASTES COUPLED WITH INCORPORATION OF THE ASH IN CONCRETE IN STEEL DRUMS EQUIPPED WITH HEAVY-DUTY FORGED CLOSURE RINGS, INCORPORATION OF BOTH LIQUID AND SOLID NONCOMBUSTIBLE WASTES IN CONCRETE OR CONCRETE-VERMICULITE MIXTURES IN STEEL DRUMS, AND THE TREATMENT AND DISPOSAL OF THE LARGE-VOLUME WASTES, SUCH AS VENTILATION AIR AND COOLING WATER. THE HEALTH AND SAFETY ASPECTS OF THESE ARE DISCUSSED BRIEFLY, AND APPLICABLE REGULATIONS ARE INCLUDED IN THE LIST OF REFERENCES.

*WASTE DISPOSAL, GENERAL + BALING + INCINERATION + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID + WASTE MANAGEMENT + WASTE STORAGE + WASTE TREATMENT, FIXATION

14-19770 ALSO IN CATEGORY 15
ELLISON TW + DUNHAM AE
DOSE B - A CDC 6600 PROGRAM FOR CALCULATION OF INHALATION AND EXTERNAL DOSE FOR ESTABLISHING REACTOR SITING DISTANCE REQUIREMENTS
KNOLLS ATOMIC POWER LAB., SCHENECTADY, N. Y.
KAPL-M-6592 +. 36 PAGES, JANUARY 16, 1967

THE DOSE B PROGRAM WAS WRITTEN TO FACILITATE THE CALCULATION OF DISTANCE FACTORS FOR NUCLEAR REACTOR SITES AS DESCRIBED IN THE WELL-KNOWN USAEC DOCUMENT, CALCULATION OF DISTANCE FACTORS FOR POWER AND TEST REACTOR SITES, TID-14844. THE CALCULATIONS ARE ESSENTIALLY AS DESCRIBED IN THIS DOCUMENT EXCEPT THAT THE DOSE CODE ALLOWS FOR ARBITRARY OPERATING-POWER HISTORIES AND VARIABLE CONTAINMENT-LFAK RATES. THE PROGRAM CALCULATES THE THYROID AND DIRECT GAMMA DOSES RECEIVED BY AN INDIVIDUAL STANDING AT A DISTANCE D FROM THE POINT OF FISSION PRODUCT RELEASE FOR A TIME TAU SUBSEQUENT TO THE TIME OF RELEASE AND BASED UPON A GIVEN REACTOR OPERATING HISTORY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*SITING, REACTOR + COMPUTER PROGRAM + COMPUTER, DIGITAL + CONTAINMENT LEAKAGE CONTROL + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + GAMMA + KAPL (KNOLLS ATOMIC POWER LABORATORY)

14-19803 ALSO IN CATEGORY 15
HANNISDAHL B + STROMME A
RADIOACTIVITY IN CIVILIAN NORWEGIAN PILOTS
SCANDINAVIAN AIRLINES SYSTEM, OSLO + STATE INSTITUTE OF RADIATION HYGIENE, MONTEBELLO
2 PAGES, 1 FIGURE, 1 TABLE, 3 REFERENCES, AEROSPACE MEDICINE 38(5), PAGES 521-22 (MAY 1967)

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19803 *CONTINUED*

A STUDY OF RADIOACTIVITY USING CS-137 AS THE RADIOACTIVE AGENT WAS MADE IN A GROUP OF CIVILIAN NORWEGIAN PILOTS WHOSE AGES WERE BETWEEN 35 AND 45 YEARS AND OF AVERAGE HEIGHT AND WEIGHT. TO COMPARE THE RESULTS OF THE DATA OBTAINED FROM THE PILOTS WITH THAT OF OTHER GROUPS OF THE POPULATION, THREE GROUPS WERE SELECTED - (1) A GROUP OF ADULT MEN WITH SIMILAR CHARACTERISTICS AS THE PILOTS, FROM A COMMUNITY ON THE WEST COAST OF NORWAY WHERE RADIOACTIVE FALLOUT HAS BEEN ESPECIALLY HIGH, (2) A GROUP OF MEN FROM OSLO, AND (3) A GROUP OF SCHOOL YOUNGSTERS. THE RESULTS SHOWED THAT THE RADIOACTIVE EFFECT IN THE PILOTS WAS ABOUT THE SAME LEVEL AS THAT FOR MEN LIVING IN OSLO, AND MUCH LOWER THAN THAT IN THE OTHER GROUPS.

*FALLOUT + CESIUM + ENVIRONMENTAL CONDITION + NORWAY

14-19905

ANGINO EE + SIMEK JE + DAVIS JA
FIXING OF FALLOUT MATERIAL BY FLOATING MARINE ORGANISMS, SARGASSUM FLUITANS AND S. NATANS
TEXAS A AND M UNIVERSITY
6 PAGES, 1 FIGURE, 3 TABLES, REFERENCES, PUB. INST. MARINE SCIENCE 10, PAGES 173-8 (JUNE 1965)

GAMMA SPECTROMETRY STUDIES (OCTOBER 1963) OF SARGASSUM FLUITANS AND S. NATANS, A FREE FLOATING MARINE ALGAE COMMON TO THE CARIBBEAN AREA, INDICATED CONCENTRATION OF SEVERAL RADIONUCLIDES. OF THESE ZR-95, CE-144, PR-144, CS-137, RU-103--RH-103, RU-106--RH-106, AND MN-54 WERE DETECTED. OTHER RADIONUCLIDES WERE STRONGLY INDICATED BUT NOT POSITIVELY IDENTIFIED. INASMUCH AS THE Z OF NONE OF THE ISOTOPES IDENTIFIED EXCEEDS 92, IT IS CLEAR THAT THE ACTIVITY PRESENT CANNOT BE ATTRIBUTED TO THE NATURAL RADIOACTIVITY KNOWN TO EXIST IN A NORMAL MARINE ENVIRONMENT.

*FALLOUT + *OCEAN AND SEA + BIOLOGICAL CONCENTRATION, ALGAE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS +
CERIUM + CESIUM + GROSS BETA + GROSS GAMMA + MANGANESE + PRASEODYMIUM + RHODIUM + RUTHENIUM +
UNITED STATES + ZIRCONIUM

14-19807 ALSO IN CATEGORY 15

BOUTOT P + SCHIFFER P
DETERMINATION OF A CLEANING AND DECONTAMINATION PROCESS USING SOLVENTS.
COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN, FRANCE. CENTRE DE PRODUCTION DE PLUTONIUM DE MARCOULE
CEA-R-3159 +. 17 PAGES, 13 FIGURES, MARCH 1967

THIS WORK WAS CARRIED OUT ON SAMPLES OF THE WHITE COTTON SERGE, OF WHICH MOST OF THE WORKING OVERALLS OF THE NUCLEAR RESEARCH CENTRE ARE MADE. THE AIMS WERE - (1) TO DETERMINE, FROM THE DECONTAMINATION AND CLEANING POINTS OF VIEW, THE EFFICIENCY OF VARIOUS SOLVENTS (WHITE SPIRIT, TRICHLOROETHYLENE, PERCHLOROETHYLENE, AND TRICHLOROFLUOROETHANE) AND THE ROLE OF ADDITIVES LIKELY TO IMPROVE THE TREATMENT, (2) TO CONTROL THE TEXTILE FROM THE WEAR AND SHRINKAGE POINTS OF VIEW, (3) TO TRY TO DEVELOP A BASIC CLEANING AND DECONTAMINATION PROCESS AS A FUNCTION OF THE POSSIBILITIES OF EACH SOLVENT CONSIDERED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN, 54669

*RADIOCHEMICAL PLANT SAFETY + DECONTAMINATION + FRANCE

14-19808

FEY FL
HEALTH PHYSICS SURVEY OF TRINITY SITE
LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO
LA-3719 +. 8 PAGES, 4 TABLES, 7 REFERENCES, JUNE 16, 1967

MORE THAN 20 YEARS AFTER THE FIRST NUCLEAR-WEAPON TEST, A HEALTH PHYSICS SURVEY OF THE SITE WAS MADE TO DETERMINE WHETHER IT WOULD BE RADIOLOGICALLY SAFE FOR THE PUBLIC TO VISIT. IT DOES NOT APPEAR THAT ANYONE COULD RECEIVE ANY RADIATION INJURY THROUGH A VISIT TO TRINITY SITE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*TEST, WEAPONS (HP ASPECTS) + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + SURVEY, RADIATION, ENVIRONMENTAL +
SURVEY, RADIATION, GENERAL

14-19809

WITKOWSKI EJ + MANNESCHMIDT JF
THE DISPOSAL OF RADIOACTIVE LIQUID AND GASEOUS WASTE AT OAK RIDGE NATIONAL LABORATORY, DECEMBER 1966
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-1832 +. 53 PAGES, 14 FIGURES, REFERENCES, AUGUST 1967

THIS REPORT, WHICH DESCRIBES THE ORNL RADIOACTIVE-WASTE-DISPOSAL SYSTEMS, IS A REVISION OF A SIMILARLY TITLED REPORT (TM-282) ISSUED IN 1962. SINCE THAT DATE, GROWTH OF THE LABORATORY HAS EXTENDED THE WASTE-DISPOSAL SYSTEMS AND THE ACCOMPANYING MONITORING NETS TO THE NEW FACILITIES IN MELTON VALLEY. THE WHOLE CONCEPT OF INTERMEDIATE-LEVEL WASTE-DISPOSAL HAS CHANGED WITH THE ELIMINATION OF SOIL DISPOSAL PITS AND TRENCHES IN FAVOR OF DEEP-WELL INJECTION OF AN EVAPORATOR CONCENTRATE. INCREASED DEMAND ON THE SYSTEMS HAS RESULTED IN CONTINUAL UPGRADING AND REPLACEMENT OF EQUIPMENT AND CHANGES IN OPERATING PROCEDURE. IN THIS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19809 *CONTINUED*

REPORT AN EFFORT HAS BEEN MADE TO INCLUDE THE SIGNIFICANT CHANGES SEEN IN THE AREA OF WASTE DISPOSAL AT ORNL DURING THESE YEARS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + *WASTE DISPOSAL, GENERAL + *WASTE MANAGEMENT + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, GAS + WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, SOLID + WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, GENERAL

14-19810

ALSO IN CATEGORY 15

BRYAN FA + WRIGHT MD + NICHOLLS AB + BENJAMIN AJ + WRIGHT JC
INITIAL RADIATION SPECTRA DEFINITION, FINAL REPORT

RESEARCH TRIANGLE INST., DURHAM, N. C.

R-OU-246 + DASA-1934 +. 72 PAGES, 37 FIGURES, 16 TABLES, 19 REFERENCES

CALCULATIONS WERE PERFORMED TO DETERMINE THE INITIAL GAMMA RADIATION SPECTRA FROM NUCLEAR WEAPONS AS A FUNCTION OF WEAPON-SHELTER DISTANCE. THE PURPOSE OF THESE CALCULATIONS WAS TO DETERMINE STANDARD GAMMA SPECTRA WHICH COULD BE USED IN INITIAL WEAPON RADIATION SHIELDING CALCULATIONS. THE REPORT DESCRIBES THE CALCULATIONS BY WHICH THE INITIAL RADIATION SPECTRA WERE DETERMINED. THE SOURCES OF PHOTONS THAT WERE CONSIDERED IN THE CALCULATIONS INCLUDED PROMPT FISSION GAMMAS, EARLY FISSION PRODUCT GAMMAS, AND GAMMAS DUE TO RADIATIVE NEUTRON CAPTURE BY AIR NITROGEN. IT IS SHOWN THAT THE DIFFERENTIAL ENERGY SPECTRA ASSOCIATED WITH EACH OF THE PHOTONS SOURCES OBTAIN A PSEUDO-EQUILIBRIUM IN THEIR SCATTERED COMPONENTS. THESE PSEUDO-EQUILIBRIA OBTAIN AFTER PHOTON PENETRATIONS IN AIR OF 1.0 TO 1.5 MILES. IT IS RECOMMENDED THAT THE ONE-MILE DISTRIBUTIONS, AS DEFINED BY THE CALCULATIONS, BE USED AS STANDARDS FOR INITIAL RADIATION SHIELDING CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CIVIL DEFENSE + DOSE CALCULATION, EXTERNAL + GAMMA + NUCLEAR DETONATION + SHIELDING

14-19812

LIEBERMAN JA + BELTER WG

WASTE MANAGEMENT AND ENVIRONMENTAL ASPECTS OF NUCLEAR POWER

DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY, ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

9 PAGES, FIGURES, TABLES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 11(6), PAGES 467-75 (JUNE 67)

THIS SURVEY ARTICLE DISCUSSES THE GROWTH OF THE NUCLEAR POWER INDUSTRY AND THE PREVENTIVE APPROACH TO WASTE PROBLEMS. THE ORIGIN AND NATURE OF RADIOACTIVE WASTES ARE DESCRIBED, FOLLOWED BY AN OUTLINE OF THE APPROACH TO CONTROL OF THE EFFLUENTS. WASTE PROBLEMS AT NUCLEAR REACTORS ARE DISCUSSED, FOLLOWED BY PRESENTATION OF THE WASTE PROBLEMS INVOLVED WITH OPERATION OF FUEL-REPROCESSING PLANTS. AEC-SPONSORED STUDIES OF A VARIETY OF ENVIRONMENTS ARE ALSO DESCRIBED.

*ENVIRONMENTAL CONDITION + *WASTE DISPOSAL, GENERAL + *WASTE TREATMENT, GENERAL + RIVER, CLINCH + RIVER, GENERAL + USAEC (U.S. ATOMIC ENERGY COMMISSION) + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, GAS + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, SALT + WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, FIXATION

14-19813

WASTE MANAGEMENT RESEARCH ABSTRACTS NO. 2

INTERNATIONAL ATOMIC ENERGY AGENCY

90 PAGES, 1966

ABSTRACTS FROM ELEVEN NATIONS ARE INCLUDED IN THIS COMPILATION. GENERAL AREAS INCLUDE - GASEOUS WASTES TREATMENT AND DISPOSAL, LIQUID WASTES TREATMENT, SOLID WASTES TREATMENT, STORAGE AND DISCHARGE STUDIES, AND ECONOMIC STUDIES.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

*RADIOISOTOPE + *WASTE DISPOSAL, GENERAL + *WASTE MANAGEMENT + *WASTE TREATMENT, GENERAL + COBALT + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + LEAD + POLONIUM + TRITIUM + WASTE DISPOSAL, BEDROCK + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, OCEAN + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, SOLID + WASTE TREATMENT, FIXATION + WASTE TREATMENT, GAS + WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID + ZINC

14-19816

PLATT AM

FIXATION OF RADIOACTIVE RESIDUES. RESEARCH AND DEVELOPMENT ACTIVITIES QUARTERLY PROGRESS REPORT,

OCTOBER--DECEMBER 1966

BATTELLE-NORTHWEST LABORATORY, RICHLAND, WASHINGTON

BNWL-410 +. 28 PAGES, 5 FIGURES, 5 TABLES, APRIL 1967

THE FINAL SPRAY-SOLIDIFICATION TEST IN WSEP BEFORE INTRODUCING RADIOACTIVITY WAS ONLY

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19816 *CONTINUED*

PARTIALLY SUCCESSFUL. HIGH FILTER PRESSURE-DROP AND WALL DEPOSITION WERE DISCOVERED, BUT THE CAUSE HAS NOT BEEN IDENTIFIED AT PRESENT. THE FIRST CONVERSION OF HIGHLY RADIOACTIVE LIQUID WASTE TO SOLIDS BY POT CALCINATION WAS QUITE SUCCESSFUL. CONDENSATE DECONTAMINATION WAS ADEQUATE TO PRODUCE DRINKING-WATER LEVELS OF ACTIVITY. SUBSEQUENT EVALUATION OF THE POT AND CONTENTS INDICATED THERMAL CONDUCTIVITY TO BE WITHIN EXPECTED VALUES. NO PRESSURIZATION HAS OCCURRED IN THE SEALED POT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*WASTE TREATMENT, GENERAL + BATTELLE NORTHWEST + COMPUTER, DIGITAL + WASTE TREATMENT, FIXATION + WASTE TREATMENT, LIQUID

14-19819

KAYE SV + NELSON DJ

ANALYSIS OF SPECIFIC ACTIVITY CONCEPT AS RELATED TO ENVIRONMENTAL CONCENTRATION OF RADIONUCLIDES
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3014 +. 19 PAGES, 1966

REVIEWS THE SPECIFIC-ACTIVITY CONCEPT AS IT APPLIES TO PREDICTIONS OF RADIONUCLIDE MOVEMENTS THROUGH ENVIRONMENTAL PATHWAYS. THE TERM SPECIFIC ACTIVITY IN ITS STRICTEST SENSE REFERS TO THE RATIO OF RADIOACTIVE ATOMS TO TOTAL ATOMS OF THE SAME ELEMENT. APPLICATION OF THE SPECIFIC ACTIVITY CONCEPT IS ONE WAY BY WHICH IT IS POSSIBLE TO PREDICT A PRIORI THE STEADY-STATE DISTRIBUTION OF A RADIONUCLIDE RELEASED TO AN ENVIRONMENT. THE STABLE-ELEMENT DISTRIBUTION IN ENVIRONMENTAL SAMPLES IS USED AS AN ANALOG FOR THE RADIONUCLIDE.

AVAILABILITY - S. V. KAYE OR D. J. NELSON, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

*ENVIRONMENTAL CONDITION + ECOLOGICAL CONSIDERATION + ORNL (OAK RIDGE NATIONAL LABORATORY)

14-19820

ALSO IN CATEGORY 15

BONE STRONTIUM

2 PAGES, NATURE 214(5095), PAGES 1266-7 (JUNE 24, 1967)

THE MOST RECENT REPORT OF THE MEDICAL RESEARCH COUNCIL ON THE CONTENT OF SR-90 IN HUMAN BONES SHOWS A CONTINUING BUT GRADUAL DECLINE. IN THE FIRST HALF OF 1966, FOR EXAMPLE, THE CONCENTRATION OF STRONTIUM IN THE BONES OF STILLBORN CHILDREN WORKED OUT AT 2.3 PC PER G OF CALCIUM FOR A SERIES OF 47 ANALYSES IN GLASGOW. IN 1965, THE CORRESPONDING FIGURES WERE 2.7 AND 3.2 PC PER G OF CALCIUM RESPECTIVELY. AS IN PREVIOUS YEARS, THE HIGHEST CONCENTRATIONS WERE FOUND IN SKELETONS OF CHILDREN DYING BETWEEN 6 AND 23 MONTHS OF AGE.

*FALLOUT + BIOLOGICAL CONCENTRATION, MAN + BIOMEDICAL + RADIOBIOLOGY + STRONTIUM + UNITED KINGDOM

14-19822

ALSO IN CATEGORY 15

MORGAN DJ + MORGAN A

STUDIES ON THE RETENTION AND METABOLISM OF INHALED METHYL IODIDE. 2. RETENTION OF METHYL IODIDE
UNITED-KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERF-R-5117 +. 24 PAGES, 4 FIGURES, 8 TABLES, 12 REFERENCES, MAY 1966

METHYL IODIDE IS ONE OF THE FORMS IN WHICH RADIO-IODINE MAY BE RELEASED IN ACCIDENTS INVOLVING FISSION PRODUCTS. TO PROVIDE INFORMATION TO ASSIST IN THE ASSESSMENT OF THE RADIOLOGICAL HAZARD RESULTING FROM ITS INHALATION, A SERIES OF EXPERIMENTS WAS CARRIED OUT WITH VOLUNTEER SUBJECTS TO MEASURE ITS RETENTION. VALUES RANGING FROM 53 TO 92 PERCENT WERE OBTAINED, WITH A MEAN VALUE OF 72 PERCENT. THE RETENTION IS HIGHLY DEPENDENT UPON RESPIRATORY RATE, LOW RATES BEING ASSOCIATED WITH HIGH RETENTION AND VICE VERSA. TO STUDY THE EFFECT OF RESPIRATORY RATE AND TIDAL VOLUME ON RETENTION, AN ADDITIONAL SERIES OF EXPERIMENTS WAS CARRIED OUT. THESE SHOWED THAT THERE IS NEGLIGIBLE ABSORPTION OF METHYL IODIDE IN THE RESPIRATORY DEAD SPACE AND THAT AT NORMAL BREATHING RATES, ABSORPTION FROM ALVEOLAR AIR IS INCOMPLETE. AN EXPRESSION IS DERIVED WHICH ENABLES THE RETENTION TO BE CALCULATED. IODINE-132 LABELLED METHYL IODIDE WAS USED IN ALL THESE EXPERIMENTS. THE AVERAGE RADIOLOGICAL DOSE TO THE THYROID BEING ABOUT 3. MREMS.

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*ACCIDENT, RADIOISOTOPE + FISSION PRODUCT, IODINE + HARWELL (UK) + RADIOBIOLOGY + UNITED KINGDOM

14-19823

TRIULZI C + TASSI-PELATI L

TREND OF GROSS BETA RADIOACTIVITY IN PLANKTON SAMPLES COLLECTED IN THE ADRIATIC AND LIGURIAN-TYRRHENIAN SEAS DURING 1961-1964

CENTRO INFORMAZIONI STUDI ESPERIENZE, MILAN + COMITATO NAZIONALE PER L'ENERGIA NUCLEARE

12 PAGES, 5 FIGURES, 1 TABLE, REND. IST. LOMBARDO SCI. LETT. 8-99, PAGES 121-32 (1965) IN ITALIAN

GROSS BETA RADIOACTIVITY WAS MEASURED ON PLANKTON AND SAMPLES COLLECTED IN THE LIGURIAN-TYRRHENIAN SEA AND UPPER ADRIATIC DURING 1961-1964. THE TREND OF GROSS BETA RADIOACTIVITY DURING THIS PERIOD WAS CORRELATED WITH RAINFALL AND RADIOACTIVE FALLOUT IN THE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19823 *CONTINUED*

SAME ZONE. VALUES OF GROSS BETA WERE REPORTED, WHICH WERE MEASURED 15 AND 200 DAYS AFTER THE TOW. RATIO BETWEEN THESE VALUES SUPPLIED A USEFUL INDICATION ON THE DATE OF NUCLEAR EXPLOSIONS RESPONSIBLE FOR SAMPLE CONTAMINATION.

*FALLOUT + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + GROSS BETA + ITALY + OCEAN AND SEA

14-19827

ALSO IN CATEGORY 15

ACTIVITIES OF THE BIOLOGY AND HEALTH PHYSICS DIVISION, CHALK RIVER NUCLEAR LABORATORIES
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO
AECL-2663 +. 59 PAGES, REFERENCES, FEBRUARY 1967

CONTAINS SUMMARIES OF TALKS GIVEN BY THE PROFESSIONAL STAFF ON SOME ACTIVITIES OF THE BIOLOGY AND HEALTH PHYSICS DIVISION, CRNL, DURING THE VISIT OF THE AECL SENIOR MANAGEMENT COMMITTEE IN FEBRUARY 1967.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

BIOMEDICAL + CANADA + CHALK RIVER + DOSE + DOSIMETRY, GENERAL + DOSIMETRY, THERMOLUMINESCENCE + ENVIRONMENTAL CONDITION + MONITORING PROGRAM, ENVIRONMENTAL + RADIOBIOLOGY

14-19828

MIDDLEBROOKS EJ + GOLDSMITH WA

RADIOACTIVE EQUILIBRIUM TIME

MISSISSIPPI STATE UNIVERSITY, STATE COLLEGE

8 PAGES, 7 FIGURES, 1 TABLE, J. SANIT. ENG. DIV., AMER. COS. CIVIL ENG., 92, PAGES 85-93 (DECEMBER 1966)

LOW CONCENTRATIONS OF RADIOACTIVE MATERIALS ARE CONTINUOUSLY BEING DISCHARGED INTO NATURAL WATER COURSES. SOME OF THE RADIOISOTOPES, E.G., SR-90, YIELD RADIOACTIVE DAUGHTERS. AQUATIC ORGANISMS AND SILT DEPOSITS ARE KNOWN TO SELECTIVELY CONCENTRATE CERTAIN RADIOISOTOPES. TO ENSURE EQUILIBRIUM FOR AN ISOTOPE WITH ITS DAUGHTERS, IT IS IMPORTANT TO DETERMINE HOW MUCH TIME SHOULD BE ALLOWED FOR A SAMPLE TO OBTAIN EQUILIBRIUM. BEGINNING WITH THE BASIC PARAMETERS, A SERIES OF EQUATIONS FOR EQUILIBRIUM TIME WERE OBTAINED. THE RESULTS OF A COMPUTER PROGRAM WERE PLOTTED TO FACILITATE THE SOLUTION OF THESE EQUATIONS.

*RADIOISOTOPE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + RADIOCHEMICAL ANALYSIS + UNITED STATES + WASTE DISPOSAL, RIVER

14-19829

ALSO IN CATEGORY 15

SHAFIROV YB

EXPERIMENTAL SUBSTANTIATION OF THE MAXIMUM PERMISSIBLE CONCENTRATION OF STRONTIUM IN WATER

6 PAGES, 2 FIGURES, 2 TABLES, GIGIENA Y SANITARIJA 30(11), PAGES 18-23 (NOV. 1965)

THE THRESHOLD CONCENTRATION OF SR, AFFECTING THE TASTE OF WATER, AMOUNTED TO 12 MG/L. NO EFFECT WAS NOTED IN THE GENERAL SANITARY REGIME OF THE WATER BASIN AT THIS CONCENTRATION. A DOSE INEFFICIENT FOR WARM-BLOODED ANIMALS UNDER CONDITIONS OF A CHRONIC TEST COMPRISED 0.13 MG/KG (2.8 MG/L). CONSEQUENTLY, THE HYGIENIC STANDARD VALUES OF SR IN THE WATER SHOULD BE DETERMINED IN VIEW OF THE FACT THAT THE SANITARY TOXICOLOGIC SIGN OF NOXIOUS EFFECT IS PECULIAR FOR THIS ELEMENT. THE MAXIMUM PERMISSIBLE CONCENTRATION OF SR IN THE WATER OF WATER BASINS IS SUGGESTED TO BE SET AT 2.5 MG/L.

*WATER, GENERAL + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS + WATER POLLUTION + WATER, DRINKING

14-19875

ALSO IN CATEGORY 14

WATSON EC + SIMPSON CL

EFFECT OF WIND VARIABILITY ON ENVIRONMENTAL CONSEQUENCES OF PROLONGED RELEASES OF RADIOACTIVE CONTAMINANTS
BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB, RICHLAND, WASH.

BNWL-SA-1058 + CONF-670402-1 + SM-85/53 +. 29 PAGES, JANUARY 26, 1967. FROM IAEA SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, AUSTRIA.

THE ENVIRONMENTAL CONSEQUENCES OF ATMOSPHERIC RELEASES OF RADIONUCLIDES ARE APPROXIMATED BY THE BIVARIATE NORMAL DIFFUSION MODEL. LATERAL GROWTH OF THE CLOUD DEPENDS ON TRAVEL TIME AND IS RELATED TO VARIATIONS IN WIND VELOCITY. THE EFFECT OF WIND VARIABILITY ON ENVIRONMENTAL CONSEQUENCES IS TO REDUCE POTENTIAL EXPOSURES AT DOWNWIND POINTS OF INTEREST. THE DEGREE TO WHICH THESE EXPOSURES ARE REDUCED DEPENDS ON THE RATE OF RELEASE AND THE DILUTION RATE OF THE SOURCE TERM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCENTRATION, GROUND LEVEL + *SAFETY ANALYSIS REPORT, METEOROLOGY + *SOURCE, CONTINUOUS + *SOURCE, ELEVATED + ATMOSPHERIC DIFFUSION + GAUSSIAN PLUME FORMULA + LAPSE RATE, STABLE + RADIOACTIVITY, RELEASE + WIND STATISTICS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19876 ALSO IN CATEGORY 16
DIEM M + ZEDLER P + WEISWEILER W + VAN DER LINDE KH
METEOROLOGICAL CONDITIONS GOVERNING THE PROPAGATION OF AIR-CONTAMINATING SUBSTANCES RELEASED FROM THE EURATOM REACTORS AT ISPRA, ITALY
TECHNISCHE HOCHSCHULE, METEOROLOGISCHES INSTITUT, KARLSRUHE, WEST GERMANY
EUR-3167.D +. 120 PAGES, 1967, IN GERMAN

THE WIND DIRECTION AT ISPRA IS INFLUENCED PREDOMINANTLY OROGRAPHICALLY BY THE MOUNTAIN AND VALLEY WINDS AND IN WINTER BY THE FOEHN. THE AVERAGE WIND SPEED DOUBLES BETWEEN GROUND LEVEL AND A HEIGHT OF 120 M. THE DAILY TREND REVEALS A TWO-LAYER SYSTEM WHICH IS LIKEWISE DETERMINED BY THE OROGRAPHY. CALMS ARE VERY FREQUENT, WITH A PREFERENTIAL LIGHT BREEZE LAYER BETWEEN 30 AND 60 M. WITH THE OCCURRENCE OF THE OPPOSING WIND SYSTEM, THE PROPAGATION OF DUST AND GAS DEPENDS LARGELY ON THE HEIGHT OF THE SOURCE.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*ITALY + *SAFETY ANALYSIS REPORT, METEOROLOGY + *SITE CLIMATOLOGY + ATMOSPHERIC DIFFUSION + BREEZE, MOUNTAIN + BREEZE, VALLEY + CONCENTRATION, AREA + WIND PROFILE

14-19881 ALSO IN CATEGORY 15
LITTLE JB + MCGANDY RB
MEASUREMENT OF POLONIUM-210 IN HUMAN BLOOD
HARVARD SCH. PUB. HLTH., BOSTON, MASS.
2 PAGES, 1 FIGURE, 7 REFERENCES, NATURE 211(5051), PAGE 842 AND 843, (AUGUST 20, 1966)

PO-210 WAS DETERMINED IN BLOOD SAMPLES FROM 100 HEALTHY MEN BETWEEN AGES 45 AND 54. THE AVERAGE CONCENTRATION IN SMOKERS WAS 1.72 PC/KG BLOOD, COMPARED WITH 0.76 PC/KG IN NONSMOKERS. SAMPLES FROM HEAVY SMOKERS BEFORE AND AFTER A COMPLETE CESSATION OF SMOKING SHOWED AN AVERAGE DROP OF 27%.

*BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, VEGETATION + POLONIUM

14-19882
REIST PC
THE DISPOSAL OF RADIOACTIVE KRYPTON-85 IN POROUS MEDIA
HARVARD UNIVERSITY, SCHOOL OF PUBLIC HEALTH, BOSTON, MASS.
NYO-841-7 +. 189 PAGES, 27 FIGURES, 25 TABLES, 75 REFERENCES, JULY 1967

THE PROBLEM OF CONTAINMENT OF KR-85 RESULTING FROM OPERATION OF FISSION REACTORS WAS INVESTIGATED. AREAS INCLUDED IN THE STUDY WERE - (1) GAS MOVEMENT IN A POROUS MEDIUM, (2) STORAGE OF OTHER GASES IN UNDERGROUND RESERVOIRS, (3) LABORATORY INVESTIGATIONS OF PROPERTIES OF KRYPTON AND KRYPTON-AIR MIXTURES, AND (4) A DESCRIPTION OF A POSSIBLE DISPOSAL OPERATION OF THE WEST VALLEY, N. Y., SITE OF NUCLEAR FUEL SERVICES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE DISPOSAL, GAS + KRYPTON + NFS (NUCLEAR FUEL SERVICES) + POROUS MEDIA

14-19884
KENNEDY WR + AEBY JW
BETA RADIOACTIVITY IN ENVIRONMENTAL AIR AND PRECIPITATION AT LOS ALAMOS, NEW MEXICO FOR 1966
LOS ALAMOS SCIENTIFIC LAB., N. MEX.
LA-3662 +. 13 PAGES, 3 FIGURES, JANUARY 1967

BETA ACTIVITY OF PARTICULATE MATTER IN BOTH AIR AND PRECIPITATION FOR 1966 ARE REPORTED FOR LOS ALAMOS, NEW MEXICO. THE DECLINE IN ACTIVITIES THAT BEGAN IN THE LAST HALF OF 1963 CONTINUED UNTIL THE MIDDLE OF 1966. INCREASES IN MAY, NOVEMBER, AND DECEMBER CAN PERHAPS BE ATTRIBUTED TO THE CHINESE ATMOSPHERIC TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + AIR + FALLOUT + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + PRECIPITATION + RAINOUT

14-19886 ALSO IN CATEGORY 15
HAZARDS CONTROL PROGRESS REPORT NO. 27 JANUARY--APRIL 1967
CALIFORNIA UNIVERSITY, LIVERMORE, LAWRENCE RADIATION LAB
UCRL-50007-67-1 +. 61 PAGES, 60 FIGURES, 14 TABLES, 29 REFERENCES, APRIL 1967

STUDIES ARE INCLUDED IN THE FOLLOWING FIELDS - CALCIUM FLUORIDE (EU) AS A PHOTON AND

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19886 *CONTINUED*

CHARGED-PARTICLE DETECTOR, CONSTRUCTION OF A LARGE AREA PROPORTIONAL COUNTER, POCKET DOSIMETER RESPONSE IN PULSED RADIATION FIELDS, ENERGY DEPENDENCE OF LOW-Z SILVER METAPHOSPHATE GLASS DOSIMETERS, THE FIRST FIELD USE OF A NEW PLUTONIUM SURVEY INSTRUMENT, DETECTION OF PLUTONIUM ON AIR FILTERS USING THE ALPHA/BETA RATIO OF RESIDUAL THORON DAUGHTER ACTIVITY, GAMMA-BACKGROUND-COMPENSATION CIRCUIT, A DUAL-RANGE G-M CALIBRATION CHECK SOURCE, PORTABLE SEWER SAMPLER (PROPORTIONAL TO FLOW), HIGH-VOLUME AIR SAMPLER POWERED BY AUTOMOBILE BATTERY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

COUNTER + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, RADIOPHOTOLUMINESCENCE + INSTRUMENTATION, RADIATION MONITORING + LRL (LAWRENCE RADIATION LABORATORY) + MONITOR, RADIATION, BACKGROUND + PLUTONIUM + SAMPLING + SOURCE, RADIATION

14-19887

BROWN RM + STEVENS WH + THURSTON WM
DEUTERIUM CONTENT OF CANADIAN WATERS - I A COLLECTION OF DATA AVAILABLE AS OF FEB., 1967
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER
AECL-2697 +. 21 PAGES, 3 FIGURES, 4 TABLES, REFERENCES, APRIL 1967

DATA ON THE DEUTERIUM CONTENT OF CANADIAN WATERS ARE ASSEMBLED. THESE CONSIST OF RESULTS OF ANALYSES DONE AT CRNL OVER THE PAST FOUR YEARS ON 140 SURFACE WATER SAMPLES FROM VARIOUS LOCATIONS, VALUES REPORTED BY FRIEDMAN, REDFIELD, SCHOEN AND HARRIS (U.S. GEOLOGICAL SURVEY) FOR SURFACE WATERS WITHIN THE GREAT LAKES DRAINAGE BASIN, AND DATA FOR PRECIPITATION AT SEVERAL NORTHERN LOCATIONS OBTAINED BY W. DANSGAARD (UNIVERSITY OF COPENHAGEN). A BIBLIOGRAPHY ON NATURAL DEUTERIUM CONCENTRATIONS AND HYDROGEN-DEUTERIUM FRACTIONATION PHENOMENA IN NATURE IS INCLUDED.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, \$1.00 COPY

CANADA + CHALK RIVER + DEUTERIUM + MONITORING PROGRAM, ENVIRONMENTAL + PRECIPITATION + SURFACE WATER, GENERAL

14-19949

ALSO IN CATEGORY 15

PESTANER JF
RADIOLYSIS OF SEAWATER
NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIF.
USNRDL-TR-67-44 + AD-651-158 +. 27 PAGES, APRIL 3, 1967

THE MOLECULAR RADIOLYSIS PRODUCTS OF SEAWATER WERE DETERMINED TO EVALUATE WHETHER THESE PRODUCTS AND THEREFORE THE RESIDUAL RADIATION FIELD THAT PRODUCED THEM COULD HAVE AN EFFECT ON THE CHEMICAL AND PHYSICAL SPECIES OF THE RADIONUCLIDE DEBRIS PRODUCED IN AN UNDERWATER NUCLEAR EXPLOSION. THE G(HYDROGEN) WAS 0.44 PLUS OR MINUS 0.01 FOR AERATED SEAWATER AND 1.03 PLUS OR MINUS 0.01 FOR OUTGASSED SEAWATER. G(PEROXIDE) WAS 1.03 PLUS OR MINUS 0.06 FOR THE INITIAL YIELD IN AERATED AND OUTGASSED SEAWATER. SPECULATIONS ON THE MECHANISMS TO ACCOUNT FOR THESE YIELDS ARE BASED ON THE INFLUENCE OF THE MAJOR COMPONENTS OF SEAWATER THAT ARE LIKELY TO CHANGE THE KNOWN MECHANISMS FOR PURE WATER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*NUCLEAR DETONATION + *OCEAN AND SEA + *OXIDATION + HYDROGEN + RADIATION EFFECT

14-19950

ALSO IN CATEGORY 15

JOHNSON JF + WILSON DW + LINDSAY WL
TRANSFER OF FALLOUT CESIUM-137 FROM SOIL TO DAIRY CATTLE FEEDS
COLORADO STATE UNIVERSITY
2 PAGES, 5 REFERENCES, SOIL SCIENCE SOCIETY OF AMERICA, PROCEEDINGS 30(3), PAGE 416-417, (MAY-JUNE 1966)

CORE (SORGHUM VULGARE) SEEDLINGS WERE GROWN IN A GREENHOUSE IN THE UPPER 5 CM OF SOIL TAKEN FROM A PERMANENT PASTURE CONTAINING A CUMULATIVE FALLOUT DEPOSITION OF CS-137 OF 80,000 PC/SQ. METER. NO DETECTABLE CS-137 (LESS THAN 10 PC/KG) WAS FOUND IN THE PLANTS. ON THE OTHER HAND, CORN PLANTS GROWING IN LOCAL FIELDS CONTAINED 1,500 PC/KG OF CS-137. IT WAS CONCLUDED FROM THESE STUDIES THAT THE CS-137 CONTENT OF DAIRY CATTLE FEEDS RESULTED LARGELY FROM DIRECT FOLIAR CONTAMINATION, AND THAT UPTAKE FROM THE SOIL RESERVOIR WAS UNIMPORTANT. FURTHER, THE COMPARABLE ALFALFA HAY CROPS IN YEARS SINCE 1963 HAVE BEEN DECREASING IN CS-137 LEVEL, WHILE THE TOP SOIL CS-137 CONCENTRATION HAS INCREASED STEADILY DURING THIS PERIOD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CESIUM + *FALLOUT + *RAINOUT + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + SOIL

14-19954

SZABO BJ
RADIUM CONTENT IN PLANKTON AND SEA WATER IN THE BAHAMAS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-19954 *CONTINUED*

INSTITUTE OF MARINE SCIENCE, UNIVERSITY OF MIAMI, MIAMI, FLORIDA
11 PAGES, 3 FIGURES, 5 TABLES, REFERENCES, GEOCHIM COSMOCHIM ACTA 31(8), PAGE 1321-1331, (AUGUST 1967).

THE DISTRIBUTION OF RA-226 IN THE OCEAN AND IN MARINE ORGANISMS IS SURVEYED. DATA ON THE DISTRIBUTION OF RADIUM IN THE BAHAMAS REGION ARE PRESENTED. AVERAGE RADIUM CONTENT IN SURFACE WATER IS FOUND TO BE 4.5×10^{-14} TH G/L. SIX MIXED PLANKTON SAMPLES ARE ANALYZED FOR THE ALKALINE-EARTH ELEMENTS. THE AVERAGE RADIUM CONTENT IN PLANKTON IS DETERMINED TO BE 2.2×10^{-13} TH G/G ASH. DISCRIMINATION FACTORS, NORMALIZED TO CALCIUM, ARE CALCULATED. BOTH RADIUM AND BARIUM ARE PREFERRED BY THE PLANKTON. THERE IS LITTLE PREFERENCE FOR STRONTIUM, AND MAGNESIUM IS NOT TAKEN UP PREFERENTIALLY. THE EXTENT OF RADIUM REMOVAL BY THE PLANKTON POPULATIONS IS CALCULATED TO BE IN THE SAME RANGE AS THE NATURAL RADIOACTIVE DECAY OF RADIUM.

BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + OCEAN AND SEA + RADIUM + SURFACE WATER, NUCLIDE OCCURRENCE

14-19955

ANGINO EE

OBSERVED VARIATIONS IN THE STRONTIUM CONCENTRATION OF SEA WATER
UNIVERSITY OF KANSAS, LAWRENCE

9 PAGES, 1 FIGURE, 4 TABLES, 18 REFERENCES, CHEM. GEOL. 1, PAGE 145-153, (1966)

ON SAMPLES OBTAINED FROM FIVE WIDELY SEPARATED AREAS OF THE NORTH ATLANTIC OCEAN, 91 DETERMINATIONS OF STRONTIUM WERE MADE. THESE INCLUDE SURFACE AND DEEP-WATER SAMPLES FROM BOTH THE COLD NORTH ATLANTIC AREA AND THE WARM SUB-TROPICAL CARIBBEAN AREA. THE RESULTS DIFFER FROM MANY OF THE PREVIOUSLY REPORTED VALUES. IT APPEARS THAT THE MORE CORRECT VALUE FOR SOLUBLE STRONTIUM IN SEA WATER IS LESS THAN THE COMMONLY ACCEPTED FIGURE OF 8.0-8.2 MG/L AND MOST LIKELY LIES BETWEEN 7.2 AND 7.8 MG/L. THE USE OF AN AVERAGE FIGURE FOR STRONTIUM IN SEA WATER SHOULD BE DISCOURAGED AS IT IS CLEAR THAT THE SOLUBLE STRONTIUM CONTENT DOES VARY CONSIDERABLY. CONSEQUENTLY, THE ASSUMPTION OF A CONSTANT STRONTIUM/CHLORINITY RATIO IN THE OCEAN IS IN ERROR.

*OCEAN AND SEA + *STRONTIUM + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS. +
HYDROLOGICAL CONSIDERATION, GENERAL + ION EXCHANGE + SAMPLING

14-19956

ALSO IN CATEGORY 15

RALLS JW + PRIMBSCH S + GUCKEEN JR + MAAGDENBERG HJ + REINHART J + LAMB FC + MERCER WA
DISTRIBUTION OF STRONTIUM AND CALCIUM IN MAJOR VEGETABLE AND FRUIT CROPS AND CRITERIA FOR USE OF
FALLOUT-CONTAMINATED FOODS

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE + NATIONAL CANNERS ASSOCIATION.

4 PAGES, 2 TABLES, 4 REFERENCES, RADIOLOGICAL HEALTH DATA REPORTS 8(7), PAGE 355-358, (JULY 1967)

VEGETABLE AND FRUIT CROPS WERE GROWN IN SOIL ENRICHED WITH HIGH LEVELS OF STRONTIUM NITRATE. THE NORMALLY EDIBLE PORTIONS OF THE CROPS WERE HARVESTED AND SECTIONED INTO ANATOMICALLY DISTINCT PORTIONS. THE STRONTIUM AND CALCIUM CONTENT WAS MEASURED BY FLAME SPECTROPHOTOMETRY OR BY PHOTON ACTIVATION ANALYSIS. THE RESULTS ARE TABULATED TO PROVIDE AN UPPER LIMIT FOR RADIOSTRONTIUM CONTENT OF CROPS GROWN IN SOIL HEAVILY CONTAMINATED WITH DEBRIS FROM NUCLEAR FISSION ON A MASSIVE SCALE.

*CALCIUM + *FALLOUT + *STRONTIUM + BIOLOGICAL CONCENTRATION, FOOD + CONTAMINATION, + DIETARY HABIT +
NUCLEAR DETONATION

14-19957

ALSO IN CATEGORY 15

COLEMAN RD + ANDREWS VE

AERIAL MEASUREMENT OF THE KIWI TRANSIENT NUCLEAR TEST

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

8 PAGES, 1 FIGURE, 5 TABLES, 3 REFERENCES, RADIOLOGICAL HEALTH DATA REPORTS 8(7), PAGE 359-366, (JULY 1967)

THE LOS ALAMOS SCIENTIFIC LABORATORY CONDUCTED A TRANSIENT NUCLEAR TEST ON A KIWI REACTOR ON JANUARY 12, 1965, AT THE NUCLEAR ROCKET DEVELOPMENT STATION AT JACKASS FLATS, NEV. DURING THIS PLANNED DESTRUCTIVE TEST OF A PROPULSION REACTOR, THE PUBLIC HEALTH SERVICES SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY CONDUCTED A LAND AND AERIAL OFF-SITE RADIOLOGICAL SURVEILLANCE PROGRAM. THE AERIAL ASPECTS OF THE LABORATORY'S PROGRAM INCLUDED SAMPLING AND ASSAY MISSIONS ALONG FLIGHT PATTERNS THROUGH THE RADIOACTIVE CLOUD FORMED BY THE DESTRUCTION OF THE REACTOR. SAMPLES OBTAINED FROM THESE AERIAL MISSIONS WERE ANALYZED TO DEFINE VARIOUS CHARACTERISTICS OF THE CLOUD. THE AIRCRAFT MADE REPEATED MEASUREMENTS OF PEAK GAMMA LEVELS.

*AIR + *ROVER PROGRAM + *SURVEILLANCE PROGRAM + DIFFUSION + GROSS GAMMA + METEOROLOGICAL SUPPORT +
PARTICULATE + RADIOACTIVITY, RELEASE + RADIOLOGICAL ASSISTANCE + REACTOR TRANSIENT + SAMPLING

14-20006

ALSO IN CATEGORY 2

KOZLOV VM + RYZHOV AI + FILATOV AS + YAMBROVSKY YM

SITING OF NUCLEAR POWER PLANTS AND CONSIDERATION OF THE HEALTH AND HYGIENE ASPECTS OF NATURAL FEATURES AT
THE SITES OF SOVIET NUCLEAR POWER PLANTS

SM-89/46 + CONF-670 402 + 24 PAGES, 7 TABLES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY SYMPOSIUM ON
THE CONTAINMENT AND SITING OF THE NUCLEAR POWER PLANTS, VIENNA, APRIL 3-7, 1967

SITES FOR BUILDING NUCLEAR POWER PLANTS IN THE USSR ARE NEVER ALLOCATED WITHOUT THE APPROVAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20006 *CONTINUED*

OF THE SANITARY INSPECTION AUTHORITIES. PLANT SITES MUST COMPLY WITH THE FOLLOWING BASIC SANITARY REQUIREMENTS - (1) GOOD LOCAL AIR CIRCULATION, (2) FAVORABLE HYDRO-GEOLOGICAL CONDITIONS, WITH LOW-LYING GROUNDWATER, (3) FAIRLY LEVEL GROUND, (4) COMPARATIVELY SPARSELY POPULATED AREA, FAIRLY REMOTE FROM TOWNS (5) THE POSSIBILITY OF ORGANIZING A HEALTH PROTECTION ZONE. THE SIZE OF THE HEALTH PROTECTION ZONE AROUND A NUCLEAR POWER PLANT DEPENDS ON THE TYPE AND POWER OF THE PLANT. AUXILIARY BUILDINGS MAY BE BUILT IN THE ZONE, BUT NOT PERMANENT DWELLING HOUSES. THE ZONE MAY BE USED FOR CROP CULTIVATION AND THE PASTURAGE OF LIVESTOCK PROVIDED THAT MONITORING IS CARRIED OUT IN THE AREA. ENVIRONMENTAL EXPERIENCE AT TWO EXISTING PLANTS IS DISCUSSED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*ENVIRONMENTAL CONDITION + *SITING, REACTOR + *UNION OF SOVIET SOCIALIST REPUBLICS + EFFLUENT + MONITORING PROGRAM, ENVIRONMENTAL + STACK + WASTE DISPOSAL, GENERAL

14-20025 ALSO IN CATEGORY 15
HOUGHTON G + JUPITER C + TRIMBLE G

GAMMA AND NEUTRON DOSE MEASUREMENTS FOR A THERMAL TUNGSTEN NUCLEAR ROCKET CRITICAL EXPERIMENT
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.
GA-6942 + NASA-CR-72081 +. 44 PAGES, REFERENCES, 1966

DESCRIBES THE MEASUREMENT OF THE GAMMA AND NEUTRON DOSE DISTRIBUTIONS IN CORE III. RADIAL AND AXIAL DOSE DISTRIBUTIONS IN THE CORE WERE MEASURED BY INSERTING SPECIALLY MADE THIMBLE IONIZATION CHAMBERS IN THE HOLLOW SPINE OF THE FUEL ELEMENTS AND IN THE POISON TUBES. THE DOSIMETERS WERE OF TWO TYPES - ONE SENSITIVE MAINLY TO GAMMA RAYS, AND THE OTHER TO FAST NEUTRONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICAL ASSEMBLY FACILITY + INSTRUMENTATION, IN CORE + NEUTRON

14-20026 ALSO IN CATEGORY 15

GENERT W
ADJUSTABLE WIDE RANGE RADIATION LEVEL ALARM
U.S. PATENT 3,319,066 +. 5 PAGES, 3 FIGURES, REFERENCES, MAY 9, 1967

A RADIATION DOSIMETER, ADJUSTABLE OVER A WIDE RANGE OF RADIATION LEVELS, IS DESCRIBED. IT INCLUDES MEANS TO COMPARE THE OUTPUT OF AN IONCHAMBER WITH THE OUTPUT OF A PULSER WHICH RECHARGES THE IONCHAMBER WHEN THE DETECTED DOSEAGE IS LESS THAN A SET AMOUNT DURING THE INTERVAL BETWEEN PULSES, CAUSING AN ALARM TO SOUND.

AVAILABILITY - THE PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D.C., .25 COPY

*INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, GENERAL

14-20027

BERNSTEIN GJ
EQUIPMENT FOR DISPOSAL OF HIGH-LEVEL SOLID WASTES FROM THE EBR-II FUEL CYCLE FACILITY
ARGONNE NATIONAL LABORATORY
2 PAGES, ANS TRANS. 10(2), PAGES 673-4, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

THE MAJOR RADIOACTIVE WASTES GENERATED IN THE FUEL-CYCLE FACILITY ARE SOLID AND CONSIST PRINCIPALLY OF FUEL-ASSEMBLY STRUCTURAL PARTS, FUEL-ELEMENT CLADDING, MELT-REFINING CRUCIBLES AND FUME TRAPS, AND INJECTION-CASTING CRUCIBLES AND MOLDS. AN INTEGRATED WASTE-HANDLING SYSTEM WAS DEVELOPED TO PACKAGE THE WASTES AND DELIVER THE CONTAINERS TO A BURIAL FACILITY. THE BASIC WASTE CONTAINER IS A STEEL PAIL 6 FT HIGH AND 11 1/4-IN. IN I.D., MADE FROM 20- AND 22-GAUGE STEEL.

*WASTE DISPOSAL, SOLID + ANL (ARGONNE NATIONAL LABORATORY) + EBR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS) + IDAHO FALLS + WASTE DISPOSAL, TERRESTRIAL

14-20028

ALSO IN CATEGORY 15

DEHNAM DH
HEALTH PHYSICS AT THE LRL TRANSURANIC PROCESSING FACILITY
BATTELLE-NORTHWEST LABORATORY
1 PAGE, ANS TRANS. 10(2), PAGE 680, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO ILLINOIS, NOVEMBER 5-9, 1967

THE FACILITY PROVIDES 30,000 SQ. FT. OF LABORATORY SPACE, EQUIPPED WITH STANDARD GLOVE BOXES AND HOODS TYPICAL OF ALPHA-HANDLING FACILITIES. NEARLY A MEGACURIE OF TRANSURANIC ISOTOPES ARE HANDLED EACH YEAR. AVERAGE ANNUAL WHOLE-BODY EXPOSURE IS ABOUT 1 REM. RADIOACTIVE SPILLS ARE VERY INFREQUENT, AND NO SIGNIFICANT INTERNAL DEPOSITS OF RADIONUCLIDES HAVE OCCURRED IN THE PAST FIVE YEARS.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20028 *CONTINUED*

*TRANSURANIUM ELEMENT + ALPHA EMITTER + ALPHA FACILITIES + AMERICIUM + CALIFORNIUM + CURIUM + GAMMA + PLUTONIUM + RADIATION PROTECTION, ORGANIZATION + RADIOCHEMICAL PROCESSING + URANIUM

14-20029

NELSON DK + DETTERMAN RL

EVALUATION OF SNAP REACTOR DISPOSAL TECHNIQUES

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

2 PAGES, ANS TRANS. 10(2), PAGES 432-3, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

THE SAFE USE OF A SNAP REACTOR SYSTEM IS PREDICATED ON THE DEGREE TO WHICH THE SYSTEM ACCOMMODATES AND PROVIDES ADEQUATE SOLUTIONS TO THE RADIOLOGICAL SAFETY PROBLEMS CREATED BY (1) ACCIDENTAL CRITICALITY AND (2) FISSION PRODUCTS GENERATED DURING NORMAL REACTOR OPERATION. THE PROBLEM OF ITEM 1 CAN BE RESOLVED BY DEVELOPING AN INTRINSICALLY SUBCRITICAL REACTOR. THE PROBLEM OF ITEM 2 APPLIES TO REACTORS IN LOW EARTH ORBITS. ACTIVE AND PASSIVE REACTOR DISPOSAL MODES HAVE BEEN EVALUATED TO ESTABLISH THEIR RELATIVE MERITS AND CONDITIONS OF BEST APPLICATION. THE ACTIVE DISPOSAL MODES INCLUDED DE-ORBIT FOR OCEAN DISPOSAL, INTACT EARTH IMPACT AND RECOVERY, ORBIT ENHANCEMENT, AND EARTH ESCAPE. RANDOM REENTRY WAS ALSO CONSIDERED AS A DISPOSAL MADE IN THE EVENT OF ACTIVE DISPOSAL FAILURE AND AS A PRIMARY PASSIVE MODE.

*SNAP, GENERAL (SYSTEMS FOR NUCLEAR AUX. POWER) + ATOMICS INTERNATIONAL + REACTOR SAFETY SYSTEM

14-20030

ALSO IN CATEGORY 15

IMPROVEMENTS IN RADIATION DETECTORS

GROUPEMENT ATOMIQUE ALSACIENNE ATLANTIQUE

BRITISH PATENT 1,061,341 +. 2 PAGES, MARCH 8, 1967

DESCRIBES A NEUTRON DETECTOR THAT EMPLOYS BORON TRIFLUORIDE AND IS MADE MAINLY OF TITANIUM IN ORDER TO BE USED AT EXTREME TEMPERATURES.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BLDG., LONDON, W.C. 2, ENGLAND, .49 COPY

*INSTRUMENTATION, NUCLEAR + BORON + FRANCE + NEUTRON + PATENT + TITANIUM + UNITED KINGDOM

14-20068

ALSO IN CATEGORY 12

SUGALSKI A + JAGIELSKI E J

EXPERIENCES WITH LATEX-TYPE MATERIALS AS DECONTAMINATING AGENTS

KNOLLS ATOMIC POWER LAB., SCHENECTADY, N.Y.

KAPL-P-3366 + CONF-671102-12 +. 7 PAGES, REFERENCES, PRESENTED AT 15TH CONF. ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

STRIPPABLE LATEX WAS VERY EFFECTIVE FOR REMOVING LCOSE CONTAMINATION FROM SURFACES EXPOSED DURING HOT-CELL OPERATIONS AT KAPL. THE MATERIAL WILL CONFINE CONTAMINATION AND, WHEN STRIPPED FROM THE SURFACE, EFFECTIVELY REMOVES A LARGE AMOUNT OF THE CONTAMINATION. THE STRIPPED MATERIAL CAN BE DISCARDED AS SOLID WASTE WITHOUT FURTHER TREATMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + EQUIPMENT, GENERAL + HOT CELL + KAPL (KNOLLS ATOMIC POWER LABORATORY)

14-20071

ALSO IN CATEGORY 15

NOVIKOV YV + TITOVA IN + POLYNAKOVA AA

RADIUM CONTENT OF THE HUMAN BODY

ERISMAN MOSCOW SCIENTIFIC RESEARCH INSTITUTE OF SANITARY AND HYGIENE

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 5 PAGES, 3 TABLES, REFERENCES, HYGIENE AND SANITATION, 30(7) PP.

48-52 (JULY 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

ALTHOUGH A CONSIDERABLE NUMBER OF PUBLICATIONS HAVE DEALT WITH THE RADIUM CONTENT IN THE HUMAN BODY, THE OPINIONS OF VARIOUS SCIENTISTS ON THE SUBJECT DIFFER. THE AUTHORS OF THE PRESENT PAPER STUDIED THE CONTENT OF RA-226 IN 26 SAMPLES OF BONES IN THE EXTREMITIES OF CREMATED CADAVERS. THE DECEASED WERE FROM 50-82 YEARS OLD. THE RADIUM WAS DETERMINED BY THE RADON CONTENT ON A SCINTILLATION ALPHA-RADIOMETER TYPE RAD-1. THE INVESTIGATION SHOWED THAT THE AVERAGE CONTENT OF RA-226 IN A HUMAN SKELETON AMOUNTED TO $16 \times 10^{(-12)}$ TH CURIE, THAT PRODUCED THE RADIATION OF BONE TISSUE AT A DOSE OF 2 MREM/YEAR. THE AVERAGE RA-226 CONTENT IN THE HUMAN BODY EQUALS $20 \times 10^{(-12)}$ TH CURIE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + RADIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-20072

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20072 *CONTINUED*

ORLOVA EI

MIGRATION OF STRONTIUM-90 IN GROUNDWATERS OF DIFFERENT SALINE COMPOSITION

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 6 PAGES, FIGURES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(7) P53-58 (JULY 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

THE RANGE OF SPREAD OF SR-90 IN A WATER-BEARING STRATUM IS DETERMINED TO A GREAT EXTENT BY THE SALT CONTENT OF GROUNDWATERS. THE MAIN CATIONS THAT MAY INFLUENCE THE MIGRATION OF SR-90 ARE THE NATURAL STRONTIUM, CALCIUM, MANGANESE, AND SODIUM IONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*GROUND WATER, GENERAL + CALCIUM + GROUND WATER, NUCLIDE OCCURRENCE + GROUND WATER, PROPERTY + MAGNESIUM + SODIUM + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-20073

BULANOVA ID + VOROBEV AM

DETERMINATION OF PROTACTINIUM-233 CONCENTRATION IN AIR

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 3 PAGES, 3 REFERENCES, HYGIENE AND SANITATION, 30(7), PP. 83-85 (JULY 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

REPORTS A PROCEDURE FOR DETERMINING PA-233 IN AIR IN THE PRESENCE OF THORIUM, URANIUM-233, AND URANIUM FISSION PRODUCTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, AIR + PROTACTINIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-20074

BYKHOVSKII AV + MALAKHOV SG

HOT PARTICLES IN THE ATMOSPHERE (A REVIEW OF THE LITERATURE)

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 10 PAGES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(7), PP. 104-113 (JULY 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

THE AUTHORS REVIEWED THE LITERATURE ON THE OCCURRENCE AND NATURE OF RADIOACTIVE PARTICLES IN THE ATMOSPHERE. THEY APPEAR TO BE DUE PRIMARILY TO WEAPONS TESTING BUT MAY ORIGINATE FROM WORK WITH RADIOACTIVE MATERIAL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AIR + PARTICLE, RADIOACTIVE + UNION OF SOVIET SOCIALIST REPUBLICS

14-20076

PERTSOV LA

SANITARY-RADIOLOGICAL ASPECTS OF UNDERGROUND NUCLEAR EXPLOSIONS (BASED ON FOREIGN PERIODICALS)

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 7 PAGES, FIGURES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(8), PP. 277-283 (AUG. 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

DISCUSSES THE NATURE OF UNDERGROUND NUCLEAR EXPLOSIONS AND THEIR POSSIBLE USE FOR ENGINEERING PROJECTS. THIS REVIEW, PRIMARILY OF THE U.S. LITERATURE, INCLUDES DISCUSSION OF THE MECHANISMS WHICH MINIMIZE MOVEMENT OF THE RESULTING RADIOISOTOPES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*PLOWSHARE PROGRAM + RADIOACTIVITY, RELEASE + UNION OF SOVIET SOCIALIST REPUBLICS

14-20077

MAREI AN

ENVIRONMENTAL PROTECTION AGAINST RADIOACTIVE CONTAMINATION (BASED ON PROCEEDINGS OF THE THIRD INTERNATIONAL CONFERENCE OF THE PEACEFUL USES OF ATOMIC ENERGY)

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 6 PAGES, REFERENCES, HYGIENE AND SANITATION, 30(8), PP. 284-289 (AUG. 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

VERY BRIEF REVIEW OF MATERIAL PRESENTED AT THE GENEVA CONFERENCE IN 1964. ACTIVITIES IN OTHER COUNTRIES ARE COMPARED WITH THOSE IN RUSSIA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIOACTIVITY, RELEASE + SITING, GENERAL + UNION OF SOVIET SOCIALIST REPUBLICS + WASTE DISPOSAL, GENERAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20078 ALSO IN CATEGORY 15
MALKINA RM + PUCHKOVA SM
EFFECT OF CALCIUM SALTS IN THE DIET ON THE DEPOSITION OF STRONTIUM-90 IN THE BONES OF RATS
TT-66-51033/3 + IPST-CAT.-1541-1543 +. 5 PAGES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(9), PP. 366-370 (SEP. 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

EXPERIMENTS PERFORMED ON RATS DEMONSTRATED THAT CALCIUM WAS NOT ABSORBED UNIFORMLY. THE EXTENT OF CALCIUM ABSORPTION DEPENDED ON THE ANIONS WITH WHICH IT ENTERED THE GASTROINTESTINAL TRACT. THE CALCIUM WAS BEST ABSORBED FROM CHLORIDE AND PHOSPHATE SALTS IN THE RATIO OF 1-1. CALCIUM OXALATE WAS ABSORBED TO AN INSIGNIFICANT EXTENT, AND THE MAIN MASS OF CALCIUM PASSED THROUGH. THUS THE ANION COMPOSITION OF CALCIUM SALTS AFFECTED THE STRONTIUM-90 DEPOSIT IN RAT SKELETONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + CALCIUM + RADIOBIOLOGY + STRONTIUM +
UNION OF SOVIET SOCIALIST REPUBLICS

14-20079 ALSO IN CATEGORY 15
BELOVA RS + STEPANOV SA
THE TOXICITY OF SOLUBLE URANIUM SALTS INGESTED IN WATER
TT-66-51033/3 + IPST-CAT.-1541-1543 +. 1 PAGE, HYGIENE AND SANITATION, 30(9), PP. 457 (SEPT. 1965),
TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

EXPERIMENTAL ORAL ADMINISTRATION OF SOLID URANIUM TO ALBINO RATS AND RABBITS SHOWED THE ABSOLUTE LETHAL DOSE TO BE 2083 MG PER KG FOR RATS AND 400 MG PER KG FOR RABBITS. THE MEAN LETHAL DOSES WERE, RESPECTIVELY, 1408.9 AND 274 MG PER KG. THE MINIMUM TOLERANCE DOSES WERE 250 AND 215 MG PER KG, RESPECTIVELY. DISTRIBUTION OF URANIUM THROUGH THE BODY WAS STUDIED. PARTICULAR DAMAGE WAS OBSERVED IN THE KIDNEY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + RADIOBIOLOGY + UNION OF SOVIET SOCIALIST REPUBLICS +
URANIUM

14-20080 ALSO IN CATEGORY 15
ZHAKOV IG + ZVEREV FP + KOMAROVA VI + SUKHOVATYKH LS
THE INTENSITY OF GAMMA-RADIATION AROUND INSTITUTIONS PROVIDING RADIOTHERAPY
TT-66-51033/3 + IPST-CAT.-1541-1543 +. 2 PAGES, HYGIENE AND SANITATION, 30(9), PP. 457-458 (SEPT. 1965),
TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

STUDIED THE GAMMA RADIATION IN VICINITY OF TWO INSTITUTIONS USING RADIOTHERAPY TREATMENT.
DOSE LEVELS UP TO 0.3 MR PER HR WERE FOUND AT WINDOWS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*RADIOLOGY + COBALT + DOSE MEASUREMENT, EXTERNAL + GAMMA + GOLD + RADIATION INJURY, TREATMENT OF + RADIUM +
UNION OF SOVIET SOCIALIST REPUBLICS

14-20084 ALSO IN CATEGORY 16
GIFFORD GA
THE RISE OF STRONGLY RADIOACTIVE PLUMES
US DEPARTMENT OF COMMERCE, WASHINGTON, D. C.
5 PAGES, FIGURES, REFERENCES, JOURNAL OF APPLIED METEOROLOGY, VOL. 6(4), PP. 644-649 (AUGUST 1967)

THE PRESENCE OF RADIOACTIVE GASES IN A PLUME, SUCH AS COULD OCCUR IN A REACTOR ACCIDENT, LEADS TO THE ADDITION OF BUOYANCY TO THE PLUME AT AN APPROXIMATELY LINEAR RATE. BUOYANCY MIGHT ALSO BE ADDED TO PLUMES BY CHEMICAL REACTIONS, RADIATION, OR LATENT HEAT EXCHANGE. THE RESULTING PLUME RISE IS CALCULATED BY A MODEL SIMILAR TO THAT USED TO CALCULATE THE RISE OF ORDINARY PLUMES. THE CASE OF A RADIOACTIVE PLUME IS EXAMINED IN SOME DETAIL. FOR THE SLOW LEAKAGE OF RADIOACTIVE GASES ASSUMED TO OCCUR UNDER POSTULATED REACTOR ACCIDENT CONDITIONS, PLUME RISE DUE TO RADIOACTIVITY CAN BE NEGLECTED. FOR FASTER LEAKAGE RATES OR FOR LARGER REACTORS, PLUME RADIOACTIVITY LEADS TO SIGNIFICANT RISES.

*BUOYANT RISE + *MATHEMATICAL TREATMENT + *RADIOACTIVITY, RELEASE + CONCENTRATION, GROUND LEVEL +
HEIGHT OF RISE + PLUME BEHAVIOR, GENERAL + SAFETY STUDY + SOURCE, CONTINUOUS

14-20090 ALSO IN CATEGORY 16
BELCKHOVA NC + KAROL IL
A CONTRIBUTION TO THE THEORY OF RADIOACTIVE EMANATION PROPAGATION IN THE SURFACE LAYER OF THE ATMOSPHERE
9 PAGES, 1 FIGURE, 2 TABLES, 15 REFERENCES, FIZ. ATMOS OKEANA, 3(7), PAGE 733-741 (1967) IN RUSSIAN

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20090 *CONTINUED*

THE ONE-DIMENSIONAL PROBLEM OF THE RADIOACTIVE EMANATION VERTICAL PROPAGATION IN THE SOIL AIR AND IN THE BOUNDARY LAYER OF THE ATMOSPHERE IS CONSIDERED FOR THE SHVETZ-YUDIN MODEL OF VERTICAL TURBULENT DIFFUSION COEFFICIENT $K\text{-SUB-Z}$ CHANGING WITH HEIGHT. IT IS FOUND THAT THIS PROBLEM IS QUASI-STATIONARY FOR THORON (RN-220). THE CHANGE OF $K\text{-SUB-Z}$ IN THE SURFACE LAYER OF THE ATMOSPHERE HAS NO INFLUENCE ON THE EXHALATION RATE OF RADON, AND IT HAS SMALL INFLUENCE ON THE EXHALATION RATE OF THORON UNDER THE CONSIDERED ASSUMPTIONS. THE OBTAINED FORMULAE ARE APPLIED TO THE ESTIMATES OF THE DAILY VARIATION OF $K\text{-SUB-Z}$ IN THE FIRST SEVERAL METERS ABOVE THE GROUND AND TO THE THORON EXHALATION RATE USING THE PUBLISHED DATA OF THORON CONCENTRATION MEASUREMENTS IN THE SURFACE LAYER OF THE ATMOSPHERE.

*BOUNDARY LAYER + *DIFFUSION COEFFICIENT + *SOIL, NUCLIDE OCCURRENCE + *THEORETICAL INVESTIGATION + AEROSOL, RADIOACTIVE + ATMOSPHERIC STABILITY + TESTING + THORON

14-20092 ALSO IN CATEGORY 15
PUBLIC HEALTH ENGINEERING ABSTRACTS - 2404-2703
PUBLIC HEALTH SERVICE
39 PAGES, PUBLIC HEALTH ENGINEERING ABSTRACTS, 47(10) (OCTOBER 1967)

THIS PUBLICATION REPRESENTS A MONTHLY REVIEW OF MORE THAN 800 DOMESTIC AND FOREIGN JOURNALS OF SCIENCE AND ENGINEERING, REPORTS OF STATE AND FEDERAL GOVERNMENTS, AND REPORTS AND PROCEEDINGS OF SCIENTIFIC RESEARCH GROUPS. THE ARTICLES ABSTRACTED ARE SELECTED FOR THEIR RELATIONSHIP AND IMPORTANCE TO ENVIRONMENTAL HEALTH. SUBJECTS AND AUTHORS OF ABSTRACTED ARTICLES ARE CROSS-REFERENCED IN AN ANNUAL INDEX ISSUE. REPRINT REQUESTS SHOULD BE DIRECTED TO THE AUTHOR OR PUBLISHER OF THE COMPLETE ARTICLE.

*ATMOSPHERIC POLLUTION + *CONTAMINATION + *RADIOLOGY + *WATER POLLUTION + BIBLIOGRAPHY + BIOLOGICAL CONCENTRATION, MILK + HAZARD, RELATIVE + SAMPLING + WASTE TREATMENT, SOLID

14-20093 ALSO IN CATEGORY 15
ALLEN RS
RADIONUCLIDES IN MILK AND MILK PRODUCTS
IOWA STATE UNIV., AMES
2 PAGES, 5 REFERENCES, J. DAIRY SCI., 49, PAGE 899 AND 900, (JULY 1966)

DISCUSSES HOW MILK AND MILK PRODUCTS SERVE AS MAJOR ROUTES OF RADIONUCLIDE CONTAMINATION IN MAN, PARTICULARLY IN CHILDREN. ISOTOPES CONSIDERED TO BE MOST HAZARDOUS IN MILK INCLUDE I-131, SR-90, BA-140, AND CS-137. IN A STUDY OF MILK FROM COWS IN UTAH, MINNESOTA, AND IOWA, I-131 LEVELS UP TO 710 PC/L OCCURRED IN COWS ON PASTURE, WHEREAS THOSE ON STORED FEED HAD LEVELS LESS THAN 60 PC/L. LEVELS OF MILK I-131 DECREASED RAPIDLY AFTER ANIMALS WERE REMOVED FROM PASTURE. MARKED REDUCTION IN MILK CONSUMPTION COULD BE MORE OF A HEALTH HAZARD THAN IRRADIATION EFFECTS RESULTING FROM MILK CONTAINING LOW LEVELS OF THESE ISOTOPES. LEVELS OF SR-90 AND THE OTHER RADIONUCLIDES CAN BE KEPT LOW BY FEEDING ROUGHAGES THAT HAVE BEEN UNDER STORAGE PRIOR TO FALLOUT.

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *INGESTION + *IODINE + BARIUM + BIOLOGICAL CONCENTRATION, MILK + CESIUM + STRONTIUM

14-20094
VERESKUNOV V
TREATMENT OF AEROSOLS AND VOLATILIZATION PRODUCTS DURING WASTE PROCESSING OPERATIONS
4 PAGES, AT. ENERG. REV. 5(2), PAGE 173-176, (DECEMBER 1966)

THE MEETING, ATTENDED BY REPRESENTATIVES OF SEVERAL COUNTRIES, WAS HELD IN TURKEY. PARTICIPANTS DISCUSSED PROCESSES FOR WHICH THE PROPER CHOICE AND OPERATION OF A GAS PURIFICATION SYSTEM IS OF VERY GREAT IMPORTANCE, E.G., THE PROCESSING OF HIGH-ACTIVITY LIQUID WASTES, THE INCINERATION OF SOLID RADIOACTIVE WASTES, AND THE INCORPORATION OF LOW- AND MEDIUM-ACTIVITY WASTES IN BITUMEN.

*WASTE TREATMENT, GAS + *WASTE TREATMENT, SOLID + ADSORPTION + AEROSOL, RADIOACTIVE + FILTER + INCINERATION + TURKEY + WASTE TREATMENT, LIQUID

14-20098 ALSO IN CATEGORY 15
EFFECTS OF RADIATION FROM FALLOUT
2 PAGES, LANCET 1, PAGE 1254 AND 1255, (JUNE 4, 1966)

REVIEWS A NEW EVALUATION OF THE POSSIBLE EFFECTS ON POPULATIONS OF FALLOUT FROM NUCLEAR TEST EXPLOSIONS MADE IN A REPORT TO THE MEDICAL RESEARCH COUNCIL (UK). THE BASIS FOR ESTIMATING RISKS IS TAKEN FROM NEW DATA SUBMITTED TO THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION, WHICH ARE EXPRESSED AS THE NUMBERS OF ADDITIONAL CASES OF LEUKEMIA, THYROID CANCER, AND ALL FATAL CANCERS THAT MIGHT BE EXPECTED OVER AND ABOVE THE NATURAL INCIDENCE IF A POPULATION OF ONE MILLION PERSONS WERE EXPOSED TO 1 RAD OF RADIATION (ABOUT 10 TIMES THE AVERAGE ANNUAL BACKGROUND DOSE). THE AVAILABLE INFORMATION NOW SUGGESTS THAT, AFTER ONE MILLION PEOPLE WERE EXPOSED TO THIS HYPOTHETICAL DOSE, A TOTAL OF 20 ADDITIONAL CASES OF LEUKEMIA MIGHT ARISE, OVER THE NEXT 10 TO 20 YR. ALL OTHER FATAL MALIGNANCIES MIGHT INCREASE BY ANOTHER 20 CASES, AS WELL AS 10 TO 20 ADDITIONAL CASES OF THYROID CANCER.

*FALLOUT + *POPULATION EXPOSURE + *RADIATION EFFECT + CESIUM + DOSE + IODINE + NUCLEAR DETONATION +

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20098 *CONTINUED*
RADIOLOGICAL ASSISTANCE + STRONTIUM + UNITED KINGDOM

14-20099
TADMOR J + COWSER KE
UNDERGROUND DISPOSAL OF KRYPTON-85 FROM NUCLEAR FUEL REPROCESSING PLANTS
HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.
8 PAGES, 1 FIGURE, 36 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 6 (3) PAGE 243-250, (OCTOBER 3, 1967)

EVALUATES DIFFERENT METHODS FOR LARGE-SCALE REMOVAL OF KR-85 FROM THE OFF-GAS STREAM OF A PROCESSING PLANT AND OF THE FEASIBILITY OF UNDERGROUND DISPOSAL OF KR-85. ALTHOUGH THE APPARENT ADVANTAGES ON UNDERGROUND DISPOSAL ARE ITS RELATIVE SIMPLICITY AND EFFECTIVENESS, ONE SEVERE REQUIREMENT IS THAT THE DISPOSAL FORMATION MUST BE ESSENTIALLY FREE OF VERTICAL CHANNELS. THE PRINCIPAL MECHANISMS BY WHICH KR-85 MAY BE RETARDED OR RETAINED UNDERGROUND INCLUDE ADSORPTION AND TRAPPING. IN THE ABSENCE OF CONVECTIVE TRANSPORT, VERTICAL UNDERGROUND MOVEMENT IS INFLUENCED BY MOLECULAR DIFFUSION. THESE MECHANISMS ARE EVALUATED FOR QUANTITIES OF KR-85 AND VOLUMES OF OFF-GAS ASSUMED TO BE PRODUCED AT A 10 TONS/DAY REPROCESSING PLANT.

*FUEL REPROCESSING + *KRYPTON + *WASTE DISPOSAL, GAS + *WASTE DISPOSAL, TERRESTRIAL + ADSORPTION + DIFFUSION + SOLVENT EXTRACTION PROCESS

14-20384
ENVIRONMENTAL LEVELS OF RADIOACTIVITY FOR THE OAK RIDGE AREA. REPORT FOR PERIOD JULY-DECEMBER 1965
OAK RIDGE NATIONAL LAB., TENN.
TID-23197 +. 17 PAGES, FIGURES, 1966

SURVEILLANCE OF THE RADIOACTIVITY IN THE OAK RIDGE ENVIRONS INDICATED THAT THE MAJOR PART OF THE RADIOACTIVITY DETECTED CONTINUES TO BE THE RESULT OF FALLOUT FROM WEAPONS TESTING. WHILE SOME LOW-LEVEL RADIOACTIVITY IS BEING RELEASED TO THE ENVIRONMENT FROM PLANT OPERATIONS, THE RESULTING CONCENTRATIONS IN BOTH THE ATMOSPHERE AND SURFACE STREAMS OF THE OAK RIDGE ENVIRONMENT ARE WELL BELOW ESTABLISHED MAXIMUM PERMISSIBLE CONCENTRATIONS AND INTAKE GUIDES FOR THE NEIGHBORING POPULATION.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + *WASTE DISPOSAL, GENERAL + AIR + BIOLOGICAL CONCENTRATION, MILK + FALLOUT + GAMMA + ORNL (OAK RIDGE NATIONAL LABORATORY) + RIVER, CLINCH + USAEC (U.S. ATOMIC ENERGY COMMISSION) + WASTE DISPOSAL, RIVER

14-20435
RAMDOHR H
WHITHER WITH ATOMIC WASTE
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
ORNL-TR-1701 +. 17 PAGES, FIGURES, TRANSLATED FROM UMSCH. WISS. TECH., 67, PAGE 219-224, (1967)

DESCRIBES THE NATURE OF RADIOACTIVE WASTE AND OUTLINES PAST AND CURRENT METHODS FOR DISPOSAL AND CONTAINMENT. FORECASTS WASTE QUANTITIES IN WEST GERMANY AND PLANNED DISPOSAL PRACTICES.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE MANAGEMENT + GERMANY + WASTE DISPOSAL, GENERAL + WASTE SOURCE AND TYPE + WASTE STORAGE

14-20436
KULBASHNAYA MV + FOMIN YK
CONCERNING INFLUENCE OF SURFACE ACTIVE AGENTS ON BITUMINIZATION PROCESS OF RADIOACTIVE WASTE
3 PAGES, 3 FIGURES, 8 REFERENCES, AT. ENERGIYA 22(5), PAGE 397-399, (1967), IN RUSSIAN

IN THE BITUMENIZATION OF RADIOACTIVE WASTES, THE PRESENCE OF SURFACE-ACTIVE SUBSTANCES CAUSED A CROSS-LINKING OF THE SYSTEM AND AN INCREASE IN VISCOSITY. THE MAXIMUM AMOUNT OF SURFACE-ACTIVE SUBSTANCE THAT COULD BE TOLERATED IN THE COMPOUND WAS 24%. IT WAS POSSIBLE TO EXPOSE THE COMPOUNDS TO 140-190 C FOR 2 TO 3 HR WITHOUT SIGNIFICANTLY INCREASING THEIR VISCOSITY OR THE DIFFICULTY OF REMOVING THE BITUMEN COMPOUND FROM THE APPARATUS.

*WASTE TREATMENT, GENERAL + UNION OF SOVIET SOCIALIST REPUBLICS + WASTE TREATMENT, FIXATION

14-20437
RAUZEN FV
DECONTAMINATING LOW-ACTIVITY EFFLUENTS BY ELECTRODIALYSIS WITH ION-EXCHANGE MEMBRANES
4 PAGES, 2 FIGURES, 3 TABLES, 5 REFERENCES, AT. ENERGIYA 22(5), PAGE 393-396, (1967), IN RUSSIAN

THE RESULTS OBTAINED IN STUDIES ON THE POSSIBILITY OF USING ELECTRODIALYSIS FOR PROCESSING LOW-ACTIVITY WASTE WATER ARE PRESENTED. IT WAS SHOWN THAT ELECTRODIALYSIS MAY BE USED FOR

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20437 *CONTINUED*

PURIFYING, TO PERMISSIBLE CONCENTRATION LEVELS, SOLUTIONS CONTAINING LESS THAN 100 MG OF SALTS PER LITER AND FOR DESALTING MORE CONCENTRATED SOLUTIONS. IF THE WASTE WATERS CONTAIN MORE THAN 5 G OF SALT PER LITER, DESALTING WITH SIMULTANEOUS PRODUCTION OF ACID AND ALKALI NEEDED FOR THE PROCESS IS RECOMMENDED.

*WASTE TREATMENT, GENERAL + UNION OF SOVIET SOCIALIST REPUBLICS + WASTE TREATMENT, LIQUID

14-20438 ALSO IN CATEGORY 15

BOLAND JR.

TRINITY WEAPON SITE RADIATION LEVELS

EDGERTON, GERMESHAUSEN AND GRIER, INC., SANTA BARBARA, CALIFORNIA

2 PAGES, 2 FIGURES, 1 REFERENCE, HEALTH PHYSICS 13(1) PAGE 87 AND 88, (JANUARY 1967)

OUTLINES THE RESULTS OF A RADIOLOGICAL SURVEY CONDUCTED IN THE SPRING OF 1961 OF THE AREA IN THE VICINITY OF THE TRINITY (ALAMOGORDO) WEAPON SITE, WHERE THE FIRST NUCLEAR WEAPON WAS DETONATED ON JULY 16, 1945. THIS SITE IS WITHIN THE PRESENT BOUNDARIES OF THE WHITE SANDS MISSILE RANGE. LOW LEVELS OF RESIDUAL RADIOACTIVITY WERE INDICATED. THESE ARE SHOWN IN GRAPHICAL FORM. AN ACTIVITY SPECTRUM ANALYSIS WAS ALSO PERFORMED ON THE FUSED, GREEN, GLASS-LIKE SOIL, KNOWN AS TRINITITE. IT WAS CONCLUDED THAT RESIDUAL RADIATION AT THE SITE WILL CONTINUE TO BE EVIDENT FOR SOME YEARS TO COME (ALTHOUGH NOT VERY SERIOUS FROM THE STANDPOINT OF THE CASUAL VISITOR).

*TEST, WEAPONS (HP ASPECTS) + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, GENERAL + MONITORING PROGRAM, ENVIRONMENTAL + UNITED STATES

14-20439

ATKINS DH + CHADWICK RC + CHAMBERLAIN AC

DEPOSITION OF RADIOACTIVE METHYL IODIDE ON VEGETATION

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND

2 PAGES, 1 TABLE, 10 REFERENCES, HEALTH PHYSICS 13, PAGE 91 AND 92, (JANUARY 1967)

WIND TUNNEL AND FIELD EXPERIMENTS TO DETERMINE THE EXTENT OF DEPOSITION OF CH31-132 ON VEGETATION ARE DESCRIBED. THE EXPERIMENTS INDICATED THAT METHYL IODIDE IS VERY POORLY ABSORBED BY VEGETATION. IT IS POSSIBLE THAT THE SMALL UPTAKE OBSERVED WAS DUE TO TRACES OF ELEMENTAL IODINE. THE POSSIBILITY ARISES THAT PROLONGED EXPOSURE OF A CLOUD OF METHYL IODIDE TO SUNLIGHT MIGHT LEAD TO DISSOCIATION AND FORMATION OF ELEMENTAL IODINE, WHICH WOULD THEN BE AVAILABLE TO PLANTS.

*BIOLOGICAL CONCENTRATION, VEGETATION + *FISSION PRODUCT RELEASE, GENERAL + BIOLOGICAL CONCENTRATION, ANIMAL FEED + FISSION PRODUCT, VOLATILE + HARWELL (UK) + IODINE

14-20440

LANZOLA E + SPINA AM + ALASIA AM

OSSEOUS DEPOSITION OF RADIOACTIVE STRONTIUM IN CATTLE OF VARIOUS AGES

UNIVERSITY OF ROME

9 PAGES, 2 FIGURES, 3 TABLES, 7 REFERENCES, NUOVI ANN. IG. MICROBIOL. 15, PAGE 552-560, (NOV.-DEC.-1964), IN ITALIAN

IN THE SPRING OF 1962, ABOUT 6 MONTHS AFTER A SERIES OF SOVIET THERMONUCLEAR TESTS, SR-89 AND SR-90 WERE DETERMINED IN THE BONES OF CATTLE OF VARIOUS AGES. THE RESULTS ALSO SHOW THAT 4-YR-OLD CATTLE HAD ACCUMULATED THE HIGHEST OSSEOUS LEVELS OF RADIOSTRONTIUM. THIS IS ATTRIBUTED TO THE HIGH LEVELS OF RADIOSTRONTIUM FROM FALLGUT IN 1958-1959, WHEN THE CATTLE WERE MATURING. TEN-YR-OLD CATTLE HAD THE LOWEST SR-90 LEVELS IN BONE.

*FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL + ITALY + STRONTIUM

14-20441

ALSO IN CATEGORY 15

HEALTH PHYSICS AND SAFETY ANNUAL REPORT FOR 1966

OAK RIDGE NATIONAL LAB., TENN.

ORNL-4146 +. 88 PAGES, 37 FIGURES, 26 TABLES, 12 REFERENCES, AUGUST 1967

THE GASEOUS AND LIQUID WASTE RELEASES FROM THE LABORATORY WERE SUCH THAT THE CONCENTRATION OF RADIOACTIVE MATERIALS IN THE ENVIRONS WAS WELL BELOW THE MAXIMUM LEVELS RECOMMENDED BY THE NCRP AND FRC. NO EMPLOYEE RECEIVED AN EXTERNAL OR INTERNAL RADIATION DOSE WHICH EXCEEDED THE MAXIMUM PERMISSIBLE LEVELS RECOMMENDED BY THE FRC. THE HIGHEST WHOLE-BODY DOSE EQUIVALENT RECEIVED BY AN EMPLOYEE WAS ABOUT 4.9 REMS (40% OF THE MAXIMUM PERMISSIBLE ANNUAL DOSE). NO EMPLOYEE HAD A CUMULATIVE WHOLE-BODY DOSE OR BODY BURDEN EXCEEDING THE PERMISSIBLE. 22 UNUSUAL OCCURRENCES WERE RECORDED, A DECREASE OF 46% OVER THE 41 REPORTED IN 1965. THE LABORATORY EXPERIENCED 4 DISABLING INJURIES DURING 1965, A FREQUENCY RATE OF 0.51.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + *RADIATION SAFETY AND CONTROL + DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, INTERNAL + FALLOUT + INSTRUMENTATION, RADIATION MONITORING + ORNL (OAK RIDGE NATIONAL LABORATORY) + RADIATION PROTECTION, ORGANIZATION

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20442
ATHAVALE RN + LAL D + RAMA
MEASUREMENT OF TRITIUM ACTIVITY IN NATURAL WATERS. PART II. CHARACTERISTICS OF GLOBAL FALLOUT OF H-3 AND SR-90
TATA INST. OF FUNDAMENTAL RESEARCH, BOMBAY
31 PAGES, 10 FIGURES, 6 TABLES, 17 REFERENCES, PROC. INDIAN ACAD. SCI., SECT A65, PAGE 73-103, (FEBRUARY 1967)

THE CONCENTRATIONS OF TRITIUM WERE DETERMINED IN WET PRECIPITATIONS OCCURRING OVER THE INDIAN SUBCONTINENT DURING 1961 TO 1964. THE TRITIUM CONCENTRATIONS VARIED SIGNIFICANTLY DURING THE PERIOD OF OBSERVATION. HIGHEST CONCENTRATIONS WERE OBSERVED DURING 1963. THE TRITIUM AND STRONTIUM DATA FOR THE INLAND, COASTAL, AND ISLAND STATIONS WERE ANALYZED TO EVALUATE THE IMPORTANCE OF REEVAPORATION OF TRITIUM FROM CONTINENTS AND THE MOLECULAR EXCHANGE OF ATMOSPHERIC TRITIUM WITH OCEANIC WATER.

*FALLOUT + INDIA + PRECIPITATION + RAINOUT + STRONTIUM + TRITIUM

14-20444 ALSO IN CATEGORY 15
LIEBEN J + HILL PC
HOW A STATE HEALTH AGENCY PREVENTS OCCUPATIONAL DISEASE
PENNSYLVANIA DEPT. OF HEALTH, HARRISBURG
6 PAGES, 3 FIGURES, 3 TABLES, IND. MED. SURG., 35, PAGE 489-494, (JUNE 1966)

STATE REGULATIONS AND THEIR ENFORCEMENT RELATING TO IONIZING RADIATION AND OTHER OCCUPATIONAL HAZARDS ARE SURVEYED. THE ADVISORY HEALTH BOARD OF THE STATE HEALTH DEPARTMENT ADOPTED A REGULATION FOR RADIATION PROTECTION IN OCTOBER, 1956, WHICH APPLIES TO ALL SOURCES OF IONIZING RADIATION INCLUDING RADIATION MACHINES AND RADIOACTIVE MATERIAL. THUS THE X-RAY EQUIPMENT IN HOSPITALS, MEDICAL AND DENTAL OFFICES, AND THAT USED IN INDUSTRY AS WELL AS RADIOACTIVE MATERIAL UTILIZED BY THE MEDICAL PROFESSION AND INDUSTRY COME WITHIN ITS SCOPE. THE REGISTRATION OF ALL SUCH SOURCES WAS REQUIRED BY THE REGULATION.

*RADIATION PROTECTION, ORGANIZATION + RADIATION SAFETY AND CONTROL + RADIOLOGY + RADIUM + UNITED STATES + X-RAY

14-20445
HAWKINS RH + HORTON JH
BENTONITE AS A PROTECTIVE COVER FOR BURIED RADIOACTIVE WASTE
E. I. DU PONT DE NEMOURS AND CO., AIKEN, S. C.
7 PAGES, 4 FIGURES, 8 REFERENCES, HEALTH PHYS., 13, PAGE 287-292, (MARCH 1967)

WYOMING BENTONITE CLAY PREVENTED INFILTRATION OF RAINWATER INTO RADIOACTIVE WASTE BURIED ABOVE THE WATER TABLE IN A HUMID REGION. A LYSIMETER STUDY SHOWED THAT A 1-IN.-THICK BENTONITE LAYER WAS ADEQUATE AND THAT DRYING AND CRACKING OF THE BENTONITE DURING PROLONGED DROUGHT COULD BE PREVENTED WITH 2 FT OF SOIL COVER. A LARGE SUBSURFACE BENTONITE STRUCTURE BUILT IN THE FIELD DEMONSTRATED THE FEASIBILITY OF APPLYING A CONTINUOUS BENTONITE LAYER OVER EXTENSIVE VERTICAL AND HORIZONTAL AREAS. THE TEST WAS EVALUATED BY D2O TRACING OF SOIL MOISTURE BOTH OUTSIDE AND UNDER THE BENTONITE STRUCTURE. STRUCTURES MUST BE MAINTAINED FREE OF ALL PLANT GROWTH SINCE BENTONITE IS EASILY PENETRATED BY ROOTS.

*WASTE DISPOSAL, SOLID + SAVANNAH RIVER PLANT + WASTE DISPOSAL, TERRESTRIAL

14-20557 ALSO IN CATEGORY 15
WORTLEY G
DIETARY LEVELS OF STRONTIUM-90, CESIUM-137, AND IODINE-131 FOR THE YEARS 1964-66. INTERIM REPORT, JANUARY 1, 1964-MARCH 14, 1966
JOINT FAO/IAEA DIV. OF ATOMIC ENERGY IN AGRICULTURE
NP-16543 +. 12 PAGES, TABLES, REFERENCES, MARCH 8, 1966

DATA INDICATE THAT THE LEVELS OF SR-90 AND CS-137 IN ITEMS OF DIET AND TOTAL DIET ROSE TO A PEAK DURING 1964 IN SOME PARTS OF THE WORLD, AND SHOWED A DOWNWARD TREND IN 1965. THE PEAK LEVEL OF 1964, HOWEVER, WAS NOT MUCH GREATER THAN LEVELS RECORDED IN 1963, WHICH LATTER WAS THE HIGHEST UP TO THAT TIME. THE 1964 LEVELS WOULD STILL NOT CAUSE CONCERN FROM THE POINT OF VIEW OF HAZARD TO HUMAN HEALTH. FROM THIS, IT FOLLOWS THAT UNLESS MORE WEAPONS TESTS ARE MADE IN THE MEGATON RANGES, THERE WILL BE NO NEED TO TAKE PRECAUTIONARY MEASURES FOR THE PROTECTION OF THE PUBLIC. REFERENCES AND TABULATED DATA ARE GIVEN.

AVAILABILITY - MICROCARD EDITIONS INC., (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + CESIUM + DIETARY HABIT +
IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + IODINE + STRONTIUM

14-20559
BRENDAKOV VF + IOKHELSON SV + CHURKIN VN

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20559 *CONTINUED*
POTASSIUM, RADIUM, AND THORIUM CONTENTS IN CAUCASIAN SOILS
6 PAGES, 2 FIGURES, 1 TABLE, 8 REFERENCES, POCHVOVEDENIE 1, PAGE 31-36, (JANUARY 1967)

THE DISTRIBUTION OF NATURAL RADIOACTIVE ELEMENTS IN THE UPPER LAYER OF CAUCASIAN SOILS IS DISCUSSED. A METHOD OF COLLECTING AND ANALYZING SOIL SAMPLES IS DESCRIBED. SCHEMATIC MAPS OF POTASSIUM, RADIUM, AND THORIUM DISTRIBUTION IN THE UPPER LAYER OF CAUCASIAN SOILS ARE PRESENTED.

*SOIL, NUCLIDE OCCURRENCE + POTASSIUM + RADIUM ISOTOPE + RADIUM + SOIL + THORIUM + UNION OF SOVIET SOCIALIST REPUBLICS

14-20568
AGNEDAL PO + BERGSTROM SO
RECIPIENT CAPACITY OF TVAREN, A BALTIC BAY
AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN
AE-234 +. 21 PAGES, FIGURES, TABLES, REFERENCES, JULY 1966, PRESENTED AT THE IAEA SYMPOSIUM ON THE DISPOSAL OF RADIOACTIVE WASTES INTO SEAS, OCEANS, AND SURFACE WATERS, VIENNA, MAY 16-20, 1966

THE RESEARCH STATION AT STODSVIK IS THE MAIN NUCLEAR SITE IN SWEDEN, INCLUDING TWO REACTORS, LABORATORIES, AND WASTE-DISPOSAL FACILITIES. MOST OF THE WASTE IS RELEASED TO A STRAIT LEADING TO THE BAY. THE BRACKISH WATER OF THE BALTIC IS DIFFERENT CHEMICALLY AND BIOLOGICALLY FROM FRESH WATER OR MARINE ENVIRONMENTS. PERMISSIBLE RELEASES WERE CALCULATED AND NECESSARY APPROVALS FOR RELEASE SECURED FROM THE COURTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE DISPOSAL, OCEAN + OCEAN AND SEA + SWEDEN + WASTE DISPOSAL, LIQUID + WASTE TREATMENT, GENERAL

14-20569
HANEY WA
THE EFFECTS OF BEN FRANKLIN DAM ON HANFORD. PART I. WASTE DISPOSAL FACILITIES INVESTIGATIONS. PART II. GROUND WATER FLOW SYSTEM ANALYSIS. FINAL REPORT
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-412 +. 101 PAGES, 44 FIGURES, 7 TABLES, REFERENCES, MAY 1967

BEN FRANKLIN DAM HAS BEEN PROPOSED ON THE COLUMBIA RIVER AT MILE 348, WHICH IS AT THE HANFORD WORKS. AN INVESTIGATION WAS MADE OF THE EFFECT ON GROUND WASTE DISPOSAL PRACTICE OF THE RESULTING USE IN GROUND WATER LEVEL. WATER-TABLE INCREASES OF 20 AND 25 FT ARE EXPECTED BENEATH 200 WEST AND 200 EAST AREAS, RESPECTIVELY, FROM A 400-FT RESERVOIR LEVEL AND A FLOW RATE OF 150,000 CFS. NO MAJOR REMEDIAL ACTION APPEARS NECESSARY FROM THE STANDPOINT OF 200-AREA OPERATIONS AS A RESULT OF THE DAM CONSTRUCTION. HOWEVER, PROVISIONS SHOULD BE MADE FOR A POSSIBLY MINOR CORRECTIVE ACTION DEPENDENT ON THE RESULT OF A MORE COMPREHENSIVE FLOW-SYSTEM ANALYSIS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE DISPOSAL, LIQUID + BATTELLE NORTHWEST + GEOLOGICAL CONSIDERATION, GENERAL + HANFORD SITE + RIVER, COLUMBIA + WASTE DISPOSAL, TERRESTRIAL + WATER, GENERAL

14-20570
RYMER GT + HENNINGER WA + GRANDY GL
THE DETERMINATION OF AIRBORNE RADIOACTIVITY DURING NERVA REACTOR TESTING
WESTINGHOUSE ELECTRIC CORP.
CONF-670602 +. 2 PAGES, 1 TABLE, 1 REFERENCE, ANS TRANSACTIONS 10(1), PAGE 1 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

TO DETERMINE THE EXTENT OF FISSION-PRODUCT RELEASE DURING EACH FULL-POWER RUN, SAMPLES OF THE EFFLUENT CLOUD FROM EACH RUN WERE COLLECTED BY FILTERS MOUNTED ON THE WINGS OF RB-57 AIRCRAFT. RADIOCHEMICAL ANALYSIS OF THE FILTERS PROVIDED THE RELATIVE CONCENTRATIONS OF 16 FISSION-PRODUCT NUCLIDES. THE ABSOLUTE CONCENTRATIONS OF THE VARIOUS NUCLIDES PRESENT IN EACH OF THE EFFLUENT CLOUDS WAS DETERMINED BY AN ALIQUOT FACTOR BASED ON THE AMOUNTS OF AG-111 AND CO-115M IN THE EFFLUENT AND IN THE FUEL AFTER REACTOR DISASSEMBLY.

*FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT, AIRBORNE + HYDROGEN + NERVA PROGRAM + RADIOCHEMICAL ANALYSIS + UNITED STATES

14-20571 ALSO IN CATEGORY 15
KOCHENDORFER DB + ULBERG JC
MODELS FOR ESTIMATING PARTICLE RETENTIONS OF HUMANS AND CONSEQUENT BETA DOSES FROM DEBRIS IN AEROSPACE NUCLEAR APPLICATIONS
NAVAL RADIOLOGICAL DEFENSE LAB.
CONF-670602 +. 2 PAGES, ANS TRANSACTIONS 10(1) PAGE 2-3 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

FAILURES DURING ASCENT OF NUCLEAR SPACE-POWER SYSTEMS COULD INTRODUCE RADIOACTIVITY INTO THE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20571. *CONTINUED*

BIOSPHERE UNLESS COUNTERMEASURES ARE TAKEN. ONE APPROACH IS TO DIVIDE, DISPERSE, AND DELAY RETURN OF THE DEBRIS. NRDL HAS BEEN DEVELOPING METHODS FOR QUANTIFYING AND EVALUATING SUCH QUESTIONS AS - (1) HOW MUCH DEBRIS, AS 1- TO 1000-MICRON-DIAM PARTICLES, POTENTIALLY COULD DIRECTLY CONTACT AND BE RETAINED BY MANS SKIN, LUNGS, AND GASTROINTESTINAL TRACT, AND (2) WHAT IS THE BETA DOSE TO TISSUE FOLLOWING SUCH AN APPROACH.

*SPACECRAFT + COMPUTER PROGRAM + COMPUTER, DIGITAL + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT, AIRBORNE + RADIOBIOLOGY

14-20575

RAY JW

GENERATION AND RELEASE OF TRITIUM IN PM-TYPE NUCLEAR POWER PLANTS

BATTELLE MEMORIAL INSTITUTE

CONF-670602 +. 2 PAGES, 6 REFERENCES, ANS TRANSACTIONS 10(1) PAGES 324 AND 325 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

BATTELLE-COLUMBUS INVESTIGATED SOURCES AND MIGRATION MECHANISMS FOR TRITIUM IN PM-TYPE REACTORS. CALCULATIONS SHOWED THAT THE SIGNIFICANT SOURCES WERE TERNARY FISSION AND NEUTRON REACTIONS IN BORON BURNABLE POISON, WITH TERNARY FISSION CONTRIBUTING 90% OF THE TOTAL.

*FISSION PRODUCT RELEASE, GENERAL + BORON + FISSION PRODUCT, VOLATILE + NEUTRON + PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + PM 2A (PORTABLE MEDIUM NUCLEAR POWER PLANT) + PM 3A (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + TRITIUM

14-20576

TRANSPORTATION OF RADIOACTIVE MATERIAL, PART IV, PROPOSED REVISION OF DEPARTMENT OF TRANSPORTATION REGULATIONS - FILM

AEC, DIVISION OF OPERATIONAL SAFETY

3 PAGES, USAEC SAFETY AND FIRE PROTECTION NEWSLETTER, ISSUE NO. 79, JUNE 2, 1967

THIS FILM IS INTENDED TO SUPPLEMENT AND EXPLAIN A PROPOSED REVISION OF THE DEPARTMENT OF TRANSPORTATION REGULATIONS PERTAINING TO THE TRANSPORTATION OF RADIOACTIVE MATERIAL. THE FILM CONSISTS OF A ROUND-TABLE DISCUSSION COVERING THE ORGANIZATION AND FUNCTIONS OF THE NEW DEPARTMENT OF TRANSPORTATION AND THE GENERAL PRINCIPLES USED IN DEVELOPING THE PROPOSED REVISION.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*TRANSPORTATION AND HANDLING + SHIPPING ANALYSIS + SHIPPING CONTAINER + USAEC (U.S. ATOMIC ENERGY COMMISSION)

14-20577

URANIUM HEXAFLUORIDE-HANDLING PROCEDURES AND CONTAINER CRITERIA (ORG-651)

AEC, DIVISION OF OPERATIONAL SAFETY

3 PAGES, USAEC SAFETY AND FIRE PROTECTION NEWSLETTER, ISSUE NO. 77, APRIL 5, 1967

REPORT WAS PREPARED TO BETTER ACQUAINT THE COMMERCIAL SEGMENT OF THE NUCLEAR INDUSTRY WITH AEC ROUTINE HANDLING PROCEDURES AND CONTAINER DESIGN AND UTILIZATION CRITERIA FOR UF₆. THE PROCEDURAL INFORMATION COVERS THE ESSENTIAL ASPECTS OF UF₆ WEIGHING, SAMPLING, CYLINDER EMPTYING AND FILLING, AND CYLINDER INSPECTION, CLEANING, TESTING AND REPAIR. ANALYTICAL PROCEDURES ARE LISTED BY TYPE ONLY SINCE THESE PROCEDURES ARE BEING IMPROVED ON A CONTINUING BASIS. SHIPPING PROCEDURES ARE ALSO DISCUSSED IN VERY GENERAL TERMS SINCE ALL UF₆ SHIPMENTS TO OR FROM THE AEC ARE F.O.B. THE AEC FACILITIES.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*PROCEDURES AND MANUALS + *SHIPPING CONTAINER + *TRANSPORTATION AND HANDLING + URANIUM HEXAFLUORIDE + USAEC (U.S. ATOMIC ENERGY COMMISSION)

14-20581

JAGIELSKI A + LAZARSKI R + STANOCH A

CONTAMINATION OF POLISH MOUNTAIN SOILS WITH STRONTIUM-90

DEPARTMENT OF PHYSICS, COLLEGE OF AGRICULTURE, CRACOW

2 PAGES, 1 TABLE, NUKLEONIKA 11(1), PAGE 57 AND 58, (MAY 1966)

COMPARISON OF THE DATA CONCERNING THE HIGH AND THE WESTERN TATRAS INDICATES THAT WATER FLOWING ON THE SURFACE OF A SLIGHTLY PERMEABLE BASE REMOVES CONTAMINATION MUCH MORE EFFICIENTLY THAN DOES THE WATER SEEPING INTO THE SOIL. AGAIN, WATER FLOWING OVER HIGHLY CALCIFEROUS AREAS AND THUS MORE SATURATED WITH CALCIUM COMPOUNDS, DISSOLVES STRONTIUM COMPOUNDS LESS EFFICIENTLY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA; \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + POLAND + STRONTIUM + WATER, GENERAL

CATEGORY 14
RADIOISOTOPE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20582

CZOSNOWSKA W.

SR-90 IN DIET IN POLAND (AUGUST 1, 1962 TO JULY 31, 1963)

CENTRAL LABORATORY FOR RADIOLOGICAL PROTECTION, WARSAW

2 PAGES, 1 TABLE, NUKLEONIKA 11(1), PAGE 65 AND 66, (MAY 1966).

GIVES DATA FOR SR-90 IN MILK, RYE FLOUR, WHEAT FLOUR, POTATOES, AND CABBAGE. THE RATIO OF SR-90 TO CALCIUM FOR THESE FOODS THROUGHOUT POLAND IS ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + FALLOUT + POLAND + STRONTIUM

14-20583

SEMIANNUAL AND ANNUAL SUMMARY OFF-SITE ENVIRONMENTAL MONITORING REPORT-1965

MALLINCKRODT CHEMICAL WORKS, WELDON SPRING, MO. URANIUM DIVISION

110-23196 +. 18 PAGES, 1 TABLE, 1966

THE AVERAGE URANIUM CONCENTRATION OF ALL OFF-SITE WATER AND AIR SAMPLES COLLECTED DURING THE YEAR WAS 3.6% OF THE MPC, REPRESENTING A SLIGHT INCREASE FROM THE 1964 AVERAGE OF 1.9%. THE AVERAGE RELEASE OF URANIUM-BEARING MATERIALS FROM THE MCW URANIUM DIVISION FACILITIES DURING 1965, AS IN 1964, WAS SUBSTANTIALLY BELOW THE MPC FOR NONOCCUPATIONAL AREAS FOR NATURAL URANIUM. AN EVALUATION OF THE OFF-SITE ENVIRONMENTAL SAMPLING PROGRAM DATA INDICATED THE URANIUM CONCENTRATION FOUND IN THE MISSOURI RIVER, OFF-SITE AIR, LAKES AND STREAMS, ETC., ADJACENT TO THE WELDON SPRING PLANT, DID NOT DIFFER SIGNIFICANTLY FROM THE BACKGROUND URANIUM LEVELS. PROGRAMS TO MINIMIZE THE RELEASE OF URANIUM-BEARING MATERIALS TO THE SURROUNDING ENVIRONMENT WERE OPERATED SATISFACTORILY DURING 1965.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + URANIUM, NATURAL + USAEC (U.S. ATOMIC ENERGY COMMISSION) + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, SOLID

14-20585

ALSO IN CATEGORY 15

ZNEZEVIC Z + KARANOVIC J

EFFECTS OF GAMMA RADIATION (COBALT-60) ON MORTALITY AND MALFORMATIONS IN CHICK EMBRYOS

AEC-TR-6646-4 +. 12 PAGES, FIGURES, TABLES, BULLETIN OF THE BORIS KIDRIC INSTITUTE OF NUCLEAR SCIENCES, 17(4), PAGE 309-316 (1966)

WHITE LEGHORN EMBRYOS IRRADIATED WITH 700 R OF GAMMA RAYS AT A RATE OF 50 R/MIN HAVE DIFFERENT MORTALITY RATES DEPENDING ON THEIR AGE AT THE MOMENT OF IRRADIATION. EMBRYOS OF DIFFERENT AGES WERE IRRADIATED, STARTING WITH THE PREINCUBATION PERIOD UP TO 10 DAYS OF AGE INCLUSIVE. MORTALITY RATE INCREASED WITH AGE. IT WAS HIGHEST IN EMBRYOS AGED 7-9 DAYS. IN MOST CASES DEATH OCCURRED LONGER AFTER IRRADIATION THE OLDER THE EMBRYO AT THE TIME OF EXPOSURE. THERE ARE ALSO TERATOGENIC PERIODS FOR SOME ORGANS, AS SHOWN BY SOME SPECIFIC MALFORMATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION EFFECT + COBALT + GAMMA + RADIOBIOLOGY + YUGOSLAVIA

14-20592

ALSO IN CATEGORY 16

HIZITA A

EFFECT OF RADIOACTIVE FALLOUT UPON THE ELECTRICAL CONDUCTIVITY OF LOWER ATMOSPHERE

RADIATION CENTRE OF OSAKA PREFECTURE, SAKAI, OSAKA

10 PAGES, 5 FIGURES, 4 TABLES, REFERENCES, JOURNAL OF GEOMAGNETISM AND GEOELECTRICITY, 18(3), PAGE 363-372 (1966)

STUDIED THE EFFECT OF RADIOACTIVE FALLOUT UPON THE ELECTRICAL CONDUCTIVITY OF THE LOWER ATMOSPHERE. THE CONDUCTIVITY INCREASED TEMPORARILY IN KYOTO SOON AFTER THE TEST EXPLOSION (50-MEGATON CLASS) CARRIED OUT ON OCTOBER 30, 1961. IT SEEMED REASONABLE TO RELATE THE INCREASE IN CONDUCTIVITY WITH THE INCREASE IN DRY FALLOUT ACCUMULATION ON THE GROUND SURFACE, NOT WITH THE INCREASE IN CONCENTRATION OF RADIOACTIVE DUSTS IN THE AIR.

*ATMOSPHERIC ELECTRICITY + *NUCLEAR EXPLOSION DEBRIS + AEROSOL, RADIOACTIVE + ANALYTICAL TECHNIQUE, AIR + ATMOSPHERIC DIFFUSION + FALLOUT + RAINOUT

14-20611

NATIONAL SYMPOSIUM ON GROUND WATER HYDROLOGY

THE WATER RESOURCES NEWSLETTER 2(6), PAGE 1, AUGUST 1967

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20611 *CONTINUED*

A NATIONAL SYMPOSIUM ON GROUND WATER HYDROLOGY, HELD IN SAN FRANCISCO, NOVEMBER 6-8, 1967, INCLUDED A SESSION ON MODEL AND RADIOISOTOPE TECHNIQUES IN GROUND WATER RESOURCES INVESTIGATIONS.

*GROUND WATER, GENERAL + GROUND WATER, TRACER + MODEL TESTING + RADIOISOTOPE + UNITED STATES

14-20651

WEAVER CL

A PROPOSED RADIOACTIVITY CONCENTRATION GUIDE FOR SHELLFISH

US PUBLIC HEALTH SERVICE

4 PAGES, 1 TABLE, 17 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 491-494, (SEPT. 1967)

THE RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION (ICRP), THE NATIONAL COMMITTEE ON RADIATION PROTECTION (NCRP), AND THE FEDERAL RADIATION COUNCIL (FRC), WERE APPLIED IN DERIVING PROPOSED GUIDES FOR RADIOACTIVITY IN SHELLFISH. FRC REPORT 1 PRESENTS BASIC EXPOSURE CRITERIA, FRC REPORT 2 PRESENTS INTAKE GUIDES FOR STRONTIUM-89, STRONTIUM-90, IODINE-131, AND RADIUM-226, AND NCRP AND ICRP PROVIDE DATA ON THE MAXIMUM PERMISSIBLE CONCENTRATIONS OF RADIONUCLIDES IN WATER. THE PROPOSED GUIDE WAS ASSEMBLED BY THE NATIONAL CENTER FOR RADIOLOGICAL HEALTH IN COLLABORATION WITH THE WATER SUPPLY AND SA RESOURCES PROGRAM OF THE NATIONAL CENTER FOR URBAN AND INDUSTRIAL HEALTH, PUBLIC HEALTH SERVICE.

*BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + FISSION PRODUCT ACTIVITY, GROSS + RADIOISOTOPE + RADIONUCLIDE, INDUCED

14-20652

NULMAN RM + BARETE MV

RADIOACTIVITY IN THE MEXICAN ENVIRONMENT

MEXICO. COMISION NACIONAL DE ENERGIA NUCLEAR

7 PAGES, 10 TABLES, 7 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 495-501, (SEPT. 1967)

THE COMISION NACIONAL DE ENERGIA NUCLEAR IN MEXICO OPERATES SURVEILLANCE NETWORKS MONITORING RADIOACTIVITY IN AIRBORNE PARTICLES, PARTICLES IN FALLOUT AND PRECIPITATION, DRINKING WATER, MILK, FOOD, AND SEA WATER. METHODS OF ANALYSIS AND THE RESULTANT DATA FOR 1965 AND 1966 ARE PRESENTED. THIS SURVEILLANCE PROGRAM WAS INSTITUTED TO PROVIDE A GENERAL PICTURE OF THE RADIOACTIVITY LEVELS IN THE MEXICAN ENVIRONMENT, PROTECTION FOR THE MEXICAN PEOPLE FROM OVERDOSES OF RADIATION, AND INFORMATION FOR THE HANDLING OF LEGAL CLAIMS THAT MAY ARISE AGAINST THE NUCLEAR CENTER OF MEXICO (NOW UNDER CONSTRUCTION).

*MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + FALLOUT + MEXICO + RAINOUT + WATER, DRINKING

14-20653

SECTION I. MILK AND FOOD

16 PAGES, 12 FIGURES, 12 TABLES, 18 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 503-518, (SEPT. 1967)

DATA ARE PRESENTED FOR THE NATIONAL MILK-SURVEILLANCE PROGRAMS (INTERNATIONAL SURVEILLANCE PROGRAMS IN CANADA AND THE PAN AMERICAN AREA, STATE SURVEILLANCE PROGRAMS IN CALIFORNIA, OREGON, AND WASHINGTON, AND FOOD AND DIET SURVEILLANCE FOR TRI-CITIES (NEW YORK, CHICAGO, AND SAN FRANCISCO)).

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK

14-20654

SECTION II. WATER

5 PAGES, 1 FIGURE, 2 TABLES, 2 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 519-523, (SEPT. 1967)

PRESENTS RESULTS FOR GROSS RADIOACTIVITY IN SURFACE WATERS OF THE UNITED STATES AND FOR RADIOACTIVITY IN SURFACE WATERS OF NEW YORK STATE.

*WATER, GENERAL + FALLOUT + GROSS ALPHA + GROSS BETA + STRONTIUM

14-20655

SECTION III. AIR AND DEPOSITION

11 PAGES, 6 FIGURES, 9 TABLES, 9 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 524-534, (SEPT. 1967)

PRESENTS DATA FROM THE CONTINUING PROGRAM OF MEASURING RADIOACTIVITY IN AIRBORNE PARTICLES AND PRECIPITATION. AREAS INCLUDE THE UNITED STATES (INCLUDING ALASKA), CANADA, MEXICO, AND SOUTH AMERICA.

*FALLOUT + GROSS BETA + PLUTONIUM + RAINOUT + STRONTIUM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20656

SECTION IV. OTHER DATA

18 PAGES, 9 FIGURES, 14 TABLES, 5 REFERENCES, RADIOLOGICAL HEALTH AND DATA REPORTS 8(9), PAGE 555-552, (SEPT. 1967)

PRESENTS DATA FROM THE PROGRAM FOR DETERMINING SR-90 LEVELS IN HUMAN BONE FROM ALL AREAS OF THE UNITED STATES. ENVIRONMENTAL RADIOACTIVITY-MONITORING DATA ARE PRESENTED FOR ARGONNE NATIONAL LABORATORY, NATIONAL REACTOR TESTING STATION, THE PORTSMOUTH AREA GASECUS DIFFUSION PLANT, AND THE SAVANNAH RIVER PLANT.

*MONITORING PROGRAM, ENVIRONMENTAL + AIR + ANL (ARGONNE NATIONAL LABORATORY) + BIOLOGICAL CONCENTRATION, MAN + NRTS (NATIONAL REACTOR TEST STATION) + PORTSMOUTH PLANT + SAVANNAH RIVER PLANT + STRONTIUM + WATER, GENERAL

14-20657

ALSO IN CATEGORY 15

HELF S

SECTION V. TECHNICAL NOTES

US ARMY, PICATINNY ARSENAL, DUVER, N.J.

9 PAGES, 4 FIG., 5 TAB., 13 REF., RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 553-562, (SEPT. 1967)

SHORT ARTICLES ARE GIVEN ON - (1) ENVIRONMENTAL RADIOACTIVITY IN WOODS SOIL AT DOVER, NEW JERSEY (PICATINNY ARSENAL), (2) STUDY OF CS-137 BURDENS OF SOME RESIDENTS OF CINCINNATI DURING JUNE 1964-MARCH 1967, AND (3) PLUTONIUM CONCENTRATIONS IN GROUND-LEVEL AIR AND CHANGES IN PU-238/PU-239 RATIOS.

*BIOLOGICAL CONCENTRATION, MAN + *MONITORING PROGRAM, ENVIRONMENTAL + CESIUM + FALLOUT + PLUTONIUM + SOIL, NUCLIDE OCCURRENCE

14-20669

REMMENGA EE + WHICKER FW

SAMPLING VARIABILITY IN RADIONUCLIDE CONCENTRATIONS IN PLANTS NATIVE TO THE COLORADO FRONT RANGE DEPARTMENT OF RADIOLOGY AND RADIATION BIOLOGY, COLORADO STATE UNIVERSITY, FORT COLLINS, COLORADO 7 PAGES, 5 TABLES, 8 REFERENCES, HEALTH PHYSICS 13(9), PAGE 977-983, (SEPT. 1967)

CONCENTRATIONS OF GROSS GAMMA RADIOACTIVITY AND INDIVIDUAL RADIONUCLIDES WERE MEASURED IN TWELVE SPECIES OF NATIVE PLANTS COLLECTED IN THE COLORADO FRONT RANGE IN 1963-64. REPLICATE COLLECTIONS FROM ESTABLISHED PLOTS WERE CARRIED OUT TO SECURE ESTIMATES OF PLOT-SAMPLING VARIABILITY. DATA SUGGESTED THAT POOLING TENDS TO DECREASE WITHIN-PLOT VARIABILITY. LABORATORY AND COUNTING VARIANCES AVERAGED LESS THAN 19% OF THE PLOT-SAMPLING VARIANCES. HETEROGENEOUS VARIANCE AMONG PLOTS AND AMONG SPECIES WAS MORE COMMON FOR CS-137 THAN FOR THE OTHER NUCLIDES STUDIED.

*FALLOUT + BIOLOGICAL CONCENTRATION, VEGETATION + GAMMA + UNITED STATES

14-20670

WITKAMP M + FRANK MI

RETENTION AND LOSS OF CESIUM-137 BY COMPONENTS OF THE GROUND COVER IN A PINE (PINUS VIRGINIANA L.) STAND RADIATION ECOLOGY SECTION, HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN. 6 PAGES, 2 FIGURES, 1 TABLE, 8 REFERENCES, HEALTH PHYSICS 13(9), PAGE 985-990, (SEPTEMBER 1967)

RETENTION, ACCUMULATION, AND LOSS OF CS-137 BY LICHEN, MOSS, NEEDLE LITTER, AND PLANT ROSETTES WERE MEASURED IN A LABORATORY EXPERIMENT. CESIUM-137 WAS ADDED TO THESE FOREST FLOOR COMPONENTS FOR 3 MONTHS IN SIMULATED RAIN, AFTER WHICH THEY WERE LEACHED OUT WITH RAINWATER FOR 5 WEEKS. THE CALCULATED CS-137 RETENTION BY THE ENTIRE FOREST FLOOR WAS 93%.

*ECOLOGICAL CONSIDERATION + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + FALLOUT + ORNL (OAK RIDGE NATIONAL LABORATORY)

14-20671

NEWMAN J

INTERNAL CONTAMINATION OF BUILDINGS BY FALLOUT

CIVIL DEFENSE RESEARCH PROJECT, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

9 PAGES, 3 FIGURES, 2 TABLES, 18 REFERENCES, HEALTH PHYSICS 13(9), PAGE 991-999, (SEPT. 1967)

QUANTITATIVE ASSESSMENT OF THE POSSIBLE LOSS OF RADIATION PROTECTION IN ABOVE-GROUND FALLOUT SHELTERS DUE TO WINDOW BREAKAGE AND INTERNAL CONTAMINATION REQUIRES CONSIDERATION OF THE MECHANISM OF THE SEILLING OF FALLOUT, THE RADIATION SHIELDING OF BUILDINGS, DISTANCES OF BLAST DAMAGE, AND WIND CHARACTERISTICS. THE FACTORS ARE DISCUSSED IN A MANNER WHICH WOULD ALLOW ASSESSMENT FOR A PARTICULAR AREA WITH MARKED FALLOUT SHELTERS IN TALL BUILDINGS. IN A PARTICULAR EXAMPLE OF A SEVEN-STORY BUILDING, THE INTERNAL CONTAMINATION ON EACH FLOOR IS ESTIMATED TO BE 2.5% OF THAT ON THE ROOF. THIS CONTAMINATION, IF SPREAD UNIFORMLY OVER THE FLOOR, REDUCES THE PROTECTION FACTOR ON THE FIFTH FLOOR FROM 28 TO 18 AND IN THE UNEXPOSED, UNCONTAMINATED BASEMENT FROM 420 TO 200.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20671 *CONTINUED*

*CIVIL DEFENSE + CONTAMINATION + FALLOUT + ORNL (OAK RIDGE NATIONAL LABORATORY)

14-20672

WELLS BJ

AN EVALUATION OF THE MAY TYPE OF CASCADE IMPACTOR

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, ENGLAND

13 PAGES, 8 FIGURES, 4 TABLES, 14 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1001-1013, (SEPT. 1967)

THE PERFORMANCE OF THE MAY-TYPE CASCADE IMPACTOR (CASELLA MK.-2 VERSION) AS AN INSTRUMENT FOR SIZING SOLID PARTICULATE MATERIALS WAS DETERMINED USING UNIT-DENSITY SPHERES AND THE OXIDES OF URANIUM AND PLUTONIUM. IT IS SHOWN THAT THE INSTRUMENT MAY BE USED TO SIZE AEROSOLS, NOT NECESSARILY OF SPHERICAL PARTICLES, OF MATERIALS OVER A WIDE RANGE OF DENSITY. BOTH EFFECTIVE CUT-OFF SIZES AND MASS-MEDIAN DIAMETERS MAY BE EMPLOYED AS CHARACTERISTIC SIZES FOR THE JET STAGES.

*INSTRUMENTATION, AIR SAMPLING + PARTICLE, RADIOACTIVE + PARTICULATE + PLUTONIUM + UNITED KINGDOM + URANIUM

14-20674 ALSO IN CATEGORY 15

BLOCK S + BRYAN J + PREVO C + MONTAN D

LABORATORY SOURCES ENHANCED IN 0.5 EV TO 200 KEV NEUTRONS FOR INSTRUMENT EVALUATION

LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE, CALIF.

7 PAGES, 1 FIGURE, 10 TABLES, 10 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1025-1031, (SEPT. 1967)

PU-238/BE OR SB-BE NEUTRON SOURCES IN D2O MODERATORS CAN PROVIDE A SPECTRUM OF NEUTRONS USEFUL FOR CHECKING THE DOSE EQUIVALENT SENSITIVITY OF NEUTRON DETECTORS FROM 0.5-EV TO 200-KEV NEUTRONS. RESULTS INDICATE THAT INTERMEDIATE-ENERGY NEUTRONS CAN BE MADE TO CONTRIBUTE UP TO 74% OF THE DOSE EQUIVALENT RATE OF THE INCIDENT FLUX DENSITY.

*SOURCE, NEUTRON + ANTIMONY + BERYLLIUM + INSTRUMENTATION CALIBRATION + LRL (LAWRENCE RADIATION LABORATORY) + PLUTONIUM

14-20679

ERICHSEN LV

DECONTAMINATION OF RADIOACTIVE EFFLUENTS WITH SALTS OF FATTY ACIDS

INSTITUT FÜR PHYSIKALISCHE CHEMIE DER UNIVERSITÄT BONN, ABTEILUNG KERNCHEMIE

6 PAGES, 8 FIGURES, 4 TABLES, 6 REFERENCES, CHEMIE-ING-TECH.39(4), PAGE 193-198, (FEBRUARY 27, 1967), IN GERMANY

MANY CATIONIC RADIONUCLIDES AND RADIOCOLLOIDS ARE COPRECIPITATED BY SORPTION, INCORPORATION, OCCLUSION, OR ION EXCHANGE WHEN CALCIUM SOAPS ARE PRECIPITATED FROM RADIOACTIVE WASTE WATERS CONTAINING CASO₄ BY ADDITION OF POTASSIUM SOAP SOLUTIONS. THIS TREATMENT MIGHT THEREFORE BE SUITABLE AS A METHOD OF DEACTIVATION OF RADIOACTIVE EFFLUENTS. THE DECONTAMINATION FACTORS ARE IN MANY CASES GOOD TO VERY GOOD. THE PRECIPITATES, WHICH ARE OF LOW DENSITY, CAN BE SEPARATED BY FILTRATION, PROBABLY ALSO BY FLOTATION.

*WASTE TREATMENT, LIQUID + DECONTAMINATION + GERMANY

14-20681 ALSO IN CATEGORY 15

HUNGATE FP

RADIONUCLIDES IN ALASKAN ESKIMOS

ALASKA DIVISION, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

HW-SA-3582 +. 11 PAGES, 5 TABLES, 12 REFERENCES, MARCH 1965, PROCEEDINGS FIFTEENTH ALASKAN SCIENCE CONFERENCE COLLEGE, ALASKA, AUGUST 31 TO SEPT. 4, 1964

AMOUNTS OF FALLOUT IN ALASKA ARE LESS THAN IN MANY OTHER PARTS OF THE U.S. BECAUSE OF THE FOOD CHAIN THROUGH WHICH CS-137 IS TRANSFERRED FROM LICHEN TO CARIBOU TO MAN, THE ESKIMO HAS A HIGHER THAN USUAL CONCENTRATION OF THIS RADIONUCLIDE, THE AMOUNT BEING LARGELY DEPENDENT ON THE AMOUNT OF CARIBOU MEAT EATEN. CURRENT ANNUAL RADIATION DOSES TO THE ESKIMOS AVERAGE LESS THAN 0.2 RAD AND ARE PREDICTED TO BE LESS THAN 3 RADS AS A CUMULATIVE 30-YEAR DOSE. SR-90 AND OTHER FALLOUT NUCLIDES APPEAR TO CONTRIBUTE LITTLE TO THE TOTAL RADIATION DOSE RECEIVED BY ESKIMOS.

*FALLOUT + ALASKA + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + CESIUM + STRONTIUM

14-20694

CLARK WE + HESS DN + NEUMANN PD + RICE L + ENGLISH JL

LABORATORY DEVELOPMENT OF PROCESSES FOR FIXATION OF HIGH LEVEL RADIOACTIVE WASTES IN GLASSY SOLIDS. (4) CORROSION STUDIES ON CANDIDATE MATERIALS OF CONSTRUCTION.

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-3816 +. 37 PAGES, 9 FIGURES, 15 TABLES, 16 REFERENCES, AUGUST, 1967

LABORATORY TESTS INDICATE THAT AUSTENITIC STAINLESS STEELS, PARTICULARLY TYPE 304L, CAN BE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20694 *CONTINUED*

USED AS THE SOLIDIFICATION AND STORAGE VESSEL FOR THE CALCINATION AND, WITH CAUTION, THE MELTING TO FORM A GLASS OR A CERAMIC SOLID OF ALUMINUM-CONTAINING (TBP-25) AND SULFATE-CONTAINING (PUREX) WASTE TYPES. TEMPERATURES OF OPERATION SHOULD BE KEPT ABOUT 900 °C. WASTE AND ADDITIVE COMPOSITIONS MUST BE KNOWN, AND OPERATIONAL CONTROL MUST BE GOOD TO AVOID CORROSION. CORROSION DURING STORAGE IN A SALT MINE SHOULD BE NO PROBLEM PROVIDED THE SALT IS RELATIVELY DRY. TITANIUM WAS SUPERIOR TO STAINLESS STEELS AND NICKEL ALLOYS FOR SERVICE IN A WASTE EVAPORATOR AND ITS CONDENSER. STAINLESS STEEL AND NICKEL ALLOYS DEVELOPED INTERGRANULAR ATTACK, ACCELERATED BY THE PRESENCE OF FISSION-PRODUCT QUANTITIES OF RUTHENIUM. THE PRESENCE OF APPRECIABLE CONCENTRATIONS OF UNCOMPLEXED FLUORIDE WOULD BE EXPECTED TO INCREASE THE CORROSION OF ALL THESE ALLOYS MARKEDLY, BUT ITS EFFECT ON TITANIUM WOULD BE GREATER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WASTE TREATMENT, FIXATION + CORROSION + MATERIAL + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE TREATMENT, EQUIPMENT

14-20695

KARRACKER DG + PERKINS WC
DISTRIBUTION OF RADIOACTIVE ELEMENTS IN THE DEBRIS OF THE SALMON NUCLEAR TEST
SAVANNAH RIVER LABORATORY, AIKEN, S. C.
DP-1106 +. 14 PAGES, 5 FIGURES, 6 TABLES, 6 REFERENCES, JULY 1967

ANALYSIS OF THE DEBRIS OF SALMON, AN UNDERGROUND NUCLEAR TEST DETONATED NEAR HATTIESBURG, MISSISSIPPI, SHOWED THAT MOST OF THE ISOTOPES FORMED DURING THE EXPLOSION COLLECTED IN A THIN LAYER AT THE BOTTOM OF THE ORIGINAL CAVITY. AN EXPLANATION IS OFFERED FOR THE VERTICAL DISTRIBUTION OF RADIOACTIVE SPECIES IN THE DEBRIS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FISSION PRODUCT RELEASE, GENERAL + ALPHA EMITTER + GAMMA EMITTER + SALMON EVENT + SAVANNAH RIVER PLANT + VELA UNIFORM PROGRAM

14-20702

BOSHOLM J + RICHTER D + LENK M
REGENERATION OF LOADED ION EXCHANGERS FOR THE TREATMENT OF RADIOACTIVE WASTES. I. LABORATORY INVESTIGATIONS ON THE REGENERATION OF WOFATIT KPS
STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN, EAST GERMANY
SZS-2/67 +. 32 PAGES, MARCH 1967, IN GERMAN

TO SELECT THE OPTIMUM CONDITIONS FOR THE REGENERATION OF THE STRONG ACID CATION-EXCHANGE RESIN WOFATIT KPS IN A PILOT PLANT, LABORATORY TRIALS WERE MADE ON THE REGENERATION OF CAPACITY AND ON THE REMOVAL OF FISSION-PRODUCT MIXTURES FROM THE RESIN. BEST RESULTS WERE OBTAINED WITH 2 BED VOLUMES OF 4 N NITRIC ACID. THE OPTIMUM FLOW RATE DEPENDS ON THE DIAMETER OF RESIN PARTICLES AND MUST BE LESS THAN 15 BED VOLUMES PER HOUR FOR PARTICLE DIAMETERS FROM 0.16 TO 0.25 MM. UNDER THESE CONDITIONS 95% OF THE CAPACITY WAS REGENERATED AND 90% OF THE FISSION-PRODUCT ACTIVITY WAS ELUTED. THE ELUTION OF RESIDUAL ACTIVITY BY REPEATED USE OF THE RESIN WAS NEGLIGIBLE FOR TREATMENT OF WASTE WATER.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*WASTE TREATMENT, LIQUID + GERMANY + ION EXCHANGE

14-20703

BOSHOLM J
REGENERATION OF LOADED ION EXCHANGER FOR THE TREATMENT OF RADIOACTIVE WASTE. II. LABORATORY INVESTIGATIONS ON THE REGENERATION OF WOFATIT SBW AND WOFATIT SBK
STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN, EAST GERMANY
SZS-6/67 +. 24 PAGES, APRIL 1967, IN GERMAN

TO SELECT OPTIMUM CONDITIONS FOR THE REGENERATION OF THE STRONG BASIC ANION-EXCHANGE RESINS WOFATIT SBW AND WOFATIT SBK IN A PILOT PLANT, LABORATORY INVESTIGATIONS WERE PERFORMED ON THE REGENERATION OF CAPACITY AND ON THE REMOVAL OF A FISSION-PRODUCT MIXTURE FROM THE RESINS. THE CONDITIONS OF OPERATION ARE BETTER FOR WOFATIT SBK THAN FOR WOFATIT SBW. BEST REGENERATION WAS OBTAINED WITH 3 TO 4 BED VOLUMES OF 1 N CAUSTIC SODA. THE OPTIMUM FLOW RATE DEPENDS ON THE DIAMETER OF THE RESIN PARTICLES AND MUST BE LESS THAN 5 BED VOLUMES PER HOUR FOR PARTICLE DIAMETERS FROM 0.16 TO 0.25 MM. UNDER THESE CONDITIONS, 95% OF THE CAPACITY IS REGENERATED AND 85% OF THE FISSION PRODUCT ACTIVITY IS ELUTED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*WASTE TREATMENT, LIQUID + GERMANY + ION EXCHANGE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20706

STRAUSS H

CALCULATION OF THE MAXIMUM PERMISSIBLE CONCENTRATIONS IN WATER FOR THE FISSION PRODUCTS ARISING FROM THE FISSION OF U-235 IN REACTORS
STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN, EAST GERMANY
SZS-4/67 +. 24 PAGES, APRIL 1967, IN GERMAN

FOR FISSION-PRODUCT MIXTURES PRODUCED BY THERMAL FISSION OF U-235 IN A REACTOR, THE MPC VALUES IN WATER WERE CALCULATED AS A FUNCTION OF REACTOR OPERATION TIME AND DECAY TIME, USING A COMPUTER. RESULTS ARE DISCUSSED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + FISSION PRODUCT RELEASE, GENERAL + GERMANY + URANIUM + WATER, GENERAL

14-20720

ALSO IN CATEGORY 17

UNAUTHORIZED USE OF YANKEE INCINERATOR

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 81 FOR SEPTEMBER 1967, PAGE 4, OCTOBER 30, 1967, DOCKET 50-29

THREE LEAKING TUBES WERE PLUGGED IN THE TURBINE CONDENSER. SPENT-FUEL PIT WAS DECONTAMINATED. PHENOLIC COATING BLISTERS DID NOT BARE CONCRETE. ***EXAMINATION OF HINGE PINS FROM THE LOCKED LOADING DOOR OF THE CLEAN-AREA INCINERATOR INDICATED IMPROPER USAGE. EIGHT DRUMS OF MATERIAL WERE INSPECTED, SEVERAL ITEMS POSITIVELY IDENTIFIED AS ORIGINATING IN THE CONTROLLED AREA. TOTAL RELEASE WAS ESTIMATED AS 12.25 MICROCURIES OF CO-MN (SEE ALSO OP. REPORT 72, JULY 67). HINGE PINS WERE WELDED IN PLACE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *EFFLUENT + FAILURE, ADMINISTRATIVE CONTROL + FUEL STORAGE + INCINERATION + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + SURFACE FILM DEPOSIT + WASTE DISPOSAL, SOLID + YANKEE

14-20722

ALSO IN CATEGORY 17

YANKEE STEAM GENERATOR TUBE REPAIRS

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 79 FOR JULY 1967, PAGE 1, AUGUST 21, 1967, DOCKET 50-29

SYSTEM LEAKAGE WAS 300 GAL/DAY WHEN SHUT DOWN FOR TUBE REPAIRS. I-131 TRACER SHOWED SG-1 LEAK 19.6 G/D, WHILE SG-2 WAS 268 G/D FROM ONE TUBE LEAK NEAR THE TUBE SHEET. SAMPLE-CONTAINER BAILS WERE FOUND ON THE PRIMARY SIDES, WHILE 2 STEEL FABRICATION WEDGES WERE FOUND IN THE SECONDARY. ***PC PUMPS 1 AND 3 THERMAL GASKETS WERE REPLACED. SAFETY REVIEW SHOWS NO. 10 CONTROL ROD STICKING AT 10 IN. OUT (NO HAZARD). THE ACCIDENTAL GAS RELEASE ON APRIL 4 WAS 32.2 MILLICURIES OF BETA-GAMMA AND 60.5 MILLICURIES OF GASEOUS TRITIUM. HYDRAZINE LEAKING INTO CHARGING PUMPS INCREASED PH FROM 5 TO 6.42, CAUSING CRUD BURSTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *MAINTENANCE AND REPAIR + *STEAM GENERATOR + COOLANT CHEMISTRY + CRUD + EFFLUENT + FAILURE, SCRAM MECHANISM + FAILURE, TUBING + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + TRITIUM + YANKEE

14-20725

ALSO IN CATEGORY 17

SLIGHTLY RADIOACTIVE ASH FOUND IN CLEAN-AREA INCINERATOR

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 78 FOR JUNE 1967, PAGE 4, JULY 24, 1967, DOCKET 50-29

ON ROUTINE REMOVAL OF CLEAN-AREA INCINERATOR ASH, LEVELS OF 1-3 MR/HR WERE DETECTED 1 IN. FROM THE MATERIAL. NINE DRUMS WERE COLLECTED FOR DISPOSAL. RELEASE WAS ESTIMATED AS LESS THAN 104 MICROCURIES OF CO-MN DURING THE MAR. 67 SHUTDOWN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INCINERATION + CRUD + INCIDENT, ACTUAL, HUMAN ERROR + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + WASTE DISPOSAL, SOLID + YANKEE

14-20728

DIETZ KA

STEP PROJECT—QUARTERLY REPORT JANUARY-MARCH 1966 SECTION 1.3 (PAGES 12 TO 14)

PHILLIPS PETROLEUM COMPANY

ID0-17186 +. 67 PAGES, 50 FIGURES, 12 TABLES, 17 REFERENCES, NOVEMBER 1966

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20728 *CONTINUED*

A LARGE PORTION OF THE FUEL BURNED DURING AND AFTER DISPERSAL AND WAS REDUCED TO ZIRCONIUM AND URANIUM OXIDES. ANALYSES ARE BEING MADE TO DETERMINE THE EFFECT OF THE FUEL BREAKUP ON THE FISSION-PRODUCT RELEASE AND DISPERSAL. THE GAMMA DOSE FROM THE BURST AND FISSION-PRODUCT DECAY FOR TWO HOURS WAS 610 REMS AT A LOCATION 30 FEET FROM THE REACTOR. THE DOSE RATE 30 FEET FROM THE REACTOR DECAYED FROM 25 REMS/HR AT TWO HOURS AFTER THE BURST TO 1.4 REMS/HR TWENTY-FOUR HOURS AFTER THE TESTS. THE ACTIVITY OF THE RADIOACTIVE CLOUD DISSIPATED TO BACKGROUND 20 MILES FROM THE TEST SITE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR TRANSIENT + DOSE + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT TRANSPORT + FISSION PRODUCT, VOLATILE + IDAHO FALLS + MONITOR, RADIATION, GROUND SURFACE + REACTOR, TEST + SNAPTRAN (SNAP TRANSIENT REACTOR TEST SERIES)

14-20744 ALSO IN CATEGORY 15
RISK EVALUATION FOR PROTECTION OF THE PUBLIC IN RADIATION ACCIDENTS
INTERNATIONAL ATOMIC ENERGY AGENCY
STI/PUB 124 + IAEA SAFETY SERIES NO. 21 +. 80 PAGES, 14 TABLES, 30 REFERENCES, 1967

A REPORT OF A PANEL OF EXPERTS CONVENED TO DEFINE A RANGE OF REFERENCE DOSES OF RADIATION THAT SHOULD BE HELPFUL IN ASSESSING THE HAZARDS OF NUCLEAR INSTALLATIONS AND IN MAKING POLICY DECISIONS. IT IS PUBLISHED ON BEHALF OF THE WORLD HEALTH ORGANIZATION AND THE IAEA. CONTENTS - I-INTRODUCTION, II-OBJECTIVES, III-SCOPE, IV-REFERENCE RADIATION DOSES AND RELATED RISKS, V-PRACTICAL APPLICATIONS FOR THE USE OF REFERENCE DOSES AND RELATED RISKS OF SECTION IV IN MAKING POLICY DECISIONS NECESSARY TO MEET A RADIATION ACCIDENTAL EXPOSURE SITUATION (ACTUAL OR POTENTIAL), VI-COMPUTATION OF DOSES INTO INTAKES OF RADIOACTIVITY AND LEVELS OF CONCENTRATION IN DIET (SUCH AS MILK), AND TIME INTEGRALS OF CONCENTRATION IN AIR, VII-ASSESSMENTS OF THE HAZARDS TO MAN FROM EXPOSURE RESULTING FROM A RADIATION ACCIDENT. SEPARATELY AVAILABLE IN ENGLISH AND FRENCH.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*RADIATION DAMAGE + BIOMEDICAL + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY

14-20747 ALSO IN CATEGORY 15
RADIATION PROTECTION - PRINCIPLES OF ENVIRONMENTAL MONITORING RELATED TO THE HANDLING OF RADIOACTIVE MATERIALS
INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION
ICRP-7 +. 11 PAGES, 2 FIGURES, 10 REFERENCES, LIBRARY OF CONGRESS CATALOG CARD NO. 66-19542, SEPTEMBER 13, 1965

THE BROAD OBJECTIVES OF ENVIRONMENTAL MONITORING PROGRAMS CAN BE SUMMARIZED AS FOLLOWS - (A) ASSESSMENT OF THE ACTUAL OR POTENTIAL EXPOSURE OF MAN TO RADIOACTIVE MATERIALS OR RADIATION PRESENT IN HIS ENVIRONMENT, OR THE ESTIMATION OF THE PROBABLE UPPER LIMITS OF SUCH EXPOSURE, (B) SCIENTIFIC INVESTIGATION, SOMETIMES RELATED TO THE ASSESSMENT OF EXPOSURES, SOMETIMES TO OTHER OBJECTIVES, (C) IMPROVED PUBLIC RELATIONS. THE BASIC RECOMMENDATIONS OF THE COMMISSION ARE IN TERMS OF RADIATION DOSES TO ORGANS OF THE BODY. FROM THESE ARE DERIVED MAXIMUM PERMISSIBLE BODY BURDENS, MAXIMUM PERMISSIBLE INTAKES, AND MAXIMUM PERMISSIBLE CONCENTRATIONS. IN THE COMMISSIONS RECOMMENDATIONS FOR INDIVIDUAL MEMBERS OF THE PUBLIC, THESE DOSES AND INTAKES ARE EXPRESSED AS ANNUAL VALUES SO THAT CORRESPONDING DOSE RATES OR CONCENTRATIONS RELATE TO ANNUAL AVERAGES AND NOT TO SHORT-TERM VALUES.

AVAILABILITY - PERGAMON PRESS INC., 44-01 21ST STREET, LONG ISLAND CITY, NEW YORK 11101

*MONITORING PROGRAM, ENVIRONMENTAL + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + SURVEY, RADIATION, ENVIRONMENTAL

14-20748
DATA SECTION ENVIRONMENTAL SAMPLING RESULTS
STATE OF CALIFORNIA, DEPARTMENT OF PUBLIC HEALTH
29 PAGES, 4 FIGURES, 14 TABLES, RADIOLOGICAL HEALTH NEWS 6(2), PAGES 8-37 (APRIL 1967)

PRESENTS TABULATED DATA FROM THE ENVIRONMENTAL MONITORING PROGRAM CARRIED OUT BY CALIFORNIA DEPT. OF PUBLIC HEALTH, BUREAU OF RADIOLOGICAL HEALTH. SHORT DISCUSSION ALSO INCLUDED.

*FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + AIR + BETA EMITTER + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + GROSS BETA + RAINOUT + SOIL + SOIL, NUCLIDE OCCURRENCE + STRONTIUM + WATER, GENERAL

14-20753 ALSO IN CATEGORIES 9 AND 11
DRIVER GE
PROCESS COMPUTER APPLICATIONS AT BATTELLE-NORTHWEST
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20753 *CONTINUED*

CONF-660527 +. 5 PAGES, PAGES 43-37 OF USE OF COMPUTERS IN ANALYSIS OF EXPERIMENTAL DATA AND THE CONTROL OF NUCLEAR FACILITIES, PROCEEDINGS OF A SYMPOSIUM AT ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS, MAY 4-6, 1966.

APPLIED DIGITAL-COMPUTER TECHNOLOGY TO ON-LINE DATA ACQUISITION FROM EXPERIMENTS AND TO THE AUTOMATIC CONTROL OF NUCLEAR PROCESSES. EXPERIMENTS ARE BEING PERFORMED IN THE AREAS OF CONTAINMENT-SYSTEM-TESTING, MASS-SPECTROMETER CONTROL, AND REACTOR CONTROL. A COMPUTER IS PRESENTLY CONTROLLING A URANIUM SOLVENT-EXTRACTION PROCESS AND LOGGING DATA ON THE MASS-ENERGY BALANCES IN A LIQUID-WASTE SOLIDIFICATION PROCESS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *CONTROL, COMPUTER + *INSTRUMENTATION, CONTROL + BATTELLE NORTHWEST + CONTAINMENT INSTRUMENTATION + CONTAINMENT RESEARCH AND DEVELOPMENT + FFTF (TR) + HIGH TEMPERATURE + INSTRUMENTATION, TEMPERATURE + REACTOR, FAST + REACTOR, TEST

14-20760 ALSO IN CATEGORY 15

WELFORD GA + BAIRD R

URANIUM LEVELS IN HUMAN DIET AND BIOLOGICAL MATERIALS

HEALTH AND SAFETY LAB., US ATOMIC ENERGY COMMISSION, NEW YORK, NEW YORK

4 PAGES, 6 TABLES, 10 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1321-1324 (DECEMBER 1967)

THE URANIUM IN TYPICAL DIETS IN NEW YORK CITY, CHICAGO, AND SAN FRANCISCO WAS MEASURED TO DETERMINE BODY INTAKE LEVELS. AIR, WATER, LUNG, AND URINE SAMPLES WERE ALSO ANALYZED FOR URANIUM CONTENT. THE DIET DATA INDICATE UNIFORM INTAKE OF URANIUM AT THE THREE SITES EXAMINED. THE VALUES FOUND WERE 1.3, 1.4, AND 1.3 MICROGRAMS OF URANIUM PER DAY FOR NEW YORK CITY, CHICAGO, AND SAN FRANCISCO, RESPECTIVELY. BASED ON THESE VALUES, URANIUM EXCRETED IN URINE BY INFERENCE WOULD BE APPROXIMATELY 0.007 MICROGRAMS/L. THE MEASURED URINARY EXCRETION LEVELS FOR NONEXPOSED ADULTS IN THE CHICAGO AREA INDICATE A RANGE OF VALUES WITHIN THE PREVIOUSLY REPORTED NEW YORK LEVELS OF FROM 0.03 TO 0.3 MICROGRAM OF URANIUM PER LITER.

*BIOLOGICAL CONCENTRATION, FOOD + ENVIRONMENTAL CONDITION + URANIUM + USAEC (U.S. ATOMIC ENERGY COMMISSION)

14-20761 ALSO IN CATEGORY 15

MAGNO PJ + KAUFFMAN PE + SHLEIN B

PLUTONIUM IN ENVIRONMENTAL AND BIOLOGICAL MEDIA

US PUBLIC HEALTH SERVICE, WINCHESTER, MASSACHUSETTS

6 PAGES, 1 FIGURE, 5 TABLES, 14 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1325-1330 (DECEMBER 1967)

RADIONUCLIDES OF PU ARE PRESENT IN THE ATMOSPHERE AS A RESULT OF NUCLEAR WEAPONS TESTING AND THE BURNUP OF A SATELLITE UTILIZING PLUTONIUM AS A POWER SOURCE. THEIR OCCURRENCE IN AIR, PRECIPITATION, TOTAL DIET, MILK, AND HUMAN TISSUE HAS BEEN STUDIED. FINDINGS - (1) MILK CONTRIBUTES NO SIGNIFICANT AMOUNT OF PU TO THE DIET, (2) CONTRIBUTIONS OF PU TO BODY TISSUES FROM DIET IS NEGLIGIBLE, COMPARED WITH THAT FROM INHALATIONS, (3) THE LIVER CONTAINED THE HIGHEST CONCENTRATION OF PU IN THE BODY (1.6 TIMES THAT OF LUNG, AND A FACTOR OF ABOUT 10 HIGHER THAN THAT MEASURED IN BONE).

*MONITORING PROGRAM, ENVIRONMENTAL + AIR + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + PLUTONIUM + PRECIPITATION + UNITED STATES

14-20762

BENSON PA + NATHANS MW + AMOS A + LEVENTHAL L

THE DENSITY OF FALLOUT PARTICLES FROM AIRBURSTS

TRACERLAB, A DIVISION OF LFE RICHMOND, CALIFORNIA

5 PAGES, 2 FIGURES, 2 TABLES, 4 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1331-1335 (DECEMBER 1967)

THE DENSITIES OF 73 INDIVIDUAL FALLOUT PARTICLES FROM THREE EVENTS OF THE DOMINIC SERIES WERE MEASURED BY MEANS OF A MINIATURIZED TERMINAL-VELOCITY METHOD. THE PARTICLES VARIED FROM 4 TO 16 MICRONS IN DIAMETER. THE RESULTS WERE - EVENT A - ρ EQUALS 3.75 PLUS OR MINUS 0.42 G/CCS, EVENT B - ρ EQUALS 3.60 PLUS OR MINUS 0.22 G/CCS, EVENT C - ρ EQUALS 3.88 PLUS OR MINUS 0.27 G/CCS. THESE RESULTS ARE WELL BELOW THE THEORETICAL DENSITIES FOR IRON OXIDE-ALUMINUM OXIDE MIXTURES AND ARE CONSISTENT WITH THE NONCRYSTALLINE NATURE OF THE PARTICLES AND WITH THE PRESENCE OF MICROVESICULATION. NO CORRELATION BETWEEN THE DENSITY AND THE DIAMETER OF THE PARTICLES WAS FOUND.

*FALLOUT + NUCLEAR EXPLOSION DEBRIS + TEST, WEAPONS (HP ASPECTS) + UNITED STATES

14-20765 ALSO IN CATEGORY 15

MARTIN A

A COMPARISON OF SOME BONE ASHING TECHNIQUES

US PUBLIC HEALTH SERVICE, CINCINNATI, OHIO

3 PAGES, 1 TABLE, 1 FIGURE, 9 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1348-1351 (DECEMBER 1967)

BONE ASH OF HIGH PURITY AND CONSTANT WEIGHT WAS OBTAINED BY ASHING AT 800 °C FOR 18 HR. THE EFFECTS OF ASHING TEMPERATURE AND TIME WERE DETERMINED TO OBTAIN MAXIMUM DESTRUCTION OF ORGANIC MATTER AND CONSTANT WEIGHT. CONTAMINATION BY DISHS COMPOSED OF SILICON COMPOUNDS

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20765 *CONTINUED*

WAS AVOIDED THROUGH USE OF ALUMINUM OXIDE TRAYS, AND CONTAMINATION FROM THE MUFFLE FURNACE, BY LINING IT WITH SILICON CARBIDE BRICKS. TWO OTHER ASHING METHODS, WET ASHING AND MINERALIZATION WITH ETHYLENEDIAMINE, WERE COMPARED. WET ASHING IS RECOMMENDED AS A SUBSTITUTE FOR THE THERMAL TECHNIQUE WHEREVER ANALYSIS OF VOLATILE RADIONUCLIDES IS DESIRED. MINERALIZATION WITH ETHYLENEDIAMINE PROVIDES AN ESSENTIALLY UNALTERED BONE STRUCTURE, USEFUL FOR AUTORADIOGRAPHICAL STUDIES.

*ANALYTICAL TECHNIQUE, GENERAL + RADIOBIOLOGY + UNITED STATES

14-20767

WILSON EJ

THE LEAKING RADIOACTIVE GASEOUS TRANSCONTINENTAL SHIPMENT IN RELATION TO THE IAEA TRANSPORT REGULATIONS
MINISTRY OF TRANSPORT, LONDON, ENGLAND
2 PAGES, HEALTH PHYSICS, 13(12), PAGES 1353-1354 (DECEMBER 1967)

DETAILED COMMENTS ARE MADE ON AN ARTICLE (LETTER) (VOL. 12, NO. 6, PAGE 543) IN HEALTH PHYSICS, DESCRIBING THE INVESTIGATION OF A LEAKING RADIOACTIVE GASEOUS TRANSCONTINENTAL SHIPMENT. THE PROPOSED IAEA REGULATIONS FOR SHIPPING ARE DESCRIBED.

*SHIPPING CONTAINER + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + REGULATION, GENERAL + REGULATION, IAEA + UNITED KINGDOM

14-20768

ALSO IN CATEGORY 15

HALLISEY RM + WALL MA

STRONTIUM-90 IN HUMAN BONES, 1964-1965

US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

5 PAGES, 3 TABLES, 5 FIGURES, 14 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(8), PAGE 415-419, (AUGUST 1967)

RESULTS OBTAINED FROM ANALYSIS OF SR-90 IN HUMAN BONE SPECIMENS FROM 303 INDIVIDUALS WHO DIED IN 1964, AND 293 INDIVIDUALS WHO DIED IN 1965 HAVE BEEN STUDIED. THE BONE SPECIMENS WERE COLLECTED AT AUTOPSIES IN SELECTED CITIES THROUGHOUT THE UNITED STATES. A SUMMARY TABLE OF ALL THE DATA FOR DEATHS OCCURRING IN 1964 AND 1965 IS PRESENTED. IN MOST OF THE FIVE AGE GROUPS IN 1965, AVERAGE VALUES ARE SLIGHTLY LOWER THAN THE 1964 VALUES. REGIONAL VARIATIONS IN THE SR-90/CA RATIO ARE SHOWN, WITH THE HIGHEST AVERAGE FOR EACH YEAR IN THE DELTA REGION. THE DATA WERE RELATED TO HUMAN BONE CONCENTRATIONS THAT WERE DERIVED FROM THE FEDERAL RADIATION COUNCILS RADIATION PROTECTION GUIDES AND INTAKE RANGES, AND IT WAS SHOWN THAT IN BOTH YEARS THE AVERAGE BONE CONCENTRATIONS CORRESPOND TO RANGE 1 OF THESE INTAKE GUIDES.

*FALLOUT + BIOLOGICAL CONCENTRATION, MAN + RADIOBIOLOGY + STRONTIUM + UNITED STATES

14-20769

CROMROY HL + GOLDSMITH WA + PHILLIPS CR + BONNER WP

UPTAKE OF CESIUM-137 FROM CONTAMINATED SOIL BY SELECTED GRASS CROPS

US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

4 PAGES, 5 TABLES, 11 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(8), PAGE 421-424 (AUGUST 1967)

THE CS-137 CONTENT OF MILK IN THE TAMPA, FLA., AREA HAS BEEN CONSISTENTLY ABOVE THE NATIONAL AVERAGE IN RECENT YEARS. THE POSSIBILITY THAT GRASSES GROWN IN THIS AREA RECEIVE THEIR CONTAMINATION INDIRECTLY THROUGH CONTAMINATED SOIL IS BEING INVESTIGATED. AMONG THE GRASSES INVESTIGATED, THE UPTAKE OF CS-137 APPEARS TO BE GREATEST FOR PANOGOLA GRASS.

*FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, VEGETATION + SOIL, NUCLIDE OCCURRENCE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + UNITED STATES

14-20770

DATA

US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

66 PAGES, TABLES, FIGURES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(8), PAGE 425-289 (AUGUST 1967)

DATA REPORTED INCLUDES - SECTION I, MILK AND FOOD. NATIONAL AND INTERNATIONAL SURVEILLANCE. SECTION II, GROSS RADIOACTIVITY (FEBRUARY 1967) AND STRONTIUM-90 (OCTOBER 1965-JUNE 1966) IN SURFACE WATERS OF THE UNITED STATES AND RADIOACTIVITY IN WASHINGTON SURFACE WATER. SECTION III, RESULTS OF NATIONAL AND INTERNATIONAL MONITORING PROGRAMS FOR RADIOACTIVITY IN AIRBORNE PARTICULATES AND PRECIPITATION. SECTION IV, OTHER DATA, INCLUDING I-131 IN BOVINE THYROIDS, AND ENVIRONMENTAL LEVELS OF RADIOACTIVITY AROUND ATOMICS INTERNATIONAL, FEED MATERIALS PRODUCTION CENTER, AND THE OAK RIDGE AREA, JULY-DECEMBER 1966. SECTION V, TECHNICAL NOTES INCLUDE A STUDY OF GROSS BETA REACTIVITY IN FUCUS HYBRIDS (ROCKWEED) FROM THE NANTIC ESTUARY, CONNECTICUT, THE GALVESTON ENVIRONMENTAL SURVEILLANCE PROGRAM, 1966, AND RADIOACTIVE MATERIAL HANDLING PROBLEMS IN OIL- AND GAS-WELL LOGGING. ONE NUCLEAR DETONATION WAS REPORTED IN JULY 1967.

*FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + GROSS BETA + GROSS GAMMA + IODINE + PRECIPITATION + RADIOBIOLOGY + STRONTIUM + SURVEILLANCE PROGRAM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20771

AURAND K + ARNDT J + WOLTER R

BEHAVIOR OF RADIONUCLIDES IN SEWER SYSTEMS AND PURIFICATION PLANTS SUBSEQUENT TO DISCHARGE OF RADIOACTIVE WASTES WITH CONCENTRATIONS INCREASED OVER SHORT PERIODS. PART 2
INSTITUT FUER WASSER-BODEN-UND LUFTHYGIENE, BUNDESGESUNDHEITSAMT, BERLIN, WEST GERMANY
BMWF-FBK-66-46 +. 36 PAGES, DECEMBER 1966, IN GERMAN

A METHOD WAS DEVELOPED TO TAKE WATER SAMPLES IN SEWERS AND OPEN CHANNELS. USING SEVERAL SAMPLERS MOUNTED AT DIFFERENT HEIGHTS ABOVE THE SEWER BOTTOM AND SAMPLING AT A CONSTANT RATE, IT IS POSSIBLE TO GET SAMPLES PROPORTIONAL TO FLOW WITHOUT ADAPTATION TO THE SHAPE OF THE CHANNEL. A SIMPLE DEVICE IS DESIGNED WORKING WITHOUT EXTERNAL POWER SUPPLY. HAZARDS TO SEWER WORKERS OWING TO DEPOSITION OF I-131 IN SEWER FILMS WERE STUDIED. THOSE HAZARDS ARE NEGLIGIBLE AT SPECIFIC ACTIVITIES OF SEWAGE UP TO 0.1 MICROCURIE/LITER. LABORATORY INVESTIGATIONS ON THE I-131 CONTENT OF THE AIR IN CONTACT WITH SEWAGE CONTAINING NA I-131 WERE CARRIED OUT. ON THE AVERAGE, 1% OF THE I-131-CONTENT OF THE SEWAGE WAS FOUND IN THE AIR. WHEN CHLORINATING THE SEWAGE, UP TO 60% OF THE I-131 WAS FOUND IN THE AIR.

*WASTE DISPOSAL, LIQUID + GERMANY + IODINE + SAMPLING + WASTE DISPOSAL, RIVER

14-20772

ALSO IN CATEGORY 15

COOPER RE

RADOS - A CODE TO ESTIMATE GAMMA DOSE FROM A CLOUD OF RADIOACTIVE GASES
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C.
DP-1098 +. 23 PAGES, TABLES, REFERENCES, JUNE 1967

RADOS IS A COMPUTER CODE THAT REPRESENTS THE FINITE SPATIAL DISTRIBUTION OF AIRBORNE SOURCE MATERIAL AS AN INFINITE NUMBER OF LINE SOURCES. THE CODE PROVIDES A MEANS OF RAPIDLY CALCULATING WHOLE-BODY GAMMA DOSE FROM A FINITE CLOUD OF RADIOACTIVE MATERIAL. THE SIMPLIFYING ASSUMPTIONS LIMIT THE APPLICABILITY OF RADOS AS FOLLOWS - THE MATERIAL RELEASE SHOULD OCCUR OVER A RELATIVELY SHORT TIME, THE RECEPTOR DISTANCE SHOULD BE MORE THAN 600 METERS DOWNWIND FROM THE RELEASE POINT, AND THE GAMMA ENERGIES SHOULD BE IN THE SPECIFIED RANGE. A 4-GROUP, 12-ISOTOPE, 1-RECEPTOR-POINT PROBLEM REQUIRES ABOUT 1.75 SEC ON THE IBM SYSTEM/360-65.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, EXTERNAL + AIRBORNE RELEASE + COMPUTER PROGRAM + GAMMA + SAVANNAH RIVER PLANT

14-20773

ALSO IN CATEGORY 15

ESSIG TH + SOLDAT JK

EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1966
BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-439 +. 40 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

SURVEILLANCE OF THE ENVIRONS DURING 1966 SHOWED THAT BOTH THE CONCENTRATIONS OF RADIOACTIVE MATERIALS IN THE VICINITY AND THE ENVIRONMENTAL RADIATION DOSES WERE WELL WITHIN APPROPRIATE LIMITS. MOST OF THE ENVIRONMENTAL RADIATION DOSE FOR THE MAJORITY OF PERSONS LIVING IN THE HANFORD ENVIRONS WAS DUE TO NATURAL SOURCES AND WORLD-WIDE FALLOUT RATHER THAN TO HANFORD OPERATIONS. THE MAJOR SOURCE OF LOW-LEVEL WASTES RELEASED TO THE ENVIRONMENT FROM HANFORD PLANTS WAS REACTOR COOLING WATER, DISCHARGED TO THE COLUMBIA RIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + CESIUM + HANFORD SITE + IODINE + STRONTIUM + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, TERRESTRIAL + WATER, DRINKING + WATER, IRRIGATION

14-20785

ALSO IN CATEGORY 15

LLOYD RD + CHRISTENSEN JA + CHURCH BW + FISHER PS + MAYS CW + PENDLETON RC

POLYSPEC. A COMPUTER PROGRAM TO RESOLVE COMPLEX GAMMA-RAY SPECTRA FROM SAMPLES OF DIFFERENT DENSITIES
UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH
5 PAGES, 3 FIGURES, 1 TABLE, 1 REFERENCE, HEALTH PHYSICS 13(8), PAGE 851-855, (AUGUST 1967)

A COMPUTER PROGRAM WAS DEVELOPED FOR USE IN RESOLVING GAMMA-RAY SPECTRA FROM SAMPLES CONTAINING A NUMBER OF RADIONUCLIDES BY THE METHOD OF SIMULTANEOUS EQUATIONS. NO RESTRICTION AS TO THE NUMBER OR IDENTITY OF GAMMA-RAY EMITTERS IS IMPOSED BY THE PROGRAM. IT IS DESIGNED TO UTILIZE DATA FROM SAMPLES OF ANY DENSITY FROM 0.1 TO 1.0 G/CC AND WILL CALCULATE RADIONUCLIDE CONCENTRATIONS CORRECTED FOR THE EFFECT OF DENSITY ON COUNTING RATE.

*COMPUTER PROGRAM + *SPECTROMETRY, GAMMA + COMPUTER, DIGITAL + GAMMA + UNITED STATES

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20788 ALSO IN CATEGORY 15

KASE KR
RADIOACTIVE GAS PRODUCTION AT A 100-MEV ELECTRON LINAC FACILITY
LAWRENCE RADIATION LAB., UNIVERSITY OF CALIF., LIVERMORE, CALIF.
8 PAGES, 11 FIGURES, 3 TABLES, 7 REFERENCES, HEALTH PHYSICS 13(8), PAGE 869-876, (AUGUST 1967)

A METHOD IS PRESENTED FOR DETERMINING THE PRODUCTION OF RADIOACTIVE N-13 AND O-15 AT A 100-MEV ELECTRON LINEAR-ACCELERATOR FACILITY. THE DEPENDENCE OF THE AIR CONCENTRATIONS ON VENTILATION RATES AND BEAM TRAVEL DISTANCE IS DISCUSSED. IT IS DETERMINED THAT N-13 IS THE LIMITING RADIONUCLIDE. MPC AND DOSE CALCULATIONS ARE PRESENTED FOR N-13. THE IMPLICATIONS OF N-13 PRODUCTION ARE DISCUSSED IN TERMS OF VENTILATION RATES FOR TARGET AREAS AND OPERATIONAL CONTROLS. A SAMPLE CALCULATION IS PRESENTED.

*RADIOLYTIC GAS + ACCELERATOR + DOSE + DOSE CALCULATION, INTERNAL + LRL (LAWRENCE RADIATION LABORATORY) + NITROGEN + OXYGEN + VENTILATION SYSTEM

14-20789 ALSO IN CATEGORY 15

MANN JR + DIRCHNER RA
EVALUATION OF LUNG BURDEN FOLLOWING ACUTE INHALATION EXPOSURE TO HIGHLY INSOLUBLE PUO2
6 PAGES, 6 FIGURES, 2 TABLES, 5 REFERENCES, HEALTH PHYSICS 13(8), PAGE 877-882, (AUGUST 1967)

ON 15 OCTOBER 1965, A FIRE IN A PLUTONIUM FABRICATION PLANT RESULTED IN A LARGE-SCALE SPREAD OF PLUTONIUM OXIDE. THE ROCKY FLATS BODY COUNTER WAS USED TO MEASURE THE PLUTONIUM IN THE LUNGS OF ALL EMPLOYEES WORKING IN THE AREA. OF NEARLY 400 EMPLOYEES COUNTED, 25 HAD ENOUGH PLUTONIUM IN THEIR LUNGS TO DELIVER A DOSE OF 15 REM/YR OR GREATER. DATA FROM EACH EMPLOYEE WERE OBTAINED WITH TWO SCINTILLATION DETECTORS IN CONTACT WITH THE SUBJECTS CHEST. THE 60-KEV PHOTON PEAK OF AM-241 WAS USED IN THE MEASUREMENTS. THE AM-241 CONTENT OF THE PLUTONIUM RELEASED IN THE FIRE WAS DETERMINED; AND THE PLUTONIUM QUANTITY WAS THEN DETERMINED FROM CALIBRATIONS DONE ON A CHEST PHANTOM WITH SIMILAR AM-241/PU-239 RATIOS.

*MAXIMUM PERMISSIBLE BODY BURDEN + COUNTER, WHOLE BODY + FIRE + INHALATION + PLUTONIUM + RADIATION INJURY, TREATMENT OF + RADIATION PROTECTION, CHEMICAL + RADIOBIOLOGY + ROCKY FLATS

14-20790 ALSO IN CATEGORY 15

THOMPSON JC
RECONSIDERATION OF THE IODINE-131 CONTRIBUTION FROM FRUITS AND VEGETABLES
DEPT. OF PHYSICAL BIOLOGY, NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK
5 PAGES, 4 TABLES, 19 REFERENCES, HEALTH PHYSICS 13(8), PAGE 883-887, (AUGUST 1967)

FRUITS AND VEGETABLES COULD HAVE BEEN RESPONSIBLE FOR 13-54% OF THE TOTAL I-131 INTAKE DURING 1962. THIS CONTRIBUTION COULD HAVE OCCURRED AMONG THOSE SEGMENTS OF THE POPULATION CONSUMING LARGE QUANTITIES OF FARM-FRESH FOODS. IT IS SUGGESTED THAT ATTENTION BE DIRECTED TOWARD FRESH FRUITS AND VEGETABLES AS A SIGNIFICANT CONTRIBUTION OF I-131 UNDER SPECIFIC CIRCUMSTANCES. ALTHOUGH MEASURES TO COMBAT INTAKE FROM THIS SOURCE ARE RELATIVELY SIMPLE (CONVERT TO PROCESSED OR CANNED FOOD PRODUCTS) THERE SHOULD BE SOME DEFINITE BASIS FOR DECISIONS OF THIS TYPE.

*FALLOUT + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MILK + IODINE + UNITED STATES

14-20791 ALSO IN CATEGORY 15

PALMER HE + DEASLEY TM
IRON-55 IN MAN AND THE BIOSPHERE
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
8 PAGES, 1 FIGURE, 5 TABLES, 15 REFERENCES, HEALTH PHYSICS 13(8), PAGE 889-895, (AUGUST 1967)

SINCE THE 1961-62 NUCLEAR TESTS, FE-55 HAS INCREASED FROM A MINOR FRACTION OF FALLOUT TO THE MOST ABUNDANT OF ALL FALLOUT ISOTOPES. IRON-55 IS EASILY MEASURABLE IN ALMOST ALL LIVING ORGANISMS OF THE BIOSPHERE. ALTHOUGH IT PRODUCES ONLY A SMALL RADIATION DOSE, THE STUDY OF ITS TRANSFER AND CONCENTRATION IN VARIOUS ORGANISMS IS OF INTEREST BECAUSE IRON IS AN ESSENTIAL ELEMENT TO MOST OF THESE ORGANISMS. THIS PAPER PRESENTS DATA ON THE LEVELS OF FE-55 IN MAN AT MANY PLACES ON THE EARTH, IN FOODS, IN THE OCEAN, AND ATTEMPTS TO CORRELATE SOME OF THESE LEVELS. THE AVERAGE LEVELS OF FE-55 RANGE FROM 5 NCI IN PEOPLE IN SOUTH AFRICA TO 1100 NCI IN SOME OF THE ALASKAN ESKIMOS. AVERAGE LEVELS IN WOMEN ARE SIGNIFICANTLY HIGHER THAN IN MEN. THE HIGHEST LEVELS IN HUMANS ARE ASSOCIATED WITH A HIGH CONSUMPTION OF OCEAN FISH.

*FALLOUT + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MAN + DOSE CALCULATION, INTERNAL + INSTRUMENTATION, RADIATION MONITORING + IRON + RADIOBIOLOGY

14-20792

LOMENICK TF + JACOBS DG + STRUXNESS EG

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20792 *CONTINUED*

THE BEHAVIOR OF STRONTIUM-90 AND CESIUM-137 IN SEEPAGE PITS AT ORNL

HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.

10 PAGES, 4 FIGURES, 1 TABLE, 11 REFERENCES, HEALTH PHYSICS 13(8), PAGE 897-905, (AUGUST 1967)

AT OAK RIDGE NATIONAL LABORATORY, NEARLY 40,000 CI OF SR-90 AND 150,000 CI OF CS-137 ARE CONTAINED IN THE VICINITY OF TWO INTERMEDIATE-LEVEL LIQUID-WASTE SEEPAGE PITS THAT ARE NO LONGER RECEIVING INPUT OF LIQUID WASTES. RADIOCHEMICAL ANALYSIS OF CORES TAKEN WITHIN THE AREA INDICATE THAT MOST OF THE ACTIVITY IS ASSOCIATED WITH THE SOFT SLUDGES AND PRECIPITATES, AND THE FIRST FEW INCHES OF WEATHERED SHALE THAT COMPRISE THE SIDE WALLS AND BOTTOMS OF THE PITS. WITH TRITIATED WATER AS A TRACER, IT WAS OBSERVED THAT THE NORMAL RATE OF GROUNDWATER MOVEMENT IN THE WASTE-PIT AREA IS ABOUT 0.5 FT/DAY, WITH A DISPERSION COEFFICIENT OF APPROXIMATELY 0.006 SQ. CM/SEC. PREDICTIONS OF RADIONUCLIDE MOVEMENT AND DISPERSION WITH TIME WERE MADE, BASED ON THE EXCHANGE PROPERTIES OF THE CONASAUGA SHALE FOR CALCIUM AND THE CRITICAL RADIONUCLIDES. THE PREDICTED MIGRATION AGREED CLOSELY WITH EXPERIENCE TO DATE AND SUGGESTS THAT MOVEMENT OF RADIOSTRONTIUM AND RADIOCESIUM IS NOT LIKELY TO PRESENT SERIOUS CONTAMINATION PROBLEMS IN NEARBY SURFACE STREAMS IN THE FUTURE.

*WASTE DISPOSAL, GENERAL + *WASTE DISPOSAL, TERRESTRIAL + CESIUM + ION EXCHANGE +
ORNL (OAK RIDGE NATIONAL LABORATORY) + RADIOISOTOPE + SORPTION + STRONTIUM + WASTE DISPOSAL, LIQUID +
WATER, GENERAL

14-20795

TOWARD MORE REALISTIC SYSTEMS FOR THE DISCHARGE OF RADIOACTIVE AIRBORNE WASTES

UKAEA, HEALTH AND SAFETY BRANCH

1 PAGE, HEALTH PHYSICS 13(8), PAGE 916, (AUGUST 1967)

AUTHOR STATES THAT IT IS ALMOST ALWAYS WRONG TO APPLY THE CONTROL OF GASEOUS (OR LIQUID) WASTES IN TERMS OF CONCENTRATION AT THE POINT OF DISCHARGE. WASTE-DISPOSAL ASSESSMENT AND CONTROL SHOULD BE BASED ON A STUDY OF THE VARIOUS PATHWAYS BY WHICH RADIOACTIVITY CAN BE RETURNED TO MAN.

*WASTE DISPOSAL, GENERAL + BIOLOGICAL CONCENTRATION, GENERAL + HARWELL (UK) + UNITED KINGDOM +
WASTE DISPOSAL, GAS

14-20804

KEESE H

CONTRIBUTIONS TO THE DECONTAMINATION OF RADIOACTIVE CONTAMINATED WATER USING CHEMICAL PRECIPITATION METHODS

INSTITUT FÜR ANORGANISCHE CHEMIE, TECHNISCHE HOCHSCHULE, BRUNSWICK, WEST GERMANY

BMWF-FBK-65-04 +. 66 PAGES, DECEMBER 1965, IN GERMAN

THE APPLICABILITY AND THE KINETICS OF VARIOUS PRECIPITATION METHODS FOR THE DECONTAMINATION OF WATER, SLIGHTLY CONTAMINATED BY RADIOACTIVE IONS, WERE EXAMINED. PRECIPITATIONS OF BARIUM PHOSPHATE WITH SODIUM SULFATE, AND POTASSIUM ALUMINUM ALUM WITH BARIUM CHLORIDE GAVE THE BEST RESULTS. ABOUT 97% OF THE CE-144, Y-91, SR-89, SR-90, AND CO-60 ARE REMOVED SIMULTANEOUSLY, WHEREAS THE REMOVAL OF CS-137 IS SMALL.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN

*WATER TREATMENT + CERIUM + CESIUM + COBALT + DECONTAMINATION + GERMANY + PRECIPITATION + STRONTIUM +
YTTRIUM

14-20805

NELSON DK + DETTERMAN RL

EVALUATION OF SNAP REACTOR DISPOSAL TECHNIQUES

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12433 +. 76 PAGES, 36 FIGURES, 5 TABLES, 9 REFERENCES, JUNE 30, 1967

ACTIVE AND PASSIVE REACTOR DISPOSAL MODES HAVE BEEN EVALUATED TO ESTABLISH THEIR RELATIVE MERITS AND CONDITIONS OF BEST APPLICATION. THE ACTIVE DISPOSAL MODES INCLUDED DEORBIT FOR OCEAN DISPOSAL, INTACT EARTH IMPACT AND RECOVERY, ORBIT ENHANCEMENT, AND EARTH ESCAPE. RANDOM REENTRY WAS ALSO CONSIDERED AS A DISPOSAL MODE IN THE EVENT OF ACTIVE DISPOSAL FAILURE AND AS A PRIMARY PASSIVE MODE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00.
COPY, \$0.65 MICROFICHE

*WASTE DISPOSAL, GENERAL + ABLATION + ATOMICS INTERNATIONAL + ISOTOPIC GENERATOR + REACTOR, SPACE +
SNAP, GENERAL (SYSTEMS FOR NUCLEAR AUX. POWER) + SPACECRAFT + WASTE DISPOSAL, OCEAN

14-20807

LANGHAM WH

CONSIDERATIONS OF BIOSPHERIC CONTAMINATION BY RADIOACTIVE FALLOUT

LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO

16 PAGES, 9 FIGURES, 4 TABLES, 2 REFERENCES, PAGES 1 THROUGH 18 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20807 *CONTINUED*

TESTING OF NUCLEAR-WEAPONS RELEASES RADIOACTIVE DEBRIS INTO THE ATMOSPHERE AND DEPOSITION OVER THE EARTH'S SURFACE (FALLOUT) MAY BE DIVIDED INTO THREE CATEGORIES (LOCAL, INTERMEDIATE OR TROPOSPHERIC, AND STRATOSPHERIC OR WORLD-WIDE) ON THE BASIS OF TIME AND PLACE OF DEPOSITION. LOCAL FALLOUT IS DEPOSITED WITHIN THE FIRST 24 HOURS IN IMMEDIATE ENVIRONS OF THE DETONATION. TROPOSPHERIC FALLOUT TAKES PLACE IN 20 TO 30 DAYS AFTER A WEAPONS TEST, ESSENTIALLY IN A BAND AROUND THE WORLD IN THE GENERAL LATITUDE OF THE DETONATION. DETONATIONS EQUIVALENT IN ENERGY RELEASE TO A MILLION TONS OR MORE OF HIGH EXPLOSIVE CARRY THEIR FISSION PRODUCTS INTO THE STRATOSPHERE, WHERE THEY ARE WIDELY DISPERSED. THE MATERIAL RETURNS SLOWLY TO EARTH (AVERAGE RETURN TIME ABOUT 6 MONTHS TO 3 YEARS). STRATOSPHERIC FALLOUT HAS BEEN THE GREATEST CONTRIBUTOR TO WORLD-WIDE CONTAMINATION SINCE OVER 90% OF ALL FISSION PRODUCTS PRODUCED FROM NUCLEAR WEAPON TESTS HAS BEEN FROM WEAPONS WITH YIELDS GREATER THAN ONE MEGATON.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*ECOLOGICAL CONSIDERATION + *FALLOUT + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MAN + CESIUM + FISSION PRODUCT, AIRBORNE + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + NUCLEAR EXPLOSION DEBRIS + STRATOSPHERE + STRONTIUM + TEST, WEAPONS (WP ASPECTS) + TROPOSPHERE

14-20808

ROBERTS H + MENZEL RG

AVAILABILITY OF EXCHANGEABLE AND NON-EXCHANGEABLE STRONTIUM-90 TO PLANTS

U.S. DEPARTMENT OF AGRICULTURE, BELTSVILLE, MARYLAND

9 PAGES, 1 FIGURE, 5 TABLES, 15 REFERENCES, PAGES 21-29 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

A PORTION OF THE SR-90 IN SOILS IS NOT READILY EXCHANGEABLE WITH NEUTRAL SALTS, SUCH AS AMMONIUM ACETATE OR STRONTIUM NITRATE. SINCE THE SR-90 IN WORLD-WIDE FALLOUT IS ESSENTIALLY WATER-SOLUBLE, THE PORTION THAT IS NOT NOW EXCHANGEABLE HAS BECOME SO BY REACTIONS IN THE SOIL. SOLUBLE AND EXCHANGEABLE CATIONS IN SOILS ARE USUALLY CONSIDERED TO BE MOST READILY AVAILABLE FOR UPTAKE BY PLANTS. THEREFORE, IT IS OF INTEREST TO ATTEMPT TO DETERMINE WHETHER OR NOT THE NONEXCHANGEABLE PORTION OF SR-90 IN SOILS CONTRIBUTES SIGNIFICANTLY TO PLANT UPTAKE.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + *SOIL, NUCLIDE OCCURRENCE + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, VEGETATION + SOIL, RADIONUCLIDE MOVEMENT THROUGH + STRONTIUM + UNITED STATES

14-20809

ADAMS WH + CHRISTENSON CW + FOWLER EB

RELATIONSHIP OF SOIL, PLANT AND RADIONUCLIDE

LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO

22 PAGES, 15 FIGURES, 23 REFERENCES, PAGES 30 THROUGH 51 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

SR-90 IS ONE OF THE PRODUCTS OF NUCLEAR FISSION. IT HAS BEEN SHOWN TO BE A POSSIBLE CARCINOGENIC AGENT, AND IT HAS AN APPRECIABLE HALF-LIFE. FURTHER, IT IS A CLOSE PERIODIC RELATIVE OF CALCIUM, AND ITS RELATION TO CALCIUM METABOLISM HAS BEEN REVIEWED. LIBBY AND OTHERS INVESTIGATED THE PROBLEM OF SR-90 FALLOUT AND INDICATED THE IMPORTANCE OF THE PLANT IN THE BIOLOGICAL CHAIN OF TRANSFER FROM SOIL TO ANIMAL, TO MILK, AND HENCE TO MAN. COLLANDER IN 1937, USING MILLIGRAM AMOUNTS OF CALCIUM AND STRONTIUM, SHOWED THAT LETTUCE TOOK UP 500 TIMES AS MUCH CALCIUM AS STRONTIUM. HOWEVER, THE RATIO OF CALCIUM TO STRONTIUM IN THE NUTRIENT WAS ABOUT 400 TO 1. HE PLACES CALCIUM AND STRONTIUM IN THE SAME GROUP RELATIVE TO AVAILABILITY AND RELATES AVAILABILITY TO ELECTRICAL MOBILITY OF THE IONS. IF THE WORK OF COLLANDER EMPLOYED NUTRIENT SOLUTIONS, AS INDICATED, THE RESULTS ARE PROBABLY NOT APPLICABLE TO SOILS.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + SOIL, NUCLIDE OCCURRENCE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + STRONTIUM

14-20810

NISHITA H + ROMNEY EM + LARSON KH

UPTAKE OF RADIOACTIVE FISSION PRODUCTS BY PLANTS

UNIVERSITY OF CALIFORNIA, SCHOOLS OF MEDICINE, LOS ANGELES

27 PAGES, 5 FIGURES, 6 TABLES, 78 REFERENCES, PAGES 55 THROUGH 81 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

CONTAMINATION OF THE BIOSPHERE BY RADIOACTIVE FISSION PRODUCTS HAS AROUSED CONSIDERABLE CONCERN IN RELATION TO THE HEALTH AND WELFARE OF MANKIND. IN SUFFICIENT CONCENTRATIONS, THE RADIONUCLIDES RELEASED INTO THE BIOSPHERE CAN BE HAZARDOUS TO MAN OR ANIMALS AS SOURCES OF EXTERNAL RADIATION OR OF INTERNAL RADIATION BY VIRTUE OF ACCUMULATION IN THE BODY. SOONER OR LATER, SOME OF THESE RADIONUCLIDES WILL FIND THEIR WAY INTO MAN AND HIS FOOD SUPPLY. THERE ARE MANY ROUTES BY WHICH MAN CAN BECOME EXPOSED DIRECTLY OR INDIRECTLY TO RADIONUCLIDES. THE RATE OF MOVEMENT ALONG EACH ROUTE DEPENDS ON THE PHYSICAL AND CHEMICAL PROPERTIES OF THE RADIOACTIVE CONTAMINANTS, THE CHEMICAL CHARACTERISTICS OF THE INDIVIDUAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20810 *CONTINUED*

RADIONUCLIDES, AND THE CHEMICAL REACTIONS INVOLVED ALONG EACH LINK OF THE CHAIN. ONLY BY FULLY UNDERSTANDING THE INFLUENCE OF EACH OF THESE FACTORS CAN THE LONG-TERM CONSEQUENCES OF THE RADIONUCLIDES RELEASED INTO THE BIOSPHERE BE ASSESSED PROPERLY.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + BETA EMITTER + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, VEGETATION + SOIL, NUCLIDE OCCURRENCE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + UNITED STATES

14-20811

BUKOVAC MJ + WITTWER SH + TUKEY HB

ABOVEGROUND PLANT PARTS AS A PATHWAY FOR ENTRY OF FISSION PRODUCTS INTO THE FOOD CHAIN WITH SPECIAL REFERENCE TO SR-89-90 AND CS-137

MICHIGAN STATE UNIVERSITY, EAST LANSING, MICHIGAN

28 PAGES, 7 FIGURES, 12 TABLES, 72 REFERENCES, PAGES 82 THROUGH 109 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

THE ABSORPTION OF RADIONUCLIDES BY PLANTS, FOLIAR ABSORPTION AND SUBSEQUENT DISTRIBUTION, RECOVERY OF SR-90 AND CS-137 IN FRUITS AND SEEDS AFTER FOLIAR APPLICATION, REDISTRIBUTION IN PLANT DEVELOPMENT COMPARISON OF ABOVEGROUND AND ROOT ABSORPTION AND LOSS OF FISSION PRODUCTS FROM LEAVES AND FRUIT BY LEACHING WERE STUDIED.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + FISSION PRODUCT RETENTION + FISSION PRODUCT, AIRBORNE + STRONTIUM

14-20812

KLEMENT AW

NATURAL RADIONUCLIDES IN FOODS AND FOOD SOURCE MATERIALS

DIVISION OF BIOLOGY AND MEDICINE, USAEC, WASHINGTON, D. C.

43 PAGES, 3 FIGURES, 17 TABLES, 212 REFERENCES, PAGES 113 THROUGH 155 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

THE OCCURRENCE OF NATURAL RADIONUCLIDES IN SOILS AND NATURAL WATERS HAS BEEN REVIEWED AS HAS THEIR OCCURRENCE IN HUMAN FOODS AND OTHER BIOLOGICAL MATERIALS. A GREAT DEAL OF INFORMATION IS AVAILABLE WITH RESPECT TO SOME NUCLIDES OF THE URANIUM, THORIUM, AND ACTINIUM SERIES AND K-40, C-14, AND H-3. LESS DATA OF INTEREST HERE ARE AVAILABLE FOR RB-87. INFERENCES MAY BE MADE, WITH CAUTION, FOR THE OCCURRENCE OF THE RADIOISOTOPES OF LEAD, INCLUDING PB-204. FEW DATA APPEAR TO BE AVAILABLE FOR OTHER NATURAL RADIONUCLIDES SO FAR AS THIS REVIEW MAY BE INDICATIVE.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*RADIOISOTOPE + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, VEGETATION + SOIL, NUCLIDE OCCURRENCE + USAEC (U.S. ATOMIC ENERGY COMMISSION)

14-20813

CAMPBELL JE + MURTHY GK + LEWIS KH + STRAUB CP

RADIONUCLIDES IN MILK

U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE, PUBLIC HEALTH SERVICE, CINCINNATI, OHIO

24 PAGES, 5 FIGURES, 11 TABLES, 17 REFERENCES, PAGES 156 THROUGH 179 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

MONTHLY SAMPLING OF RAW MILK FROM SELECTED PORTIONS OF FIVE MILKSHEDS SERVING MAJOR POPULATION AREAS WAS STARTED IN EARLY 1957, EXPANDED IN 1958 TO INCLUDE TEN MILKSHEDS, AND IS BEING CONTINUED AT PRESENT IN NINE OF THOSE MILKSHEDS. A DIRECT RELATIONSHIP WAS OBSERVED BETWEEN WEAPONS TESTS AND THE OCCURRENCE OF I-131, BA-140, AND SR-89 IN MILK. THE PRESENCE OF SR-90 AND CS-137 IN MILK WAS INDEPENDENT OF WEAPON TESTS. A MARKED INCREASE IN THE RADIONUCLIDES WAS CONSISTENTLY OBSERVED DURING SPRING AND EARLY SUMMER, WHICH WAS ASSOCIATED WITH THE CHANGES IN FEEDING PRACTICE. THIS WAS MORE APPARENT IN THE NORTHERN PART OF THE UNITED STATES THAN IN THE SOUTH.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*BIOLOGICAL CONCENTRATION, MILK + *FALLOUT + BARIUM + CALCIUM + CESIUM + IODINE + POTASSIUM + STRONTIUM + UNITED STATES

14-20814

SHUMWAY RH

TRANSPORT MECHANISMS INFLUENCING SR-90 LEVELS IN MILK

UNITED ELECTRO-DYNAMICS, INC., ALEXANDRIA, VA.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20814 *CONTINUED*
24 PAGES, 8 FIGURES, 8 TABLES, 7 REFERENCES, PAGES 180 THROUGH 203 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

FIVE YEARS OF DATA FROM THE RAW-MILK-SAMPLING NETWORK WERE USED TO DERIVE A MODEL REPRESENTING THE MECHANISMS INVOLVING THE MOVEMENT OF SR-90 FROM DEPOSITION ON THE PLANT TO INCORPORATION INTO THE MILK. THE AEC MODEL TENDS TO SMOOTH OUT THE PEAKS MORE AND TO PREDICT HIGHER PEAKS FOR THE SPRING.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*BIOLOGICAL CONCENTRATION, MILK + *FALLOUT + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, VEGETATION + STRONTIUM + STRONTIUM + UNITED STATES

14-20815 ALSO IN CATEGORY 15
WASSERMAN RH + LENGEMANN FW + THOMPSON JC + COMAR CL
THE TRANSFER OF FALL-OUT RADIONUCLIDES FROM DIET TO MAN
NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK
41 PAGES, 1 FIGURE, 13 TABLES, 141 REFERENCES, PAGES 204-244 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

ATMOSPHERIC TESTING OF FISSION- AND FISSION-TYPE WEAPONS HAS ACCENTUATED THE SIGNIFICANCE OF FISSION PRODUCTS. RESEARCH HAS DEVELOPED QUALITATIVE AND QUANTITATIVE DESCRIPTIONS OF THE MOVEMENT AND METABOLISM OF SEVERAL RADIOACTIVE ELEMENTS. A CLEAR IDEA OF THE BEHAVIOR OF STRONTIUM, CESIUM, AND IODINE IS AT HAND. THIS PAPER DEALS WITH PHYSIOLOGICAL AND NUTRITIONAL ASPECTS OF THE SUBJECT. IN ADDITION, CONSIDERATION HAS BEEN GIVEN TO THE CONTRIBUTION OF VARIOUS FOOD SOURCES (MILK AND NONMILK) TO THE TOTAL INTAKE OF FISSION PRODUCTS BY HUMANS. SOME COUNTERMEASURES ARE MENTIONED THAT COULD BE INSTITUTED IF CONCENTRATIONS OF FISSION PRODUCTS IN FOODS INCREASE TO A LEVEL WHERE ACTION IS DEEMED NECESSARY.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + CALCIUM + IODINE + POTASSIUM + STRONTIUM + UNITED STATES

14-20816 ALSO IN CATEGORY 15
KULP JL
RADIONUCLIDES IN MAN FROM NUCLEAR TESTS
COLUMBIA UNIVERSITY, PALISADES, NEW YORK
39 PAGES, 9 FIGURES, 18 TABLES, 48 REFERENCES, PAGES 247 THROUGH 284 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

REVIEWS PRODUCTION AND WORLDWIDE DISTRIBUTION OF NUCLEAR DEBRIS, UPTAKE OF RADIOSTRONTIUM BY PLANTS, PLANT-SOIL SR RELATIONS, AND DISCRIMINATION FACTORS, INTERNAL DOSE TO HUMANS FROM RADIONUCLIDES AND CONTRIBUTIONS OF THIS DOSE TO SOMATIC AND GENETIC EFFECTS, AND ESTIMATES OF FALLOUT LEVELS FROM A 6000-MT THERMONUCLEAR WAR. IT IS CONCLUDED THAT THE U.S. DIET HAS PASSED ITS PEAK CONCENTRATION OF SR-90 AND CS-137, THAT SR-90 PROBABLY WILL REMAIN THE LARGEST CONTRIBUTOR TO THE RADIATION DOSE TO AN INDIVIDUAL, AND THAT CS-137 MEASUREMENT CAN BE USED TO MONITOR SR-90 IN MILK IN EMERGENCY SITUATIONS. THESE RESULTS ALSO SUGGEST THAT IN THE EVENT OF LARGE-SCALE NUCLEAR WARFARE, THE GENERAL RADIOACTIVE CONTAMINATION WOULD NOT PRECLUDE THE EXISTENCE OF LARGE POPULATIONS IF SHORT-TIME (6 TO 12 MONTHS) SURVIVAL WERE POSSIBLE.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + CESIUM + CIVIL DEFENSE + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + NUCLEAR EXPLOSION DEBRIS + PRECIPITATION + RAINOUT + SOIL, RADIONUCLIDE MOVEMENT THROUGH + STRONTIUM

14-20817
HAMADA GH + KRUGER P
METHODS OF ASSESSING FALLOUT
HAZLETON-NUCLEAR SCIENCE CORP., PALO ALTO, CALIF.
17 PAGES, 1 TABLE, 51 REFERENCES, PAGES 287-303 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

A REVIEW IS PROVIDED OF RADIOCHEMICAL PROCEDURES FOR MEASURING FALLOUT RADIONUCLIDES IN VARIOUS MATERIALS. SAMPLES TAKEN FOR FALLOUT STUDIES INCLUDE AIR PARTICLES, RAIN AND SEA WATERS, SOILS, VEGETATIONS, FOODS, AND ANIMAL AND HUMAN BONES AND SOFT TISSUES.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*ANALYTICAL TECHNIQUE, GENERAL + *FALLOUT + ANALYTICAL TECHNIQUE, FOOD + ANALYTICAL TECHNIQUE, MILK + ANALYTICAL TECHNIQUE, VEGETATION + CERIUM + CESIUM + PLUTONIUM + RADIOCHEMICAL ANALYSIS + RUTHENIUM + STRONTIUM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-20826 ALSO IN CATEGORIES 7 AND 12
SCHEEL H
REGARDING THE PROCEDURE AT EXTRAORDINARY EVENTS WITH RADIOACTIVE SOURCES
STAATLICHE ZENTRALE FÜR STRAHLENSCHUTZ
SZS-4(1965) +. 18 PAGES, JUNE 1965, IN GERMAN

RULES TO BE APPLIED IN THE GERMAN DEMOCRATIC REPUBLIC IN CASE OF UNUSUAL EVENTS ENDANGERING PERSONNEL AND PROPERTY BY IONIZING RADIATION, SUCH AS FIRE, FLOOD, LOSS OF RADIOACTIVE MATERIAL, AND OTHER ACCIDENTS IN CONNECTION WITH SOURCES OF IONIZING RADIATION. PHASE I (PRIOR TO ARRIVAL OF TRAINED HELP), PHASE II (ACTIVITIES OF TRAINED HELP), PHASE III (RECOVERY).

*GERMANY + *RADIATION SAFETY AND CONTROL + DECONTAMINATION + FIRE + RADIATION PROTECTION, ORGANIZATION

14-20834
SURVEY OF ENVIRONMENTAL RADIOACTIVITY. JANUARY--JUNE 1967 (ELK RIVER REACTOR)
MINNESOTA DEPARTMENT OF HEALTH + RURAL COOPERATIVE POWER ASSOCIATION
COO-651-48 +. 37 PAGES, FIGURES, TABLES, AUGUST 1967

REPORTS DATA FROM THE ENVIRONMENTAL MONITORING PROGRAM CONDUCTED JOINTLY BY THE MINNESOTA DEPARTMENT OF HEALTH AND RURAL COOPERATIVE POWER ASSOCIATION. DATA ARE PRESENTED FOR AIR, SURFACE WATER, PRECIPITATION, AND MILK.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + AIR + BIOLOGICAL CONCENTRATION, MILK + ELK RIVER + PRECIPITATION + UNITED STATES + WATER, GENERAL

14-21002 ALSO IN CATEGORY 15
BURTON C + PRATT MW
PREDICTION OF THE MAXIMUM DOSAGE TO MAN FROM THE FALLOUT OF NUCLEAR DEVICES. III. BIOLOGICAL GUIDELINES FOR DEVICE DESIGN.
CALIFORNIA UNIV., LIVERMORE, LAWRENCE RADIATION LAB.
UCRL-50163(PT.3) +. 17 PAGES, 8 FIGURES, 1 TABLE, 6 REFERENCES, JULY 25, 1967

A METHOD WAS DEVELOPED TO ESTIMATE THE BIOLOGICAL HAZARD DUE TO THE RADIONUCLIDES THAT RESULT FROM REACTIONS BETWEEN NUCLEAR DEVICE COMPONENTS AND THE PARTICLES RELEASED BY THE DEVICE. METHOD CAN BE USED IN PRESHOT RAD-SAFE ANALYSIS, AS GUIDANCE FOR POSTSHOT DOCUMENTATION, AND IN THE CHOICE OF THE MOST BIOLOGICALLY SUITABLE ELEMENTS FOR DEVICE DESIGN. AS AN EXAMPLE OF THE TECHNIQUE, TUNGSTEN WAS STUDIED IN DETAIL. IT WAS FOUND THAT, IN TUNGSTEN, THE CHARGED-PARTICLE REACTION PRODUCTS MAY BE THE LARGEST CONTRIBUTORS TO THE BIOLOGICAL HAZARD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*DOSE + *FALLOUT + DOSE CALCULATION, EXTERNAL + LRL (LAWRENCE RADIATION LABORATORY) + RADIATION DAMAGE + RADIOBIOLOGY + TEST, WEAPONS (HP ASPECTS)

14-21135
MILLER CF + LEE H
OPERATION CENIZA-ARENA - THE RETENTION OF FALLOUT PARTICLES FROM VOLCAN IRAZU (COSTA RICA) BY PLANTS AND PEOPLE. PART I.
STANFORD RESEARCH INST., MENLO PARK, CALIF.
AD-637313 +. 374 PAGES, TABLES, REFERENCES, JANUARY 1966

STUDIED THE NATURE OF CLOUDS OF PARTICLES ARISING FROM THE ERUPTION OF VOLCAN IRAZU IN COSTA RICA. THE PARTICLES, EXCEPT FOR BEING NONRADIOACTIVE, WERE SIMILAR TO SOME CHARACTERISTIC TYPES OF FALLOUT PARTICLES FROM NUCLEAR EXPLOSIONS AND WERE DEPOSITED ON BOTH AGRICULTURAL COMMUNITIES AND URBAN COMMUNITIES. DATA FROM VOLCANIC PARTICLES WAS USEFUL IN CONSIDERATION OF RADIOACTIVE FALLOUT.

*FALLOUT + FISSION PRODUCT TRANSPORT

14-21143 ALSO IN CATEGORY 15
PEARCE DW + GREEN JK
ANNUAL REPORT FOR 1965 IN THE PHYSICAL SCIENCES. VOLUME 2. RADIOLOGICAL SCIENCES.
BATTTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-235-2 +. 178 PAGES, FIGURES, TABLES, REFERENCES, MAY 1966

CONTINUING WORK IS REPORTED IN THREE GENERAL AREAS - RADIOLOGICAL PHYSICS, RADIATION CHEMISTRY, RADIOLOGICAL CHEMISTRY. RESEARCH INCLUDES THEORETICAL AND DEVELOPMENT WORK ON RADIATION DETECTION, IN VIVO COUNTING, FISSION PRODUCT MOVEMENT IN THE ENVIRONMENT, RADIOCHEMISTRY, AND RADIOBIOLOGY.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-21143 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*COUNTER, WHOLE BODY + *INSTRUMENTATION, NUCLEAR + *MONITORING PROGRAM, ENVIRONMENTAL + *RADIOBIOLOGY +
ALPHA EMITTER + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS +
BIOLOGICAL CONCENTRATION, FOOD + CESIUM + COUNTER + FALLOUT + FISSION PRODUCT TRANSPORT +
INSTRUMENTATION, RADIATION MONITORING + IODINE + IRON + OCEAN AND SEA + PLUTONIUM + RADIOISOTOPE +
RIVER, COLUMBIA + SPECTROMETRY, GAMMA + WASTE DISPOSAL, GENERAL + X-RAY

14-21471

TROUBLE M

X-SPECTROGRAPHIC METHOD FOR PLUTONIUM DETECTION. APPLICATION TO CONTAMINATION MEASUREMENTS IN HUMANS.
COMMISSARIAT A L ENERGIE ATOMIQUE, CENTRE D ETUDES NUCLEAIRES, SACLAY, FRANCE
CEA-R-3098 +. 59 PAGES, 26 FIGURES, 15 TABLES, 27 REFERENCES, 1967, IN FRENCH

AFTER REVIEWING THE RADIOTOXICOLOGY OF PU-239 AND THE CONVENTIONAL DETECTION METHODS USING ITS
ALPHA RADIATION, THE AUTHOR CONSIDERS THE MEASUREMENT OF THE X-EMISSION SPECTRUM OF PU-239 BY
USE OF A PROPORTIONAL COUNTER FILLED WITH ARGON UNDER PRESSURE. THIS PRELIMINARY WORK LEADS
TO THE THIRD PART OF THIS RESEARCH INVOLVING THE DETAILED STUDY OF THE POSSIBILITIES OF
APPLYING THIN ALKALI-HALIDE CRYSTAL SCINTILLATORS TO THE DETECTION OF SOFT PLUTONIUM X-RAYS.
THERE FOLLOWS A SYSTEMATIC STUDY OF ALL THE PARAMETERS LIABLE TO RENDER THE DETECTION AS
SENSITIVE AS POSSIBLE (MOVEMENT DUE TO THE PHOTOMULTIPLIER ITSELF AND ITS ACCESSORY
ELECTRONIC EQUIPMENT, NATURE AND SIZE OF THE CRYSTAL SCINTILLATOR AS WELL AS ITS MODE OF
PREPARATION, SHIELDING AGAINST EXTERNAL PARASITIC RADIATION). EXAMPLES OF SOME APPLICATIONS
TO THE MEASUREMENT OF CONTAMINATION IN HUMANS GIVE AN IDEA OF THE SENSITIVITY OF THIS METHOD.

AVAILABILITY - MICROCARD EDITIONS, INC., (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM,
WISCONSIN

*ANALYTICAL TECHNIQUE, GENERAL + COUNTER, WHOLE BODY + FRANCE + PLUTONIUM + X-RAY

14-21656

ALSO IN CATEGORY 17

CALIFORNIUM-252 SPILL AT PRINCETON U, SEPT. 19, 1967
PRINCETON UNIVERSITY, N. J.

4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 33-36, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 1) THE SPILL OCCURRED ON SEPT. 19 DURING TRANSFER OF THE SOURCE TO A NEW MOUNT.
FLAKES FROM THIN NICKEL FOILS (USED TO REDUCE CF-252 SELF-TRANSFER) HAD ACCUMULATED ON THE
MOUNT AND HAD APPARENTLY DROPPED OFF WHEN THE TRANSFER (IN VIOLATION OF STANDARD PRACTICE)
WAS MADE OUTSIDE A GLOVE BOX AND WITHOUT HEALTH-PHYSICS PARTICIPATION. THE SCIENTISTS CHECK
SHOWED NO CONTAMINATION OF THEIR STREET CLOTHING. THE SPILL WAS DETECTED DURING A ROUTINE
RADIATION SURVEY ON OCT. 3, WHEN 17 OF 24 SMEARS EXCEEDED 100 DPM. ABOUT 150 SPOTS EXCEEDED
1000 CPM. SHOES WERE CONTAMINATED BUT NO HOMES OR AUTOS.

*CALIFORNIUM + *CONTAMINATION + *FAILURE, OPERATOR ERROR + FAILURE, ADMINISTRATIVE CONTROL +
SURVEY, RADIATION, GENERAL

14-21657

ALSO IN CATEGORY 17

US RADIUM CORP REPORTS AM-241 INHALATIONS SEPT. 11, 67
U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 36, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 20, 67) THREE WERE EXPOSED IN THE AM-RA-PD LABORATORY DURING GENERAL
DECONTAMINATION AND ONE DURING FILTER CHANGES. ALL WERE RESPIRATORS. BASED ON AM-241(S),
EXPOSURES WERE EXCESSIVE BY FACTORS OF 3.99, 3.97, 2.76, AND 1.27. THE CAUSE OF THE
EXCESSIVE AIRBORNE CONTAMINATION WAS APPARENTLY A COMBINATION OF INADEQUATE VENTILATION AND
EXCESSIVE REMOVABLE CONTAMINATION ON SURFACES WITHIN THE FACILITY.

*AIRBORNE RELEASE + *AMERICIUM + *INHALATION + DECONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL +
MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + PERSONNEL PROTECTIVE DEVICE + POLONIUM + RADIUM +
VENTILATION SYSTEM

14-21658

ALSO IN CATEGORY 17

US RADIUM CORP REPORTS EXCESSIVE TRITIUM RELEASES SEPT 27/28, 1967
U.S. RADIUM CORP., BLOOMSBURG, PA.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 36 AND 37, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 24, 67) THE TRITIUM GLASS-TUBE-FILL-FACILITY STACK WAS MONITORED FOR 2
CONSECUTIVE 24-HR PERIODS SEPT. 27 AND 28 AND SHOWED H-3(S) DISCHARGE EFFLUENTS EXCEEDED MPC
BY A FACTOR OF 54.77 AND 43.48 DURING ROUTINE WORK. R AND D IS PROGRESSING ON MINIMIZING
CONCENTRATIONS AT THE SOURCE. H-3(SUE) IS BEING CONVERTED TO H-3(S) WHICH IS
SCRUBBED/TRAPPED BY WATER IMPINGEMENT AND DRYING COLUMN.

*AIRBORNE RELEASE + *STACK + *TRITIUM + EFFLUENT + SCRUBBER

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-21660 ALSO IN CATEGORY 17
US RADIUM CORP REPORTS 6 AM-241 INHALATIONS OCT. 1967
U.S. RADIUM CORP., BLOOMSBURG, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 38, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 2, 67) FIVE INDIVIDUALS WERE OVEREXPOSED DURING DECONTAMINATION WHILE WEARING RESPIRATORS. RECEIVED 27.3, 11.37, 10.96, 1.68, AND 1.06 TIMES MPC. ONE RECEIVED 1.39 TIMES MPC WHILE FOIL PLATING 68.8 MILLICURIES OF AM-241. CONTAMINATION COULD BE HAND-TRANSFERRED DIRECTLY TO SAMPLE FILTER WHEN OPERATOR EASES DISCOMFORT OF LONG USE OF A RESPIRATOR. SOME INDIVIDUALS SAMPLED CONSECUTIVELY 4 OR 5 DAYS SHOW BZ AT 1/10 TH MPC, AND THEN ONE DAY SHOW 10 MPC WITHOUT LOGICAL REASONS.

*AMERICIUM + *INHALATION + *PERSONNEL PROTECTIVE DEVICE + AIRBORNE RELEASE + DECONTAMINATION + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + POLONIUM + RADIUM

14-21824
BROWN DJ
MIGRATION CHARACTERISTICS OF RADIONUCLIDES THROUGH SEDIMENTS UNDERLYING THE HANFORD RESERVATION ISOHEM INC., RICHLAND, WASHINGTON
ISO-SA-32 + CONF-670512-2 +. 16 PAGES, 1966, FROM JOINT IAEA/ENEA SYMPOSIUM ON THE DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, VIENNA, AUSTRIA

A FIELD STUDY OF A LARGE-SCALE WASTE-DISPOSAL SITE AT HANFORD, NO LONGER USED, SHOWED THAT NEARLY ALL THE LONG-LIVED RADIONUCLIDES, SORBED ON THE SEDIMENTS IN THE VADCOSE ZONE ARE RETAINED HIGH-UP IN THE SEDIMENT COLUMN AND ARE RELATIVELY IMMOBILE. THAT SMALL FRACTION WHICH DOES MOVE IS SORBED ON THE UNDERLYING SEDIMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*GEOLOGICAL CONSIDERATION, GENERAL + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GENERAL + GEOLOGICAL CONSIDERATION, STRATIGRAPHY + GROUND WATER, NUCLIDE OCCURRENCE + HANFORD SITE + ISOHEM, INC. + MINERAL EXCHANGE + RUTHENIUM + SORPTION + STRONTIUM + TECHNETIUM + TRITIUM + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, TERRESTRIAL

14-21825
ALEKSAXHIM RM
RADIOACTIVE CONTAMINATION OF SOIL AND PLANTS
AEC-TR-6631 + TT-66-51002 + IPST-CAT.-1502 +. 112 PAGES, FIGURES, TABLES, REFERENCES, 1963

DEALS WITH RADIOACTIVE CONTAMINATION OF SOIL AND VEGETATION. THE FOUR CHAPTERS ARE - (I) COMPOSITION AND FORMS OF GLOBALLY DEPOSITED RADIOACTIVE MATERIALS AND FUNDAMENTAL PRINCIPLES OF THEIR FALLOUT, (II) UPTAKE AND ACCUMULATION OF RADIOACTIVE FISSION FRAGMENTS, CERTAIN PRODUCTS OF INDUCED RADIOACTIVITY AND PLUTONIUM-239 BY PLANTS AND THE EFFECT OF THESE RADIOISOTOPES ON PLANTS, (III) BEHAVIOR OF RADIOACTIVE FISSION FRAGMENTS AND PU-239 IN SOIL, (IV) RESEARCH ON THE PROBLEMS OF DECREASING THE AMOUNTS OF RADIOACTIVE FISSION PRODUCTS ENTERING PLANTS AND ACCUMULATING IN CROPS, AND DECONTAMINATION OF SOILS POLLUTED WITH RADIOACTIVE SUBSTANCES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, VEGETATION + *CONTAMINATION + *FALLOUT + *SOIL + FISSION PRODUCT RELEASE, GENERAL + NUCLEAR EXPLOSION DEBRIS + PLUTONIUM + RADIONUCLIDE, INDUCED + UNION OF SOVIET SOCIALIST REPUBLICS

14-21826
CARRIGAN PH + PICKERING RJ + TAMURA T + FORBES R
RADIOACTIVE MATERIALS IN BOTTOM SEDIMENT OF CLINCH RIVER. PART A, INVESTIGATIONS OF RADIONUCLIDES IN UPPER PORTION OF SEDIMENT
OAK RIDGE NATIONAL LAB., OAK RIDGE, TENNESSEE
ORNL-3721(SUPPL. 2A) +. 82 PAGES, TABLES, FIGURES, REFERENCES, MARCH 1967

SUMMARIZES DATA ON THE STUDY OF RADIONUCLIDES IN THE UPPER PORTION OF THE BOTTOM SEDIMENTS OF THE CLINCH RIVER. PHASES OF THE STUDY INCLUDE DESCRIPTION OF THE STUDY REACH, SEDIMENT DEPOSITION, ANNUAL MONITORING SURVEYS IN BOTTOM SEDIMENTS, RADIONUCLIDE CONTENT OF UPPER PORTION OF BOTTOM SEDIMENTS, INVENTORY OF RADIONUCLIDES IN SEDIMENTS, PHYSICO-CHEMICAL CHARACTERISTICS OF BOTTOM SEDIMENTS, AND RADIATION DOSAGE FROM BOTTOM SEDIMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*RIVER, CLINCH + *RIVER, TENNESSEE + *SEDIMENT + *WASTE DISPOSAL, LIQUID + MINERAL EXCHANGE + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, RIVER

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-21988 ALSO IN CATEGORIES 6 AND 17,
REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 25, JULY 1 TO JULY 31, 1967
NUS CORP., WASHINGTON, D. C.
NUS-405 +. 53 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

REACTOR WAS STARTED LATE IN JUNE. (A) AIR-EJECTOR LEVELS ARE 1/30TH THE ALARM POINT. GAS
RELEASE LIMITS WERE EVALUATED. BOTH SOURCES OF RELEASE SHOULD BE COVERED IN A SINGLE TECH.
SPEC. AN INCREASED PERMISSIBLE RELEASE APPEARS FEASIBLE, AND OPERATIONAL CONSIDERATIONS
LIMIT AIR EJECTOR RELEASES. (B) CORE IS 0.42% DELTA RHO LESS REACTIVE THAN PREDICTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTIVITY, EXCESS + *SOURCE, CONTINUOUS + COMPARISON, THEORY AND EXPERIENCE + DOSE + ELK RIVER +
OPERATIONS REPORT, ANALYSIS + REACTOR OFFGAS + REACTOR, BOILING WATER +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

14-22001
ANDERSON HF + SHEEHAN WE
ENVIRONMENTAL MONITORING REPORT. JANUARY-JUNE 1967
MOUND LAB., MIAMISBURG, OHIO
MLM-1425 +. 37 PAGES, TABLES, FIGURES, JULY 17, 1967

THE CONCENTRATION OF RADIOACTIVE MATERIALS DETECTED IN THE ENVIRONMENT SURROUNDING MOUND
LABORATORY, MIAMISBURG, OHIO, IS PRESENTED FOR THE FIRST HALF OF 1967. THE AVERAGE
CONCENTRATION OF RADIONUCLIDES FROM MOUND LABORATORY IN THE GREAT MIAMI RIVER AND IN THE
ENVIRONMENTAL AIR (AVERAGE OF ALL ZONES) WAS WITHIN THE STANDARDS SET BY THE AEC.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*AIR + *MONITORING PROGRAM, ENVIRONMENTAL + *WATER, GENERAL + AEROSOL + ENVIRONMENTAL CONDITION +
MOUND LABORATORY + PLUTONIUM + POLONIUM + RADIOISOTOPE + RIVER, GENERAL + TRITIUM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-16640 ALSO IN CATEGORY 14
MORK HM + BERTA FJ

ENVIRONMENTAL CONTAMINATION FROM A NUCLEAR REACTOR AT THE NEVADA TEST SITE
UNIVERSITY OF CALIFORNIA, LOS ANGELES
UCLA-12-615 +. 22 PAGES, 2 FIGURES, 5 TABLES, 4 REFERENCES, DECEMBER 1966

AFTER THE TEST OF THE KIWI-A REACTOR ON 1 JULY 1959, THE ENVIRONMENTAL CONTAMINATION FROM THE EFFLUENT WAS ASSESSED. THE FALLOUT PATTERN WAS VERY NARROW AND EXTENDED ON AN APPROXIMATE BEARING OF 350 DEGREES FROM THE TEST CELL, AREA 400. THE MAXIMUM LEVEL OF CONTAMINATION (16.2 MICROCURIES/FT SQ. AT H PLUS 12 HR) WAS MEASURED AT APPROXIMATELY 1.5 MILES. THE LEVELS OF RADIOACTIVITY OBSERVED AFTER THE KIWI-A TEST WERE MUCH LESS THAN THOSE OBSERVED FOLLOWING WEAPONS TESTS. HOWEVER, THE DATA SUGGESTED THAT A LARGER PERCENTAGE OF THE RADIOACTIVE DEBRIS FROM KIWI-A THAN FROM WEAPONS TESTS WAS AVAILABLE TO THE BIOLOGICAL INDICATORS (NATIVE RODENTS AND JACK RABBITS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *KIWI + AIRBORNE RELEASE + BIOLOGICAL CONCENTRATION, ANIMAL + GROSS BETA + GROSS GAMMA + NUCLEAR EXPLOSION DEBRIS + NUCLEAR ROCKET + PARTICLE SIZE + PARTICLE, RADIOACTIVE + PARTICULATE + REACTOR, SPACE + ROVER PROGRAM + SAMPLING + SPACECRAFT + SURVEY, RADIATION, ENVIRONMENTAL + TESTING

15-16641 ALSO IN CATEGORY 14
HULL AP

1964 ENVIRONMENTAL MONITORING RADIATION LEVELS AT BROOKHAVEN NATIONAL LAB
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNL-50001 +. 31 PAGES, 16 FIGURES, 27 TABLES, 13 REFERENCES, JUNE 1966

MEASUREMENTS OF NATURAL BACKGROUND RADIATION LEVELS (INCLUDING FALLOUT CONTRIBUTIONS) AND OF PERTURBATIONS IN THIS BACKGROUND ATTRIBUTABLE TO LABORATORY OPERATIONS WERE OBTAINED ON SITE AND IN THE VICINITY OF BNL. THESE PERTURBATIONS INCLUDE CONTRIBUTIONS FROM THE GASEOUS AND AIR PARTICULATE EFFLUENT OF THE STACK OF THE BROOKHAVEN GRAPHITE RESEARCH REACTOR, FROM MULTICURIE FIELD GAMMA SOURCES, AND FROM THE DISCHARGE OF LOW-LEVEL LIQUID WASTES INTO THE HEADWATERS OF THE PECONIC RIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BNL (BROOKHAVEN NATIONAL LABORATORY) + *FALLOUT + *SURVEY, RADIATION, ENVIRONMENTAL + AIRBORNE RELEASE + ARGON + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, MILK + BIOLOGICAL CONCENTRATION, VEGETATION + CERIUM + CESIUM + COBALT + GROSS BETA + GROUND WATER, NUCLIDE OCCURRENCE + IODINE + MANGANESE + PARTICULATE + POTASSIUM + RAINOUT + RUTHENIUM + SAMPLING + SOIL, NUCLIDE OCCURRENCE + STACK + SURFACE WATER, NUCLIDE OCCURRENCE + SURFACE WATER, SEDIMENT + THORIUM + URANIUM + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, RIVER

15-16642

SPEERS RR

SILICON DIODE FAST-NEUTRON DOSIMETER. PHASE IV. DETERMINATION OF THE ENERGY DEPENDENCE OF THE DAMAGE CONSTANT

PHYLATRON CORP., COLUMBUS, OHIO

AD-648642 + NDL-TR-83(4) +. 43 PAGES, FIGURES, TABLES, 22 REFERENCES, JAN. 1967

MONOENERGETIC NEUTRON IRRADIATIONS OF 50-MIL-THICK SILICON DIODES WERE PERFORMED TO DETERMINE THE NEUTRON ENERGY DEPENDENCE OF THE ELECTRICAL PARAMETERS OF THE P-I-N DIODES. THE ENERGY DEPENDENCE OF THE NEUTRON-BOMBARDMENT DEGRADATION OF TWO DIODE PARAMETERS WAS INVESTIGATED. THE PARAMETERS STUDIED WERE DAMAGE COEFFICIENT FOR STORAGE TIME AND FORWARD-VOLTAGE SENSITIVITY AT CONSTANT CURRENT. NEUTRON FLUXES IN THE RANGE OF 10 TO THE 9TH TO 2 X 10 TO THE 10TH NEUTRON PER SQ. CM WERE EMPLOYED FOR THE IRRADIATIONS. THE RESULTS SHOWED THAT THE NEUTRON-ENERGY DEPENDENCES OF THE TWO PARAMETERS WERE IDENTICAL AND VARIED APPROXIMATELY AS THE SQUARE ROOT OF NEUTRON ENERGY FOR ENERGIES FROM 0.36 TO 4.77 MEV. THE EXPERIMENTAL RESULTS DID NOT FOLLOW A SYSTEMATIC TREND.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + *FAST NEUTRON + INSTRUMENTATION, RADIATION MONITORING + RADIATION SAFETY AND CONTROL

15-16643 ALSO IN CATEGORY 14

WOMELSDUFF RE

FALLOUT REPORT--BETA-GAMMA RADIOACTIVITY IN AIR AT SANDIA LABORATORY, JULY THRU DECEMBER 1964

SANDIA CORP., ALBUQUERQUE, N. MEXICO

SC-RR-65-184 +. 11 PAGES, 17 REFERENCES, APRIL 1965

A REPORT OF THE GROSS BETA-GAMMA RADIOACTIVITY (EXPRESSED AS MICRO-MICROCURIES PER CUBIC METER) OF AIR SAMPLES COLLECTED BY THE HEALTH PHYSICS DIVISION OF THE SANDIA LABORATORY OF SANDIA CORP. DURING THE SECOND HALF OF 1964.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-16643 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *MONITOR, RADIATION, AIR + AIR + FILTER + GROSS BETA + GROSS GAMMA + SAMPLING

15-16644

HANKS GE + AINSWORTH EJ + LEONG GF + NACHTWEY DS + PAGE NP

INJURY ACCUMULATION AND RECOVERY IN SHEEP EXPOSED TO PROTRACTED COBALT-60 GAMMA RADIATION

U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIF.

USNRDL-TR-1053 +. 28 PAGES, 2 FIGURES, 2 TABLES, JULY 29, 1966

A MODIFIED SPLIT-DOSE TECHNIQUE WAS USED TO MEASURE THE ACCUMULATION OF INJURY DURING PROTRACTED EXPOSURES OF DOMESTIC SHEEP TO COBALT-60 GAMMA RADIATION. AN INITIAL OR CONDITIONING EXPOSURE OF 165 R WAS GIVEN AT 0.5, 0.95, 1.85, AND 3.94 R/HR, AND THE ACUTE EXPOSURE LD-50/60 WAS DETERMINED IMMEDIATELY THEREAFTER. THESE STUDIES INDICATE THAT THERE IS A DOSE-RATE THRESHOLD FOR INJURY ACCUMULATION UNDER THESE CONDITIONS OF PROTRACTED IRRADIATION AND THAT THE THRESHOLD LIES BETWEEN 1.0 AND 1.5 R/HR. RECOVERY FROM INJURY ACCUMULATED DURING PROTRACTED EXPOSURES WAS STUDIED BY DETERMINING THE LD-50/60 AT VARIOUS TIMES AFTER PROTRACTED EXPOSURES. THESE STUDIES INDICATE A RAPID RECOVERY WITHOUT A LAG PERIOD THAT PROCEEDS TO A TRANSIENT ACQUIRED RADIORESISTANCE 15 DAYS AFTER THE END OF THE PROTRACTED IRRADIATION.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*RADIATION DAMAGE + *RADIATION EFFECT + COBALT + DOSE + DOSIMETRY, GENERAL +
RADIATION INJURY, TREATMENT OF + RADIATION SAFETY AND CONTROL

15-16645

ALSO IN CATEGORY 14

LAI JR + O CONNER JD + CROCKER GR + PASCUAL JN + FREILING EC

RADIOCHEMICAL AND PHYSIOCHEMICAL STUDIES OF KIWI-TNT DEBRIS

NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIF.

USNRDL-TR-1100 +. 136 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 29, 1966

FIVE SAMPLES OF DEBRIS FROM THE KIWI-TNT EVENT WERE STUDIED FOR PROPERTIES RELATING TO BIOLOGICAL HAZARD - PARTICLE PROPERTIES, RADIATION PROPERTIES, RADIOCHEMICAL COMPOSITION, AND RADIONUCLIDE SOLUBILITY. THE SAMPLES INCLUDED THREE CLOUD SAMPLES, ONE GROUND-FILTER SAMPLE, AND A FALLOUT SAMPLE. RADIOCHEMICAL ANALYSIS SHOWED THAT THE GROUND-FILTER SAMPLE WAS HIGHLY ENRICHED IN VOLATILES (SR-89-90, I-131, TE-132, CS-137). THE CLOUD SAMPLES WERE SOMEWHAT ENRICHED IN VOLATILES, BUT RELATIVELY REPRESENTATIVE. THE FALLOUT SAMPLE SHOWED A DEPLETION OF VOLATILES. THIS DEPLETION INCREASED AS THE PARTICLE SIZE DIMINISHED AND AS THE PARTICLE SHAPE BECAME MORE SPHEROIDAL. DISTILLED WATER, 0.8% SALINE, AND 0.1N HCl WERE TESTED FOR THEIR ABILITY TO LEACH ACTIVITY FROM THE DEBRIS. THE ACID WAS BEST.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *KIWI TNT (TRANSIENT NUCLEAR TEST) + *PARTICLE, RADIOACTIVE + ANALYTICAL TECHNIQUE, AIR + ANALYTICAL TECHNIQUE, SOLID + CESIUM + FILTER, PAPER + GROSS GAMMA + IODINE + ISOTOPIC FRACTIONATION + NUCLEAR DETONATION + NUCLEAR EXPLOSION DEBRIS + NUCLEAR ROCKET + PARTICLE SIZE + PARTICULATE + REACTOR, SPACE + ROVER PROGRAM + SAMPLING + SPACECRAFT + STRONTIUM + TELLURIUM

15-17549

SCHIMMERLING W + SASS RE

EXPERIENCE WITH COMMERCIAL FILM BADGE SERVICE

PRINCETON-PENNSYLVANIA ACCELERATOR, PRINCETON, N. J.

PPAD-611-E + CONF-670115-1 +. 25 PAGES, FIGURES, TABLES, 3 REFERENCES, JANUARY 30, 1967, PRESENTED A FIRST HEALTH PHYSICS SOCIETY MID-YEAR TOPICAL SYMPOSIUM ON PERSONNEL RADIATION DOSIMETRY, CHICAGO, ILL.

THE PERFORMANCE OF COMMERCIAL FILM-BADGE DOSIMETERS FOR PERSONNEL MONITORING WAS STUDIED FOR THREE YEARS THROUGH ADMINISTERING A KNOWN DOSE TO A GROUP OF BADGES AND EVALUATING THE RESULTS. FOR NEUTRONS, REPORTED EXPOSURES WERE SOMEWHAT HIGHER THAN ACTUALLY GIVEN, AND THERE WAS LOSS OF INDICATED EXPOSURE WITH TIME. REPORTED BETA-GAMMA EXPOSURES WERE ACCEPTABLE, WITH TOTAL DOSE MORE ACCURATE THAN BETA AND GAMMA REPORTED SEPARATELY. FILM BADGE AND ACCUMULATED POCKET IONIZATION-CHAMBER READINGS ARE IN REASONABLE AGREEMENT. IT IS SUGGESTED THAT A CONTINUED EVALUATION OF THE FILM-BADGE SERVICE SHOULD BE MAINTAINED BECAUSE OF POSSIBLE DEGRADATION OR DISCONTINUANCE OF SERVICE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, PHOTOGRAPHIC + ACCELERATOR + DOSIMETRY, GENERAL + GAMMA + INSTRUMENTATION, RADIATION MONITORING + NEUTRON

15-17818

RASO DJ + WOOLF S

MONTE CARLO PROGRAM FOR CALCULATING DOSES RESULTING FROM AN ISOTROPIC POINT SOURCE IN AN EXPONENTIAL ATMOSPHERE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-17818 *CONTINUED*
TECHNICAL OPERATIONS RESEARCH, BURLINGTON, MASS.
TO-B-64-12 +. 42 PAGES, 5 FIGURES, 4 TABLES, REFERENCES, FEBRUARY 7, 1964

A MONTE CARLO PROGRAM WAS WRITTEN FOR DETERMINING DOSES AS A FUNCTION OF DISTANCES FROM A POINT ISOTROPIC SOURCE. THE CODE IS DESIGNED TO COMPUTE FLUXES RESULTING FROM SCATTERED GAMMA RAYS IN A GIVEN SECTION OF THE ATMOSPHERE (11 TO 100 KM), THE DENSITY OF WHICH VARIES EXPONENTIALLY. A COMPARISON OF RESULTS WITH THE MOMENTS METHOD IS MADE FOR THE LIMITING CASE OF A HOMOGENEOUS MEDIUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, EXTERNAL + COMPUTER PROGRAM + DOSE

15-17821 ALSO IN CATEGORY 14
DATA FROM RADIATION PROTECTION PROGRAMS. VOLUME 4. NUMBER 7
DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, ONTARIO
NP-16324 +. 26 PAGES, JULY 1966

AVERAGE FALLOUT VALUES FOR JUNE 1966 WERE BELOW THOSE OF MAY. AVERAGE CONCENTRATIONS OF CS-137 AND SR-90 IN LIQUID MILK WERE 50 PC1/1 AND 20.3 PC1/1 RESPECTIVELY, COMPARED WITH 70 AND 20.7 IN MAY 1966. ACTIVITY LEVELS OF SAMPLES TAKEN IN THE VICINITIES OF CANADIAN REACTORS WERE IN GENERAL AGREEMENT WITH OBSERVATIONS OF THE FALLOUT PROGRAM AND DID NOT SHOW ANY ANOMALIES THAT COULD BE ATTRIBUTED TO A RELEASE OF CONTAMINATION FROM THE REACTORS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FALLOUT + CANADA + MONITORING PROGRAM, ENVIRONMENTAL

15-17829 ALSO IN CATEGORIES 7 AND 14
POSNER S + ETTINGER HJ + PRATT DR + MOORE R
EVALUATION OF PARTICLE SIZING TECHNIQUES, COMPARISON OF COMPUTER PARTICLE SIZING PROGRAMS
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, NEW MEXICO
LF-30 +. 11 PAGES, 2 FIGURES, 3 TABLES, 8 REFERENCES, JULY 1966

AEROSOL SAMPLING AND SIZING TECHNIQUES FROM SEVERAL DIFFERENT LABORATORIES WERE COMPARED IN PART I OF OUR EVALUATION. RESULTS FROM THE PARTICIPANTS AGREED WITHIN PLUS OR MINUS 10 PERCENT IN DEFINING COUNT MEDIAN DIAMETER AND GEOMETRIC STANDARD DEVIATION. THESE WERE OBTAINED VIA HAND CALCULATION. PART II DEALS WITH COMPARING THE SAME OR SIMILAR DATA BY COMPUTER PROGRAMS. FOUR PROGRAMS FOR ANALYZING PARTICLE-SIZE DATA WERE COMPARED AND RESULTING DIFFERENCES STATISTICALLY EVALUATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *BIOMEDICAL + *COMPUTER PROGRAM + *PARTICLE SIZE DISTRIBUTION + CHEMICAL TOXICITY + INHALATION

15-17842 ALSO IN CATEGORY 17
WILSON EA
PATHFINDER PROPOSED CHANGE 15. PROTECTION FACTOR ALLOWANCES FOR RESPIRATORY EQUIPMENT
NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA
10 PAGES, 1 TABLE, OCTOBER 4, 1966, DOCKET NO. 50-130

PATHFINDER REQUEST ALLOWANCES FOR USE OF RESPIRATORY EQUIPMENT IN RESTRICTED AREAS WITH HIGH AIRBORNE CONCENTRATIONS OF RADIOACTIVE MATERIAL. THIS EQUIPMENT IS TO BE USED PARTICULARLY FOR FUEL HANDLING AND MAINTENANCE. ITEMS TO BE USED INCLUDE MSA DUST/FOE MASK (TYPE H FILTER), MSA FULL-FACE MASK (TYPE H FILTER), MSA FULL-FACE MASK (TYPE GMR CANISTER), SELF-CONTAINED BREATHING APPARATUS, AND CHEMOX OXYGEN-BREATHING APPARATUS. PROTECTION FACTOR IS RECIPROCAL OF THE ASSUMED PENETRATION FOR THE COMPLETE RESPIRATOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*AIRBORNE RELEASE + *FILTER, GAS MASK + *PERSONNEL PROTECTIVE DEVICE + PATHFINDER +
PERSONNEL EXPOSURE, RADIATION + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

15-18055
HEMS G + MOLE RH
THE RELATIVE TOXICITIES OF RA-226, PU-239, AND SR-90 FOR BONE TUMOR INDUCTION
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
8 PAGES, 3 FIGURES, 5 TABLES, 12 REFERENCES, BRIT. JOURNAL RADIOLOG. 39 PAGES 719-26 (OCTOBER 1966)

THE FIRST EXPERIMENTAL ASSESSMENTS OF RELATIVE TOXICITY WERE MADE IN THE 1940S. SINCE THAT TIME THE TOXICITIES OF PLUTONIUM AND SR-90, RELATIVE TO RADIUM, HAVE BEEN REDETERMINED, AND IT IS OF INTEREST TO SEE WHETHER THESE MORE RECENT DETERMINATIONS INDICATE THAT THEIR MAXIMUM PERMISSIBLE BODY BURDENS NEED TO BE RECALCULATED. WE HAVE AVOIDED ANY DISCUSSION OF THE MECHANISM OF CARCINOGENESIS IN BONE AND THE SITE OF ACTION OF BONE-SEEKING ISOTOPES, OR OF THE POSSIBLE HAZARD OF EXPOSURE OF HUMAN POPULATIONS TO THESE NUCLIDES. IT IS INEVITABLE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18055 *CONTINUED*

THAT EXPERIMENTAL INVESTIGATIONS OF TOXICITY SHOULD DEAL WITH ORDERS OF RISK CONSIDERABLY GREATER THAN THOSE ENVISAGED WHEN CONSIDERING RADIOLOGICAL PROTECTION FOR MAN.

*BIOLOGICAL CONCENTRATION, MAN + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + DOSE CALCULATION, INTERNAL + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + PERSONNEL EXPOSURE, RADIATION + PLUTONIUM + RADIUM

15-18376

SASSE S

INSTRUCTIONS FOR THE USE OF COMPUTER PROGRAMS AVAILABLE AT THE WORKING GROUP OF RADIATION PROTECTION IN CONSTRUCTION. SEETZEN PROGRAM AND GRACE I
TECHNISCHE HOCHSCHULE, HANOVER, WEST GERMANY
ORNL-TR-1515 + ABS-THH-1007 +. 19 PAGES, FIGURES, 1966

DESCRIBES THE CLASSIFICATION, PROGRAM DESCRIPTION, FORMULA SELECTION, INPUT, AND OUTPUT FOR THE PROGRAMS SEETZEN AND GRACE I.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + GAMMA + GERMANY + NEUTRON + SHIELDING

15-18395

ALSO IN CATEGORY 14

TERNOV VI

THE EFFECT OF LONG-TERM ADMINISTRATION OF SMALL DOSES OF CALCIUM-45 ON CERTAIN INDICES OF NATURAL IMMUNITY INSTITUTE OF LABOR HYGIENE AND OCCUPATIONAL DISEASES OF THE ACADEMY OF MEDICAL SCIENCES OF THE U.S.S.R., MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 8 PAGES, 2 FIGURES, 7 REFERENCES, PAGE 53 THRU 60 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

ACUTE AND CHRONIC RADIATION INJURY IS KNOWN TO RESULT INEVITABLY IN IMPAIRMENT OF IMMUNITY AND CONSEQUENTLY IN THE DEVELOPMENT OF INFECTIOUS COMPLICATIONS. TESTS WITH 248 WHITE RATS SHOW - (1) THE DAILY INTRODUCTION OF 1000 TIMES MPC OF CA-45 IN WATER (0.09 MICROCURIE/KG) CAUSES CLEAR SIGNS OF CHRONIC RADIATION ENERGY FROM AS EARLY AS THE THIRD MONTH ON, (2) CA-45 IN A DOSE ONE HUNDRED TIMES MPC INDUCES THE FIRST SIGNS OF RADIATION INJURIES IN TEN AND A HALF MONTHS OF INTRODUCING IT INTO THE ORGANISM OF WHITE RATS, (3) THE DAILY INTRODUCTION OF CA-45 INTO WHITE RATS IN A DOSE OF 0.0009 MICROCURIE/KG (TEN TIMES MPC) FOR NINE MONTHS INDUCES NEGLECTIBLE FUNCTIONAL CHANGES INVOLVING CERTAIN IMMUNITY FACTORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + CALCIUM + UNION OF SOVIET SOCIALIST REPUBLICS

15-18396

ALSO IN CATEGORY 14

DAMASKIN PT

WORKING CONDITIONS FOR PERSONS USING SOURCES OF IONIZING RADIATIONS

DNEPROPETROVSK REGIONAL SANITARY-EPIDEMIOLOGICAL CENTER

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 5 PAGES, 1 TABLE, PAGE 81 THRU 85 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

DESCRIBES METHODS FOR CONTROLLING EXPOSURES FROM RADIOISOTOPES USED IN INDUSTRY, MEDICINE, AND RESEARCH IN THE USSR. NORMAL DOSES ARE GIVEN FOR MOST OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, EXTERNAL + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + UNION OF SOVIET SOCIALIST REPUBLICS

15-18399

STAVITSKII RV + OMELIANENKO LM + MERKOVA MA + KARLASHENKO NI

POSSIBLE CONSEQUENCES OF THE INFRINGEMENT OF THE REGULATIONS FOR WORK ON X-RAY STRUCTURAL ANALYSIS DEPARTMENTS OF RADIATION HYGIENE AND CLINICAL RADIOLOGY, CENTRAL GRADUATE MEDICAL INSTITUTE, MOSCOW

TT-66-51033/4-6 + IPST-CAT.-1538-1540 +. 6 PAGES, 1 FIGURE, 2 TABLES, PAGE 213 THRU 218 OF HYGIENE AND SANITATION 30(4-6), APRIL 1965

AT THE SITE OF EXIT OF THE WORKING PENCIL OF X-RAYS, THE INTENSITY OF THE DOSE MAY BE VERY HIGH, IN TURN CREATING HIGH INTENSITY OF SCATTERED RADIATION. HIGH RADIATION DOSE DURING X-RAY STRUCTURAL ANALYSIS MAY OCCUR IN CASES OF UNQUALIFIED AND INEXPERIENCED WORKERS, AND IN FAILURE TO USE PROTECTIVE DEVICES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, EXTERNAL + RADIOGRAPHY + UNION OF SOVIET SOCIALIST REPUBLICS + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18460 ALSO IN CATEGORY 14
CHEMICAL RADIOPROTECTORS. ANNUAL REPORT, APRIL 1, 1964-APRIL 1, 1965
LIEGE UNIVERSITY, BELGIUM
EUR-2548.F +. 8 PAGES, APRIL 1965

THE IMPORTANCE OF THE BIOCHEMICAL EFFECTS OF SULFUR-CONTAINING CHEMICAL PROTECTORS WAS CONFIRMED BY SEVERAL STUDIES. A DETAILED STUDY WAS ALSO MADE ON THE ACTION OF VARIOUS PROTECTORS ON HAIR GROWTH AND ON HAIR BULB IN NORMAL AND IRRADIATED ANIMALS, AND CERTAIN CURIOUS ANOMALIES IN THE CHEMICAL-PROTECTION PHENOMENA ON THAT PARTICULAR TEST WERE ELUCIDATED. OTHER STUDIES WERE MADE OF THE PROTECTIVE EFFECTS OF VARIOUS INORGANIC SALTS ON SEEDS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM WISCONSIN 54669

*RADIATION PROTECTION, CHEMICAL + BELGIUM + SULFUR + X-RAY

15-18463 ALSO IN CATEGORY 14
RADIOACTIVITY IN HUMAN DIET, 1965
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ACRL-16 +. 18 PAGES, PAGES 3-20 FROM ANNUAL REPORT 1965-66, SEPTEMBER 1966

RESULTS OF MEASUREMENTS ON RADIOACTIVITY DEPOSITION IN RAIN ARE REPORTED. THESE DATA GIVE AN EARLY INDICATION OF CHANGES IN THE EXTENT OF ENVIRONMENTAL CONTAMINATION. INVESTIGATIONS OF CONTAMINATION OF HUMAN DIET WITH RADIOACTIVITY FROM WORLD-WIDE FALLOUT ARE REPORTED. THE COMPLETE RESULTS OF SURVEYS OF SR-90 AND CS-137 IN HUMAN DIET DURING 1965 ARE GIVEN AND, IN ADDITION, RESULTS FOR MILK UNTIL JUNE 1966. MAPS AND TABLES SHOW RESULTS OF A COUNTRY-WIDE SURVEY OF SR-90 IN MILK, CHEESE, VEGETABLES, AND FLOUR. RESULTS OF SURVEYS OF SR-90 IN FLOUR PRODUCED IN AUSTRALIA AND SR-90 IN ITEMS OF DIET IN HONG KONG ARE ALSO PRESENTED.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N. Y. 10022, \$1.70 COPY

*FALLOUT + CESIUM + DIETARY HABIT + RAINOUT + STRONTIUM + UNITED KINGDOM

15-18464 ALSO IN CATEGORY 14
SURVEYS OF ENVIRONMENTAL RADIOACTIVITY - A REVIEW OF REQUIREMENTS
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ACRL-16 +. 5 PAGES, PAGES 21-25 FROM ANNUAL REPORT, 1965-66, SEPTEMBER 1966

THE PRIMARY REQUIREMENT OF SURVEYS OF ENVIRONMENTAL CONTAMINATION BY RADIOACTIVE MATERIALS IS TO OBTAIN ADEQUATE INFORMATION FOR MEDICAL ASSESSMENT. ANOTHER OBJECTIVE IS TO OBTAIN INFORMATION ON FOOD-CHAIN MECHANISMS. THE SIGNIFICANCE OF EXPOSURES FROM FALLOUT IN CONSEQUENCE OF PAST WEAPONS TESTS IS DISCUSSED. OTHER TOPICS DISCUSSED ARE THE TRANSFER OF RADIOACTIVITY TO DIET, FUTURE INVESTIGATIONS OF SR-90 AND CS-137 IN DIET, AND SURVEYS OF I-131.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N.Y. 10022, \$1.70 COPY

*MONITORING PROGRAM, ENVIRONMENTAL + CESIUM + ENVIRONMENTAL CONDITION + IODINE + RADIOISOTOPE + STRONTIUM + UNITED KINGDOM

15-18465 ALSO IN CATEGORY 14
EXPERIMENTAL STUDIES
AGRICULTURAL RESEARCH COUNCIL, WANTAGE, ENGLAND
ARCRL-16 +. 43 PAGES, PAGES 27-69 FROM ANNUAL REPORT, 1965-66, SEPTEMBER 1966

PROGRESS IS REPORTED IN THE FOLLOWING STUDIES - THE EFFECT OF VARIATIONS IN THE RATIO OF STRONTIUM TO CALCIUM SUPPLIED TO PLANTS ON RELATIVE UPTAKE OF THESE IONS FROM SOLUTION, DISTRIBUTION IN POTATOES OF STRONTIUM AND CALCIUM ABSORBED FROM DIFFERENT DEPTHS IN THE SOIL, THE EFFECT OF ELECTROLYTES ON THE SELF-DIFFUSION OF STRONTIUM IN SOIL, RELATIVE MOVEMENT OF CS-137 AND SR-89 THROUGH SOILS, THE EFFECT OF GAMMA IRRADIATION ON THE GROWTH AND YIELD OF CROP PLANTS, AND PREDICTION OF FUTURE LEVELS OF LONG-LIVED FISSION PRODUCTS IN MILK AND THE AVERAGE MIXED DIET.

AVAILABILITY - BRITISH INFORMATION SERVICE, 845 THIRD AVE., N.Y. 10022, \$1.70 COPY

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *RADIATION EFFECT + CALCIUM + CESIUM + ENVIRONMENTAL CONDITION + GAMMA + PHOSPHATE + POTASSIUM + STRONTIUM + UNITED KINGDOM

15-18466 ALSO IN CATEGORY 14
CONARD RA + MEYER LM + SUTOW WW
MEDICAL SURVEY OF THE PEOPLE OF RONGELAP AND UTIRIK ISLANDS ELEVEN AND TWELVE YEARS AFTER EXPOSURE TO FALLOUT RADIATION (MARCH 1965 AND MARCH 1966)
BROOKHAVEN NATIONAL LABORATORY
BNL-50029 +. 170 PAGES, FIGURES, TABLES, APRIL 1967

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18466 *CONTINUED*

THE RONGELAP PEOPLE HAVE BEEN IN GENERALLY GOOD HEALTH, WITH NO UNUSUAL EPIDEMICS. ON UTIRIK, HEALTH LEVEL WAS GOOD AND BIRTH AND DEATH RATES WERE SIMILAR TO THOSE ON RONGELAP. THYROID ABNORMALITIES INCREASED TO 18 CASES (16 WITH NODULES AND 2 WITH HYPOTHYROIDISM). SURGERY IN 11 CASES REVEALED 9 CHILDREN AND 1 ADULT WITH ADENOMATOUS GOITERS, AND 1 ADULT WITH A MIXED PAPILLARY AND FOLLICULAR CARCINOMA. THERE APPEARS TO BE A TREND TOWARD GROWTH RETARDATION IN EXPOSED CHILDREN. HEMATOLOGICAL STUDIES SHOW THAT LEUKOCYTE AND PLATELET LEVELS OF THE PERIPHERAL BLOOD OF THE RONGELAP PEOPLE SEEM TO HAVE RECOVERED TO LEVELS EQUAL TO THOSE OF THE UNEXPOSED POPULATION. THE BLOOD OF THE UTIVIK POPULATION SHOWED NO OBVIOUS ABNORMALITIES. CHROMOSOME STUDIES OF WHITE CELLS SHOWED SOME INCIDENCE OF 2-HIT ABERRATIONS IN THE EXPOSED PEOPLE, WHICH WAS QUITE SIGNIFICANT IN VIEW OF THE ABSENCE OF SUCH ABERRATIONS IN THE COMPARISON POPULATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *TEST, WEAPONS (HP ASPECTS) + BIOMEDICAL + BNL (BROOKHAVEN NATIONAL LABORATORY) + DOSE MEASUREMENT, INTERNAL + RADIOBIOLOGY

15-18481

DVORNIK I + ZEC U + RANOGAJEC F

THE ETHANOL-CHLOROBENZENE AERATED SYSTEM AS A NEW HIGH-LEVEL DOSIMETER FOR ROUTINE MEASUREMENTS
INSTITUTE RUDER BOSKOVIC, ZAGREB, YUGOSLAVIA

STI-PUB-127 + CONF-660610 + SM-73-15 +. 10 PAGES, 1 FIGURE, 3 TABLES, 10 REFERENCES, PAGE 81 THRU 90 OF
FOOD IRRADIATION PROCEEDINGS SERIES, NOVEMBER 1966, PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM HELD IN
KARLSRUHE, JUNE 6-10, 1966

THE RADIOLYTIC HYDROGEN CHLORIDE YIELD FOR CO-60 GAMMA RADIATION MEASURED AS A FUNCTION OF DOSE (0.05 TO 100 MRAD), DOSE-RATE (0.5 TO 2500 RAD/SEC), AND CHLOROBENZENE (CB) CONCENTRATION IS FOUND TO BE 5 PLUS OR MINUS 0.1 FOR CB CONCENTRATIONS BETWEEN 20 AND 40% IN A BROAD RANGE OF EXPERIMENTAL CONDITIONS. THE YIELD IS ONLY SLIGHTLY SENSITIVE TO NORMAL IMPURITIES.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, NEW YORK OR GENEVA, \$20.00 COPY

*DOSE MEASUREMENT, EXTERNAL + MONITORING SYSTEM, RADIATION + RADIATION EFFECT

15-18558

ALSO IN CATEGORY 14

LENGEMANN FW

PREDICTING THE TOTAL PROJECTED INTAKE OF RADIOIODINE FROM MILK BY MAN - MODIFICATION OF THE ORIGINAL EQUATION

NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY

2 PAGES, 1 TABLE, 2 REFERENCES, HEALTH PHYSICS 13(5) PAGES 521-22 (MAY 1967)

THE AUTHOR PREVIOUSLY PUBLISHED AN EQUATION BY WHICH THE RADIOIODINE INTAKE FROM MILK BY MAN MAY BE ESTIMATED. THIS NOTE PRESENTS A MODIFICATION OF THE ORIGINAL EQUATION, WHICH INCLUDES A FACTOR FOR THE TIME FROM INGESTION OF ISOTOPE BY THE COW UNTIL CONSUMPTION BY MAN.

*BIOLOGICAL CONCENTRATION, MILK + DOSE CALCULATION, INTERNAL + IODINE

15-18648

ALSO IN CATEGORY 9

MANN JR I BISTLINE RW + JOHNSON VP

MEASUREMENTS OF PU-238

DOW CHEMICAL CO., GOLDEN, COLO. ROCKY FLATS DIVISION

RFP-954 +. 7 PAGES, 5 FIGURES, 4 TABLES, JUNE 30, 1967

EVALUATION HAS BEEN COMPLETED OF DETECTORS IN USE AT ROCKY FLATS FOR DETERMINING DETECTABLE PLUTONIUM AMOUNTS IN THE BODY. SPECIFICALLY, THE STUDY INCLUDED SAMPLE MEASUREMENTS OF PU-238, IN VIVO, WITH A SCINTILLATION SPECTROMETER DETECTOR. THE FINDINGS, USING A PHANTOM CHEST MODEL, SHOWED THAT FOUR TIMES THE MAXIMUM PERMISSIBLE LUNG BURDEN WAS THE MINIMUM WHICH COULD BE DETECTED. THE MINIMUM DETECTABLE AMOUNTS IN THE LIVER WERE LESS THAN ONE PERMISSIBLE LIVER BURDEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL + INSTRUMENTATION, RADIATION MONITORING + PLUTONIUM + RADIATION MODEL + ROCKY FLATS

15-18672

ALSO IN CATEGORY 17

LOCKHEED REPORTS MODIFICATIONS OF FACILITY FOR YEAR ENDED JULY 31, 1967

LOCKHEED-GEORGIA COMPANY, MARIETTA, GA.

11 PAGES, SEPTEMBER 28, 1967, DUCKET 50-172

ONE SCRAM (FAST-PERIOD SCRAM, SPORIOUS SIGNAL) AND 8 UNSCHEDULED SHUTDOWNS (INCLUDING 3 FAILURES IN MAGNET AMPLIFIER AND 3 MAGNET FAILURES). RESULTS OF ENVIRONMENTAL MONITORING INCLUDE SOIL SAMPLING (MAX. ACTIVITY, 64.5 MICROCURIES/GM) AIR MONITORING (REACTOR-SITE MEASUREMENTS COMPARED WITH OFF-SITE MEASUREMENTS), AND SURFACE-WATER TRANSPORT ACTIVITY (RAIN

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18672 *CONTINUED*
GIVES UP TO A FACTOR OF 10 HIGHER ACTIVITIES THAN UPSTREAM-DOWNSTREAM WATER).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD DRIVE + *FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + AIRBORNE RELEASE +
OPERATING EXPERIENCE + REACTOR, POOL TYPE + REACTOR, TRAINING + SCRAM, SPURIOUS + SOIL

15-18748 ALSO IN CATEGORY 17
AHMAD M + SIDDIQI AA
MANUAL OF RADIATION SAFETY AND CONTROL FOR PAKISTAN RESEARCH REACTOR
PAKISTAN INST. OF NUCLEAR SCIENCE AND TECHNOLOGY, ISLAMABAD
PINSTECH/HP-01 +. 34 PAGES, 1966

DESCRIBES (1) OPERATIONAL CONTROL, INVESTIGATION OF ABNORMAL CIRCUMSTANCES, AND LONG-TERM
ANALYSIS, (2) WASTE DISPOSAL, (3) STORAGE AND TRANSPORTATION, (4) DECONTAMINATION AND
EMERGENCY PROCEDURES FOR 5-MW SWIMMING-POOL REACTOR.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISC.

*PROCEDURES AND MANUALS + *RADIATION SAFETY AND CONTROL + PAKISTAN + REACTOR, RESEARCH

15-18751 ALSO IN CATEGORY 17
WADE JE + CUNNINGHAM GE
RADIATION MONITORING. A PROGRAMMED INSTRUCTION BOOK
GENERAL ELECTRIC CO.
281 PAGES, FIGURES, TABLES, USAEC DIVISION OF TECHNICAL INFORMATION, OAK RIDGE

INTENDED TO FIT INDIVIDUAL TO PERFORM RADIATION MONITORING UNDER SUPERVISION. CONVEYS BOTH
EDUCATIONAL MATERIAL AND PRACTICAL PROCEDURES. TEXT STYLE SUPPLEMENT (30 P) SERVES AS
INTRODUCTION AND REVIEW DEVICE. EIGHT-PAGE FINAL TEST AND ANSWERS. CHAPTERS ON (1) ATOMIC
STRUCTURE, RADIOACTIVITY AND RADIATION (2) IONIZATION, ION-CHAMBER THEORY, AND SCINTILLATION
COUNTERS, (3) EXPOSURE CONTROLS, TERMINOLOGY, AND UNITS, (4) RADIATION ZONES AND WORK, (5)
RADIATION DETECTION INSTRUMENTS, (6) DOSE-RATE MEASUREMENTS, AND (7) NEUTRON DETECTION AND
MEASUREMENT.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION, OAK RIDGE, TENN., FREE

*HEALTH PHYSICS TRAINING + HANFORD SITE + STAFFING, TRAINING, QUALIFICATION

15-18785 ALSO IN CATEGORY 14
ROMNEY EM + STEEN AJ + WOOD RA + RHOADS WA
CONCENTRATION OF RADIONUCLIDES BY PLANTS GROWN ON EJECTA FROM THE SEDAN THERMONUCLEAR CRATERING DETONATION
UNIVERSITY OF CALIFORNIA, LOS ANGELES
8 PAGES, 3 FIGURES, 2 TABLES, 27 REFERENCES, RADIOECOLOGICAL CONCENTRATION PROCESSES, PAGE 391 THRU 398,
(APRIL 29, 1966)

PROJECT SEDAN, AN EVENT IN THE PLOWSHARE PROGRAM DESIGNED TO STUDY PEACEFUL USES OF NUCLEAR
EXPLOSIVES FOR EXCAVATION PURPOSES, INVOLVED THE DETONATION OF A 100-KT THERMONUCLEAR DEVICE
AT A DEPTH OF 194 M IN THE DESERT ALLUVIUM OF YUCCA FLAT, NEVADA, ON 6 JULY, 1962. THE
EXPLOSION EJECTED NEARLY 5 MILLION CU. METERS OF MATERIAL, FORMING A SYMMETRICAL CRATER 364 M
IN DIAMETER AND 99 M DEEP. MOST OF THE RADIOACTIVITY WAS CONFINED WITHIN THE CRATER AND THE
EJECTA DEPOSITED OVER AN AREA OF ABOUT 2500 ACRES SURROUNDING THE CRATER. SEDAN PROVIDED
UNIQUE OPPORTUNITIES TO STUDY BIOLOGICAL EFFECTS ARISING FROM THE USE OF NUCLEAR ENERGY IN
LARGE-SCALE EARTH-MOVING PROJECTS. WORK REPORTED HEREIN CHIEFLY INVOLVED A STUDY OF
RADIONUCLIDE CONCENTRATION BY PLANTS GROWN ON SEDAN EJECTA.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *EXPLOSION + *TUNGSTEN + ECOLOGICAL CONSIDERATION +
FALLOUT + PLOWSHARE PROGRAM + RADIOCHEMICAL ANALYSIS + RADIONUCLIDE, INDUCED + SAMPLING +
SPECTROMETRY, GAMMA

15-18786 ALSO IN CATEGORY 14
HUNN JB
IN VIVO UPTAKE OF RADIOIODIDE BY RAINBOW TROUT
FISH AND WILDLIFE SERVICE, LA CROSSE, WIS.
5 PAGES, 3 TABLES, 13 REFERENCES, J. WATER POLLUT. CONTR. FEDERATION 28, PAGE 1981 THRU 1985, (DECEMBER
1966)

RAINBOW TROUT (SALMO GAIRDNERI) WEIGHING FROM 31 TO 203 G WERE EXPOSED TO CARRIER-FREE NA-131
I (0.2 TO 5.5 MICROCURIES/L) IN 2 LITERS OF SOLUTION IN COVERED PLASTIC CONTAINERS, WITH
CONSTANT AERATION AND ILLUMINATION. RESULTS SHOWED THAT RADIOIODIDE IS TAKEN UP BY TROUT VIA
THE GILLS, A PROCESS NOT AFFECTED PER SE BY THE OSMOTIC GRADIENT BETWEEN THE FISH AND THE
MEDIUM. UPTAKE WAS INVERSELY RELATED TO THE CA CONCENTRATION OF THE MEDIUM. THICYNATE
COMPETITIVELY INHIBITED I-131 UPTAKE BY THE GILL, BUT THIOURACIL GIVEN INTRAPERITONEALLY WAS
WITHOUT EFFECT DURING THE 24-HR. EXPERIMENTAL PERIOD. THE RELATIVE DISTRIBUTION OF I-131
INDICATED THAT THE LOWER JAW (THYROID) WAS THE ONLY TISSUE STUDIED IN WHICH RADIOIODIDE
ATTAINED A CONCENTRATION ABOVE THAT OF THE BLOOD. THYROIDAL I-131 UPTAKE WAS INHIBITED BY
NASCN, BUT THIOURACIL HAD NO EFFECT ON UPTAKE FOR AT LEAST 24 HR. AFTER INJECTION.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18786 *CONTINUED*

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *IODINE + CALCIUM + ENVIRONMENTAL CONDITION +
HYDROLOGICAL CONSIDERATION, QUALITY OF WATER + RADIOBIOLOGY + RADIONUCLIDE, INDUCED

15-18787 ALSO IN CATEGORY 14

WEAVER L

STREAM SURVEILLANCE PROGRAMS

PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

11 PAGES, 9 FIGURES, 1 REFERENCE, J. WATER POLLUT. CONTR. FED., 38, PAGE 1334 THRU 1344, (AUGUST 1966)

THE DESIGN OF STREAM-SURVEILLANCE SYSTEMS IS DISCUSSED IN RELATION TO EXPERIENCE OF THE PUBLIC HEALTH SERVICES DIVISION OF WATER SUPPLY AND POLLUTION CONTROL. EFFECTIVE SURVEILLANCE PROGRAMS SHOULD BE DYNAMIC AND FITTED TO THE NEEDS OF THE DATA USER. AN EXAMPLE OF CHANGING SURVEILLANCE NEEDS IS THE MONITORING OF ALPHA AND BETA RADIATION LEVELS IN SURFACE WATERS. FACETS OF PROGRAM PLANNING FOR CONTROL OF STREAM POLLUTION ARE DISCUSSED.

*GROUND WATER, NUCLIDE OCCURRENCE + *POPULATION EXPOSURE + *SURVEILLANCE PROGRAM +
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + DESIGN CRITERIA + FALLOUT + GROSS ALPHA + GROSS BETA +
WATER POLLUTION

15-18788 ALSO IN CATEGORY 14

RECHEN HJ

MONTHLY TABULATION OF FINDINGS, PUBLIC HEALTH SERVICE RADIATION SURVEILLANCE NETWORK FOR THE PERIOD JULY 1-31, 1966

PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

NP-16330 +. 56 PAGES, SEPTEMBER 6, 1966

PRESENTS A MONTHLY TABULATION OF THE FINDINGS OF THE USPHS RADIATION SURVEILLANCE NETWORK, CONSISTING OF 74 STATIONS. SIX OF THE STATIONS ARE OPERATED BY THE PUBLIC HEALTH SERVICE AND 68 BY VARIOUS OTHER FEDERAL, STATE, OR LOCAL AGENCIES. THE DATA CONSISTS OF WEIGHTED AVERAGES OF GROSS BETA ACTIVITY IN SURFACE AIR AND PRECIPITATION FOR STATIONS LOCATED AT VARIOUS GEOGRAPHIC COORDINATES AND ELEVATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*MONITOR, RADIATION, ENVIRONMENTAL + *PRECIPITATION + *SURVEILLANCE PROGRAM + ENVIRONMENTAL CONDITION +
FALLOUT + GROSS BETA + RAINOUT

15-18789 ALSO IN CATEGORY 14

PORTER CR + KAHN B + CARTER MW + REHNBERG GL + PEPPER EW

DETERMINATION OF RADIOSTRONTIUM IN FOOD AND OTHER ENVIRONMENTAL SAMPLES

NATIONAL CENTER FOR RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE, U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, ROCKVILLE, MD.

8 PAGES, 7 FIGURES, 4 TABLES, 32 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 1 (9) PAGES 745 THRU 752 (SEPTEMBER 1967)

RADIOSTRONTIUM IN ENVIRONMENTAL SAMPLES IS SEPARATED FROM THE OTHER ALKALINE EARTHS IN AN EDTA MEDIUM. EARLIER METHODS USING ION-EXCHANGE WERE MODIFIED TO PERMIT ANALYSIS OF LARGE SAMPLES, TO PROVIDE QUANTITATIVE SEPARATION FROM CALCIUM IN THE WIDE RANGE OF CONCENTRATIONS NORMALLY ENCOUNTERED, TO RECOVER STRONTIUM IN HIGH YIELD, AND TO ACCOMMODATE MULTIPLE ANALYSES. THE SENSITIVITY OF THE PROCEDURE IS 0.1 PC. PER GRAM OF ASH WHEN SAMPLES ARE COUNTED FOR 50 MINUTES IN A LOW-BACKGROUND BETA COUNTER. THE AVERAGE STRONTIUM YIELD IS 70%. DECONTAMINATION FACTORS ARE 50,000 FROM CALCIUM AND AT LEAST 10,000 FROM MAJOR RADIONUCLIDES IN FALLOUT OTHER THAN BARIUM. BARIUM DECONTAMINATION IS 130. A PROCEDURE FOR THE ANALYSIS OF THE BARIUM PLUS RADIUM FRACTION IS ALSO GIVEN.

*BIOLOGICAL CONCENTRATION, FOOD + *ENVIRONMENTAL CONDITION + *STRONTIUM + BARIUM + CALCIUM +
DECONTAMINATION + DIETARY HABIT + FALLOUT + RADIOCHEMICAL ANALYSIS

15-18790 ALSO IN CATEGORY 14

HEMS G

ACCEPTABLE CONCENTRATION OF RADON IN DRINKING WATER

RADIOLOGICAL PROTECTION SERVICE, SUTTON, ENGLAND

7 PAGES, 1 TABLE, 10 REFERENCES, INT. J. AIR WATER POLLUT., 10, PAGE 769 THRU 775, (OCTOBER 1966)

RECOMMENDATIONS ARE MADE FOR ACCEPTABLE CONCENTRATIONS OF RN IN DOMESTIC WATER SUPPLIES. FOLLOWING INGESTION OF RN IN WATER, THE STOMACH RECEIVES THE HIGHEST DOSE. THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION RECOMMENDED THAT FOR THE GENERAL POPULATION THE DOSE TO THE STOMACH SHOULD NOT EXCEED 0.5 REM/YR. RADON IS POORLY SOLUBLE IN WATER, AND IS READILY LOST BY AERATION. THE INTAKE OF RN, BY MOUTH, WOULD BE DETERMINED BY THE AMOUNT OF RAW WATER DRUNK. IN TEMPERATURE CLIMATES, A REASONABLE AVERAGE FIGURE WOULD BE 300 ML/DAY. A FURTHER FACTOR IN CALCULATING THE DAILY INTAKE OF RN IS THE LOSS OF RN BY AERATION WHEN COLLECTING THE WATER AT THE TAP, AND ALSO DURING SWALLOWING.

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *RADON + *WATER, DRINKING + BIOLOGICAL CONCENTRATION, MAN +
DIETARY HABIT + DOSE CALCULATION, INTERNAL + INGESTION + POPULATION EXPOSURE +
RADIATION SAFETY AND CONTROL + UNITED KINGDOM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18791
CALAMINI A
RADIATION PROTECTION FOR ENTRANCE DOORS OF COBALT THERAPY ROOMS
C.H.F. MUELLER, HAMBURG
5 PAGES, 8 FIGURES, MEDICAMUDI 11, PAGE 143 THRU 147, (1966)

THE EXPOSURE RATE GENERATED BY CO-60 WAS MEASURED IN SOME INSTALLATIONS. THE ATTENUATION FACTORS WERE ASCERTAINED BY MEANS OF MEASUREMENTS MADE AT THE REAR OF LEAD-AND-STEEL-CLAD DOORS, CLOSED AND OPEN. THE RESULTS PROVIDED DATA FOR RATING ENTRANCE DOORS OF COBALT-THERAPY ROOMS.

*COBALT + *SHIELDING + *X-RAY + CONCRETE + CONTAINMENT ANALYSIS + CONTAINMENT DESIGN +
RADIATION SAFETY AND CONTROL

15-18792 ALSO IN CATEGORY 14
ERISKAT H
RADIATION RISKS AND RADIATION PROTECTION
5 PAGES, 1 TABLE, NEUE TECH., 8, PAGE 360 THRU 364, (DECEMBER 1966), IN GERMAN

THE BASIC STANDARDS OF EURATOM ON PERMISSIBLE RADIATION DOSES ARE OUTLINED; AND THE PROCEDURES USED FOR THE APPLICATION AND TESTING OF THESE STANDARDS ARE GIVEN. THE SPECIAL RISKS ENTAILLED IN SEPARATING RADIOACTIVE MATERIALS, AND METHODS USED FOR MONITORING ENVIRONMENTAL RADIOACTIVITY, ARE DISCUSSED. RESEARCH ACTIVITIES IN THE FIELD OF RADIOPROTECTION ARE BRIEFLY DESCRIBED.

*RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM + DOSE + MAXIMUM PERMISSIBLE DOSE (MPD) +
MONITOR, RADIATION, ENVIRONMENTAL + RESEARCH AND DEVELOPMENT PROGRAM

15-18795 ALSO IN CATEGORY 14
SASSER LB + HAWLEY CA
SECRETION OF I-131 INTO MILK UNDER CONDITIONS OF ENVIRONMENTAL CONTAMINATION OF PASTURE
DEPARTMENT OF ANIMAL SCIENCE, COLORADO STATE UNIVERSITY, FORT COLLINS
6 PAGES, 5 FIGURES, 2 TABLES, 21 REFERENCES, J. DAIRY SCI., 49, PAGE 1503 THRU 1510, (DECEMBER 1966)

DEALS WITH THE UPTAKE AND SECRETION OF I-131 INTO THE MILK OF DAIRY COWS CONFINED TO A I-131-CONTAMINATED PASTURE. THE PASTURE WAS CONTAMINATED BY RELEASING 1 CURIE OF I-131, IN THE FORM OF IODIDE GAS, INTO THE ATMOSPHERE OVER THE PASTURE. SIX HOLSTEIN COWS WERE ALLOWED TO GRAZE THE CONTAMINATED PASTURE. GRASS SAMPLES WERE COLLECTED DAILY, ALONG WITH MILK, URINE, AND FECES SAMPLES, AND ANALYZED FOR GROSS GAMMA ACTIVITY. PASTURE ACTIVITIES DECLINED DAILY OVER THE 14-DAY PERIOD, WITH AN EFFECTIVE HALF-TIME OF 5.5 DAYS. THE MILK LEVELS OF I-131 INCREASED RAPIDLY AND PEAKED IN TWO TO THREE DAYS. THERE WERE FOURFOLD VARIATIONS AMONG COWS IN THE I-131 LEVELS OF THEIR MILK, AND THE PERCENTAGE OF THE DAILY INGESTED I-131 SECRETED IN THE MILK RANGED FROM 4.4 TO 29.7 (MEAN 12.8). FECES AND URINE I-131 LEVELS PARALLELED MILK, BUT THE FECES SHOWED LITTLE VARIATION BETWEEN COWS.

*BIOLOGICAL CONCENTRATION, MILK + *IODINE + BIOLOGICAL CONCENTRATION, ANIMAL FEED + DIETARY HABIT +
FALLOUT + INGESTION + MONITOR, RADIATION, SAMPLING + NRTS (NATIONAL REACTOR TEST STATION) +
RACIONUCLIDE, INDUCED

15-18813 ALSO IN CATEGORIES 9 AND 7
THOMAS DM
THE CALIBRATION OF CASCADE IMPACTORS. OPERATION ROLLER COASTER
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON (ENGLAND)
AWRE-O-94/64 +. 15 PAGES, FIGURES, TABLES, SEPTEMBER 10, 1964

CALIBRATION PARAMETERS FOR THE CASELLA AND ANDERSON IMPACTORS HAVE BEEN AGREED BETWEEN THE U.S. AND U.K. PARTS OF THE ROLLER COASTER TEAMS. THE PARAMETERS MOST SUITED FOR USE IN EVALUATING THE DATA ARE THE CHARACTERISTIC DIAMETERS. AGREED VALUES OF THESE FOR BOTH INSTRUMENTS AND OF THE M.M.D.S FOR THE CASELLA ARE GIVEN. NEITHER INSTRUMENT WILL NECESSARILY GIVE A CORRECT MEASURE OF THE AIRBORNE CONCENTRATION OF THE LARGER PARTICLES (GREATER THAN ABOUT 50 MICRONS) BECAUSE OF ORIFICE EFFECTS. IN ADDITION, THERE ARE LOSSES AT THE FIRST JET PLATES OF THE ANDERSON INSTRUMENT. IN A COMPARISON OF THE CASELLA AND ANDERSON DATA AND THE ESTIMATION OF A COMPLETE SIZE DISTRIBUTION OF THE AIRBORNE MATERIAL, OTHER INFORMATION, SUCH AS THAT OBTAINED WITH THE CYLINDRICAL COLLECTORS, MUST BE TAKEN INTO ACCOUNT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

FILTER, CASCADE IMPACTOR + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, AIR SAMPLING +
MONITOR, RADIATION, AIR + MONITOR, RADIATION, ENVIRONMENTAL + PARTICLE SIZE

15-18816 ALSO IN CATEGORY 14
MURAYAMA N

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18816 *CONTINUED*

MEAN LEVEL OF NATURAL RADIOACTIVITY IN THE SURFACE AIR IN JAPAN

METEOROLOGICAL AGENCY, TOKYO

7 PAGES, 1 FIGURE, 1 TABLE, 13 REFERENCES, J. RADIAT. RES., 7, PAGE 1-7, (MARCH 1966)

MONTHLY MEAN CONCENTRATION OF RADON DAUGHTERS IN SURFACE AIR RESULTING FROM NATURAL RADIOACTIVITY WAS ESTIMATED BY USE OF THE SURVEY DATA OF RADIOACTIVITY OBTAINED AT FIVE STATIONS IN JAPAN FOR THE PAST TEN YEARS AND ASSUMING THE RADIOACTIVE EQUILIBRIUM. AN OVERALL MEAN WAS $90 \times 10^{(-18)}$ CI/CC OF THE AIR. DATA ON PB-214 IN SURFACE AIR ARE TABULATED. CAUSES OF ERRORS ACCOMPANYING THE MEASUREMENT AND ESTIMATION ARE DISCUSSED.

*CONCENTRATION, AREA + *GROSS BETA + *RADON + CONCENTRATION, GROUND LEVEL + COSMIC RADIATION + FALLOUT + FILTER + METEOROLOGICAL SUPPORT + RADIOLOGY

15-18817 ALSO IN CATEGORY 14

AKAISHI J + KASAI A + FUJITA M

TRENDS WITH TIME OF FALLOUT SR-90, CS-137, AND ZR-95/NB-95 IN TOTAL DIET AND THE CONCENTRATION IN THE AIR JAPAN, ATOMIC ENERGY COMMISSION

10 PAGES, 6 FIGURES, 1 TABLE, 18 REFERENCES, J. RADIAT. RES. 7, PAGE 8-17, (MARCH 1966)

THE CHANGES WITH TIME OF THE DIETARY LEVELS OF FALLOUT SR-90, CS-137, AND ZR-95/NB-95 AT TOKAI-MURA, IBARAKI PREF., JAPAN, WERE DETERMINED DURING 1962 TO 1965. DURING THESE FOUR YEARS, TOTAL DIETS WERE COLLECTED FOR 13 PERIODS, EACH PERIOD CONSISTING OF 5 CONSECUTIVE DAYS. THE MEAN DAILY INTAKES FOR 5 DAYS WERE DETERMINED. ALSO, SURFACE-AIR DUST WAS CONTINUOUSLY COLLECTED AND MEAN MONTHLY CONCENTRATION MEASURED. THE LEVELS OF THESE NUCLIDES IN THE DIETS AND THE AIR WERE MINIMUM IN THE SUMMER OF 1962. THE AIR CONCENTRATION OF ZR-95/NB-95 REACHED THE MAXIMUM IN THE SPRING OF 1963. THIS VARIATION OF ZR-95/NB-95 WITH TIME WAS SIMILAR TO THAT OF THE DIETARY LEVEL. THE LEVEL OF CS-137 IN THE DIET INCREASED SINCE THE SUMMER OF 1962, REACHING ABOUT 10 TIMES HIGHER LEVEL IN 1964. THE DIETARY LEVEL OF SR-90 ALSO INCREASED BUT IT WAS NOT SO CONSPICUOUS AS CS-137, BUT BOTH CHANGED IN PARALLEL TO CONCENTRATIONS IN THE AIR.

*CESIUM + *DIETARY HABIT + *STRONTIUM + ANALYTICAL TECHNIQUE, AIR + ANALYTICAL TECHNIQUE, FOOD + CONCENTRATION, AREA + CONCENTRATION, GROUND LEVEL + FALLOUT + NIOBIUM + SPECTROMETRY, GAMMA + ZIRCONIUM

15-18818

GENERALOV AA

THE BIOLOGICAL PROPERTIES OF NATURAL ULTRAVIOLET RADIATION IN LENINGRAD

LENINGRAD HYDROMETEOROLOGICAL INSTITUTE

6 PAGES, 2 FIGURES, 4 TABLES, REFERENCES, GIG. SANIT., 10, PAGE 1-6, (OCTOBER 1966)

THE AUTHOR STUDIED THE ULTRAVIOLET RADIATION IN LENINGRAD BY MEANS OF A PHOTOELECTRIC METHOD AND BY DETERMINING THE ONSET OF THE THRESHOLD ERYTHEMA ON THE HUMAN SKIN. THE FINDINGS CHARACTERIZE THE INTENSITY AND THE QUANTITY OF ULTRAVIOLET RADIATION ON DIFFERENT DAYS, MONTHS, AND THROUGHOUT THE YEAR, AS WELL AS ITS BIOLOGICAL ACTION. IN THE AUTHORS OPINION, FOR THE POPULATION OF LENINGRAD, THE TIME SPENT IN THE OPEN PROVIDED THE NECESSARY PREVENTIVE (1/8 ERYTHEMA) DOSE OF ULTRAVIOLET RAYS.

*BIOLOGICAL CONCENTRATION, MAN + *COSMIC RADIATION + COUNTER + UNION OF SOVIET SOCIALIST REPUBLICS

15-18819

ALSO IN CATEGORY 14

ANDREEV SV

ACCUMULATION OF LONG-LIVED DAUGHTER PRODUCTS OF RADON IN HUMAN BODY AFTER DRINKING OF RADON WATERS

CENTRAL INSTITUTE OF RADIOLOGY AND PHYSIOTHERAPY, MOSCOW

7 PAGES, 1 FIGURE, 3 TABLES, REFERENCES, GIG. SANIT., 10, PAGE 36-42, (OCTOBER 1966)

THE PAPER DEALS WITH ASSESSMENT OF THE POSSIBILITY OF ACCUMULATION IN THE HUMAN BODY OF LONG-LIVED DAUGHTER PRODUCTS OF RADON AS A RESULT OF DRINKING RADON WATERS. ANALYSIS OF THE DATA SHOWS THAT SUCH AN ACCUMULATION OF ISOTOPES IS QUITE INSIGNIFICANT, AND, UNDER ORDINARY CONDITIONS, IT CANNOT LEAD TO APPEARANCE IN HUMAN BODY OF RAD (PB-210), RAE (BI-210) AND PO-210 IN CONCENTRATIONS APPROACHING THE MAXIMAL PERMISSIBLE VALUES.

*RADON + *WATER, DRINKING + ADSORPTION + BIOLOGICAL CONCENTRATION, MAN

15-18820

ALSO IN CATEGORY 14

SHALAEV IL

THE CONTROL OF RADIOACTIVE CONTAMINATION OF WATER AND AIR DUE TO URANIUM TOGETHER WITH ITS DAUGHTER PRODUCTS

7 PAGES, 3 REFERENCES, GIG. SANIT., 10, PAGE 42-46, (OCTOBER 1966)

ON THE BASIS OF THE CALCULATED MAXIMUM PERMISSIBLE CONCENTRATION OF URANIUM AND THE ACTINIUM SERIES OF ISOTOPES, IT IS DEMONSTRATED THAT IN CERTAIN CASES THE RADIATION HAZARD OF WATER AND AIR CONTAMINATION WITH URANIUM AND ITS DAUGHTER PRODUCTS IS ACTUALLY DETERMINED LESS BY THE URANIUM ITSELF THAN BY ITS DAUGHTER PRODUCTS, SUCH AS IONIUM, POLONIUM, RADIUM (IN THE AIR) AND RAD, PO, RA (IN THE WATER). IT IS POSSIBLE TO DETECT ANY MEMBER OF THE SERIES, BUT IT IS NECESSARY TO KNOW THE CONCENTRATION OF ALL THE ISOTOPES THAT DETERMINE THE VALUE OF THE MAXIMUM PERMISSIBLE CONCENTRATION OF THE MIXTURE, AND IT IS POSSIBLE TO CONTROL THE EXTENT OF THE CONTAMINATION BY DETERMINING THE TOTAL ACTIVITY. EQUATIONS ARE GIVEN FOR DETERMINING THE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18820 *CONTINUED*

MAXIMUM PERMISSIBLE CONCENTRATION BOTH WITH AND WITHOUT REGARD FOR THE TYPE OF ISOTOPE DISTRIBUTION IN THE HUMAN BODY.

*ENVIRONMENTAL CONDITION + *EQUATION OF STATE + *IONIUM + *POLONIUM + *RADIUM + *URANIUM + MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

15-18821 ALSO IN CATEGORY 14

BASHMAKOVA TA + SUKALSKAYA SY + NIKIFOROVA OA + PERMYAKOV AA
RADIATION-HYGIENIC ASSESSMENT OF GROUND BURIAL PLACES FOR RADIOACTIVE WASTES
5 PAGES, 3 TABLES, 3 REFERENCES, GIG. SANIT., 11, PAGE 78-81, (NOV. 1966)

CONTAMINATION OF THE AREA SURROUNDING THE WASTE-DISPOSAL BURIAL PLACES WAS MEASURED IN SPECIMENS OF SETTLED DUSTS AND PLANTS AT VARIOUS SEASONS OF THE YEAR. AFTER 2 YEARS OF OPERATION WITHOUT ANY SPECIAL CLEANING, THE SEWAGE DID NOT AFFECT THE COASTAL ZONE OF THE OPEN WATER BASIN. A FEW CASES OF CONTAMINATION WERE RELATED TO THE VENTILATION EXPULSION. THE CONTAMINATION WAS OF LOW LEVEL AND DID NOT EXTEND BEYOND THE SANITATION-PROTECTION ZONE. RADIATION DOSES ABSORBED BY PERSONNEL HANDLING THE WASTES WERE BELOW PERMISSIBLE VALUES, AND NO OBVIOUS EFFECTS TO THEIR HEALTH WERE DETECTED.

*MONITOR, RADIATION, PERSONNEL + *WASTE DISPOSAL, LIQUID + *WASTE DISPOSAL, SOLID + AEROSOL, RADIOACTIVE + GROUND WATER, GENERAL + MAXIMUM PERMISSIBLE DOSE (MPD) + MONITOR, RADIATION, ENVIRONMENTAL + SURVEILLANCE PROGRAM + WASTE HANDLING + WASTE TRANSPORTATION

15-18822

SKRYABIN AM + SHUKHOVTSEV BI + MESHALKINA NG
ABSORPTION OF RADIOSTRONTIUM FROM A RAW FISH INTO A COOKED DISH IN THE COURSE OF COOKING
4 PAGES, 2 TABLES, 3 REFERENCES, GIG. SANIT., 11, PAGE 111-113, (NOV. 1966)

WHILE COOKING CARP, 1.1 TO 2% OF SR-90 IS ABSORBED BY THE EDIBLE PART OF THE FISH, 60 TO 90% BEING CONCENTRATED IN THE SOLID PART. FROM 0.2 TO 2% OF THE SR-90 IS CONTRIBUTED BY THE BONES. THE EXTRACTION OF RADIOSTRONTIUM AND STABLE CALCIUM IS NEARLY IDENTICAL (0.4 TO 0.45%).

*BIOLOGICAL CONCENTRATION, FOOD + *CALCIUM + *STRONTIUM + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + DIETARY HABIT + MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

15-18823

STEUER J
PORTABLE DEVICE FOR THE CONTROL OF ALPHA-ACTIVE SURFACE CONTAMINATIONS
STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN
3 PAGES, 3 FIGURES, ISOTOPENPRAXIS 2, PAGE 451-453, (DECEMBER 1966)

A PORTABLE, FULLY TRANSISTORIZED DEVICE FOR DETERMINING ALPHA-ACTIVE SURFACE CONTAMINATIONS IS DESCRIBED. IT IS OPERATED BY 7 PROPORTIONAL COUNTERS OF VA-Z-520 TYPE. A MECHANICAL REGISTER SERVES FOR IMPROVING THE LOW-LEVEL READING. IN THE CASE OF HIGH-LEVEL ACTIVITIES, A RATE-METER IS USED. THE ALPHA-ACTIVE SURFACE CONTAMINATIONS PERMISSIBLE ACCORDING TO THE DEGREE OF RADIOLOGICAL PROTECTION MAY BE CONTROLLED BY APPLYING THIS DEVICE. CALIBRATION IS MADE BY USING A PU-239 FLAT STANDARD SOURCE. THE DEVICE IS ALSO SUITED FOR MEASURING THE BETA AND GAMMA RADIATION. FOR THIS PURPOSE, THE PART OF THE PROBE INCLUDING THE COUNTERS HAS TO BE SUBSTITUTED BY THE BETA-GAMMA HEAD, INCLUDING 7 COUNTERS OF VA-Z-310 TYPE.

*GROSS ALPHA + *INSTRUMENTATION, RADIATION MONITORING + CONTAMINATION + COUNTER + RADIOLOGICAL ASSISTANCE

15-18824 ALSO IN CATEGORY 14

JAMIESON HD + TRIPP CG + SANDERSON FL
ENVIRONMENTAL IONIZING RADIATION IN DUNEDIN, NEW ZEALAND
WAKARI HOSPITAL, DUNEDIN, N. ZEAL.
10 PAGES, 5 TABLES, 11 REFERENCES, N.Z.J. SCI., 9, PAGE 674-683, (SEPT. 1966)

TO CHECK LOCAL GAMMA RADIATION LEVELS AFTER REPORTS OF HIGH-ACTIVITY ROCK IN THE AREA, A PORTABLE SCINTILLOMETER WAS CALIBRATED AND USED TO MAKE MEASUREMENTS OVER AN EXTENSIVE AREA IN DUNEDIN AND IN PARTS OF OTAGO. RESULTS WERE EVALUATED IN TERMS OF ANNUAL DOSE TO GONADS AND BONE MARROW, AND THESE VALUES WERE COMPARED WITH RECENT MEASUREMENTS MADE IN THE U.K. IT WAS CONCLUDED THAT THE DUNEDIN MEASUREMENTS WERE NOT SIGNIFICANTLY DIFFERENT FROM AVERAGE GAMMA RADIATION LEVELS RECORDED ELSEWHERE. APART FROM VARIATIONS IN WORKING SITUATIONS, THERE WERE CONSIDERABLE VARIATIONS BETWEEN HOUSES CONSTRUCTED OF VARIOUS MATERIALS, AND ALSO VARIATIONS IN THE COSMIC-RAY DOSE RATE OVER THE RANGE OF ALTITUDES WHERE PEOPLE LIVE.

*CONCRETE + *RADIATION EFFECT + COUNTER + DOSE CALCULATION, INTERNAL + ENVIRONMENTAL CONDITION + FALLOUT + GROSS GAMMA + MAXIMUM PERMISSIBLE DOSE (MPD) + POPULATION EXPOSURE

15-18836

SULLIVAN MF
INTESTINAL AND GONADAL INJURY AFTER EXPOSURE TO FISSION NEUTRONS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18836 *CONTINUED*

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1156 + CONF-670305-7 +. 15 PAGES, FIGURES, TABLES, REFERENCES, 1966, FROM SYMPOSIUM ON BIOLOGICAL INTERPRETATION OF DOSE FROM ACCELERATION PRODUCED RADIATION, BERKELEY, CALIF.

IT HAS BEEN WELL ESTABLISHED THAT THERE ARE DISTINCT DIFFERENCES IN THE PREDOMINANT SITES OF ACTION BY NEUTRONS OR X-RAYS. THE GASTROINTESTINAL TRACT AND THE GONADS ARE PARTICULARLY VULNERABLE TO THE EFFECTS OF FAST NEUTRONS. RATS EXPOSED TO DOSES OF 1-131 SHOWED INTRAVENOUS INJECTION. THE TIME OF DEATH INDICATED THAT MENAPOPOIETIC INJURY WAS A MAJOR CAUSE OF DEATH FROM THESE EXPOSURES. MOST OF THE INFORMATION ON GONADAL RESPONSE AFTER NEUTRON IRRADIATION WAS OBTAINED WITH MICE. THE RATS SURVIVING THIS STUDY ON ACUTE INTESTINAL INJURY WERE MATED TO OBTAIN ADDITIONAL INFORMATION ON FECUNDITY IN THAT SPECIES. ALL MALES SURVIVING THE EXPOSURE WERE STERILE THREE MONTHS AFTER EXPOSURE, BUT THE FEMALES PRODUCED LITTERS ONE MONTH AFTER EXPOSURE AT ALL DOSAGE LEVELS. ON SUBSEQUENT MATINGS, MALES EXPOSED TO THE LOWEST DOSE BECAME FECUND, AND THE FEMALES HAD TO LITTERS THAT DECREASED IN SIZE WITH INCREASING NEUTRON DOSES. TESTES OF MALES AT THE HIGHER DOSES WERE STILL ATROPHIC AT THE END OF THE STUDY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + *IODINE + DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, INTERNAL + DOSIMETRY, GENERAL + NEUTRON + RADIATION DAMAGE + RADIONUCLIDE, INDUCED + X-RAY

15-18837

MARESH M + GROOME DS

POTASSIUM-40. SERIAL DETERMINATIONS IN INFANTS

UNIVERSITY OF COLORADO

5 PAGES, 3 FIGURES, 1 TABLE, 7 REFERENCES, PEDIATRICS 38, PAGE 642 THRU 646, (OCTOBER 1966)

A STUDY WAS MADE OF THE FEASIBILITY OF USING A WHOLE-BODY COUNTER FOR MONITORING K-40 IN INFANTS. AFTER 6 MONTHS OF EXPERIMENTING WITH THE POSITION OF DETECTOR AND CHILD AND MEANS OF MONITORING THE SLEEPING INFANT, MOST OF THE DIFFICULTIES WERE OVERCOME. THE COUNTING SHIELD WAS A 2.4 X 2.4 X 2.4 M ROOM WITH 12.7-CM STEEL WALLS LINED WITH 3 MM LEAD. THE CHILD WAS QUIESCENT IN A PRONE POSITION ON A TIGHT CANVAS FRAME SUPPORTED FROM THE WALLS OF THE ROOM. A 10.2 X 22.9 CM NAI (TL) DETECTOR UTILIZING 4 PHOTOMULTIPLIER TUBES WAS LOCATED UNDER THE CANVAS, WITH THE POSITION DEPENDENT UPON THE HEIGHT AND WEIGHT OF THE CHILD. THE DATA FROM K-40 MEASUREMENTS IN THE FIRST YEAR OF LIFE WERE ESSENTIALLY LINEAR, AND THE COEFFICIENT OF CORRELATION OF 0.94 PRODUCED A STRAIGHT LINE THAT HAD ITS X/Y INTERCEPT NEAR ZERO.

*BIOLOGICAL CONCENTRATION, MAN + *POTASSIUM + COUNTER, WHOLE BODY + GROSS GAMMA + INSTRUMENTATION, GENERAL

15-18838

SADLER AM + WALTER HE + HANRAHAN FP + EDMONDSON LF

AUTOMATED PILOT PLANT FOR REMOVING RADIOSTRONTIUM FROM MILK

DEPT. OF AGRICULTURE, WASHINGTON, D. C.

4 PAGES, 3 FIGURES, 2 TABLES, 6 REFERENCES, J. DAIRY SCI., 50, PAGE 268 THRU 271, (FEBRUARY 1967)

THE REMOVAL OF STRONTIUM-90 FROM MILK BY ION EXCHANGE RESINS HAS BEEN PROGRAMMED THROUGH THE LABORATORY, PILOT, AND COMMERCIAL SCALE PLANTS. THIS PAPER PRESENTS THE OPERATION AND RESULTS FROM AN AUTOMATED PILOT PLANT, USING ION-EXCHANGE RESINS TO REMOVE STRONTIUM-90 FROM MILK. THE PROCESS INVOLVES ADJUSTING THE MILK TO 10 C, LOWERING THE PH TO 5.3 BY IN-LINE INJECTION OF AN ACID SOLUTION, PASSING THE ACIDIFIED MILK THROUGH A FILTER AND A PROPERLY CHARGED (REGENERATED) ION EXCHANGE RESIN COLUMN FOR REMOVAL OF THE STRONTIUM-90, THEN READJUSTING THE PH OF THE MILK BY IN-LINE INJECTION OF A BASE SOLUTION. A SERIES OF 8-HR. TEST RUNS WAS MADE, USING MILK AT ENVIRONMENTAL LEVELS OF STRONTIUM-90, TO ASCERTAIN REMOVAL AND TO EVALUATE THE RESIN-TREATED MILK FOR FLAVOR. THE REMOVAL OF STRONTIUM-90 FROM THE MILK EXCEEDED 90%. THE TREATED MILK COMPARED FAVORABLY WITH THE CONTROL WHEN SUBJECTED TO A PANEL FOR TASTE TESTING.

*BIOLOGICAL CONCENTRATION, MILK + *ION EXCHANGE + *STRONTIUM + AGRICULTURAL CONSIDERATION + DECONTAMINATION + RADIOCHEMICAL PROCESSING

15-18839

MCCLANAHAN BJ + KORNBERG HA

TREATMENT OF PLUTONIUM-CONTAMINATED WOUNDS WITH DIETHYLENETRIAMINEPENTAACETIC ACID IN RATS

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1253 + CONF-670521-10 +. 9 PAGES, TABLES, JULY 31, 1967, FROM SYMPOSIUM ON DIAGNOSIS AND TREATMENT OF DEPOSITED RADIONUCLIDES, RICHLAND, WASH.

SKIN LACERATIONS WERE CONTAMINATED WITH PLUTONIUM NITRATE, CITRATE, OR DIOXIDE AND THEN IRRIGATED WITH DTPA TO DETERMINE ITS EFFICIENCY IN DECONTAMINATING WOUNDS. NO MARKED DECONTAMINATION OF THE WOUNDS WAS OBSERVED, BUT THE PLUTONIUM CONTENT OF URINE INDICATED THAT SOME CHELATION HAD OCCURRED. THE ABSORPTION OF THE PU-239 CHELATE FORMED WITH DTPA WAS MEASURED TO ESTIMATE THE RETENTION OF ANY PLUTONIUM CHELATED AND ABSORBED DURING WOUND IRRIGATION. ABOUT 85% OF THE PLUTONIUM WAS EXCRETED IN THE URINE IN THE FIRST 24 HR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + *RADIATION INJURY, TREATMENT OF + DECONTAMINATION +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18839 *CONTINUED*
DOSE MEASUREMENT, INTERNAL + PLUTONIUM + RADIOBIOLOGY + RADIOBIOLOGY + RADIONUCLIDE, INDUCED

15-18842
SWINTH KL
INTERPRETING COUNTING DATA FOR INTERNALLY DEPOSITED PLUTONIUM
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-SA-997 + CONF-670521-9 +. 26 PAGES, REFERENCES, APRIL 14, 1967, PRESENTED AT SYMPOSIUM ON DIAGNOSIS
AND TREATMENT OF DEPOSITED RADIONUCLIDES, RICHLAND, WASHINGTON

SENSITIVE COUNTERS ARE PRESENTLY BEING DEVELOPED THAT WILL PERMIT THE MEASUREMENT OF
INTERNALLY DEPOSITED PLUTONIUM BY COUNTING THE LOW-ENERGY PHOTONS EMITTED BY THE PLUTONIUM.
INTERPRETATION OF COUNTING DATA WILL BE INFLUENCED BY THREE GENERAL FACTORS, THE CHANGE IN
PHOTON EMISSION RATE WITH VARIABLE ISOTOPIC COMPOSITION, THE LOW PENETRATING POWER OF THE
RADIATIONS, AND THE VARIABLE BACKGROUND DUE TO HIGH-ENERGY RADIATIONS OF OTHER ISOTOPES. THE
HALF-VALUE THICKNESS OF TISSUE FOR 17-KEV PLUTONIUM X-RAYS IS ONLY 0.6 CM, AND, BECAUSE OF
THIS, FACTORS CHANGING THE ABSORPTION SUCH AS INTERNAL DISTRIBUTION, SURFACE CONTAMINATION,
AND VARIABLE OVERLYING TISSUE MASSES AFFECT THE INTERPRETATION OF COUNTING DATA. FOR
LOW-LEVEL COUNTING, BACKGROUND VARIATIONS CAUSED BY THE CONTRIBUTION FROM OTHER INTERNAL
RADIONUCLIDES ARE CRITICAL, AND DATA SHOW THAT DIFFERENCES IN LOW-ENERGY (ABOUT 17 KEV)
BACKGROUNDS OF GREATER THAN A FACTOR OF 2 CAN BE EXPECTED. FINALLY, THE ROLE OF PULMONARY
CLEARANCE EFFECTS IS DISCUSSED IN RELATION TO COUNTING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, INTERNAL + *PLUTONIUM + BIOLOGICAL CONCENTRATION, MAN + COUNTER + GAMMA EMITTER +
INHALATION + MAXIMUM PERMISSIBLE BODY BURDEN + X-RAY

15-18850 ALSO IN CATEGORY 14
AARKROG A + LIPPERT J
COMPARISON OF RELATIVE RADIONUCLIDE RATIOS IN DEBRIS FROM THE THIRD AND THE FIFTH CHINESE NUCLEAR TEST
EXPLOSIONS
ATOMIC ENERGY COMMISSION, RISØE, DENMARK
2 PAGES, 4 FIGURES, 2 TABLES, 5 REFERENCES, NATURE 213, PAGES 1001-2 (MARCH 11, 1967)

CHINESE NUCLEAR TEST EXPLOSIONS OCCURRED ON MAY 9 AND DEC. 28, 1966. BOTH EXPLOSIONS
CORRESPONDED TO THE FEW-HUNDRED-KILOTON RANGE. SINCE A WEAPON IN THIS INTERMEDIATE RANGE
MIGHT BE A THERMONUCLEAR DEVICE, SPECIAL INTEREST ATTACHES TO THE DEBRIS FROM THESE TWO
TESTS. AIR FILTER AND SMEAR TESTS WERE TAKEN, THE FORMER AT GROUND LEVEL AT RISØ AND THE
LATTER FROM AIRCRAFT. EXAMINATION OF SAMPLES WAS BY GAMMA SPECTROMETRIC ANALYSIS. DATA ARE
GIVEN FOR ZR-95, MO-99, RU-103, I-131, BA-140, CE-141, CE-144, ND-147, U-237 AND NP-139.
CE-141 WAS USED AS A REFERENCE NUCLIDE FOR COMPARISON BETWEEN THE TWO TESTS. COMPARISON OF
THE DEBRIS FROM THE THIRD EXPLOSION WITH THAT FROM THE FIFTH EXPLOSION SHOWED THAT DEBRIS
FROM THE FIFTH EXPLOSION WAS ENRICHED IN NUCLIDES BELONGING TO VOLATILE DECAY CHAINS (NP-239,
RU-103, I-131, BA-140) AS COMPARED WITH THE LESS VOLATILE MO-99, ND-147, ZR-95. U-237 WAS
MORE ABUNDANT IN THE THIRD EXPLOSION.

*NUCLEAR DETONATION + *NUCLEAR EXPLOSION DEBRIS + FILTER + MONITOR, RADIATION, GROUND SURFACE +
NUCLEAR INCIDENT DOSIMETER + SAMPLING, HIGH ALTITUDE + SPECTROMETRY, GAMMA

15-18851 ALSO IN CATEGORY 14
JACKSON WA + LUGO HM + CRAIG D
CESIUM UPTAKE FROM DILUTE SOLUTIONS BY YOUNG WHEAT SEEDLINGS AS AFFECTED BY SELECTED CATIONS
NORTH CAROLINA STATE COLLEGE, RALEIGH
21 PAGES, 7 FIGURES, 6 TABLES, 24 REFERENCES, PLANT SOIL 24, PAGES 33-53 (FEB. 1966)

EXPERIMENTS WERE CONDUCTED WITH YOUNG WHEAT SEEDLINGS TO DETERMINE THE EFFECTS OF SELECTED
CATIONS ON CS UPTAKE BY ROOTS AND SUBSEQUENT TRANSPORT TO SHOOTS. UPTAKE BY ROOTS WAS
REDUCED BY PRIOR K TREATMENT AND SIMULTANEOUS PRESENCE OF K, RB, AND NH₄. ADDITION OF CA AT
PH 4 INCREASED CS UPTAKE BY ROOTS. TRANSPORT TO SHOOTS WAS REDUCED BY CA AT PH 6 BY NH₄, AND
BY K AND RB WHEN THE K CONTENT OF THE TISSUE WAS HIGH. WHEN THE K CONTENT OF THE TISSUE WAS
LOW, LITTLE CS TRANSPORT OCCURRED, AND SOLUTION CONCENTRATIONS OF K UP TO 0.01 MEQ/LITER
INCREASED CS TRANSPORT. THE DATA SUGGEST THAT SEPARATE PROCESSES WERE INVOLVED IN CS UPTAKE
AND TRANSPORT, WITH COMPETITION EXISTING BETWEEN THE TWO PROCESSES FOR THE ENTERING CS.
AMMONIUM IONS INHIBITED BOTH UPTAKE AND TRANSPORT TO ABOUT THE SAME EXTENT, WHEREAS K
INHIBITED UPTAKE MORE THAN TRANSPORT.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *CESIUM + DIFFUSION + DILUTION + POTASSIUM +
TRANSPORT PROPERTY

15-18852 ALSO IN CATEGORY 14
KLUTZ WS + QUIRK AI
PRACTICING PHYSICIAN AND THE NUCLEAR REACTOR
ROGER WILLIAMS GENERAL HOSPITAL, PROVIDENCE
3 PAGES, 2 FIGURES, RHODE ISLAND MED. JOURNAL 49, PAGES 176-8 (MARCH 1966)

THE REACTOR AT THE RHODE ISLAND NUCLEAR SCIENCE CENTER AND ITS ASSOCIATED FACILITIES FOR

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18852 *CONTINUED*

RESEARCH ARE DESCRIBED, AND ITS POSSIBLE MEDICAL APPLICATIONS ARE DISCUSSED. THE CORE OF THE REACTOR, CONSISTING OF 3 KG OF U-235, IS LOCATED AT THE BOTTOM OF HIGHLY PURIFIED LIGHT-WATER TANK 32 FT DEEP. A SPECIAL FACILITY IS AVAILABLE FOR THE IRRADIATION OF MATERIALS AND SMALL ANIMALS. A RADIOCHEMISTRY LABORATORY, PART OF THE REACTOR COMPLEX, IS EQUIPPED WITH A 512-CHANNEL ANALYZER, PROVIDING FOR THE RAPID AND PRECISE IDENTIFICATION VARIOUS ELEMENTS THROUGH ACTIVATION ANALYSIS. USE OF THE REACTOR FOR PRODUCTION OF SHORT-LIVED ISOTOPES AND FOR STUDYING NEUTRON-CAPTURE THEORY IS ALSO DESCRIBED.

*BIOMEDICAL + *REACTOR TEST FACILITY + *RESEARCH AND DEVELOPMENT PROGRAM + ACTIVATION + GROSS GAMMA + RADIOCHEMICAL ANALYSIS + RADIOISOTOPE + REACTOR DESCRIPTION + URANIUM

15-18853 ALSO IN CATEGORY 14
DATA FROM RADIATION PROTECTION PROGRAMS. VOLUME 5 NO. 2
DEPT. OF NATIONAL HEALTH AND WELFARE, OTTAWA, ONTARIO
NP-16730 +. 29 PAGES, FEBRUARY 1967

DATA FROM RADIATION PROTECTION PROGRAMS IN CANADA ARE GIVEN, INCLUDING FALLOUT MONITORING OF AIRBORNE PARTICLES, PRECIPITATION, MILK, WATER, WHEAT, SOIL, AND HUMAN BONE. A REPORT ON REACTOR-ENVIRONMENT MONITORING IN CANADA FOR JANUARY 1967 IS INCLUDED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *RADIATION SAFETY AND CONTROL + CANADA + FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + PARTICULATE + PRECIPITATION

15-18856 ALSO IN CATEGORIES 1 AND 17
VENUS ACCIDENT
2 PAGES, FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING 12(128) PAGES 36-37 (OCT. 18, 1967)

BRIEFLY DESCRIBES THE DEC. 30, 1965 INCIDENT WHEREIN (1) A SAFETY RULE WAS VIOLATED BY THE MANUAL MANIPULATION OF REACTOR CONTROL RODS WITHOUT DUMPING THE MODERATOR FIRST, AND (2) A TECHNICIAN REVERSED THE PROCEDURE AND REMOVED AN ABSORBER ROD BEFORE INSERTING A SUBSTITUTE IN ANOTHER POSITION. MEASUREMENTS SHOWED BOTH CIRCUMSTANCES WERE NECESSARY TO PRODUCE THE INCIDENT. A PROMPT-CRITICAL EXCURSION OF 15 MW-SECONDS ENERGY GAVE THE TECHNICIAN A PROBABLE GAMMA DOSE TO THE CHEST OF 550 ROENTGENS AND 4000 TO HIS LEFT FOOT. AFTER 21 DAYS, BLOOD DISORDERS RESULTED IN SEVERE DETERIORATION, AND THE PATIENT WAS IN A CRITICAL CONDITION FOR THREE WEEKS. LATER HIS LEFT LEG WAS AMPUTATED.

*FAILURE, ADMINISTRATIVE CONTROL + *INCIDENT, ACTUAL, HUMAN ERROR + ACCIDENT, CRITICALITY + ADMINISTRATIVE CONTROLS AND PRACTICES + BELGIUM + CRITICAL ASSEMBLY FACILITY + DOSE MEASUREMENT, EXTERNAL + FAILURE, OPERATOR ERROR + FAILURE, SEQUENTIAL + INCIDENT, EXPOSURE + PROMPT CRITICALITY

15-18858
ALBERT RE + LIPPMANN M + SPIEGELMAN J + LIUZZI A + NELSON N
THE DEPOSITION AND CLEARANCE OF RADIOACTIVE PARTICLES IN THE HUMAN LUNG
NEW YORK UNIVERSITY
6 PAGES, 5 FIGURES, 8 REFERENCES, ARCH ENVIRON HEALTH 14, PAGES 10-15 (JANUARY 1967)

PRESENTS A SUMMARY OF THE CURRENT STATUS OF INFORMATION ON THE CLEARANCE OF RADIOACTIVE PARTICLES FROM THE HUMAN LUNG AS MEASURED BY EXTERNAL GAMMA DETECTORS. SEVERAL STUDIES REVIEWED. EQUIPMENT DEVELOPMENTS SUCH AS A SPINNING-DISK AEROSOL GENERATOR ARE DISCUSSED, AS WELL AS SOME SCINTILLATION COUNTERS USED IN ANALYSES. ACTUAL LUNG-CLEARANCE PATTERNS ARE SHOWN FOR TWO HUMAN SUBJECTS FOR CHROMIUM-51 AND GOLD-198 (3- TO 5-MICRON PARTICLES).

*BIOLOGICAL CONCENTRATION, MAN + *PARTICLE, RADIOACTIVE + AEROSOL + COUNTER + DEPOSITION + GAMMA

15-18860 ALSO IN CATEGORY 14
KOMATSU T
DECONTAMINATION OF RADIOACTIVE WATER BY COPRECIPITATION WITH TITANIUM HYDROXIDE
HOKKAIDO UNIVERSITY, SAPPORO
5 PAGES, 3 FIGURES, 4 TABLES, 6 REFERENCES, J. WATER POLLUT. CONTR. FEDERATION 39, PAGES 123-7 (JANUARY 1967)

REMOVAL OF RADIOSTRONTIUM AND MIXED FISSION PRODUCTS FROM WATER BY COPRECIPITATION WITH TITANIUM HYDROXIDE WAS STUDIED. LITTLE RADIOSTRONTIUM COPRECIPITATED ON FERRIC HYDROXIDE OR ALUMINUM HYDROXIDE FROM NEUTRAL SOLUTION. TITANIUM HYDROXIDE REMOVED ABOUT 5 TIMES THE AMOUNT OF RADIOSTRONTIUM THAT COULD BE REMOVED BY COPRECIPITATION WITH OTHER HYDROXIDES UNDER THE SAME CONDITIONS. ABOUT 30% OF THE MIXED FISSION PRODUCTS WAS REMOVED FROM NEUTRAL SOLUTION BY COPRECIPITATION WITH FERRIC OR ALUMINUM HYDROXIDE, WHILE ABOUT 70% WAS REMOVED WITH TITANIUM HYDROXIDE.

*PRECIPITATION + *STRONTIUM + *WATER TREATMENT + ALUMINUM + FISSION PRODUCT RETENTION + RADIOCHEMICAL PROCESSING + TITANIUM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-18864
MARTIN JH
HEALTH AND SAFETY RESEARCH AT CHAPELCROSS, ANNUAL REPORT, 1966
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, ANNAN, SCOTLAND
PG-REPORT-771 +. 8 PAGES, 22 REFERENCES, 1967

PROGRESS IS REPORTED ON STUDIES ON NEUTRON DOSIMETRY. STUDIES OF DEPTH DOSE DISTRIBUTIONS IN TISSUES FOR FAST NEUTRON ENERGIES UP TO 14 MEV WERE COMPLETED. INVESTIGATIONS ON THE PHYSICAL PROPERTIES OF HEAVY IONS WERE CONTINUED. THE DOSE EQUIVALENT AT THE BODY SURFACE FOR ISOTROPIC IRRADIATION BY COSMIC-RAY NEUTRONS WAS CALCULATED TO BE 6.2 PLUS OR MINUS 0.5 MREM/YR AT CHAPELCROSS, AND AT SUPERSONIC TRANSPORT ALTITUDES WAS CALCULATED TO BE 0.2 PLUS OR MINUS 0.02 MREM/HR. PROGRESS IS REPORTED ON STUDIES ON THE EFFECTS OF WHOLE-BODY X IRRADIATION, AT DOSES UP TO 1000 R, ON THE METABOLISM OF THYMINE AND TRYPTOPHAN IN RATS AND RABBITS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 3.00 COPY, 0.65 MICROFICHE

*DOSIMETRY, GENERAL + *RESEARCH AND DEVELOPMENT PROGRAM + ANALYTICAL TECHNIQUE, URINE + CHEMICAL ANALYSIS + COUNTER + DECONTAMINATION + FAST NEUTRON + MONITOR, RADIATION, ENVIRONMENTAL + PLUTONIUM + RADIOBIOLOGY + SPECTROMETRY, ALPHA + UNITED KINGDOM

15-18899 ALSO IN CATEGORIES 5 AND 17
THOMAS JT + CALLIHAN D
RADIATION EXCURSION AT ORNL CRITICAL EXPERIMENT LABORATORY - MAY 26, 1954
OAK RIDGE NATIONAL LABORATORY
ORNL-2452 +. 27 PAGES, 12 FIGURES, 5 TABLES, PAGES 4-27 OF RADIATION EXCURSIONS AT THE ORNL CRITICAL EXPERIMENTS LABORATORY, MAY 5, 1958

UO2F2 LIQUID FUEL WAS IN A 10-IN.-DIAM CYLINDER, WITH A 2-IN.-DIAM CADMIUM CYLINDER, HELD IN THE CENTER BY A SPIDER AT THE TOP. A PIN ON THE LIQUID-LEVEL PROBE, RAISED WHEN AT NEAR CRITICAL VOLUME, RAISED THE SPIDER, ALLOWING THE CENTRAL TUBE TO TIP OVER, CREATING A MORE FAVORABLE GEOMETRY AND MOVING ABSORBER FROM A REGION OF HIGH IMPORTANCE. RESULTING EXCESS REACTIVITY (\$2.8) RELEASED ABOUT 0.8 KWHR. VENTILATION SYSTEM WAS ALLOWED TO RUN FOR 15 MIN, AND TRUCK DOOR WAS OPEN, ALLOWING FISSION-PRODUCT ESCAPE. LARGEST EXPOSURE WAS 0.9 R. TO A GUARD AT NEARBY GATE. RADIATION LEVEL 30 MIN LATER AT TRUCK DOOR WAS 2.65 R/HR. SKYSHINE WAS A PROBLEM DUE TO THIN CEILING. MAXIMUM INTERNAL DOSAGE WAS ABOUT 0.3 MICROCURIE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*ACCIDENT, CRITICALITY + *INCIDENT, ACTUAL, EQUIPMENT + *SCATTERING (SKYSHINE) + CRITICAL ASSEMBLY FACILITY + LIQUID FUEL + OPERATIONS REPORT, ANALYSIS + ORNL (OAK RIDGE NATIONAL LABORATORY) + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

15-18909 ALSO IN CATEGORY 14
DENHAM DH
HEALTH PHYSICS AT THE LRL-LIVERMORE TRANSURANIC PROCESSING FACILITY
CALIFORNIA UNIV., LIVERMORE, LAWRENCE RADIATION LAB.
UCRL-70284 + CONF-671102-4 +. 26 PAGES, 4 FIGURES, 1 TABLE, 16 REFERENCES, JULY 10, 1967, PRESENTED AT 15TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

THIS REPORT IS AN ACCOUNT OF THE LRL-TRANSURANIC FACILITY AND THE OPERATIONS CONDUCTED THEREIN. DESCRIBES THE LIVERMORE FACILITY, DISCUSSES THE HEALTH PHYSICS CONTROLS USED TO LIMIT PERSONNEL EXPOSURE AND TO MAINTAIN THE BASIC CONCEPT OF COMPLETE CONFINEMENT OF THE HIGHLY RADIOACTIVE AND RADIOTOXIC MATERIALS, AND ENUMERATES SOME OF THE SPECIAL HAZARDS OF HANDLING THE TRANSURANIC ELEMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION SAFETY AND CONTROL + *TRANSURANIC PROGRAM + DECONTAMINATION + ENVIRONMENTAL CONDITION + MONITOR, RADIATION, ENVIRONMENTAL + PERSONNEL EXPOSURE, RADIATION + RESEARCH AND DEVELOPMENT PROGRAM + WASTE DISPOSAL, SOLID + WASTE HANDLING + WASTE TREATMENT, SOLID

15-19099 ALSO IN CATEGORIES 12 AND 17
SAXE D
INHALATIONS OF AIRBORNE URANIUM AT A-I FUEL FABRICATION FACILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
7 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 13-19 (OCTOBER 30, 1967)

(LETTER, AUGUST 15) GENERAL DISCUSSION OF THE AIRBORNE URANIUM PROBLEM, WHEREIN URINALYSIS SURVEILLANCE INDICATES A GRADUAL WORSENING SINCE ETR/ATR FUEL-ALLOY FABRICATION BEGAN IN 1965. DISCUSSES PROCESS, SURVEILLANCE PROGRAM, AND VARIOUS STEPS TO MINIMIZE AIRBORNE ACTIVITY (GLOVE BOX AND FURNACE VENTILATION, ETC.).

*AIRBORNE RELEASE + *FABRICATION + *URANIUM + FUEL, METALLIC TYPE + GLOVE BOX + INHALATION +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19099 *CONTINUED*
OPERATIONS REPORT, ANALYSIS + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

15-19100 ALSO IN CATEGORY 17
TYREE PM
BAIRD-ATOMIC OVER EXPOSURE JULY 24-28, 1967
BAIRD-ATOMIC, CAMBRIDGE, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 19-20 (OCTOBER 30, 1967)

(LETTER, SEPT. 6) TWO PERSONS WERE OVEREXPOSED (60 AND 27.326 REMS TO WRIST) IN ASSAYING CO-60 PELLETS. USUALLY THE VACUUM HANDLER FOR THE PELLETS IS PLACED SUCH THAT DOSE RATE IS 100 MR/HR (TO RIGHT HAND), AND 20-HOUR DOSE IS ACCEPTABLE ONCE EACH QUARTER. IN THIS CASE, THE HAND WAS PLACED ON THE HANDLER SUCH THAT THE HAND WAS INTERMITTENTLY EXTENDED WITH THE HAND INTO A 5-TO-7 R/HR FIELD. EQUIPMENT IS BEING REDESIGNED TO UTILIZE A REMOTE ION CHAMBER, WHICH ALSO PROVIDES FASTER RESULTS.

*INCIDENT, ACTUAL, NONREACTOR + *PERSONNEL EXPOSURE, RADIATION + *SOURCE, RADIATION + COBALT + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + HOT CELL

15-19101 ALSO IN CATEGORIES 12 AND 17
MONSANTO CITED FOR NON COMPLIANCE REGARDING PU-BE SOURCE
MONSANTO RESEARCH CORP., ST. LOUIS, MO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 20-21 (OCTOBER 30, 1967)

(LETTER AUGUST 10) CITATION FOR EXCEEDING QUARTERLY WHOLE-BODY DOSE LIMIT FOR 6 EMPLOYEES, INADEQUATE SURVEYS, AND INADEQUATE HAND DOSIMETRY. SUGGESTS LACK OF ADMINISTRATIVE CONTROL DUE TO REPEATED EXPOSURES, INCLUDING 1965. (REPLY LETTER, AUGUST 18) UNDERESTIMATION WAS DUE TO FIRST-TIME CIRCUMSTANCE. WORK IS NOW CONTRACTED OUT. IN 3 OVEREXPOSURES, FAST-NEUTRON DOSIMETERS WERE ASTONISHINGLY MISLEADING, EVEN THEN THERE WAS ONLY 10% OVEREXPOSURE ON FILM BADGES. EXTREMITY-MONITORING HAS IN THE PAST PROVIDED DATA SO ERRATIC AS TO BE MEANINGLESS.

*INCIDENT, ACTUAL, NONREACTOR + *MONITOR, RADIATION, PERSONNEL + DOSIMETRY, GENERAL + FABRICATION + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, INSTRUMENT + RADIATION SAFETY AND CONTROL + SOURCE, NEUTRON

15-19102 ALSO IN CATEGORIES 13 AND 17
NUCLEAR FUEL SERVICES CITED FOR NON COMPLIANCE
NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 22 (OCTOBER 30, 1967)

(LETTER, AUGUST 28) CITATIONS INCLUDE NOT SAMPLING WHEN STACK MONITOR AND SPARE WERE INOPERATIVE, LOCKED DOORS NOT USED FOR CONTROLLING ACCESS, NEITHER POLYETHYLENE NOR STAINLESS-STEEL BOTTLES WERE FULLY TESTED. ASKS FOR INFORMATION ON EROSION OF LAGOON AND ON DELAY IN URINE-MONITORING RESULTS.

*INSPECTION AND COMPLIANCE + ANALYTICAL TECHNIQUE, URINE + FAILURE, ADMINISTRATIVE CONTROL + FUEL REPROCESSING + FUEL STORAGE + IMPOUNDMENT + MONITOR, RADIATION, STACK + NFS (NUCLEAR FUEL SERVICES) + SOURCE MATERIAL + STORAGE CONTAINER + TESTING

15-19103 ALSO IN CATEGORIES 13 AND 17
CALDWELL RD
NUMEC AIRBORNE EXPOSURE JUNE-JULY 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 23 (OCTOBER 30, 1967)

(LETTER, SEPT. 15) SEVERAL APOLLO-PLANT CRYSTAL OPERATORS WERE EXPOSED 1035 TO 44.5 MPC HRS. SINCE THEN THE URANYL NITRATE CRYSTALLIZATION HAS BEEN DONE IN GLOVE BOXES. THE RESPIRATORS USED WILSON R-520 FILTERS (WHICH TESTS SHOWED WERE EXCESSIVELY PENETRATED BY URANYL NITRATE CRYSTAL AEROSOL) AND A WILSON 43 CHEMICAL CARTRIDGE.

*FILTER EFFICIENCY + *INHALATION + *PERSONNEL EXPOSURE, RADIATION + AEROSOL PROPERTIES + AIRBORNE RELEASE + FILTER, HIGH EFFICIENCY

15-19129 ALSO IN CATEGORY 9
PENSKI J
OBSERVATION OF THE GAMMA-RAY BACKGROUND IN WARSAW WITH A SCINTILLATION STATIC MONITOR
CENTRALNE LABORATORIUM UCZONY RADIOLÓGICZNEJ, WARSAW
CLOR-50D +. 10 PAGES, 1966

SYSTEMATIC OBSERVATIONS OF GAMMA BACKGROUND DOSE RATES WERE CARRIED OUT DURING THE YEARS 1962-65 IN WARSAW. THE MEASUREMENTS WERE MADE BY MEANS OF A SCINTILLATION COUNTER (NAI/TI, 2-1/4 IN. X 2 IN.). THE DOSE RATE IS GREATER IN SUMMER THAN IN WINTER. RAINSHOWERS BRING THE TEMPORARY INCREASE OF GAMMA BACKGROUND, SOMETIMES TO ABOUT 80% OF THE MEAN VALUE. THE DOSE RATE FROM FISSION PRODUCTS AMOUNTED TO ABOUT 25% OF NATURAL BACKGROUND RADIATION IN THE AUTUMN 1962, TO ABOUT 70% IN THE SUMMER 1963, AND TO ABOUT 35% IN THE SUMMER 1964. THE CONTRIBUTION TO GAMMA BACKGROUND RADIATION FROM RADON DAUGHTERS CONTAINED IN THE ATMOSPHERE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19129 *CONTINUED*

AMOUNTED TO ABOUT 1.8% IN THE SUMMER 1964, AND TO ABOUT 5.5% IN THE AUTUMN AND WINTER 1964/65.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN, 54669

*DOSE MEASUREMENT, EXTERNAL + *SURVEY, RADIATION, ENVIRONMENTAL + COUNTER + GAMMA +
INSTRUMENTATION, SURVEILLANCE + MONITOR, RADIATION, ENVIRONMENTAL + POLAND

15-19141

OLIVARES MUNOZ MP

DETERMINATION OF THE INTEGRAL DOSE ABSORBED BY A PATIENT TREATED WITH TELECOBALT THERAPY BY THE ORBITRON
OF THE CENTRO DE ONCOLOGIA Y MEDICINA NUCLEAR OF THE HOSPITAL DE SAN JUAN DE DIOS IN MADRID, BASED ON A
STUDY OF THE RADIATION BEAM
HOSPITAL DE SAN JUAN DE DIOS, MADRID.

7 PAGES, 3 FIGURES, 6 REFERENCES, ACTA. ONCOL (MADRID), 3, PAGES 244-50 (JULY-DEC. 1964) IN SPANISH

REASONS FOR AND METHODS OF DETERMINING THE ABSORBED DOSE ARE EXPLAINED, AND THEORETICAL
ASPECTS OF DOSE ABSORPTION BY TISSUE ARE CONSIDERED. THE CONCEPT OF THE INTEGRAL ABSORBED
DOSE IS BASED ON THE PHYSICAL ACTION OF RADIATION IN A GIVEN VOLUME OF IRRADIATED MATERIAL.
FORMULAS ARE DERIVED SHOWING HOW THIS DOSE IS CALCULATED. IT WAS SHOWN THAT THE LOG OF THE
ABSORBED DOSE VARIED LINEARLY WITH THE SKIN AREA OVER THE RANGE 1,000 TO 12,000 RADS. THIS
RELATION DEMONSTRATES THAT THE ABSORBED DOSE INCREASES CONSIDERABLY AS THE AREA IRRADIATED
INCREASES (FROM 1000 RADS AT A 50 SQ. CM AREA TO 12,000 RADS AT A 400-SQ. CM AREA, WITH THE
CO-60 SOURCE).

COBALT + DOSE CALCULATION, EXTERNAL + DOSE MEASUREMENT, EXTERNAL

15-19155

GOLDSTEIN N + MILLER WG + TOCHILIN E

LITHIUM FLUORIDE FOR MEGARAD DOSIMETRY

NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIFORNIA

USNRDL-TR-67-56 +. 12 PAGES, 4 FIGURES, 1 REFERENCE, MAY 26, 1967

AN LIF DOSIMETER WAS DEVELOPED TO MEASURE GAMMA-RAY EXPOSURES BETWEEN 10(5TH) TO 2 X 10(9TH)
R. APPLICABILITY OF THE LIF AS A MEGARAD DOSIMETER DEPENDS ON THE FACT THAT A
THERMOLUMINESCENT GLOW PEAK AT A TEMPERATURE ABOUT 450 C HAS A NEGLIGIBLE RESPONSE TO
RADIATION BELOW EXPOSURES OF 10(5TH) R. A NUMBER OF CRYSTAL SPECIMENS WERE EXAMINED, AND
MOST HAD THE HIGH-TEMPERATURE GLOW PEAK WHICH COULD BE FOLLOWED AS A FUNCTION OF EXPOSURE FOR
THREE TO FIVE DECADES. SIMILAR RESPONSES OF THE HIGH-TEMPERATURE GLOW PEAK WERE FOUND FOR
THE DOSIMETER WHEN EXPOSED TO 2-MEV PULSED ELECTRONS OR THERMAL NEUTRONS.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, THERMOLUMINESCENCE + GAMMA + THERMAL NEUTRON

15-19159

ALSO IN CATEGORY 14

YOSHIDA Y + TATSUTA H + RYUFUKU H + KITANO K + FUKUDA S

A PRACTICAL METHOD FOR EVALUATING THE NEUTRON DOSE EQUIVALENT RATE

JAPAN, ATOMIC ENERGY COMMISSION, ATOMIC ENERGY RESEARCH INSTITUTE

6 PAGES, 5 FIGURES, 2 TABLES, 18 REFERENCES, JOURNAL OF NUCLEAR SCIENCE AND TECHNOLOGY 3(11), PAGE 473
THRU 478, (NOVEMBER 1966)

PRESENTS A PRACTICAL METHOD FOR FIELD MONITORING WITH SURVEY INSTRUMENTS. PERMITS EVALUATION
OF THE DOSE EQUIVALENT RATE FOR NEUTRONS OF UNKNOWN SPECTRUM BUT WITH ENERGY RANGING FROM
EPITHERMAL TO FAST. THE DETECTORS CONSIST OF A BF3 PROPORTIONAL COUNTER WITH PARAFFIN
MODERATORS 6.5 CM AND 1.0 CM THICK, SHEATHED IN 0.5-MM-THICK CO, AND A SCINTILLATION (ZNS AND
PLASTIC) COUNTER. THE ERROR IN EVALUATING THE DOSE-EQUIVALENT RATE BY THE METHOD WAS
CALCULATED TO BE AT MOST 60% FOR TYPICAL NEUTRON SPECTRA IN THE ENERGY RANGE FROM EPITHERMAL
TO 10 MEV.

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + NEUTRON

15-19161

ALSO IN CATEGORY 14

THE NATIONAL RADIATION ADVISORY COMMITTEE. REPORT TO THE PRIME MINISTER

14 PAGES, 6 FIGURES, 16 REFERENCES, AUSTRAL. J. SCI., 29, PAGE 59 THRU 72, (SEPTEMBER 1966)

INCLUDES REVIEWS AND BRIEF OUTLINES OF CURRENT SCIENTIFIC KNOWLEDGE ON THE EFFECTS OF IONIZING
RADIATION ON MAN, THE REVISIONS AND CONFIRMATIONS OF RADIATION PROTECTION STANDARDS AND
GUIDES, THE MEANS FOR MINIMIZING THE DEGREE OF RADIATION EXPOSURE INCURRED IN MASS MINIATURE
X RAY SURVEYS, FOR THE EARLY DETECTION OF TUBERCULOSIS, THE METHODS FOR SAFE AND PERMANENT
DISPOSAL OF RADIOACTIVE WASTES, AND THE STUDY OF THE PRECAUTIONS THAT ARE TO BE OBSERVED IN
RELATION TO VISITS BY NUCLEAR POWERED VESSELS. THE NATURE OF RADIOACTIVE FALLOUT FROM
NUCLEAR WEAPONS TESTS AND THE POSSIBLE CONSEQUENCES TO THE POPULATION WERE DEALT WITH IN
CONSIDERABLE DETAIL. THE OVERALL FALLOUT SITUATION IN RELATION TO CURRENT DATA IS REASSESSED
AND DISCUSSED.

*RADIATION PROTECTION, ORGANIZATION + AUSTRALIA + FALLOUT + MONITORING PROGRAM, ENVIRONMENTAL +
WASTE DISPOSAL, GENERAL + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19163

RACH K

BASIC PRINCIPLES FOR THE USE OF RADIOACTIVITY IN MEDICINE. A REVISION. VII. PRACTICAL APPLICATION OF RADIATION PROTECTION
UNIVERSITY OF BERLIN

7 PAGES, FIGURES, REFERENCES, ROENTGENPRAXIS 19, PAGE 89 THRU 95, (APRIL 1966) IN GERMAN

GIVES DATA ON THE BASIC PRINCIPLES FOR THE USE OF RADIOACTIVE MATERIAL IN MEDICINE. CHEMICAL RADIOPROTECTION IS OBTAINED THROUGH THE USE OF SULFHYDRYL COMPOUNDS, SUCH AS CYSTEINE AND CYSTEAMINE. ADMINISTERING OF SUCH COMPOUNDS REDUCES RADIATION EFFECTS BY 25 TO 50%. COMPLEXING AGENTS ARE THE MOST EFFECTIVE MEANS FOR DECORPORATION OF INGESTED OR INJECTED RADIOISOTOPES, IF GIVEN IMMEDIATELY AFTER EXPOSURE. SHIELDING STANDARDS ARE DISCUSSED. CRITERIA FOR MAXIMUM PERMISSIBLE DOSES ARE COVERED BRIEFLY. LABORATORY METHODS AND TECHNIQUES TO MINIMIZE HAZARDS IN HANDLING RADIOACTIVE MATERIALS ARE OUTLINED. THE USE OF WHOLE-BODY COUNTERS AND OTHER INSTRUMENTS FOR DETECTING SMALL AMOUNTS OF RADIOACTIVITY ARE DISCUSSED.

*RADIATION INJURY, TREATMENT OF + *RADIATION PROTECTION, CHEMICAL + GERMANY + SHIELDING

15-19164

STRUXNESS EG + SNYDER WS + COWSER KE

RADIATION STANDARDS FOR TRANSIENT EXPOSURES PROGRESS REPORT FOR JULY 1, 1966 TO JANUARY 1, 1967
OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-1827 +. 21 PAGES, 4 TABLES. APRIL 11, 1967

A NEW PROGRAM, BEGINNING THIS YEAR (1967) WITH SUPPORT FROM THE DIVISION OF PEACEFUL NUCLEAR EXPLOSIVES, WAS STARTED IN THE HEALTH PHYSICS DIVISION OF THE OAK RIDGE NATIONAL LABORATORY. THE PURPOSE IS TO EXAMINE THE TECHNICAL FACTS AND CRITERIA UNDERLYING THE EXISTING GUIDES AND STANDARDS RECOMMENDED BY ICRP AND OTHER RECOGNIZED AUTHORITIES FOR APPLICATIONS AND INTERPRETATIONS THAT MIGHT BE APPROPRIATE FOR PLOWSHARE SITUATIONS. PROGRESS IS REPORTED ON A PRELIMINARY PHASE OF THIS STUDY DEALING WITH INTERCOMPARISONS OF RECOMMENDED GUIDELINES FOR PROTECTION OF OCCUPATIONAL WORKERS AND MEMBERS OF THE GENERAL POPULATION.

AVAILABILITY - OAK RIDGE NATIONAL LAB., TENN.

*PLOWSHARE PROGRAM + *RADIATION SAFETY AND CONTROL + FEDERAL RADIATION COUNCIL +
ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + NCRP (NATIONAL COMMITTEE RADIATION PROTECTION)

15-19168

ALSO IN CATEGORY 9

SHEEN EM

DEVELOPMENT OF PORTABLE GAMMA SPECTROMETERS FOR SAFEGUARDS USE
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-SA-1023 + CONF-670622-1 +. 16 PAGES, FIGURES, MAY 31, 1967, PRESENTED AT 8TH ANNUAL MEETING OF THE INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT, WASHINGTON, D. C.

A PORTABLE GAMMA SPECTROMETER WAS DEVELOPED FOR DETERMINING U-235 INVENTORIES IN UNIRRADIATED REACTOR FUEL ELEMENTS. THE INSTRUMENT USES SINGLE-CHANNEL ANALYSIS AND MAY BE USED IN OTHER FIELDS OF GAMMA SPECTROMETRY. PAPER DISCUSSES THE SPECIAL CONSIDERATIONS FOR PORTABLE-INSTRUMENT DESIGN AND DESCRIBES THE INSTRUMENT DEVELOPED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *SPECTROMETRY, GAMMA + CRITICALITY SAFETY + URANIUM

15-19178

ALSO IN CATEGORY 9

FRIEND PC

NEUTRON SENSITIVE CRITICALITY DETECTOR

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-517 + CONF-661020-8 +. 7 PAGES, TABLES, OCTOBER 27, 1966, PRESENTED AT 13TH ANNUAL NUCLEAR SCIENCE SYMPOSIUM, BOSTON, MASS.

A SOLID-STATE NEUTRON-MEASURING AND ALARM CIRCUIT IS DESCRIBED. THE SYSTEM IS MORE SENSITIVE TO THE GAMMA-MEASURING SYSTEMS AND EXCEEDS THE REQUIREMENTS OF APPLICABLE FEDERAL CODES. THE SYSTEM USED A BF3 DETECTOR AND CAN DETERMINE THE PERIOD AS WELL AS THE LEVEL OF THE NEUTRON SOURCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *INSTRUMENTATION, PULSE + INSTRUMENTATION, GENERAL + NEUTRON

15-19187

NEWTON D + HOLMES A

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19187 *CONTINUED*

A CASE OF ACCIDENTAL INHALATION OF ZINC-65 AND SILVER-110M
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
10 PAGES, 5 FIGURES, 10 REFERENCES, RADIATION RESEARCH 29(3), PAGES 403-412 (1966)

DESCRIBES THE METHODS, MEASUREMENTS, AND RESULTS OF A 2-YR STUDY OF THE BEHAVIOR OF ZN-65 AND AG-110 IN A MAN WHO ACCIDENTALLY INHALED DUST FROM AN EXPERIMENTAL HOLE IN D100. LUNG CLEARANCE FOR AG WAS COMPLETED IN A FEW DAYS, BUT ZN WAS SLOWER. BOTH LOCALIZED IN THE LIVER. 27% OF THE ZN HAD A BIOLOGICAL HALF-LIFE OF 18 DAYS, BUT 73% HAD A 435-DAY HALF-LIFE. MOST OF THE AG HAD 1-DAY HALF-LIFE, BUT 15% HAD A HALF-LIFE OF 52 DAYS. 20% OF THE DAILY EXCRETION OF ZN WAS URINARY, BUT AG WAS EXCRETED IN THE FECES ONLY.

*BIOLOGICAL CONCENTRATION, MAN + *DOSE MEASUREMENT, INTERNAL + *RADIOISOTOPE + COUNTER, WHOLE BODY + INCIDENT, EXPOSURE + INHALATION + MEASUREMENT, GENERAL + RADIOBIOLOGY + SILVER + ZINC

15-19196 ALSO IN CATEGORY 17

LONGOOD RJ
RADIATION ACCIDENTS - THE PUBLICS RIGHT TO KNOW
DEPARTMENT OF HEALTH
5 PAGES, 1 TABLE, AMER. J. PUBLIC HEALTH 56 (10) PAGE 1751 THRU 1755, (OCT. 1966)

32 RADIATION INCIDENTS WERE INVESTIGATED BY N.Y. HEALTH DEPT. IN UPSTATE N.Y., 1958-65, INCLUDING 2 LOST SOURCES (DISCUSSED). ARTICLE DISCUSSES HOW TO INFORM THE PUBLIC DURING AN EMERGENCY WITHOUT CREATING PANIC OR BAD FEELING. (FALSE ALARMS DEPEND ON COURSE OF EVENTS, BUT WRITER FEELS ONE SHOULD BE REPORTED WHEN PRESS ASKS ABOUT IT). RULES IN DEALING WITH PRESS - (1) DO NOT DENY ACCESS TO FACTS, LEST REPORTERS PICK UP GARBLE, (2) GIVE REPORTER CREDIT FOR THINKING AND TELL A COMPLETE STORY, (3) DO NOT BE BITTER IF YOUR VERSION IS NOT PRINTED, (4) TELL THE TRUTH, DO NOT BLUFF.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + INCIDENT, ACTUAL, GENERAL + SOURCE, RADIATION, LOST

15-19216 ALSO IN CATEGORY 16

NAGASAWA K + URAKUBO G + KIDO Y + IKEBUCHI H
SR-90 IN STOCK RAINWATER FOR DRINKING SAMPLED AT SOME LIGHTHOUSES DURING 1963
NATIONAL INST. OF HYGIENIC SCIENCES, TOKYO
3 PAGES, EISEI SHIKENSHO HOKOKU 82, PAGE 107 THRU 109, (OCTOBER 1964), IN JAPANESE

DATA ON THE CONCENTRATION OF SR-90 IN STOCK RAINWATER FOR DRINKING WAS COLLECTED FROM 7 LIGHTHOUSES IN VARIOUS PARTS OF JAPAN DURING APRIL 1963 TO MARCH 1964.

*JAPAN + *SAMPLING + *STRONTIUM + *WATER, DRINKING + FALLOUT + RAINOUT + WASHOUT

15-19225 ALSO IN CATEGORY 14

DOUGHERTY TF
RESEARCH IN RADIOBIOLOGY SEMI-ANNUAL REPORT OF PROGRESS IN THE INTERNAL IRRADIATION PROGRAM
UTAH UNIV., SALT LAKE CITY. RADIOBIOLOGY DIVISION
COO-119-235 +. 144 PAGES, TABLES, SEPTEMBER 30, 1966

THIS PROGRESS REPORT PRESENTS RESULTS OF EXPERIMENTS WITH INJECTION OF RA-226, PU-239, RA-228, TH-228, SR-90, RA-224, AND AM-241 INTO DOGS. DOSIMETRY CALCULATIONS ARE DISCUSSED. IN ADDITION, OTHER STUDIES ARE GIVEN ON PLUTONIUM (IV) REACTION IN THE HUMAN BLOOD SYSTEM, POTASSIUM STUDIES IN HUMANS, HALF-TIMES OF CS-137 IN PREGNANT WOMEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIOBIOLOGY + AMERICIUM + DOSE + DOSE CALCULATION, INTERNAL + PLUTONIUM + RADIUM + STRONTIUM + TRACER, RADIOACTIVE

15-19226

HASHIZUME T + KATO Y + MARUYAMA T + SHIRAGAI A + MARUYAMA S + TAKIZAWA M
ESTIMATION OF GENETICALLY SIGNIFICANT DOSE DUE TO THERAPEUTIC RADIATION IN JAPAN
JAPAN. NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES
NSJ-TR-65 +. 12 PAGES, FIGURES, TABLES, TRANSLATED FROM NIPPON IGAKU HOSHASSEN GAKKAI ZASSHI 25, PAGE 192 THRU 199, (1965)

A CONTRIBUTION OF DIAGNOSTIC X-RAYS TO THE GENETICALLY SIGNIFICANT DOSE FOR JAPANESE WAS ESTIMATED IN 1960 TO BE 38.6 MRAD/YR PER NEWBORN, ACCORDING TO THE STUDY MADE BY A RESEARCH GROUP OF THE MINISTRY OF EDUCATION. THE PRESENT STUDY INDICATES THE GENETICALLY SIGNIFICANT DOSE DUE TO RADIATION THERAPY TO BE 0.87 MRAD/YR, EQUIVALENT TO ABOUT 2% OF THAT DUE TO X-RAY DIAGNOSTIC EXAMINATIONS REFERRED TO ABOVE. OF THE GENETICALLY SIGNIFICANT DOSE, 62% WAS CONTRIBUTED BY MALE AND 38% BY FEMALE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + DOSE + DOSE CALCULATION, EXTERNAL + JAPAN + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19227
HARRIS CC
QUANTIFICATION OF SCAN RECORDS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-P-1858 + CONF-651210-1 +. 13 PAGES, REFERENCES, 1965, PRESENTED AT SYMPOSIUM ON COMPUTERS AND SCANNING, NEW ORLEANS

THE INFORMATION OBTAINED BY USE OF MOVING-DETECTOR AND STATIONARY SCANNERS IS CONSIDERABLY MORE QUANTITATIVE THAN POPULARLY BELIEVED OVER THE LAST DECADE. THE CLINICAL USEFULNESS OF SCAN INFORMATION CAN BE GREATLY ENHANCED BY PROPER STORAGE OF THESE DATA FOR SUBSEQUENT RETRIEVAL AND MANIPULATION. THE USE OF COMPUTERS PROVIDES A MEANS OF STORAGE, RETRIEVAL, AND MANIPULATION. SIMPLER METHODS ARE ALSO POSSIBLE AND VERY USEFUL. THE INTELLIGENT USE OF SCAN INFORMATION REQUIRES THE MAXIMUM POSSIBLE USE OF THE QUANTITATIVE ASPECT, AND, NO MEANS, HOWEVER SIMPLE, SHOULD BE OVERLOOKED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, INTERNAL + ORNL (OAK RIDGE NATIONAL LABORATORY) + RADIOBIOLOGY

15-19229
UTILIZATION OF A LOW-LEVEL WHOLE BODY COUNTING FACILITY IN THE MEASUREMENT OF ELECTROLYTE COMPOSITION AND METABOLISM IN MAN. COMPREHENSIVE REPORT, 1964-1966
VANDERBILT UNIV., NASHVILLE, TENN. DEPT OF MEDICINE
ORD-2401-9 +. 29 PAGES, OCTOBER 27, 1966

THE PRINCIPAL OBJECTIVES WERE - (A) RESEARCH ON THE MEDICAL APPLICATIONS OF THE WHOLE BODY COUNTER UTILIZING APPROPRIATE RADIOISOTOPES AND ISOTOPICALLY LABELED COMPOUNDS IN THE STUDY OF HUMAN SUBJECTS AND (B) TRAINING GRADUATE STUDENTS IN PHYSICS, ELECTRICAL ENGINEERING, MEDICINE, AND RESIDENT PHYSICIANS AND FELLOWS IN ALL ASPECTS OF NUCLEAR MEDICINE. RESEARCH ACCOMPLISHED IN IRON AND VITAMIN B-12 METABOLISM, BODY COMPOSITION, REVISION AND IMPROVEMENT OF COUNTER GEOMETRY, COUNTER EFFICIENCY IN COUNTING VERY LOW LEVELS OF RADIOACTIVITY, AND DOSIMETRY STUDIES IN VARIOUS ORGANS AND TISSUE UNDER VARIOUS CLINICAL CONDITIONS IS CITED IN SECTION 4, WHICH LISTS THE PUBLICATIONS ASSOCIATED WITH THE CONTRACT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, INTERNAL + BIOMEDICAL + INSTRUMENTATION, RADIATION MONITORING

15-19234
LADU M + PELLICIONI M + ROTONDI E
MEASUREMENT OF SKYSHINE NEUTRONS AROUND THE FRASCATI SYNCHROTRON
COMITATO NAZIONALE PER L ENERGIA NUCLEARE
ORNL-TR-890 +. 2 PAGES, 7 REFERENCES, FEBRUARY 1965. TRANSLATED FOR OAK RIDGE NATIONAL LAB., TENN., FROM ENERGIA NUCL. (MILAN), 12, PAGES 98-9 (FEB. 1965)

MEASURED SKYSHINE NEUTRONS AROUND THE FRASCATI SYNCHROTRON WITH A BF₃ COUNTER IN A SPHERICAL PARAFFIN WELL AT DISTANCES FROM THE CENTER OF THE ACCELERATOR BETWEEN 50 AND 300 CM. THE NEUTRON FLUX FOR THE DISTANCE UNDER CONSIDERATION DECREASES APPROXIMATELY ACCORDING TO THE LAW $\Phi \propto 1/r^2$ WHERE r IS THE DISTANCE FROM THE MACHINE AND K IS A CONSTANT WHICH DEPENDS UPON THE OPERATING CONDITIONS OF THE ACCELERATOR AND THE GEOMETRY OF THE SHIELDING AROUND IT. SINCE, UNDER THE BEST OPERATING CONDITIONS OF THE SYNCHROTRON, THE MAXIMUM FLUX MEASURED FOR NEUTRONS OF THIS ENERGY CORRESPONDS TO ABOUT 30% OF THE MAXIMUM PERMISSIBLE DOSE, IT IS CONCLUDED THAT THE SHIELDING OFFERS ACCEPTABLE SAFETY CONDITIONS AT PRESENT.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 23RD ST., CHICAGO, ILL. 60616, \$1.10 COPY, \$0.80 MICROFICHE

*ACCELERATOR + DOSIMETRY, GENERAL + ITALY + NEUTRON

15-19235
KIMEL LR
DOSIMETRY AND RADIATION PROTECTION. COLLECTION NO. 4
ATOMIZDAT, MOSCOW
AEC-TR-6719 +. 124 PAGES, 1965, TRANSLATION OF 1115 VOP. DOZIMETR. ZASHCH. IZLUECHENII, MOSKOV. INZH. FIZ. INST. SB. STATEI, NO. 4, 1965.

CONTAINS A COLLECTION OF PAPERS ON NEUTRON SPECTROMETRY, SHIELDING, ENERGY DISTRIBUTION, GAMMA SPECTROMETRY, BETA MEASUREMENT, DOSE CALCULATIONS FOR ELECTRON ACCELERATORS, AND SITING OF NUCLEAR REACTORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + BETA EMITTER + GAMMA + NEUTRON + SITING, REACTOR + SPECTROMETRY, BETA + SPECTROMETRY, GAMMA + SPECTROMETRY, NEUTRON + UNION OF SOVIET SOCIALIST REPUBLICS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19236
ZEL CHINSKII M. + ZHARNOVETSKII K
DIFFERENTIAL RECOMBINATION CHAMBER
INSTITUTE OF NUCLEAR RESEARCH, WARSAW
BNL-TR-105 +. 18 PAGES, 1966

THE CURRENT-VOLTAGE CHARACTERISTIC AT THE IONIZATION CHAMBER NORMALLY DEPENDS ON THE LINEAR ENERGY LOSS OF PARTICLES PRODUCING IONIZATION. THIS DEPENDENCY IS USED IN THE RECOMBINATION CHAMBERS TO DETERMINE THE QUALITY FACTOR (QF) OF THE MIXED PENETRATING RADIATION. THE DIFFERENTIAL RECOMBINATION CHAMBER HAS THE FOLLOWING ADVANTAGES - (1) THE CHAMBER PROVIDES A DIRECT MEASUREMENT OF THE DOSE EQUIVALENT OF THE MIXED PENETRATING RADIATION OF ANY SPECTRUM AND COMPOSITION. (2) IT PROVIDES A MEASUREMENT CONTINUITY. (3) IT MAKES POSSIBLE THE CARRYING OUT FIELD MEASUREMENTS WHICH ARE CHANGING QUALITATIVELY AND SPATIALLY WITH TIME. DISADVANTAGES ARE THE NEED FOR A FIXED VOLUME RATIO BETWEEN SECTIONS OF THE CHAMBER, RELATIVELY LOW SENSITIVITY, AND DIFFICULTY IN CONDUCTING MEASUREMENTS IN DOSE FIELDS WITH LARGE SPATIAL INHOMOGENEITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + INSTRUMENTATION, RADIATION MONITORING + POLAND

15-19246 ALSO IN CATEGORIES 14 AND 17
U OF VIRGINIA SUPPLIES ADDITIONAL INFORMATION ON WASTE DISPOSAL AND RADIATION LEVELS AT PROPOSED 2 MWT UNIVERSITY OF VIRGINIA, SCHOOL OF ENGINEERING AND APPLIED SCIENCE, CHARLOTTESVILLE
5 PAGES, 1 FIGURE, OCTOBER 20, 1967, DOCKET NO. 50-62

IN RESPONSE TO AEC QUESTIONS - (1) MENS ROOM IS NOW DESIGNATED A RADIATION AREA, AS LEVEL WILL BE ABOUT 10 MR/HR. (2) DEMINERALIZER-ROOM HIGH-RADIATION ALARM AND BRIDGE-MONITOR SETPOINTS WILL BE RAISED TO PREVENT SPURIOUS SCRAMS AND ALARMS. EXPECTED LEVELS ARE 100 MR/HR AND 10, RESPECTIVELY. WASTE-DISPOSAL SYSTEM DESCRIBED. WASTE TRAVELS THROUGH TWO TANKS, (INSTALLED MAY 67) FOR SETTLING AND DILUTION, TO A POND WHOSE OUTLET IS CONTROLLED. THE POND BOTTOM NOW CONTAINS LONG-LIVED ACTIVITY FROM HAVING PREVIOUSLY RECEIVED WASTE DIRECTLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POWER UPRATING + *REACTOR SAFETY SYSTEM + *TECHNICAL SPECIFICATIONS + *WASTE DISPOSAL, LIQUID + AEC QUESTION + INSTRUMENTATION, RADIATION MONITORING + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH

15-19251 ALSO IN CATEGORIES 1 AND 17
WITTENBROCK NG
NUCLEAR SAFETY IN THE PLUTONIUM RECYCLE PROGRAM
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
BNWL-SA-1345 + CONF-670713-2 +. 24 PAGES, 7 FIGURES, 4 TABLES, 11 REFERENCES, JULY 3, 1967

DISCUSSION OF PLUTONIUM FUEL EFFECT ON REACTOR SAFETY RELATIVE TO PLUTONIUM VS URANIUM-FISSION-PRODUCT HAZARDS. GIVES ALLOWABLE CONCENTRATION IN AIR OF VARIOUS SUBSTANCES, AND MAXIMUM PERMISSIBLE BODY BURDENS FOR PU AND U ISOTOPES. GIVES EXPERIENCE WITH FABRICATION AND USE OF PU. DESCRIBES CONSTRUCTION OF A GLOVE BOX FOR PU WORK. PLUTONIUM-RECYCLE TEST REACTOR, 2 FUEL-FAILURE INCIDENTS, AND EXPERIENCE CITED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE + *PLUTONIUM + GLOVE BOX + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, TEST + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

15-19256 ALSO IN CATEGORY 14
ATOMIC BOMB CASUALTY COMMISSION ANNUAL REPORT, JULY 1, 1964-JUNE 30, 1965
ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA, JAPAN
ABCC-64-65 +. 130 PAGES, 1965, IN ENGLISH AND JAPANESE

CONTAINS ABSTRACTS OF MANY STUDIES OF THE INDIVIDUALS WHO MAY HAVE BEEN AFFECTED BY THE NUCLEAR WEAPONS DETONATED AT HIROSHIMA AND NAGASAKI. ANCILLARY ACTIVITIES OF THE ABCC ARE ALSO COVERED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + JAPAN + NUCLEAR DETONATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19257
BENDER MA + GOOCH PC
SOMATIC CHROMOSOME ABERATIONS INDUCED BY HUMAN WHOLE-BODY IRRADIATION. THE RECUPLEX CRITICALITY ACCIDENT BIOLOGY DIVISION, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENNESSEE
15 PAGES, 4 TABLES, 29 REFERENCES, RADIATION RESEARCH 29(4), PAGE 568 THRU 581, (DECEMBER 1966)

CONCERNS FREQUENCIES OF CHROMOSOME ABERATIONS IN SAMPLES OF PERIPHERAL LEUKOCYTES OBTAINED PERIODICALLY FROM THREE MEN EXPOSED TO ACUTE, WHOLE-BODY, MIXED GAMMA RAY AND FISSION-NEUTRON RADIATION. SAMPLES WERE OBTAINED 4 HOURS AFTER THE IRRADIATION AND CONTINUED AT INTERVALS FOR 2 YEARS. DOSE ESTIMATES RANGED FROM 12 RADS FOR THE LEAST EXPOSED MAN TO 47 RADS FOR THE MOST HEAVILY EXPOSED. ABERATIONS OF THE EXPECTED TYPES WERE SEEN IN THE FIRST SAMPLES IN YIELDS CONSISTENT WITH THE PHYSICAL-DOSE ESTIMATION. IT IS SUGGESTED THAT MEASUREMENT OF CHROMOSOME-ABERRATION FREQUENCIES IN THE CASE OF ACUTE WHOLE-BODY EXPOSURES, MAY BE A PRACTICAL METHOD OF BIOLOGICAL DOSIMETRY FOR QUICK BALL-PARK ESTIMATES.

*RADIATION INJURY, TREATMENT OF + ACCIDENT, CRITICALITY + HANFORD SITE + RADIOBIOLOGY

15-19258
PERRY KE
THERMOLUMINESCENT DOSIMETRY
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
3 PAGES, 7 FIGURES, 10 REFERENCES, NUCLEAR ENGINEERING 11(126), PAGE 875 THRU 877, (NOVEMBER 1966)

REVIEWS THE STATE OF DEVELOPMENT AND APPLICATION OF THERMOLUMINESCENT COSIMETRY. THE PHENOMENON AND THE EQUIPMENT ARE DESCRIBED.

DOSIMETRY, GENERAL + DOSIMETRY, THERMOLUMINESCENCE + UNITED KINGDOM

15-19259
SEIGEL DG
FREQUENCY OF LIVE BIRTHS AMONG SURVIVORS OF HIROSHIMA AND NAGASAKI ATOMIC BOMBINGS
ATOMIC BOMB CASUALTY COMMISSION, NAGASAKI, JAPAN
11 PAGES, 6 TABLES, 5 REFERENCES, RADIATION RESEARCH 28, PAGE 278 THRU 288, (JUNE 1966)

VITAL-STATISTICS DATA THROUGH 1961 WERE CHECKED FOR THE LIVE-BIRTH EXPERIENCE OF NEARLY 24,000 PERSONS IN NAGASAKI AND HIROSHIMA, AND COMPARISONS WERE MADE AMONG GROUPS AT VARIOUS DISTANCES FROM THE ATOMIC BOMB IN 1945. AMONG MARRIED PEOPLE IN 1945, THE PERCENTAGE WITH NO BIRTHS FROM 1945 TO 1961 WAS THE SAME IN EACH DISTANCE GROUP. THIS WAS ALSO TRUE FOR THE SUBGROUPS WITH NO BIRTHS PREVIOUS TO 1945. AMONG THOSE WITH FIRST MARRIAGE FROM 1946 TO 1950, THE PERCENTAGE WITH NO BIRTHS UP TO 1961 DID NOT SHOW ANY EXTRAORDINARY VARIATION BY DISTANCE FROM THE BOMB. THE SAME IS TRUE FOR PERSONS WITH FIRST MARRIAGE FROM 1946 TO 1950. THE RATIO OF LIVE BIRTHS TO PERSON-YEARS OF MARRIAGE DURING 1946 TO 1961 WAS UNRELATED TO COMPARISON GROUP. NO INFORMATION IS AVAILABLE TO CORRELATE THE EFFECT OF BIRTH-CONTROL PRACTICES ON THESE DATA.

*RADIATION EFFECT + JAPAN + NUCLEAR DETONATION + RADIATION INJURY, TREATMENT OF

15-19262 ALSO IN CATEGORY 14
KONIG LA
THE LIMITATION OF THE SURFACE CONTAMINATION ON HANDLING UNPROTECTED RADIOACTIVE SUBSTANCES
1 PAGE, ATOMPRAXIS 12(11), PAGE 555, (1966)

THE PRESENT STATUS OF GUIDELINES FOR SURFACE CONTAMINATION IS UNSATISFACTORY. LIMIT VALUES LISTED ARE IN THE RANGE 10(-4TH) TO 10(-6TH) MICROCURIE/SQ. CM. FOR ALPHA EMITTERS AND 10(-3RD) TO 5 X 10(-5TH) MICROCURIE/SQ. CM. FOR BETA EMITTERS. CLASSIFICATIONS ARE BASED ON INACTIVE AND ACTIVE ZONES (TOTAL QUANTITY OF ACTIVITY PRESENT) AS WELL AS ON CLOTHING AND SKIN. IN SOME CASES, THE TOXICITY OF THE RADIONUCLIDES HAS ALSO BEEN TAKEN INTO ACCOUNT. EFFORTS ARE IN PROGRESS TOWARD THE ESTABLISHMENT OF NEW GUIDELINE VALUES.

ALPHA EMITTER + GERMANY + SURFACE CONTAMINATION

15-19264 ALSO IN CATEGORY 14
PROGRESS REPORT NO. 26, HAZARDS CONTROL (SEPTEMBER-DECEMBER 1966) AND INDEX TO HAZARDS CONTROL PROGRESS
REPORTS NOS. 24 THROUGH 26
CALIFORNIA UNIVERSITY, LAWRENCE RADIATION LAB., LIVERMORE, CALIFORNIA
UCRL-50,007-66-2 +. 55 PAGES, 27 FIGURES, 15 TABLES, 44 REFERENCES, 1966

THE STUDIES INCLUDE THE FOLLOWING SUBJECTS - (1) PLUTONIUM SURVEY WITH X-RAY DETECTORS, (2) AN ENERGY-INDEPENDENT FOIL-ACTIVATION SYSTEM FOR RAPID ASSESSMENT OF PULSED NEUTRON DOSE, (3) ACTIVATED-SILVER PULSED-NEUTRON DETECTOR, (4) POCKET-DOSIMETER RESPONSE IN PULSED RADIATION FIELDS, (5) ENERGY DEPENDENCE OF COBALT GLASS, (6) USE OF THE ALPHA-BETA RATIO TO REDUCE AIR FILTER PAPER DECAY PERIODS, (7) PROTON-RECOIL-TRACK COUNTING BY TELEVISION, (8) STRIPCOAT REMOVAL OF ALPHA CONTAMINATION OF FLOORS, (9) EFFECT OF HUMIDITY ON THE CAPACITY OF CHARCOAL TO ABSORB METHYL IODIDE. OTHER REPORTS ARE ON NONNUCLEAR SAFETY PROBLEMS.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19264 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + *DOSIMETRY, GENERAL + *SURVEY, RADIATION, GENERAL + ACTIVATION + ALPHA EMITTER +
CONTAMINATION + DOSE MEASUREMENT, EXTERNAL + GAMMA + NEUTRON + PLUTONIUM + X-RAY

15-19267 ALSO IN CATEGORY 14

RADIUM AND MESOTHORIUM POISONING AND DOSIMETRY AND INSTRUMENTATION TECHNIQUES IN APPLIED RADIOACTIVITY.

ANNUAL PROGRESS REPORT

MASSACHUSETTS INST. OF TECH., CAMBRIDGE

MIT-952-3 +. 484 PAGES, 129 FIGURES, 58 TABLES, MAY 1966

COVERS WORK AT MIT UNDER CONTRACT AT(30-1)-952 WITH THE ATOMIC ENERGY COMMISSION. STUDIES
INCLUDE - (A) RADIUM AND MESOTHORIUM TOXICITY IN HUMAN BEINGS (STUDY OF RADIUM-DIAL PAINTERS
AND OTHER EXPOSED INDIVIDUALS), (B) THE METABOLISM OF INTRAVENOUSLY ADMINISTERED RADIUM AND
THORIUM IN HUMAN BEINGS, AND THE RELATIVE ABSORPTION FROM THE HUMAN GASTROINTESTINAL TRACT OF
RADIUM AND THORIUM IN SIMULATED RADIUM DIAL PAINTS, (C) GENERAL RADIOBIOLOGY, (D) NUCLEAR
PHYSICS, (E) INSTRUMENTATION TECHNIQUES, AND (F) NUCLEAR GEOCHEMISTRY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + CESIUM + DOSE + DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL +
GEOLOGICAL CONSIDERATION, GEOCHEMICAL + POTASSIUM + RADIOBIOLOGY + RADIUM + THORIUM

15-19274 ALSO IN CATEGORY 17

14 REM BETA DOSE TO OPERATOR CHECKING OFF-GAS SYSTEM RUPTURE DIAPHRAGM

CONSUMERS POWER CO., CHARLEVOIX, MICHIGAN

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 22 THRU 24, (NOV. 6, 1967), DOCKET NO. 50-155

(LETTER, SEPT. 25) ON SEPT. 12, 3 PERSONS CHECKED (AND BAGGED) THE LEAKY DIAPHRAGM. DOSE
RATES WERE 15 R/HR CONTACT AND 5 AT 18 IN., WITH NO INCREASE DUE TO BETA. WORK WAS
TIME-LIMITED TO 1.5 MIN. DOSIMETER READING WAS DOUBLED AS CUSTOMARY, BUT FILM BADGES SHOWED
ONE MAN RECEIVED 14 REMS BETA, WITH A BETA-TO-GAMMA RATIO OF 7.0. OTHERS WERE ABOUT A RATIO
OF 2, INCLUDING 3 TEST FILMS. SINCE WORKER WAS WEARING A 4.9-MM PLEXIGLAS-LENSE FULL-FACE
MASK, HIS EYE-LENSE DOSE WAS NOT EXCEEDED. A PUFF OR A FAULTY FILM MAY BE BLAMED, BUT HE
WILL BE CREDITED WITH DOSE.

*BETA EMITTER + *PERSONNEL EXPOSURE, RADIATION + *REACTOR OFFGAS + BIG ROCK POINT + DOSIMETRY, GENERAL +
INSTRUMENTATION, ABNORMAL INDICATION + PERSONNEL PROTECTIVE DEVICE + REACTOR, BOILING WATER

15-19275 ALSO IN CATEGORY 17

MONSANTO RESEARCH CORP. CITED FOR NON COMPLIANCE, AUG. 10, 1967

MONSANTO RESEARCH CORP., ST. LOUIS, MO.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 24 AND 25, (NOVEMBER 6, 1967)

FOLLOWING AN APRIL AND JUNE INSPECTION, A CITATION WAS ISSUED FOR (1) SIX EMPLOYEES RECEIVED
1ST-QUARTER 1967 WHOLE-BODY DOSES GREATER THAN 3 REMS, (2) SURVEYS WERE INADEQUATE IN PU-BE
SOURCE FABRICATION. THIS APPEARS TO INDICATE A LACK OF A ADMINISTRATIVE CONTROL. 5
EMPLOYEES WERE PREVIOUSLY OVEREXPOSED IN 1965 IN FABRICATING HIGH-ACTIVITY NEUTRON SOURCES.

*FAILURE, ADMINISTRATIVE CONTROL + *PERSONNEL EXPOSURE, RADIATION + *SOURCE, NEUTRON + PLUTONIUM +
SPECIAL NUCLEAR MATERIAL + SURVEY, RADIATION, GENERAL

15-19281 ALSO IN CATEGORIES 13 AND 17

MMM REPORTS TECHNICAL OVEREXPOSURE TO 4 DURING HOT CELL CLEANUP

MINNESOTA MINING AND MANUFACTURING CO.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 14) OVEREXPOSURES TO SR-90 (4.8, 12, 53, AND 17.2 TIMES MPC) WAS LESS THAN 2.7
HR AUG. 18-24. EACH WAS IN RESPIRATOR AND PROTECTIVE CLOTHING. THE WORK INVOLVED OPENING
HOT-CELL DOORS TO REMOVE CONTAMINATED MATERIAL FOR WASTE DISPOSAL. LETTER OF MAY 26, 1967,
REPORTED SIMILAR INCIDENTS AND POINTED OUT HOT-CELL CLEANUP WILL BE A QUARTERLY PROBLEM. WE
FIRMLY BELIEVE THAT ACTUAL EXPOSURES ARE NOT TAKING PLACE BECAUSE OF PROTECTIVE EQUIPMENT,
AND THAT THESE REPORTS CONCERN TECHNICAL OVEREXPOSURE DUE TO 10 CFR 20.103 DEFINITION OF
EXPOSE.

*HOT CELL + *PERSONNEL EXPOSURE, RADIATION + *PERSONNEL PROTECTIVE DEVICE + *REGULATION, AEC +
*WASTE DISPOSAL, SOLID + AIRBORNE RELEASE + INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) +
STRONTIUM

15-19290 ALSO IN CATEGORY 14

POLIKARPOV GG

RADIOECOLOGY OF AQUATIC ORGANISMS. THE ACCUMULATION AND BIOLOGICAL EFFECT OF RADIOACTIVE SUBSTANCES.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19290 *CONTINUED*

314 PAGES, 36 FIGURES, 68 TABLES, REFERENCES, 1966, REINHOLD BOOK DIVISION, NEW YORK, TRANSLATED FROM RUSSIAN

TRANSLATION OF G. G. POLIKARPOVS BOOK, ORIGINALLY PUBLISHED IN 1964 AND REVISED AND ENLARGED IN 1965. THE BOOK IS DIVIDED INTO - I INTRODUCTION (THE SUBJECT MATTER AND SCOPE OF MARINE RADIOECOLOGY), II ACCUMULATION OF RADIOACTIVE SUBSTANCES BY MARINE ORGANISMS, III THE EFFECT OF NUCLEAR RADIATION ON MARINE ORGANISMS, IV CONCLUSIONS.

AVAILABILITY - REINHOLD BOOK DIVISION, NEW YORK

*ECOLOGICAL CONSIDERATION + OCEAN AND SEA + RADIOBIOLOGY + RADIOISOTOPE + UNION OF SOVIET SOCIALIST REPUBLICS

15-19294

TROSHEV T

CHANGE IN THE FIELD OF SLOW NEUTRONS AND GAMMA RAYS IN THE PRESENCE OF A PARAFFIN BLOCK
8 PAGES, 9 FIGURES, REFERENCES, IZV. FIZ. INST. ANEB, BULG. AKAD. NAUK., 15, PAGE 11 THRU 18, (1966), IN RUSSIAN

STUDIED THE CHANGE IN THE FLUXES OF SLOW NEUTRONS AND GAMMA RAYS IN THE PRESENCE OF A PARAFFIN BLOCK IMITATING THE BODY OF THE EXPERIMENTER. THE MEASUREMENTS MADE OF THE NUMBERS OF SLOW NEUTRONS AND THE DOSES OF GAMMA RAYS IN THE ARTIFICIAL FORMS OF PARAFFIN, SIMILAR TO THOSE IN THE HUMAN BODY, SHOW MAXIMA WHICH APPEAR AT A DISTANCE OF 2 CM BETWEEN THE WALLS.

*DOSIMETRY, GENERAL + BULGARIA + GAMMA + NEUTRON

15-19299

ALSO IN CATEGORY 14

HANSON WC

CESIUM-137 BODY BURDENS IN ALASKAN ESKIMOS DURING THE SUMMER OF 1965
BIOL. DEPT., BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
2 PAGES, 2 TABLES, 8 REFERENCES, SCIENCE 153(3735), PAGE 525 AND 526, (JULY 29, 1966)

CS-137 BODY BURDENS OF ANAKTUVUK PASS, ALASKA, RESIDENTS DURING THE SUMMER OF 1965 WERE ABOUT 30 PERCENT LESS THAN DURING 1964. LOWER AMOUNTS OF CS-137 IN THE PEOPLE REFLECTED A SIMILAR DECREASE OF THIS ISOTOPE IN CARIBOU FLESH, WHICH SERVES AS THE PRINCIPAL FOOD.

*BIOLOGICAL CONCENTRATION, MAN + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + CESIUM + FALLOUT

15-19425

ANDREEV SV

THE ACCUMULATION OF LONG-LIVED DAUGHTER PRODUCTS OF RADON IN THE HUMAN BODY DUE TO DRINKING RADON WATER
CENTRAL INSTITUTE OF BALNEOLOGY AND PHYSIOTHERAPY, MOSCOW
TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 7 PAGES, 1 FIGURE, 3 TABLES, 10 REFERENCES, HYGIENE AND SANITATION, PAGE 42-48, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE PAPER DEALS WITH ASSESSMENT OF THE POSSIBILITY OF ACCUMULATION IN HUMAN BODY OF LONG-LIVED DAUGHTER PRODUCTS OF RADON AS A RESULT OF DRINKING RADON WATERS. ANALYSIS OF THE DATA SHOWS THAT SUCH AN ACCUMULATION OF ISOTOPES IS QUITE INSIGNIFICANT, AND, UNDER ORDINARY CONDITIONS, IT CANNOT LEAD TO APPEARANCE IN HUMAN BODY OF RAD, RAE, AND PO-210 IN CONCENTRATIONS APPROACHING THE MAXIMAL PERMISSIBLE VALUES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*WATER, DRINKING + POLONIUM + RADIUM + RADON + UNION OF SOVIET SOCIALIST REPUBLICS

15-19429

ALSO IN CATEGORY 14

MAPEI AN + YARTSEV EI + MOISEENKO EI

DISTRIBUTION OF STRONTIUM-90 IN THE SKELETON OF ADULTS

LENINGRAD HYDROMETEOROLOGICAL INSTITUTE

TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 5 PAGES, 3 TABLES, 9 REFERENCES, HYGIENE AND SANITATION, PAGE 195-199, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE AUTHORS STUDIED THE DISTRIBUTION OF SR-90 (GLOBAL PRECIPITATION) IN THE SKELETON OF 20 ADULTS. A DEFINITE RELATION NOTED BETWEEN THE ISOTOPE CONCENTRATION IN CERTAIN BONES AND THAT OF ITS AVERAGE CONCENTRATION IN ALL OF THE SKELETON.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS

15-19431

ALSO IN CATEGORY 14

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19431 *CONTINUED*

GALIBIN GP + POZDNYAKOV AL + MURAVEVA LI

BIOLOGICAL EFFECTS OF AMMONIUM DIURANATE FOLLOWING PROLONGED INHALATION

TT-66-51160/10-12 + IPST-CAT.-1737-1739 +. 8 PAGES, 4 FIGURES, 12 REFERENCES, HYGIENE AND SANITATION, PAGE 338-345, TRANSLATION OF GIG. SANIT., 31(10-12), (OCTOBER 1966)

THE AUTHORS STUDIED THE BIOLOGICAL EFFECT OF AMMONIUM DIURANATE (DA) ON ITS LONG-TERM ADMINISTRATION BY THE INHALATION ROUTE TO RATS AT A CONCENTRATION OF 36 MG/M³. THE EARLY SIGNS OF DA TOXICITY ARE THE FALL OF BODY WEIGHT AND THE DISTURBANCES OF LIVER AND KIDNEYS FUNCTION. THESE SYMPTOMS MAY BE DETECTED FROM THE 3RD TO 7TH DAY OF THE TEST AND ARE ACCOMPANIED BY PRONOUNCED MORPHOLOGICAL CHANGES IN THE PERIPHERAL BLOOD COMPOSITION. THE PATHOMORPHOLOGICAL CHANGES DEVELOPING IN POISONING BY THE INHALATION ROUTE ARE CHARACTERIZED BY THE DEVELOPMENT OF INTERSTITIAL PNEUMONIA AND BY HAEMODYNAMIC DISTURBANCES MOSTLY PRONOUNCED IN THE KIDNEYS AND THE LIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + UNION OF SOVIET SOCIALIST REPUBLICS + URANIUM

15-19433 ALSO IN CATEGORY 14

THOMPSON RC + SWEZEA EG

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT, 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-480 +. 207 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

THIS REPORT COVERS WORK ON RADIATION EFFECTS - GENERAL, TOXICITY OF RADIOELEMENTS, INHALATION STUDIES, SPACE NUCLEAR SYSTEMS, COMBATING DETRIMENTAL EFFECTS OF RADIATION, MOLECULAR AND CELLULAR LEVEL STUDIES. ENVIRONMENTAL RADIATION STUDIES (TERRESTRIAL), AND ENVIRONMENTAL RADIATION STUDIES (AQUATIC). MATERIAL FROM EACH STUDY IS PRESENTED BRIEFLY. DETAILED INFORMATION WILL BE FOUND IN OPEN-LITERATURE PUBLICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, GENERAL + *RADIATION EFFECT + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, VEGETATION + INHALATION + PLUTONIUM

15-19434 ALSO IN CATEGORY 14

JOHNSTON JE

HEALTH PHYSICS AND MEDICAL DIVISION RESEARCH PROGRESS REPORT, JANUARY - DECEMBER 1966

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL

AERE-PR-HPM-11 +. 61 PAGES, MARCH 1967

COVERS RESEARCH ON AEROSOLS, RADIATION PHYSICS (INCLUDING DOSIMETRY AND FALLOUT), METABOLIC STUDIES, BIOLOGICAL MEASUREMENTS, ANALYTICAL DEVELOPMENT, AND MEDICAL SERVICES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + *DOSIMETRY, GENERAL + AEROSOL + CESIUM + FALLOUT + GAMMA + IRON + NEUTRON + POTASSIUM + RADIOLOGY + RADIUM + STRONTIUM + TRITIUM + UNITED KINGDOM

15-19435

DUDLEY RA

A SURVEY OF RADIATION DOSIMETRY IN THORIUM DIOXIDE CASES

INTERNATIONAL ATOMIC ENERGY AGENCY

CONF-660-422-2 + AEO-CONF-66-178-2 +. 24 PAGES, FIGURES, 4 TABLES, 26 REFERENCES, PRESENTED AT CONFERENCE ON DISTRIBUTION, RETENTION, AND LATE EFFECTS OF THORIUM DIOXIDE, NEW YORK, NEW YORK, APRIL 20-22, 1966

SURVEYS THE OBJECTIVES, PROBLEMS, TECHNIQUES, AND RESULTS OF RADIATION DOSIMETRY APPLIED TO PERSONS DOSED WITH COLLOIDAL THORIUM OXIDE (THOROTRAST). THE IMPORTANCE OF THOROTRAST DOSIMETRY DEPENDS ON THE RELEVANCE OF THOROTRAST EXPERIENCE TO OTHER PROBLEMS IN PRACTICAL RADIATION PROTECTION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, INTERNAL + *DOSE MEASUREMENT, INTERNAL + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + THORIUM

15-19437

YAMAMOTO O

BONE MARROW DOSE IN FAST NEUTRON IRRADIATION CALCULATED FROM GEOMETRICAL BONE STRUCTURE. PART 2

DEPARTMENT OF RADIATION BIOLOGY, RESEARCH INSTITUTE FOR NUCLEAR MEDICINE AND BIOLOGY, HIROSHIMA

UNIVERSITY, HIROSHIMA, JAPAN

6 PAGES, 4 FIGURES, 6 TABLES, 15 REFERENCES, NIPPON ACTA RADIOLOGICA, PAGE 446 THRU 453, (AUGUST 25, 1966)

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19437 *CONTINUED*

FOR THE ESTIMATION OF ENERGY ABSORPTION IN BONE MARROW WITH 14.1-MEV NEUTRONS, THE EQUATIONS GIVEN IN THE PREVIOUS PAPER WERE REVISED WITH CONSIDERATION GIVEN TO SCATTERING ANGLE AND ENERGY OF PROTON. THE CONTRIBUTIONS OF OTHER CONSTITUENTS EXCLUDING HYDROGEN IN TISSUE FOR THE ENERGY ABSORPTION WERE ADDED TO THE ENERGY DISTRIBUTION OF PROTONS. THE ENERGY ABSORPTION IN TISSUE BY FAST NEUTRON IRRADIATION HAVE A CHARACTERISTIC DIFFERENT FROM THAT OF X RAYS, GAMMA RAYS, AND ALPHA RAYS WITH RESPECT TO ABSORPTION PATTERN. THE MARROW ENERGY ABSORPTIONS WERE COMPARED ON MOUSE AND RAT FOR X RAYS, GAMMA RAYS, AND FAST NEUTRONS. RELATIVE VALUES TO TISSUE EQUILIBRIUM VALUES WERE 1.09, 1.01 AND 0.92 ON MOUSE FOR X RAYS, GAMMA RAYS, AND FAST NEUTRONS RESPECTIVELY, AND 1.06, 1.01 AND 0.93 ON RATS, RESPECTIVELY.

*DOSE CALCULATION, INTERNAL + GAMMA + JAPAN + NEUTRON + THEORETICAL INVESTIGATION + X-RAY

15-19441 ALSO IN CATEGORY 9
MILLER HL

RADIOLOGICAL SAFETY MEASUREMENTS OF X RAYS AND NEUTRONS FROM PULSED SOURCES
PRINCETON UNIV., N. J. PLASMA PHYSICS LAB.

MATT-347 + CONF-660512-7 +. 21 PAGES, FIGURES, JULY 1965, PRESENTED AT SYMPOSIUM ON ENGINEERING PROBLEMS OF CONTROLLED THERMONUCLEAR RESEARCH, LIVERMORE, CALIFORNIA

MONITORS WERE DEVELOPED FOR CONTINUOUS UNATTENDED RECORDING OF RADIATION DOSE AT RATES RANGING FROM STEADY STATE NEAR NATURAL BACKGROUND TO EXTREMELY HIGH INTENSITY AT LOW DUTY CYCLE. THE GAMMA AND X-RAY MONITORS WERE DESIGNED TO OPERATE WITH X-RAY PULSES AS INTENSE AS 8,000,000 MREM PER HR FOR 100 MICROSEC, OR PROPORTIONATELY LONGER AT LOWER INTENSITY. THE NEUTRON MONITOR WAS BUILT BASED ON THE BONNER SPHERE. A 0.3-MICROSEC PULSE RESULTS IN A 10% COINCIDENCE LOSS AT 267,000 MREM PER HR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

GAMMA + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, ENVIRONMENTAL + NEUTRON + X-RAY

15-19482 ALSO IN CATEGORY 14

ZIRCONIUM-95 AND NIOBIUM-95 IN HUMAN LUNGS AND ATMOSPHERIC DUST DURING 1963
FRANCE. SERVICE CENTRAL DE PROTECTION CONTRE LES RAYONNEMENTS IONIS

2 PAGES, 1 TABLE, 6 REFERENCES, NATURE 212(5063), PAGE 702 AND 703, (NOVEMBER 12, 1966)

THE ACTIVITY OF ZR-95 AND NB-95 IN DAILY SAMPLES OF ATMOSPHERIC DUST AND IN POST-MORTEM LUNGS FROM PEOPLE WHO LIVED IN THE SAME AREA (NANCY, FRANCE) WERE STUDIED FOR 1963. TWENTY-FOUR AUTOPSIES WERE DONE DURING JANUARY-AUGUST (A PERIOD OF HIGH RADIOACTIVITY LEVELS) AND 20 DURING SEPTEMBER-DECEMBER (A PERIOD OF LOW LEVELS). MEASURED PULMONARY RADIOACTIVITY WAS 209.5 PICOCURIES AND 72.8 PICOCURIES FOR HIGH AND LOW PERIODS, RESPECTIVELY, COMPARED WITH 296.2 AND 69.4 FOR ICRP CALCULATION, AND 783.5 AND 253.8 FOR RUNDOS CALCULATIONS BY A MODIFICATION OF THE ICRP METHOD.

*FALLOUT + AIR + DOSE MEASUREMENT, INTERNAL + FRANCE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + NIOBIUM + ZIRCONIUM

15-19485

GURI CD + SWINGLE KF + COLE LJ

URINARY EXCRETION OF DEOXYCYTIDINE - A POTENTIAL BIOCHEMICAL RADIATION DOSIMETER

NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIF.

USNRDL-TR-67-30 +. 21 PAGES, 4 FIGURES, 4 TABLES, 32 REFERENCES, MARCH 27, 1967

RATS WERE EXPOSED TO VARIOUS DOSES OF WHOLE-BODY X RAYS, FROM 10 R TO 400 R, AND 24-HR URINARY DEOXYCYTIDINE (CDR) EXCRETION DETERMINED BY COMBINED ION EXCHANGE AND CHROMATOGRAPHY. THE BASE-LINE 24-HR URINARY CDR EXCRETION (NONIRRADIATED RATS) WAS 86.6 PLUS OR MINUS 13.9 MICROGRAMS, WHILE AFTER EXPOSURE TO 28 R AND 223 R, A SIGNIFICANT INCREASE OF 70% AND 76%, RESPECTIVELY, WAS OBSERVED. A LINEAR DOSE-RESPONSE RELATIONSHIP WAS FOUND FOR 24-HR CDR EXCRETION AT RADIATION DOSES OVER THE RANGE 10 R TO 223 R.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + RADIOBIOLOGY + X-RAY

15-19486

ANDERSON DC + RUWE DM + SPAMER AM

EVALUATION OF INTERNAL-DOSE PROBABILITIES BY A MONTE CARLO TECHNIQUE

MARTIN COMPANY

CONF-670 602 +. 1 PAGE, 1 TABLE, 3 REFERENCES, ANS TRANS. 10(1), PAGE 5, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DEALS WITH THE PROBLEM OF DETERMINING PROBABILITY-DOSE DISTRIBUTIONS RESULTING FROM THE RELEASE OF ACTIVITY IN THE ATMOSPHERE IN THE FORM OF RESPIRABLE PARTICLES. A SIGNIFICANT PROBLEM IS THAT OF DETERMINING THE PROBABILITY THAT ANY NUMBER OF PEOPLE WILL EXCEED A SPECIFIED DOSE AS A CONSEQUENCE OF INHALING OR INGESTING A SINGLE PARTICLE. THE MONTE CARLO

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19486 *CONTINUED*
TECHNIQUE WAS USED TO DETERMINE THE DISTRIBUTION OF PARTICLE RESIDENCE TIMES IN THE VARIOUS REGIONS OF THE BODY.

*DOSE + DOSE CALCULATION, INTERNAL + MONTE CARLO

15-19487 ALSO IN CATEGORY 14
COWPER G
PURPOSES, INTERPRETATION AND REQUIRED ACCURACY IN RADIATION MONITORING OF THE WORKING ENVIRONMENT
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER
AECL-2900 +. 7 PAGES, MAY 1967

THE PURPOSES, INTERPRETATION, AND ACCURACY REQUIRED IN THE RADIATION MONITORING OF THE WORKING ENVIRONMENT MUST CONTINUE, AS ALWAYS, TO BE BASED UPON THE BEST UNDERSTANDING OF THE ADVERSE EFFECTS OF IONIZING RADIATION UPON MAN. THE CONSENSUS OF THE BEST AVAILABLE EXPERT OPINION HAS LED TO THE RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION FOR RADIOLOGICAL PROTECTION AND IN THE MATTER OF FORMULATING CONTROLS AND CARRYING OUT PRACTICES FOR THE MONITORING OF THE WORKING ENVIRONMENT, THE FACT THAT OUR ENDEAVOURS STEM FROM THESE RECOMMENDATIONS MUST ALWAYS BE KEPT IN MIND. THE PURPOSE OF RADIATION MONITORING IS TO ASSIST THE USERS OF RADIATION TO HAVE THE HIGHEST PRODUCTIVITY AND SAFE, SATISFACTORY, WORKING CONDITIONS. THE ACCURACY OF OUR MEASUREMENTS AND THE INTERPRETATIONS WE DRAW FROM THEM MUST BE DESIGNED TO ACCOMPLISH THIS PURPOSE.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO, \$0.05 COPY

*CANADA + *MONITORING PROGRAM, ENVIRONMENTAL + CHALK RIVER + RADIATION IN PERSPECTIVE + RADIATION PROTECTION, ORGANIZATION

15-19489 ALSO IN CATEGORY 14
SIMMONS RB
DESIGN FOR RADIATION PROTECTION AT DOUGLAS POINT
ATOMIC ENERGY OF CANADA LIMITED, SHERIDAN PARK
AECL-2877 +. 49 PAGES, 19 FIGURES, TABLES, MAY 1967

SUMMARIZES THE CONSIDERATIONS IN THE DOUGLAS POINT DESIGN WHICH PROVIDE RADIATION PROTECTION FOR THE PLANT STAFF DURING NORMAL OPERATIONS. TWO BASIC ASPECTS ARE CONSIDERED - THE SHIELDING AND EXCLUSION OF PERSONNEL FROM HIGH RADIATION AREAS, AND THE LIMITATION OF THEIR CONTACT WITH CONTAMINATION.

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, SHERIDAN PARK, ONTARIO, \$1.50 COPY

*RADIATION PROTECTION, ORGANIZATION + CANADA + CONTAMINATION + DECONTAMINATION + MONITORING SYSTEM, RADIATION + REACTOR DESCRIPTION + SHIELDING + VENTILATION SYSTEM + WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID

15-19490 ALSO IN CATEGORY 14
MORVEN DA + SCOTT JK
THE EFFECTS ON MICE OF CONTINUAL EXPOSURE TO RADON AND ITS DELAY PRODUCTS ON MICE
ROCHESTER UNIVERSITY
UR-669 +. 134 PAGES, FIGURES, TABLES, 79 REFERENCES, NOVEMBER 30, 1966

MICE OF THE CAF-1 STRAIN WERE EXPOSED CONTINUOUSLY BY INHALATION THROUGHOUT LIFE TO AN ATMOSPHERE OF RADON AND ITS DISINTEGRATION PRODUCTS, IN WHICH THE RADIOACTIVITY CONTENT WAS ABOUT 14,000 TIMES THE MAXIMUM AMOUNT RECOMMENDED FOR HUMAN OCCUPATIONAL EXPOSURE. THE MEDIAN LIFE SPAN DURING EXPOSURE WAS 35 WEEKS, COMPARED WITH 90 WEEKS FOR CONTROL MICE. THE ACCUMULATED LUNG DOSE OF 35 WEEKS WAS 10,000 RADS, AND ACCUMULATED WHOLE BODY DOSE 200 RADS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE.

*RADIOBIOLOGY + AEROSOL + AIR + ALPHA EMITTER + RADON + UNITED STATES

15-19491
HEFFAN H
RADIATION SAFETY IN RADIOGRAPHY
U.S. NAVAL WEAPONS STATION, CONCORD, CALIF.
8 PAGES, 6 TABLES, 11 REFERENCES, MATERIALS EVALUATION 25(4), PAGES 83-90 (APRIL 1967)

PRESENTS A GENERAL REVIEW OF THE METHODS AND CRITERIA FOR ESTABLISHING RADIATION SAFETY PROCEDURES IN INDUSTRIAL X-RAY AND GAMMA-RAY RADIOGRAPHY PROGRAMS. THE USE AND IMPORTANCE OF THE HAZARDS ANALYSIS IS DISCUSSED IN RELATION TO THREE TYPES OF INSTALLATIONS. CURRENT THINKING REGARDING THE HEALTH OF RADIATION WORKERS AND THE MAXIMUM PERMISSIBLE DOSE ARE REVIEWED.

*RADIOGRAPHY + DOSE + GAMMA + MAXIMUM PERMISSIBLE DOSE (MPD) + RADIATION SAFETY AND CONTROL + UNITED STATES + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19492
MACCABEE HD + RAJU MR
IONIZATION FLUCTUATIONS IN CELLS AND THIN DOSIMETERS
LAWRENCE RADIATION LABORATORY
UCRL-17465 + CONF-670305-2 +. 13 PAGES, FROM SYMPOSIUM ON BIOLOGICAL INTERPRETATION OF DOSE FROM
ACCELERATION PRODUCED RADIATION, BERKELEY, CALIF.

SINCE FAST, CHARGED PARTICLES LOSE ENERGY IN MATTER BY A COLLISION PROCESS WHICH IS DISCRETE
AND RANDOM, STATISTICAL FLUCTUATIONS ARE EXPECTED IN THE ENERGY LOSS OF SUCH PARTICLES WHEN
TRAVERSING THIN ABSORBERS. THE THEORY OF IONIZATION FLUCTUATION HAS BEEN DEVELOPED BY BOHR,
LANDAU, SYMON, VAVILOV, AND OTHERS, AND HAS BEEN VERIFIED BY SEVERAL EXPERIMENTERS, INCLUDING
MACCABEE AND RAJU. CELLS AND THIN DOSIMETERS ACTS AS THIN ABSORBERS FOR MANY TYPES OF
PARTICULATE RADIATION, AND THUS SIGNIFICANT FLUCTUATIONS IN ENERGY DEPOSITION ARE TO BE
EXPECTED. WE DISCUSS THE APPLICATION OF THE THEORY TO THESE CASES, AND THE EFFECT OF
ENERGY-LOSS STRAGGLING ON THE BRAGG PEAK OF CHARGED-PARTICLE BEAMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + ACCELERATOR + DOSIMETRY, RADIOPHOTOLUMINESCENCE + UNITED STATES

15-19494 ALSO IN CATEGORY 14
HARLEY JH
MANUAL OF STANDARD PROCEDURES
NEW YORK OPERATIONS OFFICE, AEC
NYO-4700(2ND ED.) +. 540 PAGES, FIGURES, TABLES, 1967

THIS IS A REVISED EDITION OF THE HEALTH AND SAFETY LABORATORY MANUAL OF STANDARD PROCEDURES.
IT IS DIVIDED INTO SEVEN SECTIONS HAVING THE FOLLOWING HEADINGS - GENERAL, DATA SECTION,
RADIATION MEASUREMENTS, SAMPLING, CHEMICAL PROCEDURES, FALLOUT METHODS, AND SPECIFICATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, GENERAL + CHEMICAL ANALYSIS + RADIOCHEMICAL ANALYSIS + SAMPLING

15-19507 ALSO IN CATEGORY 14
SEMIANNUAL PROGRESS REPORT (ON NUCLEAR MEDICINE AND RADIATION BIOLOGY) FOR THE PERIOD ENDING, JUNE 30, 1967
UNIVERSITY OF CALIFORNIA, LOS ANGELES
UCLA-12-640 +. 90 PAGES 2 TABLES, JUNE 30, 1967

RESEARCH IS REPORTED IN THE FIELDS OF NUCLEAR MEDICINE, BIOPHYSICS, ENVIRONMENTAL RADIATION,
RADIOBIOLOGY, AND BIOCHEMISTRY. SEVENTY STUDIES ARE REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*BIOMEDICAL + MONITORING PROGRAM, ENVIRONMENTAL + RADIOBIOLOGY + RADIOLOGY

15-19511
STONFMAN DW
CURRENT THINKING ABOUT RADIATION DANGERS
UNIVERSITY OF TORONTO, CANADA
7 PAGES, REFERENCES, J. CAN. DENT. ASS. 32, PP 334-40 (JUNE 1966)

PRESENTS WAYS IN WHICH DENTISTS CAN PROTECT THEIR PATIENTS AND OTHERS FROM UNNECESSARY X-RAY
EXPOSURE. MEASURES FOR THE PROTECTION OF THE PATIENT DISCUSSED INCLUDE COLLIMATION OF THE
PRIMARY BEAM TO A DIA OF 2.75 IN. AT A DISTANCE OF 8 IN. FROM THE FOCAL SPOT, PLACEMENT OF
SHEET ALUMINUM BETWEEN THE BEAM SOURCE AND THE PATIENT TO FILTER OFF USELESS SOFT RAYS, USE
OF AN OPEN-END SHIELDED CONE IN PLACE OF THE TRADITIONAL PLASTIC DIRECTOR CONE, EMPLOYMENT OF
LEAD APRONS, A MIN. NO. OF FILM EXPOSURES CONSISTENT WITH DIAGNOSTIC REQUIREMENTS, OBSERVANCE
OF GOOD RADIOGRAPHIC TECHNIQUE, AND PERIODIC EXAMINATION OF X-RAY EQUIPMENT TO DETECT ANY
RADIATION LEAKAGE. THE OPERATOR SHOULD AVOID THE PRIMARY BEAM AND SHOULD MAINTAIN AN AVERAGE
DISTANCE OF 6 FT FROM THE PATIENTS HEAD. SUITABLE BARRIERS ON THE FLOOR, CEILING, AND WALLS
MAY BE REQUIRED TO SHIELD OTHERS WITHIN OR BEYOND THE ROOM.

*RADIOLOGY + CANADA + X-RAY

15-19512 ALSO IN CATEGORY 14
OLIVER R
THE BRITISH RADIOLOGICAL PROTECTION ASSOCIATION AND THE JOINT HEALTH PHYSICS COMMITTEE
1 PAGE, NATURE, 209(5026), PP 862 (FEBRUARY 26, 1966)

THIS NOTE OUTLINES THE EVENTS LEADING UP TO FORMATION OF THE INTERNATIONAL RADIATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19512 *CONTINUED*

PROTECTION ASSOCIATION AND DESCRIBES THE RELATION OF THE CONSTITUENT BRITISH SOCIETIES.

RADIATION PROTECTION, ORGANIZATION + UNITED KINGDOM

15-19514

MECHALI D + DOUSSET M + PARDO G + PENOTET M

DOSE DELIVERED TO THE THYROID GLAND FOLLOWING INHALATION OF FISSION PRODUCTS. FISSION OF PLUTONIUM-239 BY FAST NEUTRONS

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-TR-18 +. 31 PAGES, TABLES, FIGURES, FROM HEALTH PHYSICS., 12, PP. 15-27 (1966)

AMONG THE VARIOUS HAZARDS ARISING FROM THE INHALATION OF FRESH FISSION PRODUCTS, IRRADIATION OF THE THYROID IS IMPORTANT. THIS PAPER IS CONCERNED WITH PU-239 FAST-NEUTRON FISSION PRODUCTS AND BEARS ONLY ON THE CASE OF A CRITICALITY ACCIDENT WHEN ALL THE FISSIONS OCCUR WITHIN A VERY SHORT TIME. THE DOSE DELIVERED TO THE THYROID BY THE SEVERAL IODINE ISOTOPES AFTER THE INHALATION OF 1 MC OF FISSION PRODUCTS WAS CALCULATED AS A FUNCTION OF THE TIME ELAPSED BETWEEN PLUTONIUM FISSION AND INHALATION. THE PRESENCE OF THE PARENTS OF THE IODINE ISOTOPES IN THE MIXTURE OF FISSION PRODUCTS WAS TAKEN INTO ACCOUNT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DOSE + DOSE CALCULATION, INTERNAL + FRANCE + IODINE + NEUTRON + PLUTONIUM + TELLURIUM

15-19524

AINSWORTH EJ + LARSEN RM

ALTERED RECUPERATIVE POTENTIAL IN PREVIOUSLY IRRADIATED MICE

NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIF.

USNRDL-TR-67-35 +. 25 PAGES, 2 FIGURES, 2 TABLES, 21 REFERENCES, APRIL 3, 1967

EARLIER STUDIES SHOWED A NONRECUPERABLE COMPONENT OF RADIATION INJURY IN RODENTS. THIS COMPONENT IS MANIFESTED BY A SMALL INCREASE IN RADIOSENSITIVITY AND INCOMPLETE RECOVERY OF THE HEMATOPOIETIC SYSTEM. THE PRESENT STUDIES WERE DESIGNED TO EVALUATE THE INFLUENCE OF PREVIOUS SUBLETHAL IRRADIATION, AND PERHAPS NONRECUPERABLE LESIONS, ON THE ABILITY OF LAF-1 MALE MICE TO RECUPERATE FROM X-RADIATION INJURY. THE RADIATION LESION WHICH INFLUENCES RECUPERATION IS NOT A PERSISTENT LESION. THE FINDINGS HAVE BEARING ON THE CONCEPT OF EQUIVALENT RESIDUAL DOSE (ERD), WHICH IS USED TO PREDICT RADIATION LETHALLY IN MULTIPLE EXPOSURE SITUATIONS INVOLVING HUMANS.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*RADIATION EFFECT + RADIOBIOLOGY

15-19527

KUBOTA H

GAMMA DOSIMETRY AT 150 TO 250 C WITH DEAERATED FERROUS SULFATE SOLUTION

OAK RIDGE NATIONAL LABORATORY

4 PAGES, 1 FIGURE, REFERENCES, J. INORG. NUCL. CHEM. 28, PAGES 3053-6 (DEC. 1966)

A CHEMICAL DOSIMETRY SYSTEM CONSISTING OF DEAERATED FERROUS SULFATE SOLUTION SEALED IN GLASS AMPULES WAS EVALUATED OVER THE TEMPERATURE RANGE 150-250 C AND DOSE UP TO 70,000 RADS. RESPONSE (ABSORBANCE AT 350 MILLIMICRONS ON A CARY SPECTROPHOTOMETER) WAS ESSENTIALLY LINEAR UP TO 60,000 RADS AND AT ALL TEMPERATURES. THE DOSIMETER WAS USED SUCCESSFULLY IN THE MEASUREMENT OF DOSE IN DEMONSTRATION OF AND EXPERIMENT IN DISPOSAL OF RADIOACTIVE WASTE IN A SALT FORMATION.

*DOSIMETRY, GENERAL + ORNL (OAK RIDGE NATIONAL LABORATORY) + WASTE DISPOSAL, SALT + WASTE DISPOSAL, SOLID

15-19529

ABRAHAM P

A GRAPHICAL METHOD FOR THE ESTIMATION OF RADON AND THORON IN ATMOSPHERIC AIR

ATOMIC ENERGY ESTABLISHMENT, TROMBAY, BOMBAY

3 PAGES, 4 FIGURES, 2 TABLES, 5 REFERENCES, INDIAN JOURNAL OF PURE AND APPLIED PHYSICS 4(1), PAGES 27-29 (1966)

DESCRIBES A GRAPHICAL METHOD FOR ESTIMATING RADON AND THORON IN AIR BY THE ALPHA (OR BETA) ACTIVITY MEASUREMENTS OF FILTER-PAPER AIR SAMPLES, ASSUMING THAT RADIOACTIVE EQUILIBRIUM EXISTS BETWEEN THE PARENT GAS AND THE IMMEDIATE DAUGHTER PRODUCTS. GRAPHS SHOW THE RADON AND THORON CONCENTRATIONS FOR RATIOS OF ALPHA (AND BETA) ACTIVITIES OF THE SAMPLE AT DIFFERENT TIMES AFTER COLLECTION, FOR VARIOUS SAMPLING PERIODS. THE APPLICATION OF THE METHOD IS ILLUSTRATED BY A WORKED EXAMPLE.

*ANALYTICAL TECHNIQUE, AIR + ALPHA EMITTER + BETA EMITTER + INDIA + RADON + THORON

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19530

CROLEY JJ

PROTECTIVE CLOTHING--RESPONSIBILITIES OF THE INDUSTRIAL HYGIENIST

SAVANNAH RIVER LABORATORY

4 PAGES, 3 FIGURES, 1 TABLE, 11 REFERENCES, AM. IND. HYGIENE ASSOCIATION JOURNAL 27(2), PAGES 140-43 (1966)

THE INDUSTRIAL HYGIENIST MUST RECOMMEND PROTECTIVE CLOTHING THAT AFFORDS MAXIMUM PROTECTION AND COMFORT AT MINIMUM COST. HE IS RESPONSIBLE FOR DESIGNING, SELECTING, AND EVALUATING PROTECTIVE GARMENTS AND WHERE RADIOACTIVE CONTAMINATION IS ENCOUNTERED, MUST DEVELOP METHODS TO MONITOR, DECONTAMINATE, AND RECOVER THE GARMENTS. IN MANY INDUSTRIES, PROTECTIVE-CLOTHING REQUIREMENTS ARE OFTEN COMPLEX, AND THE COST OF THIS PROTECTION, ALTHOUGH SMALL COMPARED WITH OTHER OPERATING COSTS, NEVERTHELESS REQUIRES SUBSTANTIAL EXPENDITURES.

*RADIATION PROTECTION, ORGANIZATION + SAVANNAH RIVER PLANT

15-19535

ALSO IN CATEGORY 14

BUSH WR

TRITIUM HAZARDS

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER

AECL-2594 +. 16 PAGES, JUNE 1966

THIS LECTURE WAS BASED ON VARIOUS TALKS ON THE RADIATION HAZARDS OF TRITIUM OXIDE WHICH HAVE BEEN GIVEN BY THE AUTHOR TO PROCESS OPERATORS AND SUPERVISORS, LABORATORY TECHNICIANS, AND MECHANICAL TRADESMEN. THE ABSORPTION OF TRITIUM OXIDE INTO THE BODY THROUGH THE SKIN AND LUNGS, ITS EXCRETION IN URINE, AND THE ADMINISTRATIVE CONTROLS (REMOVAL, CAUTION, MINOR, AND NEGLIGIBLE) ARE DESCRIBED. THE CONCENTRATION OF TRITIUM IN AIR, EXPRESSED AS MPC, AND THE RADIATION DOSE RESULTING FROM A NUMBER OF MPC-HOURS OF EXPOSURE ARE EXPLAINED. FINALLY, THE METHODS FOR PROTECTING AGAINST TRITIUM (VENTILATION, AIR-SUPPLIED MASKS, AND PLASTIC CLOTHING) ARE DISCUSSED.

AVAILABILITY - ATOMIC ENERGY OF CANADA LTD., \$.50 COPY

*TRITIUM + AIRBORNE RELEASE + CHALK RIVER + CONTAMINATION + DOSE

15-19536

JOHNSON DR + POSTON JW

RADIATION DOSIMETRY STUDIES AT THE HEALTH PHYSICS RESEARCH REACTOR

OAK RIDGE NATIONAL LABORATORY

ORNL-4113 +. 68 PAGES, FIGURES, TABLES, REFERENCES

THE DOSIMETRIC ASPECTS OF THE HEALTH PHYSICS RESEARCH REACTOR (HPRR) WERE CAREFULLY INVESTIGATED AND ARE REPORTED HERE. STUDIES OF PARAMETERS SUCH AS QUANTITY AND SYMMETRY OF NEUTRON LEAKAGE FROM THE REACTOR CORE WERE INCLUDED IN THE WORK, WHICH WAS DONE PRIMARILY TO OBTAIN NEUTRON AND GAMMA-RAY AIR-DOSE CURVES AS A FUNCTION OF DISTANCE. THESE CURVES ARE USED BOTH FOR SELECTING REACTOR POWER LEVELS AND EXPOSURE TIMES TO OBTAIN PREDESIGNATED RADIATION EXPOSURES AND, TOGETHER WITH A DEPENDABLE AND REPRODUCIBLE NORMALIZATION CHANNEL, TO PROVIDE QUANTITATIVE DOSE INFORMATION WITH AN ESTIMATED ACCURACY OF PLUS OR MINUS 10%. THE FAST NEUTRON LEAKAGE FROM THE HPRR IS 1.3 NEUTRONS PER FISSION. THE FIRST-COLLISION NEUTRON DOSE RATE AT A DISTANCE OF 2 M WITH REACTOR AND DETECTOR HEIGHTS OF 2 M, IS 3.3 PLUS OR MINUS 0.13 MRAD/UNIT ACTIVATION OF THE NORMALIZATION SULFUR PELLETS. FOR THIS REASONABLY GOOD EXPERIMENTAL GEOMETRY (H/D EQUALS 1), THE SCATTERED-TO-TOTAL NEUTRON DOSE RATIO IS 21%, AND THE NEUTRON-TO-GAMMA-RAY DOSE RATIO IS APPROXIMATELY 7/1.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFILM

*DOSIMETRY, GENERAL + GAMMA + INSTRUMENTATION, RADIATION MONITORING + NEUTRON +
ORNL (OAK RIDGE NATIONAL LABORATORY)

15-19549

ALSO IN CATEGORY 16

MORGAN C

WEATHER AND DISCHARGE DATA USED TO COMPUTE DOSE RATES FROM COASTAL DISCHARGES OF RADIOACTIVITY

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD, MARINA, LUWISTOFT

3 PAGES, 5 FIGURES, 1 REFERENCE, NATURE 215(5100), PAGE 474-476, (JULY 29, 1967)

SOME OF THE WASTE MATERIAL DISCHARGED INTO THE SEA FROM THE DUNREAY REACTOR ESTABLISHMENT SETTLES ON THE NETS USED BY FISHERMEN IN THE AREA. THE DOSE RATE TO THEIR HANDS IS A FUNCTION OF THE DISCHARGE RATE AND THE LOCAL CONDITIONS AROUND THE NETS. EQUATIONS DERIVED ON THIS BASIS SHOW A CLOSE AGREEMENT WITH FINDINGS IN THE FIELD.

*DOSE CALCULATION, EXTERNAL + *WASTE DISPOSAL, OCEAN + DUNREAY (UK) + SEDIMENT + WIND STATISTICS

15-19565

ALSO IN CATEGORIES 1 AND 17

SCIENCE AND THE CITIZEN - DEATH BY RADIATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19569 *CONTINUED*
2 PAGES, SCIENTIFIC AMERICAN 212 (6), PAGES 58-59 (JUNE 1965)

A SYNOPSIS OF CLINICAL DETAILS FROM AN ARTICLE IN THE NEW ENGLAND JOURNAL OF MEDICINE. BRIEF DISCUSSION OF WORKER, WHO HAD IMPROVISED A BATCH METHOD FOR HANDLING WASTE, UNWITTINGLY EMPTYING ENRICHED-URANIUM SOLUTION INTO 2-FT-DIAM TANK. DISCUSSES SYMPTOMS AND CARE. NOTES THAT THIS WAS 5TH KNOWN PEACETIME (FIRST KNOWN INDUSTRIAL) CASUALTY FROM EXPOSURE TO MASSIVE RADIATION DOSE.

CRITICALITY SAFETY + INCIDENT, EXPOSURE + INCIDENT, WOOD RIVER + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

15-19570
PUBLIC HEALTH AND THE MEDICAL USE OF IONIZING RADIATION - FIFTH REPORT OF THE EXPERT COMMITTEE ON RADIATION
41 PAGES, WORLD HEALTH ORGAN., TECH. REPT. SERIES, NO. 306, 1965

THE HAZARDS OF IONIZING RADIATION, INCLUDING A COMPARISON OF RADIATION- AND CHEMICAL-INDUCED TOXICITY, CARCINOGENESIS, AND MUTAGENESIS, AND THE LIFE-SHORTENING ACTION OF RADIATION WERE SURVEYED. RECOMMENDATIONS WERE MADE FOR LOWERING PATIENT AND PERSONNEL EXPOSURE IN DIAGNOSTIC AND THERAPEUTIC RADIOLOGY.

AVAILABILITY - COLUMBIA UNIVERSITY PRESS, INTERNATIONAL DOCUMENTS SERVICE, 2960 BROADWAY, NEW YORK, NY 10027

MAXIMUM PERMISSIBLE DOSE (MPD) + RADIOLOGY

15-19658 ALSO IN CATEGORY 14
WONG P

A FORTRAN PROGRAM TO DETERMINE ABSORBED ORGAN DOSE DUE TO INHALATION OF RADIONUCLIDES
NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIF.
USNRDL-TR-67-7 +. 115 PAGES, FIGURES, TABLES, 16 REFERENCES, JANUARY 11, 1967

A FORTRAN COMPUTER PROGRAM SYSTEM WAS DEVELOPED TO DETERMINE THE MAXIMUM INTERNAL DOSE RECEIVED BY A GIVEN BODY ORGAN AS A RESULT OF INHALATION OF SPECIFIC RADIONUCLIDES. THE PROGRAM, BASED ON EQUATIONS REPORTED IN THE LITERATURE, DETERMINES THE EFFECTIVE ENERGY ABSORBED BY THE BODY ORGAN PER DISINTEGRATION OF THE RADIONUCLIDE AND COMPUTES THE ABSORBED ORGAN DOSE FOR VARIOUS PERIODS OF INTAKE FOR SINGLE OR CONTINUOUS RELEASE AND FOR VARIOUS PERIODS OF INTERNAL EXPOSURE. THE ORGAN DOSE INCLUDES EFFECTS FROM ALL DESCENDANTS OF THE NUCLIDE ORIGINALLY CONSIDERED TO HAVE ENTERED THE BODY ORGAN. TABULATED RESULTS FOR 133 RADIONUCLIDES AND THEIR CONTRIBUTIONS TO THE DOSE TO SEVEN BODY ORGANS AND THE WHOLE BODY ARE PRESENTED. INPUT TO THE FORTRAN COMPUTER PROGRAM MAY BE MODIFIED TO YIELD RESULTS FOR OTHER RADIONUCLIDES OR BODY ORGANS. THE PROGRAM MAY ALSO BE USED TO DETERMINE (BY SUMMING) THE TOTAL ABSORBED ORGAN DOSE FOR A MIXTURE OF FISSION PRODUCTS IF THE CONCENTRATION IN AIR OF EACH MAJOR CONTRIBUTOR AT INITIAL INTAKE TIME IS KNOWN.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*DOSE CALCULATION, INTERNAL + COMPUTER PROGRAM + COMPUTER; DIGITAL + UNITED STATES

15-19659 - ALSO IN CATEGORY 14
PERMISSIBLE LEVELS OF RADIATION
1 PAGE, 5 REFERENCES, BRITISH MEDICAL JOURNAL 1, PAGE 1374 (JUNE 4, 1966)

THE EVENTUAL RADIATION DOSE INCURRED BY THE POPULATION OF THE UNITED KINGDOM FROM NUCLEAR WEAPON TESTS CARRIED OUT UP TO THE END OF 1965 WILL BE MUCH LESS THAN THE DOSE DELIVERED BY THE NATURAL BACKGROUND OF COSMIC RAYS AND TERRESTRIAL RADIOACTIVITY. THE NUMBER OF CASES OF LEUKEMIA AND OTHER MALIGNANT DISEASES ATTRIBUTABLE TO FALLOUT FROM THESE TESTS SHOULD NOT EXCEED FIVE PER MILLION OF POPULATION AND MAY BE MUCH LESS. THE INCIDENCE OF VISIBLE GENETIC ABNORMALITY IN THE NEXT GENERATION MAY BE ABOUT ONE CASE PER MILLION OF EXPOSED POPULATION. COUNTERMEASURES AGAINST FALLOUT ARE NOT PRACTICABLE ON A LARGE SCALE.

*FALLOUT + DOSE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + STRONTIUM + TEST, WEAPONS (HP ASPECTS) + UNITED KINGDOM

15-19660 ALSO IN CATEGORY 14
FALLOUT RADIATION AND GROWTH
1 PAGE, 2 REFERENCES, BRITISH MEDICAL JOURNAL 1, PAGE 1132 (MAY 7, 1966)

SEVERAL RECENT REPORTS ON GROWTH RETARDATION OF IRRADIATED CHILDREN ARE REVIEWED BRIEFLY. STUDIES OF THE EFFECTS OF THE ATOMIC EXPLOSIONS IN NAGASAKI AND HIROSHIMA HAVE SHOWN, AMONG OTHER THINGS, THE RISK OF ANENCEPHALY OR MICROCEPHALY IN CHILDREN BORN TO MOTHERS EXPOSED IN EARLY PREGNANCY. GROWTH RETARDATION OCCURRED IN CHILDREN WHO WERE EXPOSED TO HEAVY FALLOUT RADIATION ON TWO ATOLLS IN THE MARSHALL ISLANDS IN MARCH 1954 AFTER THE EXPERIMENTAL DETONATION OF A THERMONUCLEAR DEVICE OVER BIKINI ATOLL. RETARDATION WAS FOUND IN BOTH STATURE AND SKELETAL MATURATION IN BOYS WHO WERE LESS THAN 5 YEARS OLD WHEN EXPOSED TO THE RADIOACTIVITY, AND THIS WAS MOST EVIDENT IN THOSE WHO WERE EXPOSED AT AGES BETWEEN 12 AND 18 MONTHS. THERE WAS NO SIGNIFICANT DIFFERENCE BETWEEN EXPOSED GIRLS AND THE CONTROLS.

*FALLOUT + RADIATION EFFECT + RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY + TEST, WEAPONS (HP ASPECTS) +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19660 *CONTINUED*
UNITED KINGDOM

15-19663
GRISON G
RADIOACTIVE WASTE
EURATOM
5 PAGES, EURATOM 6, PAGES 22-26 (MARCH 1967)

IN ITS SECOND FIVE-YEAR PLAN, EURATOM ALLOTTED THE AVAILABLE FUNDS IN THE RATIO OF ROUGHLY ONE TO TWO FOR PROCESSING AND DISPOSAL, RESPECTIVELY. THIS REPORT OUTLINES THE PROBLEMS OF WASTE PROCESSING, PACKAGING, DISPOSAL, AND FUTURE WASTE OUTPUT. RESEARCH CONTRACTS AWARDED BY EURATOM ARE MENTIONED. STORAGE OR DISPOSAL METHODS SUCH AS THE USE OF SALT FORMATIONS, GROUND-LEVEL STORAGE, DISPOSAL AT SEA, AND HYDRAULIC FRACTURING ARE DISCUSSED.

*WASTE DISPOSAL, GENERAL + *WASTE MANAGEMENT + *WASTE TREATMENT, FIXATION + EURATOM +
WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, SALT + WASTE SOURCE AND TYPE +
WASTE TREATMENT, LIQUID + WASTE TREATMENT, SOLID

15-19764
MARTIN JA
ELECTRON BEAM RADIATION TESTS - MAXIMUM DOSE RATE VS SAMPLE SIZE
IBM CORPORATION
3 PAGES, 2 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE 14(2), PAGES 22-24 (APRIL 1967)

RESTRICTIONS ON SAMPLE SIZE WHEN IRRADIATING WITH ELECTRON BEAMS ARE DISCUSSED. CENTIMETERS, RAD/SEC, AND AMPERE ARE THE UNITS APPROPRIATE TO THE ABOVE PARAMETERS.

*DOSE + ACCELERATOR + UNITED STATES

15-19768 ALSO IN CATEGORY 14
AUXIER JA
DOSIMETRY AND EXPOSURES IN NUCLEAR ACCIDENTS
OAK RIDGE NATIONAL LABORATORY
4 PAGES, 2 FIGURES, 2 TABLES, 12 REFERENCES, NUCLEAR SAFETY 8(4), PAGES 382-85 (SUMMER 1967)

DURING THE PAST 2 YEARS, THERE HAVE BEEN SEVERAL DEVELOPMENTS IN DOSIMETRY FOR NUCLEAR ACCIDENTS, AND THERE HAS BEEN ONE REACTOR ACCIDENT. THE MOST IMPORTANT DOSIMETRIC DEVELOPMENT WAS THE SOLID-STATE TRACK DETECTOR FOR USE WITH THE FISSION-FOIL DETECTOR. LITTLE SPECIFIC INFORMATION HAS BEEN MADE AVAILABLE ON THE NUCLEAR ACCIDENT, WHICH OCCURRED AT MOL, BELGIUM, ON DEC. 30, 1965.

*ACCIDENT, CRITICALITY + *DOSIMETRY, GENERAL + ACCIDENT, CONTROL ROD WITHDRAWAL + BELGIUM +
DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, EXTERNAL + NEUTRON + ORNL (OAK RIDGE NATIONAL LABORATORY) +
SOLID STATE DEVICE

15-19770 ALSO IN CATEGORY 14
ELLISON TW + DUNHAM AB
DOSE B - A CDC 6600 PROGRAM FOR CALCULATION OF INHALATION AND EXTERNAL DOSE FOR ESTABLISHING REACTOR SITING DISTANCE REQUIREMENTS
KNOLLS ATOMIC POWER LAB., SCHENECTADY, N. Y.
KAPL-M-6592 +. 36 PAGES, JANUARY 16, 1967

THE DOSE B PROGRAM WAS WRITTEN TO FACILITATE THE CALCULATION OF DISTANCE FACTORS FOR NUCLEAR REACTOR SITES AS DESCRIBED IN THE WELL-KNOWN USAEC DOCUMENT, CALCULATION OF DISTANCE FACTORS FOR POWER AND TEST REACTOR SITES, TID-14844. THE CALCULATIONS ARE ESSENTIALLY AS DESCRIBED IN THIS DOCUMENT EXCEPT THAT THE DOSE CODE ALLOWS FOR ARBITRARY OPERATING-POWER HISTORIES AND VARIABLE CONTAINMENT-LEAK RATES. THE PROGRAM CALCULATES THE THYROID AND DIRECT GAMMA DOSES RECEIVED BY AN INDIVIDUAL STANDING AT A DISTANCE D FROM THE POINT OF FISSION PRODUCT RELEASE FOR A TIME 1AU SUBSEQUENT TO THE TIME OF RELEASE AND BASED UPON A GIVEN REACTOR OPERATING HISTORY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*SITING, REACTOR + COMPUTER PROGRAM + COMPUTER, DIGITAL + CONTAINMENT LEAKAGE CONTROL +
DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + GAMMA + KAPL (KNOLLS ATOMIC POWER LABORATORY)

15-19772
DEMULDER R
ROLE OF THE DOCTOR APPROVED FOR THE SURVEILLANCE OF WORKERS EXPOSED TO IONIZING RADIATIONS
MBLE, BRUSSELS
7 PAGES, J. BELGE. RADIOL., 49, PAGES 274-80 (1966) IN FRENCH

THE MEDICAL SUPERVISION OF WORKERS EXPOSED TO IONIZING RADIATION IS DISCUSSED, NOT SO MUCH

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19772 *CONTINUED*

ACCORDING TO NATIONAL OR SUPRANATIONAL REGULATIONS AS PURSUANT TO THE EXPERIENCE OF THE FACTORY DOCTOR. THE MANNER IN WHICH THE MEDICAL AUTHORITY FITS EVERY FACET OF THE CONCERN IS DISCUSSED. PARTICULARS ARE STRESSED REGARDING THIS PROFESSIONAL HAZARD, PERIODICAL EXAMINATIONS, AND TRACKING POSSIBLE RADIOACTIVE CONTAMINATION.

*RADIATION INJURY, TREATMENT OF + BELGIUM + CONTAMINATION + RADIOLOGY

15-19773

SCHULL WJ + NEEL JV

A COHORT-TYPE STUDY OF SURVIVAL IN THE CHILDREN OF PARENTS EXPOSED TO ATOMIC BOMBINGS

JAPANESE NATIONAL INSTITUTE OF HEALTH + UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

34 PAGES, 3 FIGURES, 13 TABLES, REFERENCES, AMERICAN JOURNAL OF HUMAN GENETICS 12(4), PAGES 339-73 (JULY 1966)

AMONG THE GENETIC EFFECTS TO BE EXPECTED IN THE FIRST-GENERATION PROGENY OF MAMMALS EXPOSED TO RADIATION IS A SHORTENING OF LIFE DUE TO THE ACTION OF DELETERIOUS MUTATIONS. ALTHOUGH IN RECENT YEARS A CONSIDERABLE BODY OF DATA CONCERNED WITH SUCH EXPERIMENTAL SPECIES AS MICE, RATS, AND SWINE HAS BECOME AVAILABLE, PERTINENT OBSERVATIONS IN MAN REMAIN, FOR OBVIOUS REASONS, RARE. THE PURPOSE OF THIS PAPER IS TO DESCRIBE A CONTINUING STUDY IN HIROSHIMA AND NAGASAKI, THE OBJECTIVE OF WHICH IS TO DETERMINE THROUGH A COHORT APPROACH WHETHER THE LIFE SPAN OF LIVEBORN CHILDREN ONE OR BOTH OF WHOSE PARENTS WERE EXPOSED TO THE MIXED RADIATION SPECTRUM OF THE ATOMIC BOMBINGS DIFFERS FROM THAT OF SUITABLE CONTROL CHILDREN. THE DATA WILL THEN BE EMPLOYED TO APPROXIMATE A MINIMUM DOUBLING DOSE FOR MAN.

*RADIATION EFFECT + BIOMEDICAL + JAPAN + MAXIMUM PERMISSIBLE DOSE (MPD) + RADIOBIOLOGY

15-19802

MORGAN KZ

DANGERS FROM EXPOSURE TO IONIZING RADIATION

OAK RIDGE NATIONAL LABORATORY

ORNL-P-2999 +. 25 PAGES, 1967

SURVEYS BRIEFLY THE NATURAL RADIATION BACKGROUND AND THE HISTORY OF THE STUDY AND UTILIZATION OF RADIATION, BEGINNING WITH ROENTGEN AND BECQUEREL. FOLLOWING THAT IS A DISCUSSION OF NUCLEAR REACTORS, OF PEACEFUL USES OF NUCLEAR EXPLOSIVES, OF THE VALUE OF RADIOISOTOPES AS TRACERS. ON THE NEGATIVE SIDE ARE THE ACCIDENTS WHICH HAVE OCCURRED IN REACTOR OPERATION, AND THE UNNECESSARILY HIGH EXPOSURES WHICH SOMETIMES OCCUR IN DIAGNOSTIC X-RAYS.

AVAILABILITY - K. Z. MORGAN, OAK RIDGE NATIONAL LABORATORY, P. O. BOX X, OAK RIDGE, TENN.

*RADIATION IN PERSPECTIVE + ORNL (OAK RIDGE NATIONAL LABORATORY) + PLOWSHARE PROGRAM + RADIATION SAFETY AND CONTROL + RADIATION UNIT + RADIOISOTOPE

15-19803

ALSO IN CATEGORY 14

HANNISDAHL B + STROMME A

RADIOACTIVITY IN CIVILIAN NORWEGIAN PILOTS

SCANDINAVIAN AIRLINES SYSTEM, OSLO + STATE INSTITUTE OF RADIATION HYGIENE, MONTEBELLO

2 PAGES, 1 FIGURE, 1 TABLE, 3 REFERENCES, AEROSPACE MEDICINE 38(5), PAGES 521-22 (MAY 1967)

A STUDY OF RADIOACTIVITY USING CS-137 AS THE RADIOACTIVE AGENT WAS MADE IN A GROUP OF CIVILIAN NORWEGIAN PILOTS WHOSE AGES WERE BETWEEN 35 AND 45 YEARS AND OF AVERAGE HEIGHT AND WEIGHT. TO COMPARE THE RESULTS OF THE DATA OBTAINED FROM THE PILOTS WITH THAT OF OTHER GROUPS OF THE POPULATION, THREE GROUPS WERE SELECTED - (1) A GROUP OF ADULT MEN WITH SIMILAR CHARACTERISTICS AS THE PILOTS, FROM A COMMUNITY ON THE WEST COAST OF NORWAY WHERE RADIOACTIVE FALLOUT HAS BEEN ESPECIALLY HIGH, (2) A GROUP OF MEN FROM OSLO, AND (3) A GROUP OF SCHOOL YOUNGSTERS. THE RESULTS SHOWED THAT THE RADIOACTIVE EFFECT IN THE PILOTS WAS ABOUT THE SAME LEVEL AS THAT FOR MEN LIVING IN OSLO, AND MUCH LOWER THAN THAT IN THE OTHER GROUPS.

*FALLOUT + CESIUM + ENVIRONMENTAL CONDITION + NORWAY

15-19804

PERTTALA Y + RINNE R + RYTILLAE A

RADIATION DOSES TO ROENTGENOLOGISTS IN CONTRAST MEDIUM STUDIES OF THE GASTROINTESTINAL TRACT

UNIVERSITY CENTRAL HOSPITAL, HELSINKI

3 PAGES, 1 FIGURE, 7 REFERENCES, ANN. MED. INTERNAE FENN. 55, PAGES 61-3 (1966)

RADIATION DOSES TO THE EXAMINING PHYSICIAN WERE MEASURED BY RADIOPHOTOLUMINESCENCE DOSIMETRY DURING 100 CONTRAST-MEDIUM STUDIES OF THE GASTROINTESTINAL CANAL. THE MEASUREMENTS WERE TAKEN AT 7 POINTS ON THE BODY. THE MAXIMUM DOSES WERE ESTABLISHED IN THE FOREARM, BUT EVEN HERE THEY WERE NO HIGHER THAN THE MAXIMUM LIMITS FORSEEN IN THE RECOMMENDATION OF THE ICRP. THE SIGNIFICANCE OF CORRECT METHODS OF WORK IS STRESSED. THE MOST IMPORTANT POINT IS SHORT-TERM FLUOROSCOPY IN A SMALL FIELD AND WITH CORRECTLY SELECTED VALUES.

*DOSE + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, RADIOPHOTOLUMINESCENCE + FINLAND + RADIATION INJURY, TREATMENT OF + RADIOLOGY + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19806

PULCINELLI M + CARRAI M
RADIOTOXICOLOGICAL CONTROL IN THE MILITARY NUCLEAR CENTER
CENTRO APPLICAZIONI MILITARI ENERGIA NUCLEARE, PISA, ITALY
3 PAGES, MINERVA MED. 56 PAGES 3947-49 (NOVEMBER 14, 1965) IN ITALIAN

THE HEALTH PHYSICS METHODS ADOPTED AT THE CENTER ARE BRIEFLY OUTLINED, AND THE ORGANIZATION OF THE RADIOPROTECTIVE SERVICE IS SKETCHED.

*RADIATION PROTECTION, ORGANIZATION + ITALY + RADIATION SAFETY AND CONTROL

15-19807

ALSO IN CATEGORY 14

BOUTOT P + SCHIFFER P
DETERMINATION OF A CLEANING AND DECONTAMINATION PROCESS USING SOLVENTS
COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN, FRANCE. CENTRE DE PRODUCTION DE PLUTONIUM DE MARCOULE
CEA-R-3159 +. 17 PAGES, 13 FIGURES, MARCH 1967

THIS WORK WAS CARRIED OUT ON SAMPLES OF THE WHITE COTTON SERGE, OF WHICH MOST OF THE WORKING OVERALLS OF THE NUCLEAR RESEARCH CENTRE ARE MADE. THE AIMS WERE - (1) TO DETERMINE, FROM THE DECONTAMINATION AND CLEANING POINTS OF VIEW, THE EFFICIENCY OF VARIOUS SOLVENTS (WHITE SPIRIT, TRICHLOROETHYLENE, PERCHLOROETHYLENE, AND TRICHLOROTRIFLUOROETHANE) AND THE ROLE OF ADDITIVES LIKELY TO IMPROVE THE TREATMENT, (2) TO CONTROL THE TEXTILE FROM THE WEAR AND SHRINKAGE POINTS OF VIEW, (3) TO TRY TO DEVELOP A BASIC CLEANING AND DECONTAMINATION PROCESS AS A FUNCTION OF THE POSSIBILITIES OF EACH SOLVENT CONSIDERED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN, 54669

*RADIOCHEMICAL PLANT SAFETY + DECONTAMINATION + FRANCE

15-19810

ALSO IN CATEGORY 14

BRYAN FA + WRIGHT MD + NICHOLLS AB + BENJAMIN AJ + WRIGHT JC
INITIAL RADIATION SPECTRA DEFINITION, FINAL REPORT
RESEARCH TRIANGLE INST., DURHAM, N. C.
R-OU-246 + DASA-1934 +. 72 PAGES, 37 FIGURES, 16 TABLES, 19 REFERENCES

CALCULATIONS WERE PERFORMED TO DETERMINE THE INITIAL GAMMA RADIATION SPECTRA FROM NUCLEAR WEAPONS AS A FUNCTION OF WEAPON-SHELTER DISTANCE. THE PURPOSE OF THESE CALCULATIONS WAS TO DETERMINE STANDARD GAMMA SPECTRA WHICH COULD BE USED IN INITIAL WEAPON RADIATION SHIELDING CALCULATIONS. THE REPORT DESCRIBES THE CALCULATIONS BY WHICH THE INITIAL RADIATION SPECTRA WERE DETERMINED. THE SOURCES OF PHOTONS THAT WERE CONSIDERED IN THE CALCULATIONS INCLUDED PROMPT FISSION GAMMAS, EARLY FISSION PRODUCT GAMMAS, AND GAMMAS DUE TO RADIATIVE NEUTRON CAPTURE BY AIR NITROGEN. IT IS SHOWN THAT THE DIFFERENTIAL ENERGY SPECTRA ASSOCIATED WITH EACH OF THE PHOTONS SOURCES OBTAIN A PSEUDO-EQUILIBRIUM IN THEIR SCATTERED COMPONENTS. THESE PSEUDO-EQUILIBRIA OBTAIN AFTER PHOTON PENETRATIONS IN AIR OF 1.0 TO 1.5 MILES. IT IS RECOMMENDED THAT THE ONE-MILE DISTRIBUTIONS, AS DEFINED BY THE CALCULATIONS, BE USED AS STANDARDS FOR INITIAL RADIATION SHIELDING CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CIVIL DEFENSE + DOSE CALCULATION, EXTERNAL + GAMMA + NUCLEAR DETONATION + SHIELDING

15-19811

GRISANTI A + TORI P
DOSE DISTRIBUTION OF HIGH ACTIVITY CO-60 SOURCE THROUGH GLASS DOSIMETRY
ISTITUTO SUPERIORE DI SANITA, ROME ITALY
ISS-66/42 +. 17 PAGES, 4 FIGURES, 8 REFERENCES, NOVEMBER 10, 1966

DISCUSSES THE RELATIVE MERITS OF METHODS SUITED TO THE DOSIMETRY OF LARGE ISOTOPIC SOURCES. THE RESULTS OF A CALIBRATION OF A GAMMABEAM-650 SOURCE WITH GLASS DOSIMETER ARE PRESENTED. THE CONCLUDING REMARKS SHOW NOT ONLY THE FEASIBILITY OF THE METHOD BUT ALSO THE POSSIBILITY OF EXTENDING THE USE OF THE GLASS DOSIMETER TO DOSE DISTRIBUTION DETERMINATION OF SOURCES OF THERAPEUTIC INTEREST.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM WISCONSIN 54669

*DOSE + *DOSIMETRY, GENERAL + COBALT + ITALY

15-19814

MEDICINE - DIAGNOSIS - X-RAY EXCESS
OAK RIDGE NATIONAL LABORATORY
1 PAGE, TIME 90(11), PAGE 69 (SEPT. 8, 1967)

K. Z. MORGAN OF THE OAK RIDGE NATIONAL LABORATORY STATED BEFORE THE SENATE COMMERCE COMMITTEE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19814 *CONTINUED*

THAT FROM 3,500 TO 30,000 DEATHS IN THE U.S. MAY RESULT FROM CUMULATIVE EFFECTS OF RADIATION EACH YEAR. MAN-MADE RADIATION (NOW EQUAL TO HALF THE TOTAL OF NATURAL RADIATION) ADDS UP TO 55 MR ANNUALLY FOR EVERY AMERICAN, 90 PERCENT FROM DIAGNOSTIC X-RAYS. DENTAL X-RAYS COULD BE REDUCED BY 99 PERCENT AND DIAGNOSTIC BY 90 PERCENT BY USING PROPER EQUIPMENT AND TECHNIQUES. MORGAN ENDORSED A CONTROVERSIAL MEASURE WHICH WOULD REQUIRE PREMARKETING CLEARANCE BY THE NCRP. HE ALSO RECOMMENDED REGULAR CHECKS ON ALL EQUIPMENT IN USE.

*RADIOLOGY + BIOMEDICAL + RADIATION INJURY, TREATMENT OF + UNITED STATES + X-RAY

15-19815

ZIELCZNSKII M

THE DETERMINATION OF THE DOSE EQUIVALENT OF MIXED RADIATION EMPLOYING DETECTORS WHOSE SENSITIVITY DEPENDS ON THE LINEAR ENERGY LOSS

INSTITUTE FOR NUCLEAR STUDIES, SWERK, POLAND

BNL-TR-124 + CONF-660807-36 +. 22 PAGES, PRESENTED AT THE SYMPOSIUM ON NEUTRON MONITORING FOR RADIOLOGICAL PROTECTION, VIENNA, AUGUST 29--SEPTEMBER 2, 1966

THIS CAN BE ACCOMPLISHED BY ONE OF THREE GROUPS OF METHODS. THE FIRST IS BASED ON A FULL ANALYSIS OF THE COMPOSITION AND OF THE MIXED RADIATION SPECTRUM. THE SECOND GROUP CONSISTS OF METHODS WHICH EMPLOY DETECTORS SENSITIVE TO THE LINEAR ENERGY LOSS (LEL) OF THE TISSUE-IONIZING PARTICLES. THE THIRD GROUP CONSISTS OF METHODS CAPABLE OF MEASURING THE DOSE EQUIVALENT DIRECTLY, WITH THE HELP OF DETECTORS SENSITIVE NOT TO THE LEL BUT TO OTHER RADIATION PARAMETERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, GENERAL + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL

15-19817

SCHULTE HF + WHIPPLE HO

CHELATING AGENTS IN PLUTONIUM DEPOSITION - A MINORITY VIEW

LOS ALAMOS SCIENTIFIC LAB., N. MEXICO

LA-DC-8433 + CONF-670521-2 +. 9 PAGES, 1967, FROM SYMPOSIUM ON DIAGNOSIS AND TREATMENT OF DEPOSITED RADIONUCLIDES, RICHMOND, WASH.

THE AUTHORS TAKE STRONG EXCEPTION TO THE PRACTICE OF USING CHELATING DRUGS IMMEDIATELY AFTER AN ACCIDENTAL EXPOSURE TO A VARIETY OF RADIONUCLIDES. THEY REVIEW A CASE IN WHICH A SUBJECT DEVELOPED A SEVERE TOXIC NEPHROSIS THROUGH USE OF EDTA IN AN ATTEMPT TO REDUCE AN ACCIDENTALLY INJECTED PLUTONIUM BODY BURDEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION PROTECTION, CHEMICAL + ACTINIUM + AMERICIUM + CHEMICAL TOXICITY + CURIUM + LASL (LOS ALAMOS SCIENTIFIC LABORATORY) + PLUTONIUM + RADIOBIOLOGY + THORIUM

15-19818

KURLYANDASKAYA EB

THE INFLUENCE OF U308 ON THE PREGNANT FEMALE AND THE FETUS

ORNL-TR-1579 +. 15 PAGES, 1964

UO3 IN THE BLOOD OF A MOTHER MAY APPEAR IN THE TISSUE OF THE PLACENTA, IN THE FETUS, AND IN THE URINE AND BLOOD OF THE MOTHER. IT WAS SHOWN IN EXPERIMENTS WITH RABBITS RECEIVING SINGLE OR MULTIPLE DOSES OF U308 THROUGH THE TRACHEA OR THROUGH THE ESOPHAGUS, THAT THE EMBRYOS ORGANS, PLACENTA, AND MILK OF THE FEMALE CONTAINED URANIUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*RADIOBIOLOGY + BIOLOGICAL CONCENTRATION; ANIMAL + UNION OF SOVIET SOCIALIST REPUBLICS + URANIUM OXIDE

15-19820

ALSO IN CATEGORY 14

BONE STRONTIUM

2 PAGES, NATURE 214(5095), PAGES 1286-7 (JUNE 24, 1967)

THE MOST RECENT REPORT OF THE MEDICAL RESEARCH COUNCIL ON THE CONTENT OF SR-90 IN HUMAN BONES SHOWS A CONTINUING BUT GRADUAL DECLINE. IN THE FIRST HALF OF 1966, FOR EXAMPLE, THE CONCENTRATION OF STRONTIUM IN THE BONES OF STILLBORN CHILDREN WORKED OUT AT 2.3 PC PER G OF CALCIUM FOR A SERIES OF 47 ANALYSES IN GLASGOW. IN 1965, THE CORRESPONDING FIGURES WERE 2.7 AND 3.2 PC PER G OF CALCIUM RESPECTIVELY. AS IN PREVIOUS YEARS, THE HIGHEST CONCENTRATIONS WERE FOUND IN SKELETONS OF CHILDREN DYING BETWEEN 6 AND 23 MONTHS OF AGE.

*FALLOUT + BIOLOGICAL CONCENTRATION, MAN + BIOMEDICAL + RADIOBIOLOGY + STRONTIUM + UNITED KINGDOM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19821
BIBLIOGRAPHY OF PUBLISHED PAPERS OF THE ATOMIC BOMB CASUALTY COMMISSION
ATOMIC BOMB CASUALTY COMMISSION, JAPAN
ABCC-TR-0-56 +. 7 PAGES, 1966

BIBLIOGRAPHY OF PAPERS PUBLISHED BY MEMBERS OF THE ABCC STAFF DURING 1966.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*BIBLIOGRAPHY + BIOMEDICAL + JAPAN + RADIOBIOLOGY + RADIOLOGY

15-19822 ALSO IN CATEGORY 14
MORGAN DJ + MORGAN A
STUDIES ON THE RETENTION AND METABOLISM OF INHALED METHYL IODIDE. 2. RETENTION OF METHYL IODIDE
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-R-5117 +. 24 PAGES, 4 FIGURES, 8 TABLES, 12 REFERENCES, MAY 1966

METHYL IODIDE IS ONE OF THE FORMS IN WHICH RADIO-IODINE MAY BE RELEASED IN ACCIDENTS INVOLVING FISSION PRODUCTS. TO PROVIDE INFORMATION TO ASSIST IN THE ASSESSMENT OF THE RADIOLOGICAL HAZARD RESULTING FROM ITS INHALATION, A SERIES OF EXPERIMENTS WAS CARRIED OUT WITH VOLUNTEER SUBJECTS TO MEASURE ITS RETENTION. VALUES RANGING FROM 53 TO 92 PERCENT WERE OBTAINED, WITH A MEAN VALUE OF 72 PERCENT. THE RETENTION IS HIGHLY DEPENDENT UPON RESPIRATORY RATE, LOW RATES BEING ASSOCIATED WITH HIGH RETENTION AND VICE-VERSA. TO STUDY THE EFFECT OF RESPIRATORY RATE AND TIDAL VOLUME ON RETENTION, AN ADDITIONAL SERIES OF EXPERIMENTS WAS CARRIED OUT. THESE SHOWED THAT THERE IS NEGLIGIBLE ABSORPTION OF METHYL IODIDE IN THE RESPIRATORY DEAD SPACE AND THAT AT NORMAL BREATHING RATES, ABSORPTION FROM ALVEOLAR AIR IS INCOMPLETE. AN EXPRESSION IS DERIVED WHICH ENABLES THE RETENTION TO BE CALCULATED. IODINE-132 LABELLED METHYL IODIDE WAS USED IN ALL THESE EXPERIMENTS, THE AVERAGE RADIOLOGICAL DOSE TO THE THYROID BEING ABOUT 3 MREMS.

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*ACCIDENT, RADIOISOTOPE + FISSION PRODUCT, IODINE + HARWELL (UK) + RADIOBIOLOGY + UNITED KINGDOM

15-19824
BECKER K + MCQUILLING DW
RADIOPHOTOLUMINESCENCE SPECTRA OF SILVER-ACTIVATED DOSIMETER GLASSES
NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO
USNRDL-TR-67-66 +. 29 PAGES, 11 FIGURES, 14 REFERENCES, JUNE 23, 1967

THE ABSOLUTE RADIOPHOTOLUMINESCENCE SPECTRA OF SEVERAL COMMERCIAL AND EXPERIMENTAL AGACTIVATED DOSIMETER GLASSES WERE MEASURED WITH A SPECIALLY DESIGNED APPARATUS. DEPENDING MAINLY ON THE GLASS BASE COMPOSITION, MAXIMA BETWEEN 615 AND 640 MILLIMICRONS AND A SLOW DECREASE IN THE RED WERE FOUND. THE EFFECT OF BUILDUP, SILVER CONCENTRATION, AND DOSE OF THE RPL SPECTRAL SHAPE IS SMALL. THE INFLUENCE OF VERY HIGH DOSES AND THERMAL ANNEALING ALSO HAS BEEN MEASURED.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*DOSIMETRY, GENERAL + *DOSIMETRY, RADIOPHOTOLUMINESCENCE + INSTRUMENTATION, RADIATION MONITORING + UNITED STATES

15-19825
RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION (ADOPTED SEPTEMBER 17, 1965)
THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION
ICRP-9 +. 27 PAGES, PERGAMON PRESS, OXFORD, LONDON, EDINBURGH, NEW YORK, TORONTO, PARIS, BRAUNSCHWEIG, 1966

THE POLICY OF THE COMMISSION IN PREPARING ITS RECOMMENDATIONS IS TO CONSIDER THE FUNDAMENTAL PRINCIPLES UPON WHICH APPROPRIATE RADIATION PROTECTION MEASURES CAN BE BASED, LEAVING TO THE VARIOUS NATIONAL BODIES THE RESPONSIBILITY FOR SPECIFIC ADVICE AND CODES OF PRACTICE. THE RECOMMENDATIONS ARE COVERED UNDER HEADINGS - THE BASIC PRINCIPLES UNDERLYING THE RECOMMENDATIONS OF ICRP, LIMITATIONS OF DOSES FOR EXPOSURES FROM CONTROLLABLE SOURCES, ACTION LEVELS FOR EXPOSURES FROM UNCONTROLLED, GENERAL PRINCIPLES FOR OPERATIONAL RADIATION PROTECTION, THE WORK AND ORGANIZATION OF THE COMMISSION, AND PUBLICATIONS OF THE COMMISSION.

AVAILABILITY - PERGAMON PRESS INC., 44-01 21ST STREET, LONG ISLAND CITY, NEW YORK 11101

*RADIATION PROTECTION, ORGANIZATION + BIOMEDICAL + DOSE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + RADIATION UNIT + RADIOBIOLOGY + RADIOLOGY

15-19827 ALSO IN CATEGORY 14

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19827 *CONTINUED*

ACTIVITIES OF THE BIOLOGY AND HEALTH PHYSICS DIVISION, CHALK RIVER NUCLEAR LABORATORIES.
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO
AECL-2665 +. 59 PAGES, REFERENCES, FEBRUARY 1967

CONTAINS SUMMARIES OF TALKS GIVEN BY THE PROFESSIONAL STAFF ON SOME ACTIVITIES OF THE BIOLOGY
AND HEALTH PHYSICS DIVISION, CRNL, DURING THE VISIT OF THE AECL SENIOR MANAGEMENT COMMITTEE
IN FEBRUARY 1967.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

BIOMEDICAL + CANADA + CHALK RIVER + DOSE + DOSIMETRY, GENERAL + DOSIMETRY, THERMOLUMINESCENCE +
ENVIRONMENTAL CONDITION + MONITORING PROGRAM, ENVIRONMENTAL + RADIOBIOLOGY

15-19829 ALSO IN CATEGORY 14

SHAFIROV YB

EXPERIMENTAL SUBSTANTIATION OF THE MAXIMUM PERMISSIBLE CONCENTRATION OF STRONTIUM IN WATER
6 PAGES, 2 FIGURES, 2 TABLES, GIGIENA Y SANITARIJA 30(11), PAGES 18-23 (NOV. 1965)

THE THRESHOLD CONCENTRATION OF SR, AFFECTING THE TASTE OF WATER, AMOUNTED TO 12 MG/L. NO
EFFECT WAS NOTED IN THE GENERAL SANITARY REGIME OF THE WATER BASIN AT THIS CONCENTRATION. A
DOSE INEFFICIENT FOR WARM-BLOODED ANIMALS UNDER CONDITIONS OF A CHRONIC TEST COMPRISED 0.13
MG/KG (2.8 MG/L). CONSEQUENTLY, THE HYGIENIC STANDARD VALUES OF SR IN THE WATER SHOULD BE
DETERMINED IN VIEW OF THE FACT THAT THE SANITARY TOXICOLOGIC SIGN OF NOXIOUS EFFECT IS
PECULIAR FOR THIS ELEMENT. THE MAXIMUM PERMISSIBLE CONCENTRATION OF SR IN THE WATER OF WATER
BASINS IS SUGGESTED TO BE SET AT 2.5 MG/L.

*WATER, GENERAL + STRONTIUM + UNION OF SOVIET SOCIALIST REPUBLICS + WATER POLLUTION + WATER, DRINKING

15-19881 ALSO IN CATEGORY 14

LITTLE JB + MCGANDY RB

MEASUREMENT OF POLONIUM-210 IN HUMAN BLOOD

HARVARD SCH. PUB. HLTH., BOSTON, MASS.

2 PAGES, 1 FIGURE, 7 REFERENCES, NATURE 211(5051), PAGE 842 AND 843, (AUGUST 20, 1966)

PO-210 WAS DETERMINED IN BLOOD SAMPLES FROM 100 HEALTHY MEN BETWEEN AGES 45 AND 54. THE
AVERAGE CONCENTRATION IN SMOKERS WAS 1.72 PC/KG BLOOD, COMPARED WITH 0.76 PC/KG IN
NONSMOKERS. SAMPLES FROM HEAVY SMOKERS BEFORE AND AFTER A COMPLETE CESSATION OF SMOKING
SHOWED AN AVERAGE DROP OF 27%.

*BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, VEGETATION +
POLONIUM

15-19885

EHRENKRANZ TE + ETTINGER HJ

LASER SAFETY PROGRAM

LGS ALAMOS SCIENTIFIC LAB., N. MEX.

LA-3731-MS +. 20 PAGES, 1 FIGURE, 2 TABLES, 10 REFERENCES, JULY 1967

OUTLINES THE DEVELOPMENT OF THE LASER SAFETY PROGRAM AT LOS ALAMOS AS THE USE OF LASERS
DEVELOPED IN THE RESEARCH PROGRAMS. RELIANCE IS PLACED BASICALLY ON THE SAFETY TRAINING AND
SELF-DISCIPLINE OF THE WORKERS, AND ON THEIR ABILITY TO RECOGNIZE AND RESPECT RISKS. MANY OF
THE RESTRICTIONS IMPOSED BY OTHER ORGANIZATIONS REGARDING WORK WITH LASERS ARE NOT USED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*LASER + *SAFETY PRINCIPLES AND PHILOSOPHY + LASL (LOS ALAMOS SCIENTIFIC LABORATORY)

15-19886 ALSO IN CATEGORY 14

HAZARDS CONTROL PROGRESS REPORT NO. 27 JANUARY--APRIL 1967

CALIFORNIA UNIVERSITY, LIVERMORE, LAWRENCE RADIATION LAB

UCRL-50007-67-1 +. 61 PAGES, 60 FIGURES, 14 TABLES, 29 REFERENCES, APRIL 1967

STUDIES ARE INCLUDED IN THE FOLLOWING FIELDS - CALCIUM FLUORIDE (EU) AS A PHOTON AND
CHARGED-PARTICLE DETECTOR, CONSTRUCTION OF A LARGE AREA PROPORTIONAL COUNTER, POCKET
DOSIMETER RESPONSE IN PULSED RADIATION FIELDS, ENERGY DEPENDENCE OF LOW-Z SILVER
METAPHOSPHATE GLASS DOSIMETERS, THE FIRST FIELD USE OF A NEW PLUTONIUM SURVEY INSTRUMENT,
DETECTION OF PLUTONIUM ON AIR FILTERS USING THE ALPHA/BETA RATIO OF RESIDUAL THORON DAUGHTER
ACTIVITY, GAMMA-BACKGROUND-COMPENSATION CIRCUIT, A DUAL-RANGE G-M CALIBRATION CHECK SOURCE,
PORTABLE SEWER SAMPLER (PROPORTIONAL TO FLOW), HIGH-VOLUME AIR SAMPLER POWERED BY AUTOMOBILE
BATTERY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

COUNTER + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, RADIOPHOTOLUMINESCENCE +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19886 *CONTINUED*

INSTRUMENTATION, RADIATION MONITORING + LRL (LAWRENCE RADIATION LABORATORY) +
MONITOR, RADIATION, BACKGROUND + PLUTONIUM + SAMPLING + SOURCE, RADIATION

15-19919

NEUTRON MONITORING. PROCEEDINGS OF THE SYMPOSIUM ON NEUTRON MONITORING FOR RADIOLOGICAL PROTECTION HELD
IN VIENNA, 29 AUGUST-2 SEPTEMBER 1966. PROCEEDINGS SERIES
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
STI/PUB-136 + CONF-660807 +. 716 PAGES, JANUARY 1967, IN SEVERAL LANGUAGES

PROCEEDINGS OF A SYMPOSIUM ORGANIZED BY THE IAEA AND HELD IN VIENNA FROM 29 AUGUST TO 2
SEPTEMBER 1966. CONTENTS - PHYSICAL ASPECTS OF NEUTRON DOSIMETRY (12 PAPERS), LIQUID
DIELECTRIC AND SCINTILLATION DETECTORS (9 PAPERS), SEMICONDUCTOR DETECTORS, SINGLE-SPHERE AND
MULTISPHERE SYSTEMS (8 PAPERS), DOSIMETRY EXPERIENCE AND PROBLEMS IN VARIOUS INSTALLATIONS (5
PAPERS), DEVELOPMENTS IN PERSONNEL MONITORING FOR NEUTRONS (12 PAPERS), DOSIMETRY STUDIES FOR
ACCIDENTS AND COMPARISON OF VARIOUS DOSIMETRY SYSTEMS (6 PAPERS), STANDARDIZATION AND
CALIBRATION (5 PAPERS). EACH PAPER IS PRESENTED IN ITS ORIGINAL LANGUAGE (29 ENGLISH, 13
FRENCH, 15 RUSSIAN) AND IS PRECEDED BY AN ABSTRACT IN ENGLISH AND ONE IN THE ORIGINAL
LANGUAGE IF THIS IS NOT ENGLISH. DISCUSSIONS ARE IN ENGLISH.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N.Y.,
10016

*BIBLIOGRAPHY + *DOSIMETRY, GENERAL + *MONITOR, RADIATION, PERSONNEL + *NEUTRON + *SOLID STATE DEVICE +
COUNTER + RADIOLOGY + SPECTROMETRY, NEUTRON

15-19949

ALSO IN CATEGORY 14

PESTNER JF

RADIOLYSIS OF SEAWATER

NAVAL RADIOLOGICAL DEFENSE LAB., SAN FRANCISCO, CALIF.

USNRDL-TR-67-44 + AD-651-158 +. 27 PAGES, APRIL 3, 1967.

THE MOLECULAR RADIOLYSIS PRODUCTS OF SEAWATER WERE DETERMINED TO EVALUATE WHETHER THESE
PRODUCTS AND THEREFORE THE RESIDUAL RADIATION FIELD THAT PRODUCED THEM COULD HAVE AN EFFECT
ON THE CHEMICAL AND PHYSICAL SPECIES OF THE RADIONUCLIDE DEBRIS PRODUCED IN AN UNDERWATER
NUCLEAR EXPLOSION. THE G(HYDROGEN) WAS 0.44 PLUS OR MINUS 0.01 FOR AERATED SEAWATER AND 1.03
PLUS OR MINUS 0.01 FOR OUTGASSED SEAWATER. G(PEROXIDE) WAS 1.03 PLUS OR MINUS 0.06 FOR THE
INITIAL YIELD IN AERATED AND OUTGASSED SEAWATER. SPECULATIONS ON THE MECHANISMS TO ACCOUNT
FOR THESE YIELDS ARE BASED ON THE INFLUENCE OF THE MAJOR COMPONENTS OF SEAWATER THAT ARE
LIKELY TO CHANGE THE KNOWN MECHANISMS FOR PURE WATER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*NUCLEAR DETONATION + *OCEAN AND SEA + *OXIDATION + HYDROGEN + RADIATION EFFECT

15-19950

ALSO IN CATEGORY 14

JOHNSON JE + WILSON DW + LINDSAY WL

TRANSFER OF FALLOUT CESIUM-137 FROM SOIL TO DAIRY CATTLE FEEDS

COLORADO STATE UNIVERSITY

2 PAGES, 5 REFERENCES, SOIL SCIENCE SOCIETY OF AMERICA, PROCEEDINGS 30(3), PAGE 416-417, (MAY-JUNE 1966)

CORE (SORGHUM VULGARE) SEEDLINGS WERE GROWN IN A GREENHOUSE IN THE UPPER 5 CM OF SOIL TAKEN
FROM A PERMANENT PASTURE CONTAINING A CUMULATIVE FALLOUT DEPOSITION OF CS-137 OF 80,000
PC/SQ. METER. NO DETECTABLE CS-137 (LESS THAN 10 PC/KG) WAS FOUND IN THE PLANTS. ON THE
OTHER HAND, CORN PLANTS GROWING IN LOCAL FIELDS CONTAINED 1,500 PC/KG OF CS-137. IT WAS
CONCLUDED FROM THESE STUDIES THAT THE CS-137 CONTENT OF DAIRY CATTLE FEEDS RESULTED LARGELY
FROM DIRECT FOLIAR CONTAMINATION, AND THAT UPTAKE FROM THE SOIL RESERVOIR WAS UNIMPORTANT.
FURTHER, THE COMPARABLE ALFALFA HAY CROPS IN YEARS SINCE 1963 HAVE BEEN DECREASING IN CS-137
LEVEL, WHILE THE TOP SOIL CS-137 CONCENTRATION HAS INCREASED STEADILY DURING THIS PERIOD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CESIUM + *FALLOUT + *RAINOUT + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, MAN +
BIOLOGICAL CONCENTRATION, MILK + SOIL

15-19951

BUECHNER II

RADIOPROTECTION PROBLEMS OF RADIODIAGNOSIS IN SURGERY

UNIVERSITY OF MUNICH

5 PAGES, REFERENCES, RADIOLOGE 6, PAGE 316-320, (AUGUST 1966), IN GERMAN

THE ANNUAL RATE OF INCREASE IN X-RAY STUDIES USED IN DIAGNOSTICS AMOUNTS TO ABOUT 10%.
SPECIAL X-RAY DIAGNOSTIC PROCEDURES THAT REQUIRE PARTICULAR ATTENTION TO RADIOPROTECTION
INCLUDE PREOPERATIVE X-RAY STUDIES ON THE SKELETON, ORGANS, AND SOFT TISSUES, POSTOPERATIVE
FOLLOW UP STUDIES, AND SPECIALIZED STUDIES IN THE FIELD OF SURGICAL-ORTHOPEDIC DIAGNOSTICS.
SURVEYS PERFORMED IN CONNECTION WITH THORACIC STUDIES INDICATE THAT THE GONADAL DOSE FROM A
SINGLE THORACIC PHOTOGRAPH IS EQUIVALENT TO THE IRRADIATION RECEIVED DURING AN AIR FLIGHT

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19951 *CONTINUED*

OVER THE U.S. THE DOSE FROM THORACIC FLUOROSCOPY IS ABOUT 333 TIMES AS GREAT. THERE IS EVIDENCE FOR INCREASED GONADAL DOSES ASSOCIATED WITH HIP PHOTOGRAPHS, GAINED THROUGH YEARS OF EXPERIENCE WITH TREATMENT OF HIP DYSPLASIAS AND LUXATIONS. WITH A PROPERLY PLACED SHIELD, THE GONADAL DOSE CAN BE REDUCED BY 20 TO 30%. PATIENTS OF REPRODUCTIVE AGES WITH APPENDICITIS SHOULD NOT BE DIAGNOSED WITH X-RAY.

*BIOLOGICAL CONCENTRATION, MAN + *X-RAY + DOSE MEASUREMENT, INTERNAL + PERSONNEL EXPOSURE, RADIATION + RADIOLOGY

15-19952

TOIVONEN M

ROUTINE PERSONNEL DOSIMETRY WITH FLUORO-GLASSES
INSTITUTE OF RADIATION PHYSICS, HELSINKI (FINLAND)
SFL-A-7 +. 15 PAGES, TABLES, MARCH 1967

A SERIES OF BADGE CASES WERE MADE WITH SILVER-ACTIVATED PHOSPHATE GLASSES FOR PERSONNEL MONITORING. THE PLASTIC CONSTRUCTION IS DESIGNED TO ACCEPT MANY COMBINATIONS OF SPHERICAL METAL FILTERS, AND THESE BADGES MAY BE USED AS SPECIALIZED DOSIMETERS BY PERSONS EXPOSED TO RESTRICTED RANGE OF RADIATION TYPES. THE YOKOTA GLASSES (8 X 8 SQ. MM) IN DIFFERENT FILTER CAPSULES WERE EXPOSED, AND THE RESPONSE CHARACTERISTICS WERE INVESTIGATED. THE SLOW NEUTRONS AND GAMMA RAYS WERE SEPARATED BY THE CADMIUM FILTER TECHNIQUE. THE SUITABILITY OF DIFFERENT BADGES FOR VARIOUS PRACTICAL APPLICATIONS WAS STUDIED. A SIMPLE DOSE-ASSESSMENT SYSTEM WAS IMPLEMENTED TO IDENTIFY THE PHOTON SPECTRUM IN CASES WHERE THIS IS POSSIBLE. SUITABLE FORMULAS ARE GIVEN TO COMPENSATE THE ENERGY DEPENDENT RESPONSE, AND AN ESTIMATE OF THE ACCURACY OF THIS ASSESSMENT SYSTEM HAS BEEN DETERMINED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*DOSIMETRY, GENERAL + *INSTRUMENTATION, RADIATION MONITORING + DESIGN STUDY + GLASS + PHOSPHATE + SILVER

15-19953

ISOLA A

PORTABLE SURVEY METER FOR LOW-LEVEL RADIATION MEASUREMENTS
INSTITUTE OF RADIATION PHYSICS, HELSINKI, FINLAND
SFL-A-10 +. 8 PAGES, FIGURES, REFERENCES, APRIL 1967

A PORTABLE SURVEY METER BASED ON THE IONIZATION CHAMBER PRINCIPLE WAS DESIGNED AND BUILT FOR LOW-LEVEL RADIATION EXPOSURE MEASUREMENTS. SOME CHARACTERISTICS OF THE CHAMBER ARE DESCRIBED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*INSTRUMENTATION, RADIATION MONITORING + MAXIMUM PERMISSIBLE DOSE (MPD) + MONITOR, RADIATION, ENVIRONMENTAL + SURVEY, RADIATION, GENERAL

15-19956

ALSO IN CATEGORY 14

RALLS JW + PRIMBSCH S + GUCKEEN TR + MAAGDENBERG HJ + RINEHART J + LAMB FC + MERCER WA
DISTRIBUTION OF STRONTIUM AND CALCIUM IN MAJOR VEGETABLE AND FRUIT CROPS AND CRITERIA FOR USE OF FALLOUT-CONTAMINATED FOODS
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE + NATIONAL CANNERS ASSOCIATION
4 PAGES, 2 TABLES, 4 REFERENCES, RADIOLOGICAL HEALTH DATA REPORTS 8(7), PAGE 355-358, (JULY 1967)

VEGETABLE AND FRUIT CROPS WERE GROWN IN SOIL ENRICHED WITH HIGH LEVELS OF STRONTIUM NITRATE. THE NORMALLY EDIBLE PORTIONS OF THE CROPS WERE HARVESTED AND SECTIONED INTO ANATOMICALLY DISTINCT PORTIONS. THE STRONTIUM AND CALCIUM CONTENT WAS MEASURED BY FLAME SPECTROPHOTOMETRY OR BY PHOTON ACTIVATION ANALYSIS. THE RESULTS ARE TABULATED TO PROVIDE AN UPPER LIMIT FOR RADIOSTRONTIUM CONTENT OF CROPS GROWN IN SOIL HEAVILY CONTAMINATED WITH DEBRIS FROM NUCLEAR FISSION ON A MASSIVE SCALE.

*CALCIUM + *FALLOUT + *STRONTIUM + BIOLOGICAL CONCENTRATION, FOOD + CONTAMINATION + DIETARY HABIT + NUCLEAR DETONATION

15-19957

ALSO IN CATEGORY 14

COLEMAN RD + ANDREWS VE

AERIAL MEASUREMENT OF THE KIWI TRANSIENT NUCLEAR TEST
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
8 PAGES, 1 FIGURE, 5 TABLES, 3 REFERENCES, RADIOLOGICAL HEALTH DATA REPORTS 8(7), PAGE 359-366, (JULY 1967)

THE LOS ALAMOS SCIENTIFIC LABORATORY CONDUCTED A TRANSIENT NUCLEAR TEST ON A KIWI REACTOR ON JANUARY 12, 1965, AT THE NUCLEAR ROCKET DEVELOPMENT STATION AT JACKASS FLATS, NEV. DURING THIS PLANNED DESTRUCTIVE TEST OF A PROPULSION REACTOR, THE PUBLIC HEALTH SERVICES, SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY CONDUCTED A LAND AND AERIAL OFF-SITE RADIOLOGICAL SURVEILLANCE PROGRAM. THE AERIAL ASPECTS OF THE LABORATORY'S PROGRAM INCLUDED SAMPLING AND ASSAY MISSIONS ALONG FLIGHT PATTERNS THROUGH THE RADIOACTIVE CLOUD FORMED BY THE DESTRUCTION OF THE REACTOR. SAMPLES OBTAINED FROM THESE AERIAL MISSIONS WERE ANALYZED TO DEFINE VARIOUS CHARACTERISTICS OF THE CLOUD. THE AIRCRAFT MADE REPEATED MEASUREMENTS OF PEAK GAMMA LEVELS.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-19957 *CONTINUED*

*AIR + *ROVER PROGRAM + *SURVEILLANCE PROGRAM + DIFFUSION + GROSS GAMMA + METEOROLOGICAL SUPPORT + PARTICULATE + RADIOACTIVITY, RELEASE + RADIOLOGICAL ASSISTANCE + REACTOR TRANSIENT + SAMPLING

15-19958

SUMMARY OF POPULATION EXPOSURE TO X-RAYS IN THE UNITED STATES, 196

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

7 PAGES, 11 FIGURES, 3 TABLES, RADIOLOGICAL HEALTH DATA REPORTS 8(7), PAGE 367-373, (JULY 1967)

PUBLIC HEALTH SERVICE PUBLICATION NO. 1519 IS PRESENTED. IT IS ESTIMATED THAT 56 PERCENT OF THE 187 MILLION CIVILIAN NONINSTITUTIONAL POPULATION OF THE UNITED STATES HAD ONE OR MORE X-RAY VISITS. THE ESTIMATED ANNUAL DENTAL X-RAY RATE DECLINED FROM 27.4 PER 100 PERSONS IN 1961 TO 26.8 IN 1964. THE ESTIMATED ANNUAL RATE OF MEDICAL X-RAY VISITS INCREASED FROM 47.9 PER 100 PERSONS IN 1961 TO 49.8 IN 1964. OF THE 173 MILLION X-RAY EXAMINATIONS OR PROCEDURES PERFORMED DURING THESE VISITS, 105 MILLION WERE RADIOGRAPHIC, 54 MILLION DENTAL, 10.5 MILLION FLUOROSCOPIC, AND 3.5 MILLION X-RAY THERAPY. THE ESTIMATED NUMBER OF X-RAY FILMS TAKEN WERE 506 MILLION.

*POPULATION EXPOSURE + *UNITED STATES + *X-RAY + RADIATION SAFETY AND CONTROL + RADIOLOGY

15-19990

MALETSKOS CJ + DEAN PN + LOUGH SA + MILLER CE

INTERCOMPARISON OF THE RELIABILITY OF BODY CS-137 MEASUREMENTS ON HUMAN BEINGS

DIVISION OF BIOLOGY AND MEDICINE, ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

TID-23740 +. 102 PAGES, TABLES, FIGURES, JUNE 6, 1967

THE INTERCOMPARISON WAS CARRIED OUT IN THREE PHASES - (1) INTERCOMPARISON WITH NATIONAL BUREAU OF STANDARDS CS-137 SOURCES TO DETERMINE VARIATIONS IN THE ABSOLUTE ACTIVITY OF THE LABORATORY STANDARDS, (2) DETERMINATION, AT THREE DIFFERENT DISTANCES FROM THE DETECTOR, OF THE RATIO BETWEEN THREE CS-137 SOURCES WITH NOMINAL ACTIVITIES OF 1000, 100 AND 10 NCi, AND (3) DETERMINATION OF CS-137 BODY BURDENS OF TWO WELL-DOCUMENTED SUBJECTS (ONE WITH A NORMAL BURDEN AND THE OTHER WITH A BURDEN ABOUT TEN TIMES GREATER) BY THE USUAL PROCEDURE OF EACH LABORATORY. IT WAS CONCLUDED THAT, AT THE TIME OF THE STUDY, THE 17 LABORATORIES CAN BE CAPABLE OF RELIABLE CS-137 AND K BODY-BURDEN MEASUREMENTS IN HUMANS. IT IS NOT CLEAR WHY ORIGINAL RESULTS WERE VARIABLE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ANALYTICAL TECHNIQUE, CALIBRATION + *CESIUM + *COUNTER, WHOLE BODY + USAEC (U.S. ATOMIC ENERGY COMMISSION)

15-20025

ALSO IN CATEGORY 14

HOUGHTON G + JUPITER C + TRIMBLE G

GAMMA AND NEUTRON DOSE MEASUREMENTS FOR A THERMAL TUNGSTEN NUCLEAR POCKET CRITICAL EXPERIMENT
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.

GA-6942 + NASA-CR-72081 +. 44 PAGES, REFERENCES, 1966

DESCRIBES THE MEASUREMENT OF THE GAMMA AND NEUTRON DOSE DISTRIBUTIONS IN CORE III. RADIAL AND AXIAL DOSE DISTRIBUTIONS IN THE CORE WERE MEASURED BY INSERTING SPECIALLY MADE THIMBLE IONIZATION CHAMBERS IN THE HOLLOW SPINE OF THE FUEL ELEMENTS AND IN THE POISON TUBES. THE DOSIMETERS WERE OF TWO TYPES - ONE SENSITIVE MAINLY TO GAMMA RAYS, AND THE OTHER TO FAST NEUTRONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICAL ASSEMBLY FACILITY + INSTRUMENTATION, IN CORE + NEUTRON

15-20026

ALSO IN CATEGORY 14

GENERT W

ADJUSTABLE WIDE RANGE RADIATION LEVEL ALARM

U.S. PATENT 3,319,066 +. 5 PAGES, 3 FIGURES, REFERENCES, MAY 9, 1967

A RADIATION DOSIMETER, ADJUSTABLE OVER A WIDE RANGE OF RADIATION LEVELS, IS DESCRIBED. IT INCLUDES MEANS TO COMPARE THE OUTPUT OF AN IONCHAMBER WITH THE OUTPUT OF A PULSER WHICH RECHARGES THE IONCHAMBER WHEN THE DETECTED DOSAGE IS LESS THAN A SET AMOUNT DURING THE INTERVAL BETWEEN PULSES, CAUSING AN ALARM TO SOUND.

AVAILABILITY - THE PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D.C., .25 COPY

*INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, GENERAL

15-20028

ALSO IN CATEGORY 14

DENHAM DH

HEALTH PHYSICS AT THE LRL TRANSURANIC PROCESSING FACILITY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20028 *CONTINUED*

BATTELLE-NORTHWEST LABORATORY

1 PAGE, ANS TRANS. 10(2), PAGE 680, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO ILLINOIS, NOVEMBER 5-9, 1967

THE FACILITY PROVIDES 30,000 SQ. FT. OF LABORATORY SPACE, EQUIPPED WITH STANDARD GLOVE BOXES AND HOODS TYPICAL OF ALPHA-HANDLING FACILITIES. NEARLY A MEGACURIE OF TRANSURANIUM ISOTOPES ARE HANDLED EACH YEAR. AVERAGE ANNUAL WHOLE-BODY EXPOSURE IS ABOUT 1 REM. RADIOACTIVE SPILLS ARE VERY INFREQUENT, AND NO SIGNIFICANT INTERNAL DEPOSITS OF RADIONUCLIDES HAVE OCCURRED IN THE PAST FIVE YEARS.

*TRANSURANIUM ELEMENT + ALPHA EMITTER + ALPHA FACILITIES + AMERICIUM + CALIFORNIUM + CURIUM + GAMMA + PLUTONIUM + RADIATION PROTECTION, ORGANIZATION + RADIOCHEMICAL PROCESSING + URANIUM

15-20030 ALSO IN CATEGORY 14

IMPROVEMENTS IN RADIATION DETECTORS

GROUPEMENT ATOMIQUE ALSACIENNE ATLANTIQUE

BRITISH PATENT 1,061,341 +. 2 PAGES, MARCH 8, 1967

DESCRIBES A NEUTRON DETECTOR THAT EMPLOYS BORON TRIFLUORIDE AND IS MADE MAINLY OF TITANIUM IN ORDER TO BE USED AT EXTREME TEMPERATURES.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BLDG., LONDON, W.C. 2, ENGLAND, .49 COPY

*INSTRUMENTATION, NUCLEAR + BORON + FRANCE + NEUTRON + PATENT + TITANIUM + UNITED KINGDOM

15-20069

BODDY K

THE DEVELOPMENT AND PERFORMANCE OF A PROTOTYPE SHADOW-SHIELD WHOLE BODY MONITOR.

SCOTTISH RESEARCH REACTOR CENTRE, EAST KILBRIDE SCOTLAND

NP-16990 + SRRC-13/66 +. 13 PAGES, TABLES, REFERENCES, 1966

DEVELOPED A SHADOW-SHIELD WHOLE-BODY COUNTER OF HIGH SENSITIVITY AT LOW COST SUITABLE FOR INCORPORATION IN A MOBILE LABORATORY. THE STAGES OF DEVELOPMENT AND THE PERFORMANCE OF THE FINAL PROTOTYPE ARE DESCRIBED SO THAT THE SHIELDING REQUIREMENTS AND CRYSTAL VOLUME CAN BE ESTIMATED APPROXIMATELY FOR A REQUIRED SENSITIVITY. THE PROTOTYPE, WITH A 3-IN-DIAM BY 3-IN.-THICK NAI DETECTOR, HAS A SENSITIVITY OR MINIMUM DETECTABLE ACTIVITY FOR FE-58 AND CO-58 OF NEARLY 0.004 MICROCURIE. WITH A DETECTOR 11-1/2 IN. IN DIAMETER BY 4 IN., IT IS SHOWN THAT SENSITIVITIES COMPARABLE WITH STEEL-ROOM MONITORS CAN BE EXPECTED.

AVAILABILITY - MICROCARD EDITIONS, INC., (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*COUNTER, WHOLE BODY + UNITED KINGDOM

15-20070

SCOTT WM

CHEMICAL DOSIMETRY IN THE UTR 100 REACTOR

SCOTTISH RESEARCH REACTOR CENTRE, EAST KILBRIDE, SCOTLAND

NP-16991 + SRRC-16/67 +. 15 PAGES, FIGURES, REFERENCES, 1966

DOSE RATES WERE MEASURED IN THE LARGE-RABBIT SYSTEM, THE SMALL-RABBIT SYSTEM, AND THE CENTRAL VERTICAL STRINGER OF THE UTR-100 REACTOR, USING BOTH FERROUS SULFATE AND CYCLOHEXANE AS DOSIMETERS. DOSE RATE IN THE LARGE RABBIT WAS HIGHER BY A FACTOR OF 1.58 AT THE INNER END, COMPARED WITH THE OUTER END (3.39 AND 2.31 MRADS/HR, RESPECTIVELY). NO SIGNIFICANT VARIATION WAS OBSERVED IN THE SMALL RABBIT (2.37 PLUS OR MINUS 0.11 MRADS/HR). THE DOSE RATE WAS 4.50 PLUS OR MINUS 0.11 MRADS/HR IN THE CENTRAL VERTICAL STRINGER.

AVAILABILITY - MICROCARD EDITIONS, INC., (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*REACTOR, RESEARCH + DOSE + DOSIMETRY, GENERAL + UNITED KINGDOM

15-20071 ALSO IN CATEGORY 14

NOVIKOV YV + TITOVA IN + POLYNAKOVA AA

RADIUM CONTENT OF THE HUMAN BODY

ERISMAN MOSCOW SCIENTIFIC RESEARCH INSTITUTE OF SANITARY AND HYGIENE

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 5 PAGES, 3 TABLES, REFERENCES, HYGIENE AND SANITATION, 30(7) PP. 48-52 (JULY 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

ALTHOUGH A CONSIDERABLE NUMBER OF PUBLICATIONS HAVE DEALT WITH THE RADIUM CONTENT IN THE HUMAN BODY, THE OPINIONS OF VARIOUS SCIENTISTS ON THE SUBJECT DIFFER. THE AUTHORS OF THE PRESENT PAPER STUDIED THE CONTENT OF RA-226 IN 26 SAMPLES OF BONES IN THE EXTREMITIES OF CREMATED CADAVERS. THE DECEASED WERE FROM 50-82 YEARS OLD. THE RADIUM WAS DETERMINED BY THE RADON CONTENT ON A SCINTILLATION ALPHA-RADIOMETER TYPE RAD-1. THE INVESTIGATION SHOWED THAT THE AVERAGE CONTENT OF RA-226 IN A HUMAN SKELETON AMOUNTED TO 16 X 10⁻¹² (12TH) CURIE, THAT PRODUCED THE RADIATION OF BONE TISSUE AT A DOSE OF 2 MREM/YEAR. THE AVERAGE RA-226 CONTENT IN THE HUMAN BODY EQUALS 20 X 10⁻¹² (12TH) CURIE.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20071 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, MAN + RADIUM + UNION OF SOVIET SOCIALIST REPUBLICS

15-20075

KORENKOV IP + GOLIKOV VY + SOBOLEVSKII MA
PROCEDURES FOR PERSONAL MONITORING

RADIOLOGICAL GROUP OF THE MOSCOW SANITARY-EPIDEMIOLOGICAL CENTER, DEPARTMENT OF GENERAL HYGIENE OF THE
FIRST MOSCOW MEDICAL INSTITUTE, AND THE DEPARTMENT OF RADIATION HYGIENE OF THE MINISTRY OF HEALTH OF
R.S.F.S.R.

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 5 PAGES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(8), PP.
244-248 (AUG. 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

DESCRIBES THE PROBLEMS OF PERSONNEL MONITORING. RECOMMENDATIONS ARE PRESENTED FOR TYPE AND
LOCATION OF DOSIMETERS FOR VARIOUS TYPES OF WORK.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*MONITOR, RADIATION, PERSONNEL + BETA EMITTER + DOSIMETRY, GENERAL + DOSIMETRY, PHOTOGRAPHIC +
DOSIMETRY, RADIOPHOTOLUMINESCENCE + GAMMA + UNION OF SOVIET SOCIALIST REPUBLICS + X-RAY

15-20078

ALSO IN CATEGORY 14

MALKINA RM + PUCHKOVA SM

EFFECT OF CALCIUM SALTS IN THE DIET ON THE DEPOSITION OF STRONTIUM-90 IN THE BONES OF RATS

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 5 PAGES, TABLES, REFERENCES, HYGIENE AND SANITATION, 30(9), PP.
366-370 (SEP. 1965), TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

EXPERIMENTS PERFORMED ON RATS DEMONSTRATED THAT CALCIUM WAS NOT ABSORBED UNIFORMLY. THE
EXTENT OF CALCIUM ABSORPTION DEPENDS ON THE ANIONS WITH WHICH IT ENTERED THE
GASTROINTESTINAL TRACT. THE CALCIUM WAS BEST ABSORBED FROM CHLORIDE AND PHOSPHATE SALTS IN
THE RATIO OF 1-1. CALCIUM OXALATE WAS ABSORBED TO AN INSIGNIFICANT EXTENT, AND THE MAIN MASS
OF CALCIUM PASSED THROUGH. THUS THE ANION COMPOSITION OF CALCIUM SALTS AFFECTED THE
STRONTIUM-90 DEPOSIT IN RAT SKELETONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + CALCIUM + RADIOBIOLOGY + STRONTIUM +
UNION OF SOVIET SOCIALIST REPUBLICS

15-20079

ALSO IN CATEGORY 14

BELOVA RS + STEPANOV SA

THE TOXICITY OF SOLUBLE URANIUM SALTS INGESTED IN WATER

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 1 PAGE, HYGIENE AND SANITATION, 30(9), PP. 457 (SEPT. 1965),
TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

EXPERIMENTAL ORAL ADMINISTRATION OF SOLID URANIUM TO AIRING RATS AND RABBITS SHOWED THE
ABSOLUTE LETHAL DOSE TO BE 2083 MG PER KG FOR RATS AND 400 MG PER KG FOR RABBITS. THE MEAN
LETHAL DOSES WERE, RESPECTIVELY, 1408.9 AND 274 MG PER KG. THE MINIMUM TOLERANCE DOSES WERE
250 AND 215 MG PER KG, RESPECTIVELY. DISTRIBUTION OF URANIUM THROUGH THE BODY WAS STUDIED.
PARTICULAR DAMAGE WAS OBSERVED IN THE KIDNEY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + RADIOBIOLOGY + UNION OF SOVIET SOCIALIST REPUBLICS +
URANIUM

15-20080

ALSO IN CATEGORY 14

ZHAKOV IG + ZVEREV FP + KOMAROVA VI + SUKHOVATYKH LS

THE INTENSITY OF GAMMA-RADIATION AROUND INSTITUTIONS PROVIDING RADIOTHERAPY

TT-66-51033/3 + IPST-CAT.-1541-1543 +. 2 PAGES, HYGIENE AND SANITATION, 30(9), PP. 457-458 (SEPT. 1965),
TRANSLATION OF THE RUSSIAN JOURNAL GIGIENA I SANITARIYA

STUDIED THE GAMMA RADIATION IN VICINITY OF TWO INSTITUTIONS USING RADIOTHERAPY TREATMENT.
DOSE LEVELS UP TO 0.3 MR PER HR WERE FOUND AT WINDOWS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*RADIOLOGY + COBALT + DOSE MEASUREMENT, EXTERNAL + GAMMA + GOLD + RADIATION INJURY, TREATMENT OF + RADIUM +
UNION OF SOVIET SOCIALIST REPUBLICS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20083 ALSO IN CATEGORY 16
RYSEV OA + ROSYANOV SP + ZHILKINA MI + GEDEONOV LI
METHOD OF RADIOCHEMICAL ISOLATION OF BE7, P32, P33, AND S35 FROM ONE SAMPLE IN THE STUDY OF ATMOSPHERIC
PRECIPITATES AND AEROSOLS
4 PAGES, 3 FIGURES, 15 REFERENCES, RADIOKHIMIYA, 8(2), PP. 251-254 (MARCH-APRIL 1966)

METHOD OF DETERMINING BE-7, P-32, AND S-35 IN SAMPLES OF ATMOSPHERIC AEROSOLS COLLECTED ON
FIBROUS FILTERS, BASED ON ION-EXCHANGE SEPARATION OF THE NUCLIDES AND THEIR SUBSEQUENT
RADIOCHEMICAL PURIFICATION. ALSO, PROVIDES A METHOD FOR FREEZING THE NUCLIDES DETERMINED
FROM FISSION PRODUCTS PRESENT IN THE ATMOSPHERE AFTER TESTING OF A NUCLEAR WEAPON. AN
INVESTIGATION OF THE DISTRIBUTION OF THE CONCENTRATIONS OF THE ABOVE ISOTOPES WITH TIME WAS
CARRIED OUT AT A POINT ABOVE THE EARTH, WHERE SAMPLES WERE TAKEN OF ATMOSPHERIC PRECIPITATES,
FALLOUT, AND ATMOSPHERIC AEROSOLS.

*AEROSOL, RADIOACTIVE + *ANALYTICAL MODEL + *RADIOCHEMICAL ANALYSIS + ATMOSPHERIC CHEMISTRY + FALLOUT +
PRECIPITATION

15-20092 ALSO IN CATEGORY 14
PUBLIC HEALTH ENGINEERING ABSTRACTS - 2404-2703
PUBLIC HEALTH SERVICE
39 PAGES, PUBLIC HEALTH ENGINEERING ABSTRACTS, 47(10) (OCTOBER 1967)

THIS PUBLICATION REPRESENTS A MONTHLY REVIEW OF MORE THAN 800 DOMESTIC AND FOREIGN JOURNALS OF
SCIENCE AND ENGINEERING, REPORTS OF STATE AND FEDERAL GOVERNMENTS, AND REPORTS AND
PROCEEDINGS OF SCIENTIFIC RESEARCH GROUPS. THE ARTICLES ABSTRACTED ARE SELECTED FOR THEIR
RELATIONSHIP AND IMPORTANCE TO ENVIRONMENTAL HEALTH. SUBJECTS AND AUTHORS OF ABSTRACTED
ARTICLES ARE CROSS-REFERENCED IN AN ANNUAL INDEX ISSUE. REPRINT REQUESTS SHOULD BE DIRECTED
TO THE AUTHOR OR PUBLISHER OF THE COMPLETE ARTICLE.

*ATMOSPHERIC POLLUTION + *CONTAMINATION + *RADIOLOGY + *WATER POLLUTION + BIBLIOGRAPHY +
BIOLOGICAL CONCENTRATION, MILK + HAZARD, RELATIVE + SAMPLING + WASTE TREATMENT, SOLID

15-20093 ALSO IN CATEGORY 14
ALLEN RS
RADIONUCLIDES IN MILK AND MILK PRODUCTS
IOWA STATE UNIV., AMES
2 PAGES, 5 REFERENCES, J. DAIRY SCI., 49, PAGE 899 AND 900, (JULY 1966)

DISCUSSES HOW MILK AND MILK PRODUCTS SERVE AS MAJOR ROUTES OF RADIONUCLIDE CONTAMINATION IN
MAN, PARTICULARLY IN CHILDREN. ISOTOPES CONSIDERED TO BE MOST HAZARDOUS IN MILK INCLUDE
I-131, SR-90, BA-140, AND CS-137. IN A STUDY OF MILK FROM COWS IN UTAH, MINNESOTA, AND IOWA,
I-131 LEVELS UP TO 710 PC/L OCCURRED IN COWS ON PASTURE, WHEREAS THOSE ON STORED FEED HAD
LEVELS LESS THAN 60 PC/L. LEVELS OF MILK I-131 DECREASED RAPIDLY AFTER ANIMALS WERE REMOVED
FROM PASTURE. MARKED REDUCTION IN MILK CONSUMPTION COULD BE MORE OF A HEALTH HAZARD THAN
IRRADIATION EFFECTS RESULTING FROM MILK CONTAINING LOW LEVELS OF THESE ISOTOPES. LEVELS OF
SR-90 AND THE OTHER RADIONUCLIDES CAN BE KEPT LOW BY FEEDING ROUGHAGES THAT HAVE BEEN UNDER
STORAGE PRIOR TO FALLOUT.

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *INGESTION + *IODINE + BARIUM +
BIOLOGICAL CONCENTRATION, MILK + CESIUM + STRONTIUM

15-20095
KRIEGER GL
PRINCIPLES OF OPERATION OF THE INDIUM ADHESION TESTER USED FOR SURFACE CONTAMINATION MEASUREMENT.
SANDIA CORP., ALBUQUERQUE, N. MEXICO
SC-DC-67-2001 + CONF-670919-1 +. 7 PAGES, FIGURES, REFERENCES, FROM AEC/NSA CONTAMINATION CONTROL
SYMPOSIUM, ALBUQUERQUE, N. MEX. AUGUST 1967

THE BASIS FOR THE USE OF SOLID-SOLID ADHESION AS A MEASURE OF SURFACE CLEANLINESS IS
DISCUSSED. EQUIPMENT AND PROCEDURES ARE DESCRIBED FOR PRACTICAL USE OF THE EFFECT, AND
TYPICAL TEST RESULTS GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*ADHESION + *CONTAMINATION + *INDIUM + *MONITOR, RADIATION, SURFACE

15-20096
SUOMELA M
THE CONSTRUCTION AND CALIBRATION OF THE WHOLE-BODY COUNTER IN THE INSTITUTE OF RADIATION PHYSICS
INSTITUTE OF RADIATION PHYSICS, HELSINKI (FINLAND)
SFL-A6 +. 18 PAGES, FIGURES, MARCH 1967

DESCRIBES THE CONSTRUCTION AND CALIBRATION OF THE WHOLE-BODY COUNTER IN THE INSTITUTE OF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20096 *CONTINUED*

RADIATION PHYSICS. IN THE MULTIDETECTOR SCANNING TECHNIQUE USED, THE SUBJECT LIES IN THE MIDDLE OF A CIRCULAR FRAME ON WHICH THE HOLDERS FOR FOUR NaI(Tl)-CRYSTAL (5 X 4 IN.) DETECTORS ARE PLACED. DURING A SCAN MEASUREMENT, THE FRAME IS DRIVEN AT A CONSTANT SPEED LONGITUDINALLY TO THE PERSON, AND THE SCANNING TIME CAN BE ADJUSTED BETWEEN 3 TO 90 MIN FOR A 170-CM SCAN. A SPECIAL FEATURE OF THE MULTICHANNEL ANALYSER IS THAT A PULSE-HEIGHT SPECTRUM AND A MULTISCALER SPECTRUM OF INCOMING PULSES CAN BE REGISTERED SIMULTANEOUSLY. THE MULTISCALER SPECTRUM REGISTERED DURING A SCAN IS USED TO DETERMINE THE LONGITUDINAL DISTRIBUTION OF AN ISOTOPE IN A SUBJECT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*COUNTER, WHOLE BODY + *PERSONNEL EXPOSURE, RADIATION + DESIGN CRITERIA + MEASUREMENT, GENERAL + SPECTROMETRY, GAMMA

15-20097

ASHWORTH JD

BACKGROUND COMPENSATED PERSONNEL MONITOR

SANDIA CORP., ALBUQUERQUE, N. MEX.

SC-TM-67-268 +. 14 PAGES, FIGURES, MAY 1967

A NEW PERSONNEL MONITOR SYSTEM WAS DESIGNED TO WORK IN AREAS OF A VARYING BACKGROUND OF RADIATION. IT IS A SYSTEM THAT WILL DETECT ABRUPT CHANGES IN RADIATION WHILE COMPENSATING FOR A VARIABLE BACKGROUND. THIS TYPE OF SYSTEM IS WELL SUITED TO REACTOR FACILITIES, WHERE VARIABLE BACKGROUNDS ARE COMMON.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITOR, RADIATION, PERSONNEL + *MONITORING SYSTEM, RADIATION + GROSS BETA + GROSS GAMMA + MONITORING PROGRAM, ENVIRONMENTAL

15-20098

ALSO IN CATEGORY 14

EFFECTS OF RADIATION FROM FALLOUT

2 PAGES, LANCET 1, PAGE 1254 AND 1255, (JUNE 4, 1966)

REVIEWS A NEW EVALUATION OF THE POSSIBLE EFFECTS ON POPULATIONS OF FALLOUT FROM NUCLEAR TEST EXPLOSIONS MADE IN A REPORT TO THE MEDICAL RESEARCH COUNCIL (UK). THE BASIS FOR ESTIMATING RISKS IS TAKEN FROM NEW DATA SUBMITTED TO THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION, WHICH ARE EXPRESSED AS THE NUMBERS OF ADDITIONAL CASES OF LEUKEMIA, THYROID CANCER, AND ALL FATAL CANCERS THAT MIGHT BE EXPECTED OVER AND ABOVE THE NATURAL INCIDENCE IF A POPULATION OF ONE MILLION PERSONS WERE EXPOSED TO 1 RAD OF RADIATION (ABOUT 10 TIMES THE AVERAGE ANNUAL BACKGROUND DOSE). THE AVAILABLE INFORMATION NOW SUGGESTS THAT, AFTER ONE MILLION PEOPLE WERE EXPOSED TO THIS HYPOTHETICAL DOSE, A TOTAL OF 20 ADDITIONAL CASES OF LEUKEMIA MIGHT ARISE, OVER THE NEXT 10 TO 20 YR. ALL OTHER FATAL MALIGNANCIES MIGHT INCREASE BY ANOTHER 20 CASES, AS WELL AS 10 TO 20 ADDITIONAL CASES OF THYROID CANCER.

*FALLOUT + *POPULATION EXPOSURE + *RADIATION EFFECT + CESIUM + DOSE + IODINE + NUCLEAR DETONATION + RADIOLOGICAL ASSISTANCE + STRONTIUM + UNITED KINGDOM

15-20100

SCHIPPER P

HOW CAN THE DEPTH EFFECT OF GAMMA IRRADIATION BE INFLUENCED

SIEMENS-REINIGERWERKE A.G., ERLANGEN, GER.

5 PAGES, FIGURES, STRAHLENTHERAPIE, 126, PAGES 514-8 (APR. 1965) IN GERMAN

ALL THE ADVANTAGES OF HIGH-VOLTAGE RADIATION, SUCH AS SMALL-VOLUME DOSE AND NEGLIGIBLE ABSORPTION DIFFERENCES BETWEEN MUSCLE AND BONE TISSUE AND SURFACE DOSE, CAN BE OBTAINED WHEN CO-60 OR CS-137 IS USED AS A RADIATION SOURCE. BOTH TYPES OF SOURCES ARE SUITABLE FOR DEPTH AND HALF-DEPTH THERAPY. CO IS BEST FOR THE FORMER, AND CS IS BEST FOR THE LATTER.

*CESIUM + *COBALT + *GROSS GAMMA + BIOLOGICAL CONCENTRATION, MAN + BIOMEDICAL + DOSE + RADIOLOGY

15-20101

FRISCHKORN R

DOSIMETRY

UNIV., GOETTINGEN, GERMANY

14 PAGES, FIGURES, TABLES, ARCH. GYNACKOL., 202, PAGES 274-88 (1965) IN GERMAN

THE MEASUREMENT OF HIGH-ENERGY X RADIATION AND PARTICULATE RADIATION IS REVIEWED. SCINTILLATORS, PRODUCTION OF LUMINESCENCE INDUCED BY UV, NONCONDUCTORS OR SEMICONDUCTORS THAT CHANGE CONDUCTIVITY, CRYSTALS WHOSE ABSORPTION IS ALTERED BY IRRADIATION, PHOTOGRAPHIC EMULSIONS, CHEMICAL REACTIVITY CHANGES, AND CALORIMETRY REPRESENT A FEW OF THE MATERIALS AND METHODS AVAILABLE FOR MEASUREMENTS. VARIOUS RADIATION UNITS AND MECHANISMS OF ENERGY TRANSFER IN TISSUES ARE DISCUSSED. PROCEDURES AND POSSIBLE SOURCES OF ERROR IN DOSIMETRIC PROCEDURES ARE OUTLINED.

CATEGORY 15.
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20101 *CONTINUED*

DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, INTERNAL + MEASUREMENT, GENERAL + PARTICULATE + X-RAY

15-20102

RENNER KH + HOEFER-JANKER H + GRUENER H

THE INACCURACY OF DOSE VALUES. I. THE INEVITABLE ERROR OF X IRRADIATION UNIV., BASEL

6 PAGES, TABLES, ROENTGEN BL., 19, PAGES 459-64 (SEPT. 1966) IN GERMAN

METHODS AND INSTRUMENTATION FOR MEASUREMENT OF X-RAY DOSES IN RADIOTHERAPY ARE DESCRIBED, AND EXAMPLES ARE CITED TO SHOW HOW ERRORS IN DOSAGE ARISE AND, TO SOME EXTENT, CAN BE AVOIDED. THE TYPE OF ERRORS AND THEIR POSSIBLE MAGNITUDE ARE DESCRIBED AND ESTIMATED OR COMPUTED FOR EXPERIMENTAL MEASUREMENTS AND IRRADIATION THERAPY. FOR DOSE VALUES PRESENTED IN R₀ (ABSOLUTE VALUES), A DIFFERENTIATION MUST BE MADE BETWEEN THE ERROR OF THE RESULTS MEASURED (POSSIBLE MAXIMUM ERROR DUE TO THE DOSIMETER, FOR 100 R, UP TO PLUS OR MINUS 16.8 R) AND THE ERROR OF A SINGLE IRRADIATION (RANGE OF FLUCTUATION DUE TO THE RADIOTHERAPY APPARATUS AT 100 R, UP TO PLUS OR MINUS 15.6 R).

*INSTRUMENTATION, ABNORMAL INDICATION + *X-RAY + DOSE + MEASUREMENT, GENERAL + RADIOLOGY

15-20103

FRISCHBIER HJ

DOSIMETRIC PROBLEMS IN COMBINED RADIUM AND TELECOBALT IRRADIATION

UNIV., EPPENDORF-HAMBURG, GERMANY

6 PAGES, FIGURES, ARCH. GYNAEKOL., 202, PAGES 316-20 (1965) IN GERMAN

WHEN THE UTERUS IS SITUATED EXACTLY AT THE MIDLINE AND IS TREATED WITH 4500 MR/HR OF RA AND 4000 R OF CO-60 GAMMA IRRADIATION OVER 2 ABDOMINAL AND 2 DORSAL FIELDS, IT IS POSSIBLE TO ACHIEVE A VERY ADEQUATE DOSE SUMMATION. AT THE SAME TIME, 4 CM LATERALLY FROM THE MIDLINE, 6000 R ARE RECEIVED, WHICH IS THE MAXIMUM TOLERANCE FOR BLADDER, RECTUM, AND URETERS. HOWEVER, IF THE UTERUS IS LOCATED 2 CM LATERALLY FROM THE MIDLINE, A DOSE OF 7000 R IS RECEIVED 5 CM LATERAL TO THE MIDLINE, SO THAT THE URETER RECEIVES A CONSIDERABLY HIGHER DOSE. ALSO, THE PARAMETRIUM MAY BE UNDERIRRADIATED, RECEIVING 4000 R OR LESS.

*COBALT + *DOSE MEASUREMENT, INTERNAL + *RADIUM + BIOMEDICAL + DOSIMETRY, GENERAL + RADIOLOGY

15-20104

ABBOTT LABORATORIES REPORTS OVEREXPOSURE

ABBOTT LABORATORIES, N. CHICAGO, ILL.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(48) PAGES 25-26 (NOVEMBER 27, 1967)

(LETTER, OCTOBER 27) DURING 3RD QUARTER OF 1967, ONE EMPLOYEE HAD AN UNUSUAL WORK LOAD. HIS FILM BADGES READ 3.01 REMS, HIS-ION CHAMBER DOSIMETERS READ 2.466 REMS, AND WRIST BADGES 26.19 REMS (6.09 BASED ON ONE WEEK/MONTH, MULTIPLIED BY 4.3). *** NEW GUIDELINES WERE NOT IN EFFECT, AS THEY WERE STILL BEING DISCUSSED BY RADIATION SAFETY COMMITTEE. WORKERS ARE NOW WEARING WRIST BADGES ALL MONTH AND BEING ROTATED FROM JOB TO JOB.

*PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL + RADIATION SAFETY AND CONTROL

15-20105

CALDWELL R

NUMEC - COMPLIANCE CORRESPONDENCE

NUCLEAR MATERIALS AND EQUIPMENT, APCOLLO, PA.

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(48) PAGES 29 THRU 31 (NOVEMBER 27, 1967)

CORRESPONDENCE DATED SEPTEMBER 27, OCTOBER 6, AND NOVEMBER 2 DISCUSSED VARIOUS PROBLEMS IN THE HANDLING OF POWDERED U-235.

*INHALATION + FABRICATION + FUEL ELEMENT + INSPECTION AND COMPLIANCE + RADIATION SAFETY AND CONTROL + SPECIAL NUCLEAR MATERIAL + URANIUM

15-20106

ST JOSEPHS HOSPITAL MINOT N.D. CITED FOR NON-COMPLIANCE SEPTEMBER 26, 1967

ST. JOSEPHS HOSPITAL, MINOT, N. DAKOTA

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(48) PAGES 28 AND 29 (NOVEMBER 27, 1967)

THREE CITATIONS AFTER AUGUST 17 INSPECTION. (REPLY, OCTOBER 13) SURVEYS WILL BE ROUTINELY MADE, AND PERSONNEL MONITORING RECORDS WILL NOW SHOW SOCIAL SECURITY NUMBERS. THE 50-MCURIE SR-90 SOURCE WAS SHIPPED A YEAR AGO, BUT THE COMPANY WENT OUT OF BUSINESS AND RECORDS ARE LOST. WE HOPE YOU CAN HELP US DISPOSE OF NASAL RADIUM APPLICATOR.

*INSPECTION AND COMPLIANCE + BYPRODUCT MATERIAL + RADIOLOGY + SURVEILLANCE PROGRAM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20430
AIR COOLING UNIT FOR PROTECTIVE CLOTHING AND THE LIKE.
ATOMIC ENERGY COMMISSION, U.S.
BRITISH PATENT 1,046,535 +. 5 PAGES, 1 FIGURE, APRIL 20, 1964

THIS INVENTION PROVIDES A DEVICE FOR COOLING GAS SUPPLIED TO A PERSON WEARING PROTECTIVE CLOTHING AND COMPRISES A SOURCE OF PRESSURIZED GAS, A CONDUIT FOR CONDUCTING SAID GAS TO SAID PERSON, AND A VORTEX TUBE ATTACHABLE TO THE BODY OF SAID PERSON. THE CONDUIT IS ATTACHED TO THE INLET OF THE VORTEX TUBE. DISTRIBUTION CONDUITS CONNECTED TO THE COLD OUTLET OF THE VORTEX TUBE ARE PROVIDED FOR CONDUCTING THE COOLED GAS EITHER TO A FACE MASK ONLY OR TO VARIOUS POSITIONS WITHIN A PROTECTIVE SUIT PARTIALLY OR WHOLLY COVERING THE PERSON. A NOISE MUFFLER IS ALSO PROVIDED WHERE NECESSARY IN THE COLD OUTLET LINE OF THE VORTEX TUBE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND, 49 CENTS PER COPY

*PATENT + *PERSONNEL PROTECTIVE DEVICE + AIR + UNITED KINGDOM + USAEC (U.S. ATOMIC ENERGY COMMISSION)

15-20431
FILM BADGE SYSTEM AND METHOD OF USING
ATOMIC ENERGY COMMISSION, U. S.
BRITISH PATENT 1,044,443 +. 9 PAGES, TABLES, FIGURES, JANUARY 27, 1964

THE INVENTION IS OF A DOSIMETER FILTER SYSTEM FOR A FILM BADGE FOR WORKERS IN AREAS WHERE RADIATION IS MONITORED. IT CONSISTS OF A TANTALUM FILTER, AN IRON FILTER, A PLASTIC FILTER, AND AN OPEN WINDOW. THE TANTALUM FILTER BLOCKS ALL BETA RAYS AND X AND GAMMA RAYS OF LESS THAN 35 KEV. THE IRON AND PLASTIC FILTERS ATTENUATE HARD BETA RAYS EQUALLY, AND THE IRON FILTER, PLASTIC FILTER, AND OPEN WINDOW EQUALLY OF 50 KEV. WITH THESE PARAMETERS, RADIATION CAN BE DETERMINED QUALITATIVELY AND QUANTITATIVELY.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND, 49 CENTS PER COPY

*DOSIMETRY, PHOTOGRAPHIC + BETA EMITTER + DOSE MEASUREMENT, EXTERNAL + GAMMA + MONITOR, RADIATION, PERSONNEL + PATENT + UNITED KINGDOM + USAEC (U.S. ATOMIC ENERGY COMMISSION) + X-RAY

15-20434
A RADIATION DOSIMETER
UNITED STATES ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
BRITISH PATENT 1-025-164 +. 4 PAGES, 1 FIGURE, JUNE 3, 1964, PATENT (FOREIGN)

THE INVENTION RELATES TO THERMOLUMINESCENT RADIATION DOSIMETERS. THE PRESENT RADIATION DOSIMETER COMPRISES GRANULAR DOSIMETRIC LITHIUM FLUORIDE, A CONDUCTING, RESISTIVE BASE PROVIDED WITH CONTACTS FOR INCORPORATING INTO AN ELECTRIC NETWORK, AND A HEAT-RESISTANT HEAT-CONDUCTING BINDER WHICH IS TRANSPARENT TO LIGHT. THE LITHIUM FLUORIDE IS AFFIXED TO THE BASE AS A SOLID DISPERSION IN THE BINDER. THE DOSIMETER IS DIRECTLY EVALUATED BY HEATING THE BASE WHEREBY THE DOSIMETRIC MATERIAL IS INDUCED TO EMIT LIGHT, AND MEASURING THE LIGHT ENERGY RELEASED BY THE LITHIUM FLUORIDE. THE DOSIMETER IS CAPABLE OF EVALUATION BY A FULLY AUTOMATIC READOUT SYSTEM.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND, \$0.49 PER COPY

*DOSIMETRY, THERMOLUMINESCENCE + DOSE MEASUREMENT, EXTERNAL + FLUORINE + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, RADIATION MONITORING + LITHIUM + UNITED KINGDOM + USAEC (U.S. ATOMIC ENERGY COMMISSION)

15-20438 ALSO IN CATEGORY 14
BOLAND JR
TRINITY WEAPON SITE RADIATION LEVELS
EDGERTON, CERMESHAUSEN AND GRIER, INC., SANTA BARBARA, CALIFORNIA
2 PAGES, 2 FIGURES, 1 REFERENCE, HEALTH PHYSICS 13(1) PAGE 87 AND 88, (JANUARY 1967)

OUTLINES THE RESULTS OF A RADIOLOGICAL SURVEY CONDUCTED IN THE SPRING OF 1961 OF THE AREA IN THE VICINITY OF THE TRINITY (ALAMOGORDO) WEAPON SITE, WHERE THE FIRST NUCLEAR WEAPON WAS DETONATED ON JULY 16, 1945. THIS SITE IS WITHIN THE PRESENT BOUNDARIES OF THE WHITE SANDS MISSILE RANGE. LOW LEVELS OF RESIDUAL RADIOACTIVITY WERE INDICATED. THESE ARE SHOWN IN GRAPHICAL FORM. AN ACTIVITY SPECTRUM ANALYSIS WAS ALSO PERFORMED ON THE FUSED, GREEN, GLASS-LIKE SOIL, KNOWN AS TRINITITE. IT WAS CONCLUDED THAT RESIDUAL RADIATION AT THE SITE WILL CONTINUE TO BE EVIDENT FOR SOME YEARS TO COME (ALTHOUGH NOT VERY SERIOUS FROM THE STANDPOINT OF THE CASUAL VISITOR).

*TEST, WEAPONS (HP ASPECTS) + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, GENERAL + MONITORING PROGRAM, ENVIRONMENTAL + UNITED STATES

15-20441 ALSO IN CATEGORY 14
HEALTH PHYSICS AND SAFETY ANNUAL REPORT FOR 1966
OAK RIDGE NATIONAL LAB., TENN.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20441 *CONTINUED*

ORNL-4146 +. 88 PAGES, 37 FIGURES, 26 TABLES, 12 REFERENCES, AUGUST 1967

THE GASEOUS AND LIQUID WASTE RELEASES FROM THE LABORATORY WERE SUCH THAT THE CONCENTRATION OF RADIOACTIVE MATERIALS IN THE ENVIRONS WAS WELL BELOW THE MAXIMUM LEVELS RECOMMENDED BY THE NCRP AND FRC. NO EMPLOYEE RECEIVED AN EXTERNAL OR INTERNAL RADIATION DOSE WHICH EXCEEDED THE MAXIMUM PERMISSIBLE LEVELS RECOMMENDED BY THE FRC. THE HIGHEST WHOLE-BODY DOSE EQUIVALENT RECEIVED BY AN EMPLOYEE WAS ABOUT 4.9 REMS (40% OF THE MAXIMUM PERMISSIBLE ANNUAL DOSE). NO EMPLOYEE HAD A CUMULATIVE WHOLE-BODY DOSE OR BODY BURDEN EXCEEDING THE PERMISSIBLE. 22 UNUSUAL OCCURRENCES WERE RECORDED, A DECREASE OF 46% OVER THE 41 REPORTED IN 1965. THE LABORATORY EXPERIENCED 4 DISABLING INJURIES DURING 1965, A FREQUENCY RATE OF 0.51.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + *RADIATION SAFETY AND CONTROL + DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, INTERNAL + FALLOUT + INSTRUMENTATION, RADIATION MONITORING + ORNL (OAK RIDGE NATIONAL LABORATORY) + RADIATION PROTECTION, ORGANIZATION

15-20443

MILLER CE + REMENCHIK AP

WHOLE-BODY COUNTERS

STRITCH SCHOOL OF MEDICINE, HINES, ILL. + ARGONNE NATIONAL LAB.

1 PAGE, 3 REFERENCES, AMER. MED. ASS., 197, PAGE 117, (JULY 4, 1966)

THE OPERATING CHARACTERISTICS AND APPLICATIONS OF WHOLE-BODY COUNTERS ARE BRIEFLY COMMENTED ON. TWO PRINCIPAL TYPES OF COUNTERS WERE DEVELOPED. ONE USES A SODIUM IODIDE CRYSTAL AS A RADIATION DETECTOR, AND IN THE OTHER THE SUBJECT IS SURROUNDED BY A TANK OF LIQUID WHICH ACTS AS THE RADIATION DETECTOR. WHILE THE ENERGY RESOLUTION (ABILITY TO DISCRIMINATE BETWEEN GAMMA RAYS OF SLIGHTLY DIFFERENT ENERGIES) OF SODIUM IODIDE CRYSTAL COUNTERS IS HIGH, THEIR SENSITIVITY (PERCENT OF EMITTED GAMMA RAYS DETECTED) IS RELATIVELY LOW. CONVERSELY, LIQUID COUNTERS HAVE POOR ENERGY RESOLUTION BUT HIGH SENSITIVITY.

*COUNTER, WHOLE BODY + POTASSIUM + RADIATION INJURY, TREATMENT OF + RADIOLOGY + UNITED STATES

15-20444

ALSO IN CATEGORY 14

LIEBEN J + HILL PC

HOW A STATE HEALTH AGENCY PREVENTS OCCUPATIONAL DISEASE

PENNSYLVANIA DEPT. OF HEALTH, HARRISBURG

6 PAGES, 3 FIGURES, 3 TABLES, IND. MED. SURG., 35, PAGE 489-494, (JUNE 1966)

STATE REGULATIONS AND THEIR ENFORCEMENT RELATING TO IONIZING RADIATION AND OTHER OCCUPATIONAL HAZARDS ARE SURVEYED. THE ADVISORY HEALTH BOARD OF THE STATE HEALTH DEPARTMENT ADOPTED A REGULATION FOR RADIATION PROTECTION IN OCTOBER, 1956, WHICH APPLIES TO ALL SOURCES OF IONIZING RADIATION INCLUDING RADIATION MACHINES AND RADIOACTIVE MATERIAL. THUS THE X-RAY EQUIPMENT IN HOSPITALS, MEDICAL AND DENTAL OFFICES, AND THAT USED IN INDUSTRY AS WELL AS RADIOACTIVE MATERIAL UTILIZED BY THE MEDICAL PROFESSION AND INDUSTRY COME WITHIN ITS SCOPE. THE REGISTRATION OF ALL SUCH SOURCES WAS REQUIRED BY THE REGULATION.

*RADIATION PROTECTION, ORGANIZATION + RADIATION SAFETY AND CONTROL + RADIOLOGY + RADIUM + UNITED STATES + X-RAY

15-20458

ALSO IN CATEGORIES 17 AND 9

RUSSELL JA + KNOWLES DJ

DESCRIPTION OF FACILITY RADIATION AND CONTAMINATION ALARM SYSTEMS INSTALLED IN THE BULK SHIELDING

FACILITY, BUILDING 3010

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1874 +. 23 PAGES, 8 FIGURES, AUGUST 22, 1967

DESCRIPTION OF SYSTEM TO CONTINUOUSLY AND AUTOMATICALLY MONITOR GAMMA RADIATION AND AIR CONTAMINATION THROUGHOUT THE FACILITY. ALARM SOUNDS FOR CAUTION LEVEL, AND A SECOND WARNING IS GIVEN WHEN HIGH RADIATION LEVEL IS DETECTED. THE BUILDING EVACUATION AND CONTAINMENT SYSTEMS OPERATE AUTOMATICALLY WHEN TWO OR MORE MONITORS OR TWO OR MORE AIR MONITORS DETECT A HIGH RADIATION LEVEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*MONITOR, RADIATION, AIR + *MONITOR, RADIATION, EMERGENCY + BSR (BULK SHIELDING REACTOR)

15-20520

EVANS RD

THE RADIUM STANDARD FOR BONESEEKERS. EVALUATION OF THE DATA ON RADIUM PATIENTS AND DIAL PAINTERS

MASSACHUSETTS INST. OF TECH., CAMBRIDGE

13 PAGES, 15 FIGURES, 1 TABLE, 5 REFERENCES, HEALTH PHYSICS 13, PAGE 267-278, (MARCH 1967)

THE SELECTION IN 1941 OF 0.1 MICROGRAM RADIUM AS THE MAXIMUM PERMISSIBLE SKELETAL BURDEN WAS BASED ON THE THEN-STUDIED TOTAL OF ABOUT 30 CASES. TO DATE, 420 RADIUM CASES (ABOUT

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20520 *CONTINUED*

TWO-THIRDS OF WHOM WERE DIAL PAINTERS) HAVE BEEN STUDIED AT M.I.T. AND ABOUT 275 ADDITIONAL CASES AT ARGONNE NATIONAL LABORATORY. THE RESULTS FROM THE TWO LABORATORIES ARE IN GOOD AGREEMENT. APPROXIMATELY 100 OF THE M.I.T. CASES INGESTED MIXTURES OF RA-226 AND RA-228 (MSTH). WE ARE ABLE TO EXPRESS THE MSTH RADIATION DOSE IN TERMS OF THE AMOUNT OF PURE RA-226 WHICH WOULD PRODUCE THE SAME SKELETAL DOSE MEASURED IN CUMULATIVE RADS. THEN THE TOTAL EFFECT OF THE MIXTURE IS EXPRESSED AS PURE RADIUM EQUIVALENT, OR MICROGRAMS OF RA (PRE). NO CLINICALLY SIGNIFICANT SIGNS OR SYMPTOMS HAVE BEEN SEEN IN PERSONS WITH RESIDUAL BODY BURDENS OF LESS THAN 0.5 MICROGRAMS OF RA (PRE). ABOVE 0.5 MICROGRAMS THE INCIDENCE AND SEVERITY OF SYMPTOMS INCREASED WITH INCREASING RESIDUAL BODY BURDEN.

*MAXIMUM PERMISSIBLE BODY BURDEN + BIOMEDICAL + RADIOBIOLOGY + RADIUM + THORIUM

15-20557 ALSO IN CATEGORY 14

WORTLEY G

DIETARY LEVELS OF STRONTIUM-90, CESIUM-137, AND IODINE-131 FOR THE YEARS 1964-66. INTERIM REPORT, JANUARY 1, 1964-MARCH 14, 1966

JOINT FAU/IAEA DIV. OF ATOMIC ENERGY IN AGRICULTURE

NP-16543 +. 12 PAGES, TABLES, REFERENCES, MARCH 8, 1966

DATA INDICATE THAT THE LEVELS OF SR-90 AND CS-137 IN ITEMS OF DIET AND TOTAL DIET ROSE TO A PEAK DURING 1964 IN SOME PARTS OF THE WORLD, AND SHOWED A DOWNWARD TREND IN 1965. THE PEAK LEVEL OF 1964, HOWEVER, WAS NOT MUCH GREATER THAN LEVELS RECORDED IN 1963, WHICH LATTER WAS THE HIGHEST UP TO THAT TIME. THE 1964 LEVELS WOULD STILL NOT CAUSE CONCERN FROM THE POINT OF VIEW OF HAZARD TO HUMAN HEALTH. FROM THIS, IT FOLLOWS THAT UNLESS MORE WEAPONS TESTS ARE MADE IN THE MEGATON RANGES, THERE WILL BE NO NEED TO TAKE PRECAUTIONARY MEASURES FOR THE PROTECTION OF THE PUBLIC. REFERENCES AND TABULATED DATA ARE GIVEN.

AVAILABILITY - MICROCARD EDITIONS INC., (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + CESIUM + DIETARY HABIT +
IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) + IODINE + STRONTIUM

15-20571 ALSO IN CATEGORY 14

KOCHENDORFER DB + ULBERG JC

MODELS FOR ESTIMATING PARTICLE RETENTIONS OF HUMANS AND CONSEQUENT BETA DOSES FROM DEBRIS IN AEROSPACE NUCLEAR APPLICATIONS

NAVAL RADIOLOGICAL DEFENSE LAB.

CONF-670602 +. 2 PAGES, AND TRANSACTIONS 10(1) PAGE 2-3 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

FAILURES DURING ASCENT OF NUCLEAR SPACE-POWER SYSTEMS COULD INTRODUCE RADIOACTIVITY INTO THE BIOSPHERE UNLESS COUNTERMEASURES ARE TAKEN. ONE APPROACH IS TO DIVIDE, DISPERSE, AND DELAY RETURN OF THE DEBRIS. NRDL HAS BEEN DEVELOPING METHODS FOR QUANTIFYING AND EVALUATING SUCH QUESTIONS AS - (1) HOW MUCH DEBRIS, AS 1- TO 1000-MICRON-DIAM PARTICLES, POTENTIALLY COULD DIRECTLY CONTACT AND BE RETAINED BY MAN'S SKIN, LUNGS, AND GASTROINTESTINAL TRACT, AND (2) WHAT IS THE BETA DOSE TO TISSUE FOLLOWING SUCH AN APPROACH.

*SPACECRAFT + COMPUTER PROGRAM + COMPUTER, DIGITAL + DOSE CALCULATION, EXTERNAL +
DOSE CALCULATION, INTERNAL + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT, AIRBORNE + RADIOBIOLOGY

15-20572

RIZZO FX + CUNNINGHAM G + GALANTER L

EVALUATION OF PERSPEX HX AS A GAMMA-RAY DOSIMETRY MATERIAL

BROOKHAVEN NATIONAL LAB.

CONF-670602 +. 2 PAGES, 1 REFERENCE, AND TRANSACTIONS 10(1) PAGES 53-54 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

GAMMA-RADIATION PROCESSING OF FOOD, MEDICAL SUPPLIES, CHEMICALS, AND SIMILAR MATERIALS, REQUIRES A DOSIMETER OF LOW DENSITY AND ATOMIC NUMBER, A LINEAR DOSE RANGE FROM 7 100,000 RADS TO THE HIGH MEGARAD RANGE, SMALL SIZE, AND RELATIVELY STABLE THERMAL CHARACTERISTICS. THIS MATERIAL, THE BRITISH COUNTERPART OF THE UVT RUCITE, WAS DEVELOPED ESPECIALLY FOR BOTH GAMMA AND CHARGED-PARTICLE DOSIMETRY. THESE EVALUATION STUDIES INDICATE THAT WHEN PERSPEX HX IS IRRADIATED, IT DEVELOPS AN OPTICAL ABSORPTION SPECTRUM COMPOSED OF TWO SUPERIMPOSED PEAKS, WITH THE MAIN PEAK AT ABOUT 265 MILLIMICRONS AND A SECOND AT ABOUT 290. THE INDUCED OPTICAL DENSITY AT ALL WAVELENGTHS BETWEEN 260 AND 300 MILLIMICRONS BEAR A LINEAR RELATIONSHIP TO TOTAL DOSE OVER THE RANGE FROM 100,000 TO 5 MILLION RADS.

*DOSIMETRY, GENERAL + BNL (BROOKHAVEN NATIONAL LABORATORY) + GAMMA

15-20573

POST RG + WACKS ME

SELF-DEVELOPING FILM DOSIMETER SYSTEMS

UNIVERSITY OF ARIZONA

CONF-670602 +. 2 PAGES, 1 FIGURE, 1 REFERENCE, AND TRANSACTIONS 10(1) PAGE 55 (JUNE 1967), PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20573 *CONTINUED*

AN ASSEMBLY CONSISTING OF A SELF-DEVELOPING FILM AND A FLUORESCENT INTENSIFYING SCREEN WAS EVALUATED AS A LOW-LEVEL RADIATION DOSIMETER. THIS COMBINATION PROVIDED A RAPID MEANS FOR DETERMINING A QUANTITATIVE EXPOSURE TO X RAYS OR GAMMA RAYS WITHOUT THE USE OF ELECTRONIC OR OPTICAL EQUIPMENT AND CAN BE QUITE VALUABLE IN FIELD APPLICATIONS REQUIRING DOSIMETRY AND ALSO PROVIDES A PERMANENT RECORD OF EXPOSURE.

*DOSIMETRY, PHOTOGRAPHIC + GAMMA + UNITED STATES + X-RAY

15-20578

BEAUCHAMP IL

RADIATION - A LOOK AT THE PAST AND THE PRESENT

DIVISION OF OCCUPATIONAL HEALTH, DEPARTMENT OF PREVENTIVE MEDICINE AND PUBLIC HEALTH, SCHOOL OF MEDICINE, UNIVERSITY OF CALIFORNIA, LOS ANGELES, CALIF.

9 PAGES, 2 TABLES, 64 REFERENCES, J. OCCUP. MED., 8, PAGE 329-337, (JUNE 1966)

A SURVEY, COVERING THE DEVELOPMENT OF KNOWLEDGE OF RADIATION AND ITS APPLICATION IN THE FIELDS OF THE BIOLOGICAL SCIENCES. INCLUDED ARE EARLY THEORIES OF RADIATION INJURY, EARLY DEVELOPMENT OF RADIATION DETECTION INSTRUMENTS, AND A COMPARISON OF PAST AND RECENT INJURY RATES. THE AUTHOR CONCLUDES THAT ADDITIONAL RESEARCH IS NEEDED TO INCREASE PROGRESS IN THE AREAS OF RADIATION DETECTION AND THAT MORE STANDARDS ARE REQUIRED FOR DOSIMETRY AND EXPOSURE LEVELS.

*RADIATION IN PERSPECTIVE + DOSE + DOSIMETRY, GENERAL + INSTRUMENTATION, RADIATION MONITORING + RADIATION DAMAGE + RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY + RADIUM + UNITED STATES + X-RAY

15-20585

ALSO IN CATEGORY 14

ZNEZEVIC Z + KARANOVIC J

EFFECTS OF GAMMA RADIATION (COBALT-60) ON MORTALITY AND MALFORMATIONS IN CHICK EMBRYOS

AEC-TR-6646-4 +. 12 PAGES, FIGURES, TABLES, BULLETIN OF THE BORIS KIDRIC INSTITUTE OF NUCLEAR SCIENCES, 17(4), PAGE 309-316 (1966)

WHITE LEGHORN EMBRYOS IRRADIATED WITH 700 R OF GAMMA RAYS AT A RATE OF 50 R/MIN HAVE DIFFERENT MORTALITY RATES DEPENDING ON THEIR AGE AT THE MOMENT OF IRRADIATION. EMBRYOS OF DIFFERENT AGES WERE IRRADIATED, STARTING WITH THE PREINCUBATION PERIOD UP TO 10 DAYS OF AGE INCLUSIVE. MORTALITY RATE INCREASED WITH AGE. IT WAS HIGHEST IN EMBRYOS AGED 7-9 DAYS. IN MOST CASES DEATH OCCURRED LONGER AFTER IRRADIATION THE OLDER THE EMBRYO AT THE TIME OF EXPOSURE. THERE ARE ALSO TERATOGENIC PERIODS FOR SOME ORGANS, AS SHOWN BY SOME SPECIFIC MALFORMATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION EFFECT + COBALT + GAMMA + RADIOBIOLOGY + YUGOSLAVIA

15-20586

MANDEL P + MANTZ JM + GARY C + DELEMEN M + MICHAELIDIS P + SCHMITT C

EXPERIMENTAL STUDY OF THE TREATMENT OF RADIATION INJURIES BY PADUTIN (KALLICREINE). ANNUAL REPORT, JANUARY 10, 1965-JANUARY 10, 1964

STRASBOURG UNIV, FRANCE

EUR-2477.F (VOL.1) +. 20 PAGES, MARCH 17, 1965, IN FRENCH

STUDIES REVEALED THAT PADUTIN HAS A FAVORABLE EFFECT ON THE TREATMENT OF EXPERIMENTAL RADIODERMATITIS AND RADONECROSIS IN RATS AND GUINEA PIGS. ALSO, THE MITOTIC INDEX AND COLLAGEN DETERMINATION APPEAR TO BE VALID BIOLOGICAL CRITERIA FOR QUANTITATIVE APPRECIATION OF THE SCARRING PHENOMENON. COMPARISON OF THE EFFECTS OF PADUTIN WITH ANOTHER VASODILATING AGENT SUCH AS AET, REVEALED THAT THE ACTION PADUTIN IS POSITIVE, WHILE AET APPEARS RATHER TO BE CONTRAINDICATED. HOWEVER, THE BIOLOGICAL CRITERIA USED (SURVIVAL TESTS, DETERMINATION OF THE ABSOLUTE QUANTITY OF NUCLEIC ACIDS IN A BONE SYSTEM, AND CYTOLOGICAL STUDIES OF THIS SAME SYSTEM) REVEALED THAT THE ACTION OF BOTH PADUTIN AND AET IS FAVORABLE.

AVAILABILITY - MICROCARD EDITIONS, INC., (FOR SALE), ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

*RADIATION INJURY, TREATMENT OF + FRANCE + RADIATION PROTECTION, CHEMICAL + RADIOBIOLOGY

15-20591

ALSO IN CATEGORY 16

SWETNAM RL

NUCLEAR CLOUD SAMPLING SYSTEM

GENERAL DYNAMICS, POMONA, CALIFORNIA

UCRL-13215 +. 25 PAGES, FIGURES, 1966

DEVELOPED AN IMPROVED SAMPLING VEHICLE, RESULTING IN THE DESIGN OF AN UNGUIDED VEHICLE, LAUNCH SYSTEM, AND AIRCRAFT INSTALLATION CAPABLE OF COLLECTING A DEBRIS AND GAS SAMPLE FROM A NUCLEAR CLOUD FORMED BY DETONATION OF A NUCLEAR DEVICE WITH A YIELD IN THE RANGE 500 KT TO 10 MT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20591 *CONTINUED*

*AEROSOL, RADIOACTIVE + *NUCLEAR EXPLOSION DEBRIS + *SAMPLING, HIGH ALTITUDE + AEROSPACE SAFETY + AIRCRAFT + DESIGN STUDY + DOSE MEASUREMENT, EXTERNAL + FALLOUT + MONITOR, RADIATION, SAMPLING

15-20614

LOCKHEED-GEORGIA NUCLEAR LABS CITED FOR NON-COMPLIANCE, FEBRUARY 16, 1967
LOCKHEED AIRCRAFT CORP., LOCKHEED-GEORGIA NUCLEAR LABS., DAWSONVILLE, GEORGIA
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 13(17), PAGE 27, (APRIL 24, 1967)

AN OCT. 1966 INSPECTION RESULTED IN CITATION FOR 7 SPECIFIC INSTANCES (INADEQUATE SAFETY INSTRUCTION OF NEW AND CONTRACTOR PERSONNEL, INADEQUATE SURVEYS OF AIRBORNE MATERIAL, INADEQUATE RECORDS, BYPASSING INTERLOCKS, EATING AND SMOKING IN HGT AREAS). REPLY (MARCH 9) GIVES CORRECTIVE ACTIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + RADIATION SAFETY AND CONTROL + SURVEILLANCE PROGRAM

15-20617

BAIRD-ATOMIC REPORTS REFINEMENT IN SEPT. 26, 1966 REPORT OF CARBON-14 EXPOSURE
BAIRD-ATOMIC, INC., CAMBRIDGE, MASS.
2 PAGES, NOVEMBER 4, 1966, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 14-15 (APRIL 17, 1967)

(LETTER, NOV. 4, 1966) DETAILED CALCULATION OF EXPOSURE WHICH TOOK PLACE JUNE 18, 1965, IS 10.72 REMS. ALTERNATE FREEZING AND THAWING WITH STIRRING OF A GLASS FLASK (IN LABELING DECANOIC ACID) CAUSED A BREAKAGE, RELEASING 34 MCURIES OF CARBON 14-02. CHEMIST DID NOT REPORT FRIDAY INHALATION UNTIL ROUTINE BREATH ANALYSIS MONDAY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*PERSONNEL EXPOSURE, RADIATION + CARBON + INHALATION

15-20618

COTTER CORP. CITED FOR NON COMPLIANCE
COTTER CORPORATION, CANON CITY, COLORADO
1 PAGE, MARCH 9, 1967, DOCKET 40-323, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 15 (APRIL 17, 1967)

(LETTER, MARCH 5) COMPLIANCE CITATION FOR 3 ITEMS OF INADEQUATE SURVEYS AND PERSONNEL MONITORING REGARDING AIRBORNE RADIOACTIVITY IN MILLING URANIUM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + AIRBORNE RELEASE + MILLING + SURVEILLANCE PROGRAM + URANIUM

15-20621

MONSANTO RESEARCH CORP. REPORTS RADIATION EXPOSURE
MONSANTO RESEARCH CORP., DAYTON, OHIO
1 PAGE, MARCH 13, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 17 (APRIL 17, 1967)

(LETTER, MARCH 13) UNFORSEEABLE COMPLICATIONS IN FABRICATION OF TWO 6 X 10(8TH) N/SEC PU-BE NEUTRON SOURCES, FIRST OF THEIR KIND, LED TO QUARTERLY WHOLE BODY EXPOSURE OF 3.11, 3.35, AND 3.57 REMS. POCKET DOSIMETERS AND SURVEYS WERE NOT ABLE TO PREVENT EXCESSIVE EXPOSURES. MORE SHIELDING WILL BE USED FOR THE SECOND AND LAST SET.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*PERSONNEL EXPOSURE, RADIATION + FABRICATION + FAILURE, ADMINISTRATIVE CONTROL + NEUTRON + SOURCE, NEUTRON

15-20622

3M REPORTS AN AUGUST 1962 CASE OF RADI-ODERMATITIS
3M COMPANY, ST. PAUL, MINN.
2 PAGES, MARCH 10, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 19-20, (APRIL 17, 1967)

(LETTER, MAR. 10) TWO EMPLOYEES IN AUG. 1962 DEVELOPED RADI-ODERMATITIS, ALTHOUGH NO UNUSUAL WORK WAS DONE. WRIST BADGES INDICATED 538 AND 860 MREMS. TESTS SHOWED THAT A CORRECTION FACTOR OF 13 GAVE EXPOSURES WELL WITHIN 10 CFR 20 LIMITS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*PERSONNEL EXPOSURE, RADIATION + DOSE MEASUREMENT, EXTERNAL + RADIATION DAMAGE

15-20657

ALSO IN CATEGORY 14

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20657 *CONTINUED*
HELF S

SECTION V. TECHNICAL NOTES

US ARMY, PICATINNY ARSENAL, DOVER, N.J.

9 PAGES, 4 FIG., 5 TAB., 13 REF., RADIOLOGICAL HEALTH DATA AND REPORTS 8(9), PAGE 553-562, (SEPT. 1967)

SHORT ARTICLES ARE GIVEN ON - (1) ENVIRONMENTAL RADIOACTIVITY IN WOODS SOIL AT DOVER, NEW JERSEY (PICATINNY ARSENAL), (2) STUDY OF CS-137 BURDENS OF SOME RESIDENTS OF CINCINNATI DURING JUNE 1964-MARCH 1967, AND (3) PLUTONIUM CONCENTRATIONS IN GROUND-LEVEL AIR AND CHANGES IN PU-238/PU-239 RATIOS.

*BIOLOGICAL CONCENTRATION, MAN + *MONITORING PROGRAM, ENVIRONMENTAL + CESIUM + FALLOUT + PLUTONIUM + SOIL, NUCLIDE OCCURRENCE

15-20664

MORGAN RH + GEHRET JC

THE RADIANT ENERGY RECEIVED BY PATIENTS IN DIAGNOSTIC X-RAY PRACTICE

JOHNS HOPKINS UNIVERSITY

18 PAGES, 2 FIGURES, 15 TABLES, 11 REFERENCES, THE AMERICAN JOURNAL OF ROENTGENOLOGY, RADIUM THERAPY, AND NUCLEAR MEDICINE 97(3), PAGE 793-810, (JULY 1966)

REPORTS A STUDY IN WHICH THE RADIANT ENERGY PROJECTED ON MORE THAN 36,000 PATIENTS UNDERGOING DIAGNOSTIC X-RAY EXAMINATION AT JOHNS HOPKINS HOSPITAL WAS MEASURED. THE DATA APPEAR TO BE USEFUL IN THE EVALUATION OF THE LEVELS OF UNNECESSARY EXPOSURE PREVAILING IN DIAGNOSTIC RADIOLOGY. SUCH MEASUREMENTS MAY ALSO BE USED EFFECTIVELY TO ESTIMATE THE ANNUAL GENETIC DOSE DUE TO DIAGNOSTIC X-RAY METHODS. THE RELATIVE EASE WITH WHICH SUCH MEASUREMENTS MAY BE MADE MAKES POSSIBLE AN EVALUATION OF THE TRENDS IN THIS DOSE ARISING FROM AN INCREASED APPLICATION OF X-RAYS IN MEDICAL PRACTICE AND FROM THE INSTITUTION OF TECHNIQUES TO REDUCE PATIENT EXPOSURE.

*RADIOLOGY + DOSE MEASUREMENT, EXTERNAL + X-RAY

15-20666

VENNART J

THE USAGE OF RADIOACTIVE LUMINOUS COMPOUND AND THE NEED FOR BIOLOGICAL MONITORING OF WORKERS

RADIOLOGICAL PROTECTION SERVICE, BELMONT, SUTTON, SURREY

6 PAGES, 11 REFERENCES, HEALTH PHYSICS 13(9), PAGE 959-954, (SEPT. 1967)

THE USE OF RADIOACTIVE LUMINOUS PAINTS GIVES RISE TO IRRADIATION OF LUMINISERS AND OF THE PUBLIC USING THE LUMINISED ARTICLES. WHERE THE PUBLIC IS CONCERNED, RADIONUCLIDES WHICH DO NOT EMIT PENETRATING RADIATIONS, SUCH AS TRITIUM AND PROMETHIUM-147, ARE MORE SUITABLE THAN RADIUM. EXPERIENCE IN THE UNITED KINGDOM OF MONITORING LUMINISERS FOR RADIUM AND TRITIUM IN THEIR BODIES IS REVIEWED AND DISCUSSED IN RELATION TO THE POSSIBLE USE OF PROMETHIUM-147. PRESENT CONDITIONS IN THE LUMINISING INDUSTRY ARE SUCH THAT THERE IS A NEED FOR REGULAR MONITORING OF WORKERS, AND THE PROBLEMS CREATED BY TRITIUM AND PROMETHIUM-147 ARE SUFFICIENT TO RESTRICT THEIR USE, PROBABLY IN FAVOUR OF RADIUM. THERE IS THUS A CONFLICT BETWEEN WHAT IS DESIRABLE FROM THE POINT OF VIEW OF THE PUBLIC AND WHAT IS PRACTISED BY THE INDUSTRY. TO RESOLVE THIS DILEMMA, IT IS SUGGESTED THAT THE METHODS EMPLOYED FOR LUMINISING SHOULD BE BROUGHT UP TO MUCH HIGHER STANDARDS FOR CONTAINING THE RADIOACTIVE COMPOUNDS.

*BIOLOGICAL CONCENTRATION, MAN + MAXIMUM PERMISSIBLE BODY BURDEN + PROMETHIUM + RADIATION PROTECTION, ORGANIZATION + RADIOBIOLOGY + RADIOCHEMICAL PLANT SAFETY + RADIUM + STRONTIUM + TRITIUM + UNITED KINGDOM

15-20667

LAGERQUIST CR + PUTZIER EA + PILTINGSRUD CW

BIO-ASSAY AND BODY COUNTER RESULTS FOR THE FIRST 2 YEARS FOLLOWING AN ACUTE PLUTONIUM EXPOSURE

DOW CHEMICAL CO., ROCKY FLATS DIVISION, GOLDEN, COLORADO

8 PAGES, 9 FIGURES, 2 TABLES, 7 REFERENCES, HEALTH PHYSICS 13(9), PAGE 965-972, (SEPTEMBER 1967)

AN EXPLOSIVE REACTION BETWEEN HOT PLUTONIUM METAL AND CARBON TETRACHLORIDE CAUSED AN ACCIDENT IN WHICH DEBRIS FROM THE EXPLOSION CAUSED SEVERE INJURY TO THE THUMB AND SECOND FINGER OF THE LEFT HAND. ABOUT 144 MICROCURIES OF PLUTONIUM WERE EMBEDDED IN THE WOUNDS. SURGERY HAS BEEN PERFORMED ON THE HAND 4 TIMES SINCE THE ACCIDENT, WITH 6/10 MICROCURIE OF PLUTONIUM REMAINING AFTER THE LAST PROCEDURE. DTGA TREATMENTS HAVE BEEN GIVEN TO THE EMPLOYEE IN VARIOUS AMOUNTS AND SCHEDULES SINCE THE ACCIDENT. THESE TREATMENTS WERE LARGELY RESPONSIBLE FOR THE ELIMINATION OF 8 MICROCURIES OF PLUTONIUM VIA THE URINE. IN VIVO MEASUREMENTS OF PLUTONIUM IN THE HAND, LUNG, LIVER, AND SKULL HAVE BEEN MADE PERIODICALLY, USING THE ROCKY FLATS BODY COUNTER.

*ACCIDENT, RADIOISOTOPE + *RADIATION INJURY, TREATMENT OF + BIOMEDICAL + COUNTER, WHOLE BODY + PLUTONIUM + RADIATION PROTECTION, CHEMICAL + ROCKY FLATS

15-20668

HOPKINS BJ

THE RETENTION OF STRONTIUM-90 TRANSFERRED THROUGH MILK (AND PLACENTA) IN RAT OFFSPRING

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY, DEPARTMENT OF RADIATION BIOLOGY AND BIOPHYSICS, ROCHESTER, NEW YORK 14620

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20668 *CONTINUED*
4 PAGES, 2 FIG., 1 TABLE, HEALTH PHYSICS 13(9), PAGE 973-976, (SEPT. 1967)

THE RETENTION IN SUCKLING YOUNG OF SR-90 ACCUMULATED DURING LATE FETAL LIFE AND DURING THE PERIOD OF NURSING FOLLOWING A SINGLE MATERNAL INJECTION WAS MEASURED IN RATS. RAT DAMS OF THE LONG-EVANS STRAIN WERE INJECTED INTRAVENOUSLY WITH 379 MICROCURIES OF SR-90 ON DAY 17 POSTCONCEPTION. BREMSSTRAHLUNG MEASUREMENTS BASED UPON 65 OFFSPRING SHOWED THAT A BODY BURDEN OF 1.49 MICROCURIES PER OFFSPRING WAS CONTAINED AT BIRTH. AT LEAST 1.19 MICROCURIES IN EXCESS OF THE BODY BURDEN AT PARTURITION WAS ACCUMULATED FROM THE MILK BY DAY 14 POST BIRTH. FRACTIONAL RETENTION OF SR-90 IN THE OFFSPRING BETWEEN 40 AND 300 DAYS POST-WEANING WAS DESCRIBED BY THE EQUATION $R \text{ EQUALS } 0.006 \times T^{(-0.13)}$.

*RADIOBIOLOGY + BIOLOGICAL CONCENTRATION, GENERAL + RADIOSOTOPE + STRONTIUM

15-20673
SASSE RA
GAMMA AND NEUTRON RADIOLYSIS OF THE SYSTEM TRICHLOROETHYLENE-OXYGEN-WATER
US ARMY NUCLEAR DEFENSE LABORATORY, EDGEWOOD ARSENAL, MARYLAND
10 PAGES, 8 FIGURES, 3 TABLES, 18 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1015-1024, (SEPT. 1967)

THE GAMMA AND NEUTRON RADIOLYSIS OF AQUEOUS TRICHLOROETHYLENE (TCE) WAS INVESTIGATED. THE OXYGEN-RICH TCE SYSTEM YIELDS WERE VERY DOSE-RATE DEPENDENT, WHEREAS THE AIR-FREE SYSTEM WAS NOT. A MECHANISM IS PROPOSED FOR THE AIR-FREE TCE SYSTEM BASED ON LIMITING G VALUES OBTAINED BY ADDING SCAVENGERS.

*DOSIMETRY, GENERAL + CHEMICAL REACTION + GAMMA + NEUTRON + RADIOLYTIC GAS + UNITED STATES

15-20674 ALSO IN CATEGORY 14
BLOCK S + BRYAN J + PREVO C + MONTAN D
LABORATORY SOURCES ENHANCED IN 0.5 EV TO 200 KEV NEUTRONS FOR INSTRUMENT EVALUATION
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE, CALIF.
7 PAGES, 1 FIGURE, 10 TABLES, 10 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1025-1031, (SEPT. 1967)

PJ-238/BE OR SB-BE NEUTRON SOURCES IN D2O MODERATORS CAN PROVIDE A SPECTRUM OF NEUTRONS USEFUL FOR CHECKING THE DOSE EQUIVALENT SENSITIVITY OF NEUTRON DETECTORS FROM 0.5-EV TO 200-KEV NEUTRONS. RESULTS INDICATE THAT INTERMEDIATE-ENERGY NEUTRONS CAN BE MADE TO CONTRIBUTE UP TO 74% OF THE DOSE EQUIVALENT RATE OF THE INCIDENT FLUX DENSITY.

*SOURCE, NEUTRON + ANTIMONY + BERYLLIUM + INSTRUMENTATION CALIBRATION +
LRL (LAWRENCE RADIATION LABORATORY) + PLUTONIUM

15-20675
HUNNEY LR + SAM D
EXPOSURE RATES FROM THE PRODUCTS OF FAST NEUTRON FISSION OF U-235 AND U-238 AT SELECTED TIMES AFTER FISSION
U.S. NAVAL RADIOLOGICAL OFFENSE LAB., SAN FRANCISCO, CALIF. 94135
5 PAGES, 2 FIGURES, 2 TABLES, 11 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1033-1037, (SEPT. 1967)

THE EXPOSURE RATES PER FISSION PER SQUARE CENTIMETER AT 3 FT ABOVE A UNIFORMLY CONTAMINATED PLANE WERE CALCULATED FOR NINE SELECTED TIMES (1/4, 1/2, 1, 2, 5, 10, 24, 48, AND 72 HR) AFTER FAST NEUTRON FISSION OF U-235 AND U-238. THE CALCULATIONS WERE MADE FROM RECENT EXPERIMENTALLY DETERMINED GAMMA-RAY SPECTRA OF THE FISSION PRODUCTS. THE RESULTS OF THE CALCULATION OF EXPOSURE RATES FROM THESE EXPERIMENTAL GAMMA-RAY SPECTRA OF UNFRACTIONATED FISSION PRODUCTS OF U-235 AND U-238 ARE COMPARED GRAPHICALLY WITH THOSE BASED ON CALCULATED SPECTRA AND WITH THOSE COMPUTED FROM THE FEW EARLIER EXPERIMENTAL SPECTRA TAKEN AT COMPATIBLE TIMES.

*DOSE CALCULATION, EXTERNAL + GAMMA + TEST, WEAPONS (HP ASPECTS) + UNITED STATES + URANIUM

15-20676
KATREN RL
DOSIMETRY OF 14-MEV NEUTRONS WITH EASTMAN NTA PERSONNEL MONITORING FILM
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
2 PAGES, 2 FIGURES, 5 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1039-1040, (SEPT. 1967)

NTA FILMS WERE EXPOSED TO 14-MEV NEUTRONS. DATA ARE GIVEN FOR THE SENSITIVITY AND FOR THE REM RESPONSE AS A FUNCTION OF NEUTRON ANGLE OF INCIDENCE.

*DOSIMETRY, PHOTOGRAPHIC + LRL (LAWRENCE RADIATION LABORATORY) + NEUTRON

15-20677
SHIRAGAI A
ANNEALING OF A LIF THERMOLUMINESCENCE DOSIMETER
JAPAN. NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES
3 PAGES, 3 FIGURES, 4 REFERENCES, HEALTH PHYSICS 13(9), PAGE 1040-1042, (SEPT. 1967)

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20677 *CONTINUED*

AN LIF THERMOLUMINESCENCE DOSIMETER WAS STUDIED FROM THE STANDPOINT OF ENHANCEMENT BY PLASTIC DEFORMATIONS AND BY ANNEALING. IT WAS FOUND THAT THE MOST INTENSE THERMOLUMINESCENCE RESULTS FROM FREEZING IN THE EQUILIBRIUM DISTRIBUTION OF THE IMPURITIES AND VACANCIES. IN REANNEALING, THE THERMOLUMINESCENCE VARIES WITH THE HEATING TEMPERATURE AND TIME. THE THERMOLUMINESCENCE DECREASED WITH HEATING AT VERY HIGH TEMPERATURES.

*DOSIMETRY, THERMOLUMINESCENCE + GAMMA + JAPAN

15-20678

LINUMA TA + UCHIYAMA M + NAGAI T + ISHIHARA T + SAIKI M + YAMAGATA N

BODY BURDEN OF CAESIUM-137 IN JAPAN

NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES, CHIBA, JAPAN + NATIONAL INSTITUTE OF PUBLIC HEALTH, TOKYO, JAPAN

3 PAGES, 2 FIGURES, 2 TABLES, 6 REFERENCES, NATURE 214(5084), PAGE 133-135, (APRIL 8, 1967)

A MONTHLY MONITORING PROGRAM AT THE NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES, CHIBA, JAPAN, RECORDED CHANGES IN THE BODY BURDEN OF CS-137 AND OF OTHER RADIOACTIVE ISOTOPES. CS AND K APPEAR TO BE CORRELATED IN DISTRIBUTION.

CESIUM + COUNTER, WHOLE BODY + JAPAN + MAXIMUM PERMISSIBLE BODY BURDEN

15-20681

ALSO IN CATEGORY 14

HUNGATE FP

RADIOISOTOPES IN ALASKAN ESKIMOS

ALASKA DIVISION, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

HW-SA-3582 +. 11 PAGES, 5 TABLES, 12 REFERENCES, MARCH 1965, PROCEEDINGS FIFTEENTH ALASKAN SCIENCE CONFERENCE COLLEGE, ALASKA, AUGUST 31 TO SEPT. 4, 1964

AMOUNTS OF FALLOUT IN ALASKA ARE LESS THAN IN MANY OTHER PARTS OF THE U.S. BECAUSE OF THE FOOD CHAIN THROUGH WHICH CS-137 IS TRANSFERRED FROM LICHEN TO CARIBOU TO MAN, THE ESKIMO HAS A HIGHER THAN USUAL CONCENTRATION OF THIS RADIOISOTOPE, THE AMOUNT BEING LARGELY DEPENDENT ON THE AMOUNT OF CARIBOU MEAT EATEN. CURRENT ANNUAL RADIATION DOSES TO THE ESKIMOS AVERAGE LESS THAN 0.2 RAD AND ARE PREDICTED TO BE LESS THAN 3 RADS AS A CUMULATIVE 30-YEAR DOSE. SR-90 AND OTHER FALLOUT NUCLEIDES APPEAR TO CONTRIBUTE LITTLE TO THE TOTAL RADIATION DOSE RECEIVED BY ESKIMOS.

*FALLOUT + ALASKA + BIOLOGICAL CONCENTRATION, ANIMAL FEED + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + CESIUM + STRONTIUM

15-20682

YUDIN MF

EQUIVALENT DOSE AND ITS MEASUREMENT UNIT

3 PAGES, 4 REFERENCES, IZM. TEKH. (11), PAGE 15-17, (NOVEMBER 1966)

AN IONIZING-RADIATION MEASUREMENT UNIT SUITABLE FOR EVALUATING THE DEGREE OF RADIATION DANGER SHOULD BE ADOPTED TO MEET URGENT PRACTICAL REQUIREMENTS. THEREFORE, IT IS VERY IMPORTANT TO ESTABLISH FIRST THE THEORETICAL CRITERIA ON WHICH ITS EVALUATION SHOULD BE BASED. THE ARTICLES DEALING IN THIS ISSUE OF OUR JOURNAL WITH THE ESTABLISHMENT OF AN IONIZING-RADIATION MEASUREMENT UNIT ARE PUBLISHED FOR THE PURPOSE OF DISCUSSION. THE SUBJECT DISCUSSED IN THESE ARTICLES IS OF UNDOUBTED PRACTICAL AND THEORETICAL INTEREST. THE BASIC PROBLEM WHICH, IN THE OPINION OF THE EDITORIAL BOARD, SHOULD BE DISCUSSED RELATES TO THE UNIT OF BIOLOGICAL EQUIVALENT OF THE RAD (REM). THE EDITORIAL BOARD HOPES THAT A WIDE CIRCLE OF WORKERS DEALING WITH VARIOUS PRACTICAL PROBLEMS IN THE DOSIMETRY OF IONIZING RADIATIONS WILL PARTICIPATE IN THIS DISCUSSION. THE AUTHOR SUGGESTS THAT THE ICRU TERM DOSE EQUIVALENT SHOULD BE TRANSLATED INTO RUSSIAN AS EQUIVALENT DOSE (ED), AND THAT THE EQUIVALENT DOSE SHOULD BE EXPRESSED IN TERMS OF EQUIVALENT RADS (EQ. RAD.).

*RADIATION UNIT + ICRU (INT. COMM. RAD. UNITS AND MEASUREMENTS) + RADIATION IN PERSPECTIVE

15-20693

BOSS MR + MANN JR

BODY COUNTER EVALUATIONS OF PLUTONIUM EXPOSURES

DOW CHEMICAL CO., ROCKY FLATS DIVISION, GOLDEN, COLORADO

RFP-517 +. 9 PAGES, 11 FIGURES, 9 REFERENCES, HEALTH PHYSICS 13, PAGE 259-265, (MARCH 1967)

BODY-COUNTER MEASUREMENTS WERE MADE ON INDIVIDUALS WHO HAVE UNDERGONE ACCIDENTAL EXPOSURE TO PU-239. THE LIVER, LUNGS, AND OTHER PARTS OF THE BODY WERE MEASURED. THE EXPOSURES ARE THE RESULT OF CONTAMINATED WOUNDS AND INHALATIONS. AM-241 IS PRESENT IN THE PLUTONIUM TO WHICH THE INDIVIDUALS HAVE BEEN EXPOSED. AM-241, WHICH EMITS A 60-KEV GAMMA RAY, IS USED AS A TRACER FOR MAKING PLUTONIUM MEASUREMENTS. A PLASTIC PHANTOM WAS USED TO CALIBRATE THE COUNTER BY PLACING KNOWN AMOUNTS OF PU-239 AND AM-241 INTO THE MAJOR INTERNAL ORGANS. THE DATA WAS COLLECTED WITH A 512-CHANNEL PULSE-HEIGHT ANALYZER AND A 4-IN. BY 4-MM-THICK, THIN-WINDOW NaI(Tl) DETECTOR. A GAS-FLOW PROPORTIONAL DETECTOR PRESENTLY UNDER DEVELOPMENT WAS USED TO SUPPLEMENT THE SCINTILLATION DETECTORS.

*PLUTONIUM + AMERICIUM + BIOMEDICAL + COUNTER, WHOLE BODY + RADIOBIOLOGY + RADIOCHEMICAL PLANT SAFETY + ROCKY FLATS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20696
SMITH RC + VAN TUYL HH
HIGH EXPOSURE PLUTONIUM STUDIES. ANALYSES OF SHIPPINGPORT FUEL.
PACIFIC NORTHWEST LAB, BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-478 +. 15 PAGES, 5 TABLES, 7 REFERENCES, JULY 1967

DETAILED ANALYSES ON SEVEN SAMPLES OF SHIPPINGPORT BLANKET FUEL ARE PRESENTED. THE PLUTONIUM AND URANIUM ISOTOPIC DISTRIBUTIONS ARE GIVEN FOR SHIPPINGPORT BLANKET FUELS VARYING IN ESTIMATED EXPOSURE FROM APPROXIMATELY 10,000 TO 30,000 MWD/TON. CALCULATED AMOUNTS OF THE URANIUM AND PLUTONIUM ISOTOPES AND SEVERAL OTHER HEAVY NUCLIDES OF POTENTIAL COMMERCIAL USE ARE ALSO PRESENTED. THESE DATA ARE PRESENTED AS A PART OF A LONG-RANGE STUDY TO LEARN THE ISOTOPIC DISTRIBUTION AND RADIATION EXPOSURES TO BE EXPECTED FROM HIGH-EXPOSURE PLUTONIUM RECYCLED FROM POWER REACTOR FUELS. THE DATA FALL INTO CONSISTENT PATTERNS. FUEL BURNUP AS CALCULATED FROM THE MEASURED AMOUNTS OF THE VARIOUS NUCLIDES IS COMPARED WITH CS-137 AND ND-148 BURNUP CALCULATIONS. SOME OF THE PRELIMINARY DOSIMETRY DATA FROM THE HIGH EXPOSURE PLUTONIUM ARE ALSO INCLUDED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, EXTERNAL + BATTELLE NORTHWEST + FABRICATION + FUEL REPROCESSING + PLUTONIUM + REACTOR, PRESSURIZED WATER + SHIPPINGPORT

15-20697
FENN JM + BUJM WR + WATSON LC
ONE-DAY INTRODUCTION TO RADIATION PROTECTION PRINCIPLES
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO
AECL-2656 +. 39 PAGES, 1 TABLE, APRIL 1967

OUTLINES THE FUNDAMENTALS OF RADIATION HAZARDS AND THEIR CONTROL. THIS ONE-DAY COURSE IS PRESENTED TO ALL CLASSES OF RADIATION WORKERS AT CRNL, USUALLY DURING THEIR FIRST MONTH OF EMPLOYMENT. THE PURPOSES ARE TO OUTLINE THE FUNDAMENTALS OF RADIATION HAZARDS CONTROL, TO DESCRIBE METHODS THAT ENABLE EMPLOYEES TO WORK SAFELY WITH RADIATION, AND TO ACQUAINT EMPLOYEES WITH THE CRNL RADIATION AND INDUSTRIAL SAFETY ORGANIZATION.

AVAILABILITY - CHALK RIVER NUCLEAR LABORATORIES, ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO, CANADA, \$1.50

*RADIATION PROTECTION, ORGANIZATION + *RADIATION SAFETY AND CONTROL + CANADA + CHALK RIVER + HEALTH PHYSICS TRAINING + RADIOCHEMICAL PLANT SAFETY

15-20701
MARSHALL JF + WELLS MB
THE EFFECT OF CUTOFF ENERGY ON MONTE CARLO CALCULATED GAMMA-RAY DOSE RATES IN AIR
RADIATION RESEARCH ASSOCIATES, INC., FORT WORTH, TEXAS
RRA-M-67 + CONF-661001-50 +. 62 PAGES, OCTOBER 31, 1966, FROM 14TH CONFERENCE ON REMOTE SYSTEMS AND TECHNOLOGY, PITTSBURGH, PA.

MONTE CARLO CALCULATIONS WERE MADE FOR THE TRANSPORT OF GAMMA RAYS FROM A POINT-ISOTROPIC SOURCE IN AN INFINITE AIR MEDIUM IN WHICH THE PARTICLES ARE ALLOWED TO DECREASE IN ENERGY DOWN TO 0.01 MEV. THESE NEW CALCULATIONS WERE PROMPTED BY DISCREPANCIES IN DOSE BUILD-UP FACTORS OBSERVED BETWEEN EARLIER MONTE CARLO CALCULATIONS AND THOSE OBTAINED FROM MOMENTS-METHOD DATA FOR INFINITE WATER. INCLUSION OF THE LOW ENERGY (0.01 TO 0.10 MEV) COMPONENT OF THE DOSE LEADS TO GOOD AGREEMENT BETWEEN DOSE BUILD-UP FACTORS FOR THE TWO DIFFERENT CALCULATIONAL METHODS. THE LOW-ENERGY COMPONENT CONTRIBUTES AS MUCH AS 36% OF THE TOTAL DOSE FROM A 0.5-MEV POINT-ISOTROPIC GAMMA-RAY SOURCE AFTER AN EQUILIBRIUM SPECTRUM IS OBTAINED. GOOD AGREEMENT WAS OBTAINED NOT ONLY IN THE DOSE BUILD-UP FACTORS BUT ALSO IN THE ENERGY SPECTRA. IT WAS CONCLUDED THAT MONTE CARLO CALCULATIONS FOR AIR AND MOMENTS-METHOD DATA FOR WATER ARE COMPATIBLE (WITHIN PLUS OR MINUS 10 PERCENT) WHEN GAMMA RAYS IN THE MONTE CARLO CALCULATIONS ARE ALLOWED TO SCATTER DOWN TO A LOW-ENERGY CUTOFF OF 0.01 MEV.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, EXTERNAL + GAMMA + MONTE CARLO + UNITED STATES

15-20704
PATTERSON HW
ACCURACY OF VERY-HIGH-ENERGY RADIATION MONITORING
CALIFORNIA UNIV., BERKELEY. LAWRENCE RADIATION LAB.
UCRL-17412 + CONF-670621-2 +. 11 PAGES, TABLES, REFERENCES, MAY 1967, PRESENTED AT SYMPOSIUM ON RADIATION DOSE MEASUREMENTS, THEIR PURPOSE, INTERPRETATION AND REQUIRED ACCURACY IN RADIOLOGICAL PROTECTION, STOCKHOLM, SWEDEN

TO ENSURE SUITABLE ACCURACY IN HEALTH PHYSICS MEASUREMENTS OF VERY-HIGH-ENERGY RADIATION, IT IS FIRST NECESSARY TO LAY A PROPER FOUNDATION OF KNOWLEDGE AND UNDERSTANDING OF THE RADIATION FIELD. THIS SHOULD BE DONE BY CHOOSING DETECTORS AND ANALYZING SYSTEMS SELECTIVE IN RESPONSE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20704 *CONTINUED*

TO THE RADIATION OF INTEREST AND WITH SATISFACTORY SENSITIVITY. WHEN THE RADIATION FIELD IS DESCRIBED IN PHYSICAL TERMS, I.E., IN TERMS OF ENERGY SPECTRUM AND INTENSITY OF EACH COMPONENT, ONE CAN UTILIZE DETECTORS WHOSE RESPONSE IS AMBIGUOUS (RAC OR REM METERS), BUT WHICH ARE OF PRACTICAL USE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE MEASUREMENT, EXTERNAL + ACCELERATOR + ENERGY LEVEL + LRL (LAWRENCE RADIATION LABORATORY) + SHIELDING

15-20744 ALSO IN CATEGORY 14
RISK EVALUATION FOR PROTECTION OF THE PUBLIC IN RADIATION ACCIDENTS
INTERNATIONAL ATOMIC ENERGY AGENCY

STI/PUB 124 + IAEA SAFETY SERIES NO. 21 +. 60 PAGES, 14 TABLES, 30 REFERENCES, 1967

A REPORT OF A PANEL OF EXPERTS CONVENED TO DEFINE A RANGE OF REFERENCE DOSES OF RADIATION THAT SHOULD BE HELPFUL IN ASSESSING THE HAZARDS OF NUCLEAR INSTALLATIONS AND IN MAKING POLICY DECISIONS. IT IS PUBLISHED ON BEHALF OF THE WORLD HEALTH ORGANIZATION AND THE IAEA. CONTENTS - I-INTRODUCTION, II-OBJECTIVES, III-SCOPE, IV-REFERENCE RADIATION DOSES AND RELATED RISKS, V-PRACTICAL APPLICATIONS FOR THE USE OF REFERENCE DOSES AND RELATED RISKS OF SECTION IV IN MAKING POLICY DECISIONS NECESSARY TO MEET A RADIATION ACCIDENTAL EXPOSURE SITUATION (ACTUAL OR POTENTIAL), VI-COMPUTATION OF DOSES INTO INTAKES OF RADIOACTIVITY AND LEVELS OF CONCENTRATION IN DIET (SUCH AS MILK), AND TIME INTEGRALS OF CONCENTRATION IN AIR, VII-ASSESSMENTS OF THE HAZARDS TO MAN FROM EXPOSURE RESULTING FROM A RADIATION ACCIDENT. SEPARATELY AVAILABLE IN ENGLISH AND FRENCH.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH ST., NEW YORK, N.Y. 10016

*RADIATION DAMAGE + BIOMEDICAL + IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY) +
RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY

15-20745

THE EVALUATION OF RISKS FROM RADIATION. A REPORT PREPARED FOR COMMITTEE 1 OF THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION AND RECEIVED BY THE COMMITTEE ON APRIL 20TH, 1965.
INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

ICRP PUBLICATION-8 +. 65 PAGES, FIGURES, TABLES, REFERENCES, APRIL 20, 1965

INCREASED INCIDENCE OF LEUKEMIA IS THE MAJOR CONSEQUENCE OF EXPOSURE OF A LARGE PART OF THE BODY TO RADIATION. THERE IS NO CLEAR EVIDENCE THAT RADIATION IN SMALL DOSES WILL GIVE RISE TO SERIOUS CONSEQUENCES OTHER THAN CANCER. RISKS OF CANCER THROUGH RADIATION ARE ESTIMATED. FIGURES ARE ALSO GIVEN FOR THE ESTIMATED GENETIC DETRIMENT TO THE FIRST GENERATION OF A MILLION OFFSPRING IN A POPULATION WHERE THE WHOLE PARENTAL GENERATION HAD RECEIVED 1 RAD AND 30 RAD IN ADDITION TO NATURAL BACKGROUND RADIATION. FROM THE DATA AVAILABLE, THE NUMBER OF GENETIC EFFECTS EXPECTED OVER MANY GENERATIONS WILL CONSIDERABLY EXCEED THE SOMATIC INJURIES SUSTAINED BY THE EXPOSED GENERATION. THE ORDER OF SOMATIC INJURY FOR NATURAL BACKGROUND RADIATION FOR THE GREAT BULK OF THE WORLD'S POPULATION IS OF THE SIXTH ORDER (1×10^{-6} TH) TO 10×10^{-6} TH). FOR THOSE DIRECTLY ENGAGED IN RADIATION WORK, THE RISK IS FIFTH-ORDER.

AVAILABILITY - PERGAMON PRESS, NEW YORK \$2.00 COPY

*RADIATION DAMAGE + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) + MAXIMUM PERMISSIBLE DOSE (MPD) +
RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY

15-20747 ALSO IN CATEGORY 14

RADIATION PROTECTION - PRINCIPLES OF ENVIRONMENTAL MONITORING RELATED TO THE HANDLING OF RADIOACTIVE MATERIALS

INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

ICRP-7 +. 11 PAGES, 2 FIGURES, 10 REFERENCES, LIBRARY OF CONGRESS CATALOG CARD NO. 66-19542, SEPTEMBER 13, 1965

THE BROAD OBJECTIVES OF ENVIRONMENTAL MONITORING PROGRAMS CAN BE SUMMARIZED AS FOLLOWS - (A) ASSESSMENT OF THE ACTUAL OR POTENTIAL EXPOSURE OF MAN TO RADIOACTIVE MATERIALS OR RADIATION PRESENT IN HIS ENVIRONMENT, OR THE ESTIMATION OF THE PROBABLE UPPER LIMITS OF SUCH EXPOSURE, (B) SCIENTIFIC INVESTIGATION, SOMETIMES RELATED TO THE ASSESSMENT OF EXPOSURES, SOMETIMES TO OTHER OBJECTIVES, (C) IMPROVED PUBLIC RELATIONS. THE BASIC RECOMMENDATIONS OF THE COMMISSION ARE IN TERMS OF RADIATION DOSES TO ORGANS OF THE BODY. FROM THESE ARE DERIVED MAXIMUM PERMISSIBLE BODY BURDENS, MAXIMUM PERMISSIBLE INTAKES, AND MAXIMUM PERMISSIBLE CONCENTRATIONS. IN THE COMMISSIONS RECOMMENDATIONS FOR INDIVIDUAL MEMBERS OF THE PUBLIC, THESE DOSES AND INTAKES ARE EXPRESSED AS ANNUAL VALUES SO THAT CORRESPONDING DOSE RATES OR CONCENTRATIONS RELATE TO ANNUAL AVERAGES AND NOT TO SHORT-TERM VALUES.

AVAILABILITY - PERGAMON PRESS INC., 44-01 21ST STREET, LONG ISLAND CITY, NEW YORK 11101

*MONITORING PROGRAM, ENVIRONMENTAL + ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION) +
MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) +
SURVEY, RADIATION, ENVIRONMENTAL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20749

RESEARCH REPORT, MEDICAL DIVISION, FOR THE YEAR ENDING DECEMBER 31, 1966
OAK RIDGE ASSOCIATED UNIVERSITIES, INC., TENN. MEDICAL DIV.
ORAU-101 +. 199 PAGES, 83 FIGURES, 32 TABLES, REFERENCES, 1966

STUDIES REPORTED INCLUDE - MECHANISMS OF RADIATION INJURY, STUDIES RELATED TO TREATMENT OF RADIATION INJURY, A STUDY ON RADIATION EFFECTS, MEDICAL RADIOSOTOPE DEVELOPMENT, THERAPY WITH RADIATION, RADIOISOTOPES IN DIAGNOSIS, THEORETICAL AND EXPERIMENTAL STUDIES ON RETENTION AND DISTRIBUTION OF RADIONUCLIDES, BASIC STUDIES RELATED TO NEOPLASIA, AND INSTRUMENT DEVELOPMENT AND METHODOLOGY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*RADIOBIOLOGY + BIOMEDICAL + RADIATION INJURY, TREATMENT OF + RADIOISOTOPE

15-20759

MALETSKOS CJ + DEAN PN + LOUGH SA + MILLER CE
INTERCOMPARISON OF THE RELIABILITY OF BODY CESIUM-137 MEASUREMENTS ON HUMAN BEINGS
HARVARD MEDICAL SCHOOL, BOSTON, MASS. + LOS ALAMOS SCIENTIFIC LAB., LOS ALAMOS, NEW MEXICO + DIVISION OF
BIOLOGY AND MEDICINE, USAEC, WASHINGTON, D. C. + ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
11 PAGES, 5 FIGURES, 2 TABLES, 3 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1307-1319 (DECEMBER 1967)

LARGE VARIATIONS IN CS-137 BODY BURDENS REPORTED BY VARIOUS PARTICIPATING LABORATORIES
PROMPTED AN INTERCOMPARISON OF THE RELIABILITY OF CS-137 MEASUREMENTS. THE AVERAGE RATIO OF
NEW TO OLD VALUES OF THE WORKING STANDARDS BASED ON REFERENCE TO THE CERTIFIED NBS STANDARD
WAS 1.01 PLUS OR MINUS 0.04. AVERAGE RATIOS FOR MEASUREMENTS OF DECADE SOURCES FOR 3
DISTANCES WERE 1.00 PLUS OR MINUS 0.01. RATIOS OF THE BODY BURDENS MEASURED TO VALUES
REPORTED BY LASL AVERAGED 0.96 PLUS OR MINUS 0.11 FOR HIGH CS-137 AND 0.93 PLUS OR MINUS 0.13
FOR THE LOW CS-137 BURDEN. SIMILAR RATIOS FOR BODY K AVERAGE 0.93 PLUS OR MINUS 0.08 FOR
HIGH AND 0.90 PLUS OR MINUS 0.06 FOR LOW. IT WAS CONCLUDED THAT THE LABORATORIES CONCERNED
CAN BE CAPABLE OF RELIABLE CS-137 AND K BODY MEASUREMENTS IN HUMANS. IT IS NOT CLEAR WHY THE
ORIGINAL RESULTS WERE SO VARIABLE.

*COUNTER, WHOLE BODY + CESIUM + INSTRUMENTATION, RADIATION MONITORING + POTASSIUM +
USAEC (U.S. ATOMIC ENERGY COMMISSION)

15-20760

ALSO IN CATEGORY 14

WELFORD GA + BAIRD R
URANIUM LEVELS IN HUMAN DIET AND BIOLOGICAL MATERIALS
HEALTH AND SAFETY LAB., US ATOMIC ENERGY COMMISSION, NEW YORK, NEW YORK
4 PAGES, 6 TABLES, 10 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1321-1324 (DECEMBER 1967)

THE URANIUM IN TYPICAL DIETS IN NEW YORK CITY, CHICAGO, AND SAN FRANCISCO WAS MEASURED TO
DETERMINE BODY INTAKE LEVELS. AIR, WATER, LUNG, AND URINE SAMPLES WERE ALSO ANALYZED FOR
URANIUM CONTENT. THE DIET DATA INDICATE UNIFORM INTAKE OF URANIUM AT THE THREE SITES
EXAMINED. THE VALUES FOUND WERE 1.3, 1.4, AND 1.3 MICROGRAMS OF URANIUM PER DAY FOR NEW YORK
CITY, CHICAGO, AND SAN FRANCISCO, RESPECTIVELY. BASED ON THESE VALUES, URANIUM EXCRETED IN
URINE BY INFERENCE WOULD BE APPROXIMATELY 0.007 MICROGRAMS/L. THE MEASURED URINARY EXCRETION
LEVELS FOR NONEXPOSED ADULTS IN THE CHICAGO AREA INDICATE A RANGE OF VALUES WITHIN THE
PREVIOUSLY REPORTED NEW YORK LEVELS OF FROM 0.03 TO 0.3 MICROGRAM OF URANIUM PER LITER.

*BIOLOGICAL CONCENTRATION, FOOD + ENVIRONMENTAL CONDITION + URANIUM + USAEC (U.S. ATOMIC ENERGY COMMISSION)

15-20761

ALSO IN CATEGORY 14

MAGNO PJ + KAUFFMAN PE + SHLEIEN B
PLUTONIUM IN ENVIRONMENTAL AND BIOLOGICAL MEDIA
US PUBLIC HEALTH SERVICE, WINCHESTER, MASSACHUSETTS
6 PAGES, 1 FIGURE, 5 TABLES, 14 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1325-1330 (DECEMBER 1967)

RADIONUCLIDES OF PU ARE PRESENT IN THE ATMOSPHERE AS A RESULT OF NUCLEAR WEAPONS TESTING AND
THE BURNUP OF A SATELLITE UTILIZING PLUTONIUM AS A POWER SOURCE. THEIR OCCURRENCE IN AIR,
PRECIPITATION, TOTAL DIET, MILK, AND HUMAN TISSUE HAS BEEN STUDIED. FINDINGS - (1) MILK
CONTRIBUTES NO SIGNIFICANT AMOUNT OF PU TO THE DIET, (2) CONTRIBUTIONS OF PU TO BODY TISSUES
FROM DIET IS NEGLIGIBLE, COMPARED WITH THAT FROM INHALATIONS, (3) THE LIVER CONTAINED THE
HIGHEST CONCENTRATION OF PU IN THE BODY (1.6 TIMES THAT OF LUNG, AND A FACTOR OF ABOUT 10
HIGHER THAN THAT MEASURED IN BONE).

*MONITORING PROGRAM, ENVIRONMENTAL + AIR + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN +
BIOLOGICAL CONCENTRATION, MILK + PLUTONIUM + PRECIPITATION + UNITED STATES

15-20763

TANAKA E
A PERSONAL RADIATION ALARM DOSIMETER

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20763 *CONTINUED*

NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES, CHIBA-SHI, JAPAN
11 PAGES, 12 FIGURES, HEALTH PHYSICS, 13(12), PAGES 1337-1340 (DECEMBER 1967)

DEVELOPED A PERSONAL ALARM DOSIMETER FOR X AND GAMMA-RAYS BASED ON NEW PRINCIPLE OF CHARGE DETECTION. ION CURRENT OF AN IONIZATION CHAMBER IS ACCUMULATED ON A VIBRATING CAPACITOR WHOSE OUTPUT IS FED TO ITS DRIVING COIL THROUGH AN A.C. AMPLIFIER SO THAT IF THE CHARGE ON THE CAPACITOR EXCEEDS A CERTAIN CRITICAL AMOUNT THE SYSTEM PRODUCES HOWLING OSCILLATION, A PART OF THE OSCILLATION SIGNAL BEING AMPLIFIED TO PROVIDE AUDIBLE ALARM AND VISIBLE INDICATION.

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + JAPAN + MONITOR, RADIATION, PERSONNEL

15-20764

TAYLOR LS
AN EARLY PORTABLE RADIATION SURVEY METER
NATIONAL ACADEMY OF SCIENCES
2 PAGES, HEALTH PHYSICS, 13(12), PAGES 1347-1348 (DECEMBER 1967)

DESCRIBES THE CONSTRUCTION OF A RADIATION SURVEY INSTRUMENT IN 1929. IT UTILIZED AN IONIZATION CHAMBER FOR THE SENSING ELEMENT AND AN IMPROVEMENT OF THE LUTZ-EDELMANN STRING ELECTROMETER AS THE MEASURING INSTRUMENT.

*INSTRUMENTATION, RADIATION MONITORING + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, GENERAL + UNITED STATES

15-20765

ALSO IN CATEGORY 14

MARTIN A
A COMPARISON OF SOME BONE ASHING TECHNIQUES
US PUBLIC HEALTH SERVICE, CINCINNATI, OHIO
3 PAGES, 1 TABLE, 1 FIGURE, 9 REFERENCES, HEALTH PHYSICS, 13(12), PAGE 1348-1351 (DECEMBER 1967)

BONE ASH OF HIGH PURITY AND CONSTANT WEIGHT WAS OBTAINED BY ASHING AT 800 C FOR 18 HR. THE EFFECTS OF ASHING TEMPERATURE AND TIME WERE DETERMINED TO OBTAIN MAXIMUM DESTRUCTION OF ORGANIC MATTER AND CONSTANT WEIGHT. CONTAMINATION BY DISHES COMPOSED OF SILICON COMPOUNDS WAS AVOIDED THROUGH USE OF ALUMINUM OXIDE TRAYS, AND CONTAMINATION FROM THE MUFFLE FURNACE, BY LINING IT WITH SILICON CARBIDE BRICKS. TWO OTHER ASHING METHODS, WET ASHING AND MINERALIZATION WITH ETHYLENEDIAMINE, WERE COMPARED. WET ASHING IS RECOMMENDED AS A SUBSTITUTE FOR THE THERMAL TECHNIQUE WHEREVER ANALYSIS OF VOLATILE RADIONUCLIDES IS DESIRED. MINERALIZATION WITH ETHYLENEDIAMINE PROVIDES AN ESSENTIALLY UNALTERED BONE STRUCTURE, USEFUL FOR AUTORADIOGRAPHICAL STUDIES.

*ANALYTICAL TECHNIQUE, GENERAL + RADIOBIOLOGY + UNITED STATES

15-20766

PIPES EW

A VOLTAGE-SENSING DEVICE FOR MONITORING X-RAYS
UNION CARBIDE CORPORATION, OAK RIDGE, TENNESSEE
2 PAGES, 2 FIGURES, HEALTH PHYSICS, 13(12), PAGE 1351-1352, (DECEMBER 1967)

A SAFETY DEVICE WAS BUILT WHICH CAN BE USED TO DETERMINE IF AN X-RAY MACHINE IS OPERATING. THE DEVICE, CONNECTED TO THE PRIMARY VOLTAGE LINES OF AN X-RAY GENERATOR, WILL PROVIDE A WARNING SIGNAL (FLASHING LIGHT, HORN, OR BUZZER) IF IT DETECTS A VOLTAGE ON THE GENERATOR. THE DEVICE MAY ALSO BE USED AS A SAFETY MONITOR, OR CONTROL ELEMENT, ON OTHER TYPES OF VARIABLE-VOLTAGE EQUIPMENT.

*MONITORING SYSTEM, RADIATION + RADIATION SAFETY AND CONTROL + X-RAY

15-20768

ALSO IN CATEGORY 14

HALLISEY RM + WALL MA
STRONTIUM-90 IN HUMAN BONES, 1964-1965
US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
5 PAGES, 3 TABLES, 5 FIGURES, 14 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 8(8), PAGE 415-419, (AUGUST 1967)

RESULTS OBTAINED FROM ANALYSIS OF SR-90 IN HUMAN BONE SPECIMENS FROM 303 INDIVIDUALS WHO DIED IN 1964, AND 293 INDIVIDUALS WHO DIED IN 1965 HAVE BEEN STUDIED. THE BONE SPECIMENS WERE COLLECTED AT AUTOPSIES IN SELECTED CITIES THROUGHOUT THE UNITED STATES. A SUMMARY TABLE OF ALL THE DATA FOR DEATHS OCCURRING IN 1964 AND 1965 IS PRESENTED. IN MOST OF THE FIVE AGE GROUPS IN 1965, AVERAGE VALUES ARE SLIGHTLY LOWER THAN THE 1964 VALUES. REGIONAL VARIATIONS IN THE SR-90/CA RATIO ARE SHOWN, WITH THE HIGHEST AVERAGE FOR EACH YEAR IN THE DELTA REGION. THE DATA WERE RELATED TO HUMAN BONE CONCENTRATIONS THAT WERE DERIVED FROM THE FEDERAL RADIATION COUNCIL'S RADIATION PROTECTION GUIDES AND INTAKE RANGES, AND IT WAS SHOWN THAT IN BOTH YEARS THE AVERAGE BONE CONCENTRATIONS CORRESPOND TO RANGE 1 OF THESE INTAKE GUIDES.

*FALLOUT + BIOLOGICAL CONCENTRATION, MAN + RADIOBIOLOGY + STRONTIUM + UNITED STATES

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20772 ALSO IN CATEGORY 14
COOPER RE
RADDS - A CODE TO ESTIMATE GAMMA DOSE FROM A CLOUD OF RADIOACTIVE GASES
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C.
DP-1098 +. 23 PAGES, TABLES, REFERENCES, JUNE 1967

RADDS IS A COMPUTER CODE THAT REPRESENTS THE FINITE SPATIAL DISTRIBUTION OF AIRBORNE SOURCE MATERIAL AS AN INFINITE NUMBER OF LINE SOURCES. THE CODE PROVIDES A MEANS OF RAPIDLY CALCULATING WHOLE-BODY GAMMA DOSE FROM A FINITE CLOUD OF RADIOACTIVE MATERIAL. THE SIMPLIFYING ASSUMPTIONS LIMIT THE APPLICABILITY OF RADDS AS FOLLOWS - THE MATERIAL RELEASE SHOULD OCCUR OVER A RELATIVELY SHORT TIME, THE RECEPTOR DISTANCE SHOULD BE MORE THAN 600 METERS DOWNWIND FROM THE RELEASE POINT, AND THE GAMMA ENERGIES SHOULD BE IN THE SPECIFIED RANGE. A 4-GROUP, 12-ISOTOPE, 1-RECEPTOR-POINT PROBLEM REQUIRES ABOUT 1.75 SEC ON THE IBM SYSTEM/360-65.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, EXTERNAL + AIRBORNE RELEASE + COMPUTER PROGRAM + GAMMA + SAVANNAH RIVER PLANT

15-20773 ALSO IN CATEGORY 14
ESSIG TH + SOLDAT JK
EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1966
BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-439 +. 40 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1967

SURVEILLANCE OF THE ENVIRONS DURING 1966 SHOWED THAT BOTH THE CONCENTRATIONS OF RADIOACTIVE MATERIALS IN THE VICINITY AND THE ENVIRONMENTAL RADIATION DOSES WERE WELL WITHIN APPROPRIATE LIMITS. MOST OF THE ENVIRONMENTAL RADIATION DOSE FOR THE MAJORITY OF PERSONS LIVING IN THE HANFORD ENVIRONS WAS DUE TO NATURAL SOURCES AND WORLD-WIDE FALLOUT RATHER THAN TO HANFORD OPERATIONS. THE MAJOR SOURCE OF LOW-LEVEL WASTES RELEASED TO THE ENVIRONMENT FROM HANFORD PLANTS WAS REACTOR COOLING WATER, DISCHARGED TO THE COLUMBIA RIVER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + CESIUM + HANFORD SITE + IODINE + STRONTIUM + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, TERRESTRIAL + WATER, DRINKING + WATER, IRRIGATION

15-20774
COWAN FP
BROOKHAVEN LECTURE SERIES, NUMBER 57, MAY 18, 1966, HEALTH PHYSICS PROBLEMS OF HIGH ENERGY ACCELERATORS
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNL-50,005 +. 14 PAGES, 22 FIGURES, 2 TABLES, JUNE 1967

OUTLINES THE FIELD OF HEALTH PHYSICS AND THE NORMAL PROCEDURES AND TECHNIQUES USED IN RADIATION PROTECTION. THIS IS FOLLOWED BY A DISCUSSION OF THE RADIATION PRODUCED BY ACCELERATORS AND METHODS FOR MEASUREMENTS AND DOSIMETRY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION PROTECTION, ORGANIZATION + ACCELERATOR + BNL (BROOKHAVEN NATIONAL LABORATORY) + DOSIMETRY, GENERAL + INSTRUMENTATION, RADIATION MONITORING + RADIOBIOLOGY

15-20775
JACOBSON LO + DOYLE M
SEMIANNUAL REPORT III THE ATOMIC ENERGY COMMISSION
ARGONNE CANCER RESEARCH HOSPITAL, CHICAGO, ILL.
ACRH-27 +. 137 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1967

DOCUMENT INCLUDES REPORTS ON 15 STUDIES. MOST INVOLVE THE USE OF RADIOISOTOPE TRACERS. THOSE CONCERNED WITH RADIATION AS SUCH ARE - THE PROTECTIVE EFFECT OF PREVIOUS IRRADIATION, ISOTOPE DOSIMETRY IN NUCLEAR MEDICINE, PROTOCOL FOR THE DOSIMETRY OF HIGH ENERGY ELECTRONS, AND THE ACRH BRAIN-SCANNING SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*BIOMEDICAL + *RADIOBIOLOGY + DOSIMETRY, GENERAL + ELECTRON + RADIOISOTOPE

15-20783

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20783 *CONTINUED*

KATOH K + TURNER JE

A STUDY OF ELEMENTARY PARTICLE INTERACTIONS FOR HIGH-ENERGY DOSIMETRY

DIVISION OF HEALTH PHYSICS AND SAFETY, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, IBARAKI-KEN, JAPAN

13 PAGES, 1 FIGURE, 5 TABLES, 54 REFERENCES, HEALTH PHYSICS 13(8), PAGE 831-843, (AUGUST 1967)

TYPES OF INTERACTIONS ARE CLASSIFIED AND DISCUSSED FROM THE STANDPOINT OF THEIR RELATIVE IMPORTANCE IN THE DOSIMETRY OF PARTICLES WITH ENERGIES UP TO SEVERAL TENS OF GEV. THE KNOWN ELEMENTARY PARTICLES ARE TREATED INDIVIDUALLY. THRESHOLD ENERGIES, CROSS SECTIONS, AND IMPORTANT REACTIONS LEADING TO THEIR PRODUCTION AND ABSORPTION ARE GIVEN. THE PRINCIPAL REACTIONS BY MEANS OF WHICH THESE PARTICLES CAN CONTRIBUTE TO DOSE AND DOSE EQUIVALENT ARE DESCRIBED. THE DATA REVIEWED AND SUMMARIZED HERE ARE INTENDED TO PROVIDE A STARTING POINT FOR DETAILED CALCULATIONS OR ANALYSES OF DOSE FROM HIGH-ENERGY PARTICLES.

*DOSIMETRY, GENERAL + ACCELERATOR + DOSE + DOSE CALCULATION, EXTERNAL + JAPAN + ORNL (OAK RIDGE NATIONAL LABORATORY)

15-20784

SPERGEL MS

ESTIMATES ON THE NEUTRON FLUX ON THE SURFACE OF THE MOON INDUCED BY SOLAR FLARES

RESEARCH DEPARTMENT, GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHPAGE, NEW YORK

5 PAGES, 4 TABLES, 12 REFERENCES, HEALTH PHYSICS 13(8), PAGE 845-850, (AUGUST 1967)

A THEORETICAL CALCULATION WAS PERFORMED ON THE PRODUCTION, BY SOLAR FLARE PROTONS, OF NEUTRONS WITHIN THE LUNAR SURFACE AND THE RESULTING NEUTRON LEAKAGE FLUX FROM THE LUNAR SURFACE. REASONABLE CHOICES OF THESE PARAMETERS LEAD TO NEUTRON DOSAGE LEVELS THAT ARE WELL BELOW THE NASA-RECOMMENDED MAXIMUM SHORT-MISSION DOSE LEVELS.

*DOSE CALCULATION, EXTERNAL + NEUTRON + SPACECRAFT + UNITED STATES

15-20785

ALSO IN CATEGORY 14

LLOYD RD + CHRISTENSEN JA + CHURCH BW + FISHER PS + MAYS CW + PENDLETON RC

POLYSPEC. A COMPUTER PROGRAM TO RESOLVE COMPLEX GAMMA-RAY SPECTRA FROM SAMPLES OF DIFFERENT DENSITIES

UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH

5 PAGES, 3 FIGURES, 1 TABLE, 1 REFERENCE, HEALTH PHYSICS 13(8), PAGE 851-855, (AUGUST 1967)

A COMPUTER PROGRAM WAS DEVELOPED FOR USE IN RESOLVING GAMMA-RAY SPECTRA FROM SAMPLES CONTAINING A NUMBER OF RADIONUCLIDES BY THE METHOD OF SIMULTANEOUS EQUATIONS. NO RESTRICTION AS TO THE NUMBER OR IDENTIFY OF GAMMA-RAY EMITTERS IS IMPOSED BY THE PROGRAM. IT IS DESIGNED TO UTILIZE DATA FROM SAMPLES OF ANY DENSITY FROM 0.1 TO 1.0 G/CC AND WILL CALCULATE RADIONUCLIDE CONCENTRATIONS CORRECTED FOR THE EFFECT OF DENSITY ON COUNTING RATE.

*COMPUTER PROGRAM + *SPECTROMETRY, GAMMA + COMPUTER, DIGITAL + GAMMA + UNITED STATES

15-20786

LARSON S

AN AUTOMATIC INSTRUMENT FOR MEASURING THE LIGHT TRANSMISSION OF PERSONNEL MONITORING FILMS

EUROPEAN COUNCIL FOR NUCLEAR RESEARCH, GENEVA, SWITZERLAND

5 PAGES, 3 FIGURES, 1 REFERENCE, HEALTH PHYSICS 13(8), PAGE 857-860, (AUGUST 1967)

A DENSITOMETER WAS BUILT TO AUTOMATICALLY MEASURE THE TRANSMISSION OF LIGHT THROUGH SEVEN POINTS, OR THROUGH ONLY ONE POINT, ON GAMMA FILMS USED FOR PERSONNEL MONITORING. THE DATA IS AUTOMATICALLY PUNCHED OUT ON CARDS. OF PARTICULAR INTEREST IN THIS CONSTRUCTION IS THE USE OF FLEXIBLE LIGHT GUIDES, WHICH OFFER A SIMPLIFIED MECHANICAL CONSTRUCTION AND MORE FAVORABLE OPTICAL CONDITIONS. A PRINTING SUMMARY PUNCH WITH TWO PROGRAMME DRUMS IS USED. THE SECOND DRUM CONTROLS THE POSITION OF A LIGHT DISTRIBUTOR WHICH, VIA LIGHT GUIDES, ILLUMINATES DIFFERENT POINTS ON THE FILM. THIS OFFERS THE ADVANTAGE THAT THE SCANNING PROGRAMME CAN EASILY BE CHANGED, AND THE SECOND DRUM MAKES IT EASY TO SYNCHRONIZE THE AUTOMATIC OPERATION, WHICH RESULTS IN A MINIMUM OF ELECTRONICS.

*DOSIMETRY, GENERAL + DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, PHOTOGRAPHIC + INSTRUMENTATION, DENSITY + INSTRUMENTATION, RADIATION MONITORING + SWITZERLAND

15-20787

MOLLA MA + SIMPSON JD

APPLICATION OF A SIMPLE WHOLE-BODY COUNTER TO RADIATION PROTECTION

DEPARTMENT OF MEDICAL PHYSICS, THE ROYAL INFIRMARY, EDINBURGH, SCOTLAND

8 PAGES, 6 FIGURES, 5 TABLES, 8 REFERENCES, HEALTH PHYSICS 13(8), PAGE 861-867, (AUGUST 1967)

A SIMPLE WHOLE-BODY COUNTER, DESIGNED FOR CLINICAL APPLICATIONS, WITH A MODEST AMOUNT OF SHIELDING CLOSE TO THE NA1 CRYSTAL, IS SHOWN TO HAVE ADEQUATE SENSITIVITY FOR USE IN RADIATION PROTECTION.

*COUNTER, WHOLE BODY + DOSE MEASUREMENT, INTERNAL + GAMMA + RADIATION SAFETY AND CONTROL + SHIELDING + UNITED KINGDOM

/

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20788 ALSO IN CATEGORY 14

KASE KR
RADIOACTIVE GAS PRODUCTION AT A 100-MEV ELECTRON LINAC FACILITY
LAWRENCE RADIATION LAB., UNIVERSITY OF CALIF., LIVERMORE, CALIF.
8 PAGES, 11 FIGURES, 3 TABLES, 7 REFERENCES, HEALTH PHYSICS 13(8), PAGE 869-876, (AUGUST 1967)

A METHOD IS PRESENTED FOR DETERMINING THE PRODUCTION OF RADIOACTIVE N-13 AND O-15 AT A 100-MEV ELECTRON LINEAR-ACCELERATOR FACILITY. THE DEPENDENCE OF THE AIR CONCENTRATIONS ON VENTILATION RATES AND BEAM TRAVEL DISTANCE IS DISCUSSED. IT IS DETERMINED THAT N-13 IS THE LIMITING RADIONUCLIDE. MPC AND DOSE CALCULATIONS ARE PRESENTED FOR N-13. THE IMPLICATIONS OF N-13 PRODUCTION ARE DISCUSSED IN TERMS OF VENTILATION RATES FOR TARGET AREAS AND OPERATIONAL CONTROLS. A SAMPLE CALCULATION IS PRESENTED.

*RADIOLYTIC GAS + ACCELERATOR + DOSE + DOSE CALCULATION, INTERNAL + LRL (LAWRENCE RADIATION LABORATORY) + NITROGEN + OXYGEN + VENTILATION SYSTEM

15-20789 ALSO IN CATEGORY 14

MANN JR + DIRCHNER RA
EVALUATION OF LUNG BURDEN FOLLOWING ACUTE INHALATION EXPOSURE TO HIGHLY INSOLUBLE PUO2
6 PAGES, 6 FIGURES, 2 TABLES, 5 REFERENCES, HEALTH PHYSICS 13(8), PAGE 877-882, (AUGUST 1967)

ON 15 OCTOBER 1965, A FIRE IN A PLUTONIUM FABRICATION PLANT RESULTED IN A LARGE-SCALE SPREAD OF PLUTONIUM OXIDE. THE ROCKY FLATS BODY COUNTER WAS USED TO MEASURE THE PLUTONIUM IN THE LUNGS OF ALL EMPLOYEES WORKING IN THE AREA. OF NEARLY 400 EMPLOYEES COUNTED, 25 HAD ENOUGH PLUTONIUM IN THEIR LUNGS TO DELIVER A DOSE OF 15 REM/YR OR GREATER. DATA FROM EACH EMPLOYEE WERE OBTAINED WITH TWO SCINTILLATION DETECTORS IN CONTACT WITH THE SUBJECTS CHEST. THE 60-KEV PHOTON PEAK OF AM-241 WAS USED IN THE MEASUREMENTS. THE AM-241 CONTENT OF THE PLUTONIUM RELEASED IN THE FIRE WAS DETERMINED, AND THE PLUTONIUM QUANTITY WAS THEN DETERMINED FROM CALIBRATIONS DONE ON A CHEST PHANTOM WITH SIMILAR AM-241/PU-239 RATIOS.

*MAXIMUM PERMISSIBLE BODY BURDEN + COUNTER, WHOLE BODY + FIRE + INHALATION + PLUTONIUM + RADIATION INJURY, TREATMENT OF + RADIATION PROTECTION, CHEMICAL + RADIOBIOLOGY + ROCKY FLATS

15-20790 ALSO IN CATEGORY 14

THOMPSON JC
RECONSIDERATION OF THE IODINE-131 CONTRIBUTION FROM FRUITS AND VEGETABLES
DEPT. OF PHYSICAL BIOLOGY, NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK
5 PAGES, 4 TABLES, 19 REFERENCES, HEALTH PHYSICS 13(8), PAGE 883-887, (AUGUST 1967)

FRUITS AND VEGETABLES COULD HAVE BEEN RESPONSIBLE FOR 13-54% OF THE TOTAL I-131 INTAKE DURING 1962. THIS CONTRIBUTION COULD HAVE OCCURRED AMONG THOSE SEGMENTS OF THE POPULATION CONSUMING LARGE QUANTITIES OF FARM-FRESH FOODS. IT IS SUGGESTED THAT ATTENTION BE DIRECTED TOWARD FRESH FRUITS AND VEGETABLES AS A SIGNIFICANT CONTRIBUTION OF I-131 UNDER SPECIFIC CIRCUMSTANCES. ALTHOUGH MEASURES TO COMBAT INTAKE FROM THIS SOURCE ARE RELATIVELY SIMPLE (CONVERT TO PROCESSED OR CANNED FOOD PRODUCTS) THERE SHOULD BE SOME DEFINITE BASIS FOR DECISIONS OF THIS TYPE.

*FALLOUT + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MILK + IODINE + UNITED STATES

15-20791 ALSO IN CATEGORY 14

PALMER HE + BEASLEY TM
IRON-55 IN MAN AND THE BIOSPHERE
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
8 PAGES, 1 FIGURE, 5 TABLES, 15 REFERENCES, HEALTH PHYSICS 13(6), PAGE 889-895, (AUGUST 1967)

SINCE THE 1961-62 NUCLEAR TESTS, FE-55 HAS INCREASED FROM A MINOR FRACTION OF FALLOUT TO THE MOST ABUNDANT OF ALL FALLOUT ISOTOPES. IRON-55 IS EASILY MEASURABLE IN ALMOST ALL LIVING ORGANISMS OF THE BIOSPHERE. ALTHOUGH IT PRODUCES ONLY A SMALL RADIATION DOSE, THE STUDY OF ITS TRANSFER AND CONCENTRATION IN VARIOUS ORGANISMS IS OF INTEREST BECAUSE IRON IS AN ESSENTIAL ELEMENT TO MOST OF THESE ORGANISMS. THIS PAPER PRESENTS DATA ON THE LEVELS OF FE-55 IN MAN AT MANY PLACES ON THE EARTH, IN FOODS, IN THE OCEAN, AND ATTEMPTS TO CORRELATE SOME OF THESE LEVELS. THE AVERAGE LEVELS OF FE-55 RANGE FROM 5 NCI IN PEOPLE IN SOUTH AFRICA TO 1100 NCI IN SOME OF THE ALASKAN ESKIMOS. AVERAGE LEVELS IN WOMEN ARE SIGNIFICANTLY HIGHER THAN IN MEN. THE HIGHEST LEVELS IN HUMANS ARE ASSOCIATED WITH A HIGH CONSUMPTION OF OCEAN FISH.

*FALLOUT + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MAN + DOSE CALCULATION, INTERNAL + INSTRUMENTATION, RADIATION MONITORING + IRON + RADIOBIOLOGY

15-20793

CALIBRATION OF A GM DETECTOR TO MEASURE KR-85 IN AIR BY IMMERSION IN A STANDARDIZED TL-204 SOLUTION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20793 *CONTINUED*

HARVARD UNIV., MASS.

4 PAGES, 1 TABLE, 7 REFERENCES, HEALTH PHYSICS 13(8), PAGE 907-910, (AUGUST 1967)

EQUATIONS WERE DEVELOPED FOR CALCULATING A CALIBRATION CONSTANT FOR A DETECTOR USED TO MONITOR KR-85 IN AIR FROM A STANDARDIZATION OF THE DETECTOR IN AN AQUEOUS TH-204 SOLUTION.

*INSTRUMENTATION, RADIATION MONITORING + BETA EMITTER + KRYPTON + UNITED STATES

15-20794

HIGH DOSE RESPONSE OF GLASS ROD DOSIMETERS IRRADIATED AT TEMPERATURES UP TO 250 C
OAK RIDGE NATIONAL LAB., TENN. + OAK RIDGE ASSOCIATED UNIVERSITIES, TENN. + UNIVERSITY OF TENNESSEE
6 PAGES, 4 FIGURES, 1 TABLE, 7 REFERENCES, HEALTH PHYSICS 13(8), PAGE 910-915, (AUGUST 1967)

BAUSCH AND LOMB LOW-Z GLASS-ROD DOSIMETERS WITH POSTIRRADIATION HEAT TREATMENT ARE USABLE AT DOSES UP TO ABOUT 300,000 RADS AND EXPOSURE TEMPERATURES UP TO 250 C.

*DOSIMETRY, GENERAL + DOSIMETRY, RADIOPHOTOLUMINESCENCE + INSTRUMENTATION, RADIATION MONITORING + ORNL (OAK RIDGE NATIONAL LABORATORY)

15-20796

MEASUREMENT OF THE RETENTION AND EXCRETION OF INCORPORATED ZN-65
POLAND. CENTRALNE LABORATORIUM OCHRONY RADIOLGICZNE
2 PAGES, 1 FIGURE, 6 REFERENCES, HEALTH PHYSICS 13(8), PAGE 915-916, (AUGUST 1967)

THE RETENTION OF ZN-65, MEASURED BY A WHOLE-BODY COUNTER, AND EXCRETION, MEASURED BY GAMMA SPECTROMETRY OF URINE AND FECES, WERE STUDIED IN AN ADULT.

*RADIOBIOLOGY + COUNTER, WHOLE BODY + HUNGARY + INSTRUMENTATION, RADIATION MONITORING + SPECTROMETRY, GAMMA + ZINC

15-20797

EVALUATION OF RADIATION EXPOSURE FROM INTERNAL DEPOSITION OF THREE BONE-SEEKING RADIONUCLIDES
ATOMIC ENERGY OF CANADA LTD, CHALK RIVER
3 PAGES, 2 TABLES, 5 REFERENCES, HEALTH PHYSICS 13(8), PAGE 916-918, (AUGUST 1967)

PRESENTS A MATHEMATICAL TREATMENT OF THE EXPOSURE IN A LIFETIME OF THE INTERNAL DEPOSITION IN A SINGLE EVENT OF CA-45, CA-47, SR-85, SR-90, AND BA-140.

*DOSE CALCULATION, INTERNAL + BARIUM + CALCIUM + CANADA + DOSE + RADIOBIOLOGY + STRONTIUM

15-20798

THE EFFECTS OF FAST NEUTRON EXPOSURE ON THE LIF-7 THERMOLUMINESCENT RESPONSE TO GAMMA RAYS
ARGONNE NATIONAL LAB. + SAINT OLAF COLLEGE
2 PAGES, 2 TABLES, 1 REFERENCE, HEALTH PHYSICS 13(8), PAGE 918 AND 919, (AUGUST 1967)

EVIDENCE HAS BEEN REPORTED THAT NEUTRON EXPOSURE AFFECTED THE GAMMA-RAY RESPONSE OF LIF. THE EXPERIMENT REPORTED IN THIS NOTE INDICATES THAT LIF SHOULD NOT BE USED TO MONITOR GAMMA RADIATION IN THE PRESENCE OF NEUTRONS WITHOUT CAREFUL PRECAUTIONS.

*DOSIMETRY, GENERAL + ANL (ARGONNE NATIONAL LABORATORY) + DOSIMETRY, THERMOLUMINESCENCE + GAMMA + NEUTRON

15-20806

CHEMICAL PROTECTION

OAK RIDGE NATIONAL LABORATORY

ORNL-3999 +. 2 PAGES, 1 FIGURE, 2 TABLES, PAGES 140-141 OF SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING JULY 31, 1966

PROGRESS IS REPORTED ON A PROCEDURE TO EVALUATE PROTECTIVE COMPOUNDS THAT FOR A SINGLE LETHAL 900-R DOSE GAVE COMPLETE SURVIVAL OF MICE. DOSE-RESPONSE CURVES FOR MEA AND AET ARE GIVEN. RESULTS OBTAINED WITH MIXTURES OF GLUTATHIONE AND AET INDICATE THAT GLUTATHIONE PLAYS A ROLE IN PROTECTION BEYOND THAT OF REDUCING THE TOXICITY OF AET. STUDIES ON DETOXIFYING DISULFIDES INDICATE THAT THEY DO NOT SEEM TO BE A REASONABLE ROUTE TOWARD GREATLY INCREASED PROTECTIVE ACTIVITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION INJURY, TREATMENT OF + ORNL (OAK RIDGE NATIONAL LABORATORY) + RADIATION PROTECTION, CHEMICAL + RADIOBIOLOGY

15-20815

ALSO IN CATEGORY 14

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20815 *CONTINUED*

WASSERMAN RH + LENGEMANN FW + THOMPSON JC + COMAR CL
THE TRANSFER OF FALL-OUT RADIONUCLIDES FROM DIET TO MAN
NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK
41 PAGES, 1 FIGURE, 13 TABLES, 141 REFERENCES, PAGES 204-244 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS,
MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

ATMOSPHERIC TESTING OF FISSION- AND FISSION-TYPE WEAPONS HAS ACCENTUATED THE SIGNIFICANCE OF FISSION PRODUCTS. RESEARCH HAS DEVELOPED QUALITATIVE AND QUANTITATIVE DESCRIPTIONS OF THE MOVEMENT AND METABOLISM OF SEVERAL RADIOACTIVE ELEMENTS. A CLEAR IDEA OF THE BEHAVIOR OF STRONTIUM, CESIUM, AND IODINE IS AT HAND. THIS PAPER DEALS WITH PHYSIOLOGICAL AND NUTRITIONAL ASPECTS OF THE SUBJECT. IN ADDITION, CONSIDERATION HAS BEEN GIVEN TO THE CONTRIBUTION OF VARIOUS FOOD SOURCES (MILK AND NONMILK) TO THE TOTAL INTAKE OF FISSION PRODUCTS BY HUMANS. SOME COUNTERMEASURES ARE MENTIONED THAT COULD BE INSTITUTED IF CONCENTRATIONS OF FISSION PRODUCTS IN FOODS INCREASE TO A LEVEL WHERE ACTION IS DEEMED NECESSARY.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + BIOLOGICAL CONCENTRATION, FOOD +
BIOLOGICAL CONCENTRATION, MILK + CALCIUM + IODINE + POTASSIUM + STRONTIUM + UNITED STATES

15-20816 ALSO IN CATEGORY 14

KULP JL
RADIONUCLIDES IN MAN FROM NUCLEAR TESTS
COLUMBIA UNIVERSITY, PALISADES, NEW YORK
38 PAGES, 9 FIGURES, 18 TABLES, 48 REFERENCES, PAGES 247 THROUGH 284 OF RADIOACTIVE FALLOUT, SOILS, PLANTS, FOODS, MAN, BY ERIC B. FOWLER, ELSEVIER PUBLISHING COMPANY, AMSTERDAM, LONDON, NEW YORK, 1965

REVIEWS PRODUCTION AND WORLDWIDE DISTRIBUTION OF NUCLEAR DEERIS, UPTAKE OF RADIOSTRONTIUM BY PLANTS, PLANT-SOIL SR RELATIONS, AND DISCRIMINATION FACTORS, INTERNAL DOSE TO HUMANS FROM RADIONUCLIDES AND CONTRIBUTIONS OF THIS DOSE TO SOMATIC AND GENETIC EFFECTS, AND ESTIMATES OF FALLOUT LEVELS FROM A 6000-MT THERMONUCLEAR WAR. IT IS CONCLUDED THAT THE U.S. DIET HAS PASSED ITS PEAK CONCENTRATION OF SR-90 AND CS-137, THAT SR-90 PROBABLY WILL REMAIN THE LARGEST CONTRIBUTOR TO THE RADIATION DOSE TO AN INDIVIDUAL, AND THAT CS-137 MEASUREMENT CAN BE USED TO MONITOR SR-90 IN MILK IN EMERGENCY SITUATIONS. THESE RESULTS ALSO SUGGEST THAT IN THE EVENT OF LARGE-SCALE NUCLEAR WARFARE, THE GENERAL RADIOACTIVE CONTAMINATION WOULD NOT PRECLUDE THE EXISTENCE OF LARGE POPULATIONS IF SHORT-TIME (6 TO 12 MONTHS) SURVIVAL WERE POSSIBLE.

AVAILABILITY - AMERICAN ELSEVIER PUBLISHING COMPANY, INC., 52 VANDERBILT AVENUE, NEW YORK, N.Y. 10017, \$14.00 COPY

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + CESIUM + CIVIL DEFENSE + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + NUCLEAR EXPLOSION DEBRIS + PRECIPITATION + RAINOUT + SOIL, RADIONUCLIDE MOVEMENT THROUGH + STRONTIUM

15-20827

ULLMANN W + MAINWALD E + PRZYBOROWSKI S
SURVEILLANCE OF THE RADIOACTIVITY OF THE AIR IN THE WORKING SPACE
STAATLICHE ZENTRALE FUR STRAHLENSCHUTZ, GERMANY
SZS-14(1966) +. 8 PAGES, REFERENCES, DECEMBER 1966

IN LABORATORIES OF THE CLASSES I AND II, A CONTINUOUS CONTROL OF RADIOACTIVITY IN AIR IS NECESSARY DURING OPERATIONS WITH UNSEALED RADIOACTIVE MATERIALS. THE RELEVANT LAWS AND COMMON METHODS OF MEASUREMENT ARE BRIEFLY REPORTED. THE ACTUAL SITUATION IS ESTIMATED, AND THE CONCEPTION OF A SMALL APPARATUS FOR INTEGRAL DETECTION OF BETA-ACTIVE AEROSOLS PROPOSED BY THE RADIATION PROTECTION CENTER IS DISCUSSED.

*MONITOR, RADIATION, AIR + *RADIATION SAFETY AND CONTROL + AEROSOL, RADIOACTIVE + AIR + BETA EMITTER + CODES AND STANDARDS + INSTRUMENTATION, RADIATION MONITORING

15-20828

MAINWALD E
RECOMMENDATION FOR THE MEASUREMENT OF THE ACTIVITY CONCENTRATION OF RADIOACTIVE AEROSOLS IN THE WORKING SPACE
STAATLICHE ZENTRALE FUR STRAHLENSCHUTZ
SZS-14(1966) +. 7 PAGES, 1 FIGURE, DECEMBER 1966. IN GERMAN

A METHOD IS RECOMMENDED A DETECTION OF RADIONUCLIDES WITH MAXIMUM BETA-RADIATION ENERGIES ABOVE 2 MEV BY CONCENTRATING THEM ON FILTERS. AN AIR FLOW RATE OF 2 CU. METER/H WILL BE SUFFICIENT IN MOST OF THE CASES WHEN THE CONCENTRATION OR INTEGRATION TIME IS (AS USUAL) ONE WORKING DAY. FOR RADIONUCLIDES WITH MAXIMUM ENERGIES OF 2-5 MEV, MEMBRANE FILTERS SHOULD BE USED FOR CONCENTRATION AND CG-60 FOR CALIBRATION. FOR NUCLIDES WITH HIGHER ENERGIES, LUFTFILTERKARTON OR BLAUASBESTZELLULOSE FILTERS AND SR-90/Y-90 ARE RECOMMENDED.

*ANALYTICAL TECHNIQUE, GENERAL + *MONITOR, RADIATION, AIR + AEROSOL, RADIOACTIVE + BETA EMITTER + FILTER + FILTER, MEMBRANE + INSTRUMENTATION, RADIATION MONITORING + RADIATION SAFETY AND CONTROL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-20829

ULLMANN W

INVESTIGATIONS REGARDING THE MEASUREMENT OF THE RADIOACTIVE CONCENTRATION IN AIR
STAATLICHE ZENTRALE FUR STRAHLENSCHUTZ

SZS-14(1966) +. 9 PAGES, 3 FIGURES, 1 TABLE, 4 REFERENCES, DECEMBER 1966. IN GERMAN

RADIOACTIVE IODINE MAY BE PRESENT IN AIR AS A VAPOR OR AS AN AEROSOL. A SINGLE-STAGE PROCEDURE IS DESCRIBED WHICH ALLOWS THE DETECTION OF TOTAL IODINE CONTENT IN AIR BY APPLICATION OF COMMERCIAL AEROSOL FILTERS TREATED WITH SILVER NITRATE. FURTHERMORE, THE MOST IMPORTANT CHARACTERISTICS ARE SPECIFIED FOR FILTER MATERIALS SUITABLE FOR DETECTING VAPOR AND AEROSOL SEPARATELY.

*MONITOR, RADIATION, AIR + AEROSOL, RADIOACTIVE + ANALYTICAL TECHNIQUE, GENERAL + FILTER + INSTRUMENTATION, RADIATION MONITORING + IODINE

15-20830

HERRMANN DB

MEASUREMENTS ON SPRING WATER IN AIR IN BAD BRAMBACH
STAATLICHE ZENTRALE FUR STRAHLENSCHUTZ

SZS-14(1966) +. 10 PAGES, 2 FIGURES, 2 TABLES, 12 REFERENCES, DECEMBER 1966. IN GERMAN

REPORTS AN INSPECTION FOR RADIATION PROTECTION IN RADON-SPA BRAMBACH, WHERE THE CONCENTRATION OF RADON IN BATHROOM AIR WAS MEASURED. A CONSIDERABLE EXCEEDING OF MPC IN AIR WAS FOUND WHICH COULD BE PREVENTED BY COMMON VENTILATION TECHNIQUES. RADON CONCENTRATIONS IN THE FOUR MOST IMPORTANT BRAMBACH SPRING WATERS ARE REPORTED FROM MEASUREMENTS MADE IN 1965. THEY ARE COMPARED WITH DATA FROM PREVIOUS DECADES. THE METHOD OF MEASUREMENT AND THE INSTRUMENTATION ARE DESCRIBED.

*GROUND WATER, NUCLIDE OCCURRENCE + *MONITOR, RADIATION, AIR + INSTRUMENTATION, RADIATION MONITORING + RADIATION SAFETY AND CONTROL + RADON

15-20831

DATA FROM RADIATION PROTECTION PROGRAMS

RADIATION PROTECTION DIVISION, DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, CANADA
RPD-5(2) +. 28 PAGES, 6 TABLES, 1 FIGURE, FEBRUARY 1967

THE RADIATION PROTECTION DIVISION CONDUCTS A NATION-WIDE PROGRAM OF FALLOUT MONITORING, INCLUDING ANALYSES OF AIR PARTICULATES, PRECIPITATION, MILK, WATER, WHEAT, SOIL, AND HUMAN BONE. THIS REPORT CONTAINS THE RESULTS OF ANALYSES OF SAMPLES COLLECTED IN JANUARY 1967. IT INCLUDES DATA ON AIR, PRECIPITATION, AND MILK.

AVAILABILITY - RADIATION PROTECTION DIVISION, DEPARTMENT OF NATIONAL HEALTH AND WELFARE, CANADA

*FALLOUT + *SURVEY, RADIATION, ENVIRONMENTAL + AIR + BARIUM + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + CANADA + CESIUM + GROSS BETA + IODINE + MONITOR, RADIATION, AIR + PARTICULATE + RAINOUT + REACTOR, GENERAL + SAMPLING + SOIL, NUCLIDE OCCURRENCE + STRONTIUM + SURFACE WATER, NUCLIDE OCCURRENCE

15-21002

ALSO IN CATEGORY 14

BURTON C + PRATT MW

PREDICTION OF THE MAXIMUM DOSSAGE TO MAN FROM THE FALLOUT OF NUCLEAR DEVICES. III. BIOLOGICAL GUIDELINES FOR DEVICE DESIGN.

CALIFORNIA UNIV., LIVERMORE, LAWRENCE RADIATION LAB.

UCRL-50163(PT.3) +. 17 PAGES, 9 FIGURES, 1 TABLE, 6 REFERENCES, JULY 25, 1967

A METHOD WAS DEVELOPED TO ESTIMATE THE BIOLOGICAL HAZARD DUE TO THE RADIONUCLIDES THAT RESULT FROM REACTIONS BETWEEN NUCLEAR DEVICE COMPONENTS AND THE PARTICLES RELEASED BY THE DEVICE. METHOD CAN BE USED IN PRESHOT RAD-SAFE ANALYSIS, AS GUIDANCE FOR POSTSHOT DOCUMENTATION, AND IN THE CHOICE OF THE MOST BIOLOGICALLY SUITABLE ELEMENTS FOR DEVICE DESIGN. AS AN EXAMPLE OF THE TECHNIQUE, TUNGSTEN WAS STUDIED IN DETAIL. IT WAS FOUND THAT, IN TUNGSTEN, THE CHARGED-PARTICLE REACTION PRODUCTS MAY BE THE LARGEST CONTRIBUTORS TO THE BIOLOGICAL HAZARD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*DOSE + *FALLOUT + DOSE CALCULATION, EXTERNAL + LRL (LAWRENCE RADIATION LABORATORY) + RADIATION DAMAGE + RADIOBIOLOGY + TEST, WEAPONS (HP ASPECTS)

15-21143

ALSO IN CATEGORY 14

PEARCE DW + GREEN JK

ANNUAL REPORT FOR 1965 IN THE PHYSICAL SCIENCES. VOLUME 2. RADIOLOGICAL SCIENCES.

BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-235-2 +. 178 PAGES, FIGURES, TABLES, REFERENCES, MAY 1966

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-21143 *CONTINUED*

CONTINUING WORK IS REPORTED IN THREE GENERAL AREAS - RADIOLOGICAL PHYSICS, RADIATION CHEMISTRY, RADIOLOGICAL CHEMISTRY. RESEARCH INCLUDES THEORETICAL AND DEVELOPMENT WORK ON RADIATION DETECTION, IN VIVO COUNTING, FISSION PRODUCT MOVEMENT IN THE ENVIRONMENT, RADIOCHEMISTRY, AND RADIOBIOLOGY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*COUNTER, WHOLE BODY + *INSTRUMENTATION, NUCLEAR + *MONITORING PROGRAM, ENVIRONMENTAL + *RADIOBIOLOGY + ALPHA EMITTER + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD + CESIUM + COUNTER + FALLOUT + FISSION PRODUCT TRANSPORT + INSTRUMENTATION, RADIATION MONITORING + IODINE + IRON + OCEAN AND SEA + PLUTONIUM + RADIOISOTOPE + RIVER, COLUMBIA + SPECTROMETRY, GAMMA + WASTE DISPOSAL, GENERAL + X-RAY

15-21659 ALSO IN CATEGORY 17

US RADIUM CORP REPORTS AM-241(S) INHALATION ON SEPT. 25, 1967

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 37, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 24, 67) DURING GENERAL CLEANUP OF THE AM-RA-PO LABORATORY, AN INDIVIDUAL WEARING A RESPIRATOR WAS OVEREXPOSED A FACTOR OF 24.26 ABOVE AM-241(S) MPC, BASED ON BREATHING-ZONE AIR SAMPLES. THE CAUSE OF THE EXCESSIVE AIRBORNE CONCENTRATION WAS A COMBINATION OF INADEQUATE VENTILATION AND EXCESSIVE REMOVABLE CONTAMINATION. CONTROLLING OCCUPANCY TIMES WILL BE ATTEMPTED.

*AMERICIUM + *INHALATION + AIRBORNE RELEASE + DECONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + POLONIUM + RADIUM + VENTILATION SYSTEM

15-21838 ALSO IN CATEGORY 18

COOK 1 + 2 ROUTINE ENVIRONMENTAL MONITORING PROGRAM.

INDIANA AND MICHIGAN ELECTRIC COMPANY

5 PAGES, 1 TABLE, PAGES 2.7-1 TO 2.7-4 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1, DECEMBER 18, 1967, DOCKET 50-315/316

3 LEVELS OF MONITORING (OF PRECIPITATION, AIR FILTRATION, AND FILM BADGES) WILL BE USED. (REGIME I) - ONLY SAMPLES THAT COULD NOT BE TAKEN AFTER A ACCIDENTAL RELEASE ARE TAKEN AND THEY ARE HELD WITHOUT ANALYSIS OTHER THAN A ROUTINE RADIATION CHECK. (REGIME II) - MOST OF THE USUAL SAMPLE ARE TAKEN AND THAN GIVEN BETA AND GAMMA SCANS. (REGIME III) - AN INTENSIVE SAMPLING AND ANALYSIS PROGRAM. *** STARTING PRIOR TO FUELING, REGIME II WILL BE IN EFFECT UNTIL A YEAR AFTER FUELING UNLESS INDICATIONS OF ACTUAL RELEASES MAKE REGIME III NECESSARY. AFTER ONE YEAR, THE SURVEY OPERATES IN REGIME I IF WEEKLY RELEASE IS LESS THAN AT/30 (WHERE A IS THE CONTINUOUS YEARLY IN CRF 20 LIMIT). IF THE ACCUMULATED RELEASE IS BETWEEN AT/30 AND AT/10, REGIME II IS USED AND REGIME III IF THE PREVIOUS YEARS RELEASE IS BETWEEN AT/10 AND AT/3. REGIME IS DETERMINED ON A WEEK TO WEEK BASIS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MONITORING PROGRAM, ENVIRONMENTAL + COOK 1 AND 2 (PWR) + EFFLUENT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

15-22114

ALSMILLER RG + MORAN HS

DOSE RATE FROM HIGH-ENERGY ELECTRONS AND PHOTONS

OAK RIDGE NATIONAL LAB., TENN. NEUTRON PHYSICS DIV.

ORNL-TM-2026 +. 11 PAGES, 2 FIGURES, 2 TABLES, 4 REFERENCES, OCT. 20, 1967

ELECTRON-PHOTON CASCADE CALCULATIONS WERE MADE, AND ENERGY DEPOSITION AS A FUNCTION OF DEPTH WAS OBTAINED FOR MONOENERGETIC ELECTRONS (0.1 TO 20 GEV) AND PHOTONS (0.01 TO 20 GEV) NORMALLY INCIDENT ON A SEMIINFINITE SLAB OF WATER 30-CM THICK. THE CALCULATED RESULTS ARE IN APPROXIMATE AGREEMENT WITH EXPERIMENTAL DATA FOR THE CASE OF 5.2-GEV INCIDENT ELECTRONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE + *DOSE CALCULATION, EXTERNAL + ACCELERATOR + ORNL (OAK RIDGE NATIONAL LABORATORY)

15-22115

POSTON JW + CRASE KW + ROBINSON EM

THERMAL NEUTRON FLUENCE MEASUREMENTS IN THE DOSAR FACILITY THERMAL PILE

OAK RIDGE NATIONAL LAB., HEALTH PHYSICS DIV., TENN.

ORNL-TM-2009 +. 13 PAGES, 5 FIGURES, 1 TABLE, 5 REFERENCES, NOV. 1967

A SERIES OF THERMAL NEUTRON FLUX MEASUREMENTS WERE MADE IN THE DOSAR FACILITY THERMAL PILE, INCLUDING THE MEASUREMENT OF THE FLUX DISTRIBUTION IN THE PILE, EFFECTS OF FOIL SPACING UPON THE FLUX MEASUREMENT, AND THE DETERMINATION OF THE CADMIUM RATIO (BARE-GOLD-FOIL ACTIVITY/CADMIUM-COVERED-FOIL ACTIVITY) AT SPECIFIC AREAS WITHIN THE PILE.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-22115 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FLUX DISTRIBUTION + HPRR (HEALTH PHYSICS RESEARCH REACTOR) + ORNL (OAK RIDGE NATIONAL LABORATORY) +
REACTOR, RESEARCH + THERMAL NEUTRON

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-18491

LAO SK

A MODEL FOR DIFFUSION OF RADIOACTIVE DEBRIS IN THE TROPOSPHERE

UNIVERSITY OF UTAH, SALT LAKE CITY

6 PAGES, 3 FIGURES, 1 TABLE, REFERENCES, J. ATMOS. SCI. 23(6), PAGE 720-6, (NOVEMBER 1966)

TURBULENT MOTION NEAR THE CORE OF THE JET STREAM PLAYS THE MAJOR ROLE IN TRANSPORTING DEBRIS FROM THE STRATOSPHERE TO THE TROPOSPHERE. A SEMI-ANNUAL PERIOD IN THE VARIATION OF CONCENTRATION EXISTS, RESULTING FROM THE INTERACTION BETWEEN THE MERIDIONAL GRADIENT OF THE MEAN CONCENTRATION AND THE MEAN MOTION OF THE JET CORE. THE AVERAGE VALUE OF THE VERTICAL COMPONENT OF THE EDDY DIFFUSIVITY IS ABOUT 10 TIMES 10 TO THE 7TH SQ. CM/SEC.

ATMOSPHERIC DIFFUSION + CONCENTRATION, AREA + FALLOUT + MATHEMATICAL TREATMENT + TROPOSPHERE + TURBULENCE, SHEAR (WIND)

16-18492

ALSO IN CATEGORY 14

ALONSO A

GENERALIZATION OF HOLLANDS METHOD TO ASSESS GAMMA DOSES FROM RADIOACTIVE CLOUDS

NUCLEAR SAFETY GROUP, JUNTA DE ENERGIA, NUCLEAR, MADRID SPAIN

8 PAGES, 4 FIGURES, 12 REFERENCES, HEALTH PHYSICS 13, PAGE 487 THRU 494, (1967)

A METHOD TO ASSESS WHOLE-BODY GAMMA DOSES FROM RADIOACTIVE CLOUDS IS PRESENTED. THE CALCULATIONS ARE CARRIED OUT BY MEANS OF SIMPLE NOMOGRAMS WHICH YIELD A GEOMETRY CORRECTION FACTOR TO BE APPLIED TO THE INFINITE-CLOUD MODEL. THE PROCEDURE IS BASED ON A GENERALIZATION OF HOLLANDS SOLUTION TO INCLUDE NON-ISOTROPIC GAUSSIAN CLOUDS. THIS METHOD IS CAPABLE OF RENDERING ACCURATE VALUES WITHOUT USING ELABORATE DIGITAL CODES, AND IT IS A USEFUL TOOL FOR A RAPID EVALUATION OF WHOLE-BODY GAMMA DOSES FROM CLOUDS OF REACTOR DEBRIS.

ATMOSPHERIC DIFFUSION + FALLOUT + GAUSSIAN PLUME FORMULA + SOURCE, ELEVATED + SOURCE, GROUND LEVEL

16-18493

ALSO IN CATEGORY 14

MAMURO T + MATSUNAMI T

STUDIES ON FALLOUT PARTICLES. VII

9 PAGES, 6 FIGURES, 5 TABLES, 13 REFERENCES, NIPPON GENSHIYOKU GAKKAISHI 8, PAGE 416 THRU 23, (1966), IN JAPANESE

FALLOUT FROM A SOVIET LARGE-SCALE AIR BURST, CHINESE SMALL-SCALE LAND-SURFACE BURST, AND CHINESE SMALL-SCALE AIR BURST WAS MEASURED FOR VARIOUS RADIOACTIVE NUCLIDES. DIFFERENCES BETWEEN THE SPECIFIC ACTIVITIES OF THESE NUCLIDES ARE DISCUSSED IN CONNECTION WITH THE CONDITIONS OF THE EXPLOSIONS FROM WHICH THEY ORIGINATED. THE RATIO OF ALPHA ACTIVITY TO TOTAL ACTIVITY WAS CONSIDERABLY SMALLER IN THE COLLECTED PARTICLES THAN IN THE RAIN-WATER SAMPLES BEFORE AND AFTER THE COLLECTION.

ATMOSPHERIC DIFFUSION + CONCENTRATION, AREA + FALLOUT + RAINOUT + WASHOUT

16-18615

ALSO IN CATEGORY 17

FORD NUCLEAR REACTOR AMENDMENT 17. AIRBORNE ACTIVITY RELEASE

AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

8 PAGES, SEPTEMBER 7, 1967, DOCKET NO. 50-2, UNIVERSITY OF MICHIGAN

ORL ALLOWS U OF MICHIGAN A STACK DILUTION FACTOR OF 400 AND A BUILDING-EXHAUST DILUTION FACTOR OF 4, BASED ON EXPERIMENTAL DATA. BUILDING EXHAUST IS THRU A ROOF-MOUNTED COOLING TOWER.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DILUTION + *SOURCE, CONTINUOUS + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

16-18616

ALSO IN CATEGORIES 14 AND 17

FORD NUCLEAR REACTOR PROPOSED AMENDMENT 17. AIRBORNE ACTIVITY RELEASE

THE UNIVERSITY OF MICHIGAN, PHOENIX MEMORIAL LABORATORY

10 PAGES, 1 FIGURE, 2 TABLES, MAY 22, 1967, DOCKET NO. 50-2

U OF MICHIGAN REQUESTS INCREASE IN RELEASE LIMITS (16 TO BECOME 400 TIMES 10 CFR 20 LIMITS THROUGH STACK, AND 1 TO BECOME 4 TIMES 10 CFR 20 LIMITS THROUGH BUILDING EXHAUST). REQUEST IS BASED ON A THESIS (MMPP 272, CORRELATION OF WIND-TUNNEL AND FIELD MEASUREMENTS OF GAS DIFFUSION USING KR-85 TRACER) AND METEOROLOGICAL OBSERVATIONS, WHICH SHOWED MINIMUM DILUTION FACTORS OF 400 AND 4 FOR THE STACK AND EXHAUST.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *SOURCE, CONTINUOUS + DILUTION + MODEL TESTING + RADIOACTIVITY, RELEASE + REACTOR, POOL TYPE + REACTOR, RESEARCH + STACK + TECHNICAL SPECIFICATIONS + VENTILATION SYSTEM

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-18617 ALSO IN CATEGORY 17
RE-EVALUATION OF FNR STACK DILUTION FACTOR
THE UNIVERSITY OF MICHIGAN, PHOENIX MEMORIAL LABORATORY
10 PAGES, 1 FIGURE, 2 TABLES, MAY 22, 1967, DOCKET NO. 50-2, FORD NUCLEAR REACTOR

BASED ON EXPERIMENTS AND METEOROLOGICAL OBSERVATIONS, A NEW VALUE OF 400 (PREVIOUSLY 16) WAS CALCULATED FOR THE FORD NUCLEAR REACTOR. EXPERIMENTAL WORK WAS MAINLY SCALE-MODEL WIND-TUNNEL TESTING OF PLUME BEHAVIOR. BUILDING-CAUSED TURBULENCE IS CONTROLLING FACTOR IN PLUME BEHAVIOR. FIELD MEASUREMENTS OF ACTIVITY WERE ALSO MADE IN THE REACTOR VICINITY. LOWEST MOMENTARY DILUTION FACTOR REPORTED WAS 100. THE DILUTION FACTOR DUE TO WIND DISTRIBUTION AS DETERMINED FROM METEOROLOGICAL DATA TO BE 4, GIVING A TOTAL FACTOR OF 400.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DILUTION + *MODEL TESTING + *PLUME BEHAVIOR, GENERAL + *SOURCE, CONTINUOUS + *TURBULENCE, SHEAR (WIND) + *WIND STATISTICS + BUILDING + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + RADIOACTIVITY, RELEASE + REACTOR, POOL TYPE + REACTOR, RESEARCH + STACK + TECHNICAL SPECIFICATIONS + WIND TUNNEL EXPERIMENT

16-18632 ALSO IN CATEGORY 14
IR DEVICE SCANS SMOKESTACK
1 PAGE, 1 FIGURE, CHEM. AND ENG. NEWS 45(7), PAGE 54, (FEBRUARY 13, 1967)

INFRARED DEVICE SCANS SMOKESTACK EFFLUENT FROM TRUCK-MOUNTED ASSEMBLY AT A DISTANCE OF AT LEAST HALF A MILE. OFFERS A POTENTIALLY VALUABLE APPROACH TO AIR-POLLUTION STUDIES.

*INSTRUMENTATION, METEOROLOGICAL + *SOURCE, AREA + ATMOSPHERIC POLLUTION + DIFFUSION

16-18708
ENGELMANN RJ + PERKINS RW
SNOW AND RAIN WASHOUT COEFFICIENTS FOR PROCESS PLANT RADIOIODINE VAPOUR
BATTELLE-NORTHWEST LAB., RICHLAND, WASHINGTON
2 PAGES, 1 FIGURE, 2 TABLES, NATURE 211(5044), PAGE 61 AND 62, (JULY 2, 1966)

DETERMINED WASHOUT COEFFICIENTS FOR INORGANIC IODINE OF SNOWFALL THROUGH A PLUME. THERE WERE THREE CASES OF COLUMNAR AND TWO CASES OF LARGE, WET-AGGLOMERATES OF SPATIAL DENDRITIC CRYSTALS.

*DEPOSITION + *WASHOUT + EFFLUENT + PRECIPITATION + TRACER, RADIOACTIVE

16-18800
NEWELL RE
THE ENERGY AND MOMENTUM BUDGET OF THE ATMOSPHERE ABOVE THE TROPOPAUSE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
CONF-650534-1+. 43 PAGES, TO BE PRESENTED AT THE SIXTH INTERNATIONAL SPACE SCIENCE SYMPOSIUM, BUENOS AIRES, ARGENTINA, MAY 17, 1965

MOMENTUM AND HEAT TRANSPORTS COMPUTED FROM WIND AND TEMPERATURE OBSERVATIONS UP TO 30 KM ARE USED TO CONSTRUCT MOMENTUM AND ENERGY BUDGETS OF THE REGION. SOME ASPECTS OF THE THERMOSPHERIC STRUCTURE ARE INTERPRETED IN TERMS OF THE CONCEPTS DEVELOPED FROM STUDIES OF THE LOWER ATMOSPHERE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ATMOSPHERIC CIRCULATION, GLOBAL + MESOSPHERE + STRATOSPHERE

16-18807
CRAWFORD TV
A COMPUTER PROGRAM FOR CALCULATING THE ATMOSPHERIC DISPERSION OF LARGE CLOUDS
LAWRENCE RADIATION LAB., LIVERMORE
UCRL-50179+. 56 PAGES, 16 FIGURES, 4 TABLES, 69 REFERENCES, NOVEMBER 23, 1966

SIMILARITY THEORIES OF ATMOSPHERIC TURBULENCE ARE PRESENTED AS A BASIS FOR PREDICTING CLOUD SIZE AND ASSOCIATED TURBULENT DIFFUSIVITIES. PRESENTS A COMPUTER PROGRAM FOR CALCULATING THE ATMOSPHERIC DISPERSION OF LARGE CLOUDS. A SAMPLE PROBLEM IS PRESENTED TO ILLUSTRATE THE TYPE OF OUTPUT AVAILABLE. MENTIONS ADDITIONAL OPTIONS BEING ADDED TO THE CODE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM, METEOROLOGICAL + *THEORETICAL INVESTIGATION + ATMOSPHERIC DIFFUSION + CONCENTRATION, AREA + DISPERSION

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-18828

LUCAS DP

PAPER VI. APPLICATION AND EVALUATION OF RESULTS OF THE TILBURY PLUME RISE AND DISPERSION EXPERIMENT GREAT BRITAIN. CENTRAL ELECTRICITY GENERATING BOARD
4 PAGES, ATMOS. ENVIRON. 1(4), PAGE 421 THRU 424, (JULY 1967)

SUMMARIZES THE MORE IMPORTANT CONCLUSIONS TO BE DRAWN FROM THE PAPERS PRESENTED FOR DISCUSSION AT THE SYMPOSIUM ON THE TILBERRY PLUME EXPERIMENT.

*ATMOSPHERIC DIFFUSION EXPERIMENT + *PLUME BEHAVIOR, GENERAL + ATMOSPHERIC POLLUTION + ATMOSPHERIC STABILITY + INSTRUMENTATION, METEOROLOGICAL

16-18829

CSANADY GT

THE DOSAGE-AREA PROBLEM IN TURBULENT DIFFUSION

UNIVERSITY OF WATERLOO, ONTARIO, CANADA

9 PAGES, 4 FIGURES, 7 REFERENCES, ATMOS. ENVIRON. 1(4), PAGE 451-457, (JULY 1967)

NUMERICAL CALCULATIONS WERE MADE, USING POISSON, GAUSSIAN, AND LOG-NORMAL DISTRIBUTIONS FOR THE PROBABILITY DISTRIBUTIONS BEING GREATER THAN SOME PRESCRIBED THRESHOLD VALUE. RESULTS SHOWED THAT THE MEAN DOSAGE AREA IS QUITE INSENSITIVE TO THE MODEL USED FOR THE DOSAGE PROBABILITY AND THAT IT IS NOT VERY DIFFERENT FROM THE CORRESPONDING AREA OF THE MEAN DOSAGE DISTRIBUTION.

*CONCENTRATION, GROUND LEVEL + *SOURCE, POINT + ATMOSPHERIC DIFFUSION + COMPUTER PROGRAM, METEOROLOGICAL + PLUME BEHAVIOR, GENERAL

16-18830

SCRIVEN RA

PAPER V. PROPERTIES OF THE MAXIMUM GROUND LEVEL CONCENTRATION FROM AN ELEVATED SOURCE

CENTRAL ELECTRICITY RESEARCH LABORATORIES, CLEEVE ROAD, LEATHERHEAD, SURREY, ENGLAND

9 PAGES, 4 FIGURES, 1 TABLE, 5 REFERENCES, ATMOS. ENVIRON. 1(4), PAGE 411-419, (JULY 1967)

SIMPLE ONE- AND TWO-LAYER MODELS OF THE ATMOSPHERE WERE USED TO DERIVE PROPERTIES OF THE DOWNWIND POSITION AND VALUE OF THE MAXIMUM IN MEAN GROUND LEVEL CONCENTRATION WHICH CAN EFFECT EITHER THE HANDLING OR THE INTERPRETATION OF FIELD DATA. IT IS SHOWN THAT THIS MAXIMUM IS QUITE FLAT, IMPLYING THAT WHILST THE PEAK VALUE CAN BE FOUND ACCURATELY ITS POSITION WILL BE SUBJECT TO LARGE ERRORS. THE EFFECT OF STABLE LAYERS ABOVE THE SOURCE IS ALSO DISCUSSED, AND IT IS INDICATED HOW MUCH OF THE SCATTER IN FIELD RESULTS CAN BE ATTRIBUTED TO THIS CAUSE. THE DISTRIBUTION OF MAXIMUM CONCENTRATION VALUES WHICH ARISE FROM A SIMPLE DISTRIBUTION OF STABLE LAYER HEIGHTS IS EVALUATED AND COMPARED WITH EXPERIMENT.

*CONCENTRATION, MAXIMUM + *SOURCE, ELEVATED + ATMOSPHERIC STABILITY + CONCENTRATION, GROUND LEVEL + DIFFUSION

16-18831

MOORE DJ

PAPER IV. SO₂ CONCENTRATION MEASUREMENTS NEAR TILBURY POWER STATION

CENTRAL ELECTRICITY RESEARCH LABORATORIES, CLEEVE ROAD, LEATHERHEAD, SURREY, ENGLAND

22 PAGES, 15 FIGURES, 13 TABLES, 2 REFERENCES, ATMOS. ENVIRON. 1(4), PAGE 389 THRU 410, (JULY 1967)

DESCRIBES SURFACE PATTERNS OF SO₂ READINGS FROM A 360-MW GENERATING STATION WITH 100-M STACKS. AVERAGE PATTERNS OF SO₂ IN VARIOUS CATEGORIES OF WIND SPEED, STABILITY, AND HEAT EMISSION ARE PRESENTED, AND THEIR USE IN CALCULATING LONG-TERM SURFACE CONCENTRATIONS IS DISCUSSED.

*ATMOSPHERIC DIFFUSION EXPERIMENT + ATMOSPHERIC STABILITY + CONCENTRATION, GROUND LEVEL + DEPOSITION + SOURCE, ELEVATED

16-18932

SAHA AK + MAHAJAN KK

IONOSPHERIC EFFECTS OF NUCLEAR EXPLOSIONS. HIGH ALTITUDE EXPLOSIONS

RADIO PROPAGATION UNIT, NATIONAL PHYSICAL LAB., NEW DELHI 12

7 PAGES, 15 FIGURES, 1 TABLE, 28 REFERENCES, IND. J. PURE AND APPLIED PHYSICS 4(3), PAGE 117 THRU 123, (MARCH 1966)

THE IONOSPHERIC EFFECT, OBSERVED OVER DELHI AFTER THREE RUSSIAN AND TWO USA HIGH-ALTITUDE NUCLEAR EXPLOSIONS AT JOHNSTON ISLAND WERE COMPARED WITH LOW-ALTITUDE MEGATON EXPLOSIONS AT NOVAYA ZEMLYA. THE POSSIBLE MECHANISMS CAUSING THE D-REGION AND F2-REGION EFFECTS FOR BOTH THE CENTRAL ASIA AND JOHNSTON ISLAND EXPLOSIONS ARE DISCUSSED.

*NUCLEAR DETONATION + AIRBURST + IONOSPHERE

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-18865

CHARLSON RJ + HORVATH H + PUESCHEL RF
THE DIRECT MEASUREMENT OF ATMOSPHERIC LIGHT SCATTERING COEFFICIENT FOR STUDIES OF VISIBILITY AND POLLUTION
UNIVERSITY OF WASHINGTON, SEATTLE
10 PAGES, 5 FIGURES, 1 TABLE, 15 REFERENCES, ATMOSPHERIC ENVIRON 1(4), PAGES 469-78 (JULY 1967)

THE INTEGRATING NEPHELOMETER OF BEUTTEL AND BREWER WAS MODIFIED TO STUDY AIR POLLUTION. THE INSTRUMENT, WHICH IS SIMPLE, STABLE, AND INEXPENSIVE TO BUILD, HAS BEEN OPERATED CONTINUOUSLY FOR SEVERAL MONTHS. INTERPRETATION OF THE DATA IS SIMPLIFIED BY USE OF A THEORETICAL APPROACH WHICH INDICATES THAT THE MEASURED LIGHT-SCATTERING COEFFICIENT IS PROPORTIONAL TO THE MASS OF SUSPENDED PARTICLES FOR WELL-AGED ATMOSPHERIC AEROSOLS.

AEROSOL + ATMOSPHERIC POLLUTION + INSTRUMENTATION, METEOROLOGICAL + PARTICLE SIZE

16-18866

WAGMAN J + LEE RE + AXT CJ
INFLUENCE OF SOME ATMOSPHERIC VARIABLES ON THE CONCENTRATION AND PARTICLE SIZE DISTRIBUTION OF SULFATE IN URBAN AIR
U.S. PUBLIC HEALTH SERVICE
11 PAGES, 6 FIGURES, 2 TABLES, 17 REFERENCES, ATMOSPHERIC ENVIRON 1(4) PAGES 479-89 (JULY 1967)

VARIATIONS IN THE PARTICLE-SIZE DISTRIBUTION AND CONCENTRATION OF ATMOSPHERIC SULFATE DURING A WEEK IN EACH OF FOUR CITIES WERE ASSESSED WITH REGARD TO THE INFLUENCE OF SUCH FACTORS AS LOCATION, HUMIDITY, SULFUR DIOXIDE LEVEL, AND TIME OF DAY. SULFATE MASS MEDIAN EQUIVALENT DIAMETERS GENERALLY INCREASED WITH INCREASING RELATIVE HUMIDITY, WHEREAS SULFATE CONCENTRATION WAS MORE CLOSELY CORRELATED WITH ABSOLUTE HUMIDITY.

*PARTICLE SIZE DISTRIBUTION + ATMOSPHERIC POLLUTION + HUMIDITY + SAMPLING + SULFUR DIOXIDE

16-18867

SCHUETTE FJ
PLASTIC BAGS FOR COLLECTION OF GAS SAMPLES
CALIFORNIA STATE DEPT. OF PUBLIC HEALTH
5 PAGES, 1 TABLE, 12 REFERENCES, ATMOSPHERIC ENVIRON 1(4) PAGES 515-19 (JULY 1967)

SEALED BAGS MADE FROM PLASTIC FILMS ARE ESPECIALLY APPLICABLE TO COLLECTING GAS SAMPLES. SOME FILMS COMPATIBLE WITH SELECTED GASES AND VAPORS ARE CITED. CRITERIA FOR JUDGING THE STORAGE STABILITY OF SAMPLES IN PLASTIC BAGS ARE DESCRIBED. SOME SUPPLIERS OF BAGS AND OF MATERIALS FOR MAKING BAGS ARE GIVEN FOR THE CONVENIENCE OF THOSE WISHING TO APPLY THIS TECHNIQUE.

ATMOSPHERIC CHEMISTRY + INSTRUMENTATION, METEOROLOGICAL + SAMPLING

16-18868

CHATFIELD EJ
A BATTERY OPERATED SEQUENTIAL AIR CONCENTRATION AND DEPOSITION SAMPLER
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, BERKSHIRE, ENGLAND
5 PAGES, 5 FIGURES, 6 REFERENCES, ATMOSPHERIC ENVIRON 1(4) PAGES 509-13 (JULY 1967)

DESCRIBES AN INSTRUMENT WHICH PERMITS SYNCHRONIZED MEASUREMENTS OF AIR CONCENTRATION AND DEPOSITION OF PARTICULATE AEROSOLS AS FUNCTIONS OF TIME. THE SAMPLING TIME MAY RANGE FROM 2 SEC TO 500 MIN FOR EACH SAMPLE, AND A MAXIMUM OF 50 SAMPLES CAN BE ACCOMMODATED. THE INCREMENTAL COLLECTION EFFICIENCY OF THE AIR SAMPLER IS HIGH FOR SOLID AEROSOLS IN SIZE RANGES BELOW 50 MICRONS (UNIT DENSITY), BUT SEQUENTIAL INFORMATION IS GIVEN ONLY FOR PARTICLES ABOVE ABOUT 2 MICRONS. THE COLLECTION AREA FOR EACH SPECIMEN IN THE DEPOSITION SAMPLER IS ABOUT 20 SQ. CM. IN BOTH INSTRUMENTS, SAMPLES MAY BE COLLECTED ON TRANSPARENT MEDIA, WHICH IS ADVANTAGEOUS WHERE MICROSCOPIC EXAMINATION OF THE PARTICLES IS INTENDED.

AEROSOL + DEPOSITION + INSTRUMENTATION, METEOROLOGICAL + SAMPLING

16-18869

LUCAS OH + JAMES KW + DAVIES I
PAPER I - THE MEASUREMENT OF PLUME RISE AND DISPERSION AT TILBURY POWER STATION
CENTRAL ELECTRICITY RESEARCH LABORATORIES, SURREY, ENGLAND
11 PAGES, 11 FIGURES, 6 REFERENCES, ATMOSPHERIC ENVIRONMENT 1(4) PAGES 353-65 (JULY 1967)

DESCRIBES THE SYSTEM OF INSTRUMENTATION INSTALLED AT TILBURY POWER STATION TO RECORD CONTINUOUSLY (A) SURFACE SULPHUR DIOXIDE CONCENTRATION AT DISTANCES FROM 1 TO 13 KM DOWNWIND OF A 360-MW POWER STATION WITH TWO 100-M STACKS, (B) THE RISE OF THE PLUME, (C) LAPSE RATE, HUMIDITY, TURBULENCE, WIND SPEED, AND WIND DIRECTION UP TO 187 M ABOVE GROUND LEVEL. THE PAPER IS INTENDED AS A COMMON INTRODUCTION TO A NUMBER OF PAPERS WHICH WILL PRESENT THE EXPERIMENTAL RESULTS.

*INSTRUMENTATION, METEOROLOGICAL + ATMOSPHERIC DIFFUSION EXPERIMENT + DISPERSION + PLUME BEHAVIOR, GENERAL + SOURCE, ELEVATED

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-18870

PAINTER HE

A COMPARISON OF ATMOSPHERIC SMOKE CONCENTRATION VALUES AT KEW OBSERVATORY USING DIFFERENT TYPES OF FILTER AND CALIBRATIONS

KEW OBSERVATORY, LONDON, ENGLAND

7 PAGES, 2 TABLES, REFERENCES, ATMOSPHERIC ENVIRONMENT 1(4) PAGES 461-67 (JULY 1967)

A CALIBRATION PREVIOUSLY DETERMINED FOR SMOKE CONCENTRATIONS FROM AIR-FILTER MEASUREMENTS, USING GLASS FIBRE (TYPE GF/A), WAS REVISED TO BRING IT INTO LINE WITH A REVISION MADE TO THE CALIBRATION FOR WHATMAN NO. 1 FILTERS. COMPARISONS WERE MADE USING 1- AND 2-IN. FILTERS TO PROVE THE CONSISTENCY OF THE CALIBRATION. FOR THE TYPE OF URBAN POLLUTION AT KEW, INTERNATIONAL STANDARD CALIBRATIONS GIVE INCONSISTENT RESULTS FOR LCW SMOKE CONCENTRATIONS.

*FILTER, EFFICIENCY OF + INSTRUMENTATION, METEOROLOGICAL + SAMPLING + SMOKE

16-18872

POPOV NI + PATIN SA

BASIC CHARACTERISTICS OF THE GLOBAL DISTRIBUTION OF SR-90 ON THE SURFACE OF THE WORLD OCEANS (1960-1961) INSTITUT ATOMNOI ENERGII, GOSUDARSTVENNYI KOMITET PO ISPOL ZOVIANIYU ATOMNOI ENERGII SSSR

NP-16264 +. 20 PAGES, FIGURES, REFERENCES, 1965

INDIVIDUAL PAPERS TREAT THE FOLLOWING TOPICS - (1) BASIC FEATURES OF THE GLOBAL STRONTIUM-90 DISTRIBUTION ON THE SURFACE OF THE OCEANS (1960 TO 1961). (2) EVALUATION OF THE TOTAL QUANTITY OF STRONTIUM-90 IN THE OCEANS. (3) COMPARATIVE ANALYSIS OF NUCLEAR-EXPLOSION-PRODUCT GLOBAL FALLOUT ON CONTINENTS AND OCEANS.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*FALLOUT + *OCEAN AND SEA + STRONTIUM

16-18912

ALSO IN CATEGORIES 5 AND 18

ELK RIVER DILUTION FACTOR, AND FEEDWATER OSCILLATION

RURAL COOPERATIVE POWER ASSOCIATION

NUS-269 +. 122 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967, DOCKET NO. 115-1

(PAGES 12-18) RE-EVALUATION OF ANNUAL AVERAGE DILUTION FACTORS, USING WINDIF-3 WITH DATA FROM ON-SITE AND MINNEAPOLIS, YIELDED DILUTION FACTOR 50 TIMES CURRENT VALUES. (PAGES 42-50) PRIMARY FEEDWATER HYDRAULIC OSCILLATIONS ARE BRIEFLY SUMMARIZED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *DILUTION + *FLUCTUATION + *REACTOR POWER + *WIND STATISTICS + ATMOSPHERIC DIFFUSION + CIRCULATION, NATURAL (LOOPS AND REACTORS) + ELK RIVER + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

16-19207

ALSO IN CATEGORY 14

SHEM-I-ZADE AE

CORRELATION OF THE CONCENTRATION OF RADIOACTIVE NATURAL AND FALLOUT AEROSOLS IN THE LOWER ATMOSPHERE 2 PAGES, 1 FIGURE, 4 REFERENCES, AT. ENERG. (USSR) 22, PAGE 67 AND 68. (JANUARY 1967) IN RUSSIAN

SAMPLES WERE COLLECTED 1.5 M ABOVE THE GROUND. COMPARISON OF THE DAILY DATA OBTAINED FROM FEBRUARY TO APRIL 1962 INDICATED A CORRELATION FACTOR OF 0.780 BETWEEN THE CONCENTRATIONS OF THE NATURAL AND ARTIFICIAL BETA-ACTIVE AEROSOLS. THE FACTOR WAS 0.184 FOR SAMPLES COLLECTED DURING JUNE TO AUGUST 1963, AND 0.171 FOR FEBRUARY 1964. THIS MAY BE DUE TO THE GENERAL REDUCTION OF THE FISSION-PRODUCT CONCENTRATION IN THE ATMOSPHERE, OR TO CHANGES IN THE DISPERSIVITY OF THE AEROSOLS.

AEROSOL, RADIOACTIVE + DEPOSITION + FALLOUT + RADON + SAMPLING

16-19208

STOCKBURGER H + SITTKUS A

DIRECT MEASUREMENT OF NATURAL AND ARTIFICIAL RADIOACTIVITY IN ATMOSPHERIC AIR

MAS-PLANEK-INSTITUT FUER KERNPHYSIK, AUSSENSTELLE FREILBURG-SCHAUINSLAND, GER.

5 PAGES, 5 FIGURES, 1 TABLE, Z. NATURFORSCH., 21A, PAGE 1128 THRU 1132, (JULY 1966) IN GERMAN

THE RADIOACTIVE AEROSOLS OF THE ATMOSPHERIC AIR WERE SEPARATED BY THE FILTER METHOD. DURING THE FORCING THROUGH BY SUCTION, THE TOTAL BETA RADIATION, THE ALPHA RADIATION OF RAA AND RAC (DOUBLE PRIME), AND THAT OF THC-PRIME WERE MEASURED SEPARATELY. THE CONSTANT ALPHA TO BETA RATIO OF THE DECAY RATES OF THE NATURAL EMITTERS WAS USED TO DETERMINE DIRECTLY THE BETA ACTIVITY CAUSED BY FISSION PRODUCTS.

*AEROSOL, RADIOACTIVE + ALPHA EMITTER + BETA EMITTER + FALLOUT + SAMPLING

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19209

MUEH H + SITTKUS A + ALBRECHT G + HARTWIG S

RADIOISOTOPES AS AIR MASS INDICATORS

MAX-PLANCK-INSTITUT FUER KERNPHYSIK, AUSSENSTELLE FREIBURG-SCHAUINSLAND, GER.

5 PAGES, 5 FIGURES, 1 TABLE, 14 REFERENCES, Z. NATURFORSCH., 21A, PAGE 1123 THRU 1127, (JULY 1966) IN GERMAN

FROM THE OBSERVATION OF THE BE-7, P-32, P-33, AND S-35 PRODUCED BY COSMIC RADIATION, CONCLUSIONS ON THE FATE OF AN AIR MASS CAN BE MADE. MEASUREMENTS OF THE ABSOLUTE CONCENTRATIONS AND THE ISOTOPIC RATIOS IN RAIN-WATER SAMPLES IN 1965 SHOWED THAT THE INSERTION OF STRATOSPHERIC AIR INTO THE TROPOSPHERE CAN BE DETECTED IN INDIVIDUAL CASES. THE DETERMINATIONS OF THE P-33 CONTENT INDICATES THAT THE YIELD FACTOR IN THE LITERATURE IS ABOUT 25% TOO SMALL.

*COSMIC RADIATION + METEOROLOGY + RAINOUT + STRATOSPHERE + TROPOSPHERE

16-19210

FOPPL H + HAERENDEL G + HASER L + LOIDL J + LUTJENS P + LUST R + MELZNER F METER B + NEUSS H + RIEGER E

ARTIFICIAL STRONTIUM AND BARIUM CLOUDS IN THE UPPER ATMOSPHERE

MAS-PLANCK-INSTITUT FUER PHYSIK UND ASTROPHYSIK, INSTITUT FUER EXTRATERRESTRICHE PHYSIK, GARCHING BEI MUNCHEN

17 PAGES, 8 FIGURES, 7 TABLES, 6 REFERENCES, PLANET. SPACE SCI. 15(2), PAGE 357 THRU 372, (FEBRUARY 1967)

DISCUSSES EXPERIMENTS WITH SR AND BA VAPOR RELEASES IN THE UPPER ATMOSPHERE, CARRIED OUT IN THE SAHARA AND IN GARDINIA IN 1964. REFERS TO THE OBSERVATIONAL RESULTS OF THE EXPANSION OF THE CLOUDS IN THE INITIAL AND DIFFUSIONAL PHASE AND TO THE MOTION OF THE NEUTRAL AND IONIZED CLOUDS AS A WHOLE.

*ATMOSPHERIC DIFFUSION + *IONOSPHERE + *MESOSPHERE + DISPERSION

16-19211

ALSO IN CATEGORY 14

IMAI K + IIJIMA T

EXTERNAL EXPOSURE TO ARGON-41 RELEASED FROM MULTIPLE SOURCES

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO

6 PAGES, 4 FIGURES, 2 TABLES, 4 REFERENCES, J. NUCL. SCI. TECHNOL. (TOKYO), 3, PAGE 522 THRU 527, (DECEMBER 1966)

A CODE WAS DEVELOPED FOR CALCULATING EXTERNAL EXPOSURE TO RADIOACTIVE CLOUD FROM SEVERAL REACTORS WITH DIFFERENT STACK HEIGHTS AND RELEASE RATES. USING THIS CODE, THE RESULTANT EXPOSURE RATES FOR AR-41 RELEASED FROM THREE REACTORS WITH ASSUMED RELEASE RATES WERE OBTAINED TO COVER THE AREA IN AND AROUND THE TOKAI NUCLEAR SITE.

*COMPUTER PROGRAM, METEOROLOGICAL + *SOURCE, AREA + ATMOSPHERIC DIFFUSION + CONCENTRATION, ISOPLETH + DOSE CALCULATION, EXTERNAL

16-19212

DINGLE AM + GATZ DE

RAIN SCAVENGING STUDIES. PROGRESS REPORT. NO. 3

MICHIGAN UNIV., ANN ARBOR. DEPT. OF METEOROLOGY AND OCEANOGRAPHY

COO-1407-15 +. FIGURES, 3 TABLES, REFERENCES, MAY 1967

EFFORTS DIRECTED TOWARD PILOT EXPERIMENTS IN THE USE OF CONTROLLED TRACERS FOR THE STUDY OF SEVERE STORMS, CIRCULATION SYSTEMS, AND THE PROCESSES OF RAIN SCAVENGING. DEVELOPED A MOBILE SAMPLING SYSTEM SUITABLE FOR USE IN THE TRACER EXPERIMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, METEOROLOGICAL + COMPUTER PROGRAM, METEOROLOGICAL + RAINOUT + SAMPLING

16-19213

STYRO BI + VEBRIENE B

ON A METHOD FOR MEASURING RADIOACTIVITY OF PARTICLES OF PRECIPITATION AND SOME PRELIMINARY RESULTS OF

THESE INVESTIGATIONS

ACADEMY OF SCIENCES, VILNIUS, LITHUANIA

9 PAGES, 5 FIGURES, 3 TABLES, 13 REFERENCES, IZV. AKAD. NAUK SSSR, FIZ. ATMOS. OKEANA, 2, PAGE 1055 THRU 1063, (1966), IN RUSSIAN

AN AUTORADIOGRAPHIC METHOD OF MEASURING RADIOACTIVITY OF RAINDROPS AND ICE CRYSTALS IS DESCRIBED. FOUND THAT THE RADIOACTIVITY OF INDIVIDUAL DROPLETS INCREASED, ON THE AVERAGE, WITH THE INCREASE OF DROPLET SIZE. THE SP. RADIOACTIVITY OF DROPLETS INCREASED IN AN EXPONENTIAL CURVE WITH THE DECREASE OF DROPLET SIZE. ON THE BASIS OF THIS FINDING, THE MEAN VALUE FOR RELATIVE EVAPORATION OF DROPLETS WAS CALCULATED FOR THE TIME FROM THEIR LEAVING THE CLOUD TO THEIR REACHING THE EARTH.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19213 *CONTINUED*

*AEROSOL, RADIOACTIVE + *RAINOUT + DEPOSITION + EVAPORATION + PRECIPITATION + SAMPLING

16-19214

BANERJI P

RADIUM CONTENT OF RAINWATER

JADAVPUR UNIV., CALCUTTA, INDIA

2 PAGES, 2 FIGURES, 4 REFERENCES, NATURE 211(5048), PAGE 511 AND 512, (JULY 30, 1966)

PRESENTS THE CONCENTRATION OF RADIUM IN RAINWATER COLLECTED DURING THE MONSOON SEASON AT CALCUTTA. FOR RAINFALL PERIODS OF 1 TO 2 HR, THERE IS A RELATIONSHIP WHICH SHOWS THAT AS THE PRECIPITATION RATE INCREASES, THE RADIUM CONTENT INCREASES.

*RADIUM + *RAINOUT + *WASHOUT + AEROSOL, RADIOACTIVE + SAMPLING

16-19216

ALSO IN CATEGORY 15

NAGASAWA K + URAKUBO G + KIDO Y + IKEBUCHI H

SR-90 IN STOCK RAINWATER FOR DRINKING SAMPLED AT SOME LIGHTHOUSES DURING 1963

NATIONAL INST. OF HYGIENIC SCIENCES, TOKYO

3 PAGES, EISEI SHIKENSHO HOKOKU 82, PAGE 107 THRU 109, (OCTOBER 1964), IN JAPANESE

DATA ON THE CONCENTRATION OF SR-90 IN STOCK RAINWATER FOR DRINKING WAS COLLECTED FROM 7 LIGHTHOUSES IN VARIOUS PARTS OF JAPAN DURING APRIL 1963 TO MARCH 1964.

*JAPAN + *SAMPLING + *STRONTIUM + *WATER, DRINKING + FALLOUT + RAINCUT + WASH-OUT

16-19217

SAUTER E

CALCULATING THE AVERAGE SPECIFIC RADIOACTIVITY IN THE AIR OF THE SURROUNDINGS OF A NUCLEAR POWER STATION

SIEMENS-SCHUCKERTWERKE AG, ERLANGEN, GER.

4 PAGES, 4 FIGURES, 1 TABLE, 2 REFERENCES, ATOMPRAXIS 13, PAGE 82 THRU 85, (FEBRUARY 1967), IN GERMAN

THE CONCENTRATION OF RADIOACTIVITY IN THE AIR SURROUNDING A NUCLEAR POWER STATION IS GENERALLY CALCULATED BY MEANS OF THE SUTTON EQUATION MODIFIED BY PASQUILL. THIS EQUATION ASSUMES CONSTANT WIND DIRECTION. IN FACT, HOWEVER, THERE ARE ALWAYS FLUCTUATIONS IN THE WIND DIRECTIONS. CONSEQUENTLY THE MEAN CONCENTRATION OF RADIOACTIVITY WHICH ACCOUNTS FOR THE BIOLOGICAL EFFECT WILL BE LESS THAN THE VALUE CALCULATED ACCORDING TO THE EQUATION MENTIONED ABOVE. FACTORS ARE FOUND FOR MULTIPLYING THE VALUES IN ORDER TO OBTAIN THE MEAN CONCENTRATIONS. THE LIMITS OF THE METHOD ARE SHOWN.

*CONCENTRATION, GROUND LEVEL + *SUTTON DIFFUSION FORMULA + *THEORETICAL INVESTIGATION + *ATMOSPHERIC DIFFUSION + RADIOACTIVITY, RELEASE + WIND STATISTICS

16-19218

GARBALYAUSKAS CA

RADIOACTIVE FALLOUT IN VILNIUS IN 1962 AND 1964

4 PAGES, 5 FIGURES, 8 REFERENCES, AT. ENFEGIYA 22(4), PAGE 302 THRU 305, (1967), IN RUSSIAN

DATA ARE PRESENTED ON THE CE-141, CE-144, ZR-95, CS-137, AND SR-90 CONTENTS IN RADIOACTIVE FALLOUT IN VILNIUS IN 1962-65. THE QUESTIONS OF SECONDARY FRACTIONATION OF THESE FISSION PRODUCTS IN THE FALLOUT, AND OF THEIR ACCUMULATION IN THE SOIL, ARE EXAMINED. IN ADDITION, ATTEMPTS TO CORRELATE THE FALLOUT VALUES WITH SOME OF THE METEOROLOGICAL FACTORS ARE PRESENTED.

*FALLOUT + *SAMPLING + *SOIL + CERIUM + CESIUM + METEOROLOGY + STRONTIUM

16-19219

TELEGADAS K

RELATIONSHIP BETWEEN STRATOSPHERIC CIRCULATION PATTERNS AND RADIOACTIVE DEBRIS IN EARLY 1963

AIR RESOURCES LAB., WASHINGTON, D. C.

8 PAGES, 5 FIGURES, 1 TABLE, 5 REFERENCES, J. APPL. METEOROL. 6, PAGE 134 THRU 141, (FEBRUARY 1967)

AIRCRAFT OBSERVATIONS IN EARLY 1963 FROM 15 TO 21 KM OVER THE NORTHERN HEMISPHERE, AND BALLOON OBSERVATIONS TO 30 KM AT 31 N, TOGETHER WITH 50-MB CONSTANT-PRESSURE CHARTS, SUGGEST THAT MOST OF THE DEBRIS INJECTED INTO THE POLAR STRATOSPHERE DURING NOV. AND DEC. 1962 WAS CONFINED TO A RELATIVELY SMALL VOLUME NORTH OF 70 N. THIS DEBRIS DID NOT APPRECIABLY AFFECT THE ZONE SOUTH OF 70 N UNTIL FEB. 1963, WHEN THE CIRCUMPOLAR VORTEX SPLIT INTO TWO CYCLONIC CELLS AND MOVED SOUTHWARD.

*ATMOSPHERIC CIRCULATION, GLOBAL + *STRATOSPHERE + *STRONTIUM + AIRBURST + SAMPLING, HIGH ALTITUDE

16-19220

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19220 *CONTINUED*

SMITH ME + HULL AP + NAGLE CM
COMPARISON OF ESTIMATED AND MEASURED LONG-TERM I-131 CONCENTRATIONS FROM A CONTINUOUS ELEVATED SOURCE
BROOKHAVEN NATIONAL LAB., UPTON, LONG ISLAND, N. Y.
BNL-10513 +. 6 PAGES, 5 FIGURES, 7 TABLES, 5 REFERENCES, J. APPL. METEOROL., 6, PAGE 303 THRU 308, (APRIL 1967)

THE CONTINUOUS RELEASE OF VERY SMALL BUT DETECTABLE AMOUNTS OF I-131 FROM THE BROOKHAVEN GRAPHITE RESEARCH REACTOR HAS PROVIDED AN UNUSUAL OPPORTUNITY FOR VERIFICATION OF DISPERSION ESTIMATES BASED ON METEOROLOGICAL PARAMETERS. ANALYSIS OF AN ENTIRE YEARS DATA SHOWS THE PREDICTION SYSTEM TO BE RELIABLE WITHIN A FACTOR OF 2, AND CONTAINS VALUABLE INFORMATION ABOUT SUCH FACTORS AS EFFECTIVE STACK HEIGHT, THE EFFECTIVENESS OF SIMPLIFIED DISPERSION MODELS, AND THE VARIATION OF DISPERSION PARAMETERS WITH SEASON AND TRAJECTORY.

*BNL (BROOKHAVEN NATIONAL LABORATORY) + *CONCENTRATION, GROUND LEVEL + *SOURCE, CONTINUOUS +
*SOURCE, ELEVATED + DIFFUSION + GAUSSIAN PLUME FORMULA + IODINE

16-19221 ALSO IN CATEGORY 14

HARDY EP + RIVERA J
FALLOUT PROGRAM QUARTERLY SUMMARY REPORT, MARCH 1, 1967-JUNE 1, 1967
NEW YORK OPERATIONS OFFICE (AEC), NEW YORK HEALTH AND SAFETY LAB.
HASL-182 + HASL-182(APP.) +. 371 PAGES, FIGURES, TABLES, REFERENCES, JULY 1, 1967

PRESENTS CURRENT DATA FROM THE HASL FALLOUT PROGRAM, ISOTOPES, INC., EURATOM JOINT NUCLEAR RESEARCH CENTER, ARGONNE NATIONAL LABORATORY, AND THE NATIONAL RADIATION LABORATORY IN NEW ZEALAND. RADIONUCLIDE LEVELS IN STRATOSPHERIC AIR, SURFACE AIR, FALLOUT, MILK, OTHER DIET COMPONENTS, AND TAP WATER, ARE GIVEN IN TABULAR FORM. THE INITIAL SECTION CONSISTS OF INTERPRETIVE REPORTS AND NOTES COVERING THE FOLLOWING TOPICS - FALLOUT OF SNAP-9A DEBRIS, THE RATIO OF CS-137 TO SR-90 IN MONTHLY FALLOUT, AND SR-90 IN HUMAN VERTEBRAE. A BIBLIOGRAPHY OF RECENT PUBLICATIONS RELATED TO RADIONUCLIDE STUDIES IS ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, GENERAL + *FALLOUT + CESIUM + DEPOSITION + STRONTIUM

16-19548

THE INVESTIGATION OF AIR POLLUTION NATIONAL SURVEY ANNUAL SUMMARY TABLE 1 FOR THE YEAR ENDED MARCH 1964
WARREN SPRING LABORATORY, GREAT BRITAIN
181 PAGES, TABLES, MARCH 1966

ANNUAL SUMMARY FOR THE YEAR ENDING MARCH 1965 OF THE MONTHLY AVERAGE SMOKE AND SULFUR DIOXIDE CONCENTRATIONS FROM SELECTED SITES IN BRITAIN. GIVES THE AVERAGE, MAXIMUM, AND NUMBER OF DAYS EXCEEDING SPECIFIED CONCENTRATION. ALSO GIVES THE SULFUR-DIOXIDE-TO-SMOKE RATIO.

AVAILABILITY - THE DIRECTOR, WARREN SPRING LABORATORY, STEVENAGE, HERTFORDSHIRE, ENGLAND

*ATMOSPHERIC POLLUTION + *CONCENTRATION, AREA + *MONITORING PROGRAM, ENVIRONMENTAL + *SAMPLING + SMOKE +
SULFUR DIOXIDE

16-19549 ALSO IN CATEGORY 15

MORGAN F
WEATHER AND DISCHARGE DATA USED TO COMPUTE DOSE RATES FROM COASTAL DISCHARGES OF RADIOACTIVITY
MINISTRY OF AGRICULTURE, FISHERIES AND FOOD, MARINA, LOWESTOFT
3 PAGES, 5 FIGURES, 1 REFERENCE, NATURE 215(5100), PAGE 474-476, (JULY 29, 1967)

SOME OF THE WASTE MATERIAL DISCHARGED INTO THE SEA FROM THE DOUNREAY REACTOR ESTABLISHMENT SETTLES ON THE NETS USED BY FISHERMEN IN THE AREA. THE DOSE RATE TO THEIR HANDS IS A FUNCTION OF THE DISCHARGE RATE AND THE LOCAL CONDITIONS AROUND THE NETS. EQUATIONS DERIVED ON THIS BASIS SHOW A CLOSE AGREEMENT WITH FINDINGS IN THE FIELD.

*DOSE CALCULATION, EXTERNAL + *WASTE DISPOSAL, OCEAN + DOUNREAY (UK) + SEDIMENT + WIND STATISTICS

16-19550

KOMABAYASHI M + GONDA T
CONCENTRATIONS OF CHLORIDE AND DEUTERIUM IN RAINWATER AS A FUNCTION OF RAINDROP DIAMETER AND THEIR RELATIONSHIP TO RAINFALL INTENSITY
WATER RESEARCH LAB., NAGOYA UNIVERSITY
8 PAGES, 12 FIGURES, 7 REFERENCES, J. METEOROL. SOC. JAPAN, 42, PAGE 354-361, (DECEMBER 1964)

RAINWATER WAS COLLECTED SEPARATELY ACCORDING TO DROP SIZE BY USING A RAINDROP SPECTROGRAPH. CHEMICAL COMPOSITION WAS MEASURED AND COMPARED WITH INTENSITY OF RAINFALLS AT EACH RANGE OF DROP SIZE. FOR LARGE RAINDROPS, THE CONCENTRATION OF CHLORIDE IN RAINWATER INCREASES WITH INCREASE IN INTENSITY OF RAINFALL. FOR SMALL DROPS, THE CONCENTRATION OF CHLORIDE DECREASES WITH INCREASE IN INTENSITY OF RAINFALL.

*CHLORINE + *CONCENTRATION, GROUND LEVEL + *DEUTERIUM + *PRECIPITATION + ATMOSPHERIC CHEMISTRY +
INSTRUMENTATION, METEOROLOGICAL + JAPAN + RAINOUT

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19551

FEELY HW + BARRIENTOS C + KATZMAN D

RADIOACTIVE DEBRIS INJECTED INTO THE STRATOSPHERE BY THE CHINESE NUCLEAR WEAPON TEST OF MAY 9, 1966
ISOTOPES, INC., 123 WOODLAND AVENUE, WESTWOOD, NEW JERSEY
2 PAGES, 2 FIGURES, 13 REFERENCES, NATURE 212, PAGE 1303 AND 1304, (DEC. 17, 1966)

FILTER SAMPLES OF STRATOSPHERIC AIR COLLECTED BY RB-57F AIRCRAFT IN MAY AND JUNE 1966
CONTAINED RADIOACTIVE DEBRIS FROM THE MAY 9, 1966, CHINESE NUCLEAR WEAPON TEST. THE BETA
ACTIVITIES OF SAMPLES COLLECTED AT 6 POINTS IN THE ATMOSPHERE FROM JULY 1965 TO JUNE 1966 ARE
PLOTTED. IT APPEARED THAT IN THE STRATOSPHERE, THE CLOUD OF DEBRIS FROM THE CHINESE TEST, AS
INTERCEPTED, WAS RESTRICTED TO THE LOWEST LAYERS, BELOW 17 KM IN THE NORTHERN POLAR
STRATOSPHERE AND BELOW 19 KM IN THE TROPICAL STRATOSPHERE. RADIOCHEMICAL ANALYSES OF THE
DEBRIS INDICATED THAT IT HAD BEEN STRONGLY FRACTIONATED.

*NUCLEAR EXPLOSION DEBRIS + *SAMPLING, HIGH ALTITUDE + ATMOSPHERIC CIRCULATION, GLOBAL + METEOROLOGY +
STRATOSPHERE

16-19552

KAROL IL + KIRICHENKO LV + KRASNOPEVTSEV YV + KURGANSKAYA VM + MALAKHOV SG + SEREDA GA + YAGODOVSKII IV

RADIOACTIVE ISOTOPES IN THE ATMOSPHERE AND THEIR USE IN METEOROLOGY
AEC-TR-6711 + IPST-CAT-1801 + CONF-640208 +. 374 PAGES, FIGURES, TABLES, REFERENCES, CONFERENCE ON
NUCLEAR METEOROLOGY, OBNIINSK, FEBRUARY 3-6, 1964, TRANSLATED FROM RADIOAKTIV. IZOTOPY ATMOS. ISPOLZ
METEOROL. NAUCH. KONF. YAD. METEOROL. 3-6 FEBRUARY 1964, PAGES 1-491 (1965)

ABOUT 60 LECTURES WERE DELIVERED AT THE CONFERENCE, WHICH MAINLY COVERED THE FOLLOWING
PROBLEMS - (1) NATURAL RADIOACTIVITY OF THE ATMOSPHERE AND ITS USE FOR STUDYING
METEOROLOGICAL PROCESSES. (2) PHYSICO-CHEMICAL PROPERTIES OF ARTIFICIAL RADIOACTIVE AEROSOLS
IN THE ATMOSPHERE. (3) GLOBAL SPREAD IN THE ATMOSPHERE AND RADIOACTIVE FALLOUT FROM NUCLEAR
EXPLOSIONS. INCLUDES INDIVIDUAL LECTURES ON THE SPREAD OF THESE RADIOACTIVE PRODUCTS IN THE
HYDROSPHERE. (4) RADIOACTIVE CONTAMINATION OF THE LOWER ATMOSPHERIC LAYER FROM LOCAL
SOURCES. (5) INSTRUMENTATION AND TECHNIQUE OF MEASURING RADIOACTIVE CONTAMINATION OF THE
EXTERNAL ENVIRONMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL, RADIOACTIVE + *ATMOSPHERIC DIFFUSION, GLOBAL + *BIBLIOGRAPHY + *INSTRUMENTATION, METEOROLOGICAL +
*NUCLEAR EXPLOSION DEBRIS + ATMOSPHERIC CIRCULATION, GLOBAL + ATMOSPHERIC STABILITY + DEPOSITION +
FALLOUT + PARTICLE SIZE DISTRIBUTION + PRECIPITATION + RADON + RAINOUT + WASHOUT

16-19553

SCHUMANN G

ORIGIN AND DISSEMINATION OF RADIOACTIVE FALLOUT
UNIVERSITY OF HEIDELBERG

10 PAGES, 10 FIGURES, 2 TABLES, 74 REFERENCES, NATURWISSENSCHAFTEN, 54, PAGE 6-15, (JANUARY 1967) IN GERMAN

GIVES A BIBLIOGRAPHIC REVIEW OF RECENT STUDIES ON THE ORIGIN AND DISSEMINATION OF RADIOACTIVE
FALLOUT. THE TOPICS DISCUSSED ARE - DATING OF THE FALLOUT, THE ORIGIN OF THE FALLOUT,
FRACTIONATION OF THE ORIGINAL PRODUCT, INDUCED ACTIVITIES, FALLOUT FROM SATELLITE
EXPERIMENTS, HIGHER TRANSURANIC ELEMENTS AND INDICATOR SUBSTANCES, PARTICLE GROUPS AND THEIR
MEASUREMENT, TRANSPORT OVER THE EARTH, AND DISSEMINATION IN PRECIPITATION.

*BIBLIOGRAPHY + *FALLOUT + ATMOSPHERIC CIRCULATION, GLOBAL + ATMOSPHERIC DIFFUSION, GLOBAL +
NUCLEAR EXPLOSION DEBRIS + RAINOUT

16-19554

PROCEEDINGS OF THE CACR SYMPOSIUM. ATMOSPHERIC CHEMISTRY, CIRCULATION AND AEROSOLS, AUGUST 18-25, 1965
684 PAGES, FIGURES, TABLES, REFERENCES, TELLUS 18(2-3), (AUGUST 1965)

AGENDA TOPICS FOR THE VISBY (SWEDEN) SYMPOSIUM SESSIONS INCLUDED THE FOLLOWING - (1)
ATMOSPHERIC EVOLUTION AND THE CHEMISTRY OF OXYGEN, NITROGEN AND CARBON DIOXIDE. (2)
DISTRIBUTION OF ATMOSPHERIC TRACE CONSTITUENTS. (3) TRANSPORT IN THE STRATOSPHERE AND
MESOSPHERE. (4) TRANSPORT IN THE LOWER STRATOSPHERE AND TROPOSPHERE. (5) STRATOSPHERIC
AEROSOLS AND NUCLEAR DEBRIS. (6) TROPOSPHERIC AEROSOLS AND AEROSOLS BEHAVIOR. (7) NEW
MEASUREMENT TECHNIQUES. (8) IONS AND AEROSOLS. (9) RADON AND THORON.

AVAILABILITY - ALMQVIST + WIKSELLS BOKTRYCKERI AB, UPPSALA, SWEDEN

*AEROSOL PROPERTIES + *ATMOSPHERIC CHEMISTRY + *INSTRUMENTATION, METEOROLOGICAL + *MESOSPHERE + *RADON +
*STRATOSPHERE + *THORIUM + *TROPOSPHERE + AEROSOL + ATMOSPHERIC CIRCULATION, GLOBAL + CARBON DIOXIDE +
NITROGEN + NUCLEAR EXPLOSION DEBRIS + OXYGEN + PARTICLE SIZE DISTRIBUTION + TRACER, GENERAL

16-19686

ALSO IN CATEGORY 14

BYKHOVSKY AV + ZARAEV OM

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19686 *CONTINUED*

OBSERVATION OF HOT RADIOACTIVE PARTICLES IN THE ATMOSPHERIC AIR DURING 1962-64
7 PAGES, 5 FIGURES, 2 TABLES, GIGIENA Y SANITARIA 30(11), PAGES 47-54 (NOVEMBER 1965)

PRESENTS FINDINGS OF SYSTEMATIC OBSERVATIONS OVER THE CONTENT OF RADIOACTIVE AEROSOLS IN THE ATMOSPHERE. THE FILTERS, THROUGH WHICH 150-200 THOUSAND CUBIC METERS OF THE AIR WERE DRAWN, WERE ASSAYED AUTORADIOGRAPHICALLY. SEPARATE HOT PARTICLES WERE ISOLATED FROM THE FILTER AND SUBJECTED TO GAMMA SPECTROMETRY. BY MEANS OF A SECOND AUTORADIOGRAPHY, A NOMOGRAPH WAS DRAWN FOR CONVERTING THE RESULTS OF AUTORADIOGRAPHIC ASSAY OF FILTERS INTO VALUES EXPRESSING THE ACTIVITY OF SEPARATE AEROSOL PARTICLES. THE DATA POINT TO AN ABRUPT FALL IN THE CONCENTRATION OF HOT AEROSOL PARTICLES IN THE ATMOSPHERE DURING THE PERIOD 1963-64, WHEN THE TESTS OF NUCLEAR WEAPONS IN THE ATMOSPHERE WERE CEASED.

*AEROSOL, RADIOACTIVE + *SAMPLING + *UNION OF SOVIET SOCIALIST REPUBLICS + CONCENTRATION, AREA + FALLOUT + NUCLEAR EXPLOSION DEBRIS

16-19687

FUQUAY JJ + ELDERKIN CE

RECENT HANFORD DIFFUSION RESULTS SIGNIFICANT FOR ESTIMATING POLLUTION POTENTIAL

BATTELLE-NORTHWEST, RICHLAND

BNWL-SA-129 + CONF-660401-1 +. 21 PAGES, FOR PRESENTATION AT AMERICAN METEOROLOGICAL SOCIETY, AMERICAN GEOPHYSICAL UNION, ANNUAL JOINT MEETING, WASHINGTON, D. C., NOVEMBER 23, 1965

EXPERIMENTAL PROGRAMS AT THE HANFORD, WASHINGTON, AEC SITE IN RECENT YEARS WERE DESIGNED TO COLLECT DATA DEFINING DIFFUSION PATTERNS RESULTING FROM BOTH CONTINUOUS GROUND AND ELEVATED SOURCES. THESE DATA WERE ORGANIZED AS A FUNCTION OF TRAVEL TIME. MEASURED LATERAL-TURBULENCE PARAMETERS, AND STABILITY MEASUREMENTS INDICATING THE DEGREE OF VERTICAL TURBULENCE, ARE USED TO STRATIFY THE PLUME WIDTH AND PEAK EXPOSURE ESTIMATES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*ATMOSPHERIC DIFFUSION + *EXPERIMENT, GENERAL + *SOURCE, CONTINUOUS + *SOURCE, ELEVATED + *SOURCE, GROUND LEVEL + ATMOSPHERIC STABILITY + CONCENTRATION, GROUND LEVEL + HANFORD SITE + PLUME BEHAVIOR, GENERAL

16-19688

HAGE KD

PARTICLE FALLOUT AND DISPERSION BELOW 30 KM IN THE ATMOSPHERE. FINAL REPORT

TRAVELERS RESEARCH CENTER, INC., HARTFORD, CONN.

SC-DC-64-1463 +. 60 PAGES, REFERENCES, AUGUST 1964

THE MECHANISMS OF TRANSPORT AND DISPERSION OF AEROSOLS AND PARTICLES BELOW 30 KM IN THE ATMOSPHERE ARE REVIEWED IN TERMS OF THEIR RELATIVE IMPORTANCE FOR THE FALLOUT OF PARTICLES FORMED BY REENTRY ABLATION PROCESSES. THE RESULTS OF NUMEROUS EXPERIMENTAL STUDIES ARE BRIEFLY DESCRIBED AND USED TO CONSTRUCT DIAGRAMS OF RESIDENCE TIME AS A FUNCTION OF PARTICLE SIZE AND ALTITUDE, AND OF LATERAL CLOUD WIDTH AS A FUNCTION OF PARTICLE TRAVEL TIME. PRINCIPAL AREAS OF UNCERTAINTY IN FALLOUT PROBLEMS ARE DESCRIBED, TOGETHER WITH SUGGESTIONS FOR SOLUTIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DISPERSION + *FALLOUT + *THEORETICAL INVESTIGATION + ATMOSPHERIC DIFFUSION + COMPUTER PROGRAM, METEOROLOGICAL + DEPOSITION + PARTICLE SIZE + STRATOSPHERE + TROPOSPHERE

16-19689

MAKHON KO KP + DMITRIEVA GV

ABILITY OF DIFFERENT TYPES OF PRECIPITATION TO WASH-OUT FISSION PRODUCTS FROM THE ATMOSPHERE

6 PAGES, 3 FIGURES, 2 TABLES, 11 REFERENCES, ATM. AND OCEANIC PHYS 2(3), PAGES 177-82 (MARCH 1966)

TREATMENT OF IGY-IGC DATA ON RADIOACTIVITY OF SURFACE AIR AND PRECIPITATION ENABLED US TO CONCLUDE THAT MIST AND DRIZZLE HAVE THE BEST WASHOUT ABILITY FOR A GIVEN DAILY AMOUNT OF PRECIPITATION. THE RATE OF WASHOUT OF FISSION PRODUCTS BY PRECIPITATION IS ESTIMATED TO BE ABOUT 0.9 KM/DAY. THE WASHOUT CHARACTERISTICS FOR VARIOUS GEOGRAPHICAL REGIONS ARE COMPARED.

*AEROSOL, RADIOACTIVE + *MIST + *WASHOUT + ANALYTICAL TECHNIQUE, GENERAL + MEASUREMENT, GENERAL + PRECIPITATION

16-19875

ALSO IN CATEGORY 14

WATSON EC + SIMPSON CL

EFFECT OF WIND VARIABILITY ON ENVIRONMENTAL CONSEQUENCES OF PROLONGED RELEASES OF RADIOACTIVE CONTAMINANTS BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB. RICHLAND, WASH.

BNWL-SA-1058 + CONF-670402-1 + SM-89/53 +. 29 PAGES, JANUARY 26, 1967. FROM IAEA SYMPOSIUM ON THE CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS, VIENNA, AUSTRIA.

THE ENVIRONMENTAL CONSEQUENCES OF ATMOSPHERIC RELEASES OF RADIONUCLIDES ARE APPROXIMATED BY THE BIVARIATE NORMAL DIFFUSION MODEL. LATERAL GROWTH OF THE CLOUD DEPENDS ON TRAVEL TIME AND

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-19875 *CONTINUED*

IS RELATED TO VARIATIONS IN WIND VELOCITY. THE EFFECT OF WIND VARIABILITY ON ENVIRONMENTAL CONSEQUENCES IS TO REDUCE POTENTIAL EXPOSURES AT DOWNWIND POINTS OF INTEREST. THE DEGREE TO WHICH THESE EXPOSURES ARE REDUCED DEPENDS ON THE RATE OF RELEASE AND THE DILUTION RATE OF THE SOURCE TERM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONCENTRATION, GROUND LEVEL + *SAFETY ANALYSIS REPORT, METEOROLOGY + *SOURCE, CONTINUOUS + *SOURCE, ELEVATED + ATMOSPHERIC DIFFUSION + GAUSSIAN PLUME FORMULA + LAPSE RATE, STABLE + RADIOACTIVITY, RELEASE + WIND STATISTICS

16-19876 ALSO IN CATEGORY 14

DIEM M + ZEDLER P + WEISWEILER W + VAN DER LINDE KH
METEOROLOGICAL CONDITIONS GOVERNING THE PROPAGATION OF AIR-CONTAMINATING SUBSTANCES RELEASED FROM THE EURATOM REACTORS AT ISPRA, ITALY
TECHNISCHE HOCHSCHULE, METEOROLOGISCHES INSTITUT, KARLSRUHE, WEST GERMANY
EUR-3167.D +. 120 PAGES, 1967, IN GERMAN

THE WIND DIRECTION AT ISPRA IS INFLUENCED PREDOMINANTLY GEOGRAPHICALLY BY THE MOUNTAIN AND VALLEY WINDS AND IN WINTER BY THE FOEHN. THE AVERAGE WIND SPEED DOUBLES BETWEEN GROUND LEVEL AND A HEIGHT OF 120 M. THE DAILY TREND REVEALS A TWO-LAYER SYSTEM WHICH IS LIKEWISE DETERMINED BY THE OROGRAPHY. CALMS ARE VERY FREQUENT, WITH A PREFERENTIAL LIGHT BREEZE LAYER BETWEEN 30 AND 60 M. WITH THE OCCURRENCE OF THE OPPOSING WIND SYSTEM, THE PROPAGATION OF DUST AND GAS DEPENDS LARGELY ON THE HEIGHT OF THE SOURCE.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*ITALY + *SAFETY ANALYSIS REPORT, METEOROLOGY + *SITE CLIMATOLOGY + ATMOSPHERIC DIFFUSION + BREEZE, MOUNTAIN + BREEZE, VALLEY + CONCENTRATION, AREA + WIND PROFILE

16-19877

GBLANAS JW + COLLIS RT
LIDAR OBSERVATIONS OF THE PREGONDOLA I CLOUDS. FINAL REPORT
STANFORD RESEARCH INST., MENLO PARK, CALIF.
PNE-1110 +. 74 PAGES, 41 FIGURES, 2 TABLES, 4 REFERENCES, JANUARY 1967

THIS REPORT DESCRIBES LIDAR (LASER RADAR) OBSERVATIONS OF THE DUST AND STEAM CLOUDS THAT RESULTED FROM THE PRE-GONDOLA I SERIES OF FOUR CHEMICAL EXPLOSIONS MADE NEAR FORT PECK RESERVOIR, MONTANA, DURING OCTOBER-NOVEMBER 1966. THE NEODYMIUM LIDAR WAS WELL ABLE TO TRACK THE CLOUDS EVEN WHEN THEY BECAME TOO TENUOUS TO BE SEEN VISUALLY OR PHOTOGRAPHED. OBSERVATIONAL DATA WERE ANALYZED TO OBTAIN CLOUD DIMENSION, HEIGHT, VOLUME, RATE OF GROWTH, VOLUME BACKSCATTER COEFFICIENT AND RELATIVE DENSITY VARIATIONS. IT IS CONCLUDED THAT LIDAR TRACKING TECHNIQUES CAN PROVIDE INFORMATION ON THE POSITION, MOTION, RATE OF GROWTH, AND INTERNAL STRUCTURE OF VISIBLE AND SUBVISIBLE CLOUDS RESULTING FROM LARGE-SCALE EXPLOSIONS, AND RECOMMENDATIONS ARE MADE FOR IMPROVING THE OPERATIONAL EFFICIENCY OF THE TECHNIQUE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ATMOSPHERIC DIFFUSION + *LASER + *PLOWSHARE PROGRAM + DEPOSITION + INSTRUMENTATION, METEOROLOGICAL + SOURCE, INSTANTANEOUS + WIND PROFILE

16-20081

PETERSON CO + DAILEY WV + AMRHEIN WG
APPLYING NON-DISPERSIVE INFRARED TO ANALYZE POLLUTED STACK GASES
MINE SAFETY APPLIANCES CO.
4 PAGES, 5 FIGURES, 3 REFERENCES, INSTR. TECH. 14(8), PP. 45-48 (AUGUST 1967)

SOME AIR POLLUTANTS ARE TOO TOXIC AND REACTIVE TO ANALYZE EASILY. YET THESE SAME PROPERTIES MAKE IT IMPERATIVE TO FIND WAYS FOR ACCURATELY MEASURING PROCESS EFFLUENTS IN PARTS-PER-MILLION RANGES. HERES A REVIEW OF HOW NONDISPERSIVE INFRARED ANALYZERS OPERATE AND HOW ONE CAN BE SENSITIZED TO MEASURE LOW CONCENTRATIONS OF A TOXIC AND CORROSIVE EFFLUENT LIKE NITROGEN DIOXIDE.

*INSTRUMENTATION, SURVEILLANCE + *NITROGEN + *OXIDE + *STACK + ATMOSPHERIC POLLUTION + MONITORING PROGRAM, ENVIRONMENTAL

16-20082

WILLIAMS AJ
THE USE OF A RADIOACTIVE BETA SOURCE TO MONITOR HIGH AIRBORNE-DUST CONCENTRATIONS
MINISTRY OF POWER, SAFETY IN MINES RESEARCH ESTABLISHMENT, BUXTON, DERBYSHIRE
2 PAGES, 2 FIGURES, 3 REFERENCES, J. SCI. INSTR., 44(7), PP. 562-563 (JULY 1967)

AN SR-90/YT-90 5-MCI SOURCE WAS USED TO MEASURE COAL-DUST CONCENTRATIONS IN AIR UP TO 2 MG PER CC AS PART OF A STUDY OF DUST EXPLOSIONS. THIS BASICALLY SIMPLE METHOD OFFERS SEVERAL

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20082 *CONTINUED*

ADVANTAGES OVER OTHER MEANS OF CONTINUOUSLY MEASURING HIGH DUST CONCENTRATIONS BUT REQUIRES A PRELIMINARY CALIBRATION.

*ATMOSPHERIC POLLUTION + *INSTRUMENTATION, AIR SAMPLING + *MONITORING PROGRAM, ENVIRONMENTAL + CONCENTRATION, AREA + EXPLOSION + PARTICULATE + STRONTIUM

16-20083 ALSO IN CATEGORY 15

RYSEV OA + ROSYANOV SP + ZHILKINA MI + GEDEONOV LI

METHOD OF RADIOCHEMICAL ISOLATION OF BE7, P32, P33, AND S35 FROM ONE SAMPLE IN THE STUDY OF ATMOSPHERIC PRECIPITATES AND AEROSOLS

4 PAGES, 3 FIGURES, 15 REFERENCES, RADIOKHIMIYA, 8(2), PP. 251-254 (MARCH-APRIL 1966)

METHOD OF DETERMINING BE-7, P-32, AND S-35 IN SAMPLES OF ATMOSPHERIC AEROSOLS COLLECTED ON FIBROUS FILTERS, BASED ON ION-EXCHANGE SEPARATION OF THE NUCLIDES AND THEIR SUBSEQUENT RADIOCHEMICAL PURIFICATION. ALSO, PROVIDES A METHOD FOR FREEZING THE NUCLIDES DETERMINED FROM FISSION PRODUCTS PRESENT IN THE ATMOSPHERE AFTER TESTING OF A NUCLEAR WEAPON. AN INVESTIGATION OF THE DISTRIBUTION OF THE CONCENTRATIONS OF THE ABOVE ISOTOPES WITH TIME WAS CARRIED OUT AT A POINT ABOVE THE EARTH, WHERE SAMPLES WERE TAKEN OF ATMOSPHERIC PRECIPITATES, FALLOUT, AND ATMOSPHERIC AEROSOLS.

*AEROSOL, RADIOACTIVE + *ANALYTICAL MODEL + *RADIOCHEMICAL ANALYSIS + ATMOSPHERIC CHEMISTRY + FALLOUT + PRECIPITATION

16-20084 ALSO IN CATEGORY 14

GIFFORD GA

THE RISE OF STRONGLY RADIOACTIVE PLUMES

US DEPARTMENT OF COMMERCE, WASHINGTON, D. C.

5 PAGES, FIGURES, REFERENCES, JOURNAL OF APPLIED METEOROLOGY, VOL. 6(4), PP. 644-649 (AUGUST 1967)

THE PRESENCE OF RADIOACTIVE GASES IN A PLUME, SUCH AS COULD OCCUR IN A REACTOR ACCIDENT, LEADS TO THE ADDITION OF BUOYANCY TO THE PLUME AT AN APPROXIMATELY LINEAR RATE. BUOYANCY MIGHT ALSO BE ADDED TO PLUMES BY CHEMICAL REACTIONS, RADIATION, OR LATENT HEAT EXCHANGE. THE RESULTING PLUME RISE IS CALCULATED BY A MODEL SIMILAR TO THAT USED TO CALCULATE THE RISE OF ORDINARY PLUMES. THE CASE OF A RADIOACTIVE PLUME IS EXAMINED IN SOME DETAIL. FOR THE SLOW LEAKAGE OF RADIOACTIVE GASES ASSUMED TO OCCUR UNDER POSTULATED REACTOR ACCIDENT CONDITIONS, PLUME RISE DUE TO RADIOACTIVITY CAN BE NEGLECTED. FOR FASTER LEAKAGE RATES OR FOR LARGER REACTORS, PLUME RADIOACTIVITY LEADS TO SIGNIFICANT RISES.

*BUOYANT RISE + *MATHEMATICAL TREATMENT + *RADIOACTIVITY, RELEASE + CONCENTRATION, GROUND LEVEL + HEIGHT OF RISE + PLUME BEHAVIOR, GENERAL + SAFETY STUDY + SOURCE, CONTINUOUS

16-20085

SMITH FB

MODIFICATION OF THE WIND PROFILE DUE TO CHANGES IN SURFACE ROUGHNESS

DEPARTMENT OF COMMERCE, ESSA, OAK RIDGE, TENN.

16 PAGES, FIGURES, PRESENTED AT CHALK RIVER METEOROLOGICAL INFORMATION MEETING, SEPTEMBER 11-14, 1967

EQUATIONS FOR THE MEAN WIND SPEED, THE TURBULENT SHEARING STRESS, AND THE EDDY DIFFUSIVITY ARE FORMULATED IN TERMS OF HEIGHT ABOVE GROUND, DOWNWIND DISTANCE, AND A SURFACE-DRAG COEFFICIENT, APPLICABLE TO A LAYER IN WHICH THE CORIOLIS EFFECTS ARE DEEMED NEGLIGIBLE. SEVERAL NUMERICAL EXPERIMENTS WERE RUN, GIVING OSTENSIBLY SENSIBLE CHANGES IN THE WIND PROFILE. MODIFICATIONS TO THE BASIC EQUATIONS, TO ALLOW FOR VERTICAL VELOCITIES ARISING FROM HEIGHT CHANGES OF THE GROUND AND FROM HORIZONTAL RETARDATION OF THE AIR, ARE SUGGESTED.

AVAILABILITY - F. B. SMITH, ATDL, ESSA, OAK RIDGE, TENNESSEE

*TURBULENCE, SHEAR (WIND) + *WIND PROFILE + COMPUTER PROGRAM, METEOROLOGICAL + LAPSE RATE, ADIABATIC, NEUTRAL + MATHEMATICAL TREATMENT + MIXING DEPTH + THEORETICAL INVESTIGATION

16-20086

SMITH FB

THE EULERIAN-LAGRANGIAN TIME-SCALE RELATIONSHIP IN ONE-DIMENSIONAL TURBULENCE

US DEPARTMENT OF COMMERCE, ESSA, OAK RIDGE, TENN.

8 PAGES, FIGURES, PRESENTED AT THE CHALK RIVER METEOROLOGICAL INFORMATION MEETING, SEPTEMBER 11-14, 1967

A RELATION BETWEEN THE TWO TIME SCALES IS FOUND FROM CONSIDERATIONS OF PARTICLE ACCELERATION WHICH AGREE WELL WITH EXPERIMENTALLY DETERMINED VALUES. TWO BASIC ASSUMPTIONS ARE MADE - THAT THE RATE OF CHANGE OF PARTICLE VELOCITY, RELATIVE TO THE MEAN WIND, IS DUE PRIMARILY TO ITS TRANSITION THROUGH THE COMPLEX TURBULENT FIELD AND NOT TO THE LOCAL TIME-DISTORTIONS OF THIS FIELD, ALSO THAT THE EULERIAN AND LAGRANGIAN ACCELERATION CORRELIGRAMS ARE MATHEMATICALLY SIMILAR. EXTENSIONS TO TWO- AND THREE-DIMENSIONAL TURBULENT FIELDS ARE POSSIBLE BUT CUMBERSOME AND RESULT IN LITTLE CHANGE IN THE TIME-SCALE RELATIONSHIP.

AVAILABILITY - F. B. SMITH, ATDL, ESSA, OAK RIDGE, TENNESSEE

*MATHEMATICAL TREATMENT + *THEORETICAL INVESTIGATION + *TURBULENCE, STATISTICS + ATMOSPHERIC STABILITY + METEOROLOGY

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20087

GIFFORD FA

VARIATION OF THE LAGRANGIAN-EULERIAN TIME SCALE RELATIONSHIP WITH STABILITY
ATMOSPHERIC TURBULENCE AND DIFFUSION LAB., ESSA OAK RIDGE, TENN.

16 PAGES, 2 FIGURES, 8 REFERENCES, SEPT. 1967, PRESENTED AT THE CHALK RIVER METEOROLOGICAL INFORMATION MEETING, SEPT. 11-14, 1967

A MODEL OF EULERIAN FIXED-POINT TURBULENT-VELOCITY FLUCTUATIONS IS COMBINED WITH THE INERTIAL RANGE FORM OF THE EDDY-ENERGY SPECTRUM TO FIND AN APPROXIMATE RELATIONSHIP BETWEEN THE LAGRANGIAN AND EULERIAN FIXED-POINT TIME-SCALES INVOLVING THE EDDY-ENERGY DISSIPATION RATE. THIS IS EVALUATED BY VARIOUS SCHEMES INVOLVING THE SIMILARITY FORMS OF THE SURFACE LAYER WIND PROFILE AND THE RESULTS COMPARED WITH OBSERVED VALUES BASED ON SURFACE LAYER WIND AND DISPERSION MEASUREMENTS. IN AGREEMENT WITH DATA, THE LAGRANGIAN-EULERIAN SCALE RATIO, BETA, IS FOUND TO VARY WITH STABILITY, BEING EQUAL TO 1-3 DURING DAYTIME UNSTABLE CONDITIONS, AND 6-12 DURING NIGHTTIME STABLE CONDITIONS.

AVAILABILITY - ATMOSPHERIC TURBULENCE AND DIFFUSION LAB., ESSA, OAK RIDGE, TENN.

*LAPSE RATE, STABLE + *LAPSE RATE, UNSTABLE + *TURBULENCE, STATISTICS + THEORETICAL INVESTIGATION + WIND PROFILE

16-20088

GIFFORD F + WATERFIELD R

SIMPLIFIED ATMOSPHERIC DIFFUSION CALCULATIONS WITH SLIDE-RULE GAGE POINTS

U. S. DEPARTMENT OF COMMERCE, ESSA, OAK RIDGE

6 PAGES, 2 FIGURES, 5 REFERENCES, SEPT. 1967, PRESENTED AT THE PROCEEDINGS OF THE CHALK RIVER METEOROLOGICAL INFORMATION MEETING, SEPT. 11-14, 1967

GAGE POINTS ARE GIVEN, WITH THE HELP OF WHICH THE MOST COMMONLY REQUIRED ATMOSPHERIC DIFFUSION CALCULATIONS CAN BE CARRIED OUT RAPIDLY USING A SIMPLE SLIDE-RULE SETTING, E.G., MAXIMUM GROUND CONCENTRATION, ITS DISTANCE, AND THE CORRESPONDING EFFECTIVE STACK HEIGHT AS FUNCTIONS OF THE PREVAILING TYPE OF METEOROLOGICAL CONDITION.

AVAILABILITY - ATMOSPHERIC TURBULENCE AND DIFFUSION LABORATORY, ESSA, OAK RIDGE, TENN.

*CONCENTRATION, MAXIMUM + *DISTANCE + ATMOSPHERIC STABILITY + COMPUTER PROGRAM, METEOROLOGICAL + DIFFUSION + SOURCE, ELEVATED + SOURCE, GROUND LEVEL

16-20090

ALSO IN CATEGORY 14

BELCKHOVA NC + KAROL IL

A CONTRIBUTION TO THE THEORY OF RADIOACTIVE EMANATION PROPAGATION IN THE SURFACE LAYER OF THE ATMOSPHERE
9 PAGES, 1 FIGURE, 2 TABLES, 15 REFERENCES, FIZ. ATMOS OKEANA, 3(7), PAGE 733-741 (1967) IN RUSSIAN

THE ONE-DIMENSIONAL PROBLEM OF THE RADIOACTIVE EMANATION VERTICAL PROPAGATION IN THE SOIL AIR AND IN THE BOUNDARY LAYER OF THE ATMOSPHERE IS CONSIDERED FOR THE SHVETZ-YUDIN MODEL OF VERTICAL TURBULENT DIFFUSION COEFFICIENT $K_{\text{SUB-2}}$ CHANGING WITH HEIGHT. IT IS FOUND THAT THIS PROBLEM IS QUASI-STATIONARY FOR THORON (Rn-220). THE CHANGE OF $K_{\text{SUB-2}}$ IN THE SURFACE LAYER OF THE ATMOSPHERE HAS NO INFLUENCE ON THE EXHALATION RATE OF RADON, AND IT HAS SMALL INFLUENCE ON THE EXHALATION RATE OF THORON UNDER THE CONSIDERED ASSUMPTIONS. THE OBTAINED FORMULAE ARE APPLIED TO THE ESTIMATES OF THE DAILY VARIATION OF $K_{\text{SUB-2}}$ IN THE FIRST SEVERAL METERS ABOVE THE GROUND AND TO THE THORON EXHALATION RATE USING THE PUBLISHED DATA OF THORON CONCENTRATION MEASUREMENTS IN THE SURFACE LAYER OF THE ATMOSPHERE.

*BOUNDARY LAYER + *DIFFUSION COEFFICIENT + *SOIL, NUCLIDE OCCURRENCE + *THEORETICAL INVESTIGATION + AEROSOL, RADIOACTIVE + ATMOSPHERIC STABILITY + TESTING + THORON

16-20091

ISONO K + KOMABAYASHI M + TAKAHASHI T

A PHYSICAL STUDY OF SOLID PRECIPITATION FROM CONVECTIVE CLOUDS OVER THE SEA. PART 1. DEUTERIUM CONTENT OF SNOW CRYSTALS WITH RESPECT TO CRYSTAL SHAPES AND THEIR RELATION TO ORIGINS OF THE WATER VAPOR OF SNOWFALL.

WATER RESEARCH LABORATORY, NAGOYA UNIVERSITY, NAGOYA

7 PAGES, 2 FIGURES, 5 TABLES, 30 REFERENCES, J. METEOROL. SOC. JAP., 44, PAGES 178-184 (JUNE 1966)

DEUTERIUM CONTENT OF SNOW CRYSTALS WITH RESPECT TO CRYSTAL SHAPES WAS DETERMINED FOR SNOW WHICH FELL ON THE COAST OF JAPAN FACING THE JAPAN SEA. THE DIFFERENCE IN THE DEUTERIUM-TO-HYDRONIUM ATOM RATIO BETWEEN TYPES OF CRYSTAL SHAPES IS LIKELY DUE TO THE DIFFERENCE IN VERTICAL DEVELOPMENT OF THE PRECIPITATING CLOUDS. TEMPERATURES OF THE SEA SURFACE FROM WHICH THE WATER FOR THE SNOW FALL HAD EVAPORATED WERE ESTIMATED FROM THE DEUTERIUM-TO-HYDRONIUM RATIO OF SNOW SAMPLES.

*CONCENTRATION, GROUND LEVEL + *DEUTERIUM + *PRECIPITATION + ANALYTICAL MODEL + ATMOSPHERIC CIRCULATION, GLOBAL + HYDROGEN + JAPAN + RAINOUT + WASHOUT

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20542
STUEMKE H
SUGGESTIONS FOR AN EMPIRICAL FORMULA FOR CHIMNEY ELEVATION
STUTTGART, TECHNISCHE HOCHSCHULE, GERMANY
ORNL-TR-977 +. 24 PAGES, 5 FIGURES, 11 TABLES, TRANSLATED FROM STAUB 23, PAGE 549-556, (1963)

TESTS THE HOLLAND AND LUCAS FORMULAS FOR THE EFFECTIVE STACK HEIGHT WITH THE AVAILABLE
EXPERIMENTAL DATA. PRESENTS AN EMPIRICAL FORMULA THAT GIVES A MORE ACCURATE DESCRIPTION OF
THE EFFECTIVE STACK HEIGHT FOR THE EXISTING EXPERIMENTAL DATA THAN THE HOLLAND AND LUCAS
EQUATIONS.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD. ST., CHICAGO, ILLINOIS, 60616

*EQUATION, GENERAL + *HEIGHT OF RISE + *SOURCE, ELEVATED + ATMOSPHERIC STABILITY + EFFLUENT +
GAUSSIAN PLUME FORMULA + PLUME BEHAVIOR, GENERAL

16-20589
ENGELMANN RJ + HAGEN DI + HALLER WA + PERKINS RW
WASHOUT COEFFICIENTS FOR SILVER IODIDE
BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-SA-798 + CONF-670106-1 +. 13 PAGES, SEPT. 21, 1965, PRESENTED AT 47TH ANNUAL MEETING OF THE AMERICAN
METEOROLOGICAL SOCIETY, NEW YORK

SIX WASHOUT COEFFICIENTS FOR AGI PARTICLES WERE MEASURED IN LIGHT SNOW, AND ONE IN RAIN.
THESE ARE ON THE ORDER OF 2×10^{16} PER SEC FOR A SNOWFALL OF 1 MM/HR AND APPEAR TO BE
RELATED TO PRECIPITATION RATE. ALTHOUGH NOT LARGE, THE WASHOUT IS SIGNIFICANT WHEN
DETERMINING CLOUD-SEEDING SUCCESS FROM THE SILVER CONTENT OF SAMPLES. CALCULATIONS ARE GIVEN
OF THE AREA OF SNOWFIELD CONTAMINATED TO A CHOSEN LEVEL OF SILVER THROUGH THE PROCESS OF
WASHOUT. NATURALLY OCCURRING SILVER BACKGROUNDS ARE ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*WASHOUT + AEROSOL + ANALYTICAL TECHNIQUE, AIR + CONCENTRATION, AREA + MEASUREMENT, GENERAL + PRECIPITATION

16-20590
PASQUILL F
THE VERTICAL COMPONENT OF ATMOSPHERIC TURBULENCE AT HEIGHTS UP TO 1200 METRES
METEOROLOGICAL OFFICE, BRACKNELL, BERKSHIRE, ENGLAND
10 PAGES, FIGURES, REFERENCES, ATMOSPHERIC ENVIRONMENT, 1(4), PAGE 441-450 (JULY 1967)

MEASUREMENTS OF THE VERTICAL COMPONENT OF TURBULENCE WERE ATTEMPTED AT HEIGHTS OF 300 AND 1200
METERS. THE DATA ARE IN THE FORM OF STANDARD DEVIATIONS OF THE ANGLE OF INCLINATION
SPECIFIED FOR EQUIVALENT SAMPLING TIMES, UP TO 1 HR, AND AVERAGING TIMES DOWN TO 1 SEC. THE
ANALYSIS SHOWS THAT BOTH THE LOW- AND HIGH-FREQUENCY CONTRIBUTIONS TO THIS ANGULAR DEVIATION
VARY OVER A WIDE RANGE AT ANY GIVEN WIND SPEED BUT THAT THE HIGHEST VALUES AT ANY GIVEN WIND
SPEED SHOW A MARKED FALL OFF WITH INCREASING WINDS. THIS CONFIRMS EARLIER INDICATIONS AND IS
IN CONTRAST TO THE BEHAVIOR MUCH CLOSER TO THE GROUND.

*TURBULENCE, CONVECTIVE + *WIND PROFILE + ATMOSPHERIC STABILITY + BOUNDARY LAYER + MEASUREMENT, GENERAL +
TURBULENCE, MECHANICAL

16-20591 ALSO IN CATEGORY 15
SWETNAM RL
NUCLEAR CLOUD SAMPLING SYSTEM
GENERAL DYNAMICS, POMONA, CALIFORNIA
UCRL-13215 +. 25 PAGES, FIGURES, 1966

DEVELOPED AN IMPROVED SAMPLING VEHICLE, RESULTING IN THE DESIGN OF AN UNGUIDED VEHICLE, LAUNCH
SYSTEM, AND AIRCRAFT INSTALLATION CAPABLE OF COLLECTING A DEBRIS AND GAS SAMPLE FROM A
NUCLEAR CLOUD FORMED BY DETONATION OF A NUCLEAR DEVICE WITH A YIELD IN THE RANGE 500 KT TO 10
MT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL, RADIOACTIVE + *NUCLEAR EXPLOSION DEBRIS + *SAMPLING, HIGH ALTITUDE + AEROSPACE SAFETY +
AIRCRAFT + DESIGN STUDY + DOSE MEASUREMENT, EXTERNAL + FALLOUT + MONITOR, RADIATION, SAMPLING

16-20592 ALSO IN CATEGORY 14
HUZITA A
EFFECT OF RADIOACTIVE FALLOUT UPON THE ELECTRICAL CONDUCTIVITY OF LOWER ATMOSPHERE
RADIATION CENTRE OF OSAKA PREFECTURE, SAKAI, OSAKA
10 PAGES, 5 FIGURES, 4 TABLES, REFERENCES, JOURNAL OF GEOMAGNETISM AND GEOELECTRICITY, 18(3), PAGE 363-372

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20592 *CONTINUED*
(1966)

STUDIED THE EFFECT OF RADIOACTIVE FALLOUT UPON THE ELECTRICAL CONDUCTIVITY OF THE LOWER ATMOSPHERE. THE CONDUCTIVITY INCREASED TEMPORARILY IN KYOTO SOON AFTER THE TEST EXPLOSION (50-MEGATON CLASS) CARRIED OUT ON OCTOBER 30, 1961. IT SEEMED REASONABLE TO RELATE THE INCREASE IN CONDUCTIVITY WITH THE INCREASE IN DRY FALLOUT ACCUMULATION ON THE GROUND SURFACE, NOT WITH THE INCREASE IN CONCENTRATION OF RADIOACTIVE DUSTS IN THE AIR.

*ATMOSPHERIC ELECTRICITY + *NUCLEAR EXPLOSION DEBRIS + AEROSOL, RADIOACTIVE + ANALYTICAL TECHNIQUE, AIR + ATMOSPHERIC DIFFUSION + FALLOUT + RAINOUT

16-20683
STORY EJ + TRUNDLE AS
TRACKING RADIOACTIVITY FROM THE AIR
EDGERTON, GERMESHAUSEN AND GRIER, INC.
4 PAGES, 5 FIGURES, INSTRUM. CONTR. SYST. 29, PAGE 105-108, (NOV. 1966)

DESCRIBES PROCEDURES AND INSTRUMENTATION OF AIRCRAFT USED IN MONITORING RADIOACTIVE EFFLUENT FROM THE NEVADA TEST SITE. THE SYSTEM CAN DETECT AND TRACK AIRBORNE NUCLEAR DEBRIS, AND DELINEATE FALLOUT PATTERNS ON THE GROUND, PROVIDE RELATED METEOROLOGICAL INFORMATION, COLLECT AIR SAMPLES WITH PRELIMINARY IN-FLIGHT EVALUATION, AND IDENTIFY RADIOISOTOPES.

*INSTRUMENTATION, RADIATION MONITORING + *NEVADA TEST SITE + *NUCLEAR EXPLOSION DEBRIS + DOSE MEASUREMENT, EXTERNAL + FALLOUT + INSTRUMENTATION, AIR SAMPLING + RADIOACTIVITY, RELEASE

16-20684 ALSO IN CATEGORY 1
SWANSON AE + BATES FC
TORNADO DESIGN CONSIDERATIONS FOR NUCLEAR POWER PLANTS
UNIVERSITY OF ST. LOUIS + BLACK AND VEATCH
20 PAGES, 7 FIGURES, 5 REFERENCES, ABSTRACT IN ANS TRANSACTIONS 10(2), PAGE 712 AND 713, (NOVEMBER 1967), PRESENTED AT THE 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOV. 5-9, 1967

POTENTIAL TORNADO DAMAGE IS A RESULT OF DIRECT WIND PRESSURES AND BARGMETRIC PRESSURE DROP AS WELL AS THE EFFECTS OF PENETRATING MISSILES SET IN MOTION BY THE TORNADO. THIS DISCUSSION PRESENTS A MODEL OF A TORNADO, MODES OF MISSILE INJECTION, AND AERODYNAMICS OF AIRBORNE MISSILES.

*DESTRUCTIVE WIND + *REACTOR, POWER + MATHEMATICAL STUDY + METEOROLOGICAL SUPPORT + SAFETY STUDY + SITING, REACTOR

16-20685
HINDS WT
VARIATION OF CONCENTRATION IN PLUMES AND BUILDING WAKES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.
BNWL-SA-1400 + CONF-670931-7 +. 41 PAGES, FIGURES, SEPT. 5, 1967, PRESENTED AT USAEC METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

A SHORT SERIES OF EXPERIMENTS TO DEFINE THE EFFECT OF WAKE FLOW ON THE VARIANCE OF CONCENTRATION IS DESCRIBED. THE TIME HISTORY OF CONCENTRATION AT A POINT IN BUILDING WAKES FROM GROUND LEVEL SOURCES DIFFERED LITTLE FROM THAT OBSERVED IN A PLUME FROM A POINT SOURCE. AN APPROXIMATE POWER-LAW DEPENDENCE OF PEAK-TO-MEAN RATIOS ON AVERAGING INTERVAL WAS OBSERVED IN BOTH WAKES AND UNOBSTRUCTED PLUMES, BUT GROUND LEVEL SOURCES IN WAKE FLOW YIELDED PEAK-TO-MEAN RATIOS COMPARABLE TO THOSE OBSERVED FROM UNOBSTRUCTED ELEVATED SOURCES. THUS, IT IS SURMISED THAT ELEVATED RELEASES INTO WAKE FLOW PROBABLY WILL YIELD GREATER PEAK-TO-MEAN RATIOS THAN UNOBSTRUCTED ELEVATED SOURCES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*PLUME BEHAVIOR, GENERAL + *SOURCE, GROUND LEVEL + *TURBULENCE, MECHANICAL + ATMOSPHERIC STABILITY + CONCENTRATION, GROUND LEVEL + EXPERIMENT, GENERAL + SOURCE, ELEVATED + WIND PROFILE

16-20686
COOPER RE + RUSCHE BC
SRL METEOROLOGY SYSTEM
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.
DP-MS-67-68 + CONF-670931-2 +. 11 PAGES, FIGURES, REFERENCES, SEPT. 1967, PRESENTED AT USAEC METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

DESCRIBES THE FACILITIES USED IN THE METEOROLOGICAL PROGRAM AND OPERATIONAL EXPERIENCE WITH THE PROGRAM. THE PRIMARY FACILITY BEING USED IS A TV TOWER INSTRUMENTED TO A HEIGHT OF 1200 FT. ANOTHER TOWER HAS INSTRUMENTS TO 110 FT. NO PROBLEMS DUE TO RF PICKUP HAVE BEEN ENCOUNTERED AT THE TV TOWER. AVAILABILITY OF THE EQUIPMENT HAS BEEN BETTER THAN 90% SINCE FEBRUARY 1966.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20686 *CONTINUED*

*INSTRUMENTATION, METEOROLOGICAL + *SAVANNAH RIVER PLANT + *SITE CLIMATOLOGY + ATMOSPHERIC DIFFUSION +
ATMOSPHERIC STABILITY + WIND PROFILE + WIND STATISTICS

16-20687

ELDERKIN CE

COMPARISON OF TURBULENCE SPECTRA FROM HANFORD, WASHINGTON AND LIBERAL, KANSAS

BATTELLE-NORTHWEST, RICHLAND, WASH., PACIFIC NORTHWEST LAB.

BNWL-SA-1403 + CONF-670931-5 +. 13 PAGES, FIGURES, REFERENCES, SEPT. 5, 1967, PRESENTED AT USAEC
METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

TURBULENCE MEASUREMENTS WERE MADE AT HANFORD, WASHINGTON, AND AT LIBERAL, KANSAS. THE SAME
INSTRUMENT WAS USED FOR MEASURING THE THREE COMPONENTS OF THE WIND AT BOTH SITES. IN SPITE
OF THE DIFFERENCE IN PHYSICAL CHARACTERISTICS OF THE TWO SITES, THE NORMALIZED SPECTRAL
DISTRIBUTIONS FOR EACH OF THREE COMPONENTS HAVE SIMILAR SHAPES AT THE TWO SITES,
DEMONSTRATING OCCURRENCE OF PEAKS AND APPROACHES TO THE INERTIAL SUBRANGE IN COMPARABLE
RANGES OF NORMALIZED WAVE NUMBER NZ/U .

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*STATISTICAL CORRELATION + *TURBULENCE, STATISTICS + ATMOSPHERIC STABILITY +
COMPUTER PROGRAM, METEOROLOGICAL + EXPERIMENT, GENERAL + HANFORD SITE + INSTRUMENTATION, METEOROLOGICAL +
WIND PROFILE

16-20688

SLINN WG

PRECIPITATION SCAVENGING OF SUBMICRON PARTICLES. PART A. THEORY

BATTELLE-NORTHWEST, RICHLAND, WASH., PACIFIC NORTHWEST LAB.

BNWL-SA-1402 + CONF-670931-10 +. 14 PAGES, SEPT. 5, 1967, PRESENTED AT USAEC METEOROLOGICAL INFORMATION
MEETING, CHALK RIVER, ONTARIO, CANADA

FOR THE PRECIPITATION SCAVENGING OF SUBMICRON-DIAMETER PARTICLES, INERTIAL EFFECTS ARE SHOWN
TO BE NEGLIGIBLE BY TRANSFORMING NEWTONS LAW TO THE MASS-INDEPENDENT SMOLUCHOWSKI EQUATION.
THE IMPORTANCE OF ELECTRICAL EFFECTS CAN BE DISPLAYED THEORETICALLY, BUT THEIR EVALUATION
REQUIRES MORE SPECIFIC INFORMATION ABOUT THE CHARGES ON RAINDROPS AND PARTICLES.
HEAT-TRANSFER DATA IS USED TO CALCULATE THE WASHOUT COEFFICIENT, AND THE RESULT IS A FACTOR
OF 2 TO 10 BELOW ZIMANS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *PRECIPITATION + *WASHOUT + ELECTROSTATIC CHARGE + MATHEMATICAL TREATMENT + PARTICULATE +
THEORETICAL INVESTIGATION

16-20689

HAGEN DI

PRECIPITATION SCAVENGING OF SUBMICRON PARTICLES. PART B. COMPARISON OF THEORY WITH FIELD EXPERIMENTS

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON. PACIFIC NORTHWEST LAB.

BNWL-SA-1405 + CONF-670931-6 +. 12 PAGES, FIGURES, TABLES, SEPT. 5, 1967 PRESENTED AT USAEC
METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

CALCULATIONS BASED ON CONVECTIVE AND BROWNIAN DIFFUSION PREDICTED, WITHIN EXPERIMENTAL ERROR,
THE RAIN-WASHOUT COEFFICIENTS MEASURED IN THE FIELD FOR SUBMICRON SILVER IODIDE PARTICLES.
THESE PARTICLES, SIMILAR TO THOSE USED IN CLOUD-SEEDING WORK, HAVE A LOG-NORMAL DISTRIBUTION
WITH GEOMETRIC MEAN DIAMETER OF 0.012 MICRON.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*PARTICULATE + *PRECIPITATION + *WASHOUT + COALESCENCE + DIFFUSION + EXPERIMENT, GENERAL

16-20690

DOTSON WL + NICKOLA PW + WOLF MA

REAL TIME SAMPLING OF ZINC SULFIDE TRACER IN DIFFUSION STUDIES

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1407 + CONF-670931-4 +. 19 PAGES, FIGURES, SEPTEMBER 5, 1967, PRESENTED AT USAEC METEOROLOGICAL
INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

A REAL-TIME SAMPLER WAS DEVELOPED FOR MEASURING INSTANTANEOUS ATMOSPHERIC CONCENTRATIONS OF
ZINC SULFIDE PARTICLES. THE REQUIREMENTS FOR SUCH AN INSTRUMENT AND ITS SUBSEQUENT
EVALUATION FOR BOTH SURFACE AND AIRBORNE APPLICATION ARE PRESENTED. SALIENT FEATURES OF
REAL-TIME SAMPLER RECORDS FROM SEVERAL DIFFUSION TESTS ARE DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*ATMOSPHERIC DIFFUSION EXPERIMENT + *INSTRUMENTATION, METEOROLOGICAL + *SAMPLING +

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-20690 *CONTINUED*
CONCENTRATION, CROSSWIND INTEGRATED + CONCENTRATION, ISOPLETH + MEASUREMENT, GENERAL + PARTICULATE

16-20691

HINDS WT

THE MOUNTAIN IRON DIFFUSION PROGRAM

BETTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1401 + CONF-670931-8 +. 30 PAGES, FIGURES, SEPT. 5, 1967, PRESENTED AT USAEC METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

FROM NOVEMBER 1965 THROUGH JULY 1966, A LARGE-SCALE PROGRAM TO ILLUMINATE THE DIFFUSION CHARACTERISTICS OF MARINE AIR OVER COASTAL RANGE MOUNTAINS WAS CARRIED OUT AT VANDENBURG AIR FORCE BASE. THE EXPERIMENTAL DESIGN FOR THIS PROGRAM IS OUTLINED, AND SALIENT FEATURES OF DIFFUSION ANALYSIS ARE PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ATMOSPHERIC DIFFUSION EXPERIMENT + *TOPOGRAPHY + CONCENTRATION, CENTERLINE, MAXIMUM + GEOLOGICAL CONSIDERATION, GENERAL + INSTRUMENTATION, METEOROLOGICAL + PLUME BEHAVIOR, GENERAL

16-20756

ENGELMANN RJ

RAIN SCAVENGING OF ZINC SULFIDE PARTICLES

HANFORD LABORATORIES, RICHLAND, WASHINGTON

HW-SA-3544 +. 9 PAGES, 8 FIGURES, 2 TABLES, REFERENCES, JOURNAL OF THE ATMOSPHERIC SCIENCES, 22(6), PAGE 719-727 (NOVEMBER 1965)

SEVERAL SCAVENGING EXPERIMENTS WERE CONDUCTED USING ARTIFICIAL RAIN IN THE OUTDOORS WITH ZINC SULFIDE TRACER PARTICLES. THE FOUR MAIN CHARACTERISTICS OF THE COLLECTION EFFICIENCIES ARE - HIGHER EFFICIENCIES FOR DROPS OF ABOUT 0.4 MM DIAMETER, EFFICIENCIES GREATER THAN 1.0 WITH ALL DROPS FOR PARTICLES LARGER THAN 13 MICRONS, A RAPID INCREASE IN EFFICIENCY WITH PARTICLE SIZE IN THE GENERAL REGION OF 10 MICRONS, AND AN APPARENT MINIMUM FOR ALL PARTICLE SIZES WITH DROP SIZES OF ABOUT 0.8 MM DIAMETER.

*PARTICLE SIZE DISTRIBUTION + *PRECIPITATION + *WASHOUT + ATMOSPHERIC STABILITY + COALESCENCE + EXPERIMENT, GENERAL + INSTRUMENTATION, METEOROLOGICAL

16-20757

THE INVESTIGATION OF AIR POLLUTION. NATIONAL SURVEY OF SMOKE AND SULPHUR DIOXIDE. MONTHLY SUMMARY, NOVEMBER 1966

WARREN SPRING LABORATORY, GREAT BRITAIN. MINISTRY OF TECHNOLOGY

23 PAGES, TABLES, NOVEMBER 1966

SUMMARY OF THE NOVEMBER 1966 SMOKE AND SULFUR DIOXIDE OBSERVATIONS FROM SELECTED SITES IN BRITAIN. GIVES THE AVERAGE, MAXIMUM, AND NUMBER OF DAYS EXCEEDING SPECIFIED CONCENTRATIONS. ALSO GIVES THE SULFUR DIOXIDE/SMOKE RATIO.

*CONCENTRATION, AREA + *SMOKE + *SULFUR DIOXIDE + ATMOSPHERIC POLLUTION + SAMPLING + SURVEY, GENERAL + UNITED KINGDOM

16-21132

HELF S

ENVIRONMENTAL RADIOACTIVITY MEASUREMENTS IN THE PICATINNY ARSENAL AREA, 1963-1966

PICATINNY ARSENAL, DOWVER N. J.

AD-651495 + PA-TR-3516 +. 24 PAGES, TABLES, FIGURES, MAY 1967

AN ENVIRONMENTAL RADIOACTIVITY ANALYSIS PROGRAM WAS CONDUCTED ON SAMPLES TAKEN FROM PICATINNY ARSENAL AND SURROUNDING AREAS. THE PERIOD COVERED WAS FROM THE SPRING OF 1963 TO THE FALL OF 1966. ZR-95 WAS OBSERVED IN SOME OF THE EARLIER SAMPLES AND AGAIN AT BARELY DETECTABLE LEVELS IN THE MOST RECENT SOIL SAMPLES. THE REAPPEARANCE OF THIS SHORT-LIVED RADIONUCLIDE IS PRESUMED TO BE DUE TO CHINESE NUCLEAR EXPLOSIONS. NO RADIOACTIVITY WAS DETECTABLE WHOSE ORIGIN CAN BE ATTRIBUTED TO LOCAL SOURCES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY \$0.65 MICROFICHE

*AEROSOL, RADIOACTIVE + *FALLOUT + *ZIRCONIUM + ANALYTICAL TECHNIQUE, AIR + ATMOSPHERIC CIRCULATION, GLOBAL + ATMOSPHERIC DIFFUSION + MONITOR, RADIATION, ENVIRONMENTAL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-16553 ALSO IN CATEGORY 1
MITCHELL W + CHARNOFF G + COE RJ
REPORT TO THE AEC BY THE SECONDARY REGULATORY REVIEW PANEL, JUNE 1967
ATOMIC ENERGY COMMISSION, WASHINGTON
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(28) PAGE 13 (JULY 10, 1967)

A FOLLOWUP TO THE 1965 MITCHELL PANEL MADE A SERIES OF RECOMMENDATIONS REGARDING CONTESTED CASES APPEARING BEFORE THE ATOMIC SAFETY AND LICENSING BOARD. ITEMS TREAT BOARDS FUNCTION AND PROCEDURES.

*REGULATION, AEC + USAEC (U.S. ATOMIC ENERGY COMMISSION)

17-17158
HOLLAND LB + WARD DR
TSR II CONTROL MECHANISM DEVELOPMENT AND OPERATIONAL EXPERIENCE
OAK RIDGE NATIONAL LAB., TENN.
CONF-670-713 +. 12 PAGES, 4 FIGURES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 27, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

CURVED CONTROL PLATES, LOCATED IN THE LIGHT-WATER INTERIOR OF THE SPHERICAL CORE, SCRAM ON SPRING ACTUATION WHEN A HYDRAULIC FORCE IS RELIEVED. MATERIALS SELECTION WAS A LARGE PROBLEM, AND LITERATURE SEARCHES WERE OF LITTLE HELP. THE ORIGINAL STAINLESS STEELS HAVE GIVEN WAY TO A VARIETY OF ALLOYS (303 SS, 17-4PH, STELLITE, INCONEL) SELECTED FOR A SPECIFIC APPLICATION AND LOCATION. FOR EXAMPLE, STELLITE-6 KNIFE EDGES ERODED, ALTHOUGH THEIR SS OPPOSITES WERE INTACT.

*CONTROL ROD FABRICATION + *CORROSION + *MATERIAL + *OPERATING EXPERIENCE +
ORNL (OAK RIDGE NATIONAL LABORATORY) + REACTOR, RESEARCH

17-17159
BAKER JW + FASANO AN + HARY LB + BUONI FB
PRIMARY COOLANT CONDUCTIVITY STUDY
AIR FORCE NUCLEAR ENGINEERING TEST FACILITY, AIR FORCE INSTITUTE OF TECHNOLOGY, WRIGHT-PATTERSON AIR FORCE BASE, OHIO
CONF-670-713 + AFIT-TR-67-8 +. 14 PAGES, 8 FIGURES, 2 TABLES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 27, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

GRADUAL CONDUCTIVITY INCREASE WAS SHOWN DUE TO SODIUM INLEAKAGE FROM A HEAT-EXCHANGER LEAK. ABSENCE OF TRACE ELEMENTS (DUE TO SOFTENING THE SECONDARY COOLANT) ORIGINALLY NEGATED THE SECONDARY COOLANT AS THE SOURCE. SPECIFICATION OF 3 MICROMHO/CM PROVIDES AN ENGINEERINGLY SOUND DEFINITION OF INCREASED EROSION/CORROSION.

*COOLANT CHEMISTRY + *HEAT EXCHANGER + *LEAK + AF-NETR (AIR FORCE NUC. ENGINEERING TEST RCTR.) +
OPERATIONS REPORT, ANALYSIS + REACTOR, MILITARY + REACTOR, RESEARCH

17-17160 ALSO IN CATEGORY 5
PIPER HB
HEAT TRANSFER IN THE MSRE HEAT EXCHANGER
OAK RIDGE NATIONAL LAB., TENN.
CONF-670-713 +. 13 PAGES, 4 FIGURES, 6 REFERENCES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 29, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

A SPECIAL KIND OF MANIPULATION OF THE STANDARD HEAT-TRANSFER EQUATIONS, (ASSUMING THERMOCOUPLE MEASUREMENT BIASES REMAINED CONSTANT DESPITE TEMPERATURE CHANGES) PROVED SUCCESSFUL IN THE MEASUREMENT OF THE OVERALL HEAT-TRANSFER COEFFICIENT. THE MEASUREMENT YIELDED A LOWER VALUE OF OVERALL HEAT TRANSFER THAN ORIGINALLY USED. EXAMINATION OF THE ORIGINAL PHYSICAL-PROPERTY VALUES USED (MANY OF WHICH WERE EXTRAPOLATIONS BASED ON OTHER SALTS) SUGGESTED CONSIDERABLE UNCERTAINTY IN THERMAL CONDUCTIVITY. MEASUREMENTS CONFIRMED THIS. SO FAR, NO PERCEPTIBLE CORROSION OR SCALING HAS OCCURRED.

*HEAT EXCHANGER + *HEAT TRANSFER ANALYSIS + MSRE (MOLTEN SALT REACTOR EXPERIMENT) +
OPERATIONS REPORT, ANALYSIS + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT + SURFACE FILM DEPOSIT

17-17161
SOFER G + BUCK P + VERAS A
APPLICATION OF REACTOR OPERATING DATA TO THE DESIGN AND FUEL MANAGEMENT OF REPLACEMENT FUEL
UNITED NUCLEAR CORPORATION, RESEARCH AND ENGINEERING CENTER, ELMSFORD, N. Y.
CONF-670-713 + NDEO-1108 +. 14 PAGES, 6 FIGURES, 3 TABLES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 30, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17161 *CONTINUED*

APPLICATION INCLUDES CORRELATION OF IN-CORE FLUX READINGS AND ROD POSITIONS TO ENSURE APPLICABILITY OF DEVELOPED TECHNIQUES AND OUT-OF-PILE BURNOUT, FLOW VIBRATION, PRESSURE DROP, AND CRITICAL-EXPERIMENT TESTS. TESTS SHOW A HIGHER BURNOUT HEAT FLUX AT HIGHER QUALITIES THAN PREDICTED BY JANSEN-LEVY CORRELATION, BUT LOWER BURNOUT VALUES IN LOW-QUALITY REGIONS. TRILUX CODE GIVES BETTER AGREEMENT THAN FLARE WITH MEASURED IN-CORE PCWER AT DRESDEN 1 AND TRINDO.

*REFUELING + BURNOUT HEAT FLUX + DRESDEN 1 + HEAT TRANSFER CORRELATION + REACTOR, BOILING WATER

17-17162

TURNER RF + DUFFIELD RB

HTGR FUEL ELEMENT PERFORMANCE IN PEACH BOTTOM REACTOR

GENERAL ATOMIC, DIVISION OF GENERAL DYNAMICS, SAN DIEGO, CALIFORNIA

CONF-670-713 + GA-8113 +. 12 PAGES, 6 FIGURES, 4 TABLES, 5 REFERENCES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 31, (JULY 1967), CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

OBSERVED FUEL TEMPERATURES ARE VERY CLOSE TO THOSE PREDICTED. 50 OF 59 IN-CORE THERMOCOUPLES CONTINUE TO OPERATE. FISSION-PRODUCT TRAP IN FUEL ELEMENT IS DESCRIBED. COOLANT ACTIVITY IS 0.2 CURIE, VS 108 EXPECTED AND 4225 DESIGN. RELEASE FRACTION FOR FISSION GAS IS 10 TO THE MINUS 4TH, AS EXPECTED.

*ACTIVITY BUILDUP + *FUEL ELEMENT + COATED PARTICLE + FISSION PRODUCT RELEASE, GENERAL + MAIN COOLING SYSTEM + PEACH BOTTOM 1 + REACTOR, GAS COOLED + REACTOR, HIGH TEMP. GAS

17-17164

WHITHAM GK + SPALDING TR

EBR-II REFUELING EXPERIENCE

ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

CONF-670-713 +. 1 PAGE, ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 32, (JULY 1967), CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

DISCUSSES GENERAL EXPERIENCE. THE GRIPPER NEEDS FREQUENT MAINTENANCE AND CLEANING. REMOTE OPERATION OF THE MECHANISM IS BY A DIGITAL COMPUTER AND PUNCHED CARDS.

*COMPUTER PROGRAM + *FUEL HANDLING MACHINE + *OPERATING EXPERIENCE + EBR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS) + REACTOR, AEC OWNED + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + STAFFING, TRAINING, QUALIFICATION

17-17166 ALSO IN CATEGORY 6

WHITENER HL + STEPHAN LA

FUEL-ROD-FAILURE EXPERIENCE DURING TRANSIENT TESTING

PHILLIPS PETROLEUM COMPANY

CONF-670-713 +. 2 PAGES, 4 REFERENCES, ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 32 AND 33, (JULY 1967), CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

12 FUEL ROD (OUT OF 1652 SS-CLAD UO2 RODS) HAVE FAILED ON 9 TRANSIENT TESTS AT THE CAPSULE DRIVER CORE WITH PERIODS LESS THAN 5 SEC. 11 WERE DUE TO WATERLOGGINGS (DUE TO CLADDING OR END-CLOSURE IMPERFECTIONS) THAT GAVE STEAM RUPTURES AT 50 CAL/GRAM. ONE ROD (NEXT TO A RUPTURE) SHEARED AT A GRID. CONCLUSIONS - QUALITY ASSURANCE IN FABRICATION IS OF PRIMARY IMPORTANCE. FAILURES CAN OCCUR WITHOUT PROPAGATION (AUTHORS WERE CAREFUL TO POINT OUT LOW FISSION-PRODUCT BURDEN).

*FAILURE, FUEL ELEMENT WATERLOGGING + CORE, CAPSULE DRIVER (CDC) + EXCURSION, LARGE + FAILURE, SEQUENTIAL + SPERT 4 (SPECIAL POWER EXCURSION REACTOR TEST)

17-17168

MALONEY GE + KEDZERSKI T + JACKSON EL

ANNUAL INSPECTION OF THE N.S. SAVANNAH REACTOR PLANT

U.S. COAST GUARD + FIRST ATOMIC SHIP TRANSPORT INC. + TODD SHIPYARD NUCLEAR DIVISION

CONF-670-713 +. 16 PAGES, 1 FIGURE, 1 TABLE, 2 REFERENCES, CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

BEFORE THE 1967 12-DAY INSPECTION, THE SHORTEST ANNUAL INSPECTION WAS 30 DAYS (IN 1966) AND WAS USUALLY DETERMINED BY MAINTENANCE, ETC. CONSIDERABLE CARE WAS TAKEN TO SCHEDULE THIS INSPECTION IN NEW YORK CITY (AWAY FROM THE GALVESTON FACILITY). SAFETY VALVES POPPED IN A HYDRO TEST, REPLACED WITH PRESET SPARES, AND TAKEN ASHORE FOR FURTHER TESTING AND RESET. BOTH VESSEL AND REACTOR-SYSTEM INSPECTIONS WERE MADE, AND OPERATORS IN TRAINING GAINED VALUABLE EXPERIENCE BY PARTICIPATION. PERMANENT INSTALLATION OF TEST EQUIPMENT AND CENTRAL READOUT ARE EXAMPLES OF MANY INSPECTION IMPROVEMENTS. 15 SYSTEMS, TEST REQUIREMENTS, AND TIMES GIVEN.

*EXAMINATION + *SURVEILLANCE PROGRAM + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + STAFFING, TRAINING, QUALIFICATION + TESTABILITY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17541 ALSO IN CATEGORY 11
YANKEE CHANGE 75. CONTAINMENT LEAKAGE RATE RETEST SPECIFICATIONS
AEC, DIVISION OF REACTOR LICENSING
21 PAGES, 2 FIGURES, 1 TABLE, MARCH 28, 1967, DOCKET NO. 50-29, YANKEE ATOMIC ELECTRIC CO.

YANKEE INSTITUTES TESTING OF CONTAINMENT LEAKAGE RATES IN ACCORDANCE WITH AEC GUIDELINES.
INTEGRATED-LEAK-RATE TESTS AT 22 PSIG (NORMAL PRESSURE, 34.5 PSIG) WILL BE MADE AT LESS THAN
4-YEAR INTERVALS. CALCULATIONS OF MAXIMUM ALLOWABLE CONTAINMENT LEAKAGE ARE BASED ON DATA IN
YAEC-1007.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT, HIGH PRESSURE + *TEST, LEAK RATE + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION +
TECHNICAL SPECIFICATIONS + YANKEE

17-17542
DRL QUESTIONS UNIVERSITY OF MISSOURI (COLUMBIA) ON RADIATION MONITOR, NEUTRON COUNT RATE AND PRESSURE DROP
IN THE REFLECTOR
AEC, DIVISION OF REACTOR LICENSING
1 PAGE, MAY 3, 1967, DOCKET NO. 50-186, UNIVERSITY OF MISSOURI

DRL, IN REPLY TO A APRIL 19, 1967 LETTER, REQUESTING TECHNICAL SPECIFICATION CHANGES, ASKS (1)
IS THERE ANY RADIATION MONITOR WHICH WOULD PROVIDE RAPID INDICATION OF A FUEL FAILURE IF
PRESSURE-VESSEL COVER IS REMOVED, (2) PROVIDE JUSTIFICATION THAT AN INDICATED NEUTRON COUNT
RATE OF AT LEAST ONE COUNT/SEC IS SUFFICIENT, (3) WHAT IS THE EFFECT ON SAFETY OF INCREASED
PRESSURE DROP ACROSS THE REFLECTOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + *INSTRUMENTATION, STARTUP RANGE + *PRESSURE DROP +
*REFLECTOR + NOISE + REACTOR, FLUX TRAP + REACTOR, RESEARCH + REFUELING + SOURCE, NEUTRON +
TECHNICAL SPECIFICATIONS

17-17543
DRL QUESTIONS MANHATTAN COLLEGE FOR A DETAILED DISCUSSION OF PROPOSED POISON ROD FOR ZPR
AEC, DIVISION OF REACTOR LICENSING
1 PAGE, JUNE 7, 1967, DOCKET NO. 50-199, MANHATTAN COLLEGE REACTOR

DRL, IN REPLY TO A MAY 15, 1967 LETTER, WHICH REQUESTED TECH. SPEC. CHANGE TO SUBSTITUTE A
POISON ROD FOR A MODIFIED LIQUID POISON SYSTEM, ASKS FOR DISCUSSION AND DRAWINGS SUPPORTING
FEASIBILITY AND ADEQUACY OF PROPOSED METHOD. ALSO, WHAT CONSIDERATION HAS BEEN GIVEN TO
MODIFYING PRESENT LIQUID POISON TO ENABLE RAPID AND EASY ACTUATION BY OPERATOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + *SHUTDOWN SYSTEM, SECONDARY + REACTOR, TRAINING +
TECHNICAL SPECIFICATIONS

17-17544
KANSAS STATE UNIVERSITY NOTIFIES AEC OF MISCELLANEOUS FACILITY CHANGES
KANSAS STATE UNIVERSITY, MANHATTAN, KANSAS
3 PAGES, JULY 6, 1967, DOCKET NO. 50-188

(1, 2, 3) SMALL PRESSURE-RELIEF HOLES WERE DRILLED IN ALL FOUR BEAM-TUBE INNER PLUGS.
PRESSURE GAUGES WERE INSTALLED IN THE BEAM-TUBE AND THERMAL-COLUMN VENTILATING SYSTEM TO
DETECT PRESSURE BUILDUP, AND A PIPE PLUG REMOVED. (7, 8, 9) A COCKROFT-WALTON TYPE
ACCELERATOR, A COBALT-60 IRRADIATION FACILITY, AND A WATER-MODERATED SUBCRITICAL ASSEMBLY,
LESS FUEL, WERE PLACED IN THE REACTOR BAY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BEAM HOLE + *PRESSURE RELIEF + ACCELERATOR + COBALT + CRITICAL ASSEMBLY FACILITY +
OPERATIONS SUMMARY FOR AEC + REACTOR, RESEARCH + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17545
DRL ASKS FOR ADDITIONAL INFORMATION ON UNIVERSITY OF WISCONSIN TRIGA REACTOR
AEC, DIVISION OF REACTOR LICENSING
3 PAGES, JANUARY 31, 1967, DOCKET NO. 50-156, UNIVERSITY OF WISCONSIN

DRL ASKS FOR 11 PIECES OF INFORMATION IN EVALUATING CONVERSION FROM PLATE TO TRIGA ELEMENTS,
INCLUDING (3) SPECIFICATIONS OF HEAT EXCHANGER AND METHOD OF LEAK DETECTION, (4) JUSTIFY NEED
FOR 4.9% EXCESS REACTIVITY, (5) REDESIGN OF CONTRL- AND SAFETY-SYSTEM CIRCUITRY TO AVOID TWO
SPECIFIED INSTANCES OF LOSS OF AUTOMATIC PROTECTION AGAINST ACCIDENT DUE TO SINGLE CIRCUIT
FAULT, (6,7,8,9) IN-CORE EXPERIMENTS, AND (11) RE-EVALUATE THE LOSS-OF-COOLANT ACCIDENT,

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17545 *CONTINUED*

ASSUMING INSTANTANEOUS POOL DRAINAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *FAILURE, SCRAM MECHANISM + *HEAT EXCHANGER + *SINGLE FAILURE CRITERION + AEC QUESTION + IN PILE EXPERIMENT + IN PILE LOOP + REACTIVITY, EXCESS + REACTOR, TRAINING + SAFETY ANALYSIS REPORT, PRELIMINARY + TEST, LEAK RATE + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17663

WEIR A

PROPOSED TECHNICAL SPECIFICATIONS FOR NORTHROP TRIGA

NORTHROP CORPORATION, BEVERLY HILLS, CALIF.

13 PAGES, JUNE 6, 1967, DOCKET NO. 50-187

HEADINGS INCLUDE SITE (HAWTHORNE, CALIF.), POOL AND BRIDGE, CORE, AND CONTROL AND SAFETY SYSTEMS. ONE-MW REACTOR ALLOWED 3.85% REACTIVITY, AND PULSES UP TO 2.1%. SS-CLAD ELEMENTS. FUEL-ELEMENT BOWING IS CHECKED YEARLY OR AFTER \$1000 OF PULSING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL ELEMENT BOWING + REACTOR, PULSED + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17664

SKOVHOLT DJ

UNIVERSITY OF ILLINOIS AMENDMENT 7. RE-ISSUE OF AMENDED LICENSE INCLUDING TECHNICAL SPECIFICATIONS AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

33 PAGES, JUNE 2, 1967, DOCKET NO. 50-151

DRL REISSUES AMENDED FACILITY LICENSE AND ALLOWS USE IN OUTER RING OF TRIGA ELEMENTS FROM THEIR SUBCRITICAL ASSEMBLY, WHICH WERE ORIGINALLY USED AT AFRBI. 250-KW REACTOR ALLOWED \$4 OF REACTIVITY, AND \$3 PULSING. FUEL ELEMENTS WILL BE CHECKED AFTER EVERY 100 PULSES GREATER THAN \$1.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*REFUELING + CRITICAL ASSEMBLY FACILITY + REACTOR, PULSED + REACTOR, TRAINING + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17665

ANNUAL REPORT OF OPERATIONS AND MODIFICATION AT AGNIR FOR PERIOD ENDING JUNE 30, 1967

AEROJET-GENERAL CORPORATION, SAN RAMON, CALIFORNIA

12 PAGES, JULY 17, 1967, DOCKET NO. 50-228, AEROJET-GENERAL NUCLEAR INDUSTRIAL REACTOR

58 MWH ACCUMULATED, 89 SERVICE IRRADIATIONS AND 6 SPECIAL TESTS PERFORMED. FOUR MODIFICATIONS LISTED, INCLUDING INSTALLATION OF PNEUMATIC TRANSFER FACILITY AND RADIOCHEMISTRY LAB. 82 UNSCHEDULED SHUTDOWNS, 67 DURING REACTOR TRAINING PROGRAMS (MOSTLY DECADE-SWITCHING ERRORS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SCRAM, SPURIOUS + IRRADIATION FACILITY + OPERATIONS SUMMARY FOR AEC + REACTOR, RESEARCH + REACTOR, TRAINING + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17666

ANNUAL REPORT OF MODIFICATION OF U OF CALIFORNIA (BERKELEY) TRIGA

UNIVERSITY OF CALIFORNIA, BERKELEY

3 PAGES, AUGUST 2, 1967, DOCKET NO. 50-224, TRIGA MARK III REACTOR

ELEVEN MODIFICATIONS INCLUDING (1) REDESIGN OF ENTRY DOORS BECAUSE OF INFLATABLE-GASKET DAMAGE AND TO PREVENT THE DOUBLE-ENTRY DOOR FROM OPENING SIMULTANEOUSLY UNDER PRESSURE, (2) INSTALLATION OF A SECOND RABBIT IN PLACE OF A GRAPHITE ELEMENT, AND (3) REPLACEMENT OF SHEET-RUBBER SPACER BY ALUMINUM SPACER IN CONTROL-ROD MECHANISM (FORMER CAUSED STUCK ROD, 9-27-66).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *MODIFICATION, SYSTEM OR EQUIPMENT + CONTAINMENT AIR LOCK + CONTAINMENT INTEGRITY + IRRADIATION FACILITY + OPERATIONS SUMMARY FOR AEC + REACTOR, TRAINING + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17667

TEXAS A AND M CHANGE 5. IRRADIATION OF PLANTS, ANIMALS, AND MECHANICAL SYSTEMS IN IRRADIATION CELL AEC, DIVISION OF REACTOR LICENSING.

3 PAGES, MARCH 24, 1967, DOCKET NO. 50-128, CHANGE 5 TO TECHNICAL SPECIFICATIONS FOR TEXAS A AND M

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17667 *CONTINUED*
UNIVERSITY REACTOR

DRL ALLOWS USE OF IRRADIATION CELL BUILT WHEN RELINING REACTOR POOL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + IRRADIATION FACILITY + REACTOR, TRAINING +
SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-17668

DASA ASKS AEC TO EVALUATE USE OF HOLLOW INCORE ACCESS TUBE
DEFENSE ATOMIC SUPPORT AGENCY, ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA, MARYLAND
8 PAGES, JULY 17, 1967, DOCKET NO. 50-170, DASA TRIGA REACTOR

REQUESTS REVIEW OF USE OF RADIATION BEAM TUBE TO EXTRACT SMALL BEAMS OF GAMMA OR NEUTRONS. AT
PRESENT, EITHER AN EXPOSURE ROOM (WHICH RESULTS IN EXCESSIVE AR-41) OR PNEUMATIC TUBE (IN
WHICH ELECTRONIC DEVICES ARE UNUSABLE) MUST BE USED. BY VARYING POSITION OF BEAM TUBE,
VARIOUS GAMMA-NEUTRON SPECTRA MAY BE OBTAINED. A CAPPED 1-INCH ALUMINUM TUBE, RIGIDLY
CLAMPED AT THE TANK TOP, WOULD BE USED AS THE BEAM TUBE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

BEAM HOLE + REACTOR, POOL TYPE + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17700

ALSO IN CATEGORY 5
SELECTED CVTR OPERATING EXPERIENCE
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.
CVNA-261 +. 31 PAGES, PAGE 4, 24, AND 26 OF MONTHLY OPERATING REPORT, JUNE 1966

(PAGE 4) A SPURIOUS SCRAM OCCURRED WHEN THE OPERATOR, WHILE RAPIDLY REDUCING POWER BECAUSE
TURBINE TUBE-OIL-COOLING FAILED, TURNED THE FLUX-SCRAM SELECTOR TO LOW INSTEAD OF BLOCKING
THE POWER-RADIO SCRAM. (PAGE 24) POWER HAS BEEN LIMITED TO 63% BY THE HIGH-POWER/HIGH-BURNUP
ASSEMBLY HEAT RATE. DATA IS BEING ANALYZED FOR THE DISCREPANCY BETWEEN TWO CALCULATIONS.
(PAGE 26) COOLANT MIXING IN THE PRESSURE-TUBE U-BEND SHOWS THAT THE TEMPERATURE MEASURED
THERE IS THE MIXED-MEAN TEMP. TUBES WITH FRESH FUEL HAVE HAD 6-WEEK FLOW DROPS OF ABOUT 7%,
MUCH IN THE INITIAL 1 TO 2 WEEKS. NO CHANGE IN TOTAL CORE FLOW RATE EVIDENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF
STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FLOW DISTRIBUTION + *PERFORMANCE LIMIT + *SCRAM, SPURIOUS + *SURFACE FILM DEPOSIT +
CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + INSTRUMENTATION, TEMPERATURE + OPERATIONS REPORT, GENERAL +
REACTOR POWER + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + REACTOR, PRESSURIZED WATER

17-17831

SKOVHOLT DJ
LICENSE AND TECHNICAL SPECIFICATION FOR WASHINGTON STATE UNIVERSITY TRIGA CONVERSION
DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
29 PAGES, 2 TABLES, MAY 10, 1967, DOCKET NO. 50-27

DRL NOTICE OF PROPOSED ISSUANCE OF CONSTRUCTION PERMIT AND AMENDED FACILITY LICENSE FOR
CONVERSION FROM MTR-TYPE TO TRIGA-TYPE ELEMENTS, AND INCREASE IN POWER FROM 100 KW(T) TO 1
MW(T). TECHNICAL-SPECIFICATIONS HEADINGS INCLUDE POOL AND BRIDGE, CORE, CONTROL AND SAFETY
SYSTEM, AND RADIATION MONITORING. \$3.00 PULSING IS ALLOWED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL ELEMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + *POWER UPGRATING + FUEL ELEMENT BOWING +
REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TESTING +
TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17832

SKOVHOLT DJ
LICENSE AND TECHNICAL SPECIFICATIONS FOR OREGON STATE UNIVERSITY TRIGA
DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
14 PAGES, 2 TABLES, MARCH 7, 1967, DOCKET NO. 50-243

HEADINGS INCLUDE POOL AND PRIMARY SYSTEM, CORE AND CONTROL AND SAFETY SYSTEM, ALSO A
TABULATION OF SCRAMS AND INTERLOCKS. MAXIMUM STEADY-STATE POWER, 250 KW. 2.8% REACTIVITY IS
ALLOWED, AND PULSES SHALL NOT EXCEED 2100 MW. FUEL-ELEMENT DISTORTION WILL BE MEASURED EVERY
500 PULSES ABOVE 1.5%. REACTOR WILL BE SEMIANNUALLY PULSED AT 1.5% DELTA K/K TO COMPARE PEAK
POWERS AND FUEL-ELEMENT TEMPERATURES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL ELEMENT BOWING + *TEST INTERVAL + REACTOR, PULSED + TECHNICAL SPECIFICATIONS + TEST, PHYSICS +
TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17834 ALSO IN CATEGORY 9
COX EL
CONTROL ROD DAMAGE AND FAILURE AT THE UNIVERSITY OF MISSOURI (COLUMBIA)
UNIVERSITY OF MISSOURI, COLUMBIA
11 PAGES, 5 FIGURES, JUNE 6, 1967, DOCKET NO. 50-166

DELAYS CAME FROM ACCIDENTAL DROPPING OF CONTROL RODS DUE TO FOREIGN MATTER IN BALL BEARINGS IN DRIVE. NO SOLUTION HAS YET BEEN FOUND. DURING REMOVAL OF ROD ASSEMBLIES WHILE TRYING TO CORRECT THIS PROBLEM, ROD A WAS IRREPARABLY DAMAGED. THE SUSPENSION OF THE BLADE-OFFSET MECHANISM HAD BEEN CHANGED AND TILTED DURING LIFTING, PUTTING TORQUE ON THE CONTROL BLADE (STILL IN GUIDE SLOT), BREAKING WELD JOINT AT TOP OF BLADE AND DENTING BLADE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CONTROL ROD BURNUP + FAILURE, COMPONENT + FAILURE, DESIGN ERROR + FAILURE, MAINTENANCE ERROR + FAILURE, OPERATOR ERROR + FAILURE, SCRAM MECHANISM + OPERATING EXPERIENCE + REACTOR, FLUX TRAP + REACTOR, RESEARCH

17-17835
HOUSTON RW
SOLENOID AND SEQUENTIAL FAILURE CAUSE HIGH AIR ACTIVITY IN IRL REACTOR BUILDING
INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
4 PAGES, JULY 10, 1967, DOCKET NO. 50-17

AT IRL ON JUNE 20, 1967, A FAULTY SOLENOID COIL CAUSED THE HOLDUP TANK VENT-VALVE TO CLOSE. A COMMON CIRCUIT BREAKER THEN CAUSED THE BUILDING-VENTILATION VALVES TO CLOSE. AIR ACTIVITY NORMALLY RELEASED THRU THE HOLDUP-TANK VENT WAS DIVERTED THROUGH POOL, AND TWO AIR MONITORS TRIPPED. THE REACTOR WAS SHUT DOWN AND THE BUILDING EVACUATED. NO PERSONNEL DOSES EXCEEDED PERMISSIBLE LIMITS. AFTER

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, COMPONENT + *VENTILATION SYSTEM + AIRBORNE RELEASE + INCIDENT, ACTUAL, EQUIPMENT + REACTOR, POOL TYPE + REACTOR, RESEARCH + VALVE

17-17836
HOUSTON RW
ANNUAL REPORT OF OPERATIONS AND MODIFICATION OF INDUSTRIAL REACTOR LABS POOL REACTOR FOR PERIOD ENDING JUNE 30, 1967
INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
4 PAGES, JULY 10, 1967, DOCKET NO. 50-17

MODIFICATIONS INCLUDE (1) 20 NEW FUEL AND 4 CONTROL ELEMENTS RECEIVED, AND 28 SPENT ELEMENTS SHIPPED FOR REPROCESSING, (2) CO-60 IRRADIATION FACILITY INSTALLED IN POOL, AND (3) HEAT EXCHANGER CLEANED TO COUNTERACT DECLINE IN EFFICIENCY. ELECTRICAL FAILURE OF SOLENOID VALVE CAUSED HIGH-AREA-RADIATION SCRAM. NO PERSONNEL EXPOSURES EXCEEDED PERMISSIBLE LIMITS, AND REACTOR WAS BROUGHT TO NORMAL POWER AFTER REPAIR OF FAULTY SOLENOID COIL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*FAILURE, COMPONENT + COBALT + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS SUMMARY FOR AEC + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFUELING + VENTILATION SYSTEM

17-17837 ALSO IN CATEGORY 5
BOYD RS
SAXTON CHANGE 24. TEST FUEL ASSEMBLIES XV AND XVI
DIVISION OF REACTOR LICENSING, WASHINGTON, D.C.
5 PAGES, AUGUST 10, 1966, DOCKET NO. 50-146

DRL ALLOWS SAXTON TO USE TWO NEW TEST FUEL ASSEMBLIES. ASSEMBLY XV WILL CONSIST OF 5 SS-CLAD FUEL RODS, PLUS ANY COMBINATION OF 4 RODS OF THE FOLLOWING - (1) ZIRC-4-CLAD TUBES CONTAINING ZIRC-4 CAPSULES IN WHICH ARE ZIRCALOY TEST SPECIMENS OF GRID-STRAP MATERIAL, (2) IDENTICAL TUBE EXCEPT PRESSURIZED TO PRODUCE STRESSES OF 41,500 PSI IN THE CLADDING, (3) STANDARD FUEL RODS PRESSURIZED TO PRODUCE 27,500 PSI IN THE CLAD, AND (4) ZIRC-4-CLAD FUEL RODS ENRICHED TO 17.4% U-235 AND PRESSURIZED TO PRODUCE 22,000 PSI IN THE CLADDING. ASSEMBLY XVI IS IDENTICAL EXCEPT THE 5 SS RODS HAVE PREVIOUSLY BEEN IRRADIATED.

*CLAD + *IRRADIATION TESTING + *PRESSURE, INTERNAL + *STRESS + *ZIRCALOY + FUEL ELEMENT + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SAXTON + TECHNICAL SPECIFICATIONS

17-17839 ALSO IN CATEGORY 9
IRIARTE M
BONUS PROPOSED CHANGE 2. REVISED PROCEDURE FOR DISCONNECTING CONTROL RODS
COMMONWEALTH OF PUERTO RICO, PUERTO RICO WATER RESOURCES AUTHORITY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17839 *CONTINUED*

3 PAGES, AUGUST 19, 1967, DOCKET NO. 115-4

BONUS REQUESTED CHANGE IN PROCEDURE DUE TO MODIFICATION OF CONTROL-ROD-RACK BUFFER UNIT. PURPOSE WAS TO ELIMINATE STRESSES DUE TO THERMAL EXPANSION, WHICH HAD CAUSED STRESS CORROSION AND CRACKING OF THE CONTROL-ROD-RACK ACME-THREADS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONTROL ROD DRIVE + *MODIFICATION, SYSTEM OR EQUIPMENT + *PROCEDURES AND MANUALS +
BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CORROSION + FAILURE, GENERAL + REACTOR, INTERNAL SUPERHEAT +
SUPPORT STRUCTURE + TECHNICAL SPECIFICATIONS + THERMAL MECHANICAL EFFECT

17-17840 ALSO IN CATEGORY 11

IRIATE M

BONUS ASKS PERMISSION TO DELAY BUILDING LEAK TEST

PUERTO RICO WATER RESOURCES AUTHORITY

2 PAGES, AUGUST 8, 1967, DOCKET NO. 115-4

BONUS ASKS DELAY OF SEPT. 1967 TEST UNTIL DEC. 1967, WHEN A LONG-TERM SHUTDOWN IS SCHEDULED TO REPLACE THE CENTER CONTROL ROD. SEPT. 1964 TESTS SHOWED LEAK RATE TO BE 0.1% OF BUILDING VOLUME PER DAY (VS. 0.4% ALLOWED IN TECH. SPECS.), AND THERE IS NO REASON TO BELIEVE THAT THIS HAS CHANGED SIGNIFICANTLY. THE TEST REQUIRES REACTOR SHUTDOWN AND DEPRESSURIZATION FOR THREE WEEKS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONTAINMENT, LOW PRESSURE + *TEST INTERVAL + *TEST, LEAK RATE +
BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTROL ROD BURNUP + REACTOR, INTERNAL SUPERHEAT +
TECHNICAL SPECIFICATIONS

17-17841 ALSO IN CATEGORY 5

MCELROY DF

PATHFINDER PROPOSED CHANGE 12. EXTENSION OF EXCEPTION FROM MAXIMUM COOLDOWN RATE BEYOND 40% FULL POWER

NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA

7 PAGES, 3 FIGURES, AUGUST 16, 1966, DOCKET NO. 50-130

PATHFINDER REQUESTS THAT CHANGE 11 BE EXTENDED TO PERMIT CONTINUED POWER ESCALATION WHILE PERMANENT REVISION (PROPOSED CHANGE 14) IS UNDER AEC REVIEW. AT PRESENT A SCRAM OR RUNBACK WHILE ON MANUAL PRESSURE CONTROL COULD CAUSE HIGH SLOWDOWN RATE. 3 MODIFICATIONS ARE TO BE MADE BEFORE EXCEEDING 40% POWER. (1) AUTOMATIC OPERATING LIMITS/TECHNICAL SPECIFICATIONS CONTROL OF MAIN STEAM ISOLATION VALVE. (2) POWER-ACTUATED SAFETY VALVE WILL BE AVAILABLE ONLY IF MAIN STEAM BYPASS VALVE IS FULLY OPEN. (3) CHANGE IN CONTROL OF LOW-STEAM-FLOW SETPOINT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*EMERGENCY COOLING CONSIDERATIONS + *RATE + *THERMAL MECHANICAL EFFECT +
MODIFICATION, SYSTEM OR EQUIPMENT + PATHFINDER + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

17-17842 ALSO IN CATEGORY 15

WILSON EA

PATHFINDER PROPOSED CHANGE 15. PROTECTION FACTOR ALLOWANCES FOR RESPIRATORY EQUIPMENT

NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA

10 PAGES, 1 TABLE, OCTOBER 4, 1966, DOCKET NO. 50-130

PATHFINDER REQUEST ALLOWANCES FOR USE OF RESPIRATORY EQUIPMENT IN RESTRICTED AREAS WITH HIGH AIRBORNE CONCENTRATIONS OF RADIOACTIVE MATERIAL. THIS EQUIPMENT IS TO BE USED PARTICULARLY FOR FUEL HANDLING AND MAINTENANCE. ITEMS TO BE USED INCLUDE MSA DUSTFOE MASK (TYPE H FILTER), MSA FULL-FACE MASK (TYPE H FILTER), MSA FULL-FACE MASK (TYPE GMR CANISTER), SELF-CONTAINED BREATHING APPARATUS, AND CHEMOX OXYGEN-BREATHING APPARATUS. PROTECTION FACTOR IS RECIPROCAL OF THE ASSUMED PENETRATION FOR THE COMPLETE RESPIRATOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*AIRBORNE RELEASE + *FILTER, GAS MASK + *PERSONNEL PROTECTIVE DEVICE + PATHFINDER +
PERSONNEL EXPOSURE, RADIATION + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

17-17843

RUDDER E

TEXAS A AND M PROPOSED CHANGE INSTALLATION OF POOL WATER COOLING SYSTEM FOR POWER UPGRATING

TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS

8 PAGES, 3 FIGURES, AUGUST 30, 1966, DOCKET NO. 50-126

TEXAS A AND M PROPOSES A FOUR-PART PROGRAM FOR REACTOR-FACILITY EXPANSION. (1) MODIFY POOL (COMPLETED MARCH, 1966). (2) INSTALL COOLING SYSTEM. (3) CONVERT TO TRIGA ELEMENTS. (4) CONSTRUCT AN ADDITIONAL LAB BUILDING. POWER LEVEL IS TO BE INCREASED TO 1 MW, WITH NATURAL CIRCULATION. COOLING SYSTEM CONSISTS OF PRIMARY PUMP AND HEAT EXCHANGER, SECONDARY PUMP AND

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-17843 *CONTINUED*
HEAT EXCHANGER.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*POWER UPGRATING + MAIN COOLING SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, POOL TYPE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-17847
DODGEN HW
WASHINGTON STATE UNIVERSITY PROPOSED CHANGE, INSTALLATION OF POOL COOLING SYSTEM
WASHINGTON STATE UNIVERSITY, PULLMAN, WASHINGTON
8 PAGES, 3 FIGURES, 1 TABLE, AUGUST 10, 1966, DOCKET NO. 50-27

IN ANTICIPATION OF CONVERSION TO TRIGA ELEMENTS AND INCREASING POWER FROM 100 KW TO 1 MW, WASHINGTON STATE U. ASKS TO INSTALL POOL COOLING SYSTEM. CORE WILL STILL BE COOLED BY NATURAL CONVECTION. SYSTEM CONSISTS OF PRIMARY AND SECONDARY PUMPS, HEAT EXCHANGER, AND COOLING TOWER. PIPING IN PRIMARY LOOP IS ALUMINUM, SECONDARY PIPING CARBON STEEL. TOWER IS AN INDUCED-DRAFT TYPE, HEATED DURING WINTER.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*MAIN COOLING SYSTEM + *POWER UPGRATING + REACTOR, POOL TYPE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-17849 ALSO IN CATEGORY 1
ZELLER AF
USAF AIRCRAFT ACCIDENTS INVOLVING TEN OR MORE FATALITIES
U.S. AIR FORCE
4 PAGES, 4 TABLES, 5 REFERENCES, AEROSPACE MEDICINE 36(12), PAGES 1156 THRU 1159, (DECEMBER 1966)

ANALYSIS OF DATA ON AIR FORCE DISASTERS (10 OR MORE FATALITIES) SHOWS SUCH DISASTERS ACCOUNT FOR LESS THAN 30% OF ALL SUCH AIR FORCE DEATHS. A MUCH HIGHER PERCENTAGE OF THE DISASTROUS CRASHES ARE UNEXPLAINED (32%), LARGELY DUE TO THEIR VERY NATURE. THE PRIMARY KNOWN CAUSE IS HUMAN ERROR (48%). INEXPERIENCE IS SELDOM A FACTOR. THESE ACCIDENTS GET PUBLICIZED BUT ARE LESS THAN 3% OF THE TOTAL. THE AUTHOR CONTENDS THAT THE PROGRAMS AIMED AT PREVENTING SMALLER ACCIDENTS WILL RESULT IN FEWER DISASTERS.

*AIRCRAFT + *INCIDENT, ACTUAL, NONNUCLEAR + OPERATING EXPERIENCE

17-18333 ALSO IN CATEGORY 8
HUMBOLDT BAY SUPPLIES ADDITIONAL DISCUSSION ON METAL-WATER REACTION WITHOUT CORE COOLING IN PROPOSED NEW CORE
PACIFIC GAS AND ELECTRIC COMPANY, SAN FRANCISCO, CALIFORNIA
5 PAGES, 1 FIGURE, AUGUST 23, 1967, DOCKET NO. 50-133

ANALYSIS OF METAL-WATER REACTION (DUE TO LOSS-OF-COOLANT ACCIDENT, ASSUMING VARIOUS ZR-H2O REACTION-TERMINATION TEMPERATURES) GIVES A MAXIMUM EXPECTED TEMPERATURE OF LESS THAN 1950 C, RESULTING IN 26.5-PSIG SUPPRESSION-CHAMBER PRESSURE (DESIGN - 25.0, TESTED AT 28.75). IF 2700 C (ZRO2 MELTING PT.) IS TAKEN AS PEAK TEMPERATURE, A MAXIMUM PRESSURE OF 38 PSIG WOULD RESULT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *METAL WATER REACTION + CLAD + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY + PRESSURE, INTERNAL + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS + ZIRCALOY

17-18334 ALSO IN CATEGORY 6
HUMBOLDT BAY PROPOSED CHANGE 22 AMENDMENT C. SUPPLEMENTAL INFORMATION
PACIFIC GAS AND ELECTRIC COMPANY, SAN FRANCISCO, CALIFORNIA
10 PAGES, 4 FIGURES, 1 TABLE, FEBRUARY 28, 1967, DOCKET NO. 50-133

ADDITIONAL ANALYSIS OF CONTROL-ROD-DROP ACCIDENTS (RESULTS GIVEN IN TABULAR FORM) THAT YIELD ENTHALPIES ABOVE THE PROCEDURAL LIMIT OF 360 CAL/GRAM GIVES A GRAVITY ROD-DROP OF 3.8% TO CAUSE VESSEL OR PIPING DAMAGE. THEY CONCLUDE THAT PROPOSED CONTROL-ROD-WORTH LIMITS GIVE CONSIDERABLE MARGIN AGAINST VESSEL DAMAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, CONTROL ROD EJECTION + ACCIDENT ANALYSIS + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18335
HUMBOLDT BAY PROPOSED AMENDMENT 27. CONVERSION FROM PROVISIONAL TO FINAL OPERATING LICENSE
PACIFIC GAS AND ELECTRIC COMPANY, SAN FRANCISCO, CALIFORNIA
125 PAGES, FIGURES, TABLES, APRIL 20, 1966, DOCKET NO. 50-133

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18335 *CONTINUED*

REQUESTS CONVERSION OF PROVISIONAL OPERATING LICENSE DPR-7 TO A FINAL LICENSE. (ATTACHMENT A) - PG AND E 1965 ANNUAL REPORT. (ATTACHMENT B) - POPULATION FACTOR (1.2). (ATTACHMENT C) - OPERATING EXPERIENCE OF HUMBOLDT BAY. (ATTACHMENT D) - PROPOSED OPERATING LICENSE, PROPOSED CHANGE 22, AND APPENDIX A (TECHNICAL SPECIFICATIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*OPERATING EXPERIENCE + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18336

ALSO IN CATEGORY 1

HUMBOLDT BAY POPULATION FACTOR CALCULATION
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA + AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
2 PAGES, APRIL 20, 1966, DOCKET NO. 50-133, PROPOSED AMENDMENT 27

CALCULATIONS BASED ON BUREAU OF CENSUS DATA SHOW POPULATION FACTOR IS STILL 1.2 (BY CRITERION OF 10 CFR 140.12).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POPULATION DISTRIBUTION + HUMBOLDT BAY + INSURANCE + REACTOR, BOILING WATER

17-18337

HUMBOLDT BAY PROPOSED CHANGE 22
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
7 PAGES, APRIL 20, 1966, DOCKET NO. 50-133

PROPOSED CHANGES TO TECH. SPECS. (CONCERNING APPLICATION FOR PERMANENT LICENSE) - (1) EQUIPMENT CHANGES, (2) EMERGENCY SHUTDOWN PROCEDURE, (3) REVISED CONTAINMENT REQUIREMENTS, (4) EMERGENCY CONDENSER, (5) PH LIMITS, (6) WATER SAMPLING, (7) POISON CURTAINS, (8) CONTROL-ROD TESTING, (9) SAFETY INSTRUMENTATION, (10) MONITORING-SYSTEM MODIFICATIONS, (11) REACTOR OFF-GAS-SYSTEM MODIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18338

HUMBOLDT PROPOSED REVISED TECHNICAL SPECIFICATIONS
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
64 PAGES, FIGURES, TABLES, APRIL 20, 1966, DOCKET NO. 50-133

OLD-FORM TECH. SPECS., INCLUDING PROPOSED CHANGE 22, ACCOMPANYING A REQUEST FOR PERMANENT 40-YEAR LICENSE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18450

SAXTON CHANGE 27 - TEST SUBASSEMBLY XVI
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PENNSYLVANIA
3 PAGES, SEPTEMBER 26, 1967, DOCKET 50-146

NEW 9-ROD SUBASSEMBLY CONSISTS OF 6 SS-CLAD 5.7% ENRICHED U-235 PELLET RODS, TWO OF WHICH CONTAIN THERMOCOUPLES, 2 UO₂-SS CERMET FUEL RODS WITH THERMOCOUPLES, AND A CENTRAL FLUX THIMBLE. MAXIMUM PLANNED THERMAL OUTPUT SHALL BE 18.0 KW/FT. MINIMUM DNB RATIOS WILL BE 1.85 (CERMET RODS) AND 2.47 (UO₂ RODS). THE PH OF THE PRIMARY SYSTEM WILL BE VARIED BY CHANGING THE LITHIUM HYDROXIDE CONCENTRATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*COOLANT CHEMISTRY + *FUEL ELEMENT + CERAMICS + CLAD + DNB (DEPARTURE FROM NUCLEATE BOILING) + IRRADIATION TESTING + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SAXTON + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

17-18451

SAXTON PROPOSED CHANGE 29. TEST FUEL ASSEMBLY XIX.
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PENNSYLVANIA
1 PAGE, SEPTEMBER 31, 1967, DOCKET 50-146

SAXTON REQUESTS USE OF ASSEMBLY XIX, WHICH CONSISTS OF 9 FUEL RODS INCLUDING, (A) 4 REMOVABLE ZIRC-4-CLAD TUBES CONTAINING PUO₂-UO₂ PELLETS, 1 OF WHICH IS PRESSURIZED TO 1500 PSI WITH CRICO₁₆, WHICH DECOMPOSES WHEN REACTOR GOES TO POWER, 2 WITH HELIUM (900 + 1500), (B) 5

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18451 *CONTINUED*

REMAINING RODS OF EITHER SS-CLAD UO₂ (5.7% ENRICHED) IF IN CORE PERIPHERY, OR 1 FLUX THIMBLE AND 4 STANDARD RODS. THE ASSEMBLY WILL BE TO TEST ZIRC-4 FUEL RODS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CLAD + *FUEL ELEMENT + *IRRADIATION TESTING + *PRESSURE, INTERNAL + PLUTONIUM DIOXIDE + REACTOR, PRESSURIZED WATER + SAXTON + TECHNICAL SPECIFICATIONS + URANIUM DIOXIDE + ZIRCALOY

17-18452

WORCESTER POLYTECH PROPOSED TECHNICAL SPECIFICATIONS. DRAFT #4.
WORCESTER POLYTECHNIC INSTITUTE, WORCESTER, MASSACHUSETTS
19 PAGES, SEPTEMBER 13, 1967, DOCKET 50-134

INCORPORATES WPI SUGGESTIONS ON AEC PROPOSED TECH. SPECS. REACTOR IS A 10-KW POOL TYPE, WITH EXCESS REACTIVITY OF 0.5%. LOG COUNT-RATE METER MUST INDICATE ABOVE 50 CPS FOR OPERATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

INSTRUMENTATION, STARTUP RANGE + POWER UPGRATING + REACTOR, POOL TYPE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-18453

SAXTON CHANGE REPORT 13. LARGER REACTIVITY OSCILLATOR
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PENNSYLVANIA
5 PAGES, SEPTEMBER 20, 1967, DOCKET 50-146

SAXTON INTENDS TO INSTALL A LARGER OSCILLATOR (0.013% MAXIMUM WORTH OVER A 1.6-IN. STROKE) TO OBTAIN DATA ABOUT PH EFFECTS ON KINETIC PARAMETERS AND HEAT-TRANSFER PROPERTIES. ASSEMBLY IS SIMILAR TO PRESENT ONE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*OSCILLATOR, REACTIVITY + COOLANT CHEMISTRY + HEAT TRANSFER + REACTOR, PRESSURIZED WATER + SAXTON + TECHNICAL SPECIFICATIONS

17-18454

ALSO IN CATEGORIES 11 AND 9
PLUM BROOK PROPOSED CHANGE 32. PENETRATION LEAK RATE, MAXIMUM FUEL BURNUP, AND CONTROL ROD DRIVES GUIDE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SANDUSKY, OHIO
5 PAGES, SEPTEMBER 7, 1967, DOCKET 50-30

(1) REQUESTS LONGER (YEARLY) LEAK-TEST INTERVAL ON UNMONITORED PENETRATIONS ON BASIS OF PAST EXPERIENCE. *** (2) INCREASE ALLOWED BURNUP FROM 100 TO 113 MWD ON BASIS OF OBSERVATION AT ORNL, WHERE 240 G ELEMENTS WERE DEPLETED TO 96 G U-235. *** (3) MODIFICATION OF CONTROL-ROD DRIVES TO PERMIT A PLANNED MODIFICATION OF CORE UPPER GRID (DIVIDING IT INTO 2 PARTS) TO FACILITATE RELOADING. ROLLER BEARING WILL BE REPLACED BY ROLLERLESS GUIDES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONTAINMENT PENETRATION, ELECTRICAL + *CONTROL ROD DRIVE + *FUEL BURNUP + *TEST INTERVAL + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + PLUM BROOK + REACTOR, RESEARCH + REACTOR, TEST + SUPPORT STRUCTURE + TECHNICAL SPECIFICATIONS + TEST, LEAK RATE

17-18455

BONUS WITHDRAWS CHANGE REQUEST CONCERNING LEAK RATE TEST
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
2 PAGES, SEPTEMBER 28, 1967, DOCKET NO. 115-4

BONUS HAD REQUESTED LEAK-RATE-TEST REQUIREMENTS TO TAKE ADVANTAGE OF A SCHEDULED NOV. SHUTDOWN. HOWEVER, THE REACTOR WAS SHUTDOWN TO INVESTIGATE AN APPARENT DECLINE IN THE RETURN OF FLOW ATTAINABLE IN THE REACTOR-WATER CIRCULATING SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FLOW BLOCKAGE + *MAIN COOLING SYSTEM + *TEST, LEAK RATE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

17-18456

ALSO IN CATEGORY 10
EMERGENCY GENERATOR FAILURE AT IRL
INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
3 PAGES, JULY 14, 1967, DOCKET NO. 50-17

(LETTER, JULY 14) GENERATOR (3 PHASE, 50 KW, 62.5 KVA, 174 AMPS/PHASE) FAILED TO START AUTOMATICALLY AFTER A POWER OUTAGE (22 JUNE 67) DUE TO OVERLOADING (PHASE A - 210 AMPS, B - 190, C - 200). LOAD WAS REDUCED TO 166, 134, AND 146 RESPECTIVELY. EQUIPMENT HAD BEEN

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18456 *CONTINUED*

TESTED 6 TIMES IN LAST 13 MONTHS (3 TIMES IN LAST MONTH), 4 OF WHICH WERE ACTUAL POWER OUTAGES, WITH SATISFACTORY RESULTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAILURE, EQUIPMENT + *TEST INTERVAL + EMERGENCY POWER, ELECTRIC + GENERATOR, DIESEL + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-18457

HADDAM NECK CHANGE 1. HIGH STEAM FLOW SET POINT AT LOW POWER LEVELS
CONNECTICUT YANKEE ATOMIC ELECTRIC COMPANY, HARTFORD, CONNECTICUT
1 PAGE, SEPTEMBER 15, 1967, DOCKET 50-213

DRL ALLOWS DELETION OF REQUIREMENT THAT HIGH-STEAM-FLOW SETPOINT BE REDUCED TO 65% OF NORMAL FLOW WITH REACTOR BELOW 15% FULL POWER. TRIP IS TO PROTECT CORE IN CASE OF LARGE STEAM-LINE RUPTURE. ADEQUATE PROTECTION IS ENSURED AT NORMAL POSITION AND NO LOAD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*ACCIDENT, LOSS OF COOLANT + *INSTRUMENTATION, FLOW + *REACTOR SAFETY SYSTEM + HADDAM NECK + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-18459

ALSO IN CATEGORY 10

PLUM BROOK CHANGE 21. EMERGENCY GENERATOR REPLACE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, CLEVELAND, OHIO
1 PAGE, SEPTEMBER 11, 1967, DOCKET 50-30

DRL ALLOWS PLUM BROOK TO REPLACE 4 OLD DIESEL GENERATORS FOR 2 LARGER NEW CNES. FORMER UNITS (3 - 187 KVA, 1 - 100 KVA) REQUIRED EXCESSIVE MAINTENANCE. ONE OF THE NEW UNITS (625 KVA EACH) WILL BE OPERATED CONTINUOUSLY AT A LOAD EQUAL TO THE EMERGENCY LOAD WHENEVER REACTOR OPERATES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*EMERGENCY POWER, ELECTRIC + GENERATOR, DIESEL + PLUM BROOK + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-18467

TILEE HE

IN-PILE IRRADIATION EQUIPMENT AND TECHNIQUES

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY

TRG-REPORT-1404 + CONF-660521 +. 72 PAGES, FIGURES, TABLES, INTERNATIONAL SYMPOSIUM HELD AT HARWELL 10-12, MAY 1966

A SELECTION OF 10 PAPERS BY MEMBERS OF THE REACTOR ENGINEERING LABORATORY TO AN INTERNATIONAL SYMPOSIUM, HARWELL, MAY 1966, INCLUDING (1) HIGH-TEMPERATURE BOLTED FLANGED JOINTS, (2) HIGH-TEMPERATURE BELLOWS-SEALED VALVES, (3) GAS-BEARING CIRCULATOR, (4) HEATERS FOR IRRADIATION EXPERIMENTS, (5) METAL-SHEATHED MINERAL-INSULATED BASE-METAL THERMOCOUPLES, (6) USE OF CO₂ AT HIGH PRESSURES, (7) MAGNETIC FORMING, (8) DEVELOPMENT OF TENSILE-CREEP IRRADIATION EQUIPMENT, (9) DEVELOPMENT WORK IN SUPPORT OF THE D.M.T.R. BOILING WATER LOOP, AND (10) OPERATING EXPERIENCE AND DEVELOPMENT OF WIGNER-TYPE RIGS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*EQUIPMENT, GENERAL + *IN PILE LOOP + *IRRADIATION FACILITY + HARWELL (UK) + OPERATING EXPERIENCE + UNITED KINGDOM

17-18602

VESTERGAARD R

SWEDISH FAST REACTOR

5 PAGES, 3 FIGURES, ENERG. NUCL (PAPIS) 9, PAGES 108-12 (MAR.-APR. 1967), IN FRENCH

BRIEF DESCRIPTION OF SWEDISH PROGRESS IN THE FAST REACTOR FIELD, AND DESCRIPTION OF THE FAST REACTOR, WHICH WAS PUT IN SERVICE IN FEB. 1964, THE EXPERIENCE OBTAINED WITH THIS TYPE OF REACTOR, AND ITS FUTURE.

*REACTOR DESCRIPTION + OPERATING EXPERIENCE + REACTOR, FAST + SWEDEN

17-18604

ALSO IN CATEGORY 18

LILLIE AF

HEAVY WATER ORGANIC COOLED REACTOR. DESIGN, FABRICATION, AND INITIAL OPERATION OF EXP-WR1-951 FUEL STRING ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

AI-CE-44 +. 48 PAGES, 17 FIGURES, 4 TABLES, 14 REFERENCES, AUGUST 31, 1967

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18604 *CONTINUED*

EXPERIMENT IS A FUEL STRING FOR SAP (SINTERED ALUMINUM POWDER) CLAD HYPER-UC (HYPERSTOICHIOMETRIC URANIUM CARBIDE) IRRADIATION TESTS IN THE WR-1, WITH EMPHASIS ON ISOTROPY OF FUEL GROWTH, CLADDING BEHAVIOR, AND PERFORMANCE OF THE 19-ROD FUEL BUNDLE (WHICH SIMULATES THE INNER 19 RODS OF THE 37-ROD HWOCR REFERENCE ASSEMBLY). WHILE MOST OF THE EXPERIMENTAL RESULTS COMPARED FAVORABLY WITH DESIGN CALCULATIONS, TEMPERATURE RESULTS FOR SOME OF THE FUEL RODS DEPARTED SIGNIFICANTLY FROM CALCULATIONS (WHICH USED THE THERMOS CODE, ASSUMING A CYLINDRICAL FUEL BUNDLE INSTEAD OF HEXAGONAL).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*COMPARISON, THEORY AND EXPERIENCE + *FUEL ELEMENT + *IRRADIATION TESTING + CANADA + CLAD + FABRICATION + HEAT CONDUCTANCE, FUEL TO CLAD + HWOCR (HEAVY WATER ORGANIC COOLED REACTOR) + REACTOR, HEAVY WATER + REACTOR, ORGANIC COOLED + RESEARCH AND DEVELOPMENT PROGRAM + STOICHIOMETRY + URANIUM CARBIDE + WR 1 (WHITESHELL REACTOR NO. 1, CANADA)

17-18605

DYER RE

DISASSEMBLY AND POSTOPERATION OF THE SNAP 8 EXPERIMENTAL REACTOR
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-11520 +. 53 PAGES, 36 FIGURES, 12 TABLES, 5 REFERENCES, JUNE 30, 1967

DESCRIBES POSTOPERATIONAL REMOVAL OF REACTOR COMPONENTS, AND VISUAL, TENSILE, HARDNESS, METALLOGRAPHIC, AND OTHER TESTS. PUMP HEADER CAP FAILED BY COOLANT VORTEXING - EROSION. INCLUDES DATA AND PHOTOS ON SURFACE CORROSION UNDER NAK AND THE COVER GAS. CORROSION OF THE SS PIPING WAS GENERALLY LESS THAN EXPECTED. HASTELLOY CLADDING OF REFLECTOR FAILED AT WELDED PINS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CORROSION + *FAILURE, EQUIPMENT + *OPERATING EXPERIENCE + COATING, SURFACE + FLOW, VORTEX + PIPING + POTASSIUM + PUMP + REACTOR, SPACE + SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER) + SODIUM + TESTING

17-18606

PECKINPAUGH CL

SRF-PEP PUMP PERFORMANCE

ATOMICS INTERNATIONAL, CANOGA PARK

NAA-SR-12409 +. 41 PAGES, 16 FIGURES, 2 TABLES, 9 REFERENCES, JUNE 6, 1967

FREE-SURFACE CENTRIFUGAL PUMPS (2 MAIN-SODIUM-SYSTEM AND 2 AUXILIARY-SYSTEM PUMPS) WERE INSTALLED IN PLACE OF THE ORIGINAL FREEZE-SEAL PUMPS, WHICH HAD ENTRAINED GAS IN COOLANT AND HAD EXPERIENCED OIL LEAKS. NEW PUMPS, BASED ON HALLAM EXPERIENCE, ARE ALSO MORE RELIABLE. DESCRIBES PUMPS IN DETAIL AND MODIFICATIONS MADE TO LIMIT OIL LEAKS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*OPERATING EXPERIENCE + *PUMP + *RELIABILITY, SYSTEM + COOLANT CHEMISTRY + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, LIQUID METAL COOLED + SRE (SODIUM REACTOR EXPERIMENT) + TEST, PREOPERATIONAL

17-18607

COX JA

OPERATING EXPERIENCE FEEDBACK TO DESIGNERS AND TO OTHER OPERATING AGENCIES

OAK RIDGE NATIONAL LABORATORY

17 PAGES, 5 TABLES, 36 REFERENCES, NUCLEAR SAFETY 8(4) PAGES 299-315 (SUMMER 1967)

REVIEWS THE EXPERIENCE ACCUMULATED AT THE ORR, OGR, LTR, AND HFIR ON RADIATION SAFETY, CONTROL-ROD PROBLEMS, REMOTE MAINTENANCE, COOLING-WATER DEMINERALIZERS, FUEL-ELEMENT PROBLEMS, BOILING AND LOSS OF FLOW, RADIATION EFFECTS ON MATERIALS, HEAT-EXCHANGER PROBLEMS, AND INSTRUMENTATION RELIABILITY.

*OPERATING EXPERIENCE + BERYLLIUM + CONCRETE + CONTROL ROD DRIVE + COOLANT PURIFICATION SYSTEM + FAILURE, EQUIPMENT + FAILURE, SCRAM MECHANISM + FUEL HANDLING + FUEL MELTDOWN + GRAPHITE + HEAT EXCHANGER + HFIR (HIGH FLUX ISOTOPE REACTOR) + INSTRUMENTATION, GENERAL + LTR (LOW INTENSITY TEST REACTOR) + MAINTENANCE AND REPAIR + NUCLEATE BOILING + ORNL (OAK RIDGE NATIONAL LABORATORY) + ORR (OAK RIDGE RESEARCH REACTOR) + RADIATION EFFECT + RADIATION SAFETY AND CONTROL + REACTOR, AEC OWNED + REACTOR, RESEARCH + RELIABILITY, SYSTEM + REMOTE MANIPULATING AND VIEWING + RHENIUM + TANTALUM

17-18608

ALSO IN CATEGORY 12

STEVENSON CN + FELDMAN MJ + HAMPSON DC + KLEFFNER JO + PAIGE DM

MAINTENANCE AND REPAIR OF CONTAMINATED EQUIPMENT FOR THE EBR-II FUELCYCLE FACILITY

ARGONNE NATIONAL LABORATORY

7 PAGES, 4 FIGURES, 6 REFERENCES, PAGES 149-155, PROCEEDINGS OF THE 14TH CONF. ON REMOTE SYSTEMS

TECHNOLOGY, ANS WINTER MEETING, PITTSBURGH, 1966, ABSTRACT IN ANS TRANSACTIONS 9(2) PAGE 621 (WINTER 1966)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18608 *CONTINUED*

IN-CELL EQUIPMENT IS REPAIRED BY REMOVAL AND REPLACEMENT OF COMPONENTS WITH MANIPULATORS AND EITHER REWORKING THE COMPONENTS AT A TABLE WITHIN THE CELLS, OR REMOVAL, BAGGING, AND DECONTAMINATION FOR CONTACT REPAIR. GLOVE BOXES WERE DEVELOPED FOR MODEL-A MANIPULATOR SLAVE AND THROUGH-TUBE REPAIR, BUT IT HAS BEEN FOUND NECESSARY TO DECONTAMINATE THE SLAVES FOR ADEQUATE RECONDITIONING. MAINTENANCE OF CONTAMINATED AUXILIARY EQUIPMENT REQUIRES FULL PROTECTIVE CLOTHING AND LIMITED WORKING TIME.

*MAINTENANCE AND REPAIR + *MAINTENANCE, REMOTE + *REMOTE MANIPULATING AND VIEWING + ANL (ARGONNE NATIONAL LABORATORY) + EBR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS) + EQUIPMENT, GENERAL + FUEL REPROCESSING + HOT CELL

17-18611 \ ALSO IN CATEGORY 9

PIQUA CONTROL ROD TESTS
PIQUA NUCLEAR POWER FACILITY

COO-652-42 +. 9 PAGES, SEPTEMBER 19, 1967, DOCKET NO. 115-2, FROM PIQUA NUCLEAR POWER FACILITY. MONTHLY OPERATING REPORT NO. 52 FOR AUGUST 1967

DURING CONTROL ROD COMPRESSION TESTS, PERSONNEL WERE EXPOSED AT 3 REMS/HR TRANSFERRING THE CENTRAL ROD TO THE TEST RIG. THE ROD READ 250 R/HR (GAMMA) AT 18 IN. MAX. DOSIMETER READING FOR THE MONTH WAS 0.4 REM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD BURNUP + MAINTENANCE AND REPAIR + OPERATING EXPERIENCE + OPERATIONS REPORT, GENERAL + PERSONNEL EXPOSURE, RADIATION + PIQUA + REACTOR, ORGANIC COOLED

17-18612

B+W REPORT OF INSPECTION OF 3 BORON S.S. SAFETY RODS FROM LYNCHBURG POOL REACTOR
BABCOCK AND WILCOX, NUCLEAR DEVELOPMENT CENTER
2 PAGES, 1 TABLE, SEPTEMBER 27, 1967, DOCKET NO. 50-99

B AND W INSPECTED THE RODS VISUALLY AND MEASURED THICKNESS AND WIDTH. INCLUDED IS A TABLE SHOWING RESULTS FOR THE LAST 6 INSPECTIONS (DATING TO APRIL 1962), GIVING AVERAGE AND MAX. WIDTH AND THICKNESS. SIGNIFICANT CHANGES WERE NOTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD BURNUP + *EXAMINATION + OPERATING EXPERIENCE + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-18613

DRESDEN 1 REQUESTS AMENDMENT TO ALLOW USE OF TYPE V FUEL ASSEMBLIES
COMMONWEALTH EDISON CO., CHICAGO, ILLINOIS
17 PAGES, 2 FIGURES, 2 TABLES, OCTOBER 6, 1966, DOCKET NO. 50-10

TYPE V IS SIMILAR TO TYPE III-F, THE PRINCIPLE DIFFERENCE IS THAT THE GADOLINIA BURNABLE POISON IS IN SELECTED FUEL RODS INSTEAD OF IN A SINGLE INERT ALUMINA ROD. FOUR SPECIAL ASSEMBLIES HAVE REDUCED CLADDING THICKNESS (0.026 VS. 0.035 IN.) AND 2 SPECIAL ASSEMBLIES WITH ZIRCALOY SPACERS INSTEAD OF S.S. AND CONTAIN DISHED PELLETS IN SELECTED RODS. MAXIMUM STEADY-STATE HEAT FLUX IS 360,000 BTU/HR-SQ. FT (SAME AS FOR TYPE III-F).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CLAD + *FUEL ELEMENT + *POISON, BURNABLE + BURNOUT HEAT FLUX + CORE COMPONENTS, MISCELLANEOUS + DRESDEN 1 + GADOLINIUM + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18614

DRESDEN 1 REQUEST PROPOSED CHANGE 14 USE OF TYPE VI FUEL ASSEMBLIES
COMMONWEALTH EDISON CO., CHICAGO, ILLINOIS
17 PAGES, 9 FIGURES, 5 TABLES, 12 REFERENCES, SEPTEMBER 14, 1967, DOCKET NO. 50-10

TYPE-VI FUEL ASSEMBLIES ARE VERY SIMILAR TO TYPE III-F, THE TWO MAIN DIFFERENCES BEING (1) GD203 BURNABLE POISON IS IN A SINGLE UO2 ROD RATHER THAN IN AN ALUMINA ROD, AND (2) FUEL PELLETS ARE DISHED. 13 TYPE-VI (DESIGNATED TYPE VI-I) ARE INSTRUMENTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

DRESDEN 1 + GADOLINIUM + POISON, BURNABLE + REACTOR, BOILING WATER

17-18615

ALSO IN CATEGORY 16
FORD NUCLEAR REACTOR AMENDMENT 17. AIRBORNE ACTIVITY RELEASE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
8 PAGES, SEPTEMBER 7, 1967, DOCKET NO. 50-2, UNIVERSITY OF MICHIGAN

DRL ALLOWS U OF MICHIGAN A STACK DILUTION FACTOR OF 400 AND A BUILDING-EXHAUST DILUTION FACTOR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18615 *CONTINUED*
OF 4, BASED ON EXPERIMENTAL DATA. BUILDING EXHAUST IS THRU A ROOF-MOUNTED COOLING TOWER.
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DILUTION + *SOURCE, CONTINUOUS + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + REACTOR, POOL TYPE +
REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-18616 ALSO IN CATEGORIES 16 AND 14
FORD NUCLEAR REACTOR PROPOSED AMENDMENT 17. AIRBORNE ACTIVITY RELEASE
THE UNIVERSITY OF MICHIGAN, PHOENIX MEMORIAL LABORATORY
10 PAGES, 1 FIGURE, 2 TABLES, MAY 22, 1967, DOCKET NO. 50-2

U OF MICHIGAN REQUESTS INCREASE IN RELEASE LIMITS (16 TO BECOME 400 TIMES 10 CFR 20 LIMITS
THROUGH STACK, AND 1 TO BECOME 4 TIMES 10 CFR 20 LIMITS THROUGH BUILDING EXHAUST). REQUEST
IS BASED ON A THESIS (MMPP 272, CORRELATION OF WIND-TUNNEL AND FIELD MEASUREMENTS OF GAS
DIFFUSION USING KR-85 TRACER) AND METEOROLOGICAL OBSERVATIONS, WHICH SHOWED MINIMUM DILUTION
FACTORS OF 400 AND 4 FOR THE STACK AND EXHAUST.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *SOURCE, CONTINUOUS + DILUTION + MODEL TESTING +
RADIOACTIVITY, RELEASE + REACTOR, POOL TYPE + REACTOR, RESEARCH + STACK + TECHNICAL SPECIFICATIONS +
VENTILATION SYSTEM

17-18617 ALSO IN CATEGORY 16
RE-EVALUATION OF FNR STACK DILUTION FACTOR
THE UNIVERSITY OF MICHIGAN, PHOENIX MEMORIAL LABORATORY
10 PAGES, 1 FIGURE, 2 TABLES, MAY 22, 1967, DOCKET NO. 50-2, FORD NUCLEAR REACTOR

BASED ON EXPERIMENTS AND METEOROLOGICAL OBSERVATIONS, A NEW VALUE OF 400 (PREVIOUSLY 16) WAS
CALCULATED FOR THE FORD NUCLEAR REACTOR. EXPERIMENTAL WORK WAS MAINLY SCALE-MODEL
WIND-TUNNEL TESTING OF PLUME BEHAVIOR. BUILDING-CAUSED TURBULENCE IS CONTROLLING FACTOR IN
PLUME BEHAVIOR. FIELD MEASUREMENTS OF ACTIVITY WERE ALSO MADE IN THE REACTOR VICINITY.
LOWEST MOMENTARY DILUTION FACTOR REPORTED WAS 100. THE DILUTION FACTOR DUE TO WIND
DISTRIBUTION AS DETERMINED FROM METEOROLOGICAL DATA TO BE 4, GIVING A TOTAL FACTOR OF 400.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DILUTION + *MODEL TESTING + *PLUME BEHAVIOR, GENERAL + *SOURCE, CONTINUOUS + *TURBULENCE, SHEAR (WIND) +
*WIND STATISTICS + BUILDING + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + RADIOACTIVITY, RELEASE +
REACTOR, POOL TYPE + REACTOR, RESEARCH + STACK + TECHNICAL SPECIFICATIONS + WIND TUNNEL EXPERIMENT

17-18618
G.A. AGAIN REQUESTS PERMISSION TO STORE APFA FUEL PIECES
GENERAL DYNAMICS, GENERAL ATOMIC DIVISION, SAN DIEGO, CALIFORNIA
2 PAGES, SEPTEMBER 25, 1967, DOCKET NO. 50 235, ACCELERATOR PULSED FAST ASSEMBLY II

STORAGE IS TO BE IN BUTLER BUILDING 10 AT THE FA WASTE YARD. GA HAD MADE THIS REQUEST ON 4
NOV. 66, BUT THE REQUEST WAS DELAYED BY QUESTIONS RELATED TO IDENTIFICATION OF THE STORAGE
AREA, WHICH HAVE SINCE BEEN RESOLVED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL STORAGE + CRITICAL ASSEMBLY FACILITY + REACTOR DECOMMISSIONING EXPERIENCE + TECHNICAL SPECIFICATIONS

17-18646
AILLOU J
THE REACTOR CABRI
7 PAGES, 2 FIGURES, 3 REFERENCES, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 19 THRU 26, (FEBRUARY 1967),
IN FRENCH

DESCRIPTION OF CABRI AND CABRI-PUISSANCE REACTORS, EMPHASIZING SPECIAL EQUIPMENT AND
MODIFICATIONS MADE TO THE ORIGINAL FACILITY

*REACTOR DESCRIPTION + FRANCE + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE +
REACTOR, POOL TYPE

17-18647 ALSO IN CATEGORY 6
DELCHAMBRE PH + MILLOT JP
REVIEW OF EXPERIMENTS ON REACTIVITY ACCIDENTS
16 PAGES, 23 FIGURES, BULL. INFORM. SCI. TECH. (PARIS), 112, PAGE 41 THRU 56, (FEBRUARY 1967), IN FRENCH

GIVES RESULTS OF EXPERIMENTS WITH 2 SIMILARLY SHAPED CGRES (OSIRIS) FLOW RATES AT AN
INITIAL TEMPERATURE OF 30 C WERE PERFORMED. OSIRIS RESULTS SHOW THAT FOR PERIODS SHORTER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18647 *CONTINUED*
THAN 15 MSEC, A CONSIDERABLE AMOUNT OF WATER IS EXPELLED FROM THE CORE AT PEAK POWER.

*ACCIDENT, REACTIVITY + *EXCURSION, LARGE + EMERGENCY COOLING CONSIDERATIONS + FRANCE +
REACTOR, POOL TYPE + REACTOR, SAFETY RESEARCH

17-18658 ALSO IN CATEGORY 9
CATHOLIC U REPORTS SCRAM RELAY FAILURE DUE TO CIRCUIT MODIFICATION
THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON, D. C.
3 PAGES, SEPTEMBER 18, 1967, DOCKET NO. 50-77

ON 28 FEB. 67, SCRAM RELAY (K4) FAILED TO DEENERGIZE UPON OPENING OF AN INTERLOCK WHICH CAUSES
90 VOLTS TO BE COUPLED THROUGH A 220-K RESISTOR TO THE GRID OF THE 6L6 TUBE (WITH A GRID
RESISTOR OF 470 K), WHICH NORMALLY ALLOWED ENOUGH VOLTAGE TO SHUT OFF RELAY CURRENT.
HOWEVER, MODIFICATIONS MADE TO COMPLY WITH TECH. SPEC. 2.4 CAUSED ONLY ABOUT 10 VOLTS TO
APPEAR ACROSS THE 6L6 TUBE, WHICH WAS INSUFFICIENT TO SHUT OFF THE TUBE. THE RODS HAD
DROPPED, HOWEVER, CHANGES WERE MADE TO ALLOW PROPER OPERATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *REACTOR SAFETY SYSTEM + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) +
FAILURE, DESIGN ERROR + INSTRUMENTATION, INTERLOCK + INSTRUMENTATION, RELAY +
MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS

17-18659 ALSO IN CATEGORY 9
CATHOLIC U ANNUAL REPORT OF FACILITY MODIFICATION AND OPERATIONS FOR YEAR ENDED 25 AUG. 67
THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON, D. C.
3 PAGES, SEPTEMBER 18, 1967, DOCKET NO. 50-77

(13 MAR. 67) EXCESS REACTIVITY WAS SHOWN TO BE 0.44% DUE TO 20 C AMBIENT. GRAPHITE BEAM-TUBE
FILLER BLOCK WAS REMOVED TO RETURN TO LICENSE LIMIT OF 0.25. EQUIPMENT FAILURES - (1) SCRAM
ALARM BELL AND LIGHT FAILED TO OPERATE. (2) 4 FALSE INDICATIONS ON VARIAN RECORDED. (3) 9
CONTROL-ROD-DRIVE FAILURES (3 TIMES THE COARSE ROD WOULD NOT LEAVE LOWER LIMIT, 3 TIMES THE
NO. 1 SAFETY DROPPED WHEN IT REACHED UPPER LIMIT, 2 TIMES THE NO. 2 SAFETY WOULD NOT LEAVE
LOWER LIMIT, AND ONCE THE FINE ROD WOULD NOT LEAVE LOWER LIMIT). 6 OF THESE WERE 14-26 JULY
67. (5) SCRAM FAILED TO DEENERGIZE (RODS DROPPED FROM OTHER SOURCE) DUE TO MODIFICATION OF
CIRCUIT WHICH HAD LEFT INTERLOCK OPEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + CONTROL ROD DRIVE +
FAILURE, DESIGN ERROR + INSTRUMENTATION, ABNORMAL INDICATION + OPERATING EXPERIENCE +
OPERATIONS REPORT, GENERAL + REACTIVITY, EXCESS + REACTOR SAFETY SYSTEM + REACTOR, TRAINING

17-18660
CATHOLIC U CHANGE 2. ALLOWABLE EXCESS REACTIVITY
THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON, D. C.
4 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-77

DRL ALLOWS LIMIT OF 0.65% DELTA K/K ON AVAILABLE TOTAL EXCESS REACTIVITY. 0.80% IS NEEDED TO
BE PROMPT CRITICAL. MCA IS STEP INSERTION OF 2%, CAUSING AN EXCURSION WHICH TERMINATES AT 40
C, WELL BELOW THE FUEL MELTING TEMPERATURE. CHANGE WAS MADE NECESSARY BY SEASONAL
TEMPERATURE VARIATIONS OF THE POOL WATER.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTIVITY, EXCESS + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + REACTIVITY EFFECT, ANOMALOUS +
REACTOR, TRAINING + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-18662
SAN ONOFRE SUPPLIES ADDITIONAL INFORMATION ON MODERATOR COEFFICIENT
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIFORNIA
5 PAGES, SEPTEMBER 29, 1967, DOCKET NO. 50-206

LOW-POWER TESTS GIVE A MODERATOR COEFFICIENT OF 0.74×10^{-4} DP/F. A POSITIVE COEFFICIENT
ONLY DURING THE FIRST 10% OF FIRST-CYCLE LIFE. EXTRAPOLATED VALUE OF THE COEFFICIENTS AT
HIGH POWER IS 0.54×10^{-4} BEFORE ESTABLISHING XENON EQUILIBRIUM. BORDON CONCENTRATION WILL
MAKE THE COEFFICIENT MORE NEGATIVE. A VALUE OF 0.47×10^{-4} DP/F IS SUGGESTED AS A
TECH.-SPEC. LIMIT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MEASUREMENT, REACTIVITY + *MODERATOR COEFFICIENT + *TEST, PHYSICS + EXTRAPOLATION FACTOR +
POISON, SOLUBLE + REACTOR, PRESSURIZED WATER + SAN ONOFRE + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18663

U OF UTAH PROPOSED, AMENDMENT LICENSE AND TECHNICAL SPECIFICATIONS FOR AGN-201
UNIVERSITY OF UTAH, SALT LAKE CITY
6 PAGES, 1 TABLE, SEPTEMBER 25, 1967, DOCKET NO. 50-72

REQUESTS LICENSE BE AMENDED IN ITS ENTIRETY BY SUBSTITUTING A SIMPLIFIED LICENSE AND APPENDIX A (TECH. SPECS.). EXCESS REACTIVITY (COLD-CLEAN) IS 0.25% DELTA K/K. EXPERIMENTS MAY BE WORTH UP TO 0.4% DELTA K/K.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TECHNICAL SPECIFICATIONS + AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + REACTOR, TRAINING

17-18664

ALSO IN CATEGORY 12
HADDAM NECK PROPOSED CHANGE - STEAM LINE ISOLATION VALVE CLOSURE TIME
CONNECTICUT YANKEE ATOMIC POWER COMPANY, BOSTON, MASS.
2 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-213

REQUESTS CHANGE FROM CLOSURE TIME OF 1 SEC TO 10 SEC. THE VALVES ARE DESIGNED FOR RAPID CLOSURE UNDER HIGH STEAM FLOW. MEASURED CLOSURE TIMES AT SUBSTANTIAL STEAM FLOW HAS BEEN BETWEEN 1.5 AND 4.6 SEC, AVERAGING 2.8. TESTS CANNOT BE RUN UNDER ACCIDENT AT WHICH SHORTER CLOSURE TIMES ARE EXPECTED. POSITIVE MODERATOR COEFFICIENT PROTECTS AGAINST REACTIVITY INCREASE DUE TO BLOWDOWN. THEREFORE, THE PROPOSED CHANGE WOULD BE IN EFFECT ONLY WHILE THE MODERATOR COEFFICIENT IS POSITIVE. FURTHER ANALYSIS WILL BE MADE AND SUBMITTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, CLOSURE OF + *EMERGENCY COOLING CONSIDERATIONS + *MAIN COOLING SYSTEM + *MODERATOR COEFFICIENT + *RESPONSE TIME + COMPARISON, THEORY AND EXPERIENCE + HADDAM NECK + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS + TESTING + VALVE

17-18665

ALSO IN CATEGORY 14
HADDAM NECK SUPPLIES SUPPLEMENTAL INFORMATION ON MAIN STEAM ISOLATION VALVES
CONNECTICUT YANKEE ATOMIC POWER COMPANY
1 PAGE, OCTOBER 9, 1967, DOCKET NO. 50-213

(TWX) EVALUATION OF MAIN STEAM BREAK (ASSUMING VALVE-CLOSURE TIME OF 10 SEC) SHOWS A . . .
SITE-BOUNDARY DOSE OF LESS THAN 0.05 REM, WITH THE FOLLOWING ASSUMPTIONS - 1% FAILED FUEL,
3-GPM LEAKAGE TO SECONDARY SYSTEM, 5% MOISTURE CARRYOVER, PASQUILL F METEOROLOGY AT 1 M/SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, STEAM LINE RUPTURE + AIRBORNE RELEASE + DOSE + HADDAM NECK + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-18666

U OF CALIFORNIA (BERKELEY) PROPOSED AMENDMENT 1. USE OF AM-BE SOURCE
UNIVERSITY OF CALIFORNIA, BERKELEY
5 PAGES, JULY 11, 1967, DOCKET NO. 50-224

REQUESTS PERMISSION TO SUBSTITUTE AN AM-BE SOURCE FOR EITHER THE PO-BE OR SB-BE SOURCES NOW PERMITTED. ORIGINALLY THE SB SOURCE WAS TO REPLACE THE PO SOURCE AS IT DECAYED. HOWEVER, SOURCE GEOMETRY AND OPERATING SCHEDULE HAVE NOT MADE THIS FEASIBLE. THE NEW SOURCE WOULD BE A NUMEC 2-CURIE SOURCE GIVING 4.4 MILLION NEUTRONS/SEC, DOUBLY ENCAPSULATED IN WELDED S.S., IN A TRIGA SOURCE CONTAINER.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SOURCE, NEUTRON + AMERICIUM + ANTIMONY + POLONIUM + REACTOR. RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-18667

U OF CALIFORNIA (BERKELEY) AMENDMENT 1. USE OF AM-BE SOURCE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-224

DRL ALLOWS USE OF AM-BE SOURCE IN ADDITION TO PRESENT PO-BE AND SB-BE SOURCES. HEAT EFFECTS DUE TO TRANSMUTATION AND FISSIONING OF THE AM ARE NEGLIGIBLE. SOURCE IS DOUBLY ENCAPSULATED IN SS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*AMERICIUM + *SOURCE, NEUTRON + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18668

UNIVERSITY OF CALIFORNIA (BERKELEY) PROPOSED CHANGE 1 - WORDING CHANGES
UNIVERSITY OF CALIFORNIA
1 PAGE, JULY 28, 1967, DOCKET 50-224

REQUESTS WORDING CHANGE TO ALLOW MODIFICATIONS TO VENTILATION SYSTEM AS LONG AS THEY MEET SPECIFICATIONS OF ORIGINAL SYSTEM, OR UPON APPROVAL OF THE REACTOR HAZARDS COMMITTEE AS NOT BEING AN UNREVIEWED SAFETY PROBLEM.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + MODIFICATION, SYSTEM OR EQUIPMENT + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.) + VENTILATION SYSTEM

17-18669

UNIVERSITY OF CALIFORNIA (BERKELEY) CHANGE 1- ADMINISTRATIVE PROCEDURES ON REVIEW OF MODIFICATIONS
DIVISION OF REACTOR LICENSING, USAEC, WASHINGTON
3 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-224

DRL ALLOWS MODIFICATION OF VENTILATING SYSTEM UPON APPROVAL BY REACTOR HAZARDS COMMITTEE IF AN UNREVIEWED SAFETY QUESTION IS NOT INVOLVED. THIS PROCEDURE IS SIMILAR TO THAT FOR OTHER UNIVERSITY REACTORS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + *SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.) + VENTILATION SYSTEM

17-18670

SAXTON CHANGE 28 - TEST FUEL ASSEMBLY XVIII
DIVISION OF REACTOR LICENSING, USAEC, WASHINGTON
4 PAGES, OCTOBER 3, 1967, DOCKET NO. 50-146

DRL ALLOWS USE OF THIS 9-ROD TEST ASSEMBLY FOR TESTING BURNABLE-POISON RODS, INTERNALLY PRESSURIZED RODS, AND STRESS-RELAXATION SPECIMENS. ELEMENT HAS 2 TEST RODS CONTAINING PYREX GLASS TUBES (SEALED IN S.S. CLAD) SUSPENDED IN S.S. THIMBLES, 5 DUMMY FUEL RODS (CLAD ONLY), AND ANY COMBINATION OF 2 RODS OF (A) ZIRCALOY-4-CLAD RODS CONTAINING ZIRC-4 STRESS-RELAXATION TEST SPECIMENS (CHANGE 24) (B) INTERNALLY PRESSURIZED ZIRC-4 FUEL RODS (CHANGE 22), AND (C) INTERNALLY PRESSURIZED S.S. FUEL RODS. EXPERIMENTAL SAFETY EVALUATION USED POWER AS 35 MWt, AS SAXTON HAS RECENTLY REQUESTED POWER UPGRATING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON

*POISON, BURNABLE + *PRESSURE, INTERNAL + FUEL ELEMENT + IRRADIATION TESTING + POWER UPGRATING + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SAXTON + TECHNICAL SPECIFICATIONS + ZIRCALOY

17-18671

ALSO IN CATEGORY 11

RHODE ISLAND NUCLEAR SCIENCE CENTER REPORTS FACILITY MODIFICATIONS
RHODE ISLAND NUCLEAR SCIENCE CENTER, NARRAGANSETT, R. I.
2 PAGES, OCTOBER 2, 1967, DOCKET 50-193

MODIFICATIONS INCLUDE (1) NEW VENT LINE FOR DELAY TANK, (2) SUBSTITUTION OF PNEUMATIC BUTTERFLY VALVE WITH NITROGEN-BOTTLE BACKUP TO AIR COMPRESSOR IN PLACE OF VENETIAN-BLIND-TYPE DAMPER FOR EXHAUST-FAN ISOLATION, (3) ELIMINATION OF BUILDING PENETRATION TO STACK BY VENTING EXPERIMENT OFF-GAS SYSTEM TO MAIN BUILDING EXHAUST, (4) THERMAL-COLUMN COOLANT-LINE-FLOW SWITCH INSTALLED BUT NOT CONNECTED TO SAFETY SYSTEM YET, AND (5) POOL OVERFLOW DRAIN TO WASTE SYSTEM INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + *OPERATING EXPERIENCE + CONTAINMENT PENETRATION, CLOSURE OF + CONTAINMENT PENETRATION, PIPE + EMERGENCY POWER, NONELECTRIC + REACTOR OFFGAS + REACTOR, POOL TYPE + REACTOR, RESEARCH + VALVE + VENTILATION SYSTEM

17-18672

ALSO IN CATEGORY 15

LOCKHEED REPORTS MODIFICATIONS OF FACILITY FOR YEAR ENDED JULY 31, 1967
LOCKHEED-GEORGIA COMPANY, MARIETTA, GA.
11 PAGES, SEPTEMBER 28, 1967, DOCKET 50-172

ONE SCRAM (FAST-PERIOD SCRAM, SPORIOUS SIGNAL) AND 8 UNSCHEDULED SHUTDOWNS (INCLUDING 3 FAILURES IN MAGNET AMPLIFIER AND 3 MAGNET FAILURES). RESULTS OF ENVIRONMENTAL MONITORING INCLUDE SOIL SAMPLING (MAX. ACTIVITY, 64.5 MICROCURIES/GM) AIR MONITORING (REACTOR-SITE MEASUREMENTS COMPARED WITH OFF-SITE MEASUREMENTS), AND SURFACE-WATER TRANSPORT ACTIVITY (RAIN

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18672 *CONTINUED*

GIVES UP TO A FACTOR OF 10 HIGHER ACTIVITIES THAN UPSTREAM-DOWNSTREAM WATER).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD DRIVE + *FALLOUT + *MONITORING PROGRAM, ENVIRONMENTAL + AIRBORNE RELEASE +
*OPERATING EXPERIENCE + REACTOR, POOL TYPE + REACTOR, TRAINING + SCRAM, SPURIOUS + SOIL

17-18673 ALSO IN CATEGORY 1

MCA ANALYSIS FOR NSCUP-3

NORTH CAROLINA STATE UNIVERSITY

11 PAGES, SEPTEMBER 19, 1967, DOCKET NO. 50-111, NORTH CAROLINA STATE UNIVERSITY REACTOR

(LETTER TO DRL, SEPTEMBER 19, 1967) PREVIOUS MCA WAS CAUSED BY A STEP-REACTIVITY INSERTION OF 0.8%, ON INSERTION OF TWO GRAPHITE BEAM-PORT PLUGS. DUE TO CHANGE IN REACTOR USAGE (PLUGS NO LONGER USED BECAUSE OF BEAM-HOLE EXPERIMENT), IT IS NOW THOUGHT MORE PROBABLY THE STEP INSERTION COULD BE CAUSED BY EJECTION OF NEAR-PERFECT ABSORBERS FROM THE VERTICAL EXPOSURE PORT (VEP). LICENSED CORE EXCESS REACTIVITY IS 1.5%, WHICH IS THEREFORE THE MAXIMUM STEP REACTIVITY FROM SUCH AN EJECTION (ALTHOUGH PRESENT EXCESS REACTIVITY IS ONLY 0.8%). SPERT-I AND BORAX-1 EXPERIMENTS SHOW THAT SUCH AN ACCIDENT WOULD NOT RESULT IN FUEL FAILURE, BUT PROCEDURE LIMITS EXPERIMENT WORTH TO 0.49. *** ADMINISTRATIVE SAFEGUARDS INCLUDE (1) EXPERIMENT APPROVAL BY OPERATIONS ADMINISTRATOR, (2) FUEL HANDLING BY SENIOR OPERATOR, (3) SENIOR OPERATOR IN CONTROL ROOM DURING OPERATION, (4) LIMITED ENTRY TO REACTOR AREA, (5) RODS MAY BE MOVED NO MORE THAN 0.4% ABOVE CALCULATED CRITICAL POSITION.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, MAXIMUM CREDIBLE (MCA) + *ACCIDENT, REACTIVITY + *ADMINISTRATIVE CONTROLS AND PRACTICES +
*BEAM HOLE + REACTIVITY, EXCESS + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-18679 ALSO IN CATEGORY 5

IS BOILING WATER ENVIRONMENT DETRIMENTAL TO SS CLADDING

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

6 PAGES, 1 FIGURE, 27 REFERENCES, POWER REACTOR TECHNOLOGY 8(4) PAGES 252-257 (FALL 1965)

OPPOSING VIEWS ARE PRESENTED ON DIFFERENCES BETWEEN PWR AND BWR CLADDING BEHAVIOR. SPECIFICALLY DISCUSSED ARE (1) SYSTEM PRESSURE EFFECTS ON TENSILE STRESS AND CRACK PROPAGATION, (2) SYSTEM-CHEMISTRY EFFECT ON STRESS CORROSION, (3) CORROSION-PRODUCT DEPOSITION, (4) LOCAL THERMAL STRESSES, AND (5) THE APPLICATION OF EXPERIENCE DATA FROM VALLECITOS BWR TO BWRs IN GENERAL.

*FAILURE, CLADDING + *NUCLEATE BOILING + *STEEL, STAINLESS + *THERMAL MECHANICAL EFFECT + CLAD +
CORROSION + REACTOR, BOILING WATER + REACTOR, PRESSURIZED WATER + STRESS CORROSION +
SURFACE FILM DEPOSIT + TENSILE PROPERTY + VBWR (VALLECITOS BOILING WATER REACTOR)

17-18680

SK44RDAL RC

OPERATIONAL PROBLEMS AND SOLUTIONS

9 PAGES, FIGURES, POWER REACTOR TECHNOLOGY 8(4) PAGES 271-279 (FALL 1965)

SUMMARIZES PROBLEMS AND REPAIR METHODS AS REPORTED AT ANS MEETING. DIFFICULTIES WERE TRACED TO DESIGN, FABRICATION, OR INSPECTION. CONTROL-SYSTEM PROBLEMS INCLUDED STUCK RODS DUE TO DEBRIS AND BUCKLING CAUSED BY RADIATION DAMAGE, AND FAILURE OF NICKEL PLATE TO PROTECT CADMIUM FROM CORROSION. BRIEFLY DISCUSSES (1) FLOW OSCILLATIONS AT ELK RIVER, (2) FLOW-INDUCED VIBRATION FAILURES AT BIG ROCK POINT, YANKEE, GETR, AND SPERT III, (3) CORROSION OF INCONEL AT AGESEA, (4) LEAKS IN MECHANICAL COMPONENTS AT YANKEE AND SPERT III, (5) CONTROL OF OXYGEN FROM RADIOLYSIS OF D2O AT PRTR, AND (6) MODIFICATIONS TO IRRADIATION FACILITIES AT TWO POOL-TYPE RESEARCH REACTORS.

*FAILURE, GENERAL + *OPERATING EXPERIENCE + CONTROL ROD + CORROSION + FAILURE, ADMINISTRATIVE CONTROL +
FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + FAILURE, SCRAM MECHANISM +
FLOW, RECIRCULATION + FLUCTUATION + HEAVY WATER + INCONEL + IRRADIATION TESTING + MAIN COOLING SYSTEM +
MODIFICATION, SYSTEM OR EQUIPMENT + RADIATION DAMAGE + RADIOLYTIC GAS + REACTOR, HEAVY WATER +
REACTOR, POOL TYPE + REACTOR, POWER + REACTOR, RESEARCH + VIBRATION

17-18681

SMITH FA

HALLAM OPERATION IN RETROSPECT

11 PAGES, FIGURES, TABLES, REFERENCES, POWER REACTOR TECHNOLOGY 8(4) PAGES 279-289 (FALL 1965)

REVIEWS THE NORMAL OPERATION, DIFFICULT COMPONENT PROBLEMS, AND UNRESOLVED PROBLEMS. DIFFICULT PROBLEMS DISCUSSED INCLUDE THOSE FROM NUCLEAR INSTRUMENTATION, PLANT PROTECTIVE INSTRUMENTS, CONTROL-ROD THIMBLES, THROTTLE VALVES, HEAT EXCHANGERS, STEAM GENERATORS, AND GAS ENTRAINMENT IN SODIUM EXPANSION TANK. THE UNRESOLVED PROBLEMS INCLUDE CRACKS IN SODIUM EXPANSION TANK, PLUGGING OF OXIDE COLD TRAPS, UNDERSTANDING AND MEASURING CHEMICAL EFFECTS OF CARBON IN SODIUM, VENTING AND FILLING INERT GAS FOR COVER-GAS SYSTEM, FUEL-CHANNEL VARIABLE-COOLANT-FLOW ORIFICES, AND MODERATOR CLADDING LEAKAGE.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18681 *CONTINUED*

*FAILURE, GENERAL + *OPERATING EXPERIENCE + CONTROL ROD DRIVE + COOLANT QUALITY + FAILURE, CLADDING + FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + FAILURE, INSTRUMENT + HALLAM + HEAT EXCHANGER + PLANT PROTECTIVE SYSTEM + REACTOR, GRAPHITE MODERATED + REACTOR, LIQUID METAL COOLED + VALVE

17-18682

KELLER LE + DAVIDSON RH

HALLAM NUCLEAR POWER FACILITY OPERATING EXPERIENCE

CONSUMERS PUBLIC POWER DISTRICT + TENNESSEE VALLEY AUTHORITY

7 PAGES, FIGURES, TABLES, NUCLEAR SAFETY 7(2) PAGES 236-42 (WINTER 65-66)

BRIEFLY DESCRIBES THE FACILITY AND OUTLINES THE OPERATING HISTORY. TUBE VIBRATION IN THE HEAT EXCHANGERS RESULTED IN ONE TUBE BREAKING. PROBLEMS WITH THE MAIN SODIUM CIRCULATING PUMPS INCLUDED FREEZE-UP BY SODIUM VIBRATION DUE TO IMPROPER SHIMMING OF THRUST BEARING, BINDING OF THE PUMPS BECAUSE OF WARPAGE DUE TO UNEVEN TEMPERATURE AND CLOGGING FROM DEBRIS LEFT IN THE SYSTEM DURING FABRICATION, AND SEAL LEAKAGE CAUSED BY IMPROPER OPERATION. CLADDING FAILURE ON THE GRAPHITE MODERATOR ELEMENTS RESULTING IN SWELLING UP TO 5% DUE TO ABSORPTION OF SODIUM. SPACING IN THE CORE WAS DESIGNED FOR ONLY 2% EXPANSION. THIS CLADDING FAILURE RESULTED IN THE FACILITY SHUTDOWN.

*FAILURE, GENERAL + *OPERATING EXPERIENCE + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, CLADDING + FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, INSTALLATION ERROR + FAILURE, OPERATOR ERROR + FAILURE, TUBING + GRAPHITE + HALLAM + HEAT EXCHANGER + MAIN COOLING SYSTEM + MODERATOR + REACTOR, GRAPHITE MODERATED + REACTOR, LIQUID METAL COOLED + REACTOR, POWER + SODIUM + VIBRATION

17-18683

RUPTURE-LOOP FAILURE IN PLUTONIUM RECYCLE TEST REACTOR

DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY

6 PAGES, FIGURES, NUCLEAR SAFETY 7(2) PAGES 242-247 (WINTER 65-66)

THE FAILURE RESULTED IN RELEASE OF LIGHT WATER AND CONTAINED FISSION PRODUCTS AND FUEL MATERIAL TO THE SPACE BETWEEN THE PRESSURE TUBE AND ALUMINUM SHROUD OF THE PRTR CALANDRIA. NOBLE GASES AND OTHER FISSION PRODUCTS WERE RELEASED TO THE CONTAINMENT VESSEL. RADIATION LEVELS REACHED 35 MR/HR IN THE CONTROL ROOM AND 20 R/HR ABOVE THE REACTOR WHERE NORMALLY ACCESSIBLE DURING OPERATION. PRELIMINARY EVIDENCE INDICATED THAT THE INTENTIONALLY DAMAGED FUEL ROD (1/16 IN. INTENTIONAL DEFECT) SWELLED TO CONTACT OR NEARLY CONTACT THE PRESSURE-TUBE WALL, RESULTING IN LOCALIZED OVERHEATING OF BOTH.

*FAILURE, FUEL ELEMENT + *IN PILE LOOP + INCIDENT, ACTUAL, GENERAL + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-18684

ALSO IN CATEGORY 7

PANISKO FE + SKAVDAHL RE + FRESHLEY M.D.

UO2-PUO2 HIGH-POWER-DENSITY FUEL-ELEMENT EXPERIENCE IN PRTR

BATTELLE-NUKEMES LABORATORY

2 PAGES, ANS TRANS. 9(2) PAGES 397-8, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY, PITTSBURGH, PA., NOVEMBER 3, 1966

PRESENTS SOME RESULTS OF THE IRRADIATION PERFORMANCE OF VIBRATIONALLY PACKED AND PELLET-CONTAINING UO2-PUO2 FUELS OPERATING AT 20-27 KW/FT. BOTH TYPES OF FUEL RODS WERE OPERATED SUCH THAT MELTING OCCURRED IN A VOID FORMED IN THE CENTRAL REGION, AND BOTH EXHIBITED FUEL RELOCATION. CONVECTIVE MIXING WITHIN THE MOLTEN OXIDE WAS CONFIRMED. FISSION GAS RELEASES UP TO 88% OCCURRED.

*CENTERLINE MELTING + *IRRADIATION TESTING + *PLUTONIUM DIOXIDE + *URANIUM DIOXIDE + FISSION GAS RELEASE + FUEL BURNUP + FUEL ELEMENT + PRTR (PLUTONIUM RECYCLE TEST REACTOR)

17-18685

FRESHLEY MD + WHEELER RG + BATCH JM + HESSON GM

THE COMBINED FAILURE OF A PRESSURE TUBE AND DEFECTED FUEL ROD IN PRTR

BATTELLE-NORTHWEST LABORATORY

2 PAGES, 1 FIGURE, ANS TRANS. 9(2) PAGES 398-9, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY, PITTSBURGH, PA., NOVEMBER 3, 1966

BRIEFLY DESCRIBES THE FAILURE MECHANISM AND SEQUENCE OF EVENTS (DETAILS OF THE INCIDENT AND RESULTS IN BNWL-272). THE POSTMORTEM EXAMINATION GAVE MUCH INFORMATION ON THE IRRADIATION BEHAVIOR OF VIBRATIONALLY PACKED UO2-PUO2 FUEL RODS OPERATING UNDER HIGH-POWER CONDITIONS. BEHAVIOR DIFFERENCES EXIST BETWEEN NONDEFECTIVE AND DEFECTIVE RODS. IT IS FELT THE RUPTURE MECHANISM WOULD BE SIMILAR WITH PELLET FUEL. THESE RESULTS INDICATE IMPORTANT AREAS OF FUEL BEHAVIOR THAT WILL BE INVESTIGATED FURTHER AT PRTR.

*FAILURE, FUEL ELEMENT + *IN PILE LOOP + CENTERLINE MELTING + FUEL BURNUP + FUEL ELEMENT + FUEL, POWDER TYPE + INCIDENT, ACTUAL, GENERAL + IRRADIATION TESTING + PLUTONIUM DIOXIDE + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + URANIUM DIOXIDE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18687
APPLICATION FOR TRANSFER OF PROVISIONAL OPERATING AUTHORIZATION OPRA-5 FOR LACROSSE BOILING WATER REACTOR DAIRYLAND POWER COOPERATIVE
210 PAGES, FIGURES, TABLES, OCTOBER 4, 1967, DOCKET 115-5

REQUESTS TRANSFER FROM ALLIS CHALMERS TO DAIRYLAND POWER. APPENDIXES INCLUDE - (EXHIBIT C) QUALIFICATION OF DPC INDIVIDUALS, CONSULTANTS, AND ORGANIZATION. (EXHIBIT D) TECHNICAL SPECIFICATIONS. (EXHIBIT E) TECHNICAL-SPECIFICATION CHANGES FROM AC VERSION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*STAFFING, TRAINING, QUALIFICATION + ADMINISTRATIVE CONTROLS AND PRACTICES + LACROSSE + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-18688
HARD JE
CHEMICAL DECONTAMINATION OF THE PLUTONIUM RECYCLE TEST REACTOR OPERATION ASPECTS
GENERAL ELECTRIC CO., HANFORD ATOMIC PRODUCTS
HW-81423 +. 20 PAGES, MARCH 20, 1964

A CLADDING SPLIT OCCURRED ON AN MGC-PUO2 ELEMENT BECAUSE OF CORROSION, RESULTING IN GROSS PU AND FISSION-PRODUCT CONTAMINATION OF THE PRTR PRIMARY COOLANT SYSTEM. DECONTAMINATION WAS ACCOMPLISHED WITH HIGHLY CORROSIVE SOLUTIONS OF OXALIC ACID-HYDROGEN PEROXIDE AND SOLUTIONS OF ALKALINE PERMANGANATE-OXALIC ACID. RECOMMENDS DESIGN FEATURES WHICH WILL SIMPLIFY SUCH OPERATIONS AND OUTLINES PREPARATIONS IN ANTICIPATION OF SUCH FUTURE OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + *FAILURE, CLADDING + *FAILURE, FUEL ELEMENT + *MAIN COOLING SYSTEM + FISSION PRODUCT ACTIVITY, GROSS + FISSION PRODUCT RELEASE, GENERAL + HEAVY WATER + PLUTONIUM + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-18689 ALSO IN CATEGORY 9
MARSHALL RP + SELBY CL
FAILURE ANALYSES AND PROPERTIES OF SAFETY ROD GUIDE TUBES FROM THE HWCTR
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.
DP-1077 +. 21 PAGES, 7 FIGURES, 8 TABLES, 8 REFERENCES, APRIL 1967

FOUR OF SIX ROD-GUIDE TUBES DEVELOPED LONGITUDINAL AND TRANSVERSE CRACKS IN 1964 AFTER 6000 HR AT 200 C, FOUND WHEN ROD-DROP TIME INCREASED. THE ZIRCALOY FAILURES WERE CAUSED BY STRESS PULSES GENERATED IN THE TUBES DURING HYDRAULIC DECELERATION OF THE FALLING SAFETY RODS. THE CRACKS WERE STARTED BY LOW-CYCLE FATIGUE, DUE TO REPEATED DROPS AT ELEVATED TEMPERATURES, AND WERE PROPAGATED BY DROPS AT LOW TEMPERATURES. RESIDUAL STRESSES AND HIGH HYDROGEN CONTENTS, BOTH FROM FABRICATION AND FROM HIGH IN-PILE CORROSION RATES, WERE SIGNIFICANT CONTRIBUTING FACTORS. IN-PILE CORROSION RATES WERE THREE TO TEN TIMES THE RATES EXPECTED IN AUTOCLAVE TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FATIGUE + *FAILURE, SCRAM MECHANISM + *OPERATIONS REPORT, ANALYSIS + CORE COMPONENTS, MISCELLANEOUS + CORROSION + FAILURE, DESIGN ERROR + HWCTR (HEAVY WATER COMPONENT TEST REACTOR) + INCIDENT, ACTUAL, EQUIPMENT + REACTOR, PRESSURIZED WATER + ZIRCALOY

17-18690 ALSO IN CATEGORY 11
O'DONNELL WJ
FRACTURE OF CYLINDRICAL FUEL ROD CLADDING DUE TO PLASTIC INSTABILITY
WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB., PITTSBURGH
WAPD-TM-651 +. 12 PAGES, 2 FIGURES, 7 REFERENCES, APRIL 1967, AHS TRANSACTIONS 10(1) PAGES 163-4

A FAILURE MECHANISM FOR THE CLADDING OF CYLINDRICAL FUEL RODS WHEREBY FRACTURE OCCURS AS A CONSEQUENCE OF PLASTIC INSTABILITY INDUCED BY FUEL SWELLING. THE LOSS OF WORK-HARDENING CAPACITY FROM IRRADIATION DAMAGE REDUCES THE NOMINAL FAILURE STRAIN BY AN ORDER OF MAGNITUDE, RESULTING IN FRACTURE AT NOMINAL STRAINS OF ABOUT 2% WITH ZIRCALOY CLADDING. WHEN RECENTLY REPORTED LSR IN-PILE FUEL-ROD-FAILURE EXPERIMENTS ARE COMPARED WITH THEORETICAL PREDICTIONS, GOOD AGREEMENT RESULTS. THIS WORK PROVIDES A BASIS FOR SETTING ALLOWABLE CLAD-STRAIN DESIGN LIMITS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EXPANSION + *FAILURE, CLADDING + *FAULT + *FUEL ELEMENT + *MATHEMATICAL TREATMENT + COMPARISON, THEORY AND EXPERIENCE + REACTOR, LARGE SEED BLANKET + REACTOR, WATER + STRESS STRAIN DATA + ZIRCALOY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18691 ALSO IN CATEGORY 5
LACY PS + RABY TM
PATHFINDER ATOMIC POWER PLANT. XENON REACTIVITY TEST (335)
ALLIS-CHALMERS MFG. CO., BETHESDA, MD. ATOMIC ENERGY DIVISION
ACNP-67521 +. 34 PAGES, 14 FIGURES, 4 TABLES, JUNE 1967

XE AND SM REACTIVITY VALUES WERE OBTAINED FOR STARTUP AND SHUTDOWN AT VARIOUS POWER LEVELS TO 85%. XE PEAKING APPEARS ABOVE 30% POWER. ESTIMATES ARE THAT AT FULL POWER, EQUIL. XE IS 2.7, AND PEAK XE IS 5% DELTA/K. MEASURED DATA ARE LESS THAN CALCULATIONS FOR HIGHER POWERS BECAUSE THE CALCULATIONS WERE DONE FOR A VOIDED UNRODDED CORE, AND THE MEASUREMENTS WERE MADE IN AN UNVOIDED, RODDED CORE. CONTROL-ROD-WORTH DATA GENERATED DURING TEST ADD UNCERTAINTY BECAUSE THE AMOUNT AND DISTRIBUTION OF VOIDS HAVE AN APPRECIABLE EFFECT ON ROD-WORTH MAGNITUDE AND SHAPE, ALSO SHOWS EFFECT OF CORE VERTICAL DISCONTINUITIES. SM EQUILIBRIUM OF 0.8% DELTA/K WAS IN GOOD AGREEMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD WORTH + *MEASUREMENT, REACTIVITY + *SAMARIUM + *XENON + COMPARISON, THEORY AND EXPERIENCE + OPERATIONS REPORT, ANALYSIS + PATHFINDER + REACTIVITY EFFECT + REACTOR, INTERNAL SUPERHEAT

17-18692
PARKER E
THE OPERATIONAL RELIABILITY OF A.E.A. MAGNOX REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, ENGLAND. AUTHORITY HEALTH AND SAFETY BRANCH
AHSB(S)R-126 +. 14 PAGES, 3 FIGURES, 2 REFERENCES, 1967

OUTAGE REVIEW OF 8 CALDER HALL/CHAPELCROSS REACTORS FOR 5 YEARS (1961-65) SHOWS 85.5% OF OUTAGE TIME DUE TO FAULTS IS IN CONVENTIONAL PLANT, MAINLY BLOWERS. ALTHOUGH I AND C PROVIDES LARGEST (237) NUMBER OF FAULTS, OUTAGE TIME IS VERY SMALL. OF 771 FAULTS, 64 INTERRUPTED OPERATION. 77 FAULTS WERE HUMAN ERROR, 33 INTERRUPTED OPERATION. 9 FAULTS INCREASED RADIATION LEVELS. REPORT CATEGORIZES FAULTS BUT DOES NOT GIVE DETAILS.

AVAILABILITY - UNITED KINGDOM ATOMIC ENERGY AUTHORITY, PUBLIC RELATIONS BRANCH, REACTOR GROUP, RISLEY, WARRINGTON, LANCASHIRE

*RELIABILITY, SYSTEM + CALDER HALL (UK) + ECONOMICS + FAILURE, COMPONENT + FAILURE, EQUIPMENT + FAILURE, OPERATOR ERROR + OPERATING EXPERIENCE + REACTOR, GAS COOLED + RELIABILITY ANALYSIS + UNITED KINGDOM

17-18693
ALLIS CHALMERS REQUESTS TERMINATION OF CRITICAL FACILITY LICENSE
ALLIS-CHALMERS, MILWAUKEE, WISCONSIN
2 PAGES, OCTOBER 2, 1967, DOCKET NO. 50-108

TWO PIECES (TAR IN AN EXPANSION JOINT IN CONCRETE FLOOR, AND THE SOURCE TUBE) WERE RADIOACTIVE AND DISPOSED OF AS SOLID WASTE. REMAINDER OF FACILITY HAS ACTIVITIES UNDER PERMISSIBLE LIMITS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAMINATION + *REACTOR DECOMMISSIONING EXPERIENCE + CRITICAL ASSEMBLY FACILITY

17-18694 ALSO IN CATEGORY 5
NOVENDSTERN EH + JONES MB
STUDY OF PROPOSED CVTR OPERATION AT 100 MWF
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIVISION
CVNA-273 +. 50 PAGES, REFERENCES, MAY 1967

STUDY OF CVTR POWER UPGRATING FROM 65 MWF SHOW OPERATION AT 100 MWF TO BE FEASIBLE, ASSUMING A MAXIMUM LINEAR POWER RATING TO BE 17 KW/FT (PRESENT LICENSE LIMIT). HOT-CHANNEL FACTORS MUST BE LOWER THAN PRESENT LIMITS, HOWEVER, AND INLET COOLANT TEMPERATURE DECREASED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*HEAT TRANSFER ANALYSIS + *POWER UPGRATING + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + REACTOR, PRESSURIZED WATER

17-18698
REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 4, MARCH 1 TO MAY 31, 1965
NUCLEAR UTILITY SERVICES, INC., WASHINGTON, D. C.
NUS-246 +. 162 PAGES, FIGURES, TABLES, REFERENCES, JULY 16, 1965

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18698 *CONTINUED*

AREAS COVERED INCLUDE - (1) EVALUATION OF USE OF A DEOXYGENATING RESIN IN PURIFICATION SYSTEM TO REDUCE CORROSION RATE. (2) RADIOIODINE PEAKING IS DUE TO U-235 SURFACE CONTAMINATION (TRAMP URANIUM) AND NOT TO FUEL-ELEMENT DEFECTS. (3) PROPOSED MODIFICATIONS TO CONTROL-ROD SYSTEM FOR 2-OUT-OF-3 INSTRUMENT-INDICATION OPERATION. (4) FUEL-TUBE BOWING. (5) CONTROL-ROD LIFE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COOLANT CHEMISTRY + *FUEL ELEMENT BOWING + *MODIFICATION, SYSTEM OR EQUIPMENT + CONTROL ROD SCRAM MECHANISM + COOLANT PURIFICATION SYSTEM + ELK RIVER + INSTRUMENTATION, COINCIDENT + IODINE + OPERATING EXPERIENCE + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

17-18699

REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 7 NOVEMBER 1, 1965 TO JANUARY 31, 1966
NUCLEAR UTILITY SERVICES, INC., WASHINGTON, D. C.
NUS-269 +. 123 PAGES, FIGURES, TABLES, REFERENCES, APRIL 7, 1966

AREAS COVERED INCLUDE (1) PROPOSED MODIFICATIONS TO DEMINERALIZER TO EASE MAINTENANCE, (2) PRIMARY-SYSTEM OXYGEN CONCENTRATIONS ARE GENERALLY LESS THAN 0.1 PPM (WATER) AND 7 PPM (STEAM). CORROSION-PRODUCT ACTIVITIES HAVE DECREASED SOMEWHAT. HOWEVER, CR-51 DECREASED BY A FACTOR OF 100 IN LAST 3 MONTHS. ON JAN. 9, SECONDARY-WATER ACTIVITY PEAKED TO 2000 CPM FROM 750. RETURNED TO NORMAL IN A COUPLE OF DAYS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COOLANT CHEMISTRY + *MONITOR, RADIATION, GENERAL + CHROMIUM + CORROSION + ELK RIVER + FAILURE, TUBING + OPERATING EXPERIENCE + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + STEAM GENERATOR

17-18702

SEKKESAETER H
THE RESEARCH REACTOR JEEP II
INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY
8 PAGES, 9 FIGURES, 1 TABLE, TEK. UKERLAD 114(11), (1967), IN NORWEGIAN

DESCRIPTION OF REACTOR, WITH EMPHASIS ON PERFORMANCE TESTS AND FABRICATION PROBLEMS. JEEP II, WHICH WILL REPLACE THE JEEP REACTOR, IS FOR PRODUCTION OF ISOTOPES, IRRADIATION EXPERIMENTS, AND PHYSICS EXPERIMENTS. HEAVY-WATER-MODERATED FUEL ELEMENT HAS UO₂ PELLETS IN 11 TUBES ARRANGED IN A RING.

FABRICATION + JEEP 2 (JOINT ESTABLISHMENT EXPTL PILE 2) + NORWAY + REACTOR DESCRIPTION + REACTOR, HEAVY WATER + REACTOR, RESEARCH + TESTING

17-18746

SANDOVAL E + BARRAGAN A + CASABIANCA M
GENERAL GUIDE FOR IRRADIATIONS IN THE RESEARCH AND EXPERIMENTAL REACTOR IAN-R1
INSTITUTO DE ASUNTOS NUCLEARES, BOGOTA
IAN-R-1 +. 37 PAGES, APRIL 1965, IN SPANISH

DESCRIBES IRRADIATION FACILITIES, HOW TO CALCULATE ACTIVITY AND REACTIVITY, PROCEDURES FOR IRRADIATION.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISC.

*IRRADIATION TESTING + *SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + IRRADIATION FACILITY + REACTOR, RESEARCH

17-18748

ALSO IN CATEGORY 15

AHMAD M + SIDDIQI AA
MANUAL OF RADIATION SAFETY AND CONTROL FOR PAKISTAN RESEARCH REACTOR
PAKISTAN INST. OF NUCLEAR SCIENCE AND TECHNOLOGY, ISLAMABAD
PINSTECH/HM-01 +. 34 PAGES, 1966

DESCRIBES (1) OPERATIONAL CONTROL, INVESTIGATION OF ABNORMAL CIRCUMSTANCES, AND LONG-TERM ANALYSIS, (2) WASTE DISPOSAL, (3) STORAGE AND TRANSPORTATION, (4) DECONTAMINATION AND EMERGENCY PROCEDURES FOR 5-MW SWIMMING-POOL REACTOR.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISC.

*PROCEDURES AND MANUALS + *RADIATION SAFETY AND CONTROL + PAKISTAN + REACTOR, RESEARCH

17-18751

ALSO IN CATEGORY 15

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18751 *CONTINUED*

WADE JE + CUNNINGHAM GE

RADIATION MONITORING. A PROGRAMMED INSTRUCTION BOOK.
GENERAL ELECTRIC CO.

281 PAGES, FIGURES, TABLES, USAEC DIVISION OF TECHNICAL INFORMATION, OAK RIDGE

INTENDED TO FIT INDIVIDUAL TO PERFORM RADIATION MONITORING UNDER SUPERVISION. CONVEYS BOTH EDUCATIONAL MATERIAL AND PRACTICAL PROCEDURES. TEXT STYLE SUPPLEMENT (30 P) SERVES AS INTRODUCTION AND REVIEW DEVICE. EIGHT-PAGE FINAL TEST AND ANSWERS. CHAPTERS ON (1) ATOMIC STRUCTURE, RADIOACTIVITY AND RADIATION (2) IONIZATION, ION-CHAMBER THEORY, AND SCINTILLATION COUNTERS, (3) EXPOSURE CONTROLS, TERMINOLOGY, AND UNITS, (4) RADIATION ZONES AND WORK, (5) RADIATION DETECTION INSTRUMENTS, (6) DOSE-RATE MEASUREMENTS, AND (7) NEUTRON DETECTION AND MEASUREMENT.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION, OAK RIDGE, TENN., FREE

*HEALTH PHYSICS TRAINING + HANFORD SITE + STAFFING, TRAINING, QUALIFICATION

17-18752 ALSO IN CATEGORY 7

REMICK FJ

TENTH ANNUAL PROGRESS REPORT OF THE PENNSYLVANIA STATE UNIVERSITY NUCLEAR REACTOR FACILITY JULY 1, 1964 TO JUNE 30, 1965

PENNSYLVANIA STATE UNIVERSITY

NYO-1859-11 +. 61 PAGES, JUNE 1965

REPORTS THE USE OF REACTOR FOR EDUCATION AND RESEARCH. (PAGE 11) - ON SEPT. 2, 1964, A POLYETHYLENE-FUELED SAMPLE CONTAINER, CONTAINING 1 GM OF URANYL NITRATE CRYSTALS (SEALED IN PYREX TUBE) RUPTURED, APPARENTLY FROM INTERNAL PRESSURE, CAUSING A SMALL RELEASE OF FISSION PRODUCTS, WHICH RESULTED IN ABOUT 1108 X 10⁻⁴ THE MPC FOR UNRESTRICTED AREAS AND 0.068 MPC FOR RESTRICTED AREAS. NO PERSONNEL EXPOSURES RESULTED. REACTOR SAFEGUARDS COMMITTEE INITIATED PROCEDURES FOR FUELED EXPERIMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA. \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, GENERAL + *FISSION PRODUCT RELEASE, GENERAL + *PRESSURE, INTERNAL + ADMINISTRATIVE CONTROLS AND PRACTICES + IRRADIATION TESTING + OPERATING EXPERIENCE + OPERATIONS REPORT, GENERAL + OPERATIONS REPORT, GENERAL + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-18799 ALSO IN CATEGORY 13

ANDERSON HJ + BENNETT CA + BUDD RO + GRANQUIST DP

APPLICATIONS OF SAFEGUARDS TO NUCLEAR FUEL-FABRICATING PLANTS

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-458 +. 44 PAGES, REFERENCES, JUNE 1967

THERE ARE THREE MAIN PROBLEMS IN APPLYING SAFEGUARDS TO NUCLEAR FUEL-FABRICATING FACILITIES - (1) MEASURING THE FUEL CONTENT OF A FINISHED PRODUCT, (2) EVALUATION OF THE FUEL MATERIAL IN THE SCRAP, AND (3) THE MANY DIFFERENT FABRICATION PROCESSES AND FUEL DESIGNS, WHICH REQUIRE CONSIDERABLE PERSONNEL CAPABLE OF INSPECTING AND APPLYING SAFEGUARD PROCEDURES AND PRINCIPLES. THESE ITEMS ARE DISCUSSED IN DETAIL, GIVING THE READER AN INSIGHT OF THE COMPLEX PROBLEMS INVOLVED IN THIS WORK.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FABRICATION + *FUEL ELEMENT + FABRICATION FACILITY + RADIOCHEMICAL PLANT SAFETY + SAFETY ANALYSIS REPORT, GENERAL + WASTE HANDLING

17-18856 ALSO IN CATEGORIES 1 AND 15

VENUS ACCIDENT

2 PAGES, FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING 12(128) PAGES 36-37 (OCT. 18, 1967)

BRIEFLY DESCRIBES THE DEC. 30, 1965 INCIDENT WHEREIN (1) A SAFETY RULE WAS VIOLATED BY THE MANUAL MANIPULATION OF REACTOR CONTROL RODS WITHOUT DUMPING THE MODERATOR FIRST, AND (2) A TECHNICIAN REVERSED THE PROCEDURE AND REMOVED AN ABSORBER ROD BEFORE INSERTING A SUBSTITUTE IN ANOTHER POSITION. MEASUREMENTS SHOWED BOTH CIRCUMSTANCES WERE NECESSARY TO PRODUCE THE INCIDENT. A PROMPT-CRITICAL EXCURSION OF 15 MW-SECONDS ENERGY GAVE THE TECHNICIAN A PROBABLE GAMMA DOSE TO THE CHEST OF 550 ROENTGENS AND 4000 TO HIS LEFT FOOT. AFTER 21 DAYS, BLOOD DISORDERS RESULTED IN SEVERE DETERIORATION, AND THE PATIENT WAS IN A CRITICAL CONDITION FOR THREE WEEKS. LATER HIS LEFT LEG WAS AMPUTATED.

*FAILURE, ADMINISTRATIVE CONTROL + *INCIDENT, ACTUAL, HUMAN ERROR + ACCIDENT, CRITICALITY + ADMINISTRATIVE CONTROLS AND PRACTICES + BELGIUM + CRITICAL ASSEMBLY FACILITY + DOSE MEASUREMENT, EXTERNAL + FAILURE, OPERATOR ERROR + FAILURE, SEQUENTIAL + INCIDENT, EXPOSURE + PROMPT CRITICALITY

17-18857
PHILLIPS JL

ALSO IN CATEGORY 5

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18857 *CONTINUED*
DOUNREAY FAST REACTOR MODIFICATIONS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY
4 PAGES, 6 FIGURES, NUCLEAR ENGINEERING 12(128) PAGES 40-43 (OCTOBER 18, 1967)

MODIFICATIONS WERE NECESSARY BECAUSE OF COOLANT-FLOW INSTABILITIES IN THE OUTER BREEDER ELEMENTS AS A RESULT OF OPPOSING CONVECTIVE AND BUOYANCY-INDUCED FLOWS. THERMAL EFFECTS CAUSED EXCESSIVE FUEL SWELLING IN 1/3 OF THE OUTER BREEDER ELEMENTS TO SUCH AN EXTENT THAT MAJOR MODIFICATIONS WERE NECESSARY TO DISCHARGE MOST OF THEM. THE MODIFICATIONS, TOOLING, AND METHODS ARE DESCRIBED.

*FAILURE, DESIGN ERROR + *FAILURE, FUEL ELEMENT + DOUNREAY (UK) + FLOW STABILITY + MAINTENANCE AND REPAIR + MAINTENANCE, REMOTE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + UNITED KINGDOM

17-18873 ALSO IN CATEGORY 11
SAFETY EVALUATION REPORT SM-1A NUCLEAR POWER PLANT, FORT GREELY, ALASKA - ANNEALING OF THE SM-1A REACTOR VESSEL
U. S. ARMY, SAFETY OFFICE OF THE CHIEF OF ENGINEERS
ARCHS 67-5 +. 34 PAGES, 3 FIGURES, 11 REFERENCES, APRIL 1967

VESSEL ANEALING (USING REACTOR AS HEAT SOURCE) WILL PARTIALLY RECOVER RADIATION DAMAGE BY HOLDING 600 F FOR 1 WEEK. FULL RECOVERY OF NOTCH DUCTILITY CAN BE ACHIEVED AT ABOVE 700 F, BUT VESSEL DESIGN PRESSURE (1500 PSIG) LIMITS THE REACTOR TO 597.5 F. PROPOSED PLANS ARE FOR 588-F ANNEALING, RESULTING IN A VESSEL-WALL TEMPERATURE OF 585 F. INLET-OUTLET TEMPERATURE-DIFFERENCE SCRAM WILL BE SET AT 2.5 F. ARCHS SUGGESTS LOWERING TEMPERATURES 10 F TO ALLOW LARGER TOLERANCES.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPT. OF THE ARMY, WASHINGTON, D. C.

*BRITTLE FRACTURE + *HEAT TREATMENT + *PRESSURE VESSEL + *RADIATION DAMAGE + INSTRUMENTATION, TEMPERATURE + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA)

17-18874 ALSO IN CATEGORY 12
LACROSSE PROPOSED AMENDMENT 33 TO CONSTRUCTION PERMIT - LOW POWER TESTING PRIOR TO PLANT COMPLETION
ALLIS-CHALMERS MANUFACTURING CO.
6 PAGES, MARCH 8, 1967, DOCKET 115-5

REQUESTS FOR PERMISSION FOR FUEL LOADING AND LOW-POWER TESTING BEFORE INSTALLING CERTAIN EQUIPMENT (INCLUDING CONTROL-ROD-NOZZLE SUPPORTS, SHUTDOWN-CONDENSER EMERGENCY VENTS, INSTRUMENTATION FOR USE DURING AN MCA, IN-CORE FLUX-MONITORING SYSTEM, ALTERNATE CORE SPRAY SYSTEM AND FEEDWATER CHECK VALVE). TESTING (UP TO 1 MW) INCLUDES APPROACH TO CRITICALITY, LOADING TO A FULL CORE, ROD CALIBRATION, SHUTDOWN MARGIN, EXCESS REACTIVITY, FLUX-DISTRIBUTION DETERMINATIONS, AND REACTIVITY OPTIMIZATION. HEAD OF THE REACTOR VESSEL WILL BE REMOVED DURING TESTING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP TESTING + *TEST, PHYSICS + *TEST, PREOPERATIONAL + ACCIDENT, MAXIMUM CREDIBLE (MCA) + ENGINEERED SAFETY FEATURE + LACROSSE + REACTOR, BOILING WATER

17-18875 ALSO IN CATEGORY 11
PLUMBROOK CHANGE REPORT 33 - ADDITIONAL REACTOR TANK PENETRATIONS
LEWIS RESEARCH CENTER, SANDUSKY, OHIO
3 PAGES, OCTOBER 13, 1967, DOCKET NO. 50 30

(LETTER, OCTOBER 13, 1967) 11 NEW 4-IN. PENETRATIONS FOR EXPERIMENTAL AND REACTOR INSTRUMENTATION ARE TO BE ADDED TO THE DISHD HEAD. MINIMUM CLAD THICKNESS ON WALL AND HEADS OF TANK TO BE CHANGED TO 0.075 AND 0.062 IN., RESPECTIVELY, TO CORRECT AN ERROR IN PRESENT TECHNICAL SPECIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, ELECTRICAL + *MODIFICATION, SYSTEM OR EQUIPMENT + *PRESSURE VESSEL + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

17-18899 ALSO IN CATEGORIES 5 AND 15
THOMAS JT + CALLIHAN U
RADIATION EXCURSION AT ORNL CRITICAL EXPERIMENT LABORATORY - MAY 26, 1954
OAK RIDGE NATIONAL LABORATORY
ORNL-2452 +. 27 PAGES, 12 FIGURES, 5 TABLES, PAGES 4-27 OF RADIATION EXCURSIONS AT THE ORNL CRITICAL EXPERIMENTS LABORATORY, MAY 5, 1958

UO2F2 LIQUID FUEL WAS IN A 10-IN.-DIAM CYLINDER, WITH A 2-IN.-DIAM CADMIUM CYLINDER, HELD IN THE CENTER BY A SPIDER AT THE TOP. A PIN ON THE LIQUID-LEVEL PROBE, RAISED WHEN AT NEAR CRITICAL VOLUME, RAISED THE SPIDER, ALLOWING THE CENTRAL TUBE TO TIP OVER, CREATING A MORE FAVORABLE GEOMETRY AND MOVING ABSORBER FROM A REGION OF HIGH IMPORTANCE. RESULTING EXCESS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18899 *CONTINUED*

REACTIVITY (\$2.8) RELEASED ABOUT 0.8 KWHR. VENTILATION SYSTEM WAS ALLOWED TO RUN FOR 15 MIN, AND TRUCK DOOR WAS OPEN, ALLOWING FISSION-PRODUCT ESCAPE. LARGEST EXPOSURE WAS 0.9 R, TO A GUARD AT NEARBY GATE. RADIATION LEVEL 30 MIN LATER AT TRUCK DOOR WAS 2.65 R/HR. SKYSHINE WAS A PROBLEM DUE TO THIN CEILING. MAXIMUM INTERNAL DOSAGE WAS ABOUT 0.3 MICROCURIE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*ACCIDENT, CRITICALITY + *INCIDENT, ACTUAL, EQUIPMENT + *SCATTERING (SKYSHINE) + CRITICAL ASSEMBLY FACILITY + LIQUID FUEL + OPERATIONS REPORT, ANALYSIS + ORNL (OAK RIDGE NATIONAL LABORATORY) + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

17-18900 ALSO IN CATEGORY 9

THOMAS JT + CALLIHAN D

RADIATION EXCURSION AT ORNL CRITICAL EXPERIMENTS LABORATORY - FEBRUARY 1, 1956

OAK RIDGE NATIONAL LABORATORY

ORNL-2452 +. 6 PAGES 1 FIGURE, PAGES 28-33 OF RADIATION EXCURSIONS AT THE ORNL CRITICAL EXPERIMENTS LABORATORY - FEBRUARY 1, 1956

A CYLINDRICAL CORE OF UO₂F₂ LIQUID FUEL WAS BROUGHT CRITICAL BY ADDING SMALL AMOUNTS OF FUEL, BUT THE OPERATOR ADDED TOO MUCH IN THE LAST INCREMENT, RESULTING IN A 30-SEC PERIOD. THE OPERATOR THEN SCRAMMED THE EXPERIMENT. THE SCRAM-BLADE-FALL SET UP WAVES WHICH CREATED A PROMPT CRITICAL ASSEMBLY, AND A 1.4-KWHR RELEASE. CONSIDERABLE SOLUTION WAS EJECTED, AND THE BOTTOM OF THE CYLINDER WAS NOTICEABLY DISTORTED. SINCE FUEL ADDITION AND DRAINING WERE THROUGH THE SAME VALVE, FUEL WAS PROBABLY ADDED EVEN AFTER SWITCH WAS TURNED TO DRAIN DUE TO THE TIME NECESSARY TO VENT AIR PRESSURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*ACCIDENT, CRITICALITY + *FAILURE, DESIGN ERROR + *INCIDENT, ACTUAL, EQUIPMENT + CONTAMINATION + CRITICAL ASSEMBLY FACILITY + FAILURE, OPERATOR ERROR + FAILURE, SCRAM MECHANISM + INCIDENT, ACTUAL, HUMAN ERROR + LIQUID FUEL + OPERATIONS REPORT, ANALYSIS + ORNL (OAK RIDGE NATIONAL LABORATORY)

17-18906 ALSO IN CATEGORIES 11 AND 12

SAFETY EVALUATION REPORT. SM-1A NUCLEAR POWER PLANT, FORT GREELY, ALASKA. CONTAINMENT LEAKAGE REQUIREMENTS BY THE ARMY REACTOR SYSTEMS HEALTH AND SAFETY REVIEW COMMITTEE

DEPARTMENT OF THE ARMY

ARCHS 67-7 +. 23 PAGES, 4 FIGURES, 6 REFERENCES, APRIL 1967

TECHNICAL SPECIFICATIONS LEAK-RATE LIMIT OF 0.016% AT ACCIDENT CONDITIONS COULD NOT BE REASONABLY MET, AND 0.50% AT 10 PSIG WAS PROPOSED. TEST SHOWED (AFTER SOME EFFORT TO TIGHTEN CONTAINMENT) A 0.17% LEAK RATE. MCA IS RUPTURE OF PRIMARY AND SECONDARY VESSELS. BLOWDOWN TAKES ABOUT 1.3 MIN. CONTAINMENT SPRAY SYSTEM IS BEING INSTALLED. ARCHS APPROVES NEW LEAK RATE UNDER THESE CONDITIONS - (1) EVACUATION PROCEDURES FOR NEARBY DIESEL PLANT MUST BE CONSIDERED, (2) ELIMINATE REACTOR RE-ENTRY AFTER MCA, (3) ESTABLISH A LEAK-RATE TEST SCHEDULE.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, WASHINGTON, D. C. 20315

*CONTAINMENT SPRAY + *EMERGENCY PROCEDURE + *TEST, LEAK RATE + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT, HIGH PRESSURE + DOSE + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA) + TECHNICAL SPECIFICATIONS

17-18908 ALSO IN CATEGORIES 12 AND 14

FREEDMAN MB

PM-1 RADIOACTIVE WASTE DISPOSAL SYSTEM HAZARDS ANALYSIS ADDENDUM

AMF ATOMICS, YORK, PA.

TID-23865 +. 53 PAGES, 7 FIGURES, 1 TABLE, MAY 1967

EVAPORATIVE-TYPE SYSTEM BASED ON CLOSED-LOOP, RECYCLING-EVAPORATION, RAY-DI-PAK PROCESS. WASTE IS CYCLED THROUGH A CONCENTRATOR UNTIL DESIRED CONCENTRATION IS REACHED. IT IS THEN PUMPED TO A DRUMMING STATION WHERE SOLID WASTES ARE FILTERED OUT AND WASTE IS SIURED. PORTABLE SHIELDS ARE USED AS NECESSARY. NORMAL WASTE IS 0.01 MICROCURIE/CC. CONCENTRATOR USES 185-F WATER FOR HEATING AND OPERATES AT NEGATIVE PRESSURE. COOLING WATER IS AN INDEPENDENT SYSTEM. LISTS 18 SAFETY FEATURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*WASTE DISPOSAL, LIQUID + *WASTE HANDLING + EVAPORATION + PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT) + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

17-18911 ALSO IN CATEGORY 6

PIQUA TESTS FOR ANOMALOUS REACTIVITY EFFECT

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18911 *CONTINUED*
PIQUA NUCLEAR POWER FACILITY
COO-652-13 +. 4 PAGES, FIGURES, MARCH 1965, DOCKET NO. 115-2, FROM PIQUA NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 23

(PAGES 18-19) SPECIAL TESTS TO FIND CAUSE OF ANOMALOUS REACTIVITY EFFECT. ROD CALIBRATION INDICATED A SIGNIFICANT CHANGE FROM 9/64 CALIBRATIONS. POWER COEFFICIENT HAD CHANGED FROM INITIAL -0.0094% DELTA K/MWT AND IS NOW POWER DEPENDENT (-0.014% AT 8 MW, AND -0.022% AT 24 MW), HOWEVER, POWER COEFFICIENT WITH ONE PUMP OPERATING IS CONSISTENTLY AROUND -0.018% BETWEEN 7 AND 21 MW. PRESSURE COEFFICIENT ALSO INCREASED AND IS POWER DEPENDENT. A PRESSURE CHANGE FROM 130 TO 105 PSIG CAUSES REACTIVITY CHANGES OF -0.007% AT 12 MW, -0.02% AT 20 MW, AND -0.006% AT 29 MW.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODERATOR COEFFICIENT + *POWER COEFFICIENT + *REACTIVITY EFFECT, ANOMALOUS + CONTROL ROD WORTH + FLOW BLOCKAGE + OPERATIONS REPORT, GENERAL + PIQUA + REACTOR, AEC OWNED + REACTOR, ORGANIC COOLED + TEST, PHYSICS + TESTING + XENON

17-18913
ROSS DA
THE PENNSYLVANIA STATE UNIVERSITY NUCLEAR REACTOR FACILITY. ANNUAL PROGRESS REPORT NO. 11, JULY 1, 1965-JUNE 30, 1966
PENNSYLVANIA STATE UNIV., UNIVERSITY PARK. DEPT. OF NUCLEAR ENGINEERING
NYO-1059-12 +. 54 PAGES, JUNE 1967

(PAGES 9-11) BRIEF DISCUSSION OF CONVERSION FROM MTR TO TRIGA FUEL ELEMENTS (1-MW PULSING). REPORT LISTS STAFF MEMBERS, RESEARCH PROGRAMS, AND PAPERS/THESES/ARTICLES RESULTING FROM NUCLEAR RESEARCH. RESEARCH PROGRAM INCLUDES INVESTIGATION OF FLUX MEASUREMENTS BY N-16 ACTIVITY, USING A FORCED-CIRCULATION LOOP.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA; \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS SUMMARY FOR AEC + REACTOR, POOL TYPE + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-18919 ALSO IN CATEGORIES 9 AND 10
SCOTT RL
RELIABILITY ESTIMATES AND REACTOR-SAFETY-SYSTEM OPERATION
OAK RIDGE NATIONAL LAB., TENN.
4 PAGES, 1 TABLE, 1 REFERENCE, NUCLEAR SAFETY 8(5), PAGE 479 THRU 482, (OCTOBER 1967)

SUMMARIZES TWO PAPERS PRESENTED AT THE WINTER 1966 MEETING OF THE AMERICAN NUCLEAR SOCIETY. ONE PAPER DISCUSSES DATA OBTAINED FROM FIVE POWER-REACTOR OPERATING AGENCIES IN ORDER TO MAKE RELIABILITY ESTIMATES. SINCE THE DATA WERE OBTAINED FOR PURPOSES OTHER THAN RELIABILITY PREDICTION, IT HAS LIMITED APPLICABILITY. RELIABILITY ESTIMATES ARE PRESENTED FOR EMERGENCY CORE-COOLING SYSTEMS, EMERGENCY POWER SYSTEMS, AND SECONDARY SHUTDOWN SYSTEMS. THE OTHER PAPER DISCUSSES REACTOR-SAFETY-SYSTEM OPERATION DATA OBTAINED FROM THE SAME FIVE POWER-GENERATING PLANTS. THE COMPOSITE DATA INDICATE THAT REAL AND SPIRITUS SCRAM RATES ARE EACH BETWEEN FIVE AND SIX PER YEAR. MOST OF THESE SCRAMS OCCURRED AT LOW REACTOR POWER AND PRODUCED ONLY ONE OR TWO POWER-GENERATION OUTAGES PER YEAR.

OPERATING EXPERIENCE + REACTOR, POWER + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM

17-18923
TEXAS A AND M NUCLEAR SCIENCE CENTER SAFETY ANALYSIS REPORT
TEXAS A AND M UNIVERSITY
138 PAGES, FIGURES, TABLES, AUGUST 1967, DOCKET NO. 50-128

REPORT COMPILES PAST TECH.-SPEC. CHANGES (INCLUDING POOL MODIFICATIONS, SS POOL LINER AND COOLING-TOWER INSTALLATIONS) AND PROPOSED POWER UPGRADING AND CONVERSION TO TRIGA CORE. CLAD FAILURE ASSUMING POOL DRAINED RESULTS IN A THYROID DOSE OF 10.4 MR OUTSIDE BUILDING, AND 28 R TO OPERATORS, WITH VENTILATION SYSTEM INOPERATIVE (I.E., 3 SIMULTANEOUS FAILURES). APPENDIX I - TECHNICAL SPECIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, MAXIMUM CREDIBLE (MCA) + *POWER UPGRADING + DOSE + MAIN COOLING SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PULSED + REACTOR, RESEARCH + REFUELING + SAFETY ANALYSIS REPORT, GENERAL + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-18924
TECHNICAL SPECIFICATIONS FOR THE TEXAS A AND M UNIVERSITY NUCLEAR SCIENCE CENTER REACTOR
TEXAS A AND M UNIVERSITY
9 PAGES, 1 TABLE, FROM TEXAS A AND M UNIVERSITY NUCLEAR SCIENCE CENTER SAFETY ANALYSIS REPORT, AUGUST 1967, DOCKET NO. 50-128

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18924 *CONTINUED*

REACTOR TO HAVE TRIGA CORE, WITH PULSING AND 1-MW MAXIMUM POWER. REACTOR WILL BE PULSED SEMIANNUALLY WITH 1.5% FOR TEST PURPOSES. EACH FUEL ROD SHALL BE CHECKED FOR DEFORMATION AFTER THE FIRST 500 PULSES ABOVE 1.5%, AND THEN AFTER EACH 1000 PULSE ABOVE 1.5%. MAXIMUM PULSE IS 2.1%. MINIMUM SHUTDOWN MARGIN IS 0.4%, MAXIMUM SINGLE EXPERIMENT IS \$3.00, MAXIMUM TOTAL EXPERIMENTS IS \$5.00.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EXAMINATION + *FUEL ELEMENT BOWING + REACTOR, PULSED + REACTOR, RESEARCH + SHUTDOWN MARGIN + TECHNICAL SPECIFICATIONS + TEST INTERVAL + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-18939

CRUSE T
HERES HOW UNCLE SAM TRAINS OPERATORS FOR ITS NUCLEAR POWER PLANTS
DEPT. OF ARMY, FORT BELVOIR, VA.
3 PAGES, FIGURES, 2 TABLES, POWER 111(4), PAGES 81-3 (APRIL 1967)

PROGRAM AT SM-1 INCLUDES A 15-WEEK ACADEMIC PHASE (MATHEMATICS, PHYSICS, REACTOR ENGINEERING, ELECTRICAL ENGINEERING, MECHANICAL ENGINEERING, AND HEALTH PHYSICS) AND AN 18-WEEK STUDY OF THE PLANT AND OPERATIONS (BOTH SIMULATOR AND ON-THE-JOB TRAINING). THE STUDENT IS THEN SELECTED FOR ONE OF FOUR MAINTENANCE OR SPECIALTY COURSES (INSTRUMENTATION, MECHANICS, ELECTRICITY, OR HEALTH PHYSICS), THE LONGEST LASTING 30 WEEKS. ALL PERSONNEL ARE TRAINED AS OPERATORS AND MAINTENANCE MEN FOR BETTER ASSIGNMENT AND FLEXIBILITY AT ISOLATED PLANTS.

*STAFFING, TRAINING, QUALIFICATION + MAINTENANCE AND REPAIR + OPERATION + REACTOR, MILITARY + REACTOR, POWER + SM 1 (STATIONARY MEDIUM POWER PLANT)

17-18940

DOUGLAS POINT - A PRECRITICAL REPORT
11 PAGES, FIGURES, CAN. NUCL. TECHNOL., 5(4), PAGES 19-29 (SEPT. OCT. 1966)

REPORTS THE STATUS OF THE FIRST COMMERCIAL-SCALE CANDU POWER REACTOR. CONSTRUCTION IS IN THE FINAL STAGES. SUMMARIZES THE PLANT AND REACTOR CONTROL SYSTEMS, AND REVIEWS HISTORY OF THE STATION.

*REACTOR DESCRIPTION + CANDU (CANADIAN NATURAL URANIUM REACTOR) + INSTRUMENTATION, CONTROL + REACTOR, POWER

17-18941

ALSO IN CATEGORY 6
MILLOT JP
CABRI--A TEST REACTOR FOR SAFETY STUDIES
COMMISSARIAT A L ENERGIE ATOMIQUE, CADARACHE
7 PAGES, 3 FIGURES, 1 TABLE, 20 REFERENCES, NUCLEAR SAFETY 8(5), PAGES 455-61 (SEPT.-OCT. 1967)

PRESENTS FEATURES OF THE REACTOR, DESIGNED TO STUDY THE SAFETY OF FRENCH SWIMMING-POOL REACTORS. REACTIVITY ACCIDENTS WERE SIMULATED FOR 3 HIGH-POWER TEST REACTORS. RESULTS AGREED WITH THOSE FROM SEPT. FUTURE EXPERIMENTS WILL INCLUDE LOSS-OF-FLOW TESTS, PERFECTION OF REACTIVITY ACCIDENTS, AND CORE MELTING. A PROGRAM OF FUEL TESTING FOR BULK WATER AND FAST REACTORS, INVOLVING CABRI AS A CAPSULE-DRIVER CORE, IS BEING ESTABLISHED.

*RESEARCH AND DEVELOPMENT PROGRAM + ACCIDENT, CONSEQUENCES + ACCIDENT, LOSS OF FLOW + ACCIDENT, REACTIVITY + FRANCE + REACTOR, POOL TYPE + REACTOR, SAFETY RESEARCH + REACTOR, TEST + SAFETY STUDY

17-18943

BALKE VS
THE DELAYS IN THE CONSTRUCTION AND COMMISSIONING OF THE MAINZ TRIGA
4 PAGES, ATOMWIRTSCHAFT, 12(8/9) PAGES 406-08 (AUGUST/SEPTEMBER 1967)

REACTOR TANK CONSTRUCTION DELAY OCCURRED BECAUSE AN ALUMINUM ALLOY (ALMG3F18) WAS CHOSEN TO REPLACE AMERICAN-SPECIFIED MATERIAL IF IT MET GERMAN-GOVT.-SPECIFIC TESTS, SINCE IT WAS NOT ALLOWED IN GERMAN PRESSURE VESSEL CONSTRUCTION. IT FAILED THESE TESTS, AND THE TANK WAS REBUILT FROM DIFFERENT MATERIAL.

*QUALITY CONTROL + ALUMINUM + GERMANY + MATERIAL + PRESSURE VESSEL + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-18944

ALSO IN CATEGORY 12
REDFIELD JA + MARGOLIS SG + PRESCOP V
PRESSURIZER PERFORMANCE DURING LOAD DROP TESTS AT SHIPPINGPORT - ANALYSIS AND TEST
WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER
CONF-670 602 +. 1 PAGE, 1 FIGURE, 1 TABLE, 3 REFERENCES, ANS TRANSACTIONS 10(1), PAGE 323, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO CALIF., JUNE 11-15, 1967

PRESENTS A COMPARISON BETWEEN DIGITAL-COMPUTER CALCULATIONS AND EXPERIMENTAL DATA. INCLUDED

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18944 *CONTINUED*

ARE THE EFFECTS OF WATER SPRAY, ELECTRIC HEATERS, AND RELIEF VALVES AND THEIR ASSOCIATED CONTROL SYSTEMS. THE MODEL IS BASED ON MASS AND ENERGY BALANCES FOR THE LIQUID AND VAPOR PHASES, TOGETHER WITH A HEAT BALANCE ON THE METAL VESSEL. GOOD RESULTS WERE OBTAINED IN THREE TESTS.

*PRESSURIZER + *TEST, PROOF + COMPARISON, THEORY AND EXPERIENCE + COMPUTER, DIGITAL + MATHEMATICAL TREATMENT + PRESSURE, INTERNAL + REACTOR, PRESSURIZED WATER + SHIPPINGPORT

17-18946 ALSO IN CATEGORY 6

KLICKMAN AE + CALLEN RC
ANOMALOUS REACTIVITY EFFECTS IN THE FERMI INCIDENT
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC. + POWER REACTOR DEVELOPMENT COMPANY
CONF-670 602 +. 1 PAGE, ANS TRANSACTIONS 10(1) PAGE 334, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

REVIEWS THE REACTIVITY EFFECTS THAT OCCURRED DURING THE FUEL MELTDOWN OF OCT. 1966. WHEN REACTOR POWER REACHED 5.5 MW, REACTIVITY INSERTION WAS AT THE RATE OF 0.165 CENT/MIN FOR 27 MIN UNTIL POWER REACHED 18 MW. THIS WAS ATTRIBUTED TO OVERHEATING OF THE CORE. AT 18 MW, THE RATE ABRUPTLY CHANGED TO 1.17 CENTS/MIN FOR 18 MIN UNTIL THE POWER WAS 30 MW. SUPERIMPOSED ON THIS LATTER TREND WERE THREE TRANSIENTS. THIS TREND AND THE TRANSIENTS WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSSES WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSS DETERMINED BY THE SHIM-AND REGULATING-ROD HISTORIES WAS 26 CENTS.

*POWER COEFFICIENT + *REACTIVITY EFFECT, ANOMALOUS + FAILURE, FUEL ELEMENT + FERMI + INCIDENT, ACTUAL, GENERAL + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED

17-18947 ALSO IN CATEGORY 7

MUELLER RE + BEAUDRY RJ + FELDES JG
FISSION PRODUCT ACTIVITY ANALYSIS OF FERMI FUEL FAILURE
ATOMIC POWER DEVELOPMENT ASSOCIATED, INC.
CONF-670 602 +. 2 PAGES, 1 FIGURE, ANS TRANSACTIONS 10(1) PAGES 334-335, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

DESCRIBES THE MEASUREMENTS, ANALYSIS TECHNIQUE, AND CONCLUSIONS FOR DETERMINING EXTENT OF FUEL FAILURE. MEASUREMENTS OF THE FISSION PRODUCT ACTIVITY IN THE COOLANT AND COVER GAS INDICATED 2% OF THE CORE MELTED, AND AGREED WITH THE REACTIVITY LOSS. OTHER OBSERVATIONS WERE - (1) NOBLE-GAS RELEASE WAS GREATER THAN THAT IN PREVIOUS EXPERIMENTS, 50% VS 10%, (2) PARTICULATE RELEASE WAS GREATER THAN EXPECTED, (3) CONSIDERABLE PLATEOUT OCCURRED, (4) SODIUM ANALYSIS IS LESS RELIABLE THAN COVER-GAS ANALYSIS.

*FAILURE, FUEL ELEMENT + *FISSION PRODUCT RELEASE, GENERAL + *RADIOCHEMICAL ANALYSIS + ANALYTICAL TECHNIQUE, GENERAL + FERMI + FISSION PRODUCT ACTIVITY, GROSS + INCIDENT, ACTUAL, GENERAL + MAIN COOLING SYSTEM + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LIQUID METAL COOLED

17-18948 ALSO IN CATEGORY 9

HTGR BASE PROGRAM QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING MAY 31, 1966
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION
GA-7181 +. 38 PAGES, 6 FIGURES, 17 TABLES, JUNE 30, 1966

PROGRESS REPORT, ONE OF A SERIES RELATING TO THE FOLLOWING SUBJECTS - (1) PRESTRESSED-CONCRETE REACTOR-VESSEL DEVELOPMENT, (2) FISSION-PRODUCT RELEASE AND TRANSPORT, (3) MATHEMATICAL PHYSICS STUDIES, (4) CRITICALITY EXPERIMENTS, (5) FUEL-ELEMENT REPROCESSING, AND (6) IRRADIATION STUDIES OF COATED PARTICLES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FISSION PRODUCT RELEASE, GENERAL + *IRRADIATION TESTING + COATED PARTICLE + CONCRETE, PRESTRESSED + CRITICALITY EXPERIMENT + FISSION PRODUCT TRANSPORT + FUEL REPROCESSING + MATHEMATICAL STUDY + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS + RESEARCH AND DEVELOPMENT PROGRAM

17-18949

EXPERIENCE WITH CONVENTIONAL AND PARANUCLEAR PARTS OF NUCLEAR POWER STATIONS.
2 PAGES, ATOMWIRTSCHAFT 12(5) PAGES 255-6 (MAY 1967) IN GERMAN

CONTRARY TO ALL ORIGINAL EXPECTATIONS IT HAS BEEN SHOWN IN THE BUILDING AND OPERATION OF NUCLEAR POWER STATIONS THAT DELAYS IN THE CONSTRUCTION OF PLANT AND INTERRUPTIONS IN OPERATION ARE MOSTLY DUE TO DIFFICULTIES WITH CONVENTIONAL AND PARANUCLEAR INSTALLATION PARTS. THE CAUSES LIE MOSTLY IN DESIGN ERRORS AND CONSTRUCTIONAL FAILINGS, AND SELDOM IN IMPROPER OPERATION. THE MOST IMPORTANT CONCLUSION ARISING FROM THE EURATOM SYMPOSIUM (17TH AND 18TH NOVEMBER, 1966) WAS THAT THE QUALITY CONTROLS USUAL IN THE BUILDING OF CONVENTIONAL INSTALLATIONS ARE OFTEN NOT ADEQUATE FOR NUCLEAR POWER PLANTS.

*QUALITY CONTROL + CONTAINMENT CONSTRUCTION + EURATOM + REACTOR, POWER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-18950

THE COMMISSIONING OF THE NUCLEAR POWER STATION GUNDREMMINGEN
9 PAGES, 15 FIGURES, 2 TABLES, ATOMWIRTSCHAFT 12(7) PAGES 348-56 (JULY 1967)

DISCUSSES EXPERIENCE ACQUIRED DURING CONSTRUCTION AND COMMISSIONING OF THE 240-MWE BWR IN 1966. NO DIFFICULTIES OCCURRED DUE TO NUCLEAR TECHNOLOGY, BUT THE CONVENTIONAL PARTS OF THE PLANT DID NOT RECEIVE ENOUGH ATTENTION BECAUSE EVERYTHING APPEARED TO BE WELL KNOWN.

*REACTOR STARTUP EXPERIENCE, INITIAL + EQUIPMENT, GENERAL + GERMANY + REACTOR STARTUP TESTING + REACTOR, BOILING WATER + TEST, PLANT RESPONSE

17-18951

PUBLIC SERVICE COMPANY OF COLORADO 330-MWE HIGH-TEMPERATURE GAS-COOLED REACTOR RESEARCH AND DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1965
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF., GENERAL ATOMIC DIV.
GA-6950 +. 109 PAGES, FIGURES, TABLES, MARCH 21, 1966

ONE OF A SERIES OF PROGRESS REPORTS ON DEVELOPMENT STATUS OF COMPONENTS, FUEL-CYCLE ANALYSIS, FUEL DESIGN, FUEL-TRANSFER-MACHINE LUBRICATION, HELIUM-CIRCULATOR TESTING, CONTROL-ROD-DRIVE TESTING, STEAM-GENERATOR DESIGN, AND COATED PARTICLES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 3.00 COPY, 0.65 MICROFICHE

*REACTOR, HIGH TEMP. GAS + *RESEARCH AND DEVELOPMENT PROGRAM + COATED PARTICLE + CONTROL ROD DRIVE + DESIGN STUDY + EQUIPMENT, GENERAL + FT. ST. VRAIN + FUEL HANDLING MACHINE + HEAT EXCHANGER + LUBRICATION + REVIEW + TEST, CONTROL ROD DRIVE + TESTING

17-18983

ALSO IN CATEGORY 9

GETR ANNUAL REPORT NO. 8

GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA

52 PAGES, 4 FIGURES, TABLES, MAY 24, 1967, DOCKET NO. 50-70

SYSTEM CHANGES MADE IN SUPPORT OF THE POWER INCREASE FROM 30 TO 50 MW INCLUDE (1) INSTALLATION OF A GD NITRATE POISON-INJECTION SYSTEM, (2) INSTALLATION OF A REDESIGNED STATIC CONTAINMENT BUILDING VACUUM RELIEF SYSTEM, (3) A COOLING-WATER CIRCULATION SYSTEM FOR RETURNING TO THE POOL (REACTOR) ANY WATER DRAINING OUT OF THE PRESSURE VESSEL, AND (4) REDUNDANT ISOLATION VALVES WERE INSTALLED TO PROVIDE BACKUP PROTECTION. (APPENDIX A) - AN IN-CORE SHUTTLE-TUBE FACILITY WAS INSTALLED FOR INSERTING AND REMOVING IRRADIATION SPECIMENS DURING REACTOR OPERATION. (SUPPLEMENT A) - LISTS CAUSES OF REACTOR SHUTDOWNS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + *OPERATIONS SUMMARY FOR AEC + CONTAINMENT VACUUM BREAKER + GETR (GENERAL ELECTRIC TEST REACTOR) + INTEGRITY + IRRADIATION FACILITY + POWER UPGRATING + REACTOR, TEST + SHUTDOWN SYSTEM, SECONDARY

17-19097

ALSO IN CATEGORIES 14 AND 12

FAILURE OF WASTE-RETENTION DAM AT AMERICAN METAL CLIMAX, COLORADO

AMERICAN METAL CLIMAX

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 10-12 (OCTOBER 30, 1967)

(LETTER, JULY 24) CEASE AND DESIST ORDER FROM AEC TO STOP USING ANY WASTE-RETENTION FACILITY AT GRAND JUNCTION MILL NOT AUTHORIZED. ON JULY 2, 1967, AN UNAUTHORIZED EARTHEN WASTE-RETENTION DAM RUPTURED AFTER 20 DAYS USE. (REPLY TO LETTER, AUG. 21) LIQUID-WASTE RETENTION IS NOW IN ACCORDANCE WITH LICENSE EXCEPT FOR DIVISION OF EAST POND INTO 2 PONDS, AND WATER EROSION. FLOW INTO PONDS IS BEING CONTROLLED BETTER. A DITCH AND PUMP ARE STOPPING SEEPAGE FLOW.

*FAILURE, GENERAL + *IMPOUNDMENT + *WASTE DISPOSAL, TERRESTRIAL + INCIDENT, ACTUAL, GENERAL + INSPECTION AND COMPLIANCE + MILLING

17-19098

ALSO IN CATEGORIES 14 AND 12

SEEPAGE CONTROL FROM AMERICAN METAL CLIMAX EARTHEN WASTE-RETENTION DAMS

AMERICAN METAL CLIMAX

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 12-13 (OCTOBER 30, 1967)

(LETTER, AUGUST 25) SEEPAGE AT 75 GPM IS CONTROLLED BY A PUMP. A DITCH WOULD HOLD WATER FOR 7 HOURS BEFORE OVERFLOW. THE AREA WILL BE FENCED. (OCTOBER 5, AEC LETTER) ASKS WHEN OTHER DIKES WILL BE RESTORED FROM EROSION CAUSED BY WAVE ACTION. SUGGESTS THAT 4-FT MINIMUM FREEBOARD IS INADEQUATE, AND REFERS TO AEC LICENSING GUIDE (QUOTE) INFORMATION REQUIRED AND CRITERIA USED TO EVALUATE EMBANKMENT-RETENTION SYSTEMS (UNQUOTE).

*LEAK + *WASTE DISPOSAL, TERRESTRIAL + IMPOUNDMENT + MILLING + REGULATION, AEC

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19099 ALSO IN CATEGORIES 15 AND 12
SAME D
INHALATIONS OF AIRBORNE URANIUM AT A-1 FUEL FABRICATION FACILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
7 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 13-19 (OCTOBER 30, 1967)

(LETTER, AUGUST 15) GENERAL DISCUSSION OF THE AIRBORNE URANIUM PROBLEM, WHEREIN URINALYSIS SURVEILLANCE INDICATES A GRADUAL WORSENING SINCE ETR/ATR FUEL-ALLOY FABRICATION BEGAN IN 1965. DISCUSSES PROCESS, SURVEILLANCE PROGRAM, AND VARIOUS STEPS TO MINIMIZE AIRBORNE ACTIVITY (GLOVE BOX AND FURNACE VENTILATION, ETC.).

*AIRBORNE RELEASE + *FABRICATION + *URANIUM + FUEL, METALLIC TYPE + GLOVE BOX + INHALATION + OPERATIONS REPORT, ANALYSIS + PERSONNEL EXPOSURE, RADIATION + VENTILATION SYSTEM

17-19100 ALSO IN CATEGORY 15
TYREE PM
BAIRD-ATOMIC OVER EXPOSURE JULY 24-28, 1967
BAIRD-ATOMIC, CAMBRIDGE, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 19-20 (OCTOBER 30, 1967)

(LETTER, SEPT. 6) TWO PERSONS WERE OVEREXPOSED (60 AND 27.326 REMS TO WRIST) IN ASSAYING CO-60 PELLETS. USUALLY THE VACUUM HANDLER FOR THE PELLETS IS PLACED SUCH THAT DOSE RATE IS 100 MR/HR (TO RIGHT HAND), AND 20-HOUR DOSE IS ACCEPTABLE ONCE EACH QUARTER. IN THIS CASE, THE HAND WAS PLACED ON THE HANDLER SUCH THAT THE HAND WAS INTERMITTENTLY EXTENDED WITH THE HAND INTO A 5-TO-7 R/HR FIELD. EQUIPMENT IS BEING REDESIGNED TO UTILIZE A REMOTE ION CHAMBER, WHICH ALSO PROVIDES FASTER RESULTS.

*INCIDENT, ACTUAL, NONREACTOR + *PERSONNEL EXPOSURE, RADIATION + *SOURCE, RADIATION + COBALT + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + HOT CELL

17-19101 ALSO IN CATEGORIES 15 AND 12
MONSANTO CITED FOR NON COMPLIANCE REGARDING PU-BE SOURCE
MONSANTO RESEARCH CORP., ST. LOUIS, MO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 20-21 (OCTOBER 30, 1967)

(LETTER AUGUST 10) CITATION FOR EXCEEDING QUARTERLY WHOLE-BODY DOSE LIMIT FOR 6 EMPLOYEES, INADEQUATE SURVEYS, AND INADEQUATE HAND DOSIMETRY. SUGGESTS LACK OF ADMINISTRATIVE CONTROL DUE TO REPEATED EXPOSURES, INCLUDING 1965. (REPLY LETTER, AUGUST 18) UNDERESTIMATION WAS DUE TO FIRST-TIME CIRCUMSTANCE. WORK IS NOW CONTRACTED OUT. IN 3 OVEREXPOSURES, FAST-NEUTRON DOSIMETERS WERE ASTONISHINGLY MISLEADING, EVEN THEN THERE WAS ONLY 10% OVEREXPOSURE ON FILM BADGES. EXTREMITY-MONITORING HAS IN THE PAST PROVIDED DATA SO ERRATIC AS TO BE MEANINGLESS.

*INCIDENT, ACTUAL, NONREACTOR + *MONITOR, RADIATION, PERSONNEL + DOSIMETRY, GENERAL + FABRICATION + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, INSTRUMENT + RADIATION SAFETY AND CONTROL + SOURCE, NEUTRON

17-19102 ALSO IN CATEGORIES 13 AND 15
NUCLEAR FUEL SERVICES CITED FOR NON COMPLIANCE
NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 22 (OCTOBER 30, 1967)

(LETTER, AUGUST 28) CITATIONS INCLUDE NOT SAMPLING WHEN STACK MONITOR AND SPARE WERE INOPERATIVE, LOCKED DOORS NOT USED FOR CONTROLLING ACCESS, NEITHER POLYETHYLENE NOR STAINLESS-STEEL BOTTLES WERE FULLY TESTED. ASKS FOR INFORMATION ON EROSION OF LAGOON AND ON DELAY IN URINE-MONITORING RESULTS.

*INSPECTION AND COMPLIANCE + ANALYTICAL TECHNIQUE, URINE + FAILURE, ADMINISTRATIVE CONTROL + FUEL REPROCESSING + FUEL STORAGE + IMPOUNDMENT + MONITOR, RADIATION, STACK + NFS (NUCLEAR FUEL SERVICES) + SOURCE MATERIAL + STORAGE CONTAINER + TESTING

17-19103 ALSO IN CATEGORIES 13 AND 15
CALDWELL RO
NUMEC AIRBORNE EXPOSURE JUNE-JULY 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 23 (OCTOBER 30, 1967)

(LETTER, SEPT. 15) SEVERAL APOLLO-PLANT CRYSTAL OPERATORS WERE EXPOSED 1035 TO 44.5 MPC HRS. SINCE THEN THE URANYL NITRATE CRYSTALLIZATION HAS BEEN DONE IN GLOVE BOXES. THE RESPIRATORS USED WILSON R-520 FILTERS (WHICH TESTS SHOWED WERE EXCESSIVELY PENETRATED BY URANYL NITRATE CRYSTAL AEROSOL) AND A WILSON 43 CHEMICAL CARTRIDGE.

*FILTER EFFICIENCY + *INHALATION + *PERSONNEL EXPOSURE, RADIATION + AEROSOL PROPERTIES + AIRBORNE RELEASE + FILTER, HIGH EFFICIENCY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19105

SAXTON PROPOSED AMENDMENT 3 AND CHANGE REQUEST 25 - POWER UPGRATING TO 35 MW
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, GENERAL PUBLIC UTILITIES SYSTEM
10 PAGES, JANUARY 18, 1967, DOCKET NO. 50-146

GIVES NEW TECH.-SPEC. LIMITS (PRESSURE, COOLANT FLOW, FUEL BURNUP, ETC.) FOR THE HIGHER POWER.
SAFETY REVIEW OF THESE CHANGES IS CONTAINED IN THE SAFETY ANALYSIS REPORT FOR THE POWER
UPGRATING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POWER UPGRATING + REACTOR, PRESSURIZED WATER + SAXTON + TECHNICAL SPECIFICATIONS

17-19109

SCRAMS AT CVTR
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES INC.
CVNA-245 +. 1 PAGE, PAGE 3 FROM SIX MONTH OPERATING REPORT ON CVTR OPERATION, APRIL 1- SEPTEMBER 30, 1965

A SCRAM OCCURRED DUE TO A GROUND FAULT AT A VAPOR CONTAINER PENETRATION, CAUSING A SHORT IN
THE SOURCE-RANGE INSTRUMENT WHICH IN TURN FED INTO THE INTERMEDIATE-RANGE CHANNEL, RESULTING
IN A FALSE FAST-PERIOD SIGNAL. ANOTHER SCRAM WAS CAUSED BY A DEFECTIVE CONNECTOR TO A
PHOTOMULTIPLIER TUBE. A THIRD SCRAM RESULTED FROM AN OPERATOR ERROR (WITHDREW INSTEAD OF
INSERTING RODS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*SCRAM, SPURIOUS + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR +
OPERATIONS REPORT, GENERAL + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-19110

ALSO IN CATEGORY 5

NATH RJ + WYKE TF
CVTR CORE 1 NUCLEAR OPERATIONS FOLLOW SUMMARY
WESTINGHOUSE ELECTRIC CORP., PITTSBURG, PA.
CVNA-280 +. 154 PAGES, FIGURES, TABLES, REFERENCES, JULY 1966

RESULTS FROM CORE 1 SHOWED THAT ANALYTICAL METHODS (TURBO) WERE ADEQUATE. MEASURED POWER
DISTRIBUTIONS, CORE LIFETIMES, AND REACTIVITY COEFFICIENTS AGREED WITH PREDICTED VALUES.
INSTRUMENTS AND EQUIPMENT PERFORMED WELL. ONE PROBLEM ENCOUNTERED WAS THE HIGH PHOTONEUTRON
BACKGROUND DURING PHYSICS TESTING, DUE TO THE HEAVY-WATER MODERATOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*REACTOR STARTUP TESTING + COMPARISON, THEORY AND EXPERIENCE + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) +
REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-19111

ALSO IN CATEGORIES 5 AND 6

TOPPEL BJ + VOGELBERGER PJ + WIMUNC EA
SAFETY ANALYSIS ASSOCIATED WITH THE PLUTONIUM RECYCLE EXPERIMENT IN EBWR
ARGONNE NATIONAL LABORATORY
ANL-6841 +. 106 PAGES, 29 FIGURES, 23 TABLES, 67 REFERENCES, NOVEMBER 1966

CORE CONSISTS OF 6 X 6 PU-U ZONE SURROUNDED BY A SHIM REGION AND AN OUTER REGION OF URANIUM.
BETA-EFF. WILL VARY FROM 0.005 (U CORE, 0.0082) AT BEGINNING TO 0.006 (U CORE, 0.0054). MCA
IS LOSS OF COOLANT FROM REACTOR-VESSEL VERTICAL-SEAM FAILURE AND CORE MELTDOWN (AFTER 2 HR OR
MORE), BUT CONTAINMENT SHELL WOULD WITHSTAND RESULTING PRESSURE, ASSUMING FAILURE OF THE
CONTAINMENT SPRAY SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*ACCIDENT, LOSS OF COOLANT + *DELAYED NEUTRON + *DOSE + *PLUTONIUM + BLOWDOWN + CONTAINMENT SPRAY +
EBWR (EXPERIMENTAL BOILING WATER REACTOR) + METAL WATER REACTION + MODIFICATION, SYSTEM OR EQUIPMENT +
REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

17-19112

ALSO IN CATEGORY 6

TOPPEL BJ + VOGELBERGER PJ + WIMUNC EA
COMPENSATION OF SUPER-PROMPT CRITICAL REACTIVITY INSERTIONS BY THE DOPPLER EFFECT
ARGONNE NATIONAL LABORATORY
ANL-6841 +. 6 PAGES, 2 FIGURES, 1 TABLE, FROM SAFETY ANALYSIS ASSOCIATED WITH THE PLUTONIUM RECYCLE
EXPERIMENT IN EBWR, NOVEMBER 1966

(PAGES 46-51) CALCULATION (COUPLED WITH TEMPERATURE-TRANSIENT TESTS) OF THE TEMPERATURES

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19112 *CONTINUED*

REACHED IN AN EXCURSION DUE TO A REACTIVITY INSERTION WHEN ALL RODS EXCEPT 1 CORNER ROD ARE INSERTED (70% OF POWER IS IN THE QUADRANT OF THE PULLED ROD) SHOWED THAT AN INPUT OF 0.94% WAS NOT SUFFICIENT TO CAUSE FUEL MELTING AND RESULTED IN CLAD (ZIRC-2) STRESS OF 14,500 PSI (SHORT-TERM TENSILE STRENGTH, 35,000 PSI). STEP INSERTION OF 1% RESULTED IN CENTERLINE FUEL MELTING AND A CLAD STRESS OF 18,700 PSI. RESULTS CONFIRM CONCLUSIONS DRAWN FROM SPERT-1 EXPERIENCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *ZIRCALOY + ACCIDENT, REACTIVITY + EBWR (EXPERIMENTAL BOILING WATER REACTOR) + MATHEMATICAL TREATMENT + REACTOR, BOILING WATER + TEMPERATURE TRANSIENT + TEST, PHYSICS

17-19113 ALSO IN CATEGORY 9

SPEAS IG + COBB JS + GROOTHUIS SE
REVIEW OF HYDRAULIC PROBLEMS ON THE BONUS REACTOR PRESSURE CONTROL SYSTEM
UNION CARBIDE CORP., Y-12 PLANT, OAK RIDGE, TENN.
Y-1491 +. 44 PAGES, 7 FIGURES, JUNE 14, 1965

Y-12 ENGINEERING PERSONNEL STUDIED THE BONUS REACTOR PRESSURE CONTROL SYSTEM TO DETERMINE THE CAUSE OF MALFUNCTION OF THE HYDRAULIC CONTROLS ON THE MAJOR STEAM VALVES. IT WAS CONCLUDED THAT THE PRINCIPAL CONTRIBUTOR TO THE VALVE TROUBLE WAS THE HIGH MOISTURE CONTENT OF THE PHOSPHATE-ESTER HYDRAULIC FLUID. THIS EXCESSIVE MOISTURE REACTED WITH THE HYDRAULIC FLUID TO PRODUCE AN ACID WHICH, IN TURN, CORRODED THE STEEL COMPONENTS OF THE SYSTEM AND PRODUCED FINE ABRASIVE PARTICLES THAT ERODED THE SERVO-METERING SURFACES. MODIFICATIONS WERE RECOMMENDED TO ALLEVIATE THE PROBLEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTROL SYSTEM + FAILURE, INSTRUMENT + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT + VALVE

17-19143

U OF ILLINOIS AMENDMENT 8 - INSTALLATION OF COOLING SYSTEMS
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, OCTOBER 16, 1967, DOCKET NO. 50-151

U OF ILLINOIS ASKED TO MODIFY THEIR TRIGA CORE FOR OPERATION AT HIGHER STEADY-STATE POWER (1.5 MW) AND LARGER PULSES. DRL ALLOWS INSTALLATION OF PUMPS, DELAY TANKS, HEAT EXCHANGERS, ETC., FOR PRIMARY AND SECONDARY COOLING SYSTEMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MAIN COOLING SYSTEM + *POWER UPGRATING + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + REFUELING + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-19144 ALSO IN CATEGORY 11

HUMBOLDT BAY PROPOSED CHANGE - DEFERMENT OF LEAK RATE TEST
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
1 PAGE, OCTOBER 16, 1967, DOCKET NO. 50-133

PG AND E REQUESTS DEFERMENT OF TEST UNTIL NO LATER THAN DEC. 1968. A LEAK-RATE-TEST PROGRAM IS UNDER REVIEW (PROPOSED CHANGE 21). CHANGE 22 DEFERRED A LEAK-RATE TEST TO JUNE 20, 1967, AND SUPPLEMENT 1 TO THAT CHANGE DEFERRED IT TO OCT. 20, 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-19145 ALSO IN CATEGORY 11

BONUS CHANGE 4 - DEFERMENT OF LEAK RATE TEST
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
1 PAGE, SEPTEMBER 15, 1967, DOCKET NO. 115-4

DRL ALLOWS DEFERMENT OF TEST (DUE IN SEPT. 67). TEST IS TO BE PERFORMED BEFORE STARTUP AFTER THE CURRENT SHUTDOWN. FUTURE TEST SCHEDULE NOT CHANGED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTAINMENT, LOW PRESSURE + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19146

DRL ASKS NORTHROP TO JUSTIFY DIFFERENCES IN PROPOSED TECHNICAL SPECIFICATIONS
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
1 PAGE, OCTOBER 19, 1967, DOCKET NO. 50-187

DRL ASKS FOR A JUSTIFICATION FOR EACH ITEM OF PROPOSED TECHNICAL SPECIFICATIONS THAT DIFFERS FROM THAT PRESENTLY AUTHORIZED FOR THE FACILITY. FOR EXAMPLE, SHUTDOWN MARGINS, CORE EXCESS REACTIVITY, AND FUEL-ELEMENT-INSPECTION INTERVALS ARE DIFFERENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-19147

ALSO IN CATEGORY 11

PLUM BROOK REPORTS RESULTS OF CONTAINMENT LEAK RATE TESTS
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO
2 PAGES, OCTOBER 13, 1967, DOCKET NO. 50-30

9/67 TEST SHOWED AN AS-IS LEAK RATE OF 82% OF THE ALLOWABLE VALUE OF 450 CU. FT/DAY AT 0.3 PSI OVERPRESSURE, DETERMINED BY TWO METHODS - (1) ABSOLUTE TEMP.-PRESSURE METHOD (TID-20583) AND (2) CONSTANT P-V-T METHOD. RESULTS WERE WITHIN 3% OF EACH OTHER. AFTER THE TESTS, LEAKS IN THE TEST FLOWMETER AND A CONTROL AIR PENETRATION WERE STOPPED. LEAKAGE THEN WAS 40% ALLOWABLE. A CALIBRATED LEAK WAS THEN INTRODUCED (58% OF ALLOWABLE) AND RESULTED IN A 98% LEAKAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT, HIGH PRESSURE + *TEST, LEAK RATE + CONTAINMENT ABSOLUTE MEASURING SYSTEM +
CONTAINMENT REFERENCE MEASURING SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + PLUM BROOK +
PRESSURE, INTERNAL + REACTOR, TEST

17-19148

ALSO IN CATEGORY 5

INDIAN POINT 1 CHANGE 31 - REFUELING OF CORE B
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
9 PAGES, 2 TABLES, OCTOBER 19, 1967, DOCKET NO. 50-3

7 CHANGES RELATING TO REFUELING AND SUBSEQUENT TESTING PROGRAM. CENTRAL CORE REGION WILL BE REMOVED, REMAINING ELEMENTS REPOSITIONED, AND FRESH FUEL LOADED IN PERIPHERY. THERMAL LIMITS REMAIN UNCHANGED. CHANGES ALSO INCLUDE (1) LIMIT ON EXCESS REACTIVITY DROPPED AS REDUNDANT WITH SHUTDOWN MARGIN LIMIT, (2) LIMIT ON LOW PRESSURE DROPPED AS REDUNDANT WITH ROD-DROP-TIME SPECIFICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP TESTING + *REFUELING + CONTROL ROD SCRAM MECHANISM + INDIAN POINT 1 + PRESSURE, INTERNAL +
REACTIVITY, EXCESS + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + SHUTDOWN MARGIN +
TECHNICAL SPECIFICATIONS

17-19181

BROWN KK

NPD PERFORMANCE INDICATES MERIT OF ON-POWER REFUELING.

ARGONNE NATIONAL LAB., ARGONNE, ILL.

7 PAGES, 7 FIGURES, 4 TABLES, 6 REFERENCES, POWER REACTOR TECHNOLOGY 9(4), PAGE 180 THRU 186, (FALL 1966)

DISCUSSES THE 2 YEARS OF EXPERIENCE WITH ON-POWER REFUELING MACHINES AT THE 20-MWE NPD. STATISTICS ARE INADEQUATE, BUT IT APPEARS THAT HIGH AVAILABILITY AND LOW FORCED-OUTAGE RATES ARE POSSIBLE. PLANT UNAVAILABILITY RESULTING FROM REFUELING-MACHINE PROBLEMS AMOUNTED TO ONLY 2.44% DURING 26-MONTH PERIOD. DESCRIBES THE REFUELING METHOD. EMPHASIZES THE ECONOMIC MOTIVATION FOR ON-POWER REFUELING.

*FUEL HANDLING MACHINE + *OPERATING EXPERIENCE + *REFUELING + CANADA + ECONOMICS +
NPD 2 (NUCLEAR POWER DEMONSTRATION REACTOR 2) + REACTOR, HEAVY WATER + REACTOR, POWER

17-19183

PURCELL RH

1962 PRTR FUEL ELEMENT FAILURE

BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON

BNWL-SA-557 + CONF-660516-1 +. 4 PAGES, PAGE 23 THRU 26 OF PLUTONIUM RECYCLE TEST REACTOR EXPERIENCE,
1962-1966, APRIL 15, 1966, PRESENTED AT ANNUAL CONFERENCE ON ORGANIC AND HEAVY WATER REACTORS, WINNIPEG,
CANADA

CLADDING FAILED ON AN EXPERIMENTAL MGO-PUO2 FUEL ELEMENT DUE TO CORROSION AND HYDRIDE FORMATION. 1.8 GM OF PU AND 15000 CI OF FISSION PRODUCTS WERE RELEASED, CONTAMINATING THE PRIMARY SYSTEM. RADIATION LEVELS AT SOME EQUIPMENT WAS 100 R/HR. DECONTAMINATION OF THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19183 *CONTINUED*

SS-ZR-2 SYSTEM WAS DONE BY A BUFFERED OXALIC/PEROXIDE, ALKALINE PERMANGANATE, OXALIC ACID SEQUENCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, CLADDING + CORROSION + DECONTAMINATION + FAILURE, FUEL ELEMENT + HYDRIDE + MAIN COOLING SYSTEM + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-19184

PURCELL RH

1965 FUEL ELEMENT FAILURE

BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON

BNWL-SA-557 + CONF-660516-1 +. 7 PAGES, PAGE 27 THRU 33 OF PLUTONIUM RECYCLE TEST REACTOR EXPERIENCE, 1962-1966, APRIL 15, 1966, PRESENTED AT ANNUAL CONFERENCE ON ORGANIC AND HEAVY WATER REACTORS, WINNIPEG, CANADA

DESCRIBES THE SIMULTANEOUS FAILURE OF A PRESSURE TUBE AND AN EXPERIMENTAL DEFECTIVE UO₂-PUO₂ FUEL ELEMENT. 40% (700 GRAMS) OF THE FUEL MATERIAL AND A SECTION OF CLADDING (3 IN. BY 1/2 IN.) WERE MISSING. MECHANISM OF FUEL ELEMENT FAILURE NOT GIVEN. THE PROCESS TUBE FAILED BY HOT-SPOT BLOWOUT. CLEANUP METHOD IS BRIEFLY DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, SIMULTANEOUS + FAILURE, EQUIPMENT + FAILURE, FUEL ELEMENT + FAILURE, PIPE + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE

17-19185

ALSO IN CATEGORY 11

PURCELL RH

CONTAINMENT VESSEL LEAK TESTING

BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON

BNWL-SA-557 + CONF-660516-1 +. 3 PAGES, PAGE 34 THRU 36 OF PLUTONIUM RECYCLE TEST REACTOR EXPERIENCE, 1962-1966, APRIL 15, 1966, PRESENTED AT ANNUAL CONFERENCE ON ORGANIC AND HEAVY WATER REACTORS, WINNIPEG, CANADA

DURING LEAK TESTS IN 1963-1964, ELECTRICAL PENETRATIONS FILLED WITH EPOXY RESIN FAILED BECAUSE OF INCOMPLETE HARDENING. BULKHEAD FITTINGS ARE TO BE USED ON ALL NEW PENETRATIONS, WITH DESIGNS PERMITTING ISOLATED LEAK TESTS ON THE PENETRATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT PENETRATION, ELECTRICAL + *FAILURE, GENERAL + CONTAINMENT INSPECTION AND MAINTENANCE + CONTAINMENT INTEGRITY + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + RESIN + TEST, LEAK RATE

17-19186

PURCELL RH

FAILURE OF PRIMARY PUMP SEAL INJECTION LINE

BATTELLE-NORTHWEST, PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON

BNWL-SA-557 + CONF-660516-1 +. 2 PAGES, PAGE 36 AND 37 OF PLUTONIUM RECYCLE TEST REACTOR EXPERIENCE, 1962-1966, APRIL 15, 1966, PRESENTED AT ANNUAL CONFERENCE ON ORGANIC AND HEAVY WATER REACTORS, WINNIPEG, CANADA

A HALF-INCH HIGH-PRESSURE TUBE SUPPLYING HEAVY WATER TO THE MECHANICAL SEAL OF A PRIMARY PUMP BURST. AT THE POINT OF FAILURE, THERE WAS A WELD-FLASH DAMAGE SPOT, AND THE SECTION WAS UNDER STRESS DUE TO A MISALIGNMENT OF CONNECTORS. 400 LB OF HEAVY WATER WAS LOST DUE TO EVAPORATION, AND 1020 LB WERE DEGRADED. TOTAL LOSS, \$7000.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, PIPE + *FAILURE, TUBING + FAILURE, INSTALLATION ERROR + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + WELDS

17-19188

LATINA NUCLEAR POWER PLANT ANNUAL REPORT, 1964

ENTE NAZIONALE PER L'ENERGIA ELETTRICA, ROME, ITALY

EUR-2429.1 +. 60 PAGES, MAY 1965

SUMMARIZES THE OBJECTIVES OF THE FIRST YEAR OF COMMERCIAL OPERATION OF THE LATINA PLANT. THE EXPERIENCE GAINED IS DISCUSSED. DETAILED REPORTS ARE GIVEN ON THE RESULTS OF PLANT USE, OPERATIONAL EXPERIENCE, AND CORE BEHAVIOR. THE CHEMICAL PLANT AND HEALTH PHYSICS ARE ALSO CONSIDERED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19188 *CONTINUED*
ITALY + OPERATIONS REPORT, GENERAL + REACTOR, GAS COOLED + REACTOR, GRAPHITE MODERATED + REACTOR, POWER

17-19189
VELEZ GA + BONNET JA
BONUS PLANT CONVENTIONAL CYCLE HEAT BALANCE
PUERTO RICO WATER RESOURCES AUTHORITY, RINCON
PRWRA-111 + WRA-8-67-12 +. 30 PAGES, 2 FIGURES, MAY 1967, DOCKET NO. 115-4

PERFORMANCE TESTS OF THE TURBINE GENERATOR WITH ALL EXTRACTIONS IN SERVICE AND AT FULL CAPACITY INDICATED THAT THE REGENERATIVE COOLER SHOULD BE INSPECTED SINCE THE OVERALL HEAT-TRANSFER COEFFICIENT HAS DETERIORATED FURTHER AND IS VERY LOW, COMPARED WITH THE DESIGN VALUE. THE GROSS TURBINE HEAT RATE WAS 10,056 BTU/KWH, WITH AN OVERALL EFFICIENCY OF 34.2%. THIS IS A GAIN OF 1.4% AT A FEEDWATER TEMPERATURE OF 360 F OVER THAT OBTAINED FOR A TEMPERATURE OF 250 F.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR POWER + *TEST, PLANT RESPONSE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + ECONOMICS + REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT

17-19190
SCHULZ EH
INCIDENTS AND RADIATION ACCIDENTS IN NUCLEAR PLANTS (20 YEARS OF WORLD-WIDE EXPERIENCE).
416 PAGES, FIGURES, TABLES, VERLAG KARL THIEMIG KG, MUNCHEN, 1966

(IN GERMAN) BOOK JACKET CLAIMS 39,000 FACTS FROM 15 COUNTRIES (1943-63) WERE ANALYZED. AFTER A BRIEF DISCUSSION OF CURRENT PROBLEMS (E.G., METAL-WATER REACTION, CRITICALITY CONTROL), BULK IS TABULATION OF INCIDENTS, WITH HALF-PAGE DISCUSSIONS (E.G., RONGELAP FALLOUT, FERMI CONTROLLED-ATMOSPHERE WORKING SUIT, STARTUP EXPERIENCE AT DRESDEN) OF THE MORE SIGNIFICANT. MOSTLY A TRANSLATION OF TID-5360 AND JOURNAL SUMMARIES. A FEW INCIDENTS OUTSIDE THE U.S.

AVAILABILITY - VERLAG KARL THIEMIG KG, 8 MUNCHEN 90, POSTFACH 90 07 40

*INCIDENT COMPILATION + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

17-19195
REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 13, JULY 1-31, 1966
NUCLEAR UTILITY SERVICES, INC., WASHINGTON, D. C.
NUS-299 +. 133 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 10, 1966

AMONG THE SUMMARIES OF SMALLER PROBLEMS, MENTION IS MADE OF PROGRAMMING POWER VS CONTROL-ROD POSITION ON CORE-II INITIAL STARTUP TO AVOID HEAT-FLUX PEAKS. 33 PAGES DISCUSS APPLICATION OF NEW SENSORS AND 2/3 COINCIDENCE TO THE VARIOUS PROCESS CIRCUITS IN THE 4-ROD SCRAM SYSTEM. CONTAINMENT AIR-PARTICULATE MONITOR HAS BEEN CONTINUALLY IN ALARM BECAUSE SETPOINT IS SO LOW. NOW THAT FISSION-GAS NIGHTFERS ARE IDENTIFIED AS THE MAJOR CONTRIBUTORS, THEIR MFC CAN BE USED (INSTEAD OF THAT FOR UNIDENTIFIED ISOTOPES) TO RAISE THE ALARM POINT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD PROGRAM + *INSTRUMENTATION, COINCIDENT + *MONITOR, RADIATION, AIR + BURNOUT HEAT FLUX + ELK RIVER + FISSION GAS RELEASE + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS REPORT, ANALYSIS + REACTOR SAFETY SYSTEM + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

17-19196 ALSO IN CATEGORY 15
LONGOOD RJ
RADIATION ACCIDENTS - THE PUBLICS RIGHT TO KNOW
DEPARTMENT OF HEALTH
5 PAGES, 1 TABLE, AMER. J. PUBLIC HEALTH 56 (10) PAGE 1751 THRU 1755, (OCT. 1966)

32 RADIATION INCIDENTS WERE INVESTIGATED BY N.Y. HEALTH DEPT. IN UPSTATE N.Y., 1958-65, INCLUDING 2 LOST SOURCES (DISCUSSED). ARTICLE DISCUSSES HOW TO INFORM THE PUBLIC DURING AN EMERGENCY WITHOUT CREATING PANIC OR BAD FEELING. (FALSE ALARMS DEPEND ON COURSE OF EVENTS, BUT WRITER FEELS ONE SHOULD BE REPORTED WHEN PRESS ASKS ABOUT IT). RULES IN DEALING WITH PRESS - (1) DO NOT DENY ACCESS TO FACTS, LEST REPORTERS PICK UP GARBLE, (2) GIVE REPORTER CREDIT FOR THINKING AND TELL A COMPLETE STORY, (3) DO NOT BE BITTER IF YOUR VERSION IS NOT PRINTED, (4) TELL THE TRUTH, DO NOT BLUFF.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + INCIDENT, ACTUAL, GENERAL + SOURCE, RADIATION, LOST

17-19197
HALL WF + LUMB RF + MACPHEE J
PULSTAR, A SLIGHTLY ENRICHED URANIUM-DIOXIDE FUELED REACTOR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19197 *CONTINUED*

TI UNITED STATES, LTD. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC.

34 PAGES, 6 FIGURES, 2 TABLES, 5 REFERENCES, APRIL 1967, PRESENTED AT INTERNATIONAL CONFERENCE ON RESEARCH REACTOR UTILIZATION AND REACTOR MATHEMATICS, MEXICO CITY, MEXICO, MAY 2-4, 1967

DISCUSSES CONVERSION OF MTR-TYPE CORE TO A PIN TYPE CAPABLE OF 5-MW (INITIALLY 2 MW) STEADY-STATE OPERATION AND 10,000-MW PULSING WITH HALF MAXIMUM WIDTH OF 10 MSEC. EXCELLENT DISCUSSION OF PREOPERATIONAL TESTING. ADDITIONAL INSTRUMENTATION FOR PULSING WAS ADDED TO ORIGINAL EQUIPMENT. FORCED-CIRCULATION COOLING SYSTEM HAS PROVISION FOR NATURAL CONVECTION. STARTUP TESTING INCLUDED TRANSIENT TESTS WITH RAMPS AND VARIOUS HEIGHT PULSES. PROMPT-NEUTRON LIFETIME WAS 29 MICROSEC. GIVES RESULTS OF METALLOGRAPHIC EXAMINATION OF TEST PINS.

AVAILABILITY - WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC., POWER DRIVE, BUFFALO, NEW YORK 14214

*FUEL ELEMENT + *OPERATING EXPERIENCE + *TEST, PREOPERATIONAL + INSTRUMENTATION, PULSE + POWER UPGRATING + PULSTAR + REACTOR, PULSED + REACTOR, RESEARCH + SURFACE FILM DEPOSIT + TESTING

17-19198 ALSO IN CATEGORIES 5 AND 6

HALL WF + LUMB RF + MACPHEE J

WNYNRC PULSTAR FUEL ROD TESTING PROGRAM

TI UNITED STATES, LTD. + WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC.

12 PAGES, 5 FIGURES, 1 TABLE, PAGE 12 THRU 23 OF PULSTAR, A SLIGHTLY ENRICHED URANIUM-DIOXIDE FUELED REACTOR, APRIL 1967, PRESENTED AT INTERNATIONAL CONFERENCE ON RESEARCH REACTOR UTILIZATION AND REACTOR MATHEMATICS, MEXICO CITY, MEXICO, MAY 2 THRU 4, 1967

PULSE TESTS (PAGE 12-23), UNDER BOTH FORCED AND NATURAL CONVECTION, USING TEST PINS IN REGIONS OF HIGH FLUX AS WELL AS THE NORMAL CORE PINS, WERE CONDUCTED TO DETERMINE (1) THRESHOLD OF FUEL-PIN BOWING, (2) ONSET OF DNB, AND (3) SURFACE DEPOSIT BUILDUP. BULGING (6% DIA. GROWTH) AND BAMBOOING WERE OBSERVED IN SOME TEST PINS. 2900 F WAS ESTABLISHED TO BE THE LIMIT ON UO2 TEMPERATURE WITH NATURAL CONVECTION, AND PULSE RESTRICTED TO 200 MW/35 MW-SEC. DATA IS GIVEN ON DNB ONSET WITH A VARIETY OF FUEL-ROD CONFIGURATIONS.

AVAILABILITY - WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC., POWER DRIVE, BUFFALO, NEW YORK 14214

*DNB (DEPARTURE FROM NUCLEATE BOILING) + *FUEL ELEMENT BOWING + *SURFACE FILM DEPOSIT + *TEST, PROOF + EXAMINATION + FUEL ELEMENT + OPERATING EXPERIENCE + PERFORMANCE LIMIT + PULSTAR + REACTOR STARTUP TESTING + REACTOR, PULSED + REACTOR, RESEARCH + TEMPERATURE TRANSIENT + THERMAL MECHANICAL EFFECT + URANIUM DIOXIDE

17-19199

FARRELL GJ + O-NEILL HJ

EVALUATING IN DIFFUSION-PUMPED VACUUM SYSTEMS

ILLINOIS INSTITUTE OF TECHNOLOGY, IIT RESEARCH INSTITUTE

4 PAGES, 4 FIGURES, RESEARCH DEVELOPMENT 18(1), PAGE 50 THRU 55, (JANUARY 1967)

REPORTS STUDY OF 72 EXPLOSIONS, AND TESTS TO DETERMINE EXPLOSION CONDITIONS OF DC-704 FLUID. EXPLOSIONS WERE EITHER (1) OXYGEN INLEAKAGE WITH HOT METAL FILAMENT AS IGNITION SOURCE, (2) FOREPUMP TURNED OFF WHILE DIFFUSION PUMP IN OPERATION, (3) LIQUID NITROGEN REMOVED FROM COLD TRAP, (4) MECHANICAL PUMP USED TO REMOVE OXYGEN. TESTS SHOWED SPONTANEOUS IGNITION IN AIR ABOVE 875 F AND PRESSURE HIGHER THAN 55 MM HG. OZONE IS DETRIMENTAL.

EXPLOSION + INCIDENT, ACTUAL, NONNUCLEAR + ORGANIC COOLANT

17-19237

PROOF TEST FACILITY COMMENTS ON AEC DRAFT OF PTF TECHNICAL SPECIFICATIONS

UNITED NUCLEAR CORPORATION

5 PAGES, 1 FIGURE, SEPTEMBER 25, 1967, DCKET NO. 50-290

GIVES CHANGE AND REASON. INCLUDED ARE - (1) REACTOR OPERATION IS WHEN KEY IS IN SWITCH AND FUEL IS IN REACTOR. (2) HALLWAYS NEED NOT HAVE THE 4-FT. CONCRETE SHEILDING REQUIRED FOR REST OF REACTOR BUILDING. (3) REVISED DESCRIPTION OF SAFETY BLADE. (4) FUEL STORAGE - FUEL WILL BE STORED IN THE REACTOR ROOM IN ARRAYS OF STRONG BACKS (I.E., THE SUPPORTS IN SHIPPING CONTAINERS) SINCE THERE IS INSUFFICIENT ROOM FOR THE CONTAINERS. THE STRONG BACKS SEPARATE FUEL ELEMENT PAIRS FROM OTHER PAIRS BY 17 IN. K-EFF OF ARRAY WHEN FLOODED IS LESS THAN 0.8, UNDER CONSERVATIVE ASSUMPTIONS. (5) FUEL LOADING WILL BEGIN NEAR THE SOURCE, WHICH IS AT THE CORE EDGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD SCRAM MECHANISM + *FUEL STORAGE + *SHIELDING + BUILDING + CRITICAL ASSEMBLY FACILITY + CRITICALITY SAFETY + REFUELING + TECHNICAL SPECIFICATIONS

17-19238

ALSO IN CATEGORY 5

CRESDEN 1 CHANGE 13. REFUELING WITH TYPE-V ELEMENTS

DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

7 PAGES, 1 TABLE, DCKET 50-10, 1967

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19238 *CONTINUED*

DRL ALLOWS LOADING OF UP TO 106 TYPE-V AND 4 SPECIAL TYPE-III-F ASSEMBLIES AND TO MODIFY THE TYPE SA-1 ASSEMBLY BY REMOVING 5 RODS EACH FROM THE UPPER AND LOWER HALVES. THE PRINCIPAL DIFFERENCE BETWEEN THE TYPE V AND THE PREVIOUSLY USED TYPE III AND III-F ASSEMBLIES IS THAT THE TYPE V WILL HAVE THE GADOLINIA POISON IN UG2 RODS RATHER THAN A SINGLE ALUMINA ROD. INCLUDED ARE 6 SPECIAL TYPE-V PILOT ASSEMBLIES (4 WITH REDUCED CLAD THICKNESS AND 2 WITH ZIRC RATHER THAN S. S. SPACERS AND SOME DISHED PELLETS). THE 4 SPECIAL TYPE-III-F HAVE 1 PU-ENRICHED ROD IN THE 36-ROD BUNDLE AND LACK BURNABLE POISON. NEW FUEL WILL BE UNIFORMLY SCATTERED IN THE CORE AND RESULTS IN THE LEAST REACTIVE DRESDEN CORE (MOST REACTIVE CONDITION IS 2/3 OF THE WAY THROUGH THE CYCLE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CLAD + *CORE COMPONENTS, MISCELLANEOUS + *PLUTONIUM + *POISON, BURNABLE + *REFUELING + DRESDEN 1 + FUEL ELEMENT + GADOLINIUM + REACTOR, BOILING WATER + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + ZIRCALOY

17-19239

AFRRI-TRIGA REPORTS FUEL ELEMENT FAILURE

DEFENSE ATOMIC SUPPORT AGENCY, ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA
2 PAGES, DOCKET NO. 50-17C, OCTOBER 24, 1967

(LETTER TO DRL) REPORTS OBSERVATION OF GAS BUBBLES ESCAPING FROM A C-RING FUEL ELEMENT DURING ROUTINE INSPECTION. CONTINUOUS AIR MONITORS SHOWED A SLIGHT INCREASE OVER BACKGROUND. THE BUILDING WAS ISOLATED. GAMMA SPECTRUM INDICATED PRESENCE OF Rb-88. FUEL ELEMENT WAS SEALED IN A SPECIAL CAN AND PLACED IN FUEL-STORAGE RACK. NO FURTHER GAS EVOLUTION NOTED. NO PERSONNEL EXPOSURE RESULTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EXAMINATION + *FAILURE, FUEL ELEMENT + *FISSION GAS RELEASE + KRYPTON + REACTOR, RESEARCH + RUBIDIUM + TRIGA (TRAINING REACTOR, ISOTOPES, G. A.)

17-19240

ALSO IN CATEGORY 11

PATHFINDER REPORTS FAILURE OF MAIN STEAM ISOLATION VALVE TO CLOSE
NORTHERN STATES POWER COMPANY

2 PAGES, DOCKET NO. 50-130, OCTOBER 24, 1967

DURING ISOLATION SCRAM TEST (SEPT. 2, 1967), VALVE FAILED TO CLOSE AUTOMATICALLY OR MANUALLY DUE TO RUSTED BRAKE-PRESSURE PLATE IN THE ELECTRIC MOTOR. WATER HAD SPRAYED ON MOTOR THE PREVIOUS WEEK FROM A FAULTY INSTRUMENT PENETRATION. MOTOR WAS CHECKED, BUT WATER PROOF BRAKE HOUSING WAS NOT REMOVED. WATER ENTERED HOUSING AROUND THE EDGES OF A SMALL UNSEALED INSPECTION PLATE. VALVE WAS LAST TESTED SEPTEMBER 3, 1967. *** INCIDENT WAS NOT REPORTED FOR A MONTH AND A HALF BECAUSE PATHFINDER CONSIDERED IT NOT A POSSIBLE UNSAFE CONDITION AND INTENDED TO REPORT IN 6-MONTH SUMMARY AS MALFUNCTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + FAILURE, DESIGN ERROR + FAILURE, MAINTENANCE ERROR + INCIDENT, ACTUAL, EQUIPMENT + MAIN COOLING SYSTEM + PATHFINDER + REACTOR, INTERNAL SUPERHEAT + SEAL + TEST, SYSTEM OPERABILITY + VALVE

17-19241

WORCHESTER POLY AMENDMENT POWER UPGRATING TO 10 KW

DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

15 PAGES, 1 TABLE, DOCKET NO. 50-134, OCTOBER 19, 1967

DRL ALLOWS POWER INCREASE FROM 1 KW. AN INCREASE IN FUEL INVENTORY OF TWO ADDITIONAL FUEL ELEMENTS, AND CERTAIN TYPES OF MOVEABLE EXPERIMENTS. THE POOL-TYPE REACTOR USES 10-PLATE MTR ELEMENTS. HIGHEST RADIATION FIELD IS EXPECTED AT THERMAL COLUMN (32 MR/HR). RADIATION AT TOP OF POOL AFTER LOSS OF COOLANT IS 10 R/HR. THE TWO ADDITIONAL ELEMENTS HAVE 18 PLATES. A RABBIT TUBE IS TO BE INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE, PLATE TYPE + *IRRADIATION FACILITY + *POWER UPGRATING + BEAM HOLE + REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + SHIELDING + TECHNICAL SPECIFICATIONS

17-19242

WESTERN NEW YORK NUCLEAR RESEARCH CENTER PULSTAR ANNUAL REPORT OF OPERATIONS AND MODIFICATIONS FOR YEAR
ENDING JUNE 30, 1967

WESTERN NEW YORK NUCLEAR RESEARCH CENTER, INC., BUFFALO, N.Y.

4 PAGES, 1 FIGURE, DOCKET 50-57, OCTOBER 17, 1967

REPORTS 6 MINOR FACILITY MODIFICATIONS. SOP-OP-7. *** PULSE SETUP AND ANALYSIS WAS ISSUED
(APRIL 17, 1967).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19242 *CONTINUED*

*MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS SUMMARY FOR AEC + PROCEDURES AND MANUALS + PULSTAR + REACTOR, RESEARCH + VENTILATION SYSTEM

17-19243 ALSO IN CATEGORY 6
SUPPLEMENT 1 TO SAN ONOFRE REPORT ON POSITIVE MODERATOR COEFFICIENT
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIFORNIA
6 PAGES, 1 FIGURE, OCTOBER 19, 1967, DOCKET NO. 50-206

MODERATOR COEFFICIENT EXTRAPOLATED TO FULL POWER IS $0.54 \times 10^{(-4TH)}$ DP/F (NO XENON), $0.42 \times 10^{(-4TH)}$ (EQUILIBRIUM XENON), CORRESPONDING TO A MAXIMUM POTENTIAL INSERTION OF 0.2 TO 0.26% DELTA K/K. REVIEW OF EFFECT ON STARTUP, ROD WITHDRAWAL, BORON DILUTION, LOSS OF FLOW, LOSS OF LOAD, COLD WATER, STEAM BREAK, AND ROD-EJECTION ACCIDENT. LOSS-OF-COOLANT ANALYSIS PREVIOUSLY IGNORED THE REACTIVITY GAIN OF THE VOIDS DUE TO MODERATOR COEFFICIENT. CONN. YANKEE AMENDMENT 14 ANALYSIS APPLIED TO SAN ONOFRE INDICATES A 0.4% SHORT EXCURSION RELEASES 269 MW-SEC FOR LARGE DOUBLE-ENDED RUPTURE AND 1280 MW-SEC FOR A 10-IN. PIPE BREAK. SUGGESTED TECH.-SPEC. MINIMUM AT ZERO POWER IS $0.57 \times 10^{(-4TH)}$ DP/F. MEASURED VALUE IS $0.74 \times 10^{(-4TH)}$.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *MODERATOR COEFFICIENT + EXCURSION, LARGE + EXTRAPOLATION FACTOR + REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER + SAN ONOFRE + TECHNICAL SPECIFICATIONS + VOID COEFFICIENT

17-19244 ALSO IN CATEGORY 6
SUPPLEMENT II TO SAN ONOFRE REPORT ON POSITIVE MODERATOR COEFFICIENT - ANSWERS TO AEC QUESTIONS
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIFORNIA
4 PAGES, 1 TABLE, OCTOBER 20, 1967, DOCKET NO. 50-206

(1) $-0.13 \times 10^{(-4TH)}$ DP/F IS THE CORRECTION TO THE MODERATOR COEFFICIENT DUE SOLELY TO THE INCREASED BORON CONCENTRATION AT FULL POWER. (2) FULL LOAD IS THE MOST LIMITING CONFIGURATION FOR ACCIDENT ANALYSIS AS COEFFICIENT INCREASES WITH DECREASING POWER LEVEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODERATOR COEFFICIENT + AEC QUESTION + EXTRAPOLATION FACTOR + POISON, SOLUBLE + POWER COEFFICIENT + REACTOR, PRESSURIZED WATER + SAN ONOFRE + TECHNICAL SPECIFICATIONS

17-19245 ALSO IN CATEGORY 6
DRL AGREES TO N. CAROLINA STATE U ON HAZARDS SUMMARY REPORT CHANGES
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
1 PAGE, OCTOBER 23, 1967, DOCKET NO. 50-111

(REPLY TO LETTER OF 19 SEPT. 67) DRL AGREES THAT A RE-EVALUATION IS NEEDED OF THE MCA TO REFLECT THE POSSIBILITY OF THE INSERTION OF 1.5% (TECH.-SPEC. LIMIT) BY USE OF THE VERTICAL EXPOSURE PORT. PRESENT ANALYSIS IS FOR 0.8%, FROM BEAM-PORT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, MAXIMUM CREDIBLE (MCA) + *IRRADIATION FACILITY + ACCIDENT, REACTIVITY + BEAM HOLE + REACTOR, GRAPHITE MODERATED + REACTOR, RESEARCH + SAFETY ANALYSIS REPORT, GENERAL

17-19246 ALSO IN CATEGORIES 14 AND 15
U OF VIRGINIA SUPPLIES ADDITIONAL INFORMATION ON WASTE DISPOSAL AND RADIATION LEVELS AT PROPOSED 2 MWT UNIVERSITY OF VIRGINIA, SCHOOL OF ENGINEERING AND APPLIED SCIENCE, CHARLOTTESVILLE
5 PAGES, 1 FIGURE, OCTOBER 20, 1967, DOCKET NO. 50-62

IN RESPONSE TO AEC QUESTIONS - (1) MENS ROOM IS NOW DESIGNATED A RADIATION AREA, AS LEVEL WILL BE ABOUT 10 MR/HR. (2) DEMINERALIZER-ROOM HIGH-RADIATION ALARM AND BRIDGE-MONITOR SETPOINTS WILL BE RAISED TO PREVENT SPURIOUS SCRAMS AND ALARMS. EXPECTED LEVELS ARE 100 MR/HR AND 10, RESPECTIVELY. WASTE-DISPOSAL SYSTEM DESCRIBED. WASTE TRAVELS THROUGH TWO TANKS, (INSTALLED MAY 67) FOR SETTLING AND DILUTION, TO A POND WHOSE OUTLET IS CONTROLLED. THE POND BOTTOM NOW CONTAINS LONG-LIVED ACTIVITY FROM HAVING PREVIOUSLY RECEIVED WASTE DIRECTLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POWER UPGRATING + *REACTOR SAFETY SYSTEM + *TECHNICAL SPECIFICATIONS + *WASTE DISPOSAL, LIQUID + AEC QUESTION + INSTRUMENTATION, RADIATION MONITORING + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH

17-19248 ALSO IN CATEGORY 11
DRL REQUESTS ADDITIONAL INFORMATION ON NASA CHANGE REPORT 32
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
3 PAGES, OCTOBER 23, 1967, DOCKET NO. 50-30

DRL ASKS 7 QUESTIONS, INCLUDING 2 ON RELAXING THE TESTING AND REPORTING REQUIREMENTS FOR THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19248 *CONTINUED*

HERMETICALLY SEALED ELECTRICAL PENETRATIONS, ONE ON INCREASE OF THE ALLOWABLE FUEL BURNUP TO 113 MW/D/ELEMENT, AND 4 ON ROD-GUIDE REPLACEMENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + AEC QUESTION + CONTAINMENT PENETRATION, ELECTRICAL + CONTROL ROD + FUEL BURNUP + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS + TEST INTERVAL

17-19249

ALSO IN CATEGORY 9

PATHFINDER REPORTS CONTROL ROD CRACKING

NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA

1 PAGES, OCTOBER 23, 1967, DOCKET NO. 50-130

(LETTER TO DRL) INSPECTION OF TWO BORON/STAINLESS-STEEL CONTROL RODS SHOWED VISIBLE CRACKS NEAR FABRICATION WELDS ON THE NEUTRON-ABSORBER SECTION, INDICATING THAT THEY ARE NOT SUITABLE FOR POWER OPERATION. UNDER CONSIDERATION FOR USE ARE B4C PELLET-IN-TUBE RODS (DESIGNED FOR CORE II AND PRESENT AT SITE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BORON + *CONTROL ROD BURNUP + *FAILURE, EQUIPMENT + *WELDS + EXAMINATION + MODIFICATION, SYSTEM OR EQUIPMENT + PATHFINDER + REACTOR, INTERNAL SUPERHEAT

17-19250

DRL REQUESTS ADDITIONAL INFORMATION ON NASA CHANGE REPORT 33

AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

2 PAGES, OCTOBER 26, 1967 DOCKET NO. 50-3

2 QUESTIONS - (1) DESCRIBE METHOD FOR TESTING LEAK TIGHTNESS OF WELD IN TANK HEAD. (2) ADMINISTRATIVE CONTROL DURING OPERATIONS OF REMOVAL AND HANDLING OF TANK HEAD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + *TEST, LEAK RATE + AEC QUESTION + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

17-19251

ALSO IN CATEGORIES 1 AND 15

WITTENBROCK NG

NUCLEAR SAFETY IN THE PLUTONIUM RECYCLE PROGRAM

BATTTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.

BNWL-SA-1345 + CONF-670713-2 + . 24 PAGES, 7 FIGURES, 4 TABLES, 11 REFERENCES, JULY 3, 1967

DISCUSSION OF PLUTONIUM FUEL EFFECT ON REACTOR SAFETY RELATIVE TO PLUTONIUM VS URANIUM-FISSION-PRODUCT HAZARDS. GIVES ALLOWABLE CONCENTRATION IN AIR OF VARIOUS SUBSTANCES, AND MAXIMUM PERMISSIBLE BODY BURDENS FOR PU AND U ISOTOPES. GIVES EXPERIENCE WITH FABRICATION AND USE OF PU. DESCRIBES CONSTRUCTION OF A GLOVE BOX FOR PU WORK. PLUTONIUM-RECYCLE TEST REACTOR, 2 FUEL-FAILURE INCIDENTS, AND EXPERIENCE CITED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE + *PLUTONIUM + GLOVE BOX + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + PRTR (PLUTONIUM RECYCLE TEST REACTOR) + REACTOR, TEST + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

17-19252

SAXTON OPERATING REPORT FOR MARCH THROUGH AUGUST 67

SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.

37 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

ONE OF A SERIES OF PROGRESS REPORTS WHOSE USUAL CONTENT IS A SET OF 6 MONTHLY OPERATING REPORTS COVERING - (1) GENERAL OPERATING EXPERIENCE, (2) DESCRIPTION OF EXPERIMENTS PERFORMED DURING THE MONTH, (3) OPERATIONAL TESTS CONDUCTED, (4) LIST OF ALL MAINTENANCE ITEMS, (5) COOLANT-CHEMISTRY DATA (PH, CONDUCTIVITY, TRITIUM, BORON AND CHLORIDE CONCENTRATIONS, GROSS BETA-GAMMA), (6) RADIATION AND WASTE DISPOSAL (BUILDING RADIATION SURVEYS AND SHEAR-TEST RESULTS, WASTE-DISPOSAL RECORD, PERSONNEL DOSIMETRY INFORMATION, LIQUID- AND GASEOUS-EFFLUENT AMOUNTS), (7) GENERAL OPERATING STATISTICS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*OPERATIONS REPORT, GENERAL + COOLANT CHEMISTRY + MAINTENANCE AND REPAIR + OPERATIONS SUMMARY FOR AEC + PERSONNEL EXPOSURE, RADIATION + REACTOR, PRESSURIZED WATER + SAXTON + SURVEILLANCE PROGRAM + SURVEY, RADIATION, GENERAL + TEST, PLANT RESPONSE + TEST, SYSTEM OPERABILITY + WASTE DISPOSAL, GENERAL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19253 ALSO IN CATEGORY 11
SAXTON REPORTS RESULTS OF TESTS FOR REACTOR VESSEL CRACKING
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
8 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

(1) 36 HEAD STUDS AND NUTS WERE ULTRASONICALLY INSPECTED. MAGNETIC-PARTICLE TESTS SHOWED NO CRACKS OR DISCONTINUITIES IN THE 9 STUDS TESTED OR THE CRANE HOOK. (2) 6 X 12 IN. OF THE S.S. CLADDING ON THE REACTOR VESSEL INNER SURFACE WAS TESTED FOR CRACKING WITH DYE PENETRANTS. NO CRACKS WERE FOUND.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST, PRESSURE VESSEL + *TESTING + INTEGRITY + OPERATIONS SUMMARY FOR AEC + PRESSURE VESSEL + REACTOR, PRESSURIZED WATER + SAXTON + TEST, NONDESTRUCTIVE

17-19254 ALSO IN CATEGORY 9
SAXTON REPORTS CONTROL ROD STUCK IN CUKE
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
21 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

(JUNE, JULY, AND AUGUST REPORTS) CONTROL ROD 5 FAILED TO RAISE MORE THAN 0.4 IN. DURING STARTUP. A MANUALLY OPERATED GEAR HOIST WAS USED TO FREE THE ROD WITH 162 LB FORCE. IT WAS LOWERED, AND THE ROD OPERATED PROPERLY. VISUAL INSPECTION SHOWED GOUGES (ABOUT 1/8 X 3/8 BY 1/16 IN. DEEP) IN THE ROD OPPOSITE THE CONTROL-ROD GUIDE BLOCK. THE BLOCK HAD BEEN SCORED ON THE VERTICAL EDGE, INDICATING THAT AN OBJECT HAD JAMMED BETWEEN THE ROD AND THE GUIDE BLOCK. ROD WAS OPERATED SUCCESSFULLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *INCIDENT, ACTUAL, EQUIPMENT + CONTROL ROD + EXAMINATION + OPERATIONS SUMMARY FOR AEC + REACTOR, PRESSURIZED WATER + SAXTON

17-19255 ALSO IN CATEGORY 9
SAXTON REPORT CAMAGE TO FOLLOWER SECTION OF CONTROL ROD
SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
7 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

SAXTON REPLACED THE FUEL-FOLLOWER SECTION OF CONTROL ROD 2 WHEN VISUAL INSPECTION REVEALED POSSIBLE CLAD FAILURES IN BLACK-RUB AREAS AND DENTS (FROM FABRICATION).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + CONTROL ROD + FAILURE, CLADDING + FAILURE, FABRICATION ERROR + FAILURE, SCRAM MECHANISM + FUEL ELEMENT + OPERATIONS SUMMARY FOR AEC + REACTOR, PRESSURIZED WATER + SAXTON

17-19268 ALSO IN CATEGORY 11
DRESDEN 1 SHUTDOWN TO INVESTIGATE FLAWS IN PRIMARY PIPING
COMMONWEALTH EDISON CO., CHICAGO, ILLINOIS
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 12, (NOVEMBER 6, 1967), DOCKET NO. 50-10, LETTER FROM P. A. MORRIS, DRL, TO COMMONWEALTH EDISON

(LTR, OCT. 25) NOTES PA MORRIS (DRL) UNDERSTANDING OF SHUTDOWN FOR THOROUGH EXAMINATION OF PIPING, INCLUDING ULTRASONIC TEST OF ALL 6- AND 8-INCH PRIMARY PIPING THAT CANNOT BE ISOLATED BY VALVES. THESE FLAWS WERE RECENTLY DISCOVERED IN SECTIONS OF THE PRIMARY PIPING REMOVED EARLY IN 67.

AVAILABILITY - PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, PIPE + *FLAW + *MAIN COOLING SYSTEM + *PIPING + DRESDEN 1 + REACTOR, BOILING WATER TEST, NONDESTRUCTIVE

17-19269 ALSO IN CATEGORY 11
PATHFINDER CONDENSER-TUBE FAILURE, SEPTEMBER 16, 1967
NORTHERN STATES POWER CO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 16, (NOVEMBER 6, 1967), DOCKET NO. 50-130

(LTR, OCT. 27, FROM G. H. NEILS) A TUBE FAILED ON STARTUP AT 40% POWER, AND REACTOR WAS SHUT DOWN WITHOUT REFLOODING SUPERHEATER TO AVOID CONTACTING FUEL WITH HIGHER-CONDUCTIVITY CONDENSER WATER. FAILURE WAS A CIRCUMFERENTIAL BREAK NEAR TUBE SHEET. LEAK WAS ONE OF MOST SEVERE IN OUR EXPERIENCE, BUT LEAKAGE TO COOLING TOWER AND DISCHARGE WAS WITHIN ACCEPTABLE LIMITS. BEFORE STARTUP, PROCEDURES WILL BE IMPROVED TO MINIMIZE LEAK TO COOLING TOWER SYSTEM, AND ACCIDENTAL RELEASE.

*FAILURE, TUBING + *TURBINE + HEAT SINK + PATHFINDER + REACTOR, BOILING WATER +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19269 *CONTINUED*
REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, RIVER

17-19270
STEEL PLATE FOUND IN PATHFINDER MAIN PUMP DISCHARGE
NORTHERN STATES POWER CO., MINNEAPOLIS, MINN.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 17, (NOVEMBER 6, 1967), DOCKET NO. 50-130

(LTR., 20 OCT.) DURING DISASSEMBLY OF NO. 12 RECIRC. PUMP, A FOREIGN OBJECT WAS FOUND IN THE PUMP-DISCHARGE STRAIGHTENING VANE. IT IS 10-GAGE STAINLESS STEEL, 12 IN. LONG, WIDTH 5 IN. TAPERING TO 4 IN. IT APPEARS TO BE OF REACTOR ORIGIN, BUT EXACT ORIGIN UNKNOWN.

*FLOW BLOCKAGE + INCIDENT, ACTUAL, GENERAL + MAIN COOLING SYSTEM + PATHFINDER + PUMP +
REACTOR, BOILING WATER + REACTOR, INTERNAL SUPERHEAT

17-19271 ALSO IN CATEGORY 14
PENN STATE LOSES U-235 PLATED CYLINDER
PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 19, (NOVEMBER 6, 1967), DOCKET NO. 70-242

(LTR., OCT. 12) 0.057 GRAM OF U-235 WAS IN ONE OF TWO IDENTICAL ASSEMBLIES. SOMETIME IN THE PAST 5 YEARS ONE WAS DISCARDED THRU NORMAL PROCEDURES, AND THE IDENTIFYING TAGS WERE INTERCHANGED, CAUSING THE WRONG ASSEMBLY TO BE RETAINED. WE RECENTLY CUT OPEN THE ASSEMBLY TO RECLAIM IT, AND DISCOVERED THE LOSS.

*SOURCE MATERIAL + *SOURCE, RADIATION, LOST + *URANIUM + FAILURE, ADMINISTRATIVE CONTROL +
WASTE DISPOSAL, SOLID

17-19272
ABBOTT LAB EMPLOYEE RECEIVES 2.03 REM THYROID EXPOSURE
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 20 AND 21, (NOVEMBER 6, 1967)

(LETTER, OCT. 3) ON SEPT. 4 (LABOR DAY HOLIDAY), WORKER EMPTIED AN ION EXCHANGE COLUMN, FLUSHING IT DOWN A RAD.-WASTE DRAIN WITH WATER. UNKNOWN TO HIM WAS THAT PREPARATION HAD NOT REACTED COMPLETELY AS USUAL, AND 0.3 CURIE OF I-131 WAS ON RESIN. BECAUSE OF HOLIDAY, NO HP WAS PRESENT AND THERE WERE NO AIR SAMPLES. DURING ROUTINE THYROID COUNTING SEPT. 5, 0.175 MICROCURIES WAS FOUND IN HIS THYROID. OVERALL THYROID QUARTERLY DOSE IS ABOUT 5 REMS. BETTER VENTILATION WILL BE PROVIDED.

*FISSION PRODUCT, IODINE + *PERSONNEL EXPOSURE, RADIATION + AIRBORNE RELEASE + DOSE MEASUREMENT, INTERNAL +
ION EXCHANGE + RESIN + VENTILATION SYSTEM + WASTE DISPOSAL, LIQUID

17-19273
CARNEGIE-MELLON UNIVERSITY EXPOSURES
CARNEGIE-MELLON UNIVERSITY, PITTSBURGH, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 22, (NOVEMBER 6, 1967)

(LETTER, SEPT. 15) DURING THE 3RD QUARTER OF 1964, ONE EMPLOYEE RECEIVED A 3.4-REM WHOLE-BODY DOSE WHILE WORKING INTERMITTENTLY IN A 2-5 R/H AREA WHERE WORK IS TIMED. DURING THE 2ND QUARTER OF 1967, AN EMPLOYEE RECEIVED A 3.23-REM WHOLE-BODY DOSE WHILE WORKING IN A 2-5 R/H AREA WHERE WORK IS TIMED.

*PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

17-19274 ALSO IN CATEGORY 15
14 REM BETA DOSE TO OPERATOR CHECKING OFF-GAS SYSTEM RUPTURE DIAPHRAGM
CONSUMERS POWER CO., CHARLEVOIX, MICHIGAN
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 22 THRU 24, (NOV. 6, 1967), DOCKET NO. 50-155

(LETTER, SEPT. 25) ON SEPT. 12, 3 PERSONS CHECKED (AND BAGGED) THE LEAKY DIAPHRAGM. DOSE RATES WERE 15 R/HR CONTACT AND 5 AT 18 IN., WITH NO INCREASE DUE TO BETA. WORK WAS TIME-LIMITED TO 1.5 MIN. DOSIMETER READING WAS DOUBLED AS CUSTOMARY, BUT FILM BADGES SHOWED ONE MAN RECEIVED 14 REMS BETA, WITH A BETA-TO-GAMMA RATIO OF 7.0. OTHERS WERE ABOUT A RATIO OF 2, INCLUDING 3 TEST FILMS. SINCE WORKER WAS WEARING A 4.9-MM PLEXIGLAS-LENSE FULL-FACE MASK, HIS EYE-LENSE DOSE WAS NOT EXCEEDED. A PUFF OR A FAULTY FILM MAY BE BLAMED, BUT HE WILL BE CREDITED WITH DOSE.

*BETA EMITTER + *PERSONNEL EXPOSURE, RADIATION + *REACTOR OFFGAS + BIG ROCK POINT + DOSIMETRY, GENERAL +
INSTRUMENTATION, ABNORMAL INDICATION + PERSONNEL PROTECTIVE DEVICE + REACTOR, BOILING WATER

17-19275 ALSO IN CATEGORY 15

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19275 *CONTINUED*
MONSANTO RESEARCH CORP. CITED FOR NON COMPLIANCE, AUG. 10, 1967
MONSANTO RESEARCH CORP., ST. LOUIS, MO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 24 AND 25, (NOVEMBER 6, 1967)

FOLLOWING AN APRIL AND JUNE INSPECTION, A CITATION WAS ISSUED FOR (1) SIX EMPLOYEES RECEIVED 1ST-QUARTER 1967 WHOLE-BODY DOSES GREATER THAN 3 REMS, (2) SURVEYS WERE INADEQUATE IN PU-BE SOURCE FABRICATION. THIS APPEARS TO INDICATE A LACK OF A ADMINISTRATIVE CONTROL. 5 EMPLOYEES WERE PREVIOUSLY OVEREXPOSED IN 1965 IN FABRICATING HIGH-ACTIVITY NEUTRON SOURCES.

*FAILURE, ADMINISTRATIVE CONTROL + *PERSONNEL EXPOSURE, RADIATION + *SOURCE, NEUTRON + PLUTONIUM + SPECIAL NUCLEAR MATERIAL + SURVEY, RADIATION, GENERAL

17-19276 ALSO IN CATEGORY 13
NFS REPORTS A POSSIBLE EXCESSIVE INTERNAL PLUTONIUM EXPOSURE
NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 25, (NOVEMBER 6, 1967)

(LETTER, OCT. 17) NFS REPORTS URINE SAMPLES COLLECTED OCT. 4-6. THE LAST SAMPLE, 10 DAYS AFTER THE INCIDENT, INDICATED AN EXCRETION OF 26 DPM PER DAY.

*PERSONNEL EXPOSURE, RADIATION + *PLUTONIUM + ANALYTICAL TECHNIQUE, URINE + INCIDENT, ACTUAL, GENERAL

17-19277
NUMEC CITED FOR NON COMPLIANCE
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 25 AND 26, (NOV. 6, 1967)

(LTR, SEPT. 5) CITATIONS WERE (SNM-145) UNREPORTED EXPOSURE TO EXCESSIVE AIRBORNE URANIUM, INADEQUATE AIR-MONITORING SURVEYS, AND NOT CONDUCTING CONTAMINATION SURVEYS OR EVACUATION DRILLS AND NOT FOLLOWING ADMINISTRATIVE CONTROLS IN TRANSFERRING SNM TO UNSAFE-GEOMETRY WASTE TANKS. (SNM-414) EXPOSURES TO AIRBORNE PLUTONIUM MARCH 9 WERE NOT REPORTED UNTIL JUNE 29, 67. (37-4456-3) RADIATION LEVELS EXCEEDED 2 MREM/HR IN UNRESTRICTED AREAS. REGARDING LOSS OF URANIUM, PLEASE INFORM US OF YOUR WASTE-DISCHARGE STUDY. ROUTINELY-WORN RESPIRATORS ARE NOT AN ACCEPTABLE SUBSTITUTE FOR PROCESS CONTAINMENT AND VENTILATION CONTROLS.

*INSPECTION AND COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + *SURVEY, RADIATION, GENERAL + BYPRODUCT MATERIAL + CRITICALITY SAFETY + PERSONNEL PROTECTIVE DEVICE + PLUTONIUM + SPECIAL NUCLEAR MATERIAL + URANIUM + VENTILATION SYSTEM + WASTE DISPOSAL, GENERAL

17-19278 ALSO IN CATEGORY 13
NUMEC APOLLO PLANT AIR CONTAMINATION OVER EXPOSURES
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 26 AND 27, (NOVEMBER 6, 1967)

(LTR, JUNE 1) THREE MEN WERE EXPOSED TO AIR CONCENTRATIONS EXCEEDING 40 MPC-HOURS/WEEK (49.2, 198 AND 95.9, AND 58). NO CREDIT IS TAKEN FOR RESPIRATORS AT HAMMERMILL AND FURNACE. HAMMERMILL AND POWDER HANDLING ARE BEING REVISED FOR ENCLOSED OPERATIONS. SPEX MILL TRANSFERS WILL NO LONGER BE MADE AFTER DAMP-WIPING EACH CONTAINER. A PLASTIC BAG WILL BE USED.

*INHALATION + *PERSONNEL EXPOSURE, RADIATION + AIRBORNE RELEASE + GLOVE BOX + VENTILATION SYSTEM

17-19279 ALSO IN CATEGORY 13
NUMEC PLUTONIUM-RELEASE OVER EXPOSURE MAY 4, 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27, (NOVEMBER 6, 1967)

(LETTER, JUNE 2) 5 TECHNICIANS WERE OVER EXPOSED (150, 120, 120, 120, AND 80 MPC-HOURS) TO PLUTONIUM RELEASED BY A PUMP LOCATED IN A NITRIC ACID SYSTEM WHICH CONTAINS PLUTONIUM. THE PUMP, A MINOR SOURCE OF CONTAMINATION, HAD BEEN ENCLOSED IN A PLASTIC TENT. NOW A PERMANENT GLOVE BOX HAS BEEN INSTALLED. DURING THE RELEASE, BREATHING-ZONE SAMPLERS INDICATED THAT SOLUBLE PU ROSE TO 60 MPCA NEAR THE PUMP, WHILE THE FABRICATION AREA LEVELS REMAINED BELOW 10 MPCA.

*AIRBORNE RELEASE + *PLUTONIUM + FUEL REPROCESSING + GLOVE BOX + INCIDENT, ACTUAL, EQUIPMENT + LEAK + PERSONNEL EXPOSURE, RADIATION + PUMP + VENTILATION SYSTEM

17-19280 ALSO IN CATEGORIES 13 AND 14
NUMEC DISCHARGE OF 600 GRAMS U-235 FROM LIQUID WASTE TANK
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27 THRU 29, (NOV. 6, 1967)

(LETTER, JUNE 2) ON APRIL 24, 1967, A 1000-GAL WASTE-TANK SAMPLE ALPHA COUNT INDICATED 1.2 G/LITER OF U-235. VALVES AND AREA WERE ISOLATED, AND MIXER KEPT RUNNING. WASTE WAS DRAINED.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19280 *CONTINUED*

INTO 3 GALLON BOTTLES FOR REPROCESSING. LATER, ABNORMALLY LOW LIQUID LEVEL LED TO DISCOVERY OF OPEN INTERCONNECTION VALVE TO NEXT TANK, WHICH WAS BEING CUMPED TO RIVER BY A DIFFERENT CREW. ESTIMATED LOSS WAS 175 GAL OF HIGH WASTE. WASTE SYSTEM IS BEING EVALUATED FOR FIXED POISONING AND GAMMA MONITORS. SOURCE WAS APPARENTLY 4-INCH SOLVENT-EXTRACTION FACILITY AND EVAPORATORS, THROUGH SOME UNKNOWN MECHANISM.

*FAILURE, OPERATOR ERROR + *FUEL REPROCESSING + *WASTE DISPOSAL, LIQUID + CRITICALITY SAFETY + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, ACTUAL, HUMAN ERROR + SPECIAL NUCLEAR MATERIAL + URANIUM + VALVE

17-19281 ALSO IN CATEGORIES 13 AND 15
MMM REPORTS TECHNICAL OVEREXPOSURE TO 4 DURING HOT CELL CLEANUP
MINNESOTA MINING AND MANUFACTURING CO.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 14) OVEREXPOSURES TO SR-90 (4.8, 12, 53, AND 17.2 TIMES MPC) WAS LESS THAN 2.7 HR AUG. 18-24. EACH WAS IN RESPIRATOR AND PROTECTIVE CLOTHING. THE WORK INVOLVED OPENING HOT-CELL DOORS TO REMOVE CONTAMINATED MATERIAL FOR WASTE DISPOSAL. LETTER OF MAY 26, 1967, REPORTED SIMILAR INCIDENTS AND POINTED OUT HOT-CELL CLEANUP WILL BE A QUARTERLY PROBLEM. WE FIRMLY BELIEVE THAT ACTUAL EXPOSURES ARE NOT TAKING PLACE BECAUSE OF PROTECTIVE EQUIPMENT, AND THAT THESE REPORTS CONCERN TECHNICAL OVEREXPOSURE DUE TO 10 CFR 20.103 DEFINITION OF EXPOSE.

*HOT CELL + *PERSONNEL EXPOSURE, RADIATION + *PERSONNEL PROTECTIVE DEVICE + *REGULATION, AEC + *WASTE DISPOSAL, SOLID + AIRBORNE RELEASE + INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + STRONTIUM

17-19282
TRACERLAB OVEREXPOSURE DURING SOURCE LOADING
TRACERLAB, WALTHAM, MASS.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 5) AN EMPLOYEE RECEIVED A WHOLE-BODY DOSE OF 1.7 REMS THE WEEK OF AUG. 14, 67. THIS WAS RECEIVED DURING LOADING OF A LARGE NUMBER OF LOW-LEVEL GAMMA SOURCES, AND A SUBSTANTIAL ACCUMULATION WAS PERMITTED AT THIS WORK STATION WITHOUT REGARD TO THE DOSAGE BUILDUP.

*PERSONNEL EXPOSURE, RADIATION + *SOURCE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

17-19481
BUNTAIN RE + FRANKLIN HV + MARSH DD + COOPER LJ
HALLAM MONTHLY RETIREMENT REPORT
CONSUMERS PUBLIC POWER DISTRICT, HALLAM NUCLEAR POWER FACILITY, SHELDON STATION
17 PAGES, 2 FIGURES, 4 TABLES, JULY 1967, DOCKET 115-3

ONE OF A SERIES OF MONTHLY REPORTS DESCRIBING THE MOTHBALLING OF HALLAM. SECTIONS INCLUDE - (I) PLANT RETIREMENT HISTORY (ONE-PARAGRAPH DAILY-WORK SUMMARIES), (II) FUEL STATUS, (III) MAINTENANCE, (IV) DISASSEMBLY AND CANISTERING OF IRRADIATED FUEL, (V) RADIATION AND CONTAMINATION MONITORING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR DECOMMISSIONING EXPERIENCE + FUEL HANDLING + HALLAM + OPERATIONS REPORT, GENERAL + REACTOR, GRAPHITE MODERATED + REACTOR, LIQUID METAL COOLED

17-19483 ALSO IN CATEGORIES 5 AND 6
PRESSURIZED WATER REACTOR (PWR) PROJECT. TECHNICAL PROGRESS REPORT, APRIL 21, 1967-JULY 21, 1967.
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-MRP-121 + 96 PAGES, FIGURES, TABLES, JULY 21, 1967

(PAGE 1) C STEAM-GENERATOR LEAK HAS INCREASED TO 8 GPH, AS INDICATED BY FLUORINE-18. (PAGES 9-11) POTASSIUM PENTABORATE, TO BE USED AS SOLUBLE POISON IN REFUELING CANAL, HAS A PH OF 9.3. TESTS PRESENTLY INDICATE NO ALUMINUM PITTING CORROSION, AND GENERAL CORROSION ACCEPTABLE FOR 3-6 MONTHS USE. (PAGES 26,6) A CHANGE IN CONTROL-ROD PROGRAM DURING LOW-PH (9.9) OPERATION SHOWED AN INITIAL INCREASE IN FLOW DECAY, BUT NO LONG-TERM EFFECT. (PAGES 31-53) A NEW ROD PROGRAM WAS DEvised, SO IN XENON TRANSIENTS THE PARTIALLY WITHDRAWN CONTROL RODS MINIMIZE AXIAL FLUX SHIFTS. TURBO-ZIP STILL IS IN PCOR AGREEMENT WITH IN-CORE FLUX PLOTS DURING INTERMEDIATE XENON CONDITIONS. HOT-SPOT FACTORS WERE ADJUSTED FOR FUEL-ROD BUTT WELD, OBSERVED FLUX-WIRE DEVIATIONS, FUEL-PLATE MISALIGNMENT, AND CONTROL-ROD MISALIGNMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD PROGRAM + *CORROSION + *FAILURE, TUBING + *HOT SPOT + *SURFACE FILM DEPOSIT + OPERATIONS REPORT, ANALYSIS + PH REACTIVITY EFFECT + POISON, SOLUBLE + POWER DISTRIBUTION + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PRESSURIZED WATER + SHIPPINGPORT + STEAM GENERATOR + XENON OSCILLATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19484 ALSO IN CATEGORY 5
LACROSSE PROPOSED CHANGE--INCREASE IN MINIMUM PUMP SPEED
ALLIS-CHALMERS
2 PAGES, OCTOBER 26, 1967, DOCKET NO. 115-5

FLOW TESTS WITH CORE INSTALLED SHOW PRESSURE DROP IN FORCED CIRCULATION SYSTEM TO BE 25% LESS THAN EXPECTED. THE ALLIS-CHALMERS VERTICAL, SINGLE-STAGE CENTRIFUGAL PUMPS HAVE A FLUID PISTON BEARING ON THE IMPELLER WHICH CENTERS THE SHAFT BY THE HEAD DEVELOPED. MANUFACTURER LIMIT ON MINIMUM HEAD IS TO BE FOLLOWED DURING INITIAL STARTUP. LACROSSE ASKS THAT UPPER LIMIT ON MINIMUM SPEED BE CHANGED FROM 42% TO 55%. BEHAVIOR, PERFORMANCE, OR SAFETY OF THE REACTOR SYSTEM IS NOT ALTERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*COMPARISON, THEORY AND EXPERIENCE + *PUMP + *RATE + FLOW, RECIRCULATION + HYDRAULIC EFFECT + LACROSSE + PRESSURE DROP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-19504 ALSO IN CATEGORY 6
SHULTZ TG + STONE JT
PATHFINDER ATOMIC POWER PLANT RESPONSE TO SCRAM AND RUNBACK TESTS (431)
ALLIS-CHALMERS MFG. CO., BETHESDA, MD.
ACNP-67514 +. 42 PAGES, 17 FIGURES, 1 TABLE, APRIL 1967, DOCKET NO. 50-130

RECORDS MEASURED FLUX, STEAM AND WATER CONDITIONS IN RESPONSE TO SCRAM, RUNBACK AND TURBINE TRIPS WITH AND WITHOUT ISOLATION AT POWERS UP TO 168 MWTH/46 MWE. LOAD REJECTION LEADS TO FLUX INCREASES OF 13-20% DUE TO THE FLOW INCREASES CAUSED BY FASTER TURBINE-SPEED/ELECTRICAL FREQUENCY. AT LOW POWERS, SIMILAR EFFECTS WERE ASCRIBED TO PRESSURE EFFECTS ON STEAM VOIDS. DAMPED 4-CPS PRESSURE OSCILLATIONS FOLLOWING STEAM-FLOW DISTURBANCES WERE NOT DUE TO THE PRESSURE CONTROLLER BUT TO ACOUSTICAL RESONANCES. IN-CORE CHAMBERS SHOWED SUPERHEATER FOLLOWED FLUX DECAY OF BOILER IN A SCRAM, WITH AXIAL FLUX READJUSTMENT DUE TO RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*SCRAM, REAL + *TEST, PLANT RESPONSE + ACCIDENT, LOAD REJECTION + FLOW, RECIRCULATION + FLUCTUATION + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + OPERATIONS REPORT, ANALYSIS + PATHFINDER + POWER DISTRIBUTION + REACTOR DYNAMICS + REACTOR, INTERNAL SUPERHEAT

17-19505 ALSO IN CATEGORIES 1 AND 13
STRATTON WR
REVIEW OF CRITICALITY ACCIDENTS
LOS ALAMOS SCIENTIFIC LAB., N. MEXICO
LA-3611 +. 111 PAGES, 9 FIGURES, 2 TABLES, 70 REFERENCES, JANUARY 1967

THIRD EDITION OF THE 1960-61 REVIEWS, CURRENT TO JAN. 1967. BRIEF SUMMARIES AND REFERENCES TO 34 ACCIDENTS (TEN WITH WATER SOLUTIONS, NINE WITH UNMODERATED METAL ASSEMBLIES, NINE WITH MODERATED REACTORS, AND FIVE WITH MISC. ASSEMBLIES). DESCRIPTIONS ARE GOOD BASIC TRAINING MATERIAL FOR THOSE WHO WILL DESIGN AND OPERATE SIMILAR SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *INCIDENT, ACTUAL, GENERAL + CRITICAL ASSEMBLY FACILITY + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + FUEL REPROCESSING + REACTOR, WATER + WASTE DISPOSAL, LIQUID

17-19515 ALSO IN CATEGORY 6
FISHER JR + KENDRICK ED
ELK RIVER REACTOR OPERATIONS ANALYSIS PROGRAM. FUEL CYCLE STUDIES FOR SECOND CORE - TASK 201
ALLIS-CHALMERS MFG. CO., BETHESDA, MD.
ACNP-66522 +. 67 PAGES, TABLES, FIGURES, REFERENCES, MARCH 1966

RECOMMENDED LOADING HAS 48 NEW ELEMENTS IN A UNIFORM ARRAY, AS ZONING DISADVANTAGES WERE LOWER OPERATING TIME AND SHUTDOWN MARGIN. PDQ-5 AND FLARE WERE USED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*REFUELING + COMPUTER PROGRAM + ELK RIVER + POWER DISTRIBUTION + REACTIVITY, EXCESS + REACTOR, BOILING WATER + SHUTDOWN MARGIN

17-19556
CHAPELOT A + CHAUVIN M + DELISLE JP + DENIELOU G + GOLLION H + GRANDCOLAS J + REYNES L
SODIUM LEAKAGE DURING ARGON OVERPRESSURIZATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19556 *CONTINUED*

FRANCE. COMMISSARIAT A L-ENERGIE ATOMIQUE

13 PAGES, 4 FIGURES, 4 REFERENCES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

DURING TESTING OF THE ARGON BLANKET SYSTEM, SODIUM LEAKED THROUGH A PLUNGING TUBE CAUSED BY AN OVERPRESSURE OF THE BLANKET. REVISIONS INCLUDED (1) EITHER SUPPRESSING THE PLUNGING TUBES OR BURNING THEM TO EQUILIBRATE INTERNAL AND EXTERNAL PRESSURE, AND (2) THE MECHANICAL RELIEF VALVES WERE REPLACED BY A LARGER HYDRAULIC VALVE. RECOMMENDS AVOIDING USE OF PLUNGING TUBES IN SODIUM REACTORS. SUPPRESSION OF THE PLUNGING TUBES CAUSED LOSS OF COOLING CAPABILITY DURING TRANSFER OF A SUBASSEMBLY BETWEEN THE CORE AND THE FUEL-HANDLING MACHINE, AND CONSEQUENTLY THE SUBASSEMBLIES MUST BE KEPT IN THE VESSEL FOR HEAT DECAY BEFORE REMOVAL.

*FAILURE, DESIGN ERROR + *LEAK + AUXILIARY COOLING + FRANCE + FUEL HANDLING MACHINE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, LIQUID METAL COOLED + SODIUM + TEST, PREOPERATIONAL

17-19557

CHAPELOT A + CHAUVIN M + DELISLE JP + DENIELOU G + GOLLION H + GRANDCOLAS J + REYNES L

MAIN TECHNICAL PROBLEMS RAISED BY THE CONSTRUCTION AND TESTING OF RAPSODIE

FRANCE. COMMISSARIAT A L-ENERGIE ATOMIQUE

13 PAGES, 4 FIGURES, 4 REFERENCES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

DISCUSSES PROBLEMS ASSOCIATED WITH (1) THERMAL STRESSES AND MISALIGNMENT OF HIGH-TEMPERATURE PIPING AND VESSELS, (2) ARGON COVER-GAS-SYSTEM TIGHTNESS, AND PRESSURE AND PURITY CONTROL, (3) FUEL HANDLING, (4) CONTROL-ROD-DRIVE-MECHANISM CLEARANCES, LUBRICATION, REPAIR, (5) SODIUM-PURIFICATION-SYSTEM VALVE FAILURES, COLD-TRAP PLUGGING.

*FAILURE, GENERAL + CONTROL ROD DRIVE + COOLANT PURIFICATION SYSTEM + FRANCE + FUEL HANDLING + OPERATING EXPERIENCE + PIPING + PRESSURE VESSEL + REACTOR, LIQUID METAL COOLED + STRESS + THERMAL CONSIDERATION + VALVE

17-19558

WOODRUFF RW + DURAND RE + OWENS JE

SRE AND HNPf OPERATING AND MODIFICATION EXPERIENCE

ATOMICS INTERNATIONAL

17 PAGES, 16 FIGURES, 23 REFERENCES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

SUMMARIZES DIFFICULTIES EXPERIENCED AT BOTH PLANTS WITH SYSTEMS AND EQUIPMENT, INCLUDING STEAM GENERATORS, HEAT EXCHANGERS, SODIUM PUMPS, VALVES, AND FUEL-HANDLING MACHINES. DESCRIBES MAINTENANCE PROBLEMS AND EXPERIENCE ACQUIRED WHILE MODIFYING THE SRE FOR POWER UPGRATING FROM 20 TO 30 MWT. BRIEFLY DISCUSSES THE HNPf RETIREMENT AND PROGRAM FOR DISPOSAL OF RADIOACTIVE MATERIALS.

*MAIN COOLING SYSTEM + *MAINTENANCE AND REPAIR + *OPERATING EXPERIENCE + FAILURE, GENERAL + FUEL HANDLING MACHINE + HALLAM + HEAT EXCHANGER + POWER UPGRATING + PUMP + REACTOR DECOMMISSIONING EXPERIENCE + REACTOR, GRAPHITE MODERATED + REACTOR, LIQUID METAL COOLED + SRE (SODIUM REACTOR EXPERIMENT) + VALVE

17-19559

BUSSY P + DENIELOU G + GAJAC G + GUILLET H + LABAT P + PONTIER R + ROZENHOLC M + VAUTREY L + ZALESKI P

RAPSODIE DEVELOPMENT PROGRAM FROM DESIGN TO OPERATION

COMMISSARIAT A L-ENERGIE ATOMIQUE - FRANCE + GROUPEMENT ATOMIQUE ALSACIENNE ATLANTIQUE

21 PAGES, 11 FIGURES, 3 TABLES, APRIL 1966, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

DESCRIBES IN DETAIL THE ORIGIN, RESEARCH, DESIGN WORK, CONSTRUCTION PROGRAM, AND STARTUP-TESTING PROGRAM FOR RAPSODIE. A FEW PROBLEMS WHICH AFFECTED THE SCHEDULE ARE BRIEFLY DISCUSSED, INCLUDING THE DISPLACEMENT OF THE REACTOR VESSEL DURING THE INITIAL SYSTEM HEATUP, PUMP SEIZURES, PIPING FAILURES, AND A VALVE FAILURE ALLOWING SODIUM TO OVERFLOW ABOVE THE PLUG OF THE REACTOR VESSEL.

*FRANCE + *RESEARCH AND DEVELOPMENT PROGRAM + FAILURE, GENERAL + FAILURE, PIPE + PUMP + REACTOR STARTUP TESTING + REACTOR, LIQUID METAL COOLED + SODIUM + VALVE

17-19561

BERGSTROM RN + CHITTENDEN WA + MCCLINTOCK DC

CONSTRUCTION AND DESIGN PROBLEMS OF SODIUM COOLED FAST REACTORS

SARGENT AND LUNDY ENGINEERS, CHICAGO, ILL.

25 PAGES, 2 FIGURES, APRIL 12, 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

REVIEWS THE EFFECT ON REACTOR DESIGN DUE TO THE BOTHERSOME CHARACTERISTICS OF SODIUM, WHICH

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19561 *CONTINUED*

INCLUDE ITS AFFINITY FOR OXYGEN, FIRE-HAZARD POTENTIAL, SYSTEM PLUGGING BY NA OXIDE IMPURITIES, RADIOACTIVITY, AND LOW MELTING POINT. THE ADVANTAGES AND DISADVANTAGES OF CONCRETE CONTAINMENT STRUCTURES AND THE PROBLEMS WITH STRESS ANALYSIS ARE DESCRIBED.

*CONTAINMENT, GENERAL + *DESIGN CRITERIA + *PIPING + CONCRETE + MAIN COOLING SYSTEM + MATERIAL + MEASUREMENT, TEMPERATURE + PROPERTY, PHYSICAL + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + SODIUM + THERMAL MECHANICAL EFFECT

17-19566 ALSO IN CATEGORY 9
O.E.C.O. HALDEN REACTOR PROJECT. SEVENTH ANNUAL REPORT, 1965/66
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
NP-16803 +.. 165 PAGES, FIGURES, TABLES, REFERENCES, 1966

SUMMARIZES THE RESEARCH ACTIVITIES ON REACTOR STATICS, DYNAMICS, WATER CHEMISTRY, FUEL IRRADIATION TESTING, AND OPERATIONAL ACTIVITIES. SIX FAILURES OF TEST ELEMENTS OCCURRED, BUT NONE DELAYED THE FUEL-TEST PROGRAM. REPORTS DEVELOPMENT WORK ON NOISE DETECTIONS FOR DETECTING APPROACH TO BURNOUT.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

*FAILURE, FUEL ELEMENT + *OPERATIONS REPORT, GENERAL + BURNOUT HEAT FLUX + FUEL ELEMENT + INSTRUMENTATION, POWER RANGE + IRRADIATION TESTING + NOISE + NORWAY + REACTOR DYNAMICS + RESEARCH AND DEVELOPMENT PROGRAM

17-19569 ALSO IN CATEGORIES 15 AND 1
SCIENCE AND THE CITIZEN - DEATH BY RADIATION
2 PAGES, SCIENTIFIC AMERICAN 212 (6), PAGES 58-59 (JUNE 1965)

A SYNOPSIS OF CLINICAL DETAILS FROM AN ARTICLE IN THE NEW ENGLAND JOURNAL OF MEDICINE. BRIEF DISCUSSION OF WORKER, WHO HAD IMPROVISED A BATCH METHOD FOR HANDLING WASTE, UNWITTINGLY EMPTYING ENRICHED-URANIUM SOLUTION INTO 2-FT-DIAM TANK. DISCUSSES SYMPTOMS AND CARE. NOTES THAT THIS WAS 5TH KNOWN PEACETIME (FIRST KNOWN INDUSTRIAL) CASUALTY FROM EXPOSURE TO MASSIVE RADIATION DOSE.

CRITICALITY SAFETY + INCIDENT, EXPOSURE + INCIDENT, WOOD RIVER + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

17-19666 ALSO IN CATEGORY 14
PATHFINDER REPORTS MAIN CONDENSER TUBE-LEAK
NORTHERN STATES POWER COMPANY
3 PAGES, OCTOBER 27, 1967, DOCKET 50-130

(LETTER OCT. 27, 1967 TO AEC) - (SFPT. 16, 1967) CIRCUMFERENTIAL BREAK NEAR TUBE SHEET CAUSED SHUTDOWN. DURING DRAINING OF CONDENSER-WATER BOXES, RADIOACTIVITY REACHED THE COOLING TOWER AFTER THE SAMPLE WAS TAKEN ON WHICH A ROUTINE DISCHARGE WAS BASED. COOLING-TOWER BLOWDOWN WAS THEN USED TO DILUTE A SCHEDULED WASTE RELEASE, RESULTING IN A HIGHER-THAN-NORMAL RELEASE. SAMPLES PLACED AN UPPER LIMIT ON THE EFFLUENT. CONCENTRATION AT 2.64 X 10⁻⁵TH MICROCURIE/CC, MOSTLY ZN-65 (2.46 X 10⁻⁵TH) AND NA-24 (1.8 X 10⁻⁶TH).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HEAT EXCHANGER + *INCIDENT, ACTUAL, EQUIPMENT + *INCIDENT, ACTUAL, HUMAN ERROR + *RADIOACTIVITY, RELEASE + *WASTE DISPOSAL, LIQUID + FAILURE, TUBING + HEAT SINK + PATHFINDER + REACTOR, INTERNAL SUPERHEAT + ZINC

17-19668 ALSO IN CATEGORIES 9 AND 11
SUPPLEMENTARY INFORMATION ON PLUMBRIK PROPOSED CHANGE 32
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER
4 PAGES, NOVEMBER 2, 1967, DOCKET 50-30

INFORMATION ON MODIFICATION OF UPPER GRID AND ROLLER GUIDES. INCLUDES A COMPARISON OF ROD-DROP TIMES WITH AND WITHOUT LOW AND WITH ROLLER AND ROLLERLESS GUIDES, EFFECT OF ROD LEAK, AND BEARING MATERIAL. LEAK RATES ACROSS HERMETICALLY SEALED ELECTRICAL PENETRATIONS INCLUDE LEAKS ACROSS DOUBLE O-RING SEALS IN MOUNTING PLATE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, ELECTRICAL + *MODIFICATION, SYSTEM OR EQUIPMENT + *TEST, LEAK RATE + AEC QUESTION + CONTROL ROD SCRAM MECHANISM + PLUM BROOK + REACTOR, TEST + TECHNICAL SPECIFICATIONS

17-19669 ALSO IN CATEGORY 12
LACROSSE REPORTS MODIFICATION OF ALTERNATE CORE SPRAY SYSTEM
ALLIS-CHALMERS MFG. CO.
7 PAGES, 3 FIGURES, OCTOBER 26, 1967, DOCKET NO. 115-5

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19669 *CONTINUED*

6-IN.-DIAM PIPING (INSTEAD OF 8) WAS USED TO AVOID A 3-MONTH DELAY IN PIPE DELIVERY. INCREASED PRESSURE DROP IS SUFFICIENTLY SMALL NOT TO NEGATE THE 900-GPM FLOW RATE. *** EACH DIESEL PUMP HAS A SEPARATE DUPLEX STRAINER TO PROVIDE REDUNDANCY. ATTACHED IS A 7-PAGE DESCRIPTION OF THIS ALTERNATIVE CORE-SPRAY SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *MODIFICATION, SYSTEM OR EQUIPMENT + *REDUNDANCE + LACROSSE + PIPING + PRESSURE DROP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-19670 ALSO IN CATEGORY 11

HUMBOLDT BAY CHANGE 22, SUPPLEMENT 2 - DEFERMENT OF DRYWELL AND SUPPRESSION CHAMBER LEAK TEST. DIVISION OF REACTOR LICENSING, AEC
1 PAGE, NOVEMBER 1, 1967, DOCKET 50-133

DRL ALLOWS TEST TO BE FURTHER DEFERRED UNTIL FEB. 20, 1968. SUPPLEMENT 1 DEFERRED THE TEST UNTIL NO LATER THAN OCT. 20, 1967. PROPOSED CHANGE 21, WHICH CONCERNS LEAK-RATE TESTING, IS UNDER AEC REVIEW. PG AND E HAD ASKED THAT THE DEFERMENT BE UNTIL DEC. 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + CONTAINMENT, PRESSURE SUPPRESSION + HUMBOLDT BAY + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-19683 ALSO IN CATEGORY 1

SAFETY HAZARDS IN THE ATOMIC INDUSTRY
6 PAGES, CONGRESSIONAL RECORD--SENATE, PAGES S7478-83, MAY 25, 1967

BRIEF DISCUSSION BY SEN. HARTKE (INDIANA) ON THE URANIUM-MINER PROBLEM, AND INSERTION INTO RECORD OF AN APRIL 26, 1967, SPEECH BY LEO GOODMAN. LATTER SPEECH DISCUSSES URANIUM-MINER RADON-GAS PROBLEM, WOODRIVER INCIDENT, THE AEC CLASSIFYING REPORTS OF INCIDENTS TO DENY PUBLIC ACCESS TO FACTS, SOME REACTOR INCIDENTS, AND SOME RADIOACTIVITY RELEASES AND LOST RADIATION SOURCES. ASKS WHAT HAS BEEN THE RESULT OF THE 68 LOST SOURCES, REFERRING TO DEATHS IN MEXICAN INCIDENT. LABELS AS A SHAME THE ABSENCE OF MEDICAL FACILITIES NEAR THE PLANT TO MEET NEEDS.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + AIRBORNE RELEASE + CONGRESSIONAL ACTIVITY + INCIDENT, WOOD RIVER + MINING + RADIATION INJURY, TREATMENT OF + RADON + SOURCE, RADIATION, LOST

17-19684

SAXTON PLUTONIUM PROGRAM. SEMIANNUAL PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1966. WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-3385-10. EURAEC-1777 +. 40 PAGES, 19 FIGURES, 2 TABLES, MAY 1967

GIVES OPERATING HISTORY OF THE SAXTON CORE II (MONTHLY GRAPHS SHOWING CONTROL-ROD POSITION, BORON CONCENTRATION, POWER LEVEL, PH, PRESSURE, AND TEMPERATURE). RESULTS OF FUEL-ROD-INSPECTION PROGRAM (PROFILOMETER, STEREOMICROSCOPE, GAMMA SCAN, ETC., GIVEN). SHOWS CHANGE IN TOTAL AND DIFFERENTIAL ROD WORTH BETWEEN START OF CORE LIFE AND 57.15-MWD/MTM BURNUP.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD WORTH + *EXAMINATION + *FUEL BURNUP + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + SAXTON

17-19685 ALSO IN CATEGORY 5

OBOYLE MJ
YANKEE CORE EVALUATION PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING SEPT. 30, 1966. WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA., ATOMIC POWER DIV.
WCAP-6082 +. 147 PAGES, 26 FIGURES, 32 TABLES, APRIL 1967

(SECTION 320) - SURFACE-FILM DEPOSITS ON FUEL ELEMENTS ARE NOT INITIALLY BEGUN FROM NUCLEATE BOILING, ALTHOUGH SUCH OCCURS AFTER 0.002 IN. OF CRUD IS DEPOSITED. COOLANT CHEMISTRY DOES NOT ACCOUNT FOR DIFFERENCES. CATAPHORESIS OR ELECTRICAL CURRENTS IN HIGHER RADIATION FIELDS MAY INCREASE THE CONTACT TIME OF PARTICLES. (SECTION 330) - CLADDING SAMPLES CUT FROM YANKEE FUEL WERE TESTED BY GE AT VBWR CONDITIONS. DATA ON AUTOCLAVE STRESS-CORROSION TESTS SUGGESTS THAT COOLANT CHEMISTRY AND OPERATING STRESS AND MORE ADVANTAGEOUS IN PWR. (SECTION 340) - CORE-IV THERMAL AND HYDRAULIC ANALYSIS INDICATES SUBCOOLED BOILING MAY HAVE EXISTED WITH 6 MILS OR MORE OF CRUD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, CLADDING + *NUCLEATE BOILING + *SURFACE FILM DEPOSIT + COOLANT CHEMISTRY + CORROSION + EXAMINATION + FUEL ELEMENT + HYDRAULIC ANALYSIS + OPERATIONS REPORT, ANALYSIS + REACTOR, PRESSURIZED WATER + STRESS + THERMAL ANALYSIS + YANKEE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19690

TRAINING FOR NUCLEAR POWER PLANT OPERATION
UNIVERSITY OF WISCONSIN

1 PAGE, PROGRAM PAMPHLET FOR UNIVERSITY EXTENSION OF THE UNIVERSITY OF WISCONSIN PROGRAM TRAINING FOR NUCLEAR POWER PLANT OPERATION, NOVEMBER 30-DECEMBER 1, 1967

A 2-DAY INSTITUTE AT UNIVERSITY OF WISCONSIN (MADISON) NOVEMBER 30-DECEMBER 1, 1967, WILL REVIEW CURRENT TRAINING PROGRAMS AND THE FUTURE POSSIBILITIES FOR JOB-RELATED FORMAL AND INFORMAL EDUCATIONAL COURSES. UTILITY MANPOWER REQUIREMENTS FOR, AND THE INDUSTRIAL RELATIONS ASPECTS OF SUCH TRAINING, WILL BE DEVELOPED. SIMULATOR DESIGN, SAFETY CONSIDERATIONS DURING TRAINING, TRENDS IN LICENSING REQUIREMENTS, AND POSSIBLE COURSE CONTENT FOR TECHNICIANS WILL BE COVERED IN SEPARATE REPORTS.

AVAILABILITY - UNIVERSITY EXTENSION, THE UNIVERSITY OF WISCONSIN, ENGINEERING DEPT., 432 NORTH LAKE STREET, MADISON, WISCONSIN 53706

17-19753

CULLEY GE + LEBLANC JG + LILLIE AF

HEAVY WATER ORGANIC COOLED REACTOR. EXP-NRU-305 EXPERIMENT DESIGN AND IRRADIATION COMBUSTION ENGINEERING, INC. + ATOMICS INTERNATIONAL

AI-CF-43 +. 89 PAGES, 33 FIGURES, 13 TABLES, 12 REFERENCES, SEPTEMBER 15, 1967

DISCUSSES IRRADIATION TEST OF UC AND UO₂ FUELS UNDER CONDITIONS REPRESENTATIVE OF H₂O/C₂H₆ DESIGN. RUPTURE OF SEVERAL ZR-4-CLAD UO₂ RODS TERMINATED THE TEST AFTER 263 DAYS IN-PILE, WITH 206 DAYS AT THE DESIGN STRING POWER 1.7 MW. THERMAL, HYDRAULIC, AND COOLANT CHEMISTRY DATA ARE GIVEN. THE COOLANT WAS SANTOWAX GM. EXCELLENT AGREEMENT BETWEEN PREDICTED AND ACTUAL PERFORMANCE. FUEL-ROD FOULING OCCURRED ONLY DURING PERIODS OF LOW WATER CONTENT IN THE COOLANT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*IRRADIATION TESTING + *SURFACE FILM DEPOSIT + *URANIUM CARBIDE + *URANIUM DIOXIDE + COMPARISON, THEORY AND EXPERIENCE + COOLANT CHEMISTRY + FUEL ELEMENT + IN PILE LOOP + ORGANIC COOLANT + REACTOR, HEAVY WATER + REACTOR, ORGANIC COOLED

17-19754

GARIGLIANO NUCLEAR POWER PLANT. OPERATION REPORT FOR THIRD QUARTER OF 1966

ENTE NAZIONALE PER L'ENERGIA ELETTRICA, ROEME, ITALY

TID-23510 +. 16 PAGES, SEPTEMBER 30, 1966

CHEMICAL ANALYSIS OF HOT-WELL WATER INDICATED AN IN-LEAKAGE OF RIVER WATER. FAILED TUBES IN THE CONDENSER WERE REPAIRED. THE CORE PRESSURE DROP HAS BEEN INCREASING SLIGHTLY DURING JULY, AUGUST, AND SEPTEMBER (NO EXPLANATION GIVEN). DIFFICULTIES WITH THE PRIMARY PRESSURE REGULATORY SYSTEM CAUSED LOAD REDUCTIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTROLLER + *FAILURE, INSTRUMENT + *FAILURE, TUBING + *PRESSURE, INTERNAL + HEAT EXCHANGER + ITALY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + REACTOR, POWER

17-19760

WEIDNER H + SEPPI EJ + HARRIS J

DESIGN, CONSTRUCTION, AND EARLY OPERATING EXPERIENCE OF THE SLAC BEAM SWITCHYARD AND EXPERIMENTAL AREAS STANFORD UNIVERSITY, STANFORD, CALIF.

5 PAGES, 7 FIGURES, 13 REFERENCES, IEEE TRANS. NUCLEAR SCIENCE 14(3), PAGES 918-22 (JUNE 67)

DESCRIBES THE OVERALL DESIGN AND CONSTRUCTION OF THE SLAC (TWO-MILE ACCELERATOR) BEAM SWITCHYARD, EXPERIMENTAL AREAS, AND THE ELECTRON OPTICS AND TRANSPORT COMPONENTS OF THE SWITCHYARD. THE HIGH-INTENSITY BEAMS TRANSPORTED BY THIS SYSTEM PRESENT SPECIAL PROBLEMS REQUIRING DESIGN FOR RADIATION RESISTANCE, REMOTE-PRECISE LOCATION, QUICK REMOVAL, AND RESISTANCE TO CORROSIVE ENVIRONMENTS. THESE PROBLEMS AND THEIR SOLUTION ARE DISCUSSED. SLAC RESEARCH AND PRESENT EXPERIMENTAL FACILITIES ARE DISCUSSED. FINALLY, A DESIGN EVALUATION AND SUMMARY OF EARLY TESTS AND OPERATION EXPERIENCE ARE PRESENTED.

*ACCELERATOR + *OPERATING EXPERIENCE + CORROSION + DESIGN CRITERIA + FAILURE, EQUIPMENT + MAINTENANCE AND REPAIR + MAINTENANCE, REMOTE + RADIATION DAMAGE + RADIONUCLIDE, INDUCED + REMOTE MANIPULATING AND VIEWING + SHIELDING

17-19761

KREVITT R

REMOTE MAINTENANCE TECHNIQUES PROPOSED FOR THE 200-GEV ACCELERATOR

LAWRENCE RADIATION LABORATORY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19761 *CONTINUED*

7 PAGES, 6 FIGURES, 7 REFERENCES, IEEE TRANS. NUCL. SCIENCE 14(3), PAGES 997-1003 (NOVEMBER 15, 1967)

DESCRIBES A CONCEPT FOR A SELF-PROPELLED, MANNED, SHIELDED VEHICLE ON WHICH TWO MANIPULATORS ARE MOUNTED FOR PERFORMING REMOTE MAINTENANCE ON A 200-GEV ACCELERATOR. 95% OF THE CIRCUMFERENCE OF THE ACCELERATOR CAN BE SERVICED BY UNSHIELDED PERSONNEL WHERE THE MAXIMUM RESIDUAL RADIATION LEVEL 7 HR AFTER BEAM TURNOFF IS EXPECTED TO BE 50 MR/HR. AT THE EXTRACTION POINTS FOR THE EXTERNAL BEAMS (5% OF CIRCUMFERENCE), RADIATION LEVELS MAY BE AS HIGH AS 200 R/HR. MOCKUP STUDIES ARE BEING MADE.

*ACCELERATOR + *MAINTENANCE, REMOTE + *REMOTE MANIPULATING AND VIEWING + DESIGN CRITERIA + MAINTENANCE AND REPAIR + MOCKUP + RADIATION SAFETY AND CONTROL + RADIONUCLIDE, INDUCED + SHIELDING

17-19762

GUNBY AL

NONNUCLEAR PERFORMANCE OF SRE-PEP SYSTEMS

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12408 +. 59 PAGES, 27 FIGURES, 3 TABLES, 13 REFERENCES, JUNE 30, 1967

DESCRIBES PREOPERATIONAL TESTS OF PLANT SYSTEMS MODIFIED FOR POWER UPGRATING FROM 20 TO 30 MWT, PERFORMED JUST BEFORE DEACTIVATION. GAS ENTRAINMENT IN THE MAIN PRIMARY PUMP WAS CORRECTED BY ADJUSTING THE PUMP-LEVEL-CONTROL SYSTEM. VIBRATIONAL TEST OF PUMPS AND HEAT EXCHANGER WERE SATISFACTORY. THE SODIUM SERVICE VAULT COOLING SYSTEM HAD INSUFFICIENT CAPABILITY. AMPLIFIERS IN THE HEAT-TRANSFER PORTION OF THE PROTECTIVE INSTRUMENTATION WERE UNSTABLE. REQUIRED MODIFICATIONS BEFORE POWER OPERATION ARE GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*POWER UPGRATING + *TEST, PREOPERATIONAL + FAILURE, EQUIPMENT + FAILURE, INSTRUMENT + HEAT EXCHANGER + MODIFICATION, SYSTEM OR EQUIPMENT + PUMP + REACTOR, LIQUID METAL COOLED + SRE (SODIUM REACTOR EXPERIMENT) + TEST, SYSTEM OPERABILITY + VIBRATION

17-19763

SMITH PG

EXPERIENCE WITH HIGH-TEMPERATURE CENTRIFUGAL PUMPS IN NUCLEAR REACTORS AND THEIR APPLICATION TO MOLTEN-SALT THERMAL BREEDER REACTORS

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1993 +. 44 PAGES, 12 FIGURES, 8 TABLES, 24 REFERENCES, SEPT. 1967

DESIGN FEATURES, DEVELOPMENT PROBLEMS, AND OPERATING EXPERIENCE WERE COMPILED FOR LIQUID-METAL- AND MOLTEN-SALT-CIRCULATING PUMPS USED IN VARIOUS NUCLEAR REACTORS AND TEST FACILITIES. THE COMPILATION WAS MADE TO DETERMINE PROBLEM AREAS AND SELECT COMBINATIONS OF FEATURES FOR THE PUMPS REQUIRED BY EACH OF THE THREE MOLTEN-SALT SYSTEMS. THE SHORT-SHAFT PUMP IS FAVORED FOR THE COOLANT-SALT SYSTEM BECAUSE OF RELIABILITY, THE LONG SHAFT FOR FUEL AND BLANKET SALT SYSTEMS BECAUSE IT PROVIDES GREATER THERMAL AND RADIATION PROTECTION TO THE DRIVE MOTOR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*OPERATING EXPERIENCE + *PUMP + DESIGN STUDY + LIQUID FUEL + METAL; LIQUID + MOLTEN FUEL + RADIATION DAMAGE + REACTOR, BREEDER + REACTOR, CIRCULATING FUEL + REACTOR, LIQUID METAL COOLED + REACTOR, MOLTEN SALT + RELIABILITY, SYSTEM

17-19784

ALSO IN CATEGORIES 11 AND 9

LACBWR THIRD MONTHLY OPERATIONAL REPORT - SEPTEMBER 1967

ALLIS-CHALMERS, BETHESOA

ACNP-67532 +. 10 PAGES, FIGURES, TABLES, OCTOBER, 1967, DOCKET NO. 115-5

REACTOR WAS NOT OPERATED. (PAGE 1-1) VESSEL HEAD WAS INSTALLED AFTER LOW-POWER TESTING BEFORE CONSTRUCTION PERSONNEL WERE ALLOWED AT THAT LEVEL, TO REDUCE POSSIBILITY OF FOREIGN OBJECTS BEING DROPPED INTO REACTOR VESSEL. (2-1) RECIRCULATION PUMP HEAD-FLOW CURVES MEASURED. (PAGE 5-1) CONTROL-ROD-PISTON G-T RINGS WERE CHANGED FROM BUTYL TO VITON, AND BACKUP RINGS FROM PHENOLIC TO TEFLON-BRONZE, TO PREVENT DAMAGE. (PAGE 5-2) POST-MCA CONTAINMENT TEMPERATURE, PRESSURE AND WATER-LEVEL INSTRUMENTS WERE INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADMINISTRATIVE CONTROLS AND PRACTICES + *FAILURE, SCRAM MECHANISM + *INSTRUMENTATION, IN CORE + CONTAINMENT INSTRUMENTATION + FLOW BLOCKAGE + LACROSSE + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-19785

ALSO IN CATEGORY 9

LACBWR SECOND MONTHLY OPERATIONAL REPORT ON THE LACRESSE BOILING WATER REACTOR FOR THE MONTH OF AUGUST 1967

ALLIS-CHALMERS, BETHESOA

45 PAGES, 21 FIGURES, 7 TABLES, AUGUST 1967, DOCKET NO. 115-5

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19785 *CONTINUED*

REACTOR WAS OPERATED 62 HR AT LESS THAN 1.7 KW. (PAGE 2-1) THERE IS A 1.67-IN. DIFFERENCE BETWEEN ACTUAL AND INDICATED CONTROL-ROD POSITION. (PAGE 2-5) SHUTDOWN MARGIN AND EXCESS REACTIVITY TESTS. VOLUME INFERRED FROM BORIC ACID ADDITIONS INDICATED SYSTEM VOLUME WAS INCREASING. AN UNDRAINABLE VOLUME (LOCATION UNIDENTIFIED) OF ABOUT 1500 GAL OUT OF 8500 GAL EXISTS. PEAK ROD-BANK WORTH IS \$3.50/IN. AT 12 IN., DECREASING TO \$0.10/IN. AT 50 IN. K-EFF COLD UNRODDED IS 1.20. (PAGE 2-35) AFTER INSERTING A 1900-CURIE ⁵³BE SOURCE, AN ATTEMPT WAS MADE TO GO CRITICAL, DISCONTINUED AFTER 29-ROD BANK WAS WITHIN 0.5 IN. OF PREDICTED CRITICALITY AND NO SIGNIFICANT CHANGE IN SUBCRITICAL COUNT RATE OBSERVED. STARTUP DETECTORS IN LOWER TUBES WERE SHIELDED FROM ACTIVE CORE BY 26 IN. OF RODDED CORE. BOTH SOURCE AND DETECTORS WERE MOVED CLOSER TO THE EFFECTIVE REGION. (PAGE A-2) AFTER TWO FUEL-ELEMENT GRIDS WERE DAMAGED IN HANDLING, A CABLE TENSIO METER WAS BOUGHT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR STARTUP, TESTING + *SOURCE, NEUTRON + CONTROL ROD WORTH + FAILURE, ADMINISTRATIVE CONTROL + FUEL HANDLING + INSTRUMENTATION, ABNORMAL INDICATION + LACROSSE + OPERATIONS REPORT, GENERAL + POISON, SOLUBLE + REACTOR, BOILING WATER + SHUTDOWN MARGIN

17-19786

LACBWR SECOND MONTHLY OPERATIONAL REPORT ON THE LACROSSE BOILING WATER REACTOR FOR THE MONTH OF AUGUST 1967
ALLIS-CHALMERS, BETHESDA
45 PAGES, 21 FIGURES, 7 TABLES, AUGUST 1967, DOCKET NO. 115-5

THIS PROGRESS REPORT IS ONE OF A SERIES. CHAPTER HEADINGS ARE USUALLY - (1) SUMMARY, (2) TESTING, (3) OPERATIONS, (4) RADIOLOGICAL PHYSICS AND CHEMISTRY, AND (5) MAINTENANCE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*COOLANT CHEMISTRY + *MAINTENANCE AND REPAIR + *RADIATION SAFETY AND CONTROL + *TESTING + LACROSSE + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-19787

DRESDEN 1, 1967 INSPECTIONS - CONTROL ROD DRIVES, FUEL, AND PRIMARY SYSTEM
COMMONWEALTH EDISON COMPANY
80 PAGES, FIGURES, TABLES, JUNE 2, 1967, DOCKET 50-10

ANOMALIES WERE FOUND IN 2 FUEL CHANNELS, FUEL ORIFICES WERE FOULED, 25 LEAKY FUEL ELEMENTS REMOVED, 28 REACTOR-HEAD INNER-CLAD DYE-CHECK ANOMALIES, AND AFTER ULTRASONIC TESTS 12 SIX-INCH, 1 FOUR-INCH, AND 3 THREE-INCH PIPE WELDS WERE REPAIRED. ***CRUD HAD JAMMED DRIVE C-9, AND A MISSING ROLLER PIN JAMMED DRIVE J-2. HISTORY OF DRIVE TROUBLES REVIEWED. ***MANY FUEL-CHANNEL CAPSCREWS WERE MISSING, AND SEVERAL TAB WELDS FAILED AFTER CHANNELS DROPPED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD DRIVE + *EXAMINATION + *FAILURE, FUEL ELEMENT + *FUEL ELEMENT + *PIPING + *WELDS + DRESDEN 1 + FAILURE, PIPE + FAILURE, SCRAM MECHANISM + MAIN COOLING SYSTEM + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + TEST, NONDESTRUCTIVE

17-19788

ALSO IN CATEGORY 5
SUMMARY OF DRESDEN 1 CYCLE 4 FLOW DECREASE AND ASSEMBLY CLEANUP
COMMONWEALTH EDISON COMPANY
3 PAGES, JULY 1967, DOCKET 50-10

A GRADUAL INCREASE IN CORE PRESSURE DROP DURING CYCLES 3 (0.76 PSI/MONTH) AND 4 (0.43 PSI/MONTH) LED TO CLEANUP DURING REFUELING. CRUD WAS 79% CU, 14% MAGNETIC IRON OXIDE, AND 6% NI, FROM MONEL FEEDWATER HEATERS. CRUD THICKNESS APPROACHED 0.2 IN. IN ORIFICE AND NOSE CONE. WHEN GALLING PREVENTED REINSERTING ORIFICES, ELEMENT WAS INVERTED AND NOZZLES CLEANED. A FLOW-TEST FIXTURE WAS BUILT. CYCLE-V CORE IS EXPECTED TO HAVE AN AV. 3-5 PSI PRESSURE DROP (VS CYCLE-IV, 12 PSI). ***MCHF-RATIO CALCULATIONS STRONGLY SUPPORT VIEW THAT AT NO TIME DID THE RATIO APPROACH 1.0, ALTHO THE WORST CRUD OVERPOWER CALCULATION RUN LATER WITH MEASURED ELEMENT DELTA P WAS MCHF RATIO OF 0.86.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DNE (DEPARTURE FROM NUCLEATE BOILING) + *FUEL ELEMENT + *SURFACE FILM DEPOSIT + ALLOY + COPPER + DRESDEN 1 + FLOW ORIFICE OR RESTRICTION + HEAT EXCHANGER + OPERATIONS REPORT, ANALYSIS + PRESSURE DROP + REACTOR, BOILING WATER + TUBING

17-19790

ALSO IN CATEGORY 11
REPORT ON THE BRITTLE FRACTURE OF A HIGH-PRESSURE BOILER DRUM AT COCKENZIE POWER STATION
SOUTH OF SCOTLAND ELECTRICITY BOARD
38 PAGES, 47 FIGURES, 10 TABLES, JANUARY 1967, COCKENZIE REPORT

THE DRUM AT THE NONNUCLEAR COCKENZIE POWER STATION FAILED BY BRITTLE FRACTURE DURING HYDRAULIC TESTING DUE TO THE PRESENCE OF A PRE-EXISTING, ARRESTED BRITTLE CRACK. THERE WAS NO DEFECT FOUND IN THE PLATE MATERIAL OR WELD METAL WHICH COULD HAVE INITIATED SUCH A CRACK. THE CHARACTER OF THE CRACK WAS TYPICAL OF THAT ASSOCIATED WITH STRESS CRACKING OF HIGHLY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19790 *CONTINUED*

RESTRAINED NOZZLE WELDS. THE CRACK WAS ASSOCIATED WITH AN ECONOMISER NOZZLE WHICH HAD BEEN REPLACED DURING DRUM MANUFACTURE, BUT THERE WAS NO EVIDENCE TO SUGGEST THAT THE NOZZLE REPLACEMENT CONTRIBUTED TO THE FORMATION OF THE CRACK. THE PRESENCE OF AN ANGLE BRACKET WELDED TO THE SHELL IMMEDIATELY ADJACENT TO THE NOZZLE PROBABLY RESULTED IN AN UNDESIRABLE STRESS CONCENTRATION IN THE ZONE WHERE THE CRACK WAS INITIATED. THE CRACK WAS PRESENT DURING THE STRESS-RELIEVING TREATMENT WHICH THIS SECTION OF THE DRUM RECEIVED, AND THE EVIDENCE TENDS TO INDICATE THAT THE CRACK OCCURRED DURING THE INITIAL HEATING-UP STAGES OF THE STRESS-RELIEVING TREATMENT.

AVAILABILITY - SOUTH OF SCOTLAND ELECTRICITY BOARD

*BRITTLE FRACTURE + *FAILURE, EQUIPMENT + *TEST, PROOF + FAILURE, PRESSURE VESSEL + NOZZLE

17-19792

ALSO IN CATEGORY 11

EACIE DM

THE BEHAVIOUR OF THE OLBURY NO. 1 REACTOR PRESSURE VESSEL DURING PRESTRESSING AND PROOF PRESSURE TEST
SIR ROBERT MCALPINE AND SONS, LTD.

12 PAGES, 14 FIGURES, 3 TABLES, 3 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(3), PAGES 295-310 (MAY 1967)

DESCRIBES THE PRESTRESSING OF THE OLBURY NO. 1 PRESSURE VESSEL, THE CHECKS ON TENDON ANCHORAGE LOADS, AND THE READINGS TAKEN FROM THE STRAIN GAUGES WITHIN THE CONCRETE. THE READINGS WERE COMPARED WITH THEORETICALLY PREDICTED RESULTS BASED ON COMPUTER ANALYSIS IN COMBINATION WITH THE MEASURED TENDON ANCHORAGE LOADS AND ASSUMED VALUES FOR YOUNG'S MODULUS, POISSON'S RATIO, AND SPECIFIC CREEP-TIME FUNCTIONS. FROM THIS COMPARISON, REASONABLE VALUES WERE OBTAINED FOR INSTANTANEOUS ϵ VALUES AND SPECIFIC CREEP-TIME FUNCTIONS PERTAINING TO THE OLBURY VESSELS AT AMBIENT TEMPERATURE. THE PROOF PRESSURE TEST IS DESCRIBED, AND THE VARIOUS READINGS OBTAINED ARE COMPARED WITH ANTICIPATED VALUES.

*OLDBURY (UK) + *PRESSURE VESSEL + *TEST, PROOF + CONCRETE, PRESTRESSED + CREEP BEHAVIOR + MEASUREMENT, STRAIN GAGE + STRESS ANALYSIS + UNITED KINGDOM

17-19801

HARVARD ENHANCES RADIATION PROTECTION TRAINING PROGRAM

ARGONNE NATIONAL LABORATORY

1 PAGE NUCLEAR ENERGY EDUCATION NEWSLETTER, OCTOBER 1967

A COURSE ON X-RAY PROTECTION HAS BEEN ADDED, FOR THERAPY INSTALLATIONS. A SPECIAL CURRICULUM IN ACCELERATOR HEALTH PHYSICS, WITH FINANCIAL ASSISTANCE FROM USAEC, WILL INCLUDE TRAINING AT CAMBRIDGE ELECTRON ACCELERATION.

AVAILABILITY - ELMER RYLANDER, BOX 351, ARGONNE, ILL.

*ACCELERATOR + *HEALTH PHYSICS TRAINING + *RADIOLOGY + STAFFING, TRAINING, QUALIFICATION + X-RAY

17-19842

SMEE JL

THE CHEMISTRY OF THE X-7 (ORGANIC) LOOP COOLANT. PART I. MAY 1960 TO APRIL 1965

ATOMIC ENERGY OF CANADA, LIMITED, CHALK RIVER

AECL-2527 +. 86 PAGES, 24 FIGURES, 10 TABLES, 45 REFERENCES, JAN. 1966

DESCRIBES IN DETAIL THE X-7 COOLANT CHEMISTRY FROM THE START OF LOOP OPERATION IN MAY 60 TO APRIL 65. COOLANT WAS SANTOWAX OM CONTAINING A NOMINAL 30% HIGH BOILERS OR HIGH-MOLECULAR-WEIGHT DECOMPOSITION PRODUCTS. FUEL-ELEMENT FOULING WAS OVERCOME BY CONTINUOUS PURIFICATION OF THE COOLANT BY ATTAPULGUS CLAY AND FILTERS, REDUCING THE FOULING RATE TO LESS THAN 10 MICRONS/YEAR. CHLORINE IS REMOVED WITH AN MG RIBBON AND PD PELLET BED, RESULTING IN A CHLORIDE CONTENT OF LESS THAN 3 PPM.

AVAILABILITY - ATOMIC ENERGY OF CANADA, LTD., CHALK RIVER, ONTARIO, CANADA, \$2.00 COPY

*COOLANT CHEMISTRY + *COOLANT PURIFICATION SYSTEM + *ORGANIC COOLANT + *SURFACE FILM DEPOSIT + CANADA + CHLORINE + IN PILE LOOP + NRX (CANADIAN NATURAL U-HEAVY WATER REACTOR) + OPERATING EXPERIENCE + REACTOR, HEAVY WATER

17-19843

SMEE JL

THE CHEMISTRY OF THE X-7 (ORGANIC) LOOP COOLANT. PART II - APRIL 1965-MAY 1966

ATOMIC ENERGY OF CANADA, LIMITED, PINAWA

AECL-2654 +. 15 PAGES, 3 FIGURES, 5 TABLES, 13 REFERENCES, JULY 1966

DESCRIBES COOLANT CHEMISTRY DURING THE X-726 FUEL-IRRADIATION TESTS. THE COOLANT USED WAS HB-40 IN PLACE OF THE PREVIOUS SANTOWAX OM. FUEL FOULING REMAINED LESS THAN 10 MICRONS/YEAR, BUT THE HIGH-BOILER CONTENT INCREASED FROM 2 TO 12%. CARBON-STEEL LOOP HAS A MAXIMUM DESIGN PRESSURE OF 22 KG/CM², A MAXIMUM DESIGN TEMPERATURE OF 427 C, AND A MAXIMUM FLOW RATE OF 2.4 L/S. HB-40 (MONSANTO CO.) CONTAINS PARTIALLY HYDROGENATED TERPHENYLS.

AVAILABILITY - ATOMIC ENERGY OF CANADA, LTD., CHALK RIVER, ONTARIO, CANADA, \$0.50 COPY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19843 *CONTINUED*

*COOLANT CHEMISTRY + *COOLANT PURIFICATION SYSTEM + *ORGANIC COOLANT + *SURFACE FILM DEPOSIT + CANADA + CHLORINE + IN PILE LOOP + NRX (CANADIAN NATURAL U-HEAVY WATER REACTOR) + OPERATING EXPERIENCE + REACTOR, HEAVY WATER

17-19846

BILLIAU R + BUYSE L + FREDRIX H

ANNUAL SCIENTIFIC REPORT 1966

CENTRE D-ETUDES DE L-ENERGIE NUCLEAIRE, MOL, BELGIUM

D/79/67 +. 150 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1966

COVERS BR2-GEX, BR3/VULCAIN REACTORS. SECTION A - RESEARCH PROGRAM, B - ADMINISTRATION. APPENDICES INCLUDE PUBLICATIONS, CONFERENCES, THESES, BIBLIOGRAPHIES, PATENTS, SCIENTIFIC FILMS.

AVAILABILITY - CENTRE D-ETUDES DE L-ENERGIE NUCLEAIRE, 144, AVENUE E. PLASKY, BRUSSELS, MOL, BELGIUM

*BIBLIOGRAPHY + *REACTOR, SPECTRAL SHIFT + BELGIUM + BR 2 (BELGIAN RESEARCH REACTOR, CCN) + OPERATIONS REPORT, GENERAL + RESEARCH AND DEVELOPMENT PROGRAM

17-19847

ALSO IN CATEGORY 9

SEVENTH ANNUAL REPORT - HALDEN REACTOR PROJECT 1965-66

EUROPEAN NUCLEAR ENERGY AGENCY

OECD-FR1-81 +. 153 PAGES, 73 FIGURES, 14 TABLES, 22 REFERENCES, DEC. 1966

PART I - RESEARCH PROGRAM COVERS REACTOR STATICS, DYNAMICS, AND WATER CHEMISTRY. PART II - FUEL-IRRADIATION TEST PROGRAM AND DEVELOPMENT PROGRESS (IN-CORE INSTRUMENTATION EXPERIENCE, BURNOUT DETECTORS, ETC.). PART III - OPERATIONS. PART IV - ADMINISTRATION.

AVAILABILITY - ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, EUROPEAN NUCLEAR ENERGY AGENCY

*BURNOUT HEAT FLUX + *INSTRUMENTATION, IN CORE + NORWAY + OPERATIONS REPORT, GENERAL + REACTOR, HEAVY WATER + RESEARCH AND DEVELOPMENT PROGRAM

17-19848

OSIRIS

CENTRE D ETUDES NUCLEAIRES DE SACLAY, FRANCE

84 PAGES, FIGURES, TABLES, BULL. INFORM. SCI. TECH. (PARIS), 111, PAGE 1 THRU 84, (JANUARY 1967), IN FRENCH

DESCRIBES THE 50-MW SWIMMING-POOL REACTOR OSIRIS, USED FOR IRRADIATING STRUCTURAL MATERIAL FOR FUTURE POWER REACTORS.

*REACTOR DESCRIPTION + *REACTOR, POOL TYPE + FRANCE + REACTOR, RESEARCH

17-19863

HTR BASE PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING AUGUST 31, 1966

GENERAL ATOMIC, GENERAL DYNAMICS CORP. SAN DIEGO, CALIF.

GA-7396 +. 58 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 15, 1966

REPORTS DEVELOPMENT PROGRESS ON PRESTRESSED CONCRETE VESSEL, FISSION-PRODUCT-RELEASE CHARACTERISTICS OF (TH-U)C₂ PARTICLES, FUEL REPROCESSING AND MANAGEMENT, IRRADIATION TESTS OF METAL CARBIDE COATINGS, AND ANALYTICAL METHODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*RESEARCH AND DEVELOPMENT PROGRAM + ANALYTICAL TECHNIQUE, GENERAL + COATED PARTICLE + COATING + CONCRETE, PRESTRESSED + FISSION PRODUCT RETENTION + FUEL BURNUP + FUEL REPROCESSING + IRRADIATION TESTING + PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS

17-19864

ALSO IN CATEGORY 9

ACCIDENTAL INJECTION OF SUPPLEMENTARY SAFETY SYSTEM POISON INTO A PRODUCTION REACTOR AT SAVANNAH RIVER PLANT

USAEC, DIVISION OF OPERATIONAL SAFETY

2 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-13, OCTOBER 31, 1967

GAUULINIUM NITRATE WAS INJECTED WHILE THE REACTOR WAS AT FULL POWER. A MAINTENANCE CREW WAS CHECKING THE BATTERY-MONITORING VOLTMETERS ON A POISON-INJECTION SUBSYSTEM WHEN AN ALLIGATOR CLIP SLIPPED FROM A TERMINAL AND SHORTED AN UNRELATED 110-V TERMINAL, APPLYING 110-V AC TO THE DETONATOR OF THE EXPLOSIVE VALVE, RELEASING THE POISON SOLUTION. 22 HR WERE REQUIRED FOR CLEANUP THROUGH DEIONIZER BEDS TO OBTAIN SUFFICIENT REACTIVITY FOR STARTUP. THE INCIDENT WAS ATTRIBUTED TO A CIRCUIT-LAYOUT DEFICIENCY IN THAT THE 110-V TERMINAL WAS ONLY 1/4 IN. FROM THE METER TERMINAL.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19864 *CONTINUED*

*FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + OPERATING EXPERIENCE + POISON, SOLUBLE + REACTOR, PRODUCTION + SAVANNAH RIVER PRODUCTION REACTORS + SCRAM, SPURIOUS + SHUTDOWN SYSTEM, SECONDARY

17-19865

HIGH FLUX ISOTOPE REACTOR TARGET FAILURE

USAEC, DIVISION OF OPERATIONAL SAFETY

3 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-12, OCTOBER 31, 1967

ALUMINUM CLADDING ON PU-242 RODS CRACKED DUE TO FISSION-GAS EXPANSION OF THE PELLETS AND EMBRITTLEMENT OF THE AL JACKETS. DOSE TO THE FAILED RODS WAS 1 TIMES 10 TO THE 22 NVT FAST FLUX (GREATER THAN 0.8 MEV) AND 6.3 TIMES 10 TO THE 22 NVT THERMAL FLUX. FAILURES WERE INDICATED BY INCREASE IN PRIMARY-SYSTEM ALPHA ACTIVITY FROM CM-244. REMOVAL OF THE CM BY DEMINERALIZERS WERE NOT EFFECTIVE (UNTIL THE IONIZED STATE WAS CHANGED BY INTRODUCTION OF A LANTHANUM SOLUTION). AN INVESTIGATION OF THE AL EMBRITTLEMENT MECHANISM IS UNDERWAY, AND THE PU RODS ARE BEING MADE WITH A DENSITY OF 75-80% RATHER THAN 90%.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*EMBRITTLEMENT + *EXPANSION + *FAILURE, CLADDING + *TRANSURANIUM PROGRAM + ALUMINUM + CURIUM + DECONTAMINATION + HFIR (HIGH FLUX ISOTOPE REACTOR) + MAIN COOLING SYSTEM + PLUTONIUM + RADIATION DAMAGE + REACTOR, FLUX TRAP

17-19866

POLYURETHANE THERMAL INSULATION FIRE

USAEC DIVISION OF OPERATIONAL SAFETY

3 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-11, OCTOBER 23, 1967

INSULATION HAD BEEN REMOVED FROM PIPING AND HEAT EXCHANGERS AT PEACH BOTTOM 1 TO PERMIT MODIFICATIONS. WHEN POLYURETHANE WAS SPRAYED BACK ON, SUFFICIENT TIME BETWEEN APPLICATIONS WAS NOT ALLOWED TO PERMIT THE CHEMICALS TO CURE. HEAT RELEASED BY EXOTHERMIC CURING OF THE INSULATION WAS TRAPPED AND LED TO SELF-IGNITION. EQUIPMENT DAMAGE WAS SLIGHT. SOOT AND FIRE DEBRIS WERE SPREAD IN THE BASEMENT. THIS INSULATION WAS REMOVED FROM ALL EQUIPMENT AND WILL NOT BE REAPPLIED. THE REACTORS OPERATING SCHEDULE WAS DELAYED 11 DAYS.

AVAILABILITY - USAEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*FIRE + *INCIDENT, ACTUAL, HUMAN ERROR + *MAINTENANCE AND REPAIR + *THERMAL INSULATION + FAILURE, INSTALLATION ERROR + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + PEACH BOTTOM 1 + REACTOR, HIGH TEMP. GAS

17-19874

ALSO IN CATEGORY 9

ZANOT JR

GETR STARTUP RANGE INSTRUMENT ANOMALIES

GENERAL ELECTRIC COMPANY, VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIFORNIA

2 PAGES, PAGE 9-10 OF RELATING OPERATING EXPERIENCE, PREVENTIVE MAINTENANCE AND RELIABILITY ANALYSES, PRESENTED AT ANS CONFERENCE ON REACTOR OPERATING EXPERIENCES, JULY 25-26, 1967

ON OCTOBER 7, 1966, DURING THE INITIAL STARTUP TO 50 MW, CONTROL RODS WERE WITHDRAWN TO THE UPPER LIMIT OF ESTIMATED CRITICAL POSITION, WITH NO SIGNIFICANT CHANGE IN COUNT RATE BECAUSE OF A LOOSE CONNECTION. AN SOP NOW REQUIRES A COUNT-RATE INCREASE OF 5 BEFORE CRITICALITY. *** THE FISSION CHAMBER IS LOWERED MANUALLY INTO THE POOL NEAR THE CORE UNTIL THE COUNT RATE IS JUDGED ACCEPTABLE BY THE CONTROL-ROOM OPERATOR. NO FIXED REFERENCE POSITION WAS PROVIDED. THE CIRCUIT WAS SUBJECT TO NOISE-ONLY INDICATION, OR TO HELPFUL READJUSTMENT OF THE DISCRIMINATOR. A REFERENCE POSITION IS NEEDED FOR CYCLE-TO-CYCLE STARTUP CHECK.

AVAILABILITY - JOHN R. ZANOT, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA

*INSTRUMENTATION, ABNORMAL INDICATION + *INSTRUMENTATION, STARTUP RANGE + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + GETR (GENERAL ELECTRIC TEST REACTOR) + INCIDENT, ACTUAL, HUMAN ERROR + NOISE + REACTOR, TEST

17-19888

BEATTIE WC

MATERIAL FOUND IN INDIAN POINT 1 CORE

CONSOLIDATED EDISON CO. OF NEW YORK

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(47), PAGES 32-33 (NOVEMBER 20, 1967)

(LETTER, NOV. 2) IN THE OCTOBER 1967 REFUELING, THREE ITEMS WERE FOUND ON THE FIXED THERMAL SHIELDS BELOW THE UPPER GRID-PLATE ASSEMBLY (AN NDT SPECIMEN HOLDER AND ASSOCIATED ORIFICE PLUG, AND A 4.5-FT. TOP PORTION OF A NEUTRON SOURCE). CERTAIN PIECES WERE NOT FOUND, BUT WOULD NOT BLOCK MORE THAN 16 FLOW CHANNELS BY 50%, WHICH WOULD ONLY REDUCE THE DNB RATIO 10%. CONTROL RODS WOULD LIKELY NOT BE JAMMED.

*FLOW BLOCKAGE + CORE COMPONENTS, MISCELLANEOUS + FAILURE, SCRAM MECHANISM + INCIDENT, ACTUAL, EQUIPMENT + INDIAN POINT 1 + REACTOR, PRESSURIZED WATER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19889 ALSO IN CATEGORY 3
DROPPED FUEL ELEMENT DURING INDIAN POINT 1 REFUELING
CONSOLIDATED EDISON CO. OF NEW YORK
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(47) PAGES 33-34 (NOVEMBER 20, 1967)

(LETTER, NOV. 2) DURING REFUELING ON OCTOBER 17, 1967, A FUEL ELEMENT, NOT HIGH ENOUGH DURING TRANSFER, STRUCK AN I-BEAM, AND SEPARATED BETWEEN THE PERFORATED FUEL ENCLOSURE AND THE UPPER NOZZLE ASSEMBLY. TEN PERIPHERAL PINS PROTRUDED, BUT SAMPLES INDICATED NO RELEASE OF FISSION PRODUCTS. RIGGERS WERE BROUGHT IN AND MOCKUP BUILT TO TRY PROCEDURES AND SPECIAL SNARES. ALL ACTIVITY WAS SUSPENDED AND AN UNDERWATER TV INSTALLED. ON OCTOBER 24, THE RIGGERS LIFTED THE ASSEMBLY AND PLACED IT IN THE TRANSFER BASKET IN 3 HR, WITHOUT INCIDENT.

*FUEL HANDLING + *INCIDENT, ACTUAL, HUMAN ERROR + ACCIDENT, REFUELING + FAILURE, OPERATOR ERROR + INCIDENT, ACTUAL, RECOVERY FROM + INDIAN POINT 1 + REACTOR, PRESSURIZED WATER + REMOTE MANIPULATING AND VIEWING

17-19893
FAILURE AND REPAIRS ON STEAM GENERATOR SUPERHEATER
PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION
37 PAGES, 44 FIGURES, 3 TABLES, AMENDMENT 13 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE, SECTION IV, DOCKET NO. 50-171

DESCRIBES DETECTION, ANALYSIS, AND CORRECTION OF FAILURE. STRESS-CORROSION CRACKING OF SUPERHEATER BELLOW, PIPING CONNECTED TO BELLOW, AND TUBING WAS CAUSED BY ONE OR ALL OF THE FOLLOWING - (1) RESIDUAL STRESSES, (2) THERMAL CYCLING, AND (3) CONTACT WITH WATER CONTAINING HALIDES OR DISSOLVED OXYGEN. INCOLOY 800 WAS SELECTED AS REPLACEMENT MATERIAL FOR THE SS 304, AND THE TUBESHEET WAS REDESIGNED TO ELIMINATE POSSIBILITY OF ACCUMULATING CONTAMINANTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, PIPE + *FAILURE, TUBING + *STRESS CORROSION + CHLORINE + FAILURE, EQUIPMENT + INCONEL + MODIFICATION, SYSTEM OR EQUIPMENT + PEACH BOTTOM 1 + REACTOR, HIGH TEMP. GAS + STEAM GENERATOR + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

17-19894
AMENDMENT 13 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE
PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION
53 PAGES, 46 FIGURES, 5 TABLES, AUGUST 18, 1966, DOCKET NO. 50-171

REQUESTS AUTHORIZATION FOR OPERATION UP TO 115 MWT. RESULTS OF PHYSICS TEST PROGRAM AT 1 MWT ARE INCLUDED AND ARE CONSISTENT WITH DESIGN CRITERIA. TESTS TO BE PERFORMED PRIOR TO OPERATION ABOVE 1 MWT ARE LISTED. STATUS OF MODIFICATIONS TO THE FUEL-TRANSFER MACHINE, HELIUM COMPRESSORS, CONTROL-ROD DRIVE, AND THE CANNING MACHINE ARE DISCUSSED. GIVES A THOROUGH DISCUSSION OF THE TUBE AND PIPE FAILURE OF THE STEAM-GENERATOR SUPERHEATER DUE TO STRESS-CORROSION CRACKING. (SEE ALSO AMENDMENT 15).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TECHNICAL SPECIFICATIONS + CONTROL ROD DRIVE + FAILURE, EQUIPMENT + FAILURE, PIPE + FUEL HANDLING MACHINE + MODIFICATION, SYSTEM OR EQUIPMENT + PEACH BOTTOM 1 + REACTOR STARTUP TESTING + REACTOR, HIGH TEMP. GAS + TESTING

17-19895
PLANT MODIFICATION
PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION
3 PAGES, AMENDMENT 13 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE, SECTION II, AUGUST 18, 1966, DOCKET NO. 50-171

GALLING PROBLEMS ON THE FUEL-TRANSFER MACHINE REQUIRED REPLACEMENT OF THE ACME SCREW AND TELESCOPING SHAFTS WITH A BALL SCREW AND BALL SPLINES TO SUBSTITUTE ROLLING FRICTION FOR SLIDING FRICTION. POOR QUALITY CONTROL OF THE FINISH ON TUNGSTEN-CARBIDE BALLS RESULTED IN FAILURES IN THE BALL SCREWS OF THE CONTROL ROD DRIVES. INADEQUATE OIL FLOW TO HELIUM COMPRESSORS WAS CORRECTED BY INCREASING FLOW PASSAGE AND APPLYING HEAT TRACING TO PIPING TO INCREASE OIL VISCOSITY. DEFECTS IN COMPRESSOR-BLADE MATERIAL RESULTED IN FAILURE. THE WELDING FUNCTION OF THE SPENT-FUEL CANNING MACHINE WAS REPLACED BY A MAGNEFORM-TYPE CAN-CLOSING DEVICE BECAUSE OF DIFFICULTY IN OBTAINING GOOD WELDS. (SEE ALSO AMENDMENT 15).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MODIFICATION, SYSTEM OR EQUIPMENT + CONTROL ROD DRIVE + FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + FAILURE, SCRAM MECHANISM + FUEL HANDLING MACHINE + LUBRICATION + PEACH BOTTOM 1 + QUALITY CONTROL + REACTOR, HIGH TEMP. GAS + TECHNICAL SPECIFICATIONS + WELDING

17-19948

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19948 *CONTINUED*

NATIONAL BUREAU OF STANDARDS OPERATING LICENSE AND TECHNICAL SPECIFICATIONS
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
31 PAGES, NOVEMBER 13, 1967, DOCKET NO. 50-184

(LETTER, 13 NOV. 1967) UP-TO-DATE STYLE OF TECH. SPECS. FOR 10-MW(TH) REACTOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TECHNICAL SPECIFICATIONS + NBS (NATIONAL BUREAU OF STANDARDS) + REACTOR, HEAVY WATER + REACTOR, TEST

17-19963

ALSO IN CATEGORY 7

FRANK PW

FISSION PRODUCT ACTIVITY LEVELS IN THE PRIMARY COOLANT OF PWR DURING CORE 1 AND SEED 1

BETTIS ATOMIC POWER LABORATORY, PITTSBURGH, PA.

WAPD-PWR-TE-79 +. 8 PAGES, 9 FIGURES, 3 TABLES, APRIL 1962

DISCUSSES THE LEVELS AND DISTRIBUTION OF FISSION PRODUCTS ATTRIBUTED TO U CONTAMINATION ON THE CORE SURFACE OR IN THE ZIRCALOY AND TO A DEFECTED UO₂ BLANKET FUEL ELEMENT. THE EFFECT OF PH ON THE SPECIFIC ACTIVITIES OF INSOLUBLE FISSION PRODUCTS WAS OBSERVED. THE SPECIFIC ACTIVITIES OF SR-91 AND 92 DECREASED A FACTOR OF 2 FOR EACH 0.15 UNIT INCREASE IN PH, AND BA-139 DECREASED THE SAME FOR EACH 0.55 UNIT INCREASE IN PH. THE DECREASES RESULT FROM DEPOSITION ON SYSTEM SURFACES.

*ACTIVITY BUILDUP + *CONTAMINATION + *MAIN COOLING SYSTEM + BARIUM + COOLANT CHEMISTRY + CRUD + DEPOSITION + FAILURE, FUEL ELEMENT + FISSION PRODUCT, NONVOLATILE + PH REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER + SHIPPINGPORT + STRONTIUM + SURFACE CONTAMINATION

17-19964

CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC. RESEARCH AND DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1965.

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.

CVNA-254 +. 101 PAGES, DECEMBER 1965, DOCKET 50-144

BRIEFLY DISCUSSES NOISE MEASUREMENTS. MAJOR PORTION OF REPORT DEVOTED TO REPORTING RESULTS OF CORE PHYSICS MEASUREMENTS CONSISTING OF XENON TRANSIENTS, CONTROL-ROD WORTHS, AND FLUX MEASUREMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STARTUP TESTING + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + NOISE ANALYSIS + OPERATIONS REPORT, ANALYSIS + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + RESEARCH AND DEVELOPMENT PROGRAM

17-19966

METALLOGRAPHIC INVESTIGATIONS AND REPAIRS OF THE BONUS STEAM DRYER PREHEATER PIPING

COMBUSTION ENGINEERING, INC., WINDSOR, CONN.

CEND-284 +. 135 PAGES, TABLES, 1966

DESCRIBES THE NONDESTRUCTIVE TESTS, METALLOGRAPHIC ANALYSES, AND REPAIR OF THE DRYER PREHEATER PIPING. 8 OF THE 16 LINES WERE REPLACED. CRACKS IN THE PIPES HAD RESULTED FROM IN-SERVICE STRESS CORROSION AND OPERATION IN A HIGH-TEMPERATURE, OXYGENATED (12 PPM), SUPERHEATED-STEAM ENVIRONMENT. SOME DEFECTS WERE AGGRAVATED BY THE PRESENCE OF HIGH-CARBON STAINLESS STEEL INSTEAD OF THE SPECIFIED 304L, AND SOME BY FAULTY WELDING DURING FABRICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, PIPE + *STRESS CORROSION + BONLS (BOILING NUCLEAR SUPERHEAT PROJECT) + FAILURE, FABRICATION ERROR + FUEL ELEMENT + MAINTENANCE AND REPAIR + QUALITY CONTROL + REACTOR, INTERNAL SUPERHEAT + TEST, NONDESTRUCTIVE + WELDING

17-19974

PROGRESS REPORT OF NORA PROJECT, APRIL 1--JUNE 30, 1967

INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY

IAEA-3498-18 + NC-89 +. 16 PAGES, REFERENCES, JULY 1967

REPORTS PROGRESS ON PULSED NEUTRON MEASUREMENTS AND STUDIES OF INFLUENCE OF ABSORBERS ON LATTICE PARAMETERS. THEORETICAL ANALYSIS OF EXPERIMENTS ARE TREATED BRIEFLY. MEASUREMENTS OF THE FAST ADVANTAGE FACTOR IN LIGHT-WATER LATTICES ARE SUMMARIZED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*PULSED NEUTRON TECHNIQUE + CONTROL ROD + NORWAY + OPERATIONS REPORT, GENERAL + REACTIVITY EFFECT + REACTOR PHYSICS + REACTOR, HEAVY WATER + REACTOR, RESEARCH + TEST, PHYSICS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-19975

PROGRESS REPORT OF NORA PROJECT, JANUARY 1--MARCH 31, 1967
INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY
IAEA-3998-17 + NC-88 +. 29 PAGES, REFERENCES, APRIL 1967

REPORTS PROGRESS ON REACTOR NOISE STUDIES, PULSED NEUTRON MEASUREMENTS, AND STUDIES OF INFLUENCE OF ABSORBERS ON LATTICE PARAMETERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

CONTROL ROD + NOISE ANALYSIS + NORWAY + OPERATIONS REPORT, GENERAL + PULSED NEUTRON TECHNIQUE + REACTIVITY EFFECT + REACTOR PHYSICS + REACTOR, HEAVY WATER + REACTOR, RESEARCH

17-19976

PROGRESS REPORT ON NORA PROJECT, OCTOBER 1--DECEMBER 31, 1965
INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY
TID-22697 + NC-73 +. 49 PAGES, FIGURES, REFERENCES, FEBRUARY 1966

REPORTS RESULTS OF CONTROL-ROD-WORTH MEASUREMENTS AND PROGRESS IN MEASUREMENT OF ZERO-POWER REACTOR NOISE AND ROSSI ALPHA. GIVES SOME RESULTS OF NOISE EXPERIMENTS. CALCULATIONS OF FLUX DISTRIBUTIONS AND CRITICALITY CONSTANTS ARE SUMMARIZED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

CONTROL ROD WORTH + FLUX DISTRIBUTION + NOISE ANALYSIS + NORWAY + OPERATIONS REPORT, GENERAL + REACTOR PHYSICS + REACTOR, HEAVY WATER + REACTOR, RESEARCH + ROSSI ALPHA

17-20047

PROGRESS REPORT OF NORA PROJECT, OCTOBER 1--DECEMBER 31, 1966
INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY
IAEA-3498-16 +. 20 PAGES, REFERENCES, JANUARY 1967

MOSTLY CONCERNED WITH LOW-POWER REACTOR-NOISE RESEARCH AND THEORETICAL ANALYSIS OF NEUTRON THERMALIZATION NEAR BLACK ABSORBERS IN A HOMOGENEOUS SUPERCELL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

NEUTRON + NOISE ANALYSIS + NORWAY + REACTOR, RESEARCH + RESEARCH AND DEVELOPMENT PROGRAM + THEORETICAL INVESTIGATION + THERMALIZATION

17-20049

ALSO IN CATEGORY 9

GARIGLIANO NUCLEAR POWER PLANT. OPERATION REPORT FOR THE 4TH QUARTER OF 1966.
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY
TID-23770 +. 22 PAGES, DECEMBER 31, 1966

PLANT SHUTDOWNS WERE CAUSED BY (1) REDUCTION OF FLOW TO CONDENSER CAUSED BY CLOGGED SCREENS FROM DEBRIS IN FLOODING RIVER, (2) RECIRCULATING PUMP LEAK CAUSING INCREASED CONTAMINANT ACTIVITY LEVEL, AND (3) REPLACEMENT OF IN-CORE CHAMBERS. EXPERIENCE INDICATES THAT AT THIS HIGHER FLUX LEVEL, IN-CORE ION CHAMBERS SHOULD BE REPLACED EVERY 24 FULL-POWER MONTHS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

FAILURE, EQUIPMENT + FAILURE, INSTRUMENT + ITALY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE)

17-20050

GARIGLIANO NUCLEAR POWER PLANT. OPERATION REPORT FOR THE 1ST QUARTER OF 1965. TECHNICAL REPORT, MARCH 31, 1965
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY
TID-22201 +. 7 PAGES, MARCH 31, 1965

PROGRESS REPORT. TOPICS INCLUDE OPERATIONS SUMMARY, FUEL BURNUP, MATERIAL CONSUMPTION, MAINTENANCE, AND MANAGEMENT OF RADIOACTIVE WASTES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

FUEL BURNUP + ITALY + MAINTENANCE AND REPAIR + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + WASTE MANAGEMENT

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20051 ALSO IN CATEGORY 6

TURBINE OVERSPEED ON LOAD REJECTION DUE TO MOISTURE FLASHING TO STEAM
SOCIETA ELETTRONUCLEARE NAZIONALE, ROME, ITALY

TID-21073 +. 4 PAGES, PAGE 1-4 OF GARIGLIANO NUCLEAR POWER PLANT TECHNICAL REPORT, JUNE 30, 1964

ABNORMAL TURBINE OVERSPEED WAS EXPERIENCED WHEN THE GENERATOR BREAKER WAS OPENED. THIS WAS ATTRIBUTED TO THE EVAPORATION OF CONDENSATE IN THE TURBINE WHEN THE PRESSURE DROPS AS THE STEAM THROTTLE VALVES CLOSE. TO REDUCE WATER POCKETS, THE TURBINE DRAINAGE SYSTEM WILL BE MODIFIED BY REPLACING THE CROSSUNDER PIPES WITH ONES WHICH HAVE CENTRIFUGAL MOISTURE SEPARATORS AND TRAP DRAINS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*FAILURE, DESIGN ERROR + ACCIDENT, LOAD REJECTION + ITALY + MODIFICATION, SYSTEM OR EQUIPMENT +
OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + TURBINE

17-20052 ALSO IN CATEGORY 6

HOWARD CL

DEVELOPMENT PROGRAM ON THE GARIGLIANO NUCLEAR REACTOR. QUARTERLY REPORT NOS. 16 + 17.
GENERAL ELECTRIC CO., ATOMIC POWER EQUIPMENT DEPT., SAN JOSE, CALIF.

GEAP-5277 + EURAEC-1823 +. 34 PAGES, JANUARY 3, 1967

MOSTLY RESULTS OF TESTS TO DETERMINE PLANT STABILITY. TRANSFER-FUNCTION RESULTS FOR EACH TEST
CONDITION ARE GIVEN, AND EFFECTS OF FLOW AND INLET SUBCOOLING ON REACTOR STABILITY ARE SHOWN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*REACTOR STABILITY + *TEST, PLANT RESPONSE + ITALY + REACTOR, BOILING WATER +
RESEARCH AND DEVELOPMENT PROGRAM + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + TEST, SYSTEM OPERABILITY

17-20053

HOWARD CL

DEVELOPMENT PROGRAM ON THE GARIGLIANO NUCLEAR REACTOR. QUARTERLY REPORT NO. 12
GENERAL ELECTRIC CO., ATOMIC POWER EQUIPMENT DEPT., SAN JOSE, CALIF.

GEAP-4962 + EURAEC-1498 +. 79 PAGES, OCTOBER 1, 1965

TOPICS INCLUDE TEST AND OPERATION OF THE DATA-LOGGING COMPUTER, INSTRUMENTED FUEL ASSEMBLIES
FOR CORE-PERFORMANCE MEASUREMENTS, PREPARATIONS FOR PLANT STABILITY TESTS, AND SHUTDOWN
MAINTENANCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

DATA PROCESSING + ITALY + MAINTENANCE AND REPAIR + MEASUREMENT, REACTIVITY + MEASUREMENT, TEMPERATURE +
REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) +
TEST, PHYSICS + TEST, SYSTEM OPERABILITY

17-20054

RESEARCH PROGRAM FOR THE GARIGLIANO NUCLEAR POWER PLANT

ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME + SOCIETA ELETTRONUCLEARE NAZIONALE

EURAEC-1447 + EUR-2381 +. 10 PAGES, JULY 1, 1965

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS INCLUDE TESTING AND OPERATION OF THE REACTOR
DATA-LOGGING COMPUTER, PRESSURE-VESSEL-SPECIMEN IRRADIATION, INSTRUMENTED FUEL ASSEMBLIES FOR
CORE-PERFORMANCE MEASUREMENTS, AND REACTOR PHYSICS TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

DATA PROCESSING + IRRADIATION TESTING + ITALY + MEASUREMENT, REACTIVITY + MEASUREMENT, TEMPERATURE +
REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + TEST, PHYSICS

17-20058 ALSO IN CATEGORY 5

SANTASILIA, FRANCO

HIGH VOID TESTS AT THE GARIGLIANO NUCLEAR POWER STATION

ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY

EURAEC-1782 + EUR-3324 +. 77 PAGES, OCTOBER 1966

PRESENTS RESULTS OF TESTS WHICH SIMULATED HIGH-POWER-DENSITY CONDITIONS TO DETERMINE PLANT
STABILITY. TESTS DEMONSTRATED, (1) THE PLANT IS STABLE, (2) RATED POWER (506 MWTH) CAN BE
MAINTAINED BY NATURAL CIRCULATION, (3) MOVABLE IN-CORE CHAMBERS PROVED VALUABLE IN
DETERMINING CORE PERFORMANCE IMMEDIATELY AND (4) THE REACTOR WAS OPERATED WITH A

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20058 *CONTINUED*

FEEDWATER-TO-RECIRCULATION FLOW RATIO OF 1/5, INDICATING THAT JET PUMPS OF NEW BOILING WATER REACTORS CAN BE FED DIRECTLY WITH WATER FROM FEED PUMPS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

*PERFORMANCE LIMIT + *TEST, PLANT RESPONSE + *TEST, SYSTEM OPERABILITY + CIRCULATION, NATURAL (LOOPS AND REACTORS) + HEAT TRANSFER, CONVECTION + INSTRUMENTATION, IN CORE + ITALY + MAIN COOLING SYSTEM + PUMP, JET + REACTIVITY EFFECT + REACTOR STABILITY + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + VOID COEFFICIENT

17-20059

GARIGLIANO NUCLEAR POWER PLANT ANNUAL REPORT, 1965
ENTE NAZIONALE PER L'ENERGIA ELETTRICA, ROME, ITALY
EUR-3260.1 +. 92 PAGES, JANUARY 1967 IN ITALIAN

DURING THE PERIOD APRIL 1965 TO APRIL 1966 THE PLANT OPERATED NORMALLY UP TO 24 SEPTEMBER 1965, WHEN IT WAS SHUT DOWN FOR SCHEDULED MAINTENANCE AND CHANNEL REPLACEMENT. THE PLANT WAS STARTED AGAIN ON 1 MAY 1966. OPERATING DATA FOR THE PERIOD FROM 1 APRIL TO 24 SEPTEMBER 1965 AND FULL INFORMATION ON THE WORK CARRIED OUT THROUGHOUT THE SHUT-DOWN PERIOD ARE PRESENTED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

ITALY + MAINTENANCE AND REPAIR + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE)

17-20060

GARIGLIANO NUCLEAR POWER PLANT ANNUAL REPORT, 1964
ENTE NAZIONALE PER L'ENERGIA ELETTRICA, ROME, ITALY
EUR-2427.1 +. 133 PAGES, MAY, 1965 IN ITALIAN

REPORTS THE OPERATION OF THE GARIGLIANO NUCLEAR POWER PLANT DURING 1964. STARTUP PROGRAM WAS COMPLETED. DATA OBTAINED ON THE OPERATION OF THE POWER PLANT AND THE REACTOR IN POWER PRODUCTION ARE SUMMARIZED. OPERATION OF THE CHEMICAL PLANT, THE PROCESSING OF THE WATER, AND THE MONITORING OF THE INSTALLATION AND PROGRAMING OF THE COMPUTER FOR DATA PROCESSING ARE DESCRIBED.

AVAILABILITY - MICROCARD EDITIONS, INC. (FOR SALE) ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669

ITALY + OPERATIONS REPORT, GENERAL + REACTOR STARTUP TESTING + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE)

17-20061

ELK RIVER REACTOR OPERATIONS ANALYSIS PROGRAM. JAN. 1, 1965--JUNE 30, 1965
ALLIS-CHALMERS MANUFACTURING CO.
ACNP-55602 +. 54 PAGES, FIGURES, TABLES, REFERENCES, JUNE 30, 1965

IN FEB., THE CENTER CONTROL ROD WAS REPLACED BECAUSE THE DUCTILITY OF THE BLADE MATERIAL WAS BELOW TECHNICAL SPECIFICATIONS. AFTER 8250 MWD, THE ROD WAS INSPECTED AND FOUND FREE OF CORROSION OR NOTICEABLE DEFECTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD + *TECHNICAL SPECIFICATIONS + BRITTLE FRACTURE + CONTROL ROD BURNUP + ELK RIVER + FAILURE, SCRAM MECHANISM + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-20062

ELK RIVER REACTOR TWENTY-EIGHTH MONTHLY OPERATING REPORT, FEB. 1965
RURAL COOPERATIVE POWER ASSOCIATION, ELK RIVER, MINN.
COO-651-12 +. 33 PAGES, FEBRUARY 1965, DOCKET NO. 115-1

THE CENTER CONTROL ROD WAS REPLACED WITH A SPARE BECAUSE THE DUCTILITY OF THE BLADE MATERIAL WAS LOWER THAN PERMITTED BY TECHNICAL SPECIFICATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00, \$0.65 MICROFICHE

*CONTROL ROD BURNUP + *TECHNICAL SPECIFICATIONS + BRITTLE FRACTURE + ELK RIVER + FAILURE, SCRAM MECHANISM + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-20063

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20063 *CONTINUED*
ELK RIVER REACTOR TWENTY-NINTH MONTHLY OPERATING REPORT, MARCH 1965
RURAL COOPERATIVE POWER ASSN., ELK RIVER, MINN.
COO-651-13 +. 28 PAGES, MARCH 1965, DOCKET 115-1

A SHUTDOWN WAS REQUIRED FOR MAINTENANCE ON THE TURBINE GOVERNOR. THE CONTROL SYSTEM WAS CAUSING SURGES IN THE SECONDARY SYSTEM THAT COULD HAVE RESULTED IN A SCRAM MAKING THE PLANT UNRELIABLE. A SCRAM RESULTED WHEN A DECADE-CHANGE SWITCH WAS MADE ON THE WRONG FLUX-LEVEL CHANNEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

ELK RIVER + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + TURBINE

17-20064
GARIGLIANO NUCLEAR POWER PLANT. OPERATIONS REPORT FOR THE FIRST QUARTER OF 1967
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME
TID-23922 +. 16 PAGES, FIGURES, MARCH 31, 1967

LEAKS IN THE MAIN CONDENSER AND THE HEATERS KEPT PLANT OUT OF SERVICE 15 DAYS. IN JAN. AND FEB., THE CORE DELTA P CONTINUED TO INCREASE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, EQUIPMENT + FLOW ORIFICE OR RESTRICTION + ITALY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE) + SURFACE FILM DEPOSIT

17-20446 ALSO IN CATEGORY 6
CHRISTOPHER SS + MAHAGIN DE + KOZIOL JJ
BURNABLE POISON ADDITIONS TO UO2. SUMMARY REPORT
COMBUSTION ENGINEERING, INC., WINDSOR, CONN. NUCLEAR DIVISION
CEND-3107-306 + EURAEC-1872 +. 101 PAGES, 41 FIGURES, 24 TABLES, REFERENCES, JULY 11, 1967

GIVES RESULTS OF EXPERIMENTS WHERE TWO 6% UO2 FUEL ELEMENTS CONTAINING 500 PPM B4C (IRRADIATED TO 1000 AND 5000 MWD/MTV AT 17.2 AND 19.8 KW/FT PEAK SPECIFIC POWER) WERE EXAMINED. NO GROSS DIMENSIONAL CHANGES AND NO SIGNIFICANT AXIAL MOVEMENT OF BORON, HOWEVER, A SUBSTANTIAL RADIAL REDISTRIBUTION OCCURRED IN BOTH RODS. OTHER INVESTIGATIONS SHOWED THAT AT HIGH TEMPERATURES, UO2 AND B4C REACTED, PRODUCING UB4 AND CO2.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*DIFFUSION + *FUEL BURNUP + *FUEL ELEMENT + *POISON, BURNABLE + BORON + FUEL SEGREGATION + IRRADIATION TESTING

17-20447 ALSO IN CATEGORY 9
NORRIS EB + IRELAND DR
INSPECTION OF BORON CARBIDE REGULATING AND CONTROL RODS IN THE ELK RIVER REACTOR
SOUTHWEST RESEARCH INST., SAN ANTONIO, TEX.
SWRI-1228P9-14 +. 16 PAGES, 8 FIGURES, REFERENCES, AUGUST 4, 1967

RESULTS OF S.W. RESEARCH INSTITUTE--ELK RIVER INSPECTION SHOWED THAT WHAT APPEARED TO BE HOLES IN THE INCONEL-600 B4C TUBES WERE SHADOWS CAUSED BY A LOOSE DEPOSIT. A SAMPLE OF THE DEPOSIT WAS TAKEN. RODS APPEARED STRUCTURALLY ADEQUATE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD + *EXAMINATION + *SURFACE FILM DEPOSIT + CONTROL ROD BURNUP + ELK RIVER + REACTOR, BOILING WATER

17-20448 ALSO IN CATEGORY 10
FAILURE OF EMERGENCY GENERATOR AT ONSET OF OFF-SITE POWER FAILURE
AEC, DIVISION OF OPERATIONAL SAFETY
2 PAGES, REACTOR SAFETY OPERATING EXPERIENCE 67-15, NOVEMBER 17, 1967

LOAD ON 3-PHASE 50-KW GENERATOR HAD BEEN GRADUALLY INCREASED TO 67 KW BY EQUIPMENT ADDITIONS, CAUSING IT TO REJECT LOAD AT START OF 1.67-HR POWER OUTAGE AT A RESEARCH REACTOR. A THERMAL OVERLOAD SWITCH ON HIGH STATION TEMPERATURE IS PRESUMED TO HAVE SHUT DOWN THE GENERATOR. PREVIOUSLY, SIMULATED AND ACTUAL POWER FAILURES HAD STARTED THE GENERATOR. EACH ADDITION SHOULD DETERMINE IF LOAD IS ESSENTIAL, DOES NOT OVERLOAD GENERATOR (USING STARTING CURRENT), AND DOES NOT INCREASE PROBABILITY OF BUS FAILURE.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20448 *CONTINUED*

*EMERGENCY POWER, ELECTRIC + *FAILURE, EQUIPMENT + *GENERATOR, DIESEL + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, ACTUAL, HUMAN ERROR + REACTOR, RESEARCH

17-20449 ALSO IN CATEGORY 6

POWER EXCURSION DUE TO TURBINE CONTROL-VALVE MISOPERATION AT A BWR

AEC, DIVISION OF OPERATIONAL SAFETY

2 PAGES, REACTOR SAFETY OPERATING EXPERIENCE 67-14, NOVEMBER 17, 1967

POOR ELECTRICAL GROUNDING OF TURBINE SHAFT CAUSED OIL-PUMP BEARING TO ACT AS GROUND, AND BEARING FAILED. PUMP SUPPLIED HYDRAULIC GOVERNOR CONTROL SYSTEM WHICH CONTROLS TURBINE ADMISSION VALVE. A PARTICLE OF BEARING MATERIAL BLOCKED PILCT-VALVE OIL FLOW, RESULTING IN ADMISSION VALVE BEING SLAMMED SHUT. BYPASS VALVE IS NOT DESIGNED TO HANDLE THIS COMPLETE LOAD REJECTION, AND REACTOR WAS SCRAMMED BY HIGH-FLUX TRIP WHEN PRESSURE BUILDUP CAUSED EXCURSION FROM VOID COLLAPSE.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*ACCIDENT, REACTIVITY + *ELECTROSTATIC CHARGE + *TURBINE + *VALVE + ACCIDENT, LOAD REJECTION + INCIDENT, ACTUAL, EQUIPMENT + LUBRICATION + PRESSURE, INTERNAL + PUMP + REACTOR, BOILING WATER

17-20455

BONNET JA + BAYRON LA

BONUS NUCLEAR POWER STATION, RINCON, PUERTO RICO EMERGENCY PLAN, REVISION NO. 3

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN

PRWRA-113 +. 51 PAGES, MAY 1967

EMERGENCY PLAN IS DIVIDED IN TWO PARTS (I-EMERGENCY MANUAL, II-DETAILS OF EMERGENCY OPERATIONS, WITH SUGGESTIONS). THE EMERGENCY MANUAL GIVES PROCEDURES AND ORGANIZATION FOR HANDLING EMERGENCIES, AND COVERS CHAIN OF COMMAND, WHO IS TO BE NOTIFIED IN CASE OF EMERGENCY, DAMAGE-CONTROL STATIONS, EMERGENCY EQUIPMENT, RADIOLOGICAL-ASSISTANCE ORGANIZATIONS, ETC.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*EMERGENCY PROCEDURE + *RADIOLOGICAL ASSISTANCE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + PROCEDURES AND MANUALS + REACTOR, INTERNAL SUPERHEAT

17-20457 ALSO IN CATEGORIES 6 AND 9

RUCY GC + STONE JT

PATHFINDER ATOMIC POWER PLANT. PILE OSCILLATOR ROD ASSEMBLY, AND MEASUREMENTS OF REACTOR TRANSFER FUNCTIONS

ALLIS-CHALMERS MFG. CO., BETHESDA

ACNP-67522 +. 133 PAGES, FIGURES, TABLES, JULY 1967

DESCRIBES SPECIAL OSCILLATOR-ROD ASSEMBLY AND LOW-POWER INITIAL CALIBRATION TESTS. TESTING AT HIGHER POWER LEVELS WAS NOT DONE BECAUSE OF CURTAILMENT OF PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*OSCILLATOR, REACTIVITY + *REACTOR STABILITY + *TEST, PHYSICS + NOISE ANALYSIS + PATHFINDER + REACTOR, INTERNAL SUPERHEAT

17-20458 ALSO IN CATEGORIES 9 AND 15

RUSSFII JA + KNOWLES DJ

DESCRIPTION OF FACILITY RADIATION AND CONTAMINATION ALARM SYSTEMS INSTALLED IN THE BULK SHIELDING FACILITY, BUILDING 3010

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1874 +. 23 PAGES, 8 FIGURES, AUGUST 22, 1967

DESCRIPTION OF SYSTEM TO CONTINUOUSLY AND AUTOMATICALLY MONITOR GAMMA RADIATION AND AIR CONTAMINATION THROUGHOUT THE FACILITY. ALARM SOUNDS FOR CAUTION LEVEL, AND A SECOND WARNING IS GIVEN WHEN HIGH RADIATION LEVEL IS DETECTED. THE BUILDING EVACUATION AND CONTAINMENT SYSTEMS OPERATE AUTOMATICALLY WHEN TWO OR MORE MONITORS OR TWO OR MORE AIR MONITORS DETECT A HIGH RADIATION LEVEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*MONITOR, RADIATION, AIR + *MONITOR, RADIATION, EMERGENCY + BSR (BULK SHIELDING REACTOR)

17-20464

PIQUA NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 31, NOVEMBER 1965

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20464 *CONTINUED*
PIQUA NUCLEAR POWER FACILITY, OHIO
COO-652-21 +. 26 PAGES, NOVEMBER 1965

TEN FAILED TUBES IN THE DECAY-HEAT-REMOVAL SECONDARY EXCHANGER WERE PLUGGED. FAILURES WERE ATTRIBUTED TO WATER HAMMER NEAR THE TUBE SHEET. SEVEN CONTROL RODS INDICATED COIL OR CIRCUIT FAILURES BUT REMAINED OPERABLE. MANUAL FLOW CONTROL IN THE PRESSURIZATION AND DEGASIFICATION SYSTEM WAS REQUIRED BECAUSE OF CONTROLLER FAILURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*FAILURE, INSTRUMENT + *FAILURE, SCRAM MECHANISM + *FAILURE, TUBING + CONTROL ROD + HEAT EXCHANGER +
OPERATIONS REPORT, GENERAL + PIQUA + REACTOR, ORGANIC COOLED

17-20465
HOWARD CL
DEVELOPMENT PROGRAM ON THE GARIGLIANO NUCLEAR REACTOR. QUARTERLY REPORT NO. 18
GENERAL ELECTRIC CO., SAN JOSE
GEAP-5473 + EURAEC-1675 +. 100 PAGES, REFERENCES, APRIL 1967

MAJORITY OF REPORT DEVOTED TO GRAPHIC COMPARISON OF EXPERIMENTAL DATA OBTAINED FROM STABILITY
TESTS AND TRANSFER-FUNCTION CALCULATIONS USING TWO MODELS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*REACTOR STABILITY + *TRANSFER FUNCTION + COMPARISON, THEORY AND EXPERIENCE + ITALY +
REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + SENN (SOCIETA ELETTRONUCLEARE NAZIONALE)

17-20466
BIRON RD
EXPERIMENTS AND TARGET-GAS STORAGE AT THE CEA AT THE TIME OF THE JULY 5, 1965 ACCIDENT AND FIRE
MASS. INST. OF TECHNOLOGY, CAMBRIDGE
MIT-2098-259 + CONF-660605-9 +. 14 PAGES, MAY 18, 1966, FROM CRYOGENIC ENGINEERING CONFERENCE, BOULDER,
COLO.

A FIRE AT THE CAMBRIDGE ELECTRON ACCELERATOR RESULTED WHEN TWO BERYLLIUM BEAMPORTS ON A BUBBLE
CHAMBER FRACTURED DUE TO STRESSES INDUCED BY THERMAL CONTRACTION FORCES AND INTERNAL
PRESSURE. POSSIBLY SURFACE IMPERFECTIONS FROM FABRICATION CONTRIBUTED. FRACTURE ENERGY FROM
THE OUTER BERYLLIUM WINDOW WAS THE SOURCE OF IGNITION. AFTER THE INITIAL FIRE, TWO
EXPLOSIONS OCCURRED. IGNITION OF GAS FROM 6 PROPANE CYLINDERS RESULTED IN AN INTENSE FIRE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*ACCELERATOR + *FIRE + EXPLOSION + FAILURE, FABRICATION ERROR + FAILURE, FATIGUE + FAILURE, SEQUENTIAL +
INCIDENT, ACTUAL, NONREACTOR + STRESS + THERMAL MECHANICAL EFFECT

17-20473
EVESR-NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT ELEVENTH QUARTERLY REPORT. DECEMBER 1964--FEBRUARY 1965
GENERAL ELECTRIC, SAN JOSE
GEAP-4810 +. 112 PAGES, FEBRUARY 1965

A TUBE FAILURE IN THE GAS-FIRED BOILER RESULTED IN A 10-DAY SHUTDOWN. ACTIVITY LEVELS IN THE
COOLING SYSTEM ARE SLIGHTLY HIGHER THAN PREVIOUSLY BUT STILL NOT LARGE ENOUGH TO INDICATE A
FAILURE. A STEAM-FLOW BLOCKAGE OCCURRED ON AN INSTRUMENTED FUEL BUNDLE, AND ALLOWABLE CLAD
TEMPERATURES WERE EXCEEDED FOR ABOUT 5 MIN. NO ADVERSE EFFECT. THE BLOCKAGE OCCURRED AS A
RESULT OF UNDETECTED REFLOODING OF THE ELEMENT STEAM PASSAGES DURING STARTUP.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*FLOODING COEFFICIENT + *INCIDENT, ACTUAL, HUMAN ERROR + FAILURE, TUBING + FLOW BLOCKAGE +
OPERATING EXPERIENCE + OPERATIONS REPORT, GENERAL + REACTOR, INTERNAL SUPERHEAT +
RESEARCH AND DEVELOPMENT PROGRAM + VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA)

17-20474 ALSO IN CATEGORY 7
EVESR-NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT THIRTEENTH QUARTERLY REPORT. JUNE--AUGUST 1965
GENERAL ELECTRIC, SAN JOSE
GEAP-4941 +. 125 PAGES, SEPTEMBER 1965

OPERATION WITH A DEFECTIVE FUEL BUNDLE SHOWED THAT THE RELEASE OF FISSION PRODUCTS WAS HIGHLY
DEPENDENT ON BOTH REACTOR POWER AND EXIT STEAM TEMPERATURE. RADIATION LEVELS WHICH OCCURRED
THROUGHOUT THE SYSTEM ARE GIVEN. I-131 RELEASE FROM THE CORE WAS ABOUT 10 MICROCURIES/SEC.
CHARCOAL FILTERS REDUCED THIS A FACTOR OF 1000 TO 2000. A TEST SHOWED THAT ALTHOUGH
CONSIDERABLE WATER PASSED THROUGH THE CHARCOAL FILTER, NO RELEASE OF IODINE INTO THE AIR
PASSING THROUGH THE FILTER OCCURRED.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20474 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FUEL ELEMENT + *FILTER EFFICIENCY + *FISSION PRODUCT, IODINE + CHARCOAL + FILTER + FISSIION PRODUCT RELEASE, GENERAL + OPERATIONS REPORT, GENERAL + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM + TEST, FILTER + VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA) + WATER VAPOR

17-20475

ROOF RR

EVESR NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT. QUARTERLY REPORT NO. 15. DECEMBER 1965--FEBRUARY 1966
GENERAL ELECTRIC, SAN JOSE
GEAP-5125 +. 109 PAGES, FIGURES, TABLES, MARCH 1966

QUARTERLY PROGRESS REPORT. TOPICS INCLUDE IRRADIATION TESTING OF FUEL, FUEL ACTIVITY RELEASE AND COOLANT CHEMISTRY, HEAT-TRANSFER TESTS, FUEL FABRICATION, CLADDING-MATERIALS IRRADIATION TESTING, AND CORROSION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CLAD + COOLANT CHEMISTRY + CORROSION + FABRICATION + FUEL ELEMENT + HEAT TRANSFER + IRRADIATION TESTING + RADIOACTIVITY, RELEASE + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM + VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA)

17-20477

ROFF RR

EVESR NUCLEAR SUPERHEAT FUEL DEVELOPMENT PROJECT. SEVENTEENTH QUARTERLY REPORT. JUNE-AUGUST 1966
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA
GEAP-5269 +. 76 PAGES, REFERENCES, SEPTEMBER 1966

QUARTERLY PROGRESS REPORT. TOPICS INCLUDE IRRADIATION TESTING OF SUPERHEAT FUEL, PHYSICS TESTS, FUEL ACTIVITY RELEASE AND COOLANT CHEMISTRY, AND HEAT-TRANSFER TESTS. A TECHNICAL-SPECIFICATION CHANGE TO PERMIT OPERATION AT HIGHER POWER DENSITY WAS OBTAINED. PLANT MODIFICATIONS FOR THE CHANGE ARE SUMMARIZED, AND SAFETY ASPECTS ARE REVIEWED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

COOLANT CHEMISTRY + FISSIION PRODUCT RELEASE, GENERAL + HEAT TRANSFER + IRRADIATION TESTING + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM + SAFETY ANALYSIS + TECHNICAL SPECIFICATIONS + TEST, PHYSICS + VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA)

17-20480

HOWARD CL + DUNCAN RN

HIGH POWER DENSITY DEVELOPMENT PROJECT. QUARTERLY PROGRESS REPORTS NO. 25 AND NO. 26, JUNE 1966-NOVEMBER 1966
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA
GEAP-5405 +. 23 PAGES, REFERENCES, DECEMBER 1966

SUMMARIZES RESULTS OF VISUAL INSPECTION OF SEVERAL DIFFERENT TYPES OF DEVELOPMENTAL FUEL RODS WHICH FAILED AT BIG ROCK POINT. INCOLOY-ZIRCALOY-, AND STAINLESS-STEEL-CLAD RODS ARE INCLUDED. SURFACE FILM DEPOSITS ARE MENTIONED. INCOLOY FAILURES WERE INTERGRANULAR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*EXAMINATION + *FAILURE, CLADDING + *FAILURE, FUEL ELEMENT + BIG ROCK POINT + INCONEL + REACTOR, BOILING WATER + STEEL, STAINLESS + SURFACE FILM DEPOSIT + ZIRCALOY

17-20481

ALSO IN CATEGORY 5

ARLT WH + BARTH NH + LEES EA + LYONS ME + WEISS DT
POWER REACTOR HIGH PERFORMANCE UO2 PROGRAM. PROGRESS REPORT NO. 1, JULY-OCTOBER 1966
GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA
GEAP-5402 + EURAEC-1820 +. 51 PAGES, REFERENCES, DECEMBER 1966

PRESENTS THE INITIAL DESIGN CRITERIA AND PHYSICS ANALYSIS FOR THE PROGRAM IN WHICH FUEL RODS WILL BE IRRADIATED TO VARYING DEGREES OF CENTRAL MELTING IN BIG ROCK POINT. TWO ELEMENTS WILL OPERATE AT INCIPIENT MELTING, AND FOUR WITH MODERATE MELTING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*CENTERLINE MELTING + *RESEARCH AND DEVELOPMENT PROGRAM + BIG ROCK POINT + DESIGN CRITERIA + EURATOM + FUEL ELEMENT + REACTOR, BOILING WATER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20483

U OF WISCONSIN AMENDMENT 8 - POWER UPGRATING TO 1 MW AND CONVERSION TO TRIGA
DIVISION OF REACTOR LICENSING, AEC
16 PAGES, 2 TABLES, NOVEMBER 13, 1967, DOCKET 50-156

DRL ALLOWS 1 MW STEADY-STATE OPERATION AND CONVERSION TO TRIGA CORE. OLD CONTROL SYSTEM HAS BEEN MODIFIED. CORE IS A SQUARE ARRAY OF TRIGA ELEMENTS. MAXIMUM COLD, CLEAN, EXCESS REACTIVITY (WITH SM POISONING AND EXPERIMENTS) IS 4.9%. MAXIMUM TRANSIENT ROD WORTH IS 2.9%. REACTOR FACILITY SHALL BE UNDER DIRECT CONTROL OF THE REACTOR DIRECTOR OR HIS DESIGNATED SRO.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*POWER UPGRATING + REACTOR, RESEARCH + STAFFING, TRAINING, QUALIFICATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20484

U OF WISCONSIN PROPOSED AMENDMENT 8 - POWER UPGRATING TO 1 MW AND CONVERSION TO TRIGA
DIVISION OF REACTOR LICENSING, AEC
27 PAGES, TABLES, OCTOBER 9, 1967, DOCKET 50-156

DRL NOTICE OF PROPOSED ISSUANCE OF CONSTRUCTION PERMIT AND AMENDED FACILITY LICENSE FOR TRIGA CONVERSION. CORE IS A SQUARE ARRAY WITH AN ALUMINUM BOX TO CHANNEL COOLING WATER. MINOR MODIFICATIONS WERE MADE TO THE I AND C SYSTEM. EXCESS REACTIVITY IS 4.9% WITH EXPERIMENTS IN PLACE. MAXIMUM EXCESS REACTIVITY FOR ALL EXPERIMENTS IS 2%. MOST SEVERE REACTIVITY ACCIDENT ANALYZED IS WITHDRAWAL OF CONTROL-SAFETY AND REGULATING BLADES AND PULSE ROD - RESULTS IN PEAK FUEL TEMPERATURE OF ABOUT 860 C.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

POWER UPGRATING + REACTIVITY, EXCESS + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20485

AFRRI REPORTS FACILITY MODIFICATIONS AND FSAR REVISIONS
U. S. AIR FORCE
100 PAGES, FIGURES, TABLES, OCTOBER 25, 1967, DOCKET 50-170

INCLUDED ARE - (1) UPDATING OF FSAR, (2) DESCRIPTION OF TESTS AND EXPERIMENTS, (3) ORGANIZATIONAL INFORMATION, (4) REVIEW PROCEDURES, (5) RADIOBIOLOGICAL SAFETY PROCEDURES, (6) ROUTINE OPERATING PROCEDURES AND EMERGENCY PROCEDURES

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*EMERGENCY PROCEDURE + *PROCEDURES AND MANUALS + *STAFFING, TRAINING, QUALIFICATION + OPERATIONS REPORT, GENERAL + REACTOR, RESEARCH + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20486

ALGO IN CATEGORY 2
PROOF TEST FACILITY AMENDMENT 2 - MODIFICATION OF TECH. SPEC.
UNITED NUCLEAR CORPORATION, ELMSFORD, NEW YORK
3 PAGES, OCTOBER 30, 1967, DOCKET 50-290

AMENDMENT 2 CONTAINS MODIFICATIONS TO TECH. SPEC. FIRST DRAFT OF 30 AUG. 1967 AND CONCERNS SECTION 11 (OPERATIONS) AND A CHANGE IN SCRAM CIRCUITS (MOVEMENT OF MANUAL SCRAM CONTACTS FROM RELAY-COIL POWER LINES TO MAIN-CONTROL POWER LINE).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CRITICAL ASSEMBLY FACILITY + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR SAFETY SYSTEM + TECHNICAL SPECIFICATIONS

17-20487

U OF ILL REPORTS OF PARTIAL DISMANTLING OF REACTOR AND MODIFICATION TO BE MADE.
UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS
5 PAGES, OCTOBER 26, 1967, DOCKET 50-151

NEW FUEL FOR REACTOR IS TO COME FROM G.A. MICHIGAN STATE U IS GETTING THE OLD CORE. THIS REPORT COVERS DISMANTLING, REMOVAL AND STORAGE OF OLD CORE, AND ITS SHIPMENT TO MSU.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR DECOMMISSIONING EXPERIENCE + FUEL STORAGE + REACTOR, RESEARCH + SHIPPING CONTAINER + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20488

LOCKHEED-GEORGIA PROPOSED CHANGE - COOLANT CHEMISTRY, VENTILATION SYSTEM, ETC.
LOCKHEED-GEORGIA COMPANY, MARIETTA, GEORGIA
3 PAGES, OCTOBER 17, 1967, DOCKET 50-172

PROPOSED CHANGES INCLUDE - (1) COOLANT TO BE SAMPLED DURING REACTOR SHUTDOWN TO VERIFY GROSS ACTIVITY LIMITS. (2) DELETES REQUIREMENT FOR POSITIVE PRESSURE DIFFERENCE OF AT LEAST 1 IN. OF WATER. DIFFERENCE WILL BE ABOUT 0.1 IN. (3) REACTOR SAFETY COMMITTEE WILL MEET 4 TIMES A YEAR AND AT LEAST ONCE EVERY 4 MONTHS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*COOLANT CHEMISTRY + *VENTILATION SYSTEM + REACTOR, POOL TYPE + REACTOR, TRAINING + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + TECHNICAL SPECIFICATIONS

17-20489

NUMEC SUPPLIES ADDITIONAL INFORMATION ON PENN. STATE U. REACTOR TRANSFER
NUCLEAR MATERIALS AND EQUIPMENT CORPORATION, APOLLO, PENNSYLVANIA
3 PAGES, OCTOBER 24, 1967, DOCKET 50-310

NUMEC IS TO POSSESS BUT NOT OPERATE THE CURTISS-WRIGHT QUEHANNA REACTOR, WHICH WILL BE OWNED BY THE PENN. DEPT. OF WATERS AND FORESTS. CORE HAS BEEN SENT TO SAVANNAH RIVER. REMAINING FUEL ELEMENTS ARE IN FUEL-STORAGE VAULT. FINANCIAL RESPONSIBILITY IS DEMONSTRATED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*LICENSING STATUS OF NUCLEAR PROJECTS + FUEL STORAGE + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-20490

UCLA SUPPLIES ADDITIONAL INFORMATION ON SHORT TIME 500 KW OPERATION
UNIVERSITY OF CALIFORNIA, LOS ANGELES
1 PAGE, OCTOBER 24, 1967, DOCKET 50-142

UCLA WISHES TO OPERATE AT 500 KW FOR SHORT TIMES. IN ANSWER TO AEC QUESTIONS, UCLA WILL ADD DUMP-WATER SCRAMS AT 45 GPM AND POWER LEVELS OF 50 AND 100 KW. REACTOR WILL BE SHUT DOWN WHEN 15 MIN HAVE ELAPSED FOR EACH POWER LEVEL GREATER THAN 100 KW AND/OR IF HOTTEST FUEL TEMPERATURE REACHES 600 F.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*POWER UPGRADING + ARGONAUT (ARGONNE NUC ASSEMBLY, UNIV TRAINING) + REACTOR, GRAPHITE MODERATED + REACTOR, RESEARCH + REACTOR, WATER + TECHNICAL SPECIFICATIONS

17-20491

SAN ONOFRE PROVISIONAL OPERATING LICENSE ISSUED
DIVISION OF REACTOR LICENSING, AEC
48 PAGES, TABLES, FIGURES, MARCH 27, 1967, DOCKET 50-206

ALSO INCLUDES TECH. SPEC. AND SCHEDULE OF TRANSFERS OF SPECIAL NUCLEAR MATERIAL. MAXIMUM POWER IS 1347 MW. THIS IS THE FIRST TECH. SPEC. IN THE CURRENT FORMAT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*TECHNICAL SPECIFICATIONS + REACTOR, PRESSURIZED WATER + SAN ONOFRE

17-20492

FAST CHANGE 4 - REDUCTION ON NUMBER VISITORS ALLOWED ON BOARD
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, SEPTEMBER 12, 1966, DOCKET NO. 50-238

DRL ALLOWS REDUCTION FROM 750 TO 150 SINCE THE SAVANNAH IS TO BE A CARGO VESSEL. FAST BELIEVES THAT THESE VISITORS CAN BE DISEMBARKED IN 5 MIN (30 MIN IS ALLOWED FOR NONESSENTIAL PERSONNEL).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY PROCEDURE + N S SAVANNAH + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-20493

N.S. SAVANNAH PORT OPERATING PLAN FOR PHILADELPHIA
FIRST ATOMIC SHIP TRANSPORT INC.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20493 *CONTINUED*
FAST 100 +. 35 PAGES, 6 FIGURES, 8 TABLES, JULY 17, 1967, DOCKET 50-238

REVISION OF PLAN PROVIDING ADDITIONAL MOORING BERTHS AT NORTHERN METALS TERMINAL. A COMPLETE RESURVEY (MAY 1967) OF THE NORTHERN METALS WAS MADE AND POPULATION ZONES REVISED. PLAN CONTAINS INFORMATION OF METEOROLOGICAL CONDITIONS, RADIOLOGICAL ASSISTANCE, AND BERTH EVALUATION FOR NORTHERN METALS, PIER 405, GIRARD POINT, AND RAINBOW PIERS. SECTION 9 IS EMERGENCY PLAN.

N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + SITING, REACTOR + TECHNICAL SPECIFICATIONS

17-20494
REVISION TO N S SAVANNAH PORT OPERATING PLANT--SAVANNAH, GEORGIA
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, JULY 18, 1967, DOCKET 50-238

A RAILROAD BRIDGE LIFT-SPAN IS BEING INSTALLED IN SAVANNAH HARBOR, CREATING AN OBSTRUCTION BETWEEN THE GARDEN CITY TERMINAL AND THE OCEAN. BRIDGE CAN BE OPERATED ELECTRICALLY OR BY GASOLINE ENGINE WITHIN 15 MIN. REQUESTS TO OPEN BRIDGE ARE MADE BY TELEPHONE OR BY 4 WHISTLE BLASTS. SINCE 1952, BRIDGE HAS FAILED TO OPERATE ONLY 3 TIMES, WITH THE LONGEST DELAY NO MORE THAN 30 MIN. ARRANGEMENTS WERE MADE FOR AN EMERGENCY ANCHORAGE IN THE KINGS ISLAND TURNING BASIN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

EMERGENCY PROCEDURE + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + SITING, REACTOR + TECHNICAL SPECIFICATIONS

17-20495
NS SAVANNAH CHANGE 7--REDUCTION OF LEAK RATE TEST INTERVAL TO ANNUALLY
DIVISION OF REACTOR LICENSING, AEC
4 PAGES, AUGUST 2, 1967, DOCKET 50-238

DRL ALLOWS CHANGE WITH PROVISION FOR A RETURN TO QUARTERLY TESTING IF RESULT OF A LEAK-RATE TEST IS ABOVE 0.9% FULL VOLUME/DAY. LEAK RATES HAVE AVERAGED 0.69%, WITH A MAXIMUM OF 0.85 VS THE 1.20 ALLOWABLE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TEST INTERVAL + *TEST, LEAK RATE + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS.

17-20496
FAST SUPPLIES ADDITIONAL INFORMATION OF SAVANNAH, GA. PORT OPERATING PLAN
FIRST ATOMIC SHIP TRANSPORT, INC.
1 PAGE, AUGUST 10, 1967, DOCKET 50-238

(LETTER IN RESPONSE TO AEC QUESTIONS) 24-HR-ZONE RADIUS FOR 0.68 FISSION-PRODUCT-INVENTORY FRACTION IS 1580 FT. WITHIN THIS RADIUS FROM TEMPORARY ANCHORAGE ARE MARSHLAND, RIVER, AND AN UNINHABITED PORTION OF WHITEHALL INDUSTRIAL PLANTATION. THERE ARE NO RESIDENTS OR WORKERS WITHIN THIS RADIUS. 30-DAY-ZONE RADIUS IS 2600 FT. WITHIN THIS RADIUS IS A SMALL PORTION OF GARDEN CITY TERMINAL (1000 WORKERS OR LESS, NO RESIDENTS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*AIRBORNE RELEASE + *DOSE + *EMERGENCY PROCEDURE + *SITING, REACTOR + N S SAVANNAH + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-20497
FAST SUPPLIES ADDITIONAL INFORMATION ON BRUNSWICK, GA. PORT OPERATING PLAN
FIRST ATOMIC SHIP TRANSPORT INC.
1 PAGE, AUGUST 11, 1967, DOCKET NO. 50-238

(LETTER IN RESPONSE TO AEC QUESTION) 24-HR-ZONE RADIUS FOR 0.66 FISSION-PRODUCT-INVENTORY FRACTION IS 1550 FT. WITHIN THIS RADIUS FROM PROPOSED TEMPORARY ANCHORAGE IS ONLY RIVER. 30-DAY-ZONE RADIUS IS 2550 FT. WITHIN THIS RADIUS, THERE IS ONLY UNINHABITED RIVER AND MARSH LAND.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

N S SAVANNAH + REACTOR, PRESSURIZED WATER + SITING, REACTOR + TECHNICAL SPECIFICATIONS

17-20498
N.S. SAVANNAH PORT OPERATING PLAN FOR NAHA, OKINAWA
FIRST ATOMIC SHIP TRANSPORT INC.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20498 *CONTINUED*
FAST-158 +. 24 PAGES, 3 FIGURES, 3 TABLES, JULY 1967, DOCKET 50-238

N S SAVANNAH WILL USE EITHER THE CIVILIAN OR MILITARY FACILITIES IN THE HARBOR. CHANNEL FROM PILOT STATION TO BERTH IS AT LEAST 250 FT WIDE AND 31 FT DEEP, WITH 4-FT TIDES. ARMY TUGS WILL BE USED. LIGHT REPAIRS CAN BE MADE BY THE LOCAL ARMY REPAIR SECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + SITING, REACTOR + TECHNICAL SPECIFICATIONS

17-20499 ALSO IN CATEGORIES 12 AND 7
FAST REPORT ON PROGRESS OF ONBOARD FILTER TESTING PROGRAM
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, SEPTEMBER 15, 1967, DOCKET NO. 50-238

FILTERS ARE BEING TESTED BY WESTINGHOUSE TO DETERMINE CAUSE OF FAILURE. THE FRECN-12 TEST WAS RUN AT WESTINGHOUSE BEFORE TRIED ABOARD SHIP. DIFFICULTIES DISCOVERED ARE BEING WORKED OUT SO THAT TESTS MAY BE MADE ON NEXT TRIP. FAST WILL NEXT REPORT ON THIS PROGRAM MARCH 15, 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FILTER + *TESTING + N S SAVANNAH + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

17-20500
N S SAVANNAH PROPOSED CHANGE 16--CONTROL ROD DROP TIME SPECIFICATION
FIRST ATOMIC SHIP TRANSPORT INC.
3 PAGES, OCTOBER 6, 1967, DOCKET NO. 50-238

REQUESTS TEST BE ANNUAL (VS SEMIANNUAL). IF TIME TO 2/3 INSERTION WAS MORE THAN 1.1 SEC., INTERVAL WOULD RETURN TO SEMIANNUAL UNTIL TWO CONSECUTIVE TESTS RESULTED IN ALL RODS DROPPING FASTER THAN THE 1.1 SEC. ALLOWABLE LIMIT IS 1.5 SEC. PAST TESTS SHOWED AN AVERAGE 2/3 DROP TIME OF ABOUT 0.49 AND A MAXIMUM OF 0.555 SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD SCRAM MECHANISM + *RESPONSE TIME + *TEST INTERVAL + N S SAVANNAH + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-20501
FAST RIVER TRANSIT OF N S SAVANNAH
FIRST ATOMIC SHIP TRANSPORT INC.
FAST-162 +. 6 PAGES, 1 FIGURE, NOVEMBER 2, 1967, DOCKET NO. 50-238

N.S. SAVANNAH REQUEST TO CHANGE ROUTE FROM N.Y. TO LONG ISLAND BY GOING THROUGH THE EAST RIVER. THIS CUTS TRANSIT TIME. THIS DOCUMENT COVERS TRANSIT SERVICES (COAST GUARD, TUG SERVICE, ETC.), ROUTE DESCRIPTION AND EVALUATION, REMOTE ANCHORAGE, AND EMERGENCY PLAN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*TECHNICAL SPECIFICATIONS + EMERGENCY PROCEDURE + N S SAVANNAH + REACTOR, PRESSURIZED WATER + SITING, REACTOR

17-20505
LACROSSE CHANGE 1 - INSTALLATION OF HEAD AND 1 MWT OPERATION
DIVISION OF REACTOR LICENSING, AEC
1 PAGE, NOVEMBER 15, 1967, DOCKET 115-5

DRL ALLOWS INSTALLATION OF VESSEL HEAD AND OPERATION IN EXCESS OF 1 MWT. DRL SAYS THAT A TECH.-SPEC. CHANGE IS NOT NECESSARY TO COVER PIPING-SIZE CHANGES (LTR, 26 OCT. 1967) IN ALTERNATE CORE SPRAY SYSTEM SINCE 900 GPM IS MAINTAINED AND TESTING SHOWS THAT SYSTEM OPERATES IN ACCORDANCE WITH PRESENT TECH. SPECS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CORE SPRAY + *MODIFICATION, SYSTEM OR EQUIPMENT + *PIPING + *PRESSURE VESSEL + *REDUNDANCE + *TEST, PREOPERATIONAL + LACROSSE + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-20506
DRL APPROVES LICENSE TRANSFER FROM PENN STATE UNIV. TO PENN. DEPT. OF FORESTS AND WATERS
DIVISION OF REACTOR LICENSING, AEC
10 PAGES, NOVEMBER 9, 1967, DOCKET 50-174 AND 50-310

DRL APPROVES TRANSFER OF CURTISS-WRIGHT NUCLEAR RESEARCH LAB TITLE TO PENN. DEPT. OF FORESTS AND WATERS. NUMEC WILL MAINTAIN THE REACTOR FACILITY AT THIS LOCATION IN ITS PRESENT

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20506 *CONTINUED*
SHUT-DOWN CONDITION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*LICENSING STATUS OF NUCLEAR PROJECTS + REACTOR, POOL TYPE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-20507
PLUM BROOK SUPPLIES ADDITIONAL INFORMATION FOR CHANGE REPORT 33.
LEWIS RESEARCH CENTER, SANDUSKY, OHIO
1 PAGE, NOVEMBER 2, 1967, DOCKET 50-30

ANSWER TO 2 QUESTIONS ON OCT. 26, 1967 - (1) WILL LEAK CHECK THE CODE WELD BY USE OF A MASS-SPECTROMETER HELIUM LEAK DETECTOR, AND (2) PBRF SAFEGUARDS COMMITTEE REVIEWED THIS PROPOSED CHANGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONTAINMENT PENETRATION, ELECTRICAL + *WELDS + EXAMINATION + PLUM BROOK + PRESSURE VESSEL + REACTOR, TEST + TECHNICAL SPECIFICATIONS

17-20508
PLUM BROOK REPORT OF MODIFICATIONS AND EXPERIMENTS FOR 9/7/67 TO 12/10/67
LEWIS RESEARCH CENTER, SANDUSKY, OHIO
4 PAGES, NOVEMBER 3, 1967, DOCKET 50-30

MODIFICATIONS INCLUDE INSTALLATION OF FLOW-LIMITING ORIFICE DOWNSTREAM OF THE REACTOR-TANK DRAIN VALVE IN EMERGENCY COOLING SYSTEM, 2 MODIFICATIONS OF DECAY-HEAT-REMOVAL SYSTEM, PRIMARY-COOLING-WATER PUMP-CONTROL SYSTEM. TWO PROCESS-WATER-SYSTEM EMERGENCY VALVES WERE CHANGED FROM GATE VALVES TO BALL VALVES, AND 2 ONE-WAY RUPTURE DISKS BETWEEN THE PROCESS AND DEIONIZED WATER SYSTEMS WERE REMOVED (THEY HAD RUPTURED SEVERAL TIMES).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*MODIFICATION, SYSTEM OR EQUIPMENT + *VALVE + EMERGENCY COOLING CONSIDERATIONS + MAIN COOLING SYSTEM + OPERATIONS SUMMARY FOR AEC + PLUM BROOK + REACTOR, TEST

17-20509
AFRR1 AMENDMENT 12 - INSTALLATION OF A BEAM TUBE
DIVISION OF REACTOR LICENSING, AEC
7 PAGES, NOVEMBER 6, 1967, DOCKET 50-170

ORL ALLOWS INSTALLATION OF A HOLLOW BEAM TUBE WHICH WILL PERMIT A SMALL NEUTRON AND GAMMA BEAM FOR CALIBRATING RADIATION DETECTORS AND FOR OTHER STUDIES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BEAM HOLE + INSTRUMENTATION CALIBRATION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.).

17-20510 ALSO IN CATEGORY 9
U OF MICHIGAN SUPPLIES ADDITIONAL INFORMATION IN SUPPORT OF LICENSE AMENDMENT
UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN
4 PAGES, OCTOBER 31, 1967, DOCKET 50-2

INFORMATION SUPPLEMENTS APPLICATION OF 3 OCT. 67. CITES REPORTS SWRI-1228-9-9 ON ELK RIVER CONTROL-ROD INSPECTION, AND ACNP 63006 ON PATHFINDER 2% BORON/SS CONTROL-ROD-BURNUP LIMITS. (ELK RIVER) - AT 1.7 X 10(20TH), REGULATING ROD SHOWED NO DEFECTS. AT 3.4 X 10(20TH), SEVERE CRACKING WAS FOUND. (PATHFINDER) - STUDY CONCLUSIONS WERE THAT RODS COULD SUSTAIN AT LEAST 1.8 X 10(20TH) NVT (THERMAL), BASED ON LIMITATIONS ON SWELLING. PRESENT U OF MICH. RODS ARE 1.5% AND HAVE A MAXIMUM BURNUP OF 1.7 X 10(20TH).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD BURNUP + BORON + REACTOR, RESEARCH + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

17-20511
ORL ALLOWS TRANSFER OF CURTIS-WRIGHT RESEARCH LABORATORY
DIVISION OF REACTOR LICENSING, AEC
3 PAGES, NOVEMBER 9, 1967, DOCKET 50-174

NUMEC AND PENN. DEPT. OF FORESTS AND WATERS TAKE TITLE TO POSSESS BUT NOT TO OPERATE THE FACILITY FROM PENN STATE UNIVERSITY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20511 *CONTINUED*
REACTOR, POOL TYPE + REACTOR, RESEARCH

17-20512
NOTICE OF PROPOSED ISSUANCE OF PROOF TEST FACILITY LICENSE.
DIVISION OF REACTOR LICENSING, AEC
20 PAGES, 1 TABLE, NOVEMBER 8, 1967, DOCKET 50-290

PROOF-TEST FACILITY OF UNITED NUCLEAR IS LOCATED AT PAWLING, N. Y. MAXIMUM POWER IS 100 WATTS. 1.1% EXCESS REACTIVITY. FUEL WILL BE UO2 ENRICHED AT LEAST 5%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CRITICAL ASSEMBLY FACILITY + FUEL ELEMENT + REACTOR DESCRIPTION + REACTOR, TEST + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-20513 ALSO IN CATEGORY 10
INDIAN POINT 1 CHANGE 32
DIVISION OF REACTOR LICENSING, AEC
1 PAGE, NOVEMBER 8, 1967, DOCKET 50-3

DRL ALLOWS CHANGE IN SITE DESCRIPTION FROM 250 TO 235 ACRES TO REFLECT CEDING OF A PORTION OF THE NW CORNER TO THE VILLAGE OF BUCHANAN FOR PARK AND RECREATIONAL PURPOSES. PARK BOUNDARY IS 2100 FT, VS 1600 FT FOR EXCLUSION RADIUS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*SITING, REACTOR + INDIAN POINT 1 + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-20514
WORCESTER POLY AMENDMENT 4 - POWER UPGRATING TO 10 KW
DIVISION OF REACTOR LICENSING, AEC
16 PAGES, 1 TABLE, NOVEMBER 14, 1967, DOCKET 50-134

DRL ALSO ALLOWS TWO ADDITIONAL FUEL ELEMENTS AND CERTAIN MOVABLE EXPERIMENTS. INCLUDED ARE COMPLETE LICENSE AND TECH. SPECS. AS AMENDED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*POWER UPGRATING + IRRADIATION FACILITY + REACTOR, POOL TYPE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-20516
DRL ALLOWS DISMANTLING OF HALLAM
DIVISION OF REACTOR LICENSING, AEC
9 PAGES, NOVEMBER 3, 1967, DOCKET 115-3

DRL AUTHORIZES CONSUMERS PUBLIC POWER TO DISMANTLE AND DECONTAMINATE THE HALLAM REACTOR FACILITY. HALLAM NUCLEAR POWER FACILITY RETIREMENT PLAN (NAA-SR-MEMO-12340, REVISED 5/20/67) IS TO BE FOLLOWED. ABOUT 310,000 CURIES WILL BE ENTOMBED IN THE BELOW-GRADE PART OF THE STRUCTURE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*REACTOR DECOMMISSIONING EXPERIENCE + HALLAM + REACTOR, GRAPHITE MODERATED + REACTOR, LIQUID METAL COOLED + SAFETY EVALUATION

17-20518
PEACH BOTTOM MONTHLY OPERATIONS REPORT NO. 19. PEACH BOTTOM ATOMIC POWER STATION. SEPTEMBER 1967
PHILADELPHIA ELECTRIC CO., PA.
27 PAGES, SEPTEMBER 1967, DOCKET NO. 50-171

REPAIRS MADE ON STEAM GENERATOR. A CRACKED WELD AND PINHOLE LEAKS THROUGH WELDS WERE ATTRIBUTED TO POOR QUALITY CONTROL DURING FABRICATION. WHILE PRESSURIZING THE PRIMARY SYSTEM THROUGH THE CHEMICAL CLEANUP SYSTEM, TO REMOVE CHEMICAL CONTAMINANTS, THE OXIDIZER PREHEATER IN THE CLEANUP SYSTEM RUPTURED. THIS FAILURE WAS CAUSED BY OVERHEATING RESULTING FROM REDUCED HELIUM FLOW THROUGH THE HEATER. A NEW PREHEATER SHELL IS BEING MADE, WITH PROVISIONS FOR TEMPERATURE MONITORS. OTHER PLANT MAINTENANCE IS DISCUSSED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, EQUIPMENT + *MAINTENANCE AND REPAIR + COOLANT PURIFICATION SYSTEM + FAILURE, FABRICATION ERROR + OPERATIONS REPORT, GENERAL + PEACH BOTTOM 1 + QUALITY CONTROL + REACTOR, HIGH TEMP. GAS + STEAM GENERATOR + WELDS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20519 ALSO IN CATEGORY 10
BONUS NUCLEAR POWER PLANT ORL MONTHLY REPORT NO. 6
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
18 PAGES, 3 TABLES, JUNE 1967, DOCKET NO. 115-4

TWO SCRAMS OCCURRED FROM FAILURES ASSOCIATED WITH THE M-G SET SUPPLYING THE INSTRUMENTATION BUS LOAD, ONE DUE TO RECTIFIER FAILURE, OTHER DUE TO ARCING AT COLLECTOR RING BRUSHES. MAIN PROBLEM WITH M-G SET IS SHAFT ON COLLECTOR RING ECCENTRICITY. ONE SCRAM RESULTED WHEN OPERATOR FAILED TO DEACTIVATE THE MINIMUM-FLOW BYPASS-VALVE SCRAM SWITCH WHEN SHUTTING DOWN. MODIFICATIONS TO 2 CONTROL-ROD-DRIVE ASSEMBLIES FOR IMPROVED OPERATION WERE COMPLETED. CONTAINMENT-BUILDING AIR ACTIVITY CONTINUED TO INCREASE AFTER SCRAMS OR TRANSIENT CONDITIONS DUE TO LEAKAGE AROUND VARIOUS VALVE PACKINGS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, EQUIPMENT + AIRBORNE RELEASE + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + CONTAINMENT, GENERAL + CONTROL ROD DRIVE + ELECTRIC POWER, VITAL + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATIONS REPORT, GENERAL + REACTOR, INTERNAL SUPERHEAT + SCRAM, SPURIOUS

17-20560
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC. RESEARCH AND DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1966
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ADVANCED REACTORS DIV.
CVNA-279 +. 75 PAGES, JANUARY 1967

COVERS ADMINISTRATION, STUDIES OF PRESSURE DROPS AND REACTOR TRANSIENTS, RADIATION ANALYSIS, CHEMISTRY PROGRAM, THERMAL AND HYDRAULIC CONSIDERATIONS, PRESSURE-TUBE INSPECTION AND EXAMINATION, IRRADIATION TESTING, SAR, POWER-ESCALATION PROGRAM, AND CHEMICAL SHIM CONTROL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + REACTOR, PRESSURE TUBE + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

17-20561
SNYDER WR
CVTR POST-CONSTRUCTION R AND D PROGRAM. CVPC-24 RADIATION ANALYSIS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
CVNA-284 +. 145 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

DESCRIBES MONITORING PROGRAM FOR COOLANT CHEMISTRY, CRUD DEPOSITS, SPECIAL FLUX MONITORS, CONTAINMENT ATMOSPHERE, CONTAINMENT TEMPERATURE AND GAMMA FLUX DURING SHUTDOWN, SPECIAL IN-CONTAINMENT RADIATION SURVEYS, ETC. LOW CORROSION-PRODUCT ACTIVITY IN COOLANT IS ATTRIBUTED TO DEPOSITION OF THESE PRODUCTS AS CRUD, RESULTING IN HIGH RESIDUAL GAMMA FLUXES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COOLANT CHEMISTRY + *CORROSION + *CRUD + *SURVEILLANCE PROGRAM + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + REACTOR, PRESSURE TUBE + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

17-20588
DUTIES, QUALIFICATIONS AND TRAINING PROGRAM FOR OPERATING PERSONNEL (AT) PEACH BOTTOM ATOMIC POWER STATION
PHILADELPHIA ELECTRIC CO., PA.
48 PAGES, 1 FIGURE, FEBRUARY 15, 1963, DOCKET NO. 50-171

SECTION 1 (23 PG) GIVES ORGANIZATION CHART, JOB SPECIFICATIONS, BIOGRAPHICAL SKETCHES OF PERSONNEL. SECTION II GIVES PAST TRAINING PROGRAM SCHEDULE (16 PAGES, FOR PRESENT PERSONNEL OFF-SITE TRAINING), AND FUTURE ON-SITE TRAINING (8 PG) FOR OPERATIONS PEOPLE. DESCRIBES BRIEFLY USE OF PLANT SIMULATOR (NEXT TO CONTROL ROOM) IN TRAINING.

*STAFFING, TRAINING, QUALIFICATION + ANALOG SIMULATION + PEACH BOTTOM 1 + REACTOR, HIGH TEMP. GAS

17-20612
BECK CK
TESTIMONY BY C. K. BECK ON U. S. REACTOR OPERATING EXPERIENCES
ATOMIC ENERGY COMMISSION
3 PAGES, APRIL, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(15), PAGE 59-61, (APRIL 10, 1967)

IN TESTIMONY BEFORE JCAE ON REACTOR REGULATION, BECK BROUGHT OUT THE FOLLOWING - (1) IN THE 14 LICENSED POWER REACTORS, NO NUCLEAR ACCIDENTS HAVE OCCURRED, NO WORKER OR PUBLIC HAS BEEN EXPOSED ABOVE ANNUAL LIMITS, NO RELEASES ABOVE PERMISSIBLE HAVE OCCURRED. FAILURES AND

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20612 *CONTINUED*

MALFUNCTIONS HAVE HAPPENED BUT NOT OF MAJOR CONSEQUENCE OR FURTHER SIGNIFICANCE. (2) FOR 68 OTHER LICENSED REACTORS, ONLY ONE CASE WHERE THERE WERE A FEW EXPOSURES ABOVE PERMISSIBLE, 2 BETWEEN 5 AND 25 REMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONGRESSIONAL ACTIVITY + *INCIDENT, ACTUAL, GENERAL + *REGULATION, AEC + PERSONNEL EXPOSURE, RADIATION

17-20613

A-I-R STUDY-CONTRACT ON REACTOR OPERATORS DUE COMPLETED IN MAY 1967

AMERICAN INSTITUTE FOR RESEARCH, PITTSBURGH, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 13(14), PAGE 28 (APRIL 3, 1967)

AMERICAN INSTITUTE FOR RESEARCH (PITTSBURGH, PA.) EXPECTS TO COMPLETE IN MAY PHASE I OF A STUDY OF REACTOR OPERATORS FOR THE AEC. PHASE I INVOLVES 12 REACTORS PLUS A CORRELATION BETWEEN BACKGROUND DATA ON INDIVIDUAL OPERATORS AND (RATING ON) A PERFORMANCE CHECKLIST FOR DETERMINING HOW THEY FUNCTIONED. PHASE II, IF AGREED ON BY AEC, WOULD BE A FURTHER DEFINITION OF THE PREDICTION TECHNIQUE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*STAFFING, TRAINING, QUALIFICATION + RESEARCH CONTRACT

17-20615

ALSO IN CATEGORY 1

LOW LD

TESTIMONY BY DIV. OF COMPLIANCE AT JCAE REGULATORY PROCEDURES HEARING
ATOMIC ENERGY COMMISSION

3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 13(17), PAGE 43-45 (APRIL 24, 1967)

FINDINGS AND ACTIONS (1963-1966). NONCOMPLIANCE ITEMS WERE FOUND AT 35-50% OF THE FACILITIES IN OPERATION. DURING 1966, 37 OF THE 90 OPERATING REACTORS HAD DEFICIENCIES IN VARYING DEGREES (21 WERE ADMINISTRATIVE PROCEDURES, 13 WERE LICENSE-LIMIT VIOLATIONS, 14 WERE OPERATION WITH LESS THAN MINIMUM EQUIPMENT, THE REST WERE RADIATION SAFETY AND CONTROL). INSPECTORS INVESTIGATED 55-60 FAILURES/MALFUNCTIONS REPORTED (LISTS 8 FAIRLY SIGNIFICANT INSTANCES). CONCLUDES BY INDICATING STAFF EXPANSION WILL BE REQUIRED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + CONGRESSIONAL ACTIVITY + REGULATION, AEC

17-20616

NFS ADVISED TO BETTER DESCRIBE TRAINING IN OPERATOR-LICENSE APPLICATIONS

NUCLEAR FUEL SERVICES, INC., WEST VALLEY, NEW YORK

1 PAGE, MARCH 24, 1967, DOCKET 50-201, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 0 (APRIL 17, 1967)

(LETTER MARCH 20) DRL ASSERTS THAT DESCRIPTIONS ARE VAGUELY WORDED, SO IT IS NOT POSSIBLE TO DETERMINE CONTENT OF TRAINING. ON-THE-JOB TRAINING USUALLY CORRESPONDS TO TOTAL TIME AT NFS, YET MANY APPLICANTS STATE THEY WORKED IN OTHER PARTS OF PLANT OR DID NOT PERFORM IN TRAINING ONE OR MORE OPERATORS UNDER THE LICENSE SOUGHT. DRL ATTACHES A LIST OF 22 ITEMS OF FORMAL AND OPERATIONAL TRAINING AND ASKS FOR HOURS SPENT BY EACH APPLICANT FOR 6 TYPES OF LICENSE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

NFS (NUCLEAR FUEL SERVICES) + RADIOCHEMICAL PROCESSING + STAFFING, TRAINING, QUALIFICATION

17-20619

KAMAN NUCLEAR DIV. CITED FOR NON-COMPLIANCE FEBRUARY 28, 1967

KAMAN AIRCRAFT CORP., KAMAN NUCLEAR DIV., COLORADO SPRINGS, COLORADO

1 PAGE, FEBRUARY 23, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 16, (APRIL 17, 1967)

A DEC. 1966 CHECK REVEALED 4 ITEMS OF NONCOMPLIANCE SIMILAR TO FEB. 65 AND FEB. 66 INSPECTIONS. (1) INADEQUATE TRITIUM RADIATION SURVEYS, (2) BYPASSING HIGH-RADIATION-AREA INTERLOCKS WHEN HIGH RADIATION AREAS EXISTED, (3) USED ACCELERATOR TUBES HANDLED IN UNRESISTED AREAS WITHOUT RAD. SAFETY OFFICERS KNOWLEDGE, (4) USED TRITIUM TARGETS WERE NOT LABELED. ***COMPLIANCE DIV. BELIEVES IMPROVEMENTS ARE NEEDED IN MANAGEMENT OF COMPANIES RADIATION SAFETY PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + FAILURE, ADMINISTRATIVE CONTROL + INSTRUMENTATION, INTERLOCK + SURVEILLANCE PROGRAM + TRITIUM

17-20620

TRACERLAB CITED FOR NON-COMPLIANCE MARCH 7, 1967

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20620 *CONTINUED*

LABORATORY FOR ELECTRONICS, TRACERLAB DIV., WALTHAM, MASS.
2 PAGES, MARCH 7, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 16-17, (APRIL 17, 1967)

A DEC. 1966 INSPECTION AFTER A DEC. 5 TRITIUM RELEASE AND EXPOSURE RESULTED IN 2 ITEMS OF INADEQUATE SURVEYS. (REPLY, MARCH 14) EMPLOYEE MUST REQUEST A SURVEY WHEN BEGINNING WORK, AND START STACK MONITOR. HOOD-VENTILATION SYSTEMS HAVE BEEN REVIEWED. WE NO LONGER STORE WASTE IN HOODS BUT PACK IT IMMEDIATELY IN CLOSED CONTAINERS FOR DISPOSAL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INSPECTION AND COMPLIANCE + INHALATION + SURVEILLANCE PROGRAM + TRITIUM + WASTE STORAGE

17-20623

NUCLEAR SCIENCE AND ENGINEERING CORP. NON-COMPLIANCE CITATION OF MARCH 10, 1967
NUCLEAR SCIENCE AND ENGINEERING CORP., PITTSBURGH, PA.
2 PAGES, MARCH 10, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 18-19 (APRIL 17, 1967)

AFTER A NOV. 29 DEC. 1 INSPECTION, THEY WERE CITED FOR 9 ITEMS REGARDING INADEQUATE RADIATION SURVEYS, INADEQUATE INSTRUCTION IN SAFETY PROBLEMS AND PRECAUTIONS, NOT REPORTING A 24-REM DOSE (2ND QUARTER 66) AND A 46-REM DOSE (3RD QUARTER 66) TO SAME PERSONS LEFT HAND. *** COMPLIANCE NOTES SIMILAR CITATIONS OVER A PERIOD OF YEARS, MEETING AUG. 66, AND SUBSEQUENT CORRESPONDENCE ON STRENGTHENED SAFETY MANAGEMENT. LETTER CLOSES WITH STATEMENT THAT A FUTURE INSPECTION AND REPLY TO THIS LETTER WILL BE TAKEN INTO ACCOUNT REGARDING RENEWAL OF LICENSE EXPIRING APRIL 30, 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + SURVEILLANCE PROGRAM

17-20624

ALSO IN CATEGORY 1

ACRS TESTIMONY BEFORE JCAE REGULATORY REVIEW HEARING
ATOMIC ENERGY COMMISSION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 40-44, (APRIL 17, 1967)

CITED 13 SPECIFIC EXAMPLE (STICKING OF CONTROL RODS, LOSS OF NORMAL AND EMERGENCY, AND LOSS OF ALL INCOMING POWER, FUEL MELTING) AS INDICATING NEED FOR DIVERSITY AND REDUNDANCE IN SAFETY COMPONENTS. AMONG 7 SAFETY MATTERS WARRANTING SPECIAL ATTENTION (LONG-TERM SAFE OPERATION, SEISMIC-DESIGN CRITERIA, QUALITY ASSURANCE AND INSPECTABILITY, SITING CLOSE TO POPULATION CENTERS, EMERGENCY CORE COOLING, AND INCREASED POWER LEVEL/DENSITY) IS ONE CLOSE TO OUR HEARTS, NAMELY, DISSEMINATION OF SAFETY-RELATED EXPERIENCE. (QUOTE) ACRS BELIEVES IT TO BE IMPORTANT THAT A SUITABLE MECHANISM EXIST WHEREBY PROMPT DISSEMINATION OCCURS WITHIN THE NUCLEAR INDUSTRY AND THE AEC OF OFTEN UNPUBLISHED, SAFETY-RELATED EXPERIENCE GAINED ON INDIVIDUAL, PRIVATELY OWNED POWER REACTORS. THE AEC NOW PERFORMS SUCH A SERVICE, AT LEAST IN PART, FOR SAFETY-RELATED EXPERIENCE GAINED ON AEC-OWNED REACTORS. (UNQUOTE)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONGRESSIONAL ACTIVITY + *INFORMATION RETRIEVAL + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + EARTHQUAKE ENGINEERING + EMERGENCY COOLING CONSIDERATIONS + INCIDENT COMPILATION + QUALITY CONTROL + REDUNDANCE, + REGULATION, AEC + SITING, REACTOR

17-20718

ALSO IN CATEGORY 1

REP. HOSMER WARNS UMW THAT BLOCKING COMMERCIAL NUCLEAR POWER HURTS ONLY THE COAL INDUSTRY AND ITS CUSTOMERS
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(49), PAGE 4-6, (DECEMBER 4, 1967)

(HOUSE SPEECH) NOTES THAT INFORMAL TRUCE (IN NOT USING SCARE TACTICS) BETWEEN COAL AND NUCLEAR INDUSTRIES IS BEING VIOLATED BY UMW, TO THE DETRIMENT OF THE UTILITIES CAUGHT IN THE CROSSFIRE. FPC STUDIES SHOW MORE RADIUM IS RELEASED FROM COAL PLANTS, THAN I-131 AND KR-85 FROM NUCLEAR, THOUGH NOT IN HAZARDOUS AMOUNTS. HOSMER SUPPORTS A RESOLUTION TO INVESTIGATE CIVILIAN ATOMIC ENERGY PROGRAMS, BECAUSE HE BELIEVES THIS WOULD END THESE POORLY INFORMED AND HIGHLY EMOTIONAL TIRADES. BENEFITS OF PEACEFUL ATOM OUTWEIGH ANY HAZARDS, AND THESE ARE BEING KEPT AT AN ACCEPTABLE LEVEL AND CONSTANTLY REDUCED.

CONGRESSIONAL ACTIVITY + RADIATION, PUBLIC EDUCATION/ACCEPTANCE

17-20719

ALSO IN CATEGORY 3

YANKEE FUEL STORAGE PIT INSPECTION
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 82 FOR OCTOBER 1967, PAGE 1, NOVEMBER 30, 1967, DOCKET 50-29

NINETEEN CONDENSER TUBES WERE PLUGGED, AS LEAKS 3-5 FT FROM THE COLD TUBE SHEET DEVELOPED. ***WOODEN FUEL-RACK PLATFORMS WERE DISCARDED AFTER RADIATION-INDUCED EMBRITTLEMENT. BLISTERS IN PHENOLIC POOL-WALL COATING WERE MORE PREVALENT NEAR ALUMINUM STORAGE RACKS. A THIN, 15-FT-LONG VERTICAL CRACK, TERMINATING IN AN ABOVE-GROUND CONSTRUCTION POINT, APPEARS DUE TO SHRINKAGE. CRACK WILL BE COVERED WITH FIBERGLASS AND RECOATED. ***REACTOR WAS SHUT DOWN 9 HR FOR OPERATOR-LICENSE EXAMINATIONS. REACTIVITY DEPLETION WAS AT THE RATE OF 0.7% DELTA K/K

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20719 *CONTINUED*

PER 1000 MWH DAYS/MTU, AND PC BORON DECREASED FROM 167 PPM TO 83.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAULT + *FUEL STORAGE + COATING, SURFACE + CONCRETE + FUEL BURNUP + OPERATIONS REPORT, GENERAL + RADIATION DAMAGE + REACTOR, PRESSURIZED WATER + STAFFING, TRAINING, QUALIFICATION + YANKEE

17-20720

ALSO IN CATEGORY 14

UNAUTHORIZED USE OF YANKEE INCINERATOR

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 81 FOR SEPTEMBER 1967, PAGE 4, OCTOBER 30, 1967, DOCKET 50-29

THREE LEAKING TUBES WERE PLUGGED IN THE TURBINE CONDENSER. SPENT-FUEL PIT WAS DECONTAMINATED. PHENOLIC COATING BLISTERS DID NOT BARE CONCRETE. ***EXAMINATION OF HINGE PINS FROM THE LOCKED LOADING DOOR OF THE CLEAN-AREA INCINERATOR INDICATED IMPROPER USAGE. EIGHT DRUMS OF MATERIAL WERE INSPECTED, SEVERAL ITEMS POSITIVELY IDENTIFIED AS ORIGINATING IN THE CONTROLLED AREA. TOTAL RELEASE WAS ESTIMATED AS 12.25 MICROCURIES OF CO-MN (SEE ALSO OP. REPORT 72, JULY 67). HINGE PINS WERE WELDED IN PLACE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *EFFLUENT + FAILURE, ADMINISTRATIVE CONTROL + FUEL STORAGE + INCINERATION + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + SURFACE FILM DEPOSIT + WASTE DISPOSAL, SOLID + YANKEE

17-20721

YANKEE TURBINE CONDENSER TUBE REPAIRS

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 80 FOR AUGUST 1967, PAGE 1, SEPTEMBER 28, 1967, DOCKET 50-29

TWICE PLANT LOAD WAS HALVED, AS INCREASING SG CHLORIDE INDICATED CONDENSER-TUBE LEAKS. EIGHT TUBES WERE PLUGGED. ***MONTHLY TESTS OF CONTROL RODS AND TURBINE VALVES SHOWED ALL FUNCTIONING NORMALLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

FAILURE, TUBING + MAINTENANCE AND REPAIR + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + TURBINE + YANKEE

17-20722

ALSO IN CATEGORY 14

YANKEE STEAM GENERATOR TUBE REPAIRS

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 79 FOR JULY 1967, PAGE 1, AUGUST 21, 1967, DOCKET 50-29

SYSTEM LEAKAGE WAS 300 GAL/DAY WHEN SHUT DOWN FOR TUBE REPAIRS. I-131 TRACER SHOWED SG-1 LEAK 19.6 G/D, WHILE SG-2 WAS 268 G/D FROM ONE TUBE LEAK NEAR THE TUBE SHEET. SAMPLE-CONTAINER DAILS WERE FOUND ON THE PRIMARY SIDES, WHILE 2 STEEL FABRICATION WEGGES WERE FOUND IN THE SECONDARY. ***PC PUMPS 1 AND 3 THERMAL GASKETS WERE REPLACED. SAFETY REVIEW SHOWS NO. 10 CONTROL ROD STICKING AT 10 IN. OUT (NO HAZARD). THE ACCIDENTAL GAS RELEASE ON APRIL 4 WAS 37.2 MILLICURIES OF BETA-GAMMA AND 60.5 MILLICURIES OF GASEOUS TRITIUM. HYDRAZINE LEAKING INTO CHARGING PUMPS INCREASED PH FROM 5 TO 6.42, CAUSING CRUD BURSTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *MAINTENANCE AND REPAIR + *STEAM GENERATOR + COOLANT CHEMISTRY + CRUD + EFFLUENT + FAILURE, SCRAM MECHANISM + FAILURE, TUBING + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + TRITIUM + YANKEE

17-20723

YANKEE PC BORON VARIATIONS

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 72 FOR DECEMBER 1966, PAGE 1, JANUARY 25, 1967, DOCKET 50-29

AFTER PRIMARY-TO-SECONDARY LEAKAGE RATE INCREASED EXPONENTIALLY FROM 34 TO 520 GAL/DAY IN 3 WEEKS, LOOP 4 WAS ISOLATED. SG4 LEAKAGE RATE COULD NOT BE DETERMINED, AS THE SG BORON INCREASED FROM 77 TO 1240 PPM, WHICH TOGETHER WITH ERRATIC PHOSPHATE AND TRITIUM, INDICATES EITHER A HIDEOUT PROBLEM OR CHANNELING OF LEAKAGE WATER DIRECTLY TO BLOWDOWN LINE. MAIN-COOLANT BORON ALSO VARIED BETWEEN 1287 AND 1395 PPM AS LOOP 4 LEAKAGE (AT A HIGHER CONCENTRATION) WENT INTO THE LOW-PRESSURE SURGE TANK. ***FALSE SCRAMS ALSO OCCURRED, APPARENTLY FROM CURRENT LEAKAGE FROM THE 2-OUT-OF-4 LOSS-OF-FLOW CIRCUIT TO THE SCRAM BISTABLE MAGNETIC AMPLIFIERS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FAILURE, TUBING + *POISON, SOLUBLE + CHEMICAL SHIM + COOLANT CHEMISTRY + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + SCRAM, SPURIOUS + STEAM GENERATOR + YANKEE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20724

SELECTED YANKEE OPERATING EXPERIENCE

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 73 FOR JANUARY 1967, PAGE 3, FEBRUARY 20, 1967, DOCKET 50-29

NOW, STEAM-GENERATOR 3 IS LEAKING, AVERAGE SYSTEM LEAKAGE BEING 142 GAL/DAY. AEC PERMISSION TO MAINTAIN ISOLATED LOOP 4 AT NORMAL BORON HAS ALLEVIATED ERRATIC PC BORON CONCENTRATIONS. SILVER 110-M WAS AGAIN IN COOLANT CRUD SAMPLES. CORE-V SAMPLES WERE REANALYZED BUT SHOWED NO SILVER. PRESSURIZER VENT TESTING BEGAN TO DETERMINE IF THERE WAS GAS STRATIFICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CHEMICAL SHIM + *CONTROL ROD BURNUP + *FAILURE, TUBING + *PRESSURIZER + COOLANT CHEMISTRY + GAS + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + SILVER + STEAM GENERATOR + TESTING + YANKEE

17-20725

ALSO IN CATEGORY 14

SLIGHTLY RADIOACTIVE ASH FOUND IN CLEAN-AREA INCINERATOR

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS

1 PAGE, YANKEE ATOMIC OPERATIONS REPORT NO. 78 FOR JUNE 1967, PAGE 4, JULY 24, 1967, DOCKET 50-29

ON ROUTINE REMOVAL OF CLEAN-AREA INCINERATOR ASH, LEVELS OF 1-3 MR/HR WERE DETECTED 1 IN. FROM THE MATERIAL. NINE DRUMS WERE COLLECTED FOR DISPOSAL. RELEASE WAS ESTIMATED AS LESS THAN 104 MICROCURIES OF CO-MN DURING THE MAR. 67 SHUTDOWN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*INCINERATION + CRUD + INCIDENT, ACTUAL, HUMAN ERROR + OPERATIONS REPORT, GENERAL + REACTOR, PRESSURIZED WATER + WASTE DISPOSAL, SOLID + YANKEE

17-20726

CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., SIX MONTHS OPERATING REPORT, APRIL 1 - SEPTEMBER 30, 1967

CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.

CVNA-297 +. 12 PAGES, TABLES, SEPTEMBER 1967, DOCKET 50-144

FOR-THE-RECORD LISTING OF WASTE DISPOSAL AND PLANT DECONTAMINATION STATUS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*REACTOR DECOMMISSIONING EXPERIENCE + CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + OPERATIONS SUMMARY FOR AEC + REACTOR, HEAVY WATER

17-20727

POWER REACTOR DEVELOPMENT COMPANY ENRICO FERMI ATOMIC POWER PLANT REPORT FOR SEPTEMBER 1967

POWER REACTOR DEVELOPMENT COMPANY

PRDC-EF-49 + EF-49 +. 7 PAGES, SEPTEMBER 1967, DOCKET 50-16

9MI INVESTIGATIONS OF ELEMENT M-098 SHOWED 20% OF THE URANIUM IN THE LOWER AXIAL BLANKET AND 50% MOLTEN AT SOME TIME. A THIN FOREIGN OBJECT ABOUT 8 X 4 IN. WAS FOUND IN THE MELTDOWN PAN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FLOW BLOCKAGE + *FUEL MELTDOWN + EXAMINATION + FERMI + OPERATIONS REPORT, GENERAL + REACTOR, LIQUID METAL COOLED

17-20776

ALSO IN CATEGORIES 9 AND 12

HANSON CL + COOPS MS + PARKISON CD

TRANSFER SYSTEMS FOR THE LIVERMORE NEUTRON CELLS

LAWRENCE RADIATION LAB., CALIFORNIA UNIV., LIVERMORE, CALIFORNIA

UCRL-70494 + CONF-671102-19 +. 18 PAGES, 9 FIGURES, REFERENCES, JULY 10, 1967, FROM 15TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY AND ATOM FAIR, CHICAGO, ILL.

SPECIAL TRANSFER SYSTEMS ARE REQUIRED TO HANDLE FISSION SOURCES IN THE NEUTRON CELLS BEING BUILT AT LIVERMORE. THESE SYSTEMS ARE REMOTELY OPERATED BEHIND 4-FT-THICK NEUTRON SHIELDING. SEVERAL TRANSFER SYSTEMS ARE DIRECTLY CONNECTED TO THE CELL LINERS WHICH CONTAIN THE INTENSE ALPHA ACTIVITY. COMPONENTS ARE BUILT IN MODULES TO PERMIT EASY REPLACEMENT. SEVERAL DEVICES WERE DESIGNED TO PERMIT REMOTE REPLACEMENT OF PLASTIC BOOTING TO ENSURE CONTINUED OPERATIONS IN THE CELLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

EQUIPMENT DESIGN + INSTRUMENTATION, CONTROL + TRANSPORTATION AND HANDLING

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20836
NOTICE OF PROPOSED ISSUANCE OF DOW CHEMICAL COMPANY OPERATING LICENSE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
8 PAGES, 2 TABLES, DOCKET 50-264, JUNE 7, 1967

100-KW TRIGA MARK-1 LOCATED AT MIDLAND, MICHIGAN. NO PULSING IS PLANNED. SHUTDOWM MARGIN IS 0.7%. EXCLUSION BOUNDARY RADIUS IS 75 FT. MAXIMUM EXCESS REACTIVITY IS 1.5%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY EVALUATION + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS +
TRIGA (TRAINING REACTOR, ISOTOPES, G. A.)

17-20838
FAST MODIFIES WORDING OF PROPOSED CHANGE 16
FIRST ATOMIC SHIP TRANSPORT, INC.
1 PAGE, DOCKET 50-236, OCTOBER 26, 1967

(TWX) ROD-DROP TIMES (TIME TO 2/3 INSERTION) WILL BE CONDUCTED AFTER EACH REFUELING, REPAIR, OR MAINTENANCE TO THE CONTROL-ROD-DRIVE SYSTEM OR ASSOCIATED SAFETY SYSTEM, OR AT LEAST ANNUALLY. IF THE ELAPSED TIME FOR ANY ROD EXCEEDS 0.8 SEC, TEST FREQUENCY FOR ALL RODS IS TO BE INCREASED TO SEMIANNUALLY UNTIL TWO CONSECUTIVE TESTS HAVE TIME FOR ALL RODS WITHIN THE 0.8-SEC LIMIT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD SCRAM MECHANISM + *RESPONSE TIME + N S SAVANNAH + REACTOR, PRESSURIZED WATER +
TECHNICAL SPECIFICATIONS

17-20839
APFA-III. AMENDMENT 1--FUEL STORAGE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON
5 PAGES, DOCKET 50-253, OCTOBER 25, 1967

FUEL, IN BIRD-CAGE SHIPPING CONTAINERS, WILL BE STORED IN BUTLER BUILDING NO. 10 AT THE G. A. WASTE-YARD FACILITY. FUEL HAS LITTLE FISSION-PRODUCT ACTIVITY SINCE MAXIMUM POWER HAS BEEN LESS THAN 1 KW.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL STORAGE + CRITICAL ASSEMBLY FACILITY + CRITICALITY SAFETY + REACTOR, PULSEC + SAFETY EVALUATION

17-20840
APFA-II CHANGE 2--STORAGE OF FUEL PIECES
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON
3 PAGES, DOCKET 50-235, OCTOBER 26, 1967

FUEL, IN BIRD-CAGE CONTAINERS, IN BUTLER BUILDING 10 AT G. A. WASTE-YARD FACILITY. FUEL FOR APFA-III WILL ALSO BE THERE. MAXIMUM POWER HAS BEEN LESS THAN 500 WATTS AND LESS THAN 100 WATT-HR IN ANY 24-HR PERIOD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FUEL STORAGE + CRITICAL ASSEMBLY FACILITY + CRITICALITY SAFETY + REACTOR, PULSEC + SAFETY EVALUATION

17-20841 ALSO IN CATEGORY 9
GULF GENERAL ATOMIC SUPPLIES INFORMATION ON CONTROL ROD R AND D PROGRAM
GULF GENERAL ATOMIC INCORPORATED
5 PAGES, 2 FIGURES, DOCKET 50-240, NOVEMBER 22, 1967

(1) COMPARISON OF SINGLE-UNIT CONTROL ROD AND MODULAR (SEGMENTED) ROD (HTR TYPE). (2) DETERMINATION OF INTERACTION OF CONTROL RODS AS A FUNCTION OF DISTANCE BETWEEN THEM TO CHECK EXISTING ANALYTICAL TECHNIQUES (FOR FT. ST. VRAIN DUAL-ELEMENT CONTROL RODS). (3) BURNABLE-POISON INTERACTION STUDIES. (1) AND (3) WILL BE CONDUCTED WITH THE HTR HEXAGONAL-LATTICE CORE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD INTERACTION + *POISON, BURNABLE + *RESEARCH AND DEVELOPMENT PROGRAM + CONTROL ROD WORTH +
CRITICAL ASSEMBLY FACILITY + REACTOR, HIGH TEMP. GAS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20842
VETERANS ADMINISTRATION HOSPITAL ASKS FOR USE OF AM-BE SOURCE
VETERANS ADMINISTRATION HOSPITAL, OMAHA, NEBRASKA
6 PAGES, DOCKET NO. 50-131, NOVEMBER 21, 1967

2-CURIE AM-BE SOURCE WOULD REPLACE PRESENT PO-BE SOURCE AT 18-KW TRIGA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SOURCE, NEUTRON + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20843 ALSO IN CATEGORY 9
BONUS PROPOSED CHANGE 6--CONTROL ROD MODIFICATIONS
PUERTO RICO WATER RESOURCES AUTHORITY
4 PAGES, DOCKET NO. 115-4, NOVEMBER 13, 1967

MODIFICATION OF REMAINING 17 RODS IN SAME WAY AS FOR TWO PERIPHERAL RODS (CHANGE 3). INCLUDES ADDITION OF A TORQUE SPRING ON DRIVE-MOTOR ASSEMBLY AND AN OIL RESERVOIR FOR THE SHOCK ABSORBER. OBJECT WAS TO LOWER ROD-DROP TIMES CONSIDERABLY. FULL-OUT DROP TIMES FOR MODIFIED RODS WERE BETWEEN 1.3 AND 1.5 SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD SCRAM MECHANISM + *MODIFICATION, SYSTEM OR EQUIPMENT + *RESPONSE TIME + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

17-20844
AFRR1-TRIGA MARK-F PROPOSED TECHNICAL SPECIFICATIONS
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA, MARYLAND
15 PAGES, DOCKET NO. 50-170, NOVEMBER 22, 1967

MAXIMUM STEADY-STATE POWER IS 1 MW. MAXIMUM PULSE IS 2.3%. MAXIMUM EXCESS REACTIVITY WITH OR WITHOUT EXPERIMENTS IS 3.5%. SHUTDOWN MARGIN IS 1. NEW-STYLE TECHNICAL SPECIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20845 ALSO IN CATEGORIES 9 AND 6
GULF GENERAL ATOMIC TRIGA MARK III PROPOSED CHANGE--DIFFERENT METHOD OF SHUTDOWN MARGIN DETERMINATION
GULF GENERAL ATOMIC
3 PAGES, DOCKET 50-227, NOVEMBER 16, 1967

ASKS TO REPLACE PRESENT NEGATIVE-PERIOD-MEASUREMENT TECHNIQUE BY DIFFERENTIAL ROD-DROP METHOD DESCRIBED ON PAGES 256-257, TECHNOLOGY OF NUCLEAR REACTOR SAFETY, REACTOR PHYSICS AND CONTROL, VOL. 1. CHANGE WOULD ALLOW EITHER TECHNIQUE TO BE USED TO ENSURE A 10 CENT SHUTDOWN MARGIN EVEN WITH THE MOST REACTIVE ROD STUCK OUT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD WORTH + *MEASUREMENT, REACTIVITY + *SHUTDOWN MARGIN + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20846 ALSO IN CATEGORY 7
COLUMBIA UNIVERSITY OF NEW YORK SUBMITS MODIFIED SCRAM CIRCUIT DIAGRAM INCLUDING LOW POOL LEVEL TRIP
COLUMBIA UNIVERSITY, NEW YORK
2 PAGES, 1 FIGURE, DOCKET 50-208, NOVEMBER 22, 1967

IN RESPONSE TO AEC QUESTIONS, A REVISED FIGURE 2 (MAGNET AND SCRAM CIRCUIT) OF FAILURE-MODE ANALYSIS WAS SUBMITTED SEPTEMBER 28, 1967. ***GENERAL ATOMIC ASSURES THAT CHASSIS GROUND AND AC NEUTRAL ARE COMPLETELY SEPARATE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*INSTRUMENTATION, LIQUID LEVEL DETECTION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

17-20848
BIG ROCK POINT FURNISHES ADDITIONAL INFORMATION ON PROPOSED CHANGE 13
CONSUMERS POWER COMPANY
105 PAGES, FIGURES, TABLES, ADDITIONAL INFORMATION IN SUPPORT OF BIG ROCK POINT PROPOSED CHANGE 13,

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-20848 *CONTINUED*
NOVEMBER 10, 1967, DOCKET 50-155

ANSWER TO 13 QUESTIONS FROM DRL ON SEPT. 25, 1967, ON THE PROPOSED EXPERIMENT USING HIGH-PERFORMANCE PELLET AND POWDER FUELS.

AVAILABILITY -- USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + BIG ROCK POINT + FUEL, PELLET TYPE + FUEL, POWDER TYPE + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-20876 ALSO IN CATEGORY 1
O-BRIEN B
JCAE HEARING ON POWER REACTOR REGULATION - BRICE O-BRIEN
NATIONAL COAL ASSOCIATION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(38) PAGES 44-47 (SEPTEMBER 18, 1967)

REFERS TO AEC DUAL ROLE (PROMOTION AND REGULATION) AND BIBLICAL REFERENCE TO FACT THAT NO MAN CAN SERVE TWO MASTERS. REFERS TO HADDAM NECK PHOTOS (TIME, MARCH 10, 1967, AND NEW YORK TIMES, JUNE 11, 1967) HAVING STACK REMOVED BY ARTIST BRUSH TO HELP SELL ATOMIC POWER TO THE PUBLIC. REFERS TO UNAVAILABILITY OF WASH-740 AND AEC NOT UPDATING IT AS CONCEALING THE FACTS. QUOTES NOVEMBER 1965 NEW YORK CITY REPORT AS ADVISING HIRING OF EURATOM TO ENSURE INDEPENDENT REVIEW.

*CONGRESSIONAL ACTIVITY + *REGULATION, AEC + EURATOM + HADDAM NECK + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + STACK

17-20977
MEHANN RO
N S SAVANNAH PRIMARY SYSTEM LEAK FROM VALVES
FIRST ATOMIC SHIP TRANSPORT, HOBOKEN, N. J.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(36) PAGES 27-28 (SEPTEMBER 18, 1967)

(LETTER, AUGUST 25) ON AUGUST 19, THE CONTAINMENT DRAIN TANK LEVEL BEGAN INCREASING AT AN ABNORMAL RATE. AFTER A DAY, IT BECAME OBVIOUS THAT THIS 50 GPM WAS NOT RELIEF-VALVE LEAKAGE ALONE, AND THE PLANT COOLED DOWN AND CONTAINMENT ENTERED. ONE LETDOWN-COOLER ISOLATION-VALVE WAS LEAKING THRU A LOOSE CLOSURE ASSEMBLY AND THE OTHER LOOSE BY ONE NUT-TURN. PRESSURIZER VENT VALVE HAD A LEAKY BONNET AND CUT SEAT. LETDOWN FLOW CONTROL VALVE HAD A CUT SEAT AND DISK. 2500 GAL OF COOLANT WERE LOST IN THE 2 DAYS. EACH TIME CONTAINMENT IS ENTERED, THESE VALVES AND CLOSURE ASSEMBLIES WILL BE CHECKED.

*FAILURE, EQUIPMENT + LEAK + MAIN COOLING SYSTEM + N S SAVANNAH + REACTOR, PRESSURIZED WATER + VALVE

17-21079
SENA QUARTERLY REPORT NO. 18, OCTOBER 1--DECEMBER 31, 1966
SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES
TID-23816 + EUR/C-1438/67E +. 17 PAGES, FEBRUARY 27, 1967

CRITICALITY WAS ACHIEVED ON OCTOBER 18, 1966 ON THE ARDENNES-CHOOZ REACTOR. NUCLEAR TESTING OF THE REACTOR WAS HALTED FOR TWO MONTHS BECAUSE OF MECHANICAL FAULTS IN THE PRIMARY PUMPS. SEVERAL BOLTS USED FOR FIXING THE LABYRINTHS AND BAFFLE PLATES BROKE BECAUSE OF INCORRECT TIGHTENING DURING INITIAL ASSEMBLY.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, INSTALLATION ERROR + FAILURE, EQUIPMENT + FRANCE + MAIN COOLING SYSTEM + OPERATIONS REPORT, GENERAL + PUMP + REACTOR, PRESSURIZED WATER

17-21085
INITIAL STEAM FLOW TESTING THROUGH 40 PERCENT POWER TESTING. PATHFINDER ATOMIC POWER PLANT SIX MONTH REPORT, MAY 19, 1966--NOVEMBER 19, 1966
NORTHERN STATES POWER COMPANY, SIOUX FALLS, S. DAKOTA
TID-23646 +. 130 PAGES, 25 FIGURES, REFERENCES, JANUARY 9, 1967

SUMMARIZES RESULTS OF TESTS TO DETERMINE (1) FLUID DYNAMICS DUE TO CHANGES IN FEEDWATER TEMPERATURE AND FLOW, REACTOR PRESSURE, RECIRCULATION FLOW, AND CONTROL-ROD MOTION, (2) SYSTEM RESPONSE TO SCRAMS, LOAD DUMP, AND TURBINE TRIPS, (3) REACTOR STABILITY, (4) XENON EFFECTS, (5) RADIATION LEVELS, AND (6) STEAM-DRYER EFFICIENCY. PROBLEMS INCLUDE (1) INADEQUACY OF AUTOMATIC PRESSURE CONTROLLER, (2) SPURIOUS SCRAM SIGNALS FROM STEAM-FLOW METERS, (3) LEAKAGE OF THE MAIN-STEAM-LINE ISOLATION VALVE, (4) MOISTURE IN THE OFF-GAS-SYSTEM PIPING, AND (6) FAULTY PISTON RINGS IN THE DASHPOTS OF THE CONTROL-ROD DRIVES.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STARTUP EXPERIENCE, INITIAL + *TEST, SYSTEM OPERABILITY + CONTROL ROD DRIVE + FAILURE, GENERAL + FAILURE, INSTRUMENT + FAILURE, SCRAM MECHANISM + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROTECTIVE +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21085 *CONTINUED*

OPERATIONS REPORT, GENERAL + PATHFINDER + RADIATION SAFETY AND CONTROL + REACTOR STABILITY + REACTOR, INTERNAL SUPERHEAT + SCRAM, SPURIOUS + VALVE + XENON

17-21096

237 MW-KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 15, SEPTEMBER 30-NOVEMBER 1, 1966.
KERNKRAFTWERK RWE-BAYERWERK G.M.B.H., GUNDREMMINGEN, WEST GERMANY
TID-23910 + 53 PAGES, FIGURES, REFERENCES, NOVEMBER 1, 1966

REPAIR OF LEAKS ON CONTROL-ROD-DRIVE FLANGES WAS COMPLETED. DEFECTS IN THE CONTROL-ROD-DRIVE SUPPORT STRUCTURE WERE CORRECTED. POWER TESTS WERE INTERRUPTED ONCE DUE TO VIBRATION FAILURE IN A BYPASS LINE IN THE SECONDARY-FEEDWATER REGULATING STATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

FAILURE, EQUIPMENT + FAILURE, GENERAL + FAILURE, PIPE + FLANGE + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + TEST, PLANT RESPONSE + VIBRATION

17-21097

237-MW-KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 14, JULY 1-SEPTEMBER 30, 1966
KERNKRAFTWERK RWE-BAYERWERK G.M.B.H., GUNDREMMINGEN WEST GERMANY
TID-23768 + KRB-1966/3 +. 49 PAGES, FIGURES, REFERENCES, SEPTEMBER 30, 1966

CONSTRUCTION COMPLETED. CRITICALITY REACHED AUGUST 14, 1966. RESULTS OF REACTOR STARTUP TESTS GIVEN. LEAKS ON THE CONTROL-ROD FLANGES CORRECTED BY REGRINDING. CRACKS AND UNEVEN WALL THICKNESSES FOUND ON THE CASINGS OF THE MAIN COOLING PUMPS. CASINGS WILL BE REDESIGNED AND REMADE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STARTUP TESTING + FAILURE, EQUIPMENT + FAILURE, GENERAL + FLANGE + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-21098

237-MW-KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 13, APRIL 1-JUNE 30, 1966
KERNKRAFTWERK RWE-BAYERWERK G.M.B.H., GUNDREMMINGEN, WEST GERMANY
TID-23767 + KRB-1966/2 +. 61 PAGES, FIGURES, REFERENCES, JUNE 30, 1966

REPORTS PROGRAMS ON CONSTRUCTION AND PREOPERATIONAL TESTING OF EXPERIMENT AND SYSTEMS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*TEST, PREOPERATIONAL + EQUIPMENT, GENERAL + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-21099

237-MW-KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 12, JANUARY 1-MARCH 31, 1966
KERNKRAFTWERK RWE-BAYERWERK G.M.B.H., GUNDREMMINGEN, WEST GERMANY
TID-23658 + KRB-1966/1 +. 104 PAGES, FIGURES, REFERENCES, MARCH 31, 1966

REPORTS PROGRESS ON CONSTRUCTION AND PREOPERATIONAL TESTING OF EQUIPMENT AND SYSTEMS.
FLUSHING AND CLEANING OF SYSTEMS CONTINUED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*TEST, PREOPERATIONAL + EQUIPMENT, GENERAL + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER

17-21100

237-MW KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 11.
KERNKRAFTWERK RWE-BAYERWERK G.M.B.H., GUNDREMMINGEN, WEST GERMANY
TID-23299 + KRB-1965/4 +. 63 PAGES, FIGURES, REFERENCES, 1965

BULK OF REPORT IS ON CONSTRUCTION PROGRESS. SOME PREOPERATIONAL TESTING OF EQUIPMENT AND SYSTEMS IS REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

EQUIPMENT, GENERAL + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + TEST, PREOPERATIONAL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21101

237-MW KRB NUCLEAR POWER PLANT. QUARTERLY REPORT NO. 9, APRIL 1-JUNE 30, 1965
KERNKRAFTWERK RWE-BAYERNWERK G.M.B.H., GUNDEMMINGEN, WEST GERMANY
TIO-22467 + KR3-1965/2 +. 132 PAGES, FIGURES, REFERENCES, DECEMBER 22, 1965

BULK OF REPORT IS ON CONSTRUCTION PROGRESS. SOME PREOPERATIONAL TESTING OF EQUIPMENT AND SYSTEMS IS REPORTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

EQUIPMENT, GENERAL + GERMANY + OPERATIONS REPORT, GENERAL + REACTOR, BOILING WATER + TEST, PREOPERATIONAL

17-21102

MCCORD RV + CORBETT BL
HIGH FLUX ISOTOPE REACTOR QUARTERLY REPORT, APRIL-JUNE 1966
OAK RIDGE NATIONAL LAB., OAK RIDGE, TENNESSEE
ORNL-TM-1963 +. 25 PAGES, TABLES, AUGUST 24, 1967

VIBRATION OF A CONTROL-ROD-DRIVE UNIT WAS DUE TO INADEQUATE LUBRICATION AT THE SEAL HOUSING. AFTER FOUR FISSION-CHAMBER FAILURES IN THE SAME FACILITY, INVESTIGATION REVEALED THAT A MODIFICATION OF THE CABLE ASSEMBLY WAS REQUIRED TO PERMIT FREE MOVEMENT IN THE THIMBLE. A SECONDARY SHUTDOWN SYSTEM USING CADMIUM NITRATE WAS INSTALLED. THE IODINE-REMOVAL EFFICIENCY OF THE CHARCOAL FILTER WAS SATISFACTORY AFTER THE 1/2-INCH-THICK FILTERS WERE REPLACED WITH 1- AND 1/8-IN. FILTERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, DESIGN ERROR + CHARCOAL + CONTROL ROD DRIVE + FAILURE, INSTRUMENT + FILTER, EFFICIENCY OF + HFIR (HIGH FLUX ISOTOPE REACTOR) + INSTRUMENTATION, STARTUP RANGE + LUBRICATION + MODIFICATION, SYSTEM OK EQUIPMENT + OPERATIONS REPORT, GENERAL + REACTOR, FLUX TRAP + SHUTDOWN SYSTEM, SECONDARY + VIBRATION

17-21103

MCCORD RV + CORBETT BL
HIGH FLUX ISOTOPE REACTOR QUARTERLY REPORT, JANUARY-MARCH 1966
OAK RIDGE NATIONAL LAB., OAK RIDGE, TENNESSEE
ORNL-TM-1962 +. 29 PAGES, TABLES, AUGUST 24, 1967

CONSIDERABLE MAINTENANCE WAS DONE BECAUSE STARTUP TESTING INDICATED SEVERAL DEFICIENCIES. 20 MA WAS REACHED FOR THE FIRST TIME. A PRIMARY-PUMP DISCHARGE VALVE STUCK BECAUSE THE PACKING WAS TOO TIGHT. A CONTROL-ROD-WITHDRAWAL INHIBITOR WOULD NOT WORK WHEN THE ROD WAS IN MOTION. MINOR WIRING (DESIGN) CHANGE CORRECTED PROBLEM. SEVERAL SCRAMS RESULTED FROM COLD-SLUGGING THE REACTOR WHILE PERFORMING POWER-REDUCTION TESTS. THE OUTER FUEL ELEMENT STUCK IN THE FUEL GRID (CLEARANCES TOO SMALL, PLUS THERMAL EXPANSION). SEPARATION OUT OF THE CORE WAS ACHIEVED BY APPLYING 5000 LB OF FORCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTOR STARTUP TESTING + ACCIDENT, COLD COOLANT + FAILURE, DESIGN ERROR + FAILURE, EQUIPMENT + FAILURE, INSTRUMENT + HFIR (HIGH FLUX ISOTOPE REACTOR) + MAINTENANCE AND REPAIR + OPERATIONS REPORT, GENERAL + REACTOR, FLUX TRAP + SCRAM, REAL + TEST, PLANT RESPONSE

17-21148

PAXSON E + HORNAK LP + JONES MB
PERIODIC ULTRASONIC INSPECTION OF CVTR PRESSURE TUBES
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
CVNA-288 +. 53 PAGES, FIGURES, 2 TABLES, JUNE 1967

DESCRIBES DESIGN, FABRICATION, AND USE OF EQUIPMENT TO PERFORM NONDESTRUCTIVE EXAMINATIONS, USING ULTRASONIC TECHNIQUES, OF IRRADIATED CVTR ZIRC-4 PRESSURE TUBES AT INTERVALS DURING PLANT LIFE. EXAMINATION OF 10 IRRADIATED AND 6 UNIRRADIATED TUBES SHOWED NO DAMAGE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CVTR (CAROLINAS VIRGINIA TUBE REACTOR) + EXAMINATION + REACTOR, HEAVY WATER + REACTOR, PRESSURE TUBE + REACTOR, PRESSURIZED WATER + TEST, NONDESTRUCTIVE

17-21226

NS SAVANNAH FUEL SHUFFLE SAFETY ANALYSIS REPORT - VOLUMES I AND II
SAFE INCORPORATED, GALVESTON, TEXAS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21226 *CONTINUED*
676 PAGES, TABLES, FIGURES, DECEMBER 1, 1967, DOCKET 50-314

REPORT COVERS OPERATIONS BY SAFE TO SHUFFLE CORE, CONDUCT TESTING, AND THE SEA TRIALS ASSOCIATED WITH THE SHUFFLE. VOLUME I CONSISTS OF (1) INTRODUCTION AND SUMMARY, (2) SITE (TODD SHIPYARDS, GALVESTON, TEXAS), (3) PLANT DESCRIPTION (4) FACILITIES AND EQUIPMENT (5) CONDUCT OF OPERATION (6) DESCRIPTION OF FUEL SHUFFLE, (7) TESTS, AND (8) SAFETY ANALYSIS. VOLUME II CONSISTS OF (9) DRAWINGS AND (10) TECH. SPECS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*TECHNICAL SPECIFICATIONS + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + REFUELING + SAFETY ANALYSIS REPORT, PRELIMINARY

17-21227
NS SAVANNAH LICENSE APPLICATION
SAFE, INCORPORATED, GALVESTON, TEXAS
27 PAGES, DECEMBER 1967, DOCKET 50-314

SAFE, INC. (OWNED JOINTLY BY FAST AND TODD SHIPYARDS) APPLIES FOR LICENSE TO SHUFFLE THE N.S. SAVANNAH CORE AND MAKE RELATED TESTS FOR THE MARITIME ADMINISTRATION. INCLUDES (A) COPY OF THE CONTRACT BETWEEN FAST, SAFE, AND TODD, (B) PERSONNEL QUALIFICATIONS. OPERATION IS TO TAKE PLACE AT GALVESTON, TEXAS

USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + REFUELING

17-21228
APPENDIX C-1 TO SAFE LICENSE APPLICATION - CONTRACT WITH US MARITIME ADMINISTRATION
SAFE, INCORPORATED, GALVESTON, TEXAS
75 PAGES, DECEMBER 1967, DOCKET 50-314

A COPY OF THE CONTRACT WITH TODD SHIPYARDS (CO-OWNER WITH FAST OF SAFE) FOR THE NS SAVANNAH CORE SHUFFLE AND TESTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + REFUELING

17-21654 ALSO IN CATEGORY 11
AMENDMENT 29. STATUS REPORT ON REACTOR VESSEL REPAIR PROGRAM
JERSEY CENTRAL POWER AND LIGHT CO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 25 AND 26, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER DEC. 7) CONCLUSION REGARDING TRACK MECHANISM IS THAT IT IS STRESS-ASSISTED CORROSION CRACKING. STUB-TUBE SURFACES SHOWN TO BE CRACKED (DYE-PENETRANT TESTS) WILL BE GRINDED OUT AND REWELDED. SAMPLES WILL BE REMOVED FOR LAB ANALYSIS, AND TWO TUBES LEFT UNTOUCHED FOR FINAL REASSESSMENT.

*FAULT + *MAINTENANCE AND REPAIR + *PRESSURE VESSEL + OYSTER CREEK + REACTOR, BOILING WATER + WELDING

17-21655
GETR NON-COMPLIANCE CITATION
GENERAL ELECTRIC CO., NUCLEAR ENERGY DIV., PLEASANTON, CALIF.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 33, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 13) ON AUG. 29, 67, POWER SUPPLY TO EMERGENCY WATER RECIRCULATION PUMPS WAS REMOVED FOR 7 HR WHILE A FUELED CONTROL-ROD FOLLOWER WAS IN THE CORE. THIS CONDITION WAS WITHOUT KNOWLEDGE OF APPROPRIATE PERSONNEL AND WAS NOT REPORTED. ADDITIONAL INFORMATION IS REQUIRED RELATIVE TO THE LOSS OF WATER FROM THE POOL (PROCEDURES TO INCREASE THE EFFECTIVENESS OF SAFETY REVIEWS, AND AN EVALUATION OF THE HAZARDS RESULTING FROM SUCH LOSS OF WATER).

*EMERGENCY POWER, ELECTRIC + ACCIDENT; LOSS OF COOLANT + FUEL STORAGE +
GETR (GENERAL ELECTRIC TEST REACTOR) + INSPECTION AND COMPLIANCE + REACTOR, TEST +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

17-21656 ALSO IN CATEGORY 14
CALIFORNIUM-252 SPILL AT PRINCETON U, SEPT. 19, 1967
PRINCETON UNIVERSITY, N. J.
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 33-36, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 1) THE SPILL OCCURRED ON SEPT. 19 DURING TRANSFER OF THE SOURCE TO A NEW MOUNT. FLAKES FROM THIN NICKEL FOILS (USED TO REDUCE CF-252 SELF-TRANSFER) HAD ACCUMULATED ON THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21656 *CONTINUED*

MOUNT AND HAD APPARENTLY DROPPED OFF WHEN THE TRANSFER (IN VIOLATION OF STANDARD PRACTICE) WAS MADE OUTSIDE A GLOVE BOX AND WITHOUT HEALTH-PHYSICS PARTICIPATION. THE SCIENTISTS CHECK SHOWED NO CONTAMINATION OF THEIR STREET CLOTHING. THE SPILL WAS DETECTED DURING A ROUTINE RADIATION SURVEY ON OCT. 3, WHEN 17 OF 24 SMEARS EXCEEDED 100 DPM. ABOUT 150 SPOTS EXCEEDED 1000 CPM. SHOES WERE CONTAMINATED BUT NO HOMES OR AUTOS.

*CALIFORNIUM + *CONTAMINATION + *FAILURE, OPERATOR ERROR + FAILURE, ADMINISTRATIVE CONTROL + SURVEY, RADIATION, GENERAL

17-21657 ALSO IN CATEGORY 14

US RADIUM CORP REPORTS AM-241 INHALATIONS SEPT. 11, 67

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 36, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 20, 67) THREE WERE EXPOSED IN THE AM-RA-PO LABORATORY DURING GENERAL DECONTAMINATION AND ONE DURING FILTER CHANGES. ALL WERE RESPIRATORS. BASED ON AM-241(S), EXPOSURES WERE EXCESSIVE BY FACTORS OF 3.99, 3.97, 2.76, AND 1.27. THE CAUSE OF THE EXCESSIVE AIRBORNE CONTAMINATION WAS APPARENTLY A COMBINATION OF INADEQUATE VENTILATION AND EXCESSIVE REMOVABLE CONTAMINATION ON SURFACES WITHIN THE FACILITY.

*AIRBORNE RELEASE + *AMERICIUM + *INHALATION + DECONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + PERSONNEL PROTECTIVE DEVICE + POLONIUM + RADIUM + VENTILATION SYSTEM

17-21658 ALSO IN CATEGORY 14

US RADIUM CORP REPORTS EXCESSIVE TRITIUM RELEASES SEPT 27/28, 1967

U.S. RADIUM CORP., BLOOMSBURG, PA.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 36 AND 37, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 24, 67) THE TRITIUM GLASS-TUBE-FILL-FACILITY STACK WAS MONITORED FOR 2 CONSECUTIVE 24-HR PERIODS SEPT. 27 AND 28 AND SHOWED H-3(S) DISCHARGE EFFLUENTS EXCEEDED MPC BY A FACTOR OF 54.77 AND 43.48 DURING ROUTINE WORK. R AND D IS PROGRESSING ON MINIMIZING CONCENTRATIONS AT THE SOURCE. H-3(SUB) IS BEING CONVERTED TO H-3(S) WHICH IS SCRUBBED/TRAPPED BY WATER IMPINGEMENT AND DRYING COLUMN.

*AIRBORNE RELEASE + *STACK + *TRITIUM + EFFLUENT + SCRUBBER

17-21659 ALSO IN CATEGORY 15

US RADIUM CORP REPORTS AM-241(S) INHALATION ON SEPT. 25, 1967

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 37, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 24, 67) DURING GENERAL CLEANUP OF THE AM-RA-PC LABORATORY, AN INDIVIDUAL WEARING A RESPIRATOR WAS OVEREXPOSED A FACTOR OF 24.26 ABOVE AM-241(S) MPC, BASED ON BREATHING-70NF AIR SAMPLES. THE CAUSE OF THE EXCESSIVE AIRBORNE CONCENTRATION WAS A COMBINATION OF INADEQUATE VENTILATION AND EXCESSIVE REMOVABLE CONTAMINATION. CONTROLLING OCCUPANCY TIMES WILL BE ATTEMPTED.

*AMERICIUM + *INHALATION + AIRBORNE RELEASE + DECONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + POLONIUM + RADIUM + VENTILATION SYSTEM

17-21660 ALSO IN CATEGORY 14

US RADIUM CORP REPORTS 6 AM-241 INHALATIONS OCT. 1967

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 38, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 2, 67) FIVE INDIVIDUALS WERE OVEREXPOSED DURING DECONTAMINATION WHILE WEARING RESPIRATORS. RECEIVED 77.3, 11.37, 10.96, 1.68, AND 1.06 TIMES MPC. ONE RECEIVED 1.39 TIMES MPC WHILE FOIL PLATING 68.8 MILLICURIES OF AM-241. CONTAMINATION COULD BE HAND-TRANSFERRED DIRECTLY TO SAMPLE FILTER WHEN OPERATOR EASES DISCOMFITURE OF LONG USE OF A RESPIRATOR. SOME INDIVIDUALS SAMPLED CONSECUTIVELY 4 OR 5 DAYS SHOW BZ AT 1/10 TH MPC, AND THEN ONE DAY SHOW 10 MPC WITHOUT LOGICAL REASONS.

*AMERICIUM + *INHALATION + *PERSONNEL PROTECTIVE DEVICE + AIRBORNE RELEASE + DECONTAMINATION + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + POLONIUM + RADIUM

17-21846

PIQUA CHANGE 6--REMOVAL OF HIGH EFFICIENCY FILTERS

AEC DIVISION OF REACTOR LICENSING

2 PAGES, DOCKET 115-2, TYPE--OCR, MFG--A.I., AE--A.I.

ORL ALLOWS REMOVAL OF HIGH-EFFICIENCY FILTERS FROM EXHAUST SYSTEM UNTIL REACTOR IS REFUELED OR OTHER ACTIVITIES INCREASE CONTAMINATION. REACTOR IS NOW SHUT DOWN, FUEL IS IN STORAGE, AND NO WORK IS PLANNED ON RADIOACTIVE COMPONENTS.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21846 *CONTINUED*

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FILTER, HIGH EFFICIENCY + PIQUA + REACTOR DECOMMISSIONING EXPERIENCE + REACTOR, ORGANIC COOLED + TECHNICAL SPECIFICATIONS + VENTILATION SYSTEM

17-21847 ALSO IN CATEGORY 5

LA CROSSE CHANGE 2-MINIMUM PUMP SPEED RANGE AT STARTUP

DIVISION OF REACTOR LICENSING

2 PAGES, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY, DECEMBER 12, 1967

DRL ALLOWS SPECIFICATION ON A MINIMUM PUMP SPEED OF 34% OF FULL SPEED (VS PREVIOUS LIMIT OF GREATER THAN 34% BUT LESS THAN 42). SAFETY ANALYSIS ESTABLISHED THAT A FLOW OF 4500 GPM IS NECESSARY TO PREVENT FLOW INSTABILITIES AT LOW POWER. A 34% PUMP SPEED RESULTS IN 6750 GPM. DRL STATES THAT OPERATION AT SPEED HIGHER THAN 34% INCREASES THE SAFETY MARGIN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FLOW STABILITY + *FLOW, RECIRCULATION + LACROSSE + MAIN COOLING SYSTEM + PUMP + REACTOR, BOILING WATER + TECHNICAL SPECIFICATIONS

17-21848 ALSO IN CATEGORY 9

N.S. SAVANNAH ANSWERS 5 QUESTIONS ON PROPOSED CHANGE 8--CONTROL ROD FAILURE

FIRST ATOMIC SHIP TRANSPORT INC.

10 PAGES, 1 FIGURE, 2 TABLES, DOCKET 50-238 TYPE--PWR, MFG--B+W, AE--G.G. SHARP, DECEMBER 13, 1967

PROPOSED CHANGE COVERS OPERATION WITH DISABLED CONTROL-ROD DRIVES AND/OR STUCK CONTROL RODS. QUESTIONS WERE CONTAINED IN AN OCTOBER 9, 1967, DRL LETTER. ORIGINAL PROPOSED CHANGE REQUESTED THAT OPERATION BE PERMITTED IF A CERTAIN SHUTDOWN MARGIN LIMIT WAS EXCEEDED (2% IN START MODE, 5% IN RUN MODE). HOWEVER, THEY WISH TO MODIFY THIS TO MAKE THE LIMITS 5 COMPLETELY WITHDRAWN SCRAMBLE RODS IN START MODE AND 8 COMPLETELY SCRAMMABLE RODS IN RUN MODE. MINIMUM WORTH OF 5 RODS AT 68 F IS 1.99%. MINIMUM WORTH OF 8 RODS AT 508 F IS 4.69%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, SCRAM MECHANISM + *SHUTDOWN MARGIN + AEC QUESTION + CONTROL ROD DRIVE + CONTROL ROD WORTH + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER + TECHNICAL SPECIFICATIONS

17-21849 ALSO IN CATEGORY 9

QUESTION 1--CALCULATIONS TO DETERMINE SHUTDOWN CAPABILITY

FIRST ATOMIC SHIP TRANSPORT INC.

1 PAGE, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP, DECEMBER 13, 1967

DISCUSS THE ACCURACY OF THE CALCULATIONAL PROCEDURE TO BE USED BY THE OPERATOR IN DETERMINING THE CORE SHUTDOWN CAPABILITIES AND WHETHER OR NOT CONTINUED REACTOR OPERATION WILL BE PERMITTED. *** (ANSWER) ROD WORTHS WERE CALCULATED DURING DESIGN AND CHECKED BY EXPERIMENT. TOTAL ROD-WORTH VALUES AGREE VERY WELL, BUT THERE IS AS MUCH AS 5% ERROR IN SHAPE OF ROD-WORTH CURVE. IT IS ASSUMED THAT READOUT ERROR IS 5%, RESULTING IN A POSSIBLE 10% ERROR AT THE MIDPOINT BUT ONLY 1-2% AT FULL WITHDRAWN. TOTAL ROD WORTH WAS FOUND TO BE 16% (VS 15% PRESENTLY IN TECHNICAL SPECIFICATIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ERROR ANALYSIS + *FAILURE, SCRAM MECHANISM + *SHUTDOWN MARGIN + CONTROL ROD WORTH + MATHEMATICAL TREATMENT + N S SAVANNAH + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER

17-21904

LETTER TO DRL - BONUS RECIRCULATION FLOW REDUCTION AND CONTROL ROD EMBRITTLEMENT

PUERTO RICO WATER RESOURCES AUTHORITY

7 PAGES, DOCKET 115-4, TYPE--BWR, MFG--C.F., AE--JACKSON + MORELAND, DECEMBER 8, 1967

REVIEWS THE HISTORY OF FLOW-REDUCTION PROBLEM. JANUARY 1966 INVESTIGATION RECOMMENDED FURTHER INSPECTION BUT WAS EXPLAINED AS INSTRUMENT PERFORMANCE UNTIL SUDDEN FLOW REDUCTION IN JULY 1967. INVESTIGATION REVEALED CRUD DEPOSITION ON THE LOWER PORTION OF BOILER FUEL ASSEMBLIES AND THE ORIFICE EXIT CHANNEL. THE CRUD BREAKS UP INTO A FINE POWDER AND CONSISTS MAINLY OF COPPER OXIDE ORIGINATING FROM THE FEEDWATER HEATERS. *** ALSO, AN INSPECTION OF THE REACTOR 9-SS CONTROL-ROD BLADES SHOWED THAT EMBRITTLEMENT OF ONE ROD OCCURRED SUCH THAT A PIECE FELL OFF DURING INSPECTION. REPLACEMENT RODS WITH HAFNIUM POISON SECTIONS WERE ORDERED. NO. 8-SS RODS WILL BE EXPOSED TO FLUX LEVELS GREATER THAN 3 X 10¹² (20TH) NVT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD + *EMBRITTLEMENT + *FLOW ORIFICE OR RESTRICTION + *SURFACE FILM DEPOSIT + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + BORN + CONTROL ROD BURNUP + CRUD + FAILURE, SCRAM MECHANISM + FLOW, RECIRCULATION + RADIATION DAMAGE + REACTOR, INTERNAL SUPERHEAT + STEEL, STAINLESS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21988 ALSO IN CATEGORIES 6 AND 14
REACTOR OPERATIONS SAFETY ANALYSIS MONTHLY REPORT NO. 25, JULY 1 TO JULY 31, 1967
NUS CORP., WASHINGTON, D. C.
NUS-405 +. 53 PAGES, FIGURES, TABLES, REFERENCES, JULY 1967

REACTOR WAS STARTED LATE IN JUNE. (A) AIR-EJECTOR LEVELS ARE 1/30TH THE ALARM POINT. GAS RELEASE LIMITS WERE EVALUATED. BOTH SOURCES OF RELEASE SHOULD BE COVERED IN A SINGLE TECH. SPEC. AN INCREASED PERMISSIBLE RELEASE APPEARS FEASIBLE, AND OPERATIONAL CONSIDERATIONS LIMIT AIR EJECTOR RELEASES. (B) CORE IS 0.42% DELTA RHO LESS REACTIVE THAN PREDICTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTIVITY, EXCESS + *SOURCE, CONTINUOUS + COMPARISON, THEORY AND EXPERIENCE + DOSE + ELK RIVER + OPERATIONS REPORT, ANALYSIS + REACTOR OFFGAS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

17-21989 ALSO IN CATEGORY 5
WARZEE M. + SONNEN C + BERGE PH
INFLUENCE OF SURFACE TREATMENT ON THE CORROSION OF TWO ZIRCONIUM ALLOYS IN HIGH-TEMPERATURE PRESSURIZED WATER AND SUPERHEATED STEAM. SPECIAL REPORT NO. 7
SOCIETE D-ETUDES, DE RECHERCHES ET D-APPLICATIONS POUR L-INDUSTRIE, BRUSSELS, BELGIUM
FIRAEC-1994 + EUR-3386 +. 26 PAGES, FIGURES, TABLES, REFERENCES, JULY 6, 1967

THE EFFECT OF SURFACE TREATMENT ON ZIRCALOY 2 IS VERY SECONDARY. FOR A ZIRCONIUM (2%), CHROMIUM (0.16%), IRON ALLOY IN SUPERHEATED STEAM AT 450 C (70 KG/CM²) IT SEEMS ADVANTAGEOUS TO PREPARE THE SURFACES BY ELECTRO-POLISHING. SUCH TREATMENT APPRECIABLY REDUCES THE CORROSION RATE IN THE POSTTRANSITION ZONE. DEEP SURFACE WORK-HARDENING WAS FOUND TO BE MOST UNFAVORABLE IN THIS RESPECT. THE INFLUENCE WAS SYSTEMATICALLY EXAMINED (FOR 300 TO 450 C) OVER RELATIVELY LONG PERIODS OF TIME.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*CORROSION + *ZIRCALOY + CLAD + COATING, SURFACE + EMBRITTLEMENT + EURATOM + HYDROGEN + RESEARCH AND DEVELOPMENT PROGRAM

17-22113 ALSO IN CATEGORY 6
TABOR WH + HURT SS
OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, APRIL, MAY, AND JUNE OF 1967
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2033 +. 9 PAGES, 11 FIGURES, OCT. 11, 1967

WHILE PERFORMING ROD-WORTH TESTS, IT WAS OBSERVED THAT NEW FUEL-FOLLOWER SFIM RODS EXHIBITED A NEGATIVE DIFFERENTIAL ROD WORTH FOR THE LAST INCH OF TRAVEL. PARTIALLY DEPLETED RODS DID NOT SHOW THIS EFFECT. THE EXPLANATION GIVEN IS THAT NEW SFIM RODS CONTAIN AN EVEN DISTRIBUTION OF FUEL AND THAT DURING THE UPPER PORTION OF TRAVEL THE FUEL IS MOVED AWAY FROM THE NEUTRON FLUX PEAK IN THE REFLECTOR INTO A LESS IMPORTANT FLUX REGION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*REACTIVITY EFFECT, ANOMALOUS + CONTROL ROD CALIBRATION + CONTROL ROD WORTH + OPERATIONS REPORT, GENERAL + ORR (OAK RIDGE RESEARCH REACTOR) + REACTOR, RESEARCH + TEST, PHYSICS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-16575

THE SYSTEM OF FAST REACTORS -- RAPSODIE, (1) ETUDES ET ESSAIS PRELIMINAIRES A LA CONSTRUCTION ET AU FONCTIONNEMENT DU REACTEUR RAPSODIE, (2) RAPSODIE FUEL ELEMENT COMMISSARIAT A L'ENERGIE ATOMIQUE
41 PAGES, 30 FIGURES, 2 REFERENCES, BULLETIN D'INFORMATION SCIENTIFIQUE ET TECHNIQUE (PARIS) 95, PAGES 5 TO 45 (JULY/AUGUST 1965). IN FRENCH

THE BUILDING OF THE FAST REACTOR RAPSODIE WAS PRECEDED BY MANY STUDIES AND TESTS, USUALLY MADE WITH FULL-SIZE MODELS OF THE VESSEL AND CIRCUITS. THIS WORK LED TO IMPROVEMENTS SUCH AS THE CHOICE OF MIXED PUO₂-UO₂ OXIDE RATHER THAN U-PU-MO ALLOY PREVIOUSLY CONSIDERED, AND IMPROVED TECHNIQUES INVOLVING (1) RESISTANCE OF STRUCTURES TO SEISMIC EFFECTS, (2) DEVELOPMENT OF THERMAL AND NUCLEAR PROTECTION AROUND REACTOR, (3) DESIGN OF CONTAINMENT BUILDINGS.

*REACTOR DESCRIPTION + CONTAINMENT DESIGN + EARTHQUAKE ENGINEERING + FRANCE + MODEL TESTING + PLUTONIUM OXIDE + REACTOR, BREEDER + REACTOR, FAST + URANIUM OXIDE

18-16576

ALSO IN CATEGORY 11

SUPPLEMENT TO SRE SAFETY ANALYSIS REPORT. A PLAN FOR USE OF A FAST-REACTOR FUEL TEST SECTION IN THE SRE ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-11234 +. 78 PAGES, FIGURES, MAY 3, 1965

SRE MODIFICATIONS INCLUDE REPLACEMENT OF THE CENTRAL SEVEN PEP MODERATOR ELEMENTS BY A FAST-FUEL FLUX-TRAP TEST SECTION, ADDITION OF A 20-MW(T) HEAT SINK TO THE HEAT-TRANSFER SYSTEM TO ALLOW 50-MW(T) OPERATION, IMPROVEMENT OF ENVIRONMENTAL CONTROL AROUND FAST FUEL ELEMENTS DURING FUEL HANDLING, AND CHANGES IN SERVICE FACILITIES. CONCLUSIONS - (1) TECHNICALLY, NO ADDITIONAL BUILDING CONTAINMENT NEEDED BECAUSE OF ADDITION OF FAST TEST SECTION. (2) FOR UNMODIFIED REACTOR, ENERGY RELEASE OF UP TO 50 LB OF TNT WILL NOT LIFT THE LOADING FACE SHIELD OR DAMAGE CORE TANKS. (3) ADDITIONAL CONSTRAINT OF LOADING-FACE SHIELD NEEDED FOR LARGER RELEASES, BUT THOSE UP TO 200 LB OF TNT CAN BE CONTAINED. (4) PRESENCE OF PU DOES NOT MATERIALLY AFFECT SITE-BOUNDARY DOSE RATE WITH NONCREDIBLE DETONATION ACCIDENT OF UP TO 50 LB OF TNT. (5) ADDITION OF PUO₂ FUEL DOES NOT SUBSTANTIALLY ALTER RADIOLOGICAL CONSIDERATIONS AT SITE BOUNDARY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*IN PILE EXPERIMENT + CONTAINMENT DESIGN + IRRADIATION TESTING + REACTOR, FLUX TRAP + REACTOR, LIQUID METAL COOLED + SAFETY ANALYSIS REPORT, GENERAL + SRE (SODIUM REACTOR EXPERIMENT)

18-16577

LEO B + ERKES P + GRAU P

NUCLEAR POWER STATION OF THE ARDENNES. PART I. - HISTORY, PART II. - DESCRIPTION AND OPERATION SOCIETE D'ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES, FRANCE
18 PAGES, 14 FIGURES, 1 TABLE, ENERGIE NUCLEAIRE 8(8), PAGES 517-534 (DEC. 1966)

WESTINGHOUSE 266-MW(E) PWR MADE CRITICAL OCTOBER 18, 1966. PUT IN SERVICE IN 1967. REPORT GIVES GENERAL BACKGROUND, DESCRIPTION, AND FUNCTIONING OF THE PLANT.

*REACTOR DESCRIPTION + BELGIUM + EURATOM + FRANCE + REACTOR, PRESSURIZED WATER

18-16639

KASTEN PR

SAFETY PROGRAM FOR MOLTEN-SALT BREEDER REACTORS

OAK RIDGE NATIONAL LABORATORY, TENN.

ORNL-TM-1858 +. 42 PAGES, 6 FIGURES, 1 TABLE, 3 REFERENCES, JUNE 9, 1967

REACTIVITY ADDITIONS WHICH NEED DETAILED STUDY INCLUDE THOSE ASSOCIATED WITH NET FUEL ADDITION TO THE CORE REGION, THOSE DUE TO GRAPHITE BEHAVIOR, CHANGES IN FLUID FLOW CONDITIONS, AND CONTROL-ROD MOVEMENT. REACTIVITY COEFFICIENTS WHICH REQUIRE EVALUATION INCLUDE THOSE ASSOCIATED WITH TEMPERATURE, VOIDS, PRESSURE, FUEL CONCENTRATION, AND GRAPHITE CONCENTRATION. THE INTEGRITY OF PLANT CONTAINMENT UNDER REACTIVITY INCIDENT AND OTHER CONDITIONS. INCLUDED HERE ARE EVENTS SUCH AS MIXING OF WATER AND STEAM WITH COOLANT SALT, CRITICALITY IN REGIONS OUTSIDE THE CORE, AND FLOW BLOCKAGE WITHIN THE FUEL OR COOLANT STREAMS. STABILITY ANALYSIS OF THE REACTOR PLANT IS REQUIRED TO DETERMINE THE OPERATING, CONTROL, AND/OR DESIGN REQUIREMENTS FOR OBTAINING SATISFACTORY PLANT CHARACTERISTICS. PHYSICAL BEHAVIOR OF MATERIALS AND OF EQUIPMENT UNDER MSBR CONDITIONS, AS THEY RELATE TO REACTOR SAFETY, NEED TO BE DETERMINED EXPERIMENTALLY. TO DELINEATE AND RESOLVE THE BASIC SAFETY PROBLEMS ASSOCIATED WITH MSBR SYSTEMS, IT IS ESTIMATED THAT ABOUT \$1.3 MILLION IS REQUIRED OVER A PERIOD OF ABOUT EIGHT YEARS, WITH MOST OF THE EFFORT (\$0.9 MILLION) OCCURRING DURING THE FIRST FOUR.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*RESEARCH AND DEVELOPMENT PROGRAM + *SAFETY STUDY + MSRE (MOLTEN SALT REACTOR EXPERIMENT) + REACTOR, MOLTEN SALT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-16652

FOSTER J

PRELIMINARY CONCEPT STUDY - CENTRAL TEST FACILITY FOR SPACE NUCLEAR ELECTRIC POWER SYSTEM
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1756 +. 81 PAGES, FIGURES, 3 TABLES, JUNE 1967

DESIGN CONCEPT IS STRONGLY INFLUENCED BY CHEMICAL-ENERGY RELEASE IN LIQUID-METAL-COOLED REACTORS TO 40 MW(TH). DESCRIBES ENERGY RELEASES, CONTAINMENT, AND CALCULATION OF OFF-SITE DOSE.

AVAILABILITY - J. FOSTER, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

*DESIGN STUDY + *REACTOR TEST FACILITY + AIRBORNE RELEASE + CONTAINMENT, GENERAL + DOSE + REACTOR, LIQUID METAL COOLED + REACTOR, SPACE

18-17481

QUARTERLY TECHNICAL REPORT NO. 1 MAY-SEPTEMBER 1964 IRRADIATION PERFORMANCE OF THORIA-URANIA FUEL MATERIALS
BABCOCK AND WILCOX COMPANY, LYNCHBURG, VIRGINIA
BAW-3376-1 +. 80 PAGES, FIGURES, TABLES, 1964

ONE OF SERIES OF QUARTERLY REPORTS DESCRIBING THE DETERMINATION OF PHYSICAL PROPERTIES OF THORIA-URANIA. GAS-RETENTION-AND-RELEASE CHARACTERISTICS OF SOL-GEL THORIA-URANIA EMPHASIZED. PELLETIZED FUEL WILL BE EXAMINED TO STANDARDIZE EXPERIMENTAL EQUIPMENT AND PROVIDE DATA TO CORRELATION WITH AVAILABLE INFORMATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *IRRADIATION TESTING + *RESEARCH AND DEVELOPMENT PROGRAM + FISSION PRODUCT RELEASE, GENERAL + REACTOR, WATER + SOL-GEL PROCESS + THORIUM + URANIUM

18-17699

GENIE ATOMIQUE. TOME TROIS (NUCLEAR ENGINEERING. VOLUME III)
INSTITUT NATIONAL DES SCIENCES ET TECHNIQUES NUCLEAIRES, SACLAY
992 PAGES, FIGURES, TABLES, 1965, INSTITUT NATIONAL DES SCIENCES ET TECHNIQUES NUCLEAIRES, SACLAY AND PRESSES UNIVERSITAIRES DE FRANCE, PARIS

A SERIES OF MONOGRAPHS ON NUCLEAR REACTORS, WITH EMPHASIS ON THOSE IN FRANCE. THE PRINCIPLES, THE EXPERIMENTS, AND THE APPLICATIONS ARE GIVEN FOR EACH REACTOR. LOW-FLUX REACTORS AND CRITICAL ASSEMBLIES ARE DESCRIBED. GENERAL CONSIDERATIONS ARE PRESENTED ON THE RESEARCH REACTORS WITH HIGH FLUX. THE REACTORS DESCRIBED IN DETAIL ARE THE E1-3, MELUSINE, TRITON, PEGASE, SILOE, AND ULYSSE. GRAPHITE REACTORS WITH GASEOUS COOLANTS--BOTH WITH NATURAL AND ENRICHED URANIUM--ARE DISCUSSED. THE CONSTRUCTION TECHNIQUES FOR SOLID MODERATORS ARE DESCRIBED. THE THERMAL PROBLEMS CONNECTED WITH THE COOLING OF GASEOUS REACTORS ARE EXAMINED. HEAVY-WATER, LIGHT-WATER, AND ORGANIC REACTORS ARE DESCRIBED. PROBLEMS OF FAST REACTORS ARE CONSIDERED. THE USE OF LIQUID METALS FOR COOLING IS DISCUSSED, ALONG WITH THE PRESENT DESIGN TENDENCIES FOR POWER REACTORS. DESCRIPTIONS OF REACTORS FOR NAVAL PROPULSION ARE INCLUDED.

AVAILABILITY - PRESSES UNIVERSITAIRES DE FRANCE, 108 BOULEVARD ST-GERMAINE, PARIS, FRANCE

*REACTOR DESCRIPTION + FRANCE + REACTOR, GAS COOLED + REACTOR, HEAVY WATER + REACTOR, LIQUID METAL COOLED + REACTOR, ORGANIC COOLED + REACTOR, POWER + REACTOR, RESEARCH

18-17830

PROPOSED USGS AMENDMENT 3 TO TRIGA CONSTRUCTION PERMIT. SPECIALIZED FUEL ELEMENTS
UNITED STATES DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C., GEOLOGICAL SURVEY
3 PAGES, AUGUST 11, 1967, DOCKET NO. 50-274

USGS REQUESTS AMENDMENT TO ALLOW INSTALLATION OF (1) THREE FUEL-FOLLOWER CONTROL RODS, EACH CONTAINING NOT MORE THAN 34 GM U-235, (2) NOT MORE THAN TWO INSTRUMENTED FUEL ELEMENTS (NOT MORE THAN 40 GM), AND (3) ONE FISSION CHAMBER NEAR THE CORE DURING INSTALLATION OF THE CORE, CONTAINING NOT MORE THAN 5 GM U-235.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONSTRUCTION PERMIT PROCESS + CONTROL ROD + FUEL ELEMENT + INSTRUMENTATION, IN CORE + INSTRUMENTATION, STARTUP RANGE + REACTOR, POOL TYPE + REACTOR, TRAINING + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

18-17838

SCOTT AF

RECD COLLEGE AMENDMENT TO DESCRIPTION AND SAFETY ANALYSIS REPORT
REED COLLEGE, PORTLAND, OREGON
2 PAGES, AUGUST 22, 1967, DOCKET NO. 50-288

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-17838 *CONTINUED*

AMENDS REPORT (15 APRIL, 1967) TO ALLOW USE OF SEVERAL PARTIALLY LOADED TRIGA FUEL ELEMENTS, SIMILAR TO STANDARD ELEMENTS EXCEPT THAT THE ACTIVE SECTION IS REDUCED IN LENGTH TO 1/4, 1/2, OR 3/4 NORMAL. CONTAINS STANDARD FUEL PLUS SAMARIUM BURNABLE POISON. REMAINDER OF ELEMENT IS GRAPHITE END PLUGS. EXCESS REACTIVITY OF CORE IS 2.1%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*FUEL ELEMENT + POISON, BURNABLE + REACTIVITY, EXCESS + REACTOR, TRAINING +
SAFETY ANALYSIS REPORT, GENERAL + SAMARIUM + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.)

18-17844

SKOVHOLT DJ

AEC ISSUES PROPOSED LICENSE AND TECHNICAL SPECIFICATIONS FOR BRIGHAM YOUNG UNIVERSITY L-77
DIVISION OF REACTOR LICENSING, WASHINGTON, D.C.
22 PAGES, JULY 28, 1967, DOCKET NO. 50-262

THE 10-W HOMOGENEOUS REACTOR, USING AQUEOUS SOLUTION OF URANYL SULFATE, WAS DESIGNED TO SURVIVE EARTHQUAKE. THE SPHERICAL SS FUEL CONTAINER IS SURROUNDED BY 3 LAYERS (LEAD AND DIPHENYL, BORATED PARAFFIN, AND LEAD AND BORATED PARAFFIN). A GAS-RECOMBINER UNIT RECOMBINES THE H₂ AND O₂ LIBERATED. WATER SURROUNDS THE CORE, ENCLOSED BY AN 8-FT-DIAM STEEL TANK. LOSS-OF-SHIELD-WATER, REACTIVITY AND RELEASE-OF-FISSION-GAS ACCIDENTS ARE ANALYZED. FUEL VOLUME, 29.5 LITERS. MAXIMUM EXCESS REACTIVITY, 0.5%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*SAFETY EVALUATION + *TECHNICAL SPECIFICATIONS + EARTHQUAKE ENGINEERING + REACTIVITY, EXCESS +
REACTOR, HOMOGENEOUS + REACTOR, RESEARCH + SHIELDING + WATER BOILER

18-17845

ALSO IN CATEGORY 2

AEC SETS ASIDE PROVISIONAL CONSTRUCTION PERMIT FOR MALIBU AND ORDERS MORE REVIEW
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D.C.
19 PAGES, FIGURES, APRIL 5, 1967, DOCKET NO. 50-214, MALIBU NUCLEAR PLANT NO. 1

AFTER PUBLIC HEARINGS, AEC SETS ASIDE LICENSING-BOARD DECISIONS AND SENDS MATTER BACK TO THE BOARD FOR STUDY OF THE AMOUNT OF DIFFERENTIAL GROUND DISPLACEMENT THAT THE FACILITY MUST BE REQUIRED TO WITHSTAND, AND THE ADEQUACY OF THE DESIGN CRITERIA THAT MAY BE PROPOSED BY THE APPLICANT TO PERMIT THE FACILITY TO WITHSTAND THIS DISPLACEMENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*CONSTRUCTION PERMIT PROCESS + *EARTHQUAKE ENGINEERING + *LICENSING STATUS OF NUCLEAR PROJECTS +
DESIGN CRITERIA + MALIBU + REACTOR, PRESSURIZED WATER

18-17848

DOAN RL

NOTICE OF PROPOSED ISSUANCE OF FACILITY LICENSE TO UNIVERSITY OF NEW MEXICO AND SAFETY EVALUATION
DIVISION OF REACTOR LICENSING, WASHINGTON, D.C.
8 PAGES, AUGUST 19, 1966, DOCKET NO. 50-252

SAFETY EVALUATION FOR 0.1-WATT AGN-201 MOVED FROM UNIVERSITY OF CALIFORNIA (BERKELEY). TWO BF₃ COUNTERS WILL BE USED DURING FUEL LOADING AND AS ORDINARY NUCLEAR CHANNELS. ADDITIONAL PU-BE SOURCES WILL BE INSTALLED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS) + SAFETY EVALUATION

18-18313

ALSO IN CATEGORY 2

VERMONT YANKEE AMENDMENT 6. SEISMIC DESIGN CONSIDERATIONS
VERMONT YANKEE NUCLEAR POWER CORPORATION, RUTLAND, VERMONT
12 PAGES, 3 FIGURES, MAY 24, 1967, DOCKET NO. 50-271

DESIGN CRITERIA FOR THE REACTOR BUILDING AND VERNON DAM, INCLUDING STABILITY ANALYSIS OF VERNON DAM. VERNON DAM CAPABLE OF WITHSTANDING THE DESIGN EARTHQUAKE FOR THE SITE (0.07 G GROUND ACCELERATION) WITH OUT GROSS FAILURE. ASSUMING AN ACCELERATION OF 0.140, 1300 FT OF CRACKS WOULD APPEAR IN REACTOR-BUILDING WALLS, HALF OF WHICH CLOSE IMMEDIATELY. ASSUMING A CRACK WIDTH OF 20 MILS AND NEGATIVE INSIDE PRESSURE OF 0.25 IN. (H₂O), INFLOW RATE IS 50 CFM (TREATMENT SYSTEM CAPACITY, 1500 CFM).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

*EARTHQUAKE ENGINEERING + *EMERGENCY COOLING CONSIDERATIONS + DESIGN CRITERIA + REACTOR, BOILING WATER +
SAFETY ANALYSIS REPORT, GENERAL + VERMONT YANKEE

CATEGORY 19
SAFETY ANALYSIS AND DESIGN REPORTS

18-18458
ACRS REPORT ON POINT BEACH NUCLEAR PLANT, UNIT NO. 1
WISCONSIN MICHIGAN POWER CO.
3 PAGES, MAY 16, 1967, DOCKET NO. 50-266

POINT BEACH 1 IS LOCATED ON LAKE MICHIGAN, 30 MILES SOUTH OF GREEN BAY, AND IS SIMILAR TO GINNA. POWER, 1396 MWT. EMERGENCY CORE COOLING SYSTEMS INCLUDE (1) HIGH-HEAD INJECTION SYSTEM, LOW-HEAD HEAT-REMOVAL SYSTEM, AND AN ACCUMULATOR SYSTEM. REACTOR MAY INITIALLY HAVE A POSITIVE MODERATOR COEFFICIENT. SAFETY INSTRUMENTATION SYSTEM IS IN THE DESIGN STAGE BUT WILL BE DESIGNED TO IEEE STANDARDS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + *EMERGENCY COOLING CONSIDERATIONS + *MODERATOR COEFFICIENT + POINT BEACH 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

18-18601
BARTON DR + BENNETT GL + CARPENTER WR
POWER BURST FACILITY PRELIMINARY SAFETY ANALYSIS REPORT
PHILLIPS PETROLEUM COMPANY
100-17060 +. 440 PAGES, MARCH 1965

AN OXIDE-FUELED EPITHERMAL REACTOR WHICH SERVES AS A DRIVER FOR FUELED EXPERIMENTS AND IS CAPABLE OF BURSTS WITH INITIAL PERIODS OF 1 MSEC, PEAK POWERS OF 350 GW AND AN ENERGY RELEASE OF 2000 MW-SEC, AND LEVELS UP TO 20 MW. PRIMARY PURPOSE IS TESTING OF HIGH-PERFORMANCE FUELS UNDER ACCIDENT CONDITIONS, INCLUDING TESTS WHERE FUEL SAMPLES ARE DELIBERATELY DESTROYED BY MELTING OR VAPORIZATION. APPENDIX A - RESULTS OF FUEL- AND TRANSIENT-ROD-DRIVE TESTING PROGRAMS. APPENDIX C - HEAT-TRANSFER ANALYSIS. APPENDIX E - RADIOLOGICAL CONSEQUENCES OF ACCIDENTS. APPENDIX F - FACILITY DESCRIPTION. APPENDIX G - OPERATING REGULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *REACTOR DESCRIPTION + FAILURE, FUEL ELEMENT + FUEL MELTDOWN + IRRADIATION TESTING + PBF (POWER BURST FACILITY) + REACTOR, FAST BURST + REACTOR, SAFETY RESEARCH + REACTOR, TEST + SAFETY ANALYSIS REPORT, PRELIMINARY

18-18603
BERMAN RM + MEIERAN HB + PATTERSON PW
IRRADIATION BEHAVIOR OF ZIRCALOY-CLAD FUEL RODS CONTAINING DISHED-END UO₂ PELLETS (LWB-LSBR DEVELOPMENT PROGRAM)
WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LABORATORY
WAPU-TM-629 +. 110 PAGES, 87 FIGURES, 5 TABLES, 16 REFERENCES, JULY 1967

TWO RODS WERE IRRADIATED TO 12.41 AND 15.26 X 10 TO THE 20 FISSIONS/CC IN MTR. THE FORMER, IRRADIATED 9 DAYS IN A FAILED CONDITION, SHOWED EXTENSIVE CIRCUMFERENTIAL RIDGING, HYDRIDING, CRACKING, AND SPALLING OF THE CLAD. THE OTHER ROD (NOT FAILED) SHOWED CIRCUMFERENTIAL RIDGING. VOLUME INCREASE (0.82 V/C PER 10 TO THE 20 FISSIONS/CC) WAS DISTRIBUTED 35% IN DISHED, 49% IN INTERNAL POROSITY OF FUEL MATERIAL, AND 16% IN TOTAL SWELLING. THIS IS ONE OF 3 REPORTS ON 3 TYPES OF PELLETS (DISHED END, ANNULAR, AND LOW DENSITY). GIVES GOOD RESULTS OF POSTOPERATIONAL TESTING ON BOTH RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, CLADDING + *FUEL BURNUP + *IRRADIATION TESTING + BETTIS (ATOMIC POWER LABORATORY) + EXPANSION + FAILURE, FUEL ELEMENT + *RESEARCH AND DEVELOPMENT PROGRAM + URANIUM DIOXIDE + ZIRCALOY

18-18604 ALSO IN CATEGORY 17
LILLIE AF
HEAVY WATER ORGANIC COOLED REACTOR. DESIGN, FABRICATION, AND INITIAL OPERATION OF EXP-WR1-951 FUEL STRING
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
AI-CE-44 +. 48 PAGES, 17 FIGURES, 4 TABLES, 14 REFERENCES, AUGUST 31, 1967

EXPERIMENT IS A FUEL STRING FOR SAP (SINTERED ALUMINUM POWDER) CLAD HYPER-UC (HYPERSTOICHIOMETRIC URANIUM CARBIDE) IRRADIATION TESTS IN THE WR-1, WITH EMPHASIS ON ISOTROPY OF FUEL GROWTH, CLADDING BEHAVIOR, AND PERFORMANCE OF THE 19-ROD FUEL BUNDLE (WHICH SIMULATES THE INNER 19 RODS OF THE 37-ROD HWOCR REFERENCE ASSEMBLY). WHILE MOST OF THE EXPERIMENTAL RESULTS COMPARED FAVORABLY WITH DESIGN CALCULATIONS, TEMPERATURE RESULTS FOR SOME OF THE FUEL RODS DEPARTED SIGNIFICANTLY FROM CALCULATIONS (WHICH USED THE THERMOS CODE, ASSUMING A CYLINDRICAL FUEL BUNDLE INSTEAD OF HEXAGONAL).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*COMPARISON, THEORY AND EXPERIENCE + *FUEL ELEMENT + *IRRADIATION TESTING + CANADA + CLAD + FABRICATION +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-18604 *CONTINUED*

HEAT CONDUCTANCE, FUEL TO CLAD + HWOCR (HEAVY WATER ORGANIC COOLED REACTOR) + REACTOR, HEAVY WATER + REACTOR, ORGANIC COOLED + RESEARCH AND DEVELOPMENT PROGRAM + STOICHIOMETRY + URANIUM CARBIDE + WR 1 (WHITESHELL REACTOR NO. 1, CANADA)

18-18643

DESIGN AND ANALYSIS REPORT. PILGRIM NUCLEAR POWER STATION. VOLUME II.

BOSTON EDISON COMPANY

250 PAGES, TABLES, FIGURES, DESIGN AND ANALYSIS REPORT, VOLUME II, PILGRIM NUCLEAR POWER STATION, JUNE 23, 1967, DOCKET 50-293

LOSS OF COOLANT (MAJOR PIPE RUPTURE) RESULTS IN A TOTAL WHOLE-BODY DOSE, UNDER UNSTABLE METEOROLOGICAL CONDITIONS, OF 2 MREMS AND LIFETIME THYROID DOSE OF 14 MREMS AT 1/4 MILE FROM SITE. PRIMARY-CONTAINMENT-SYSTEM AIRBORNE-FISSION-PRODUCT INVENTORY - 6.4 X 10(4) CURIES (HALOGENS) AND 1.2 X 10(6) CURIES (NOBLE GASES), AFTER 30 MIN. REACTOR BUILDING AIRBORNE FISSION PRODUCT INVENTORY - 87 CURIES (NOBLE GASES) AND 4.9 CURIES (HALOGENS). (APPENDIX A) - REACTOR CORE SPRAY COOLING SYSTEM TEST PROGRAM. (APPENDIX B) - CONTAINMENT FISSION PRODUCT RETENTION CAPABILITY. (APPENDIX C) - CONTROL-ROD-DRIVE-SYSTEM DESCRIPTION AND ANALYSIS. (APPENDIX D) - JET-PUMP-DEVELOPMENT PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*ACCIDENT, LOSS OF COOLANT + ACCIDENT, MAXIMUM CREDIBLE (MCA) + AIRBORNE RELEASE + CONTAINMENT, PRESSURE SUPPRESSION + CORE SPRAY + DOSE + FISSION PRODUCT RETENTION + PILGRIM STATION + PUMP, JET + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TEST, PROOF

18-18644

DESIGN AND ANALYSIS REPORT. PILGRIM NUCLEAR POWER STATION. VOLUME I

BOSTON EDISON COMPANY

275 PAGES, TABLES, DESIGN AND ANALYSIS REPORT, VOLUME I. PILGRIM NUCLEAR POWER STATION, JUNE 23, 1967, DOCKET 50-293

BWR (655 MWE/1912 MWT, SINGLE CYCLE, CONTROLLED CIRCULATION, PRESSURE SUPPRESSION), LOCATED ON CAPE COD BAY AT PLYMOUTH, MASS., IS SIMILAR TO MILLSTONE POINT. DESIGN EARTHQUAKE HAS 0.05 G GROUND ACCELERATION. 15 ENGINEERED SAFEGUARDS LISTED. CORE (560 ZIRC-CLAD FUEL ASSEMBLIES, 145 CRUCIFORM CONTROL RODS OF B4C GRANULES IN S.S. TUBES) IS IN A REACTOR VESSEL 64 FT HIGH AND 18 FT IN DIAMETER. CONTAINMENT STRUCTURE IS SIMILAR TO MILLSTONE, AND EMERGENCY CORE COOLING SATISFIES QUAD CITIES CRITERIA. TRAVELING IN-CORE PROBE SYSTEM. FIGURES ARE IN VOLUME III.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*CONTAINMENT, PRESSURE SUPPRESSION + *INSTRUMENTATION, IN CORE + EARTHQUAKE, GENERAL + ENGINEERED SAFETY FEATURE + PILGRIM STATION + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-18645

DESIGN AND ANALYSIS REPORT. PILGRIM NUCLEAR POWER STATION. VOLUME III

BOSTON EDISON COMPANY

275 PAGES, FIGURES, DESIGN AND ANALYSIS REPORT, VOLUME III, PILGRIM NUCLEAR POWER STATION, JUNE 23, 1967, DOCKET 50-293

CONTAINS THE FIGURES FOR VOLUMES I AND II.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

PILGRIM STATION + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-18674

ZASLER J

SAFETY ASPECTS OF THREE IN-PILE GAS LOOPS

OAK RIDGE NATIONAL LABORATORY

5 PAGES, 2 FIGURES, NUCLEAR SAFETY 7(2) PAGES 165-69 (WINTER 65-66)

DISCUSSES GENERAL SAFETY MEASURES APPLICABLE TO IN-PILE LOOPS. SECONDARY CONTAINMENT SHIELDING, HEAT-GENERATION CONTROL, AND COOLING PROVISIONS OF THREE GAS LOOPS ARE COMPARED.

*IN PILE LOOP + CONTAINMENT, GENERAL + EMERGENCY COOLING CONSIDERATIONS + ENGINEERED SAFETY FEATURE + GETR (GENERAL ELECTRIC TEST REACTOR) + ORR (OAK RIDGE RESEARCH REACTOR) + REACTOR, RESEARCH + REACTOR, TEST + SAFETY PRINCIPLES AND PHILOSOPHY + SHIELDING

18-18695

MOEN RH + KUDIRKA AA + GIFFORD JE

RADIAL VANE STEAM SEPARATOR DEVELOPMENT. VOLUME II. FINAL REPORT, PHASE I

GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA. ATOMIC POWER EQUIPMENT DEPT.

GEAP-5283(VOL. 2) + EURAEC - 1854(VOL. 2) +. 232 PAGES, JANUARY 1967

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-18695 *CONTINUED*

VOL. 2 CONTAINS DATA. (APPENDIX C) - LARGE AIR-WATER TEST FACILITY MODIFICATION. (APPENDIX D) - WALL-FLOW DATA AND CURVES. (APPENDIX E) - AIR-WATER DATA FOR FCRV-3 AND 4 MODEL SEPARATOR. (APPENDIX F) - FCRV-2 STEAM-WATER DATA. (APPENDIX G) - TWO-VANE TEST DATA. (APPENDIX H) - ADJUSTABLE TWO-VANE STEAM-WATER DATA. (APPENDIX I) - DATA ON VANE FLOW SPREAD. (APPENDIX J) - DATA FOR AIR-WATER TESTS OF CLEAR PLASTIC TWO-VANE UNIT. (APPENDIX K) - MODEL FULL-CIRCLE RADIAL VANE SEPARATORS. (APPENDIX L) - DRAWINGS OF TWO-VANE TEST UNITS. (APPENDIX M) - MISCELLANEOUS TEST EQUIPMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*SEPARATOR + *STEAM GENERATOR + FLOW THEORY AND EXPERIMENTS + MODEL TESTING + REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM

18-18700 ALSO IN CATEGORY 6

XENON STABILITY IN LARGE HTGRS

GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION

GA-6881 +. 12 PAGES, 5 FIGURES, 2 TABLES, PAGE 53 THRU 64 OF MULTIMILLION KILOWATT HTGR. A DESALINATION REACTOR SCALEUP STUDY, MAY 19, 1967

CORE SIZE NECESSARY FOR 10,000-MWT RANGE WILL BE UNSTABLE FROM XENON-INDUCED OSCILLATIONS, AZIMUTHAL OR RADIAL. FUEL LENGTH SELECTED (15.5 FT) IS SHORT ENOUGH, HOWEVER, TO PREVENT AXIAL XENON OSCILLATIONS. RADIAL OR AZIMUTHAL OSCILLATIONS CAN BE CONTROLLED BY PARTIAL INSERTION OF STANDARD RODS FROM ABOVE THE CORE. SIGNIFICANT CHANGES IN POWER DENSITY DUE TO XENON TRANSIENTS CAN OCCUR OVER A DISTANCE OF 8 FT. THEREFOR, ROD SPACING OF ABOUT 3 FT IS ADEQUATE FOR XENON CONTROL. CRITICAL DIMENSION FOR XENON OSCILLATION WAS CALCULATED TO BE 30 FT (COSINE FLUX) AND 20 FT (FLAT FLUX). DISCUSSES IN-CORE INSTRUMENTATION NECESSARY TO DETECT XENON TRANSIENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*XENON OSCILLATION + DESIGN STUDY + INSTRUMENTATION, IN CORE + MATHEMATICAL STUDY + PERFORMANCE LIMIT + REACTOR KINETICS + REACTOR, DESALINATION + REACTOR, HIGH TEMP. GAS

18-18701

STUDIES OF GRAPHITE SHRINKAGE UNDER IRRADIATION

GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA. GENERAL ATOMIC DIVISION

GA-6881 +. 2 PAGES, PAGE 79 AND 80 OF MULTIMILLION KILOWATT HTGR. A DESALINATION REACTOR SCALEUP STUDY, MAY 19, 1967

GRAPHITE TESTED WAS EGCR NEEDLE-COKE TYPE. MINIMUM CONTRACTION DUE TO RADIATION EFFECTS WAS AT 800 C. STRESSES DUE TO DIFFERENTIAL EXPANSION FROM CORE RADIAL TEMPERATURE GRADIENTS WAS WITHIN ALLOWABLE LIMITS. COLUMN ALIGNMENT WOULD BE MAINTAINED BY DOWELING FUEL AND REFLECTION BLOCKS TOGETHER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*GRAPHITE + CORE COMPONENTS, MISCELLANEOUS + DESIGN CRITERIA + DESIGN STUDY + MODERATOR + RADIATION EFFECT + REACTOR, HIGH TEMP. GAS

18-18732

THREE MILE ISLAND AMENDMENT 2 TO PERMIT APPLICATION

METROPOLITAN EDISON, INC.

89 PAGES, FIGURES, TABLES, OCTOBER 2, 1967, DOCKET NO. 50-289

STATES THAT JULY 1967 CONSTRUCTION-PERMIT CRITERIA WILL BE MET. MOST CHANGES APPEAR TO BE MINOR CHANGES IN PLANT DESIGN (TEST LINES CHANGED ARE MARKED).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + THREE MILE ISLAND (PWR)

18-18745

BREIZY CE

SODIUM-COOLED REACTORS. FAST CERAMIC REACTOR DEVELOPMENT PROGRAM. QUARTERLY REPORT NO. 16, AUGUST - OCTOBER 1965

GEAP-4982 +. 69 PAGES, JANUARY 1966

ONE OF A SERIES OF PROGRESS REPORTS WHOSE CONTENTS PERTAIN TO (TASK B) VENTED FUEL DEVELOPMENT, (TASK C) TRANSIENT TESTING OF FUEL, (TASK E) FUEL-PERFORMANCE EVALUATION, (TASK F) FAST-FLUX IRRADIATION OF FUEL, (TASK G) REACTOR PHYSICS AND CORE ANALYSIS, (TASK K) REACTOR DESIGN AND SAFETY CHARACTERISTICS, (TASK L) FCR CLADDING EVALUATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-18745 *CONTINUED*

*RESEARCH AND DEVELOPMENT PROGRAM + CLAD + FUEL ELEMENT + IRRADIATION TESTING + REACTOR, FAST + REACTOR, LIQUID METAL COOLED

18-18854

HINKLEY POINT B

3 PAGES, FIGURES, NUCLEAR ENGINEERING 12(128) PAGES 26-28 (OCTOBER 18, 1967)

BRIEFLY DESCRIBE THE SECOND BRITISH COMMERCIAL ADVANCED GAS REACTOR. COMPARES IT WITH DUNGENESS B. A COST SAVING OF 10% IS ESTIMATED. FEATURES INCLUDE INCREASED GAS PRESSURE, A FUEL CYCLE BASED ON WHOLE-CHANNEL DISCHARGE RATHER THAN AXIAL SHUFFLING, USE OF ENCAPSULATED GAS CIRCULATORS, USE OF GRAPHITE DEVELOPED FOR HIGH NEUTRON DOSAGE, SHORTENED STEAM-PIPE RUNS, AND CENTRALIZATION OF CONTROL AND INSTRUMENT SYSTEMS.

*REACTOR DESCRIPTION + REACTOR, GAS COOLED + REACTOR, GRAPHITE MODERATED + REACTOR, POWER + UNITED KINGDOM

18-18855

VULCAIN PROJECT--STATUS REPORT

3 PAGES, FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING 12(128) PAGES 34-36 (OCT. 18, 1967)

REPORTS STATUS OF DEVELOPING SMALL REACTORS FOR REMOTE-AREA AND INDUSTRIAL APPLICATIONS. THE BR-3 WAS CONVERTED TO A VARIABLE MODERATION SYSTEM TO SERVE AS A PROTOTYPE, WITH PUMP AND HEAT EXCHANGER INSIDE REACTOR VESSEL. THE EXPERIMENTAL PROGRAM TO DATE INCLUDES CRITICAL EXPERIMENTS, TESTING OF CORE COMPONENTS, FLOW EXPERIMENTS, AND CONTROL-ROD DEVELOPMENT. DURING A TEST OF THE HIGH-PRESSURE PRIMARY SYSTEM, A PIPE ON THE VESSEL DRAIN LINE RUPTURED DUE TO VIBRATION.

*RESEARCH AND DEVELOPMENT PROGRAM + FAILURE, PIPE + REACTOR, PRESSURIZED WATER + STEAM GENERATOR + UNITED KINGDOM + VIBRATION

18-18903

GOLDMAN L + HORNBY P.

THE DESIGN OF A MEDICAL LASER LABORATORY - A PLANNED STRUCTURE TO REDUCE THE OCCUPATIONAL HAZARDS OF LASER RESEARCH

CHILDRENS HOSPITAL RESEARCH FOUNDATION, CINCINNATI

5 PAGES, 4 FIGURES, 7 REFERENCES, ARCH. ENVIRON. HEALTH, 10, PAGES 493-7 (MARCH 1965)

REVIEWS POSSIBLE PERSONNEL HAZARDS (EYE AND SKIN DAMAGE, LIQUID-NITROGEN BURNS, ETC.) AND THEIR PREVENTION. SAFETY SYSTEM SHOULD INCLUDE (1) WARNING-LIGHT SYSTEM OPERATING WHEN LASER IS CHARGED, (2) MUTED BELL FOR SIGNALING THAT CAPACITOR BANKS ARE CHARGED, (3) AUTOMATIC DOOR LOCKS WITH OVERRIDE TO ALLOW WORKERS TO LEAVE BUT NOT ENTER AREA, (4) BLACK CURTAINS TO SCREEN AGAINST LASER FLASH, (5) SPECIAL GOGGLES, (6), FLAT BLACK PAINT ON INTERIOR SURFACES, (7) AIR CONDITIONING.

*RADIATION SAFETY AND CONTROL + BUILDING + LASER

18-18905

INTERIM SAFETY EVALUATION REPORT ARMY PULSE RADIATION FACILITY NUCLEAR REACTOR PREOPERATIONAL REVIEW BY THE ARMY REACTOR SYSTEMS HEALTH AND SAFETY COMMITTEE (ARCHS)

DEPARTMENT OF THE ARMY

ARCHS 67-9 +. 24 PAGES, 4 FIGURES, JUNE 1967

REACTOR (NEARLY IDENTICAL TO ORNL-HPRR BUT WITH GLORY HOLE) IS MOUNTED ON A TRANSPORTER THAT MOVES ON RAILS, ALLOWING OPERATION OUTSIDE THE REACTOR BUILDING. CONTROL BUILDING IS BELOW GROUND. SAFETY CONSIDERATIONS INCLUDE (1) AUTOMOTIVE TEST COURSE ON BUILDING GROUNDS, (2) OVERFLIGHTS FROM NEARBY AIRPORT, (3) PROPOSED SEWAGE PLANT ONE MILE FROM SITE, (4) ROAD PASSING THROUGH 1500-YARD WARNING AREA. THE REACTOR TRANSPORTER REQUIRES FURTHER DEVELOPMENT TO SATISFY SINGLE-FAILURE CRITERIA.

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPT. OF THE ARMY, WASHINGTON, D. C.

*SAFETY ANALYSIS REPORT, REVIEW OF + ADMINISTRATIVE CONTROLS AND PRACTICES + FUEL HANDLING MACHINE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, FAST BURST + REACTOR, MILITARY + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + SHIELDING + SINGLE FAILURE CRITERION

18-18907

REPORT OF PREOPERATIONAL REVIEW OF MH-1A (STURGIS) FLOATING NUCLEAR POWER PLANT

DEPARTMENT OF THE ARMY, ARMY REACTOR SYSTEMS

ARCHS 67-3 +. 24 PAGES, 11 REFERENCES, FEBRUARY 1967

CONTAINMENT LEAK-RATE TEST IS TO BE CONDUCTED AT 50 PSIG, WITH A LIMIT OF 0.6% (FIRST TEST SHOWED 0.28%). STEPS HAVE BEEN TAKEN TO LESSEN THE PROBABILITY AND CONSEQUENCES OF A CONTROL-ROD-EJECTION ACCIDENT. GIVES ORGANIZATION FOR OPERATION AT BELVOIR SITE, HEALTH-PHYSICS COVERAGE OF TEST PROGRAM, AND REACTOR TRANSPORTATION TO BELVOIR.

CATEGORY 16
SAFETY ANALYSIS AND DESIGN REPORTS

18-18907 *CONTINUED*

AVAILABILITY - SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, WASHINGTON, D. C. 20315

*ACCIDENT, CONTROL ROD EJECTION + *TEST, LEAK RATE + ADMINISTRATIVE CONTRLS AND PRACTICES + CONTAINMENT, HIGH PRESSURE + MH 1A (MOBILE HIGH POWER PLANT 1A) + MODIFICATION, SYSTEM OR EQUIPMENT + PRESSURE, INTERNAL + REACTOR STARTUP TESTING + REACTOR, MILITARY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, REVIEW OF + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

18-18912 ALSO IN CATEGORIES 5 AND 16
ELK RIVER DILUTION FACTOR, AND FEEDWATER OSCILLATION

RURAL COOPERATIVE POWER ASSOCIATION
NUS-269 +. 122 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967, DOCKET NO. 115-1

(PAGES 12-18) RE-EVALUATION OF ANNUAL AVERAGE DILUTION FACTORS, USING WINDIF-3 WITH DATA FROM ON-SITE AND MINNEAPOLIS, YIELDED DILUTION FACTOR 50 TIMES CURRENT VALUES. (PAGES 42-50) PRIMARY FEEDWATER HYDRAULIC OSCILLATIONS ARE BRIEFLY SUMMARIZED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *DILUTION + *FLUCTUATION + *REACTOR POWER + *WIND STATISTICS + ATMOSPHERIC DIFFUSION + CIRCULATION, NATURAL (LOOPS AND REACTORS) + ELK RIVER + OPERATIONS REPORT, ANALYSIS + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

18-18995
THIRD SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
ROCHESTER GAS AND ELECTRIC CORPORATION

199 PAGES, 20 FIGURES, 5 TABLES, 11 REFERENCES, FROM THIRD SUPPLEMENT TO THE PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT FOR THE ROCHESTER GAS AND ELECTRIC GINNA (BROOKWOOD) NUCLEAR STATION UNIT 1, DOCKET 50-244, AMENDMENT 3, FEBRUARY 28, 1966

SUPPLEMENT 3 TO THE PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT ANSWERS 96 QUESTIONS RAISED BY ACRS AND DRL IN LETTERS OF FEBRUARY 3 AND FEBRUARY 18, 1966.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + GINNA + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19106 ALSO IN CATEGORY 12
INFORMATION ON CONOWINGO DAM AS A HEAT SINK
PHILADELPHIA ELECTRIC CO., PHILADELPHIA, PA.
12 PAGES, 2 FIGURES, SEPTEMBER 1967, DOCKET NO. 50-277/278

RESPONSE TO SEPT. 20, 1967, ACRS QUESTIONS. (1) SHUTDOWN COOLING FOLLOWING CONOWINGO DAM FAILURE WOULD BE BY LEFT-OVER WATER POOLS, AIR-COOLED HEAT EXCHANGERS, OR ON-SITE WATER TRAPS. (2) CLOSED-CYCLE COOLING TOWERS ARE BEING CONSIDERED. TRITIUM AND OTHER CONTAMINANTS DISCHARGED THRU THE TOWER PLUMES WILL BE MANY ORDERS OF MAGNITUDE BELOW MPC. (3) FAILURE OF UP-RIVER HOLTWOOD DAM WAS COMPARED WITH OTHER DAM FAILURES. WATER WOULD BE RELEASED AT 100,000 CFS AND WOULD RAISE CONOWINGO 1 FT/HR FOR 8-10 HR. PLANT COULD BE SAFELY SHUTDOWN EVEN IF CONOWINGO GATES WERE NOT LOWERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HEAT SINK + *SOURCE, CONTINUOUS + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19107 ALSO IN CATEGORIES 5 AND 12
PALLADINO NJ
ACRS REPORT ON PEACH BOTTOM 2 AND 3
ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
PRESS REL. K-246 +. 3 PAGES, LETTER TO DR. SEABORG FROM PALLADINO, OCTOBER 12, 1967, DOCKET NO. 50-277/8

ACRS SUGGESTS DRL REVIEW (1) SOURCES OF WATER IN CASE CONOWINGO DAM BREAKS AND (2) MODIFICATION TO RING HEADER SUPPLYING TORUS WATER TO EMERGENCY CORE COOLING. ACRS RECOMMENDS FURTHER EXPERIMENTS ON FILM-CONDENSATION COEFFICIENT USED IN DEPRESSURIZATION PREDICTIONS FOR HPCI SYSTEM, A CAREFUL STARTUP PROGRAM, AND REFERS TO MARCH 14, 1967 LETTER ON BROWNS FERRY AS APPLICABLE HERE. ACRS APPROVES REACTOR CONSTRUCTION.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*CORE SPRAY + *HEAT TRANSFER EXPERIMENT + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + CONTAINMENT, PRESSURE SUPPRESSION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

*Wrong!
Should be
50-271*

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19108 ALSO IN CATEGORY 12
PALLADINO NJ
ACRS COMMENT ON VERMONT YANKEE COOLING TOWERS
ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
PRESS REL. K-246 +. 2 PAGES, LETTER TO DR. SEABORG FROM PALLADING, OCTOBER 12, 1967, DOCKET NO. 50-271/8

USE OF COOLING TOWERS FOR A PORTION OF THE CONDENSER COOLING WATER IS ACCEPTABLE.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*HEAT SINK + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + REACTOR, PRESSURIZED WATER +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + THERMAL POLLUTION + VERMONT YANKEE

18-19142
COMPACT SODIUM COOLED REACTOR PLANT KARLSRUHE (KKN-KARLSRUHE) SAFETY REPORT, VOL. I, II, AND III
INTERATOM GMBH, GERMANY
INTAT-70 +. 450 PAGES, FIGURES, TABLES, APRIL 10, 1967. IN GERMAN

VOL. I - DESCRIPTIONS OF THE NUCLEAR PLANT (INTRODUCTION, SITE, DESCRIPTION, ENERGY SOURCES, INSTRUMENTATION AND CONTROL, DESIGN DATA, RADIATION FIELD, NORMAL OPERATION). VOL. II - ABNORMAL CONDITIONS AND COUNTER MEASURES (REACTIVITY DISTURBANCES, DISTURBANCES IN THE COOLING SYSTEM, ABNORMAL HANDLING, RADIOLOGICAL CONSEQUENCES, MAXIMUM CREDIBLE ACCIDENT, PLANNING FOR CATASTROPHE) PROTECTION AND SAFETY MEASURES (RADIATION PROTECTION, RADIATION PROTECTION ZONES, PERSONNEL RADIATION EXPOSURE IN NORMAL OPERATION, FUEL HANDLING, PROTECTION OF THE SURROUNDINGS. APPENDIX COLLECTION OF OPERATION AND DESIGN DATA. VOL. III - DRAWINGS.

AVAILABILITY - INTERATOM, INTERNATIONALE ATOMREAKTORBAU GMBH, 506 BENSBERG/KÖLN, POSTFACH, GERMANY

*KARLSRUHE + *REACTOR, LIQUID METAL COOLED + *SAFETY ANALYSIS REPORT, GENERAL +
ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTROL, GENERAL + ENERGY SOURCE + FUEL HANDLING + GERMANY +
HYDRAULIC ANALYSIS + INSTRUMENTATION, GENERAL + RADIATION SAFETY AND CONTROL + REACTOR TRANSIENT

18-19149
THERMIONIC CRITICAL ASSEMBLY SUPPLIES ANSWERS TO AEC QUESTIONS ON PROPOSED CONSTRUCTION PERMIT
GENERAL DYNAMICS, DIVISION OF GENERAL ATOMIC, SAN DIEGO, CALIFORNIA
15 PAGES, 2 FIGURES, 4 TABLES, 6 REFERENCES, OCTOBER 9, 1967, DOCKET NO. 50-234

13 QUESTIONS INCLUDING - PHENOXY RADIATION DAMAGE (1), CORE EXPANSION AND MOVEMENT (2),
FUSE-SPRING FAILURE (1), SCRAM TIMES (1), SOURCE (1), PRESENCE OF HYDROGENOUS LIQUIDS (1),
TEMPERATURE COEFFICIENT (2), DOPPLER SAMPLES (1), AND SAFEGUARDS COMMITTEE (1).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE COMPONENTS, MISCELLANEOUS + *CRITICALITY SAFETY + *RADIATION DAMAGE + *REACTIVITY EFFECT, EXPANSION +
*REACTOR SAFETY SYSTEM + *TEMPERATURE COEFFICIENT + AEC QUESTION + CRITICAL ASSEMBLY FACILITY +
REACTOR, FAST

18-19182 ALSO IN CATEGORIES 8 AND 5
FORTESCUE P + SHANSTROM R + BROIDO J + STEIN JM + BAXTER A + FENECH H
SAFETY CHARACTERISTICS OF LARGE GAS-COOLED FAST POWER REACTORS
GENERAL ATOMIC, SAN DIEGO, CALIF. JOHN JAY HOPKINS LAB. FOR PURE AND APPLIED SCIENCE
GA-6732 + CONF-651009-5 +. 81 PAGES, OCTOBER 8, 1965, PRESENTED AT CONFERENCE ON SAFETY, FUELS AND CORE
DESIGN IN LARGE FAST POWER REACTORS, ARGONNE, ILL.

DESCRIBES THE PRINCIPAL MECHANICAL FEATURES OF A REFERENCE DESIGN AND THEN ANALYZES SELECTED
ACCIDENTS, INCLUDING LOSS OF COOLANT, REACTIVITY CHANGES CAUSED BY INTRODUCTION OF WATER INTO
THE CORE, AND CONTROL ROD WITHDRAWAL. OTHER TOPICS INCLUDE A STABILITY ANALYSIS AND
MAXIMUM-ENERGY-RELEASE STUDIES FROM SEVERE ACCIDENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *REACTOR, GAS COOLED + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES +
ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOSS OF COOLANT + ACCIDENT, REACTIVITY + REACTOR STABILITY +
REACTOR, FAST

18-19247 ALSO IN CATEGORY 7
REVISED SAR APPENDIX 5 - RECALCULATED MAXIMUM FISSION-PRODUCT RELEASE AFTER A FUEL ELEMENT FAILURE
MICHIGAN STATE UNIVERSITY
9 PAGES, 1 TABLE, SEPTEMBER 25, 1967, DOCKET NO. 50-294

RECALCULATIONS WITH A NEW RELEASE FACTOR (FUEL TO CLAD-FUEL GAP) OF 1.5×10^{-5} VS 1.4×10^{-2} PREVIOUSLY USED, (BASED ON UNREFERENCED G.A. EXPERIMENTS) AND ON 2% XENON SOLUBILITY
IN WATER VS 5%, DECREASES (1) MAXIMUM DOSE RATE IN REACTOR ROOM (1450 MR/HR TO 1.49), (2)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19247 *CONTINUED*

AVERAGE DOSE RATE IN 1 HR (575 MR/HR TO 0.75), AND (3) AVERAGE AIR ACTIVITY ASSUMING 1 FUEL FAILURE PER YEAR (45.6×10^{-7} TH) TO 1.14×10^{-8} TH MICRO-C/CC). AN ADDITIONAL SECTION ON CLAD FAILURE IN AIR CALCULATES A DOSE RATE OF 2.25 MR/HR, AND A THYROID DOSE OF 70 REM IN ONE HOUR WITH NO VENTILATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DOSE + *FISSION GAS RELEASE + AIRBORNE RELEASE + FAILURE, FUEL ELEMENT + FISSION PRODUCT RETENTION + FISSION PRODUCT, IODINE + FUEL ELEMENT + REACTOR, RESEARCH + SAFETY ANALYSIS REPORT, GENERAL + TRIGA (TRAINING REACTOR, ISOTOPES, G.A.) + WATER, GENERAL + XENON

18-19283

ALSO IN CATEGORY 12

AMENDMENT 18 - ADDITIONAL INFORMATION-STANDBY CORE COOLING SYSTEMS DESIGN
JERSEY CENTRAL POWER AND LIGHT COMPANY
16 PAGES, 5 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

PROVIDES ADDITIONAL INFORMATION ON (1) CONTROL-DRIVE PUMP USED FOR SMALL BREAKS, (2) CORE-SPRAY-SYSTEM STRUCTURAL REQUIREMENTS, (3) WATER INJECTION INTO A HOT CORE-SPRAY SPARGER RING, (4) ISOLATION PROVISION FOR REACTOR-BUILDING CORNER ROOMS, (5) SINGLE FAILURES IN DC POWER SYSTEMS FOR ENGINEERED SAFEGUARDS, (6) DIESEL-GENERATOR FUEL-OIL SUPPLY AND REPLENISHMENT CAPABILITY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY COOLING CONSIDERATIONS + *EMERGENCY POWER, ELECTRIC + CORE SPRAY + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL + THERMAL MECHANICAL EFFECT

18-19284

ALSO IN CATEGORY 12

AMENDMENT 18-1 - USE OF ROD DRIVE PUMP FOR SMALL BREAKS
JERSEY CENTRAL POWER AND LIGHT COMPANY
2 PAGES, PAGE 1-1 AND 1-2, 2 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

AUTO-RELIEF VALVES CAN BE PREVENTED FROM LIFTING FOR BREAKS LESS THAN 0.002 SQ. FT (BY PLACING PUMP MOTOR ON DIESEL BUS, AND LOWERING LOW-LOW RELIEF-VALVE TRIP) SO ROD-DRIVE PUMP WILL KEEP CORE COVERED (RELIEF-VALVE USAGE IN THIS SITUATION WOULD UNCOVER CORE MOMENTARILY). NEAR TRIP POINT DOES NOT AFFECT RELIEF-VALVE FUNCTION ABOVE 0.002 SQ. FT, AND RESULTS IN IMPROVEMENT ON CALCULATED PEAK-CLAD-TEMP.-VS-BREAK-SIZE GRAPH.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD DRIVE + *CORE REFLOODING SYSTEM + *PRESSURE RELIEF + ACCIDENT, LOSS OF COOLANT + EMERGENCY POWER, ELECTRIC + OYSTER CREEK + PUMP + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19285

ALSO IN CATEGORY 12

AMENDMENT 18-2 - CORE SPRAY SYSTEM STRUCTURAL REQUIREMENTS
JERSEY CENTRAL POWER AND LIGHT COMPANY
2 PAGES, PAGE 2-2 AND 2-3, OCTOBER 1967, DOCKET NO. 50-219

DISCUSSES DESIGN CRITERIA (NORMAL TRANSIENTS, MAX. EARTHQUAKE LOADING, ACCIDENT LOADING) AND ASSERTS THAT PIPING AND STRUCTURE MEET CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *EARTHQUAKE ENGINEERING + DESIGN CRITERIA + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL + VIBRATION

18-19286

ALSO IN CATEGORY 12

AMENDMENT 18-3 - TESTS ON BACK PRESSURE OF WATER INJECTION INTO A HOT CORE SPRAY SPARGER RING
JERSEY CENTRAL POWER AND LIGHT COMPANY
5 PAGES, PAGE 3-1 AND 3-2, 3 FIGURES, OCTOBER 1967, DOCKET NO. 50-219

QUARTER-SECTION TESTS SIMULATING ACCIDENT USAGE INDICATED A SLIGHT FLOW REDUCTION (DUE TO STEAM FORMATION) BETWEEN 2-5 SEC AFTER INITIATION, BUT, BY 12 SEC, FULL FLOW HAD BEEN REACHED. REFERENCE TO BONUS SPRAY-RING TESTS IN 1961. FLOW PERTURBATIONS CONSIDERED WELL UNDERSTOOD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE SPRAY + *FLOW ORIFICE OR RESTRICTION + *MOCKUP + *TESTING + ACCIDENT, LOSS OF COOLANT + FLOW, TWO PHASE + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19287

ALSO IN CATEGORY 11

AMENDMENT 18-4 - ISOLATION PROVISION FOR REACTOR BUILDING CORNER ROOMS
JERSEY CENTRAL POWER AND LIGHT COMPANY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19287 *CONTINUED*
1 PAGE, PAGE 4-1, OCTOBER 1967, DOCKET NO. 50-219

LOWEST-LEVEL CORNER ROOMS WILL BE SEALED (WT DOORS, CHECK VALVES IN FLOOR DRAINS, SEALED PIPING PENETRATIONS) SO NO POSSIBILITY OF TORUS WATER ENTERING. EVEN THEN VOLUMES ARE SUCH THAT ADEQUATE NPSH IS MAINTAINED FOR CORE AND CONTAINMENT SPRAY PUMPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BUILDING + CONTAINMENT SPRAY + CONTAINMENT, PRESSURE SUPPRESSION + CORE SPRAY + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19288 ALSO IN CATEGORIES 10 AND 12
AMENDMENT 18-5 - SINGLE FAILURE IN DC POWER SYSTEMS FOR ENGINEERED SAFEGUARDS
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 5-1, OCTOBER 1967, DOCKET NO. 50-219

ASSERTS DC POWER SYSTEM MEETS SINGLE-FAILURE CRITERION FOR REDUNDANCY OF CIRCUITRY AND COMPONENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY POWER, ELECTRIC + *ENGINEERED SAFETY FEATURE + *SINGLE FAILURE CRITERION + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19289 ALSO IN CATEGORY 10
AMENDMENT 18-6 - DIESEL FUEL OIL SUPPLY AND REPLENISHMENT
JERSEY CENTRAL POWER AND LIGHT COMPANY
1 PAGE, PAGE 6-1, OCTOBER 1967, DOCKET NO. 50-219

A 15,000-GAL STORAGE TANK IS BEING PROVIDED, SUFFICIENT FOR 3 DAYS AT FULL LOAD FOR ONE 2.5-KW DIESEL. MONTHLY TEST OPERATION WILL CONSUME 500 GAL, AND TANK WILL BE KEPT FULL. TRUCK DELIVERY CAN BE MADE FROM A VARIETY OF PLACES IN 2-3000-GAL LOTS. THE 75,000-GAL HEATING BOILER SUPPLY ON SITE COULD BE USED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENERGY SOURCE + *GENERATOR, DIESEL + FUEL BURNUP + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19422 ALSO IN CATEGORY 5
LOCKHART RW
FEASIBILITY STUDY OF BOILING WATER REACTOR NUCLEAR STEAM SUPPLY SYSTEMS WITH CAPACITIES UP TO 10,000 MWT.
FINAL REPORT
GENERAL ELECTRIC CO., SUNNYVALE, CALIF.
GEGR-5155 +. 127 PAGES, FIGURES, TABLES, FEBRUARY 1967

A FEASIBILITY STUDY OF A 10,000-MWT BWR WAS MADE TO DETERMINE TECHNOLOGICAL ADVANCES REQUIRED. IT WAS DETERMINED THAT AN INCREASE IN THERMAL OUTPUT OF BWR WOULD REQUIRE A LARGER-DIAMETER CORE RATHER THAN A LONGER CORE BECAUSE OF ADVERSE EFFECTS ON POWER DENSITY, COOLING-PUMP REQUIREMENTS, FLOW STABILITY, AND HEAT TRANSPORT. INCREASE OF POWER DENSITY IS FORECAST FROM 60 KW/L (DEMONSTRATED IN BIG ROCK POINT) TO 80 KW/L.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

DESIGN STUDY + REACTOR, BOILING WATER

18-19438
SUPPLEMENTAL INSERT SHEETS FOR ENGINEERING MATERIALS LIST
USAEC DIVISION OF TECHNICAL INFORMATION
TID-4100(SUPPL. 41) +. 36 PAGES, OCTOBER 1967

SUPPLEMENTAL SHEETS FOR ADDITION TO AN EXTENSIVE LIST OF ENGINEERING DRAWINGS IN THE TID-4100 SERIES OF REPORTS.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION, FREE

*ENGINEERING DRAWING LIST

18-19447 ALSO IN CATEGORY 12
OYSTER CREEK AMENDMENT 22 - TEN ANSWERS TO QUESTIONS ON CONTAINMENT
JERSEY CENTRAL POWER AND LIGHT COMPANY
29 PAGES, 2 FIGURES, 7 TABLES, OCTOBER 16, 1967, DOCKET NO. 50-219

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19447 *CONTINUED*

IN ADDITION TO ANSWERS ON CONTAINMENT, OYSTER CREEK IS PREPARED TO INSTALL ADDITIONAL HIGH-PRESSURE COOLANT-INJECTION CAPABILITY UNDER LOSS OF OFF-SITE POWER IF AEC STAFF FEEL PRESENT CORE-SPRAY SYSTEM IS INSUFFICIENT. G.E. HAS AGREED TO INVESTIGATE WAYS TO INCREASE FLOODING CAPABILITY OF REACTOR VESSEL. RESULTS WILL BE REPORTED TO AEC WHEN AVAILABLE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE REFLOODING SYSTEM + *CORE SPRAY + *EMERGENCY COOLING CONSIDERATIONS + AEC QUESTION + MODIFICATION, SYSTEM OR EQUIPMENT + OYSTER CREEK + PRESSURE, INTERNAL + REACTOR, BOILING WATER + RESEARCH AND DEVELOPMENT PROGRAM + SAFETY ANALYSIS REPORT, GENERAL

18-19476 ALSO IN CATEGORY 9
ADDITIONAL INFORMATION ON INSTRUMENTATION
JERSEY CENTRAL POWER AND LIGHT COMPANY

9 PAGES, PAGE II-1-1 THRU II-4-1, OCTOBER 16, 1967, DOCKET NO. 50-219, AMENDMENT 20

INFORMATION INCLUDES ENVIRONMENTAL SPECIFICATIONS FOR THE SOURCE-, INTERMEDIATE-, AND POWER-RANGE MONITOR SYSTEMS, AND THE AREA RADIATION MONITOR. ELECTROMATIC RELIEF VALVES (ACTUATED BY A DC SOLENOID) WILL OPERATE AT ACCIDENT CONDITIONS OF 62 PSIG SATURATED STEAM ATMOSPHERE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENVIRONMENTAL CONDITION + *INSTRUMENTATION, INTERMEDIATE RANGE + *INSTRUMENTATION, POWER RANGE + *INSTRUMENTATION, STARTUP RANGE + *VALVE + AEC QUESTION + INSTRUMENTATION, GENERAL + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19503 ALSO IN CATEGORY 5
OYSTER CREEK AMENDMENT 14 TO PSAR--RE-ANALYSIS OF TURBINE TRIPS
JERSEY CENTRAL POWER AND LIGHT COMPANY

55 PAGES, FIGURES, TABLES, OCTOBER 31, 1967, DOCKET 50-219

CONSISTS OF REVISED PAGES AND GRAPHS TO PSAR CONCERNING NEW ANALYSIS OF ACCIDENTS (LOSS-OF-LOAD, FEEDWATER, AND OTHER VALVE MALFUNCTIONS) AT INITIAL OPERATING POWER OF 1600 MWt, RATHER THAN 1860 MWt.

*ACCIDENT, LOAD REJECTION + OYSTER CREEK + PRESSURE, INTERNAL + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL + TURBINE

18-19516

LAMPE DA + RABY TM

DESIGN, DEVELOPMENT AND FABRICATION OF PROTOTYPE LOW ENRICHED SUPERHEATER FUEL ELEMENTS (LESH) PATHFINDER ATOMIC POWER PLANT

ALLIS CHALMERS MANUFACTURING COMPANY, ATOMIC ENERGY DIVISION, BETHESDA, MARYLAND
ACNP-67,516 +. 110 PAGES, FIGURES, TABLES, APRIL, 1967

DESCRIBES FABRICATION OF TWO SEVEN-ROD-CLUSTER ELEMENTS, WITH FUEL TUBES SEPARATED BY SPIRAL WIRES R-F WELDED TO THE INCOLOY-800 CLAD. BULK OF REPORT IS MECHANICAL, THERMAL-HYDRAULIC, AND PHYSICS DESIGN AND TEST. SAFETY ANALYSIS WAS ABBREVIATED AT COMPLETION OF ASSEMBLIES. APPENDICES FULLY DESCRIBE FABRICATION TECHNIQUES AND FABRICATION SPECIFICATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*FABRICATION + *FUEL ELEMENT + FUEL, PELLET TYPE + HEAT TRANSFER ANALYSIS + INCOLOY + PATHFINDER + PRESSURE DROP + PRESSURE, INTERNAL + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM + TESTING + URANIUM DIOXIDE

18-19560

LEONARD BH + PLAWCHAN JD

CONSTRUCTION AND DESIGN PROBLEMS OF SODIUM COOLED FAST REACTORS

BECHTEL CORPORATION, SCIENTIFIC DEVELOPMENT DEPARTMENT, SAN FRANCISCO, CALIFORNIA

8 PAGES, 5 FIGURES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

DISCUSSES THE THERMAL, CHEMICAL, AND RADIOACTIVE PROPERTIES OF SODIUM AND REACTOR DESIGN REQUIREMENTS DICTATED BY THESE PROPERTIES. THERMAL CONSIDERATIONS MUST INCLUDE MATERIAL SELECTION, STRESSES, PIPE FLEXIBILITY, HEATING CAPABILITY, AND SYSTEM PLUGGING DUE TO VAPOR CONDENSATION. CHEMICAL CONSIDERATION INCLUDE ELABORATELY SEALED VALVES AND AN INERT, PURE, BLANKET GAS. RADIOACTIVITY REQUIRES CONSIDERATION OF SHIELDING.

*DESIGN CRITERIA + *MAIN COOLING SYSTEM + *PROPERTY, PHYSICAL + *SODIUM + FRANCE + REACTOR, LIQUID METAL COOLED + THERMAL PROPERTY

18-19562

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19562 *CONTINUED*

CARLE R + FAURE J + LEDUC J + ROBIN M + RASTOIN J + ROZENHOLC M + SEBILLÉAU F + VAUTREY L + VENDRYES G +
VILLENEUVE J + ZALESKI CP

THE PHENIX REACTOR

COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE

25 PAGES, 8 FIGURES, 3 REFERENCES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE
AMERICAN NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR
CONSTRUCTION

DESCRIBES THE 600-MWT/250-MWE REACTOR. THE MAIN CHARACTERISTICS ARE UO₂-PUO₂ FUEL WITH SS
CLAD, SODIUM COOLING (SIMILAR TO RAPSDIE EXCEPT THAT PHENIX IS A POWER-REACTOR PROTOTYPE).
CONSTRUCTION IS TO BEGIN IN 1969.

*REACTOR DESCRIPTION + DESIGN STUDY + FRANCE + REACTOR, BREEDER + REACTOR, FAST +
REACTOR, LIQUID METAL COOLED

18-19568

BRIGGS RB

SUMMARY OF THE OBJECTIVES, THE DESIGN, AND A PROGRAM OF DEVELOPMENT OF MOLTEN-SALT BREEDER REACTORS

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1851 +. 84 PAGES, 20 FIGURES, 23 TABLES, 13 REFERENCES, JUNE 12, 1967

DESCRIBES INTEGRATED 1000-MWE THERMAL-BREEDER/FLOURIDE-VOLATILITY REPROCESSING PLANT THAT IS
ESTIMATED TO COST \$125 MILLION AND PRODUCE 2.6 MILLION/KWHR POWER. ALSO GIVES DEVELOPMENT
PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*DESIGN STUDY + ECONOMICS + REACTOR DESCRIPTION + REACTOR, BREEDER + REACTOR, MOLTEN SALT +
RESEARCH AND DEVELOPMENT PROGRAM

18-19664

BROWNS FERRY NUCLEAR POWER STATION UNIT 3 - DESIGN AND ANALYSIS REPORT

TENNESSEE VALLEY AUTHORITY

77 PAGES, FIGURES, 5 TABLES, JULY 17, 1967, DOCKET 50-296

BWR IDENTICAL TO BROWNS FERRY 1 AND 2. REFERENCE DESIGN IS 3293 MWT/1098 MEW. ENGINEERED
SAFEGUARDS WERE DESIGNED AND EVALUATED AT 3440 MWT. OPERATIONS SCHEDULED FOR OCTOBER 1972.
PSAR IS MUCH SHORTER THAN USUAL. SINCE HEADINGS ARE NEARLY IDENTICAL TO UNIT 1 AND 2 PSAR,
MOSTLY DIFFERENCES ARE GIVEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SHARED COMPONENTS + BROWNS FERRY + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19665

ALSO IN CATEGORIES 11 AND 2

TEN ITEMS OF ADDITIONAL PALISADES INFORMATION

CONSUMERS POWER COMPANY

11 PAGES, 1 TABLE, JANUARY 1967, DOCKET 50-255, AMENDMENT 7

(1) STUDY SHOWS THAT PC CHECK VALVES SHOULD BE REMOVED, AS THEY SHORTEN FLOW COASTDOWN. (2) A
PARALLEL SELECTOR VALVE IS ADDED TO COMPONENT COOL-WATER SYSTEM. (3) HORIZONTAL AND VERTICAL
SEISMIC MOTION ARE ADDITIVE. (4) CRANE WILL BE RESTRAINED. (5,7) CLASS-1 ACCELERATIONS WILL
BE DETERMINED FROM EARTHQUAKE-RESPONSE CURVES AND WILL ALLOW SAFE SHUTDOWN FROM 0.2 G. (6)
CONTAINMENT MEMBRANE TENSION WILL NOT EXCEED 3 X SQ. ROOT OF FC. (7) NO MOTOR-OPERATED
VALVES WILL BE USED FOR CONTAINMENT ISOLATION. TURBINE-REHEAT STOP-VALVES WILL BE USED FOR
MAIN STEAM LINE AND WILL CLOSE IN 4-6 SEC. (9) CLASS-1 CRITERIA OUTLINED. (10) FOR THE
0.2-G EARTHQUAKE, 5% STRUCTURAL DAMPING WILL BE USED. DYNAMIC TESTS WILL BE MADE AT THE SITE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF FLOW + *CONTAINMENT PENETRATION, CLOSURE OF + *EARTHQUAKE ENGINEERING + AEC QUESTION +
PALISADES POINT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + VALVE

18-19667

LOWELL TECH. ASKS FOR NEW EXTENSION OF LATEST DATE OF COMPLETION

LOWELL TECHNOLOGICAL INSTITUTE

4 PAGES, NOVEMBER 3, 1967, DOCKET NO. 50-223

COMPLETION IS NOW EXPECTED BETWEEN DEC. 31, 1968, AND JUNE 30, 1969. DELAYS ARE - (1) BOTH
FEDERAL AND STATE GRANTS REQUIRED USE OF THEIR OWN BID FORMS. A COMPROMISE FORM WAS
DEVELOPED. (2) IN OCTOBER 1966, AIRLOCK AND DOOR VENDOR PUT OFF DELIVERY UNTIL MARCH 1967.
BECAUSE OF DOOR DELIVERY IN SEPT. 1967 AND NECESSARY SEQUENCE IN BUILDING, POOL CONSTRUCTION
WILL START ABOUT APRIL 1968. PREVIOUS DATE OF COMPLETION WAS EXTENDED FROM DEC. 31, 1966, TO
DEC. 31, 1967. MINOR MODIFICATIONS OF VENT SYSTEM ARE ALSO DISCUSSED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19667 *CONTINUED*

*MODIFICATION, SYSTEM OR EQUIPMENT + *VENTILATION SYSTEM + REACTOR, POOL TYPE + REACTOR, RESEARCH

18-19695 ALSO IN CATEGORIES 2 AND 9
SECOND SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT FOR POINT BEACH NUCLEAR PLANT
WISCONSIN MICHIGAN POWER COMPANY
150 PAGES, 18 FIGURES, 7 TABLES, 15 REFERENCES, FEBRUARY 3, 1967, DOCKET NO. 50-266

71 ANSWERS TO QUESTIONS ASKED BY DLP, DEC. 23, 1966. SOME DETAILED INFORMATION WILL BE SUBMITTED LATER. TABLE OF CONTENTS FORMAT - I. GENERAL (44 QUESTIONS), II. INSTRUMENTATION (11 QUESTIONS), III. SITE (9 QUESTIONS), IV. ACCIDENT ANALYSIS (7 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *INSTRUMENTATION, GENERAL + *SITING, REACTOR + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, GENERAL

18-19752 ALSO IN CATEGORY 9
DRL ASKS MORE INFORMATION OF DIABLO CANYON AFTER REVIEWING SUPPLEMENTS 1, 2, 3
DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
5 PAGES, OCTOBER 1967, DOCKET 50-775

(LETTER) FOUR ITEMS REMAIN UNRESOLVED - (A) SEISMIC DESIGN, (B) INSTRUMENTATION REGARDING PROPOSED INCREASED CORE POWER DENSITY, AND IN-CORE MONITORING AND PART-LENGTH CONTROL RODS, (C) EMERGENCY CORE COOLING, INCLUDING SINGLE PIPE LINES, (D) SEISMIC AND BLOWDOWN EFFECTS ON REACTIVITY. ***AN EVALUATION OF THE I AND C SYSTEM ON INFORMATION IN PSAR AND SUPPL. 2,3 WOULD BE LITTLE MORE THAN AN EVALUATION OF DESIGN CRITERIA. WE NEED SPECIFIC INFORMATION IN OUR QUESTION, INCLUDING A PRELIMINARY DESIGN, SO WE CAN EVALUATE THE APPROACH TO IMPLEMENTATION OF THE CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DESIGN CRITERIA + *INSTRUMENTATION, NUCLEAR + *SYSTEM DESCRIPTION + AEC QUESTION + BLOWDOWN + CONTROL ROD PROGRAM + DIABLO CANYON + EARTHQUAKE ENGINEERING + INSTRUMENTATION, IN CORE + REACTIVITY EFFECT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + XENON OSCILLATION

18-19755
POUND DC + LARSEN JE + NICHOLS PF + NIRSCHL RJ
HAZARDS REPORT FOR MODIFIED HTGR CRITICAL FACILITY
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.
GA-6452 (REV. 2) +. 167 PAGES, 53 FIGURES, TABLES, REFERENCES, FEB. 8, 1966

A SPLIT-BED ASSEMBLY OF ALUMINUM THIPS WELDED INTO A HONEYCOMB STRUCTURE IS FUELED WITH U DISPERSED IN CARBON, AND CLAD IN AL TUBES WHICH SLIP INTO THE HONEYCOMB TUBES. SELF-CONTAINED NUCLEAR FUSES AND TEMPERATURE-TRIGGERED EXPULSION OF PART OF THE FUEL PROVIDE THE ULTIMATE SHUTDOWN FOR AN EXCURSION. THE MCA IS A CONTINUOUS WITHDRAWAL OF ONE OF THE FOUR INSERTED SAFETY RODS AFTER THE BED ASSEMBLY IS CLOSED, A LOADING ERROR, A FAILURE TO SCRAM, AND INATTENTION BY THE OPERATOR. AN ENERGY RELEASE OF 220 MW-SEC RESULTS IN A MAXIMUM FUEL TEMPERATURE OF 210 C. THE MAXIMUM COMBINED PROMPT NEUTRON-GAMMA DOSE IS 385 REMS 15 FT FROM THE CORE. A RELEASE OF 5% OF THE VOLATILE FISSION PRODUCTS RESULTS IN A THYROID DOSE OF 7.9 RADS AT THE EXCLUSION-AREA EDGE (500 FT).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*CRITICAL ASSEMBLY FACILITY + *SAFETY ANALYSIS REPORT, GENERAL + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, MAXIMUM CREDIT (MCA) + REACTOR FUSE + REACTOR, HIGH TEMP. GAS

18-19800
BOLSA ISLAND NUCLEAR POWER AND DESALTING PLANT
METROPOLITAN WATER DISTRICT, LOS ANGELES
12 PAGES, FIGURES, INFORMATION BOOKLET, 1967

BRIEF DISCUSSION OF WHY THE COMBINED ELECTRICITY GENERATING AND DESALINATION PLANT IS DESIRABLE IN SMOGGY CALIFORNIA, WHY A MAN-MADE ISLAND OFF HUNTINGTON BEACH, CALIF., IS NECESSARY.

AVAILABILITY - METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, 1111 SUNSET BLVD., LOS ANGELES, CALIF.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + BOLSA ISLAND

18-19840
JACKSON WR
HEAVY WATER ORGANIC COOLED REACTOR. FABRICATION OF SAP-CLAD URANIUM CARBIDE FUEL ASSEMBLIES FOR THE HWOCR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19840 *CONTINUED*
IRRADIATION TESTING PROGRAM
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF. COMBUSTION ENGINEERING, INC., WINDSOR, CONN. NUCLEAR DIVISION
AI-CE-78 +. 39 PAGES, 22 FIGURES, 5 TABLES, SEPTEMBER 15, 1967

DESCRIBES MATERIALS, CRITICAL PROCESSES (EUTECTIC BONDING OF FUEL-ROD END CLOSURES), GENERAL DESIGN CRITERIA, AND CURRENT STATUS OF 6 FUEL ASSEMBLIES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FABRICATION + *FUEL ELEMENT + CLAD + HWOCR (HEAVY WATER ORGANIC COOLED REACTOR) + REACTOR, HEAVY WATER + REACTOR, ORGANIC COOLED + URANIUM CARBIDE

18-19841 ALSO IN CATEGORY 7

PAGE RD
ENGINEERING AND PERFORMANCE OF CANADAS UO2 FUEL ASSEMBLIES FOR HEAVY WATER POWER REACTORS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO. CHALK RIVER NUCLEAR LABS.
AECL-2949 + CONF-670917-3 +. 23 PAGES, 5 FIGURES, 2 TABLES, 27 REFERENCES, SEPTEMBER 1967, PRESENTED AT SYMPOSIUM ON HEAVY WATER POWER REACTORS, VIENNA, AUSTRIA

DISCUSSES DESIGN AND FABRICATION OF FUEL BUNDLES FOR CANADIAN REACTORS, INCLUDING THE USE OF BRAZED SPACERS INSTEAD OF WIRE-WRAP SPACERS. GIVES RESULTS OF TESTING, INCLUDING ENDURANCE TESTS UNDER SINGLE-PHASE FLOW AND 8.8-M/SEC VELOCITIES (WHICH SHOWED FRETTING WITHIN ACCEPTABLE LIMITS).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + CANADA + EXAMINATION + FABRICATION + FUEL BURNUP + REACTOR, HEAVY WATER + TESTING

18-19844 ALSO IN CATEGORIES 5 AND 1

WILLIS CA
STATISTICAL SAFETY EVALUATION OF POWER REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
AI-65-MEMO-212 +. 12 PAGES, 1 FIGURE, 22 REFERENCES, OCTOBER 20, 1965

STATISTICAL METHOD OF HAZARDS ANALYSIS IS CONSIDERING THE RISK AS THE PRODUCT OF PROBABILITY OF AN ACCIDENT OCCURRING AND THE RESULTING DAMAGE TO PUBLIC, RATHER THAN DETERMINING FIRST WHICH ACCIDENTS ARE CREDIBLE, THEN WHICH OF THESE IS THE WORST (MCA), IGNORING MANY SMALL ACCIDENTS THAT MAY HAVE A HIGH CHANCE OF OCCURRENCE. STATISTICAL SAFETY EVALUATIONS USE THE FAULT-TREE-ANALYSIS SYSTEM. EXAMPLE GIVEN RESULTS IN A RISK FROM EXCESS EFFLUENT RELEASE OF 2.5×10^{-6} OVEREXPOSURES PER YEAR VS. 10^{-6} TH FOR MCA. SNAP 10-A SAFEGUARDS REPORT (NAA-SR-10022) USES THIS APPROACH.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*FAULT TREE ANALYSIS + *HAZARDS ANALYSIS + *SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, CONSEQUENCES + ACCIDENT, MAXIMUM CREDIBLE (MCA) + AIRBORNE RELEASE + DOSE + PROBABILITY + RELIABILITY ANALYSIS

18-19845

COURT A + DOWNES KW + KOUTS HJ
SAFETY ANALYSIS OF THE BROOKHAVEN NATIONAL LABORATORY CRITICAL ASSEMBLY FACILITY
BROOKHAVEN NATIONAL LAB., UPTON, N. Y.
BNL-11636 +. 182 PAGES, AUGUST 1, 1967

CRITICAL EXPERIMENTS USE LIGHT OR HEAVY WATER, OR GRAPHITE FOR MODERATORS, A WIDE RANGE OF FUEL ENRICHMENTS, AND FAST OR THERMAL ASSEMBLIES. TYPICAL SAR. INCLUDES OPERATING MANUAL AND RADIATION EMERGENCY PLAN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

BNL (BROOKHAVEN NATIONAL LABORATORY) + CRITICAL ASSEMBLY FACILITY + SAFETY ANALYSIS REPORT, GENERAL

18-19849 ALSO IN CATEGORY 12

SIXTH SUPPLEMENT TO - PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.,
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
55 PAGES, DOCKET 50-247, APRIL 18, 1967

ANSWERS ACRS LETTER OF AUGUST 16, 1966, WITH INFORMATION ON INCREASE OF EMERGENCY CORE-COOLING CAPACITY (56 PG), EFFECT OF MAXIMUM LOSS-OF-COOLANT ACCIDENT ON INTEGRITY OF REACTOR CORE AND PRESSURE VESSEL INTERNAL COMPONENTS (16 PG), AND PRIMARY-SYSTEM-DESIGN FABRICATION TECHNIQUES AND IN-SERVICE INSPECTIONS (8 PG).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D.C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19849 *CONTINUED*

*EMERGENCY COOLING CONSIDERATIONS + *MAIN COOLING SYSTEM + *QUALITY CONTROL + ACCIDENT, CONSEQUENCES + ACCIDENT, LOSS OF COOLANT + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19850 ALSO IN CATEGORIES 12 AND 5
SECTION 2 - EMERGENCY CORE COOLING SYSTEM ANALYSIS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

56 PAGES, 18 FIGURES FROM THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 18, 1967

AN ACCUMULATOR WAS ADDED AND FUNCTIONING OF ENTIRE SYSTEM BRIEFLY DESCRIBED. DESCRIBES FLASH, CHIC-KIN, LOCTA-R2, AND SATAN COMPUTER CODE USAGE IN LOSS-OF-COOLANT ANALYSIS TO FIX COOLING-SYSTEM REQUIREMENTS. A SMALL BREAK GENERATES THE MOST ENERGY BEFORE ROD INSERTION. EFFECT OF FILM-COEFFICIENT VARIATION WAS STUDIED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ACCUMULATOR + *BLOWDOWN + COMPUTER PROGRAM + CORE REFLOODING SYSTEM + ERROR ANALYSIS + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19851 ALSO IN CATEGORY 5

SECTION 3 - EFFECT OF MAXIMUM LOSS OF COOLANT ACCIDENT ON REACTOR CORE AND INTERNALS INTEGRITY
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

16 PAGES OF THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 18, 1967

SATAN DIGITAL PROGRAM WAS USED TO CALCULATE DYNAMIC EFFECTS (INCLUDING SHOCK WAVES). THE MAXIMUM LONGITUDINAL COMPRESSIVE FORCE IS 9900 LB, NEARLY 1/10TH THE FORCE REQUIRED TO BUCKLE AN ASSEMBLY. RCC GUIDE STRESS (16,800 PSI) IS BELOW YIELD STRENGTH. REPORT IMPLIES THAT GROSS DEFORMATION DOES NOT EXIST, SO CONTROL RODS MAY DROP AND SAFETY INJECTION FLOW IS NOT IMPEDED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SYSTEM OPERABILITY IN ACCIDENT CONDITIONS + *VIBRATION ANALYSIS + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + COMPUTER PROGRAM + CONTROL ROD SCRAM MECHANISM + CORE COMPONENTS, MISCELLANEOUS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19852 ALSO IN CATEGORY 11

SECTION 4 - PRIMARY SYSTEM DESIGN AND FABRICATION TECHNIQUE, AND INSERVICE INSPECTION
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

8 PAGES, 1 TABLE FROM THE SIXTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, APRIL 18, 1967

GENERAL DISCUSSION, WITH REFERENCE TO APPLICABLE CODE ANALYSES. INDICATES VARIOUS NONDESTRUCTIVE TESTS TO BE APPLIED TO VARIOUS PRIMARY-SYSTEM COMPONENTS AT VARIOUS STAGES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*PIPING + *QUALITY CONTROL + *TEST, NONDESTRUCTIVE + EXAMINATION + INDIAN POINT 2 + MAIN COOLING SYSTEM + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19853 ALSO IN CATEGORY 12

TAB 1 - RELIABILITY OF EMERGENCY CORE COOLING
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

38 PAGES, FROM FIFTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-247, JULY 18, 1967

GIVES TWO DESIGN AND SEVEN RELIABILITY CRITERIA, AND 20 PAGES OF SPECIFICATIONS FOR PUMPS, VALVES, PIPING, AND HEAT EXCHANGERS. OUTLINES QUALITY CONTROL AND TESTING PROGRAMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE REFLOODING SYSTEM + *RELIABILITY, SYSTEM + DESIGN CRITERIA + INDIAN POINT 2 + QUALITY CONTROL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19854 ALSO IN CATEGORIES 12 AND 6

TAB 2 - REACTOR PIT CRUCIBLE

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

12 PAGES, 2 FIGURES, 2 TABLES, 3 REFERENCES, FROM FIFTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, DOCKET NO. 50-257, JULY 28, 1967

247

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19854 *CONTINUED*

AN MGO-LINED STEEL CRUCIBLE WILL BACK UP THE EMERGENCY CORE-COOLING SYSTEMS SHOULD THE CORE MELT THRU THE REACTOR VESSEL. HEAT-TRANSFER ANALYSIS OF TEMPERATURE INDICATES UO₂ RANGES BETWEEN 6000 AND 4500 F, MGO AVERAGE IS 2400 F, AND STEEL AVERAGES 500. EXACT EXPERIMENTAL HEAT-TRANSFER DATA IS NOT AVAILABLE. HOWEVER, CRUCIBLE SYSTEMS OF THIS KIND ARE WELL KNOWN IN THE METAL-CASTING INDUSTRY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE MELTDOWN + *ENGINEERED SAFETY FEATURE + HEAT TRANSFER ANALYSIS + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + REFRACTORY MATERIAL + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19867

FAUSKE HK

HIGH-QUALITY TWO-PHASE CHOKED FLOW
ARGONNE NATIONAL LABORATORY

CONF-670 602 +. 1 PAGE, 1 FIGURE, 1 REFERENCE, ANS TRANS. 10(1), PAGE 361 (JUNE 1967), 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

PRESENTS A METHOD FOR PREDICTING THE TWO-PHASE-FLOW CHOKING PHENOMENON OF TWO-PHASE ONE-COMPONENT DROPLET FLOW WHICH OCCURS AT HIGH QUALITIES AND HIGH VELOCITIES. THE NEW THEORY IS SHOWN TO DESCRIBE DATA MORE ACCURATELY THAN THE HOMOGENEOUS-FLOW-WITH-THERMAL-EQUILIBRIUM MODEL.

*FLOW, TWO PHASE + *FOG + FLOW, CRITICAL

18-19891

HOLZ HB + SCHNEIDER G

1000-MWE FBR PARAMETRIC STUDY OF SECONDARY SODIUM-STEAM SYSTEM

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12060 +. 151 PAGES, 14 FIGURES, 4 TABLES, 9 REFERENCES, AUG. 31, 1966

INITIAL SCOPING PHASE TO PROVIDE COST TRENDS FOR 1000-MWE PLANT. ELEVEN COMBINATIONS OF SODIUM/STEAM-GENERATORS/TURBINE WERE USED, USING 1050 F SECONDARY SODIUM HOT-LEG TEMP., AND A 2400 PSI/1000 F-1000 F STEAM SYSTEM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*ECONOMICS + *MAIN COOLING SYSTEM + REACTOR, LIQUID METAL COOLED + RESEARCH AND DEVELOPMENT PROGRAM + STEAM GENERATOR + TURBINE

18-19892

CESARI F

A REFUELLING MACHINE FOR LIQUID COOLED POWER REACTORS WITH VERTICAL PRESSURE VESSEL

ITALY. COMITATO NAZIONALE PER L-ENERGIA NUCLEARE

8 PAGES, 4 FIGURES, 12 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 6, PAGE 236-242, (1967)

GENERAL DESCRIPTION OF ITALIAN ROVI (ORGANIC-COOLED INDUSTRIAL-STEAM-PRODUCING REACTOR) FUEL-HANDLING MACHINE.

*FUEL HANDLING MACHINE + *SYSTEM DESCRIPTION + ITALY + REACTOR, ORGANIC COOLED

18-19896

AMENDMENT 14 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE

PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION

35 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 21, 1966, DOCKET NO. 50-171

CONTAINS ADDITIONAL INFORMATION IN SUPPORT OF AMENDMENT 13 (REQUEST FOR POWER OPERATION UP TO 115 MWT.) THE FIRST ADDITION SUMMARIZES AND COMPARES CALCULATIONS AND EXPERIMENTAL RESULTS OF THE STARTUP TESTS. THE SECOND ADDITION REVIEWS THE BALL FAILURES OF BALL SCREWS ON THE CONTROL-ROD DRIVES AND PRESENTS A THOROUGH REVIEW OF THE VENDORS DESIGN-STRESS CALCULATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*COMPARISON, THEORY AND EXPERIENCE + *REACTOR STARTUP TESTING + CONTROL ROD CRUISE + FAILURE, SCRAM MECHANISM + PEACH BOTTOM 1 + QUALITY CONTROL + REACTOR, HIGH TEMP. GAS + SAFETY ANALYSIS REPORT, PRELIMINARY + STRESS ANALYSIS

18-19897

AMENDMENT 15 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE

PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION

6 PAGES, NOVEMBER 4, 1966, DOCKET NO. 50-171

CONTAINS 3 REVISED PAGES FOR AMENDMENT 13 AND 3 ADDITIONAL PAGES CONCERNING PLANT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19897 *CONTINUED*

MODIFICATION. ADDITIONAL VACUUM BREAKERS WILL BE INSTALLED FOR THE CONTAINMENT BUILDING. ANALYSIS OF THE EFFECT OF A RAIN SHOWER DURING A STEAM-SYSTEM LEAK AND CONTAINMENT ISOLATION INDICATED THE NEED FOR ADDITIONAL RELIEF CAPACITY. THE PROCEDURES FOR DEISGLATION OF THE CONTAINMENT BUILDING FOLLOWING MANUAL OR AUTOMATIC ISGLATION ARE DISCUSSED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT SYSTEM, OPERATION OF + *CONTAINMENT VACUUM BREAKER + *SAFETY ANALYSIS REPORT, PRELIMINARY + METEOROLOGY + MODIFICATION, SYSTEM OR EQUIPMENT + PEACH BOTTOM 1 + REACTOR, HIGH TEMP. GAS

18-19933

DRL ASKS FOR MORE INFORMATION ON DIABLO CANYON
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
3 PAGES, NOVEMBER 1, 1967, DOCKET NUMBER 50-275

ELEVEN QUESTIONS PERTAINING TO XENON OSCILLATION, HEAT REMOVAL FROM FAILED ELEMENTS FOLLOWING A LOSS-OF-COOLANT ACCIDENT (OF DUPING DNB), SEISMIC ACCELEROMETER AND SCRAM, SODIUM THIOSULPHATE PRECIPITATION IN CONTAINMENT-SPRAY NOZZLE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + DIABLO CANYON + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19934

ALSO IN CATEGORIES 12 AND 16
SEVENTH SUPPLEMENT TO INDIAN POINT 2. PRELIMINARY SAFETY ANALYSIS REPORT. EXHIBIT B-7
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
166 PAGES, 54 FIGURES, 6 TABLES, OCTOBER 16, 1967, DOCKET NO. 50-247

GIVES ADDITIONAL INFORMATION IN RESPONSE TO ACRS LETTER OF 16 AUG. 1966. (SECTION 1, 60 PG) SAFETY INJECTION SYSTEM FINAL DESIGN. (SECTION 2, 12 PG) REACTOR INTERNALS AND BLOWDOWN EFFECTS. (SECT 3, 4 PG) ADEQUACY OF REACTOR SYSTEM DESIGN AND INSPECTION. (SECT 4, 9 PG) REACTOR SYSTEM INSPECTION. (SECT 5, 6 PG) REACTOR COOLANT SYSTEM LEAK DETECTION. (SECT 6, 4 PG) FINAL LOADING PATTERN AND NONPOSITIVE TEMP COEFF. (SECT 7, 15 PG) REACTOR-PIT CRUCIBLE. (APPENDIX A - WCAP 7072) USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE PKRS. (APPENDIX B - WCAP 7113) USE OF BURNABLE POISONS IN WESTINGHOUSE PKRS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19935

ALSO IN CATEGORY 12
SECTION 1 - SAFETY INJECTION SYSTEM FINAL DESIGN
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
33 PAGES, 1 TABLE, PAGE 1-1 THRU 1-33 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

BASED ON ANALYSES IN 6TH SUPPLEMENT, WHICH WILL BE REPEATED WITH FINAL PARAMETERS. THE THREE MODES ARE 4 ACCUMULATOR TANKS, 3 HIGH-HEAD SAFETY INJECTION PUMPS, AND 2 LOW-HEAD RESIDUAL-HEAT-REMOVAL PUMPS AND HEAT EXCHANGERS. ACCUMULATORS ARE CHARGED TO 860 PSIG BY NITROGEN. A 2150-GAL INJECTION TANK PROVIDES 20,000 PPM BORON, DRIVEN BY NITROGEN AT 70 PSIG. RESTRAINTS PREVENT BREAKING MOTIONS DURING PIPING RECCIL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EMERGENCY COOLING CONSIDERATIONS + *SYSTEM DESCRIPTION + ACCUMULATOR + ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS) + AEC QUESTION + CCRF REFLOODING SYSTEM + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19936

ALSO IN CATEGORY 5
HEAT-EXCHANGER BAFFLE SPACING FORMULA
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
2 PAGES, PAGE 1-34 AND 1-35 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

AN EMPIRICAL FORMULA BY THE LUMMUS CO. IS USED TO ENSURE THAT RESIDUAL AND COMPONENT COOLING HEAT EXCHANGERS HAVE THE PROPER BAFFLE SPACING TO PREVENT TUBE VIBRATION. FORMULA GIVEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DESIGN CRITERIA + *FAILURE, FATIGUE + *HEAT EXCHANGER + EQUATION, GENERAL + FAILURE, TUBING + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + VIBRATION ANALYSIS

18-19937

ALSO IN CATEGORY 5

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19937 *CONTINUED*

SECTION 2. REACTOR INTERNALS DESIGN CRITERIA AND BLOWDOWN EFFECTS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

12 PAGES, 7 FIGURES, PAGE 2-1 THRU 2-12 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NUMBER 50-247

ASME PRESSURE-VESSEL SECTION-III STRESS CRITERIA WAS ADOPTED FOR CORE INTERNALS EXCEPT FUEL CLAD. SEISMIC STRESS IS CONSIDERED PRIMARY STRESS. FUEL ELEMENT GRIDS WERE INCREASED FROM 8 TO 9 PER ASSEMBLY. CALCULATED AND ALLOWABLE DEFLECTIONS DURING BLOWDOWN ARE LISTED FOR 4 CRUCIAL COMPONENTS. PRESSURE DIFFERENCE AND DEFLECTIONS OF VARIOUS CORE COMPONENTS REPORTED IN SUPPL. SIX ARE RECLARIFIED AND ASSERTED TO BE LESS THAN THOSE WHICH WOULD ADVERSELY EFFECT THE INTEGRITY OF THE STRUCTURES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BLOWDOWN + *CORE COMPONENTS, MISCELLANEOUS + *STRESS ANALYSIS + *STRUCTURAL INTEGRITY +
CODES AND STANDARDS + DISPLACEMENT, DESIGN FOR + FUEL ELEMENT + INDIAN POINT 2 +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-19938

SECTION 3. ADEQUACY OF PRIMARY SYSTEM DESIGN AND FABRICATION TECHNIQUES
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

4 PAGES, PAGE 3-1 THRU 3-4 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

ASME PRESSURE-VESSEL CODE, SECTION VIII, WAS CHOSEN FOR VESSELS, AND ASA B 31.1 FOR PIPING, BASED ON EXCELLENT SAFETY RECORD. COMMITTEE PARTICIPATION KEEPS ABREAST OF IMPROVEMENTS. 8 AREAS WHERE WESTINGHOUSE DESIGN REQUIREMENTS EXCEED CODES ARE SUMMARIZED. (REACTOR VESSEL) INDEPENDENT REVIEW OF STRESS ANALYSIS. (PRIMARY LOOP COMPONENTS) CYCLIC PRESSURE/TEMPERATURE STRESS ANALYSIS. (PRIMARY PUMP CASING AND SECONDARY SIDE OF STEAM GENERATOR) BOTH DESIGNED TO SECTION III CLASS A. (WELDING ON PRIMARY LOOP) PREHEAT FOR P1 AND P3 MATERIAL IS REQUIRED. (REACTOR VESSEL OUT-OF-ROUNDNESS) 0.5% IS USED INSTEAD OF CODE 1%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CODES AND STANDARDS + *DESIGN CRITERIA + *MAIN COOLING SYSTEM + *QUALITY CONTROL + FABRICATION +
FAILURE, FATIGUE + INDIAN POINT 2 + PIPING + PRESSURE VESSEL + REACTOR, PRESSURIZED WATER +
SAFETY ANALYSIS REPORT, PRELIMINARY + WELDING

18-19939

ALSO IN CATEGORY 11

SECTION 4 - REACTOR SYSTEM INSPECTION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

9 PAGES, 1 FIGURE, 2 TABLES, PAGE 4-1 THRU 4-9 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

FIGURE SHOWS LOCATION AND COMPONENTS WHERE DESTRUCTIVE TESTS AND INSPECTION ARE REQUIRED BY WESTINGHOUSE. IN-SERVICE TESTS (AT REFUELING) ON REACTOR VESSEL ARE LISTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*EXAMINATION + *MAIN COOLING SYSTEM + *QUALITY CONTROL + CODES AND STANDARDS + INDIAN POINT 2 + PIPING +
PRESSURE VESSEL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY +
STRUCTURAL INTEGRITY + TEST, NONDESTRUCTIVE

18-19940

ALSO IN CATEGORIES 6 AND 9

SECTION 6 - CORE REACTIVITY-DESIGN MODIFICATION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

4 PAGES, 1 FIGURE, PAGE 6-1 THRU 6-4 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

(1) THE INITIAL FUEL LOADING WILL HAVE AN INTERIOR CHECKERBOARD OF 2.2 AND 2.7 W/O ENRICHMENTS WITH THE OUTER ROW OF 3.2 W/O. (2) FIXED BURNABLE-POISON RODS USED IN THE FIRST CYCLE WILL MAINTAIN A NEGATIVE MODERATOR COEFFICIENT AND ASSUME THAT DIAMETRAL AND AZEMUTHAL XENON OSCILLATIONS ARE DAMPED. IN SUCCEEDING CYCLES, THE COEFFICIENT IS NEGATIVE WITHOUT POISON, AND XENON OSCILLATIONS ARE DAMPED. (3) PART-LENGTH ABSORBER RODS WILL BE USED TO CONTROL AXIAL XENON OSCILLATIONS. WCAP 7072 AND 7113 ARE APPENDED FOR DETAILS. ADDITION OF FIXED POISON MAKES THE REACTIVITY FROM FUEL BOWING (AT END OF CYCLE) A MAXIMUM OF 0.33%.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POISON, BURNABLE + *POISON, FIXED + *REFUELING + *XENON OSCILLATION + CONTROL ROD, SHIM SAFETY +
INDIAN POINT 2 + MODERATOR COEFFICIENT + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER +
SAFETY ANALYSIS REPORT, PRELIMINARY

18-19941

ALSO IN CATEGORY 9

SECTION 5 - REACTOR COOLANT SYSTEM LEAK DETECTION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

6 PAGES, PAGE 5-1 THRU 5-6 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19941 *CONTINUED*
PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

VALVE-STEM LEAK OF LINE AND INSTRUMENT-SEALS ARE EQUIPPED WITH THERMOCOUPLES TO INDICATE LEAKS. (1) THE MAIN LEAK DETECTOR IS THE CONTAINMENT-AIR-PARTICULATE MONITOR, SENSITIVE TO CORROSION PRODUCTS, WITH AN APPROXIMATE SENSITIVITY OF 1/2 LITER/MIN. (2) BACKUP IS THE RADIOGAS MONITOR, WHERE ARGON WOULD DOUBLE THE READING, IN ONE HOUR'S TIME, FROM 3 GPM. (3) CONDENSATE IS MEASURED FROM CONTAINMENT AIR COOLING (4) A 2-GPM INCREASE IN LEAK RATE WOULD INCREASE THE HUMIDITY-DETECTOR DEW POINT 1 F. THE LATTER TWO ARE SENSITIVE TO STEAM AND FEEDWATER LEAKAGE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*INSTRUMENTATION, PROCESS + *LEAK + *MAIN COOLING SYSTEM + *WATER VAPOR + CONTAINMENT AIR COOLING + CONTAINMENT INSTRUMENTATION + CRUD + INDIAN POINT 2 + MONITOR, RADIATION, AIR + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TEST, LEAK RATE

18-19942 ALSO IN CATEGORY 12
SECTION 7 - REACTOR-PIT CRUCIBLE
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
14 PAGES, 3 FIGURES, 2 TABLES; PAGE 7-1 THRU 7-14 OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 11, 1967, DOCKET NO. 50-247

ADDITION OF ACCUMULATORS RELEGATES CRUCIBLE TO A ROLE WHICH WILL NEVER BE NEEDED EVEN UNDER THE WORST ACCIDENT HYPOTHEZED. ALUMINA AND SILICON CARBIDE ARE BEING CONSIDERED. THE MOLten VOLUME INCLUDES THE LOWER CORE SUPPORT AND LOWER HEAD. MECHANICAL AND STRUCTURAL DESIGN DESCRIBED. A REFINED RECALCULATION OF THE THERMAL ANALYSIS USES DESIGN PARAMETERS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CORE MELTDOWN + *ENGINEERED SAFETY FEATURE + *SYSTEM DESCRIPTION + HEAT TRANSFER, BOILING + INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + REFRACTORY MATERIAL + SAFETY ANALYSIS REPORT, PRELIMINARY + THERMAL ANALYSIS

18-19943 ALSO IN CATEGORIES 6 AND 9
WOOD PM + GALLAGHER JM + MENTZ RM + DEAN RA
USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE PRESSURIZED WATER REACTORS
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
WCAP-7072 +. 29 PAGES, 11 FIGURES, APPENDIX A OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, JUNE 1967

(APPENDIX A OF INDIAN POINT 2 SEVENTH PSAR SUPPLEMENT.) 8 STANDARD ROD-CLUSTERS WILL HAVE ALL BUT THE LOWER 36 IN. FILLED WITH A12O3 AND BE USED FOR OTHER AXIAL POWER-SHAPING OR OVERCOMING AXIAL XENON OSCILLATION. DROPPING ONE COULD ADD 0.3% DELTA K AND AFFECT HOT-SPOT FACTOR. SENA LONG-ION-CHAMBER RESULTS SHOW THEY INDICATE ABOUT 13% LESS IMBALANCE WHEN CONTROL GROUP INSERTED 55%. DETAILED SAFETY ANALYSIS BEING PREPARED, ALONG WITH CONTROL ROD PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTROL ROD, SHIM SAFETY + *XENON OSCILLATION + CONTROL ROD PROGRAM + INDIAN POINT 2 + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, POWER RANGE + POWER DISTRIBUTION + REACTOR, PRESSURIZED WATER

18-19944 ALSO IN CATEGORY 6
WOOD PM + BASSLER EA + MACDONALD PE + PAUDLEFORD DF
USE OF BURNABLE POISON RODS IN WESTINGHOUSE PRESSURIZED WATER REACTOR
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
WCAP-7113 +. 29 PAGES, 11 FIGURES, 1 TABLE, APPENDIX B OF AMENDMENT 7 TO THE LICENSE APPLICATION (SEVENTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT), EXHIBIT B7, OCTOBER 1967, DOCKET NO. 50-247

BORATED PYREX TUBES CLAD IN STAINLESS STEEL WILL BE PLACED IN 1144 VACANT ROD-CLUSTER GUIDE TUBES (NEARLY HALF THE ELEMENT) TO INITIALLY CONTROL 7.2% REACTIVITY, ALLOWING SOLUBLE BORON TO BE REDUCED TO 1200 PPM SO THE MODERATOR COEFFICIENT IS NEGATIVE. THIS STABILIZES THE CORE AGAINST AZIMUTHAL/DIAMETRAL XENON OSCILLATION AND REACTIVITY ADDED DURING LOSS OF COOLANT. CRITICAL EXPERIMENTS AND SAXTON IRRADIATION TESTS ARE IN PROGRESS. BRIEF OUTLINE OF MOD. COEFFICIENT VS POISON BURNUP, METHOD OF NUCLEAR CALCULATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*POISON, BURNABLE + *POISON, FIXED + GLASS + INDIAN POINT 2 + MODERATOR COEFFICIENT + REACTOR STABILITY + REACTOR, PRESSURIZED WATER + XENON OSCILLATION

18-19945 ALSO IN CATEGORIES 12 AND 11
DRL ASK OYSTER CREEK FOR INFORMATION ON EMERGENCY CORE COOLING AND CONTROL ROD SUPPORT FAILURE
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
2 PAGES, NOVEMBER 17, 1967, DOCKET NO. 50-219

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-19945 *CONTINUED*

ACRS AND DRL BELIEVE THAT A HIGH-PRESSURE COOLANT-INJECTION CAPABILITY FOR BREAKS LESS THAN 0.2 SQ. FT IS NEEDED TO PREVENT ACTUATION OF AUTO-RELIEF SYSTEM, LIMIT CLAD TEMPERATURE TO 2000 F, AND PREVENT CLAD FAILURE OVER A PORTION OF THE BREAK-SIZE SPECTRUM UP TO 0.02 SQ. FT. DRL REQUESTS ADDITIONAL INFORMATION ON CRACKING OF SOME WELDS JOINING CONTROL-ROD-DRIVE GUIDE-TUBE STUBS TO THE REACTOR VESSEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *CONTROL ROD BURNUP + *EMERGENCY COOLING CONSIDERATIONS +
*FAILURE, EQUIPMENT + *WELDS + ENGINEERED SAFETY FEATURE + OYSTER CREEK + REACTOR, BOILING WATER

18-19946 ALSO IN CATEGORY 12
NINE MILE PT. COMPLETION DATE POSTPONED DUE TO DELAYS
LEBOEUF, LAMB AND LEIBY, WASHINGTON, D. C.
1 PAGE, OCTOBER 17, 1967, DOCKET NO. 50-220

DELAYS DUE TO SERIOUS LACK OF SKILLED MAN POWER AND NECESSITY FOR EXTENDED ANALYSIS AND INVESTIGATION OF THE EMERGENCY CORE-COOLING SYSTEMS AND OTHER SAFEGUARD FEATURES HAVE FORCED POSTPONMENT OF LATEST DATE OF COMPLETION TO 1 AUG. 68.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENGINEERED SAFETY FEATURE + CORE REFLOODING SYSTEM + NINE MILE PCINT + REACTOR, BOILING WATER +
SAFETY REVIEW (OPERATIONS, EXPERIMENTS)

18-19947
AMENDMENT 7 TO FORT ST. VRAIN
PUBLIC SERVICE CORP.
4 PAGES, NOVEMBER 1, 1967, DOCKET NO. 50-267

REPLIES TO 4 DRL QUESTIONS OF DEC. 10, 1966, ON PLANT AND FUEL COSTS AND SOURCE OF FUNDS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + CONSTRUCTION PERMIT PROCESS + ECONOMICS + FT. ST. VRAIN + REACTOR, HIGH TEMP. GAS

18-19977
PUBLIC SERVICE COMPANY OF COLORADO 330-MW(1) HIGH-TEMPERATURE GAS-COOLED REACTOR RESEARCH AND DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING SEPTEMBER 30, 1965.
GENERAL ATOMIC DIV., GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.
GA-6830 +. 156 PAGES, DECEMBER 31, 1965, DOCKET 50-267

ONE OF A SERIES OF PROGRESS REPORTS ON DEVELOPMENT OF PRESTRESSED-CONCRETE REACTOR VESSEL, ANALYSIS OF FUEL CYCLE AND POWER DISTRIBUTION, FUEL-ELEMENT DESIGN STUDY, EVALUATION OF FUEL MATERIALS, FISSION-PRODUCT SORPTION ON GRAPHITE, DEVELOPMENT OF FUEL-TRANSFER MACHINE, HELIUM CIRCULATOR, CONTROL-ROD DRIVE, AND STEAM GENERATOR, DEVELOPMENT AND IRRADIATION TESTING OF COATED PARTICLES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*RESEARCH AND DEVELOPMENT PROGRAM + COATED PARTICLE + CONCRETE, PRESTRESSED + DESIGN STUDY +
FISSION PRODUCT, AIRBORNE + FT. ST. VRAIN + FUEL BURNUP + FUEL ELEMENT + FUEL HANDLING MACHINE +
GRAPHITE + HEAT EXCHANGER + IRRADIATION TESTING + MAIN COOLING SYSTEM + POWER DISTRIBUTION +
PRESSURE VESSEL + REACTOR, HIGH TEMP. GAS + SORPTION

18-20031 ALSO IN CATEGORY 11
PILGRIM STATION ALLOWED TO DO ON-SITE WORK BEFORE CONSTRUCTION PERMIT
DIVISION OF REACTOR LICENSING, AEC
1 PAGE, NOVEMBER 16, 1967, DOCKET 50-293

FOUR ITEMS AGREED BY DRL AS NOT REQUIRING AN EXEMPTION FROM A CONSTRUCTION PERMIT ARE - (1) EXCAVATION AND POURING FOUNDATIONS FOR TURBINES AND NONNUCLEAR FACILITIES, (2) POURING A CONCRETE LEVELING MAT BELOW REACTOR BUILDING FOUNDATIONS, (3) FORM ERECTION AND LOOSE PLACEMENT OF RE-BARS FOR EXTERNAL WALLS OF PRESSURE-SUPPRESSION CHAMBER, AND (4) SAME AS (3) FOR INTERNAL WALLS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ON SITE WORK + CONTAINMENT CONSTRUCTION + PILGRIM STATION + REACTOR, BOILING WATER

18-20046
CASEY OF
DESIGN, PERFORMANCE, AND ECONOMICS EVALUATION OF SODIUM-HEATED, MODULAR, SUPERCRITICAL, STEAM GENERATORS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20046 *CONTINUED*

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-8508 +. 71 PAGES, 16 FIGURES, TABLES, OCTOBER 31, 1966

PRESENTS DESIGN DETAILS FOR 37-TUBE MODULES FOR A 450-MWE PLANT AND 61-TUBE MODULES FOR A 350-MWE PLANT WITH SINGLE REHEAT. DISCUSSES STEADY-STATE AND TRANSIENT DESIGN CRITERIA, RESULTS OF COMPUTER CALCULATIONS OF THERMAL PERFORMANCE, COMPLEMENTARY EQUIPMENT FOR THE MODULES, COST ESTIMATES, AND MAINTENANCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *STEAM GENERATOR + DESIGN CRITERIA + ECONOMICS + MAINTENANCE AND REPAIR + REACTOR, LIQUID METAL COOLED + SODIUM + THERMAL ANALYSIS

18-20065

GIBBONS JF + LYERLY RL + MAXWELL WA + ROACH KE

ADVANCED BONUS CORE DEVELOPMENT PROGRAM, QUARTERLY PROGRESS REPORT NO. 3

GENERAL NUCLEAR ENGINEERING CORP., DUNEDIN, FLA.

GNEC-361 +. 228 PAGES, AUGUST 15, 1964

PROGRESS REPORT ON DESIGN, EXPERIMENTAL, AND MANUFACTURING EFFORT TO SELECT AND TEST A REFERENCE DESIGN OF AN ADVANCED-CORE FUEL ELEMENT FOR OUT-OF-PILE THERMAL-CYCLING TESTS AND IRRADIATION TESTING IN EVESR. USUAL CONTENT IS SECTIONS ON NUCLEAR, THERMAL AND HYDRAULIC DESIGN, TESTS, FABRICATION OF ELEMENT, DESIGN AND INTERPRETATION OF TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *FUEL ELEMENT + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + IRRADIATION TESTING + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM

18-20066

GIBBONS JF + KNAPP RW + MORDARSKI WJ + ANDERSON LE + GRUBELICH FT

ADVANCED BONUS CORE DEVELOPMENT PROGRAM, QUARTERLY PROGRESS REPORT NO. 6. MARCH-MAY, 1966

COMBUSTION ENGINEERING, INC., WINDSOR, CONN.

CEND-244 +. 196 PAGES, MAY 1965

PROGRESS REPORT ON DESIGN, EXPERIMENTAL, AND MANUFACTURING EFFORT TO SELECT AND TEST A REFERENCE DESIGN OF AN ADVANCED-CORE FUEL ELEMENT FOR OUT-OF-PILE THERMAL-CYCLING TESTS AND IRRADIATION TESTING IN EVESR. USUAL CONTENT IS SECTIONS ON NUCLEAR, THERMAL AND HYDRAULIC DESIGN, TESTS, FABRICATION OF ELEMENT, DESIGN AND INTERPRETATION OF TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *FUEL ELEMENT + BONUS (BOILING NUCLEAR SUPERHEAT PROJECT) + IRRADIATION TESTING + REACTOR, INTERNAL SUPERHEAT + RESEARCH AND DEVELOPMENT PROGRAM

18-20107

AMENDMENT 5, ANSWERS TO AEC QUESTIONS, STANDBY CORE COOLING SYSTEM

JERSEY CENTRAL POWER AND LIGHT COMPANY

123 PAGES, 7 TABLES, 53 FIGURES, 9 REFERENCES, OYSTER CREEK FACILITY DESCRIPTION AND SAFETY ANALYSIS

REPORT AMENDMENT 5, (ANSWERS TO AEC QUESTIONS, STANDBY CORE COOLING SYSTEM), JUNE 1, 1967, DOCKET 50-219

AMENDMENT 5 ANSWERS 30 QUESTIONS ASKED BY DRL IN LETTER OF

MAY 3, 1967.

I HYDRAULICS AND THERMODYNAMICS

(16 QUESTIONS),

II PHYSICS

(3 QUESTIONS),

III GENERAL

(11 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*EMERGENCY COOLING CONSIDERATIONS + *HYDRAULIC ANALYSIS + *THERMAL ANALYSIS + AEC QUESTION + ENGINEERED SAFETY FEATURE + OYSTER CREEK + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-20358

SUPPLEMENT 4 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT

FLORIDA POWER AND LIGHT COMPANY

32 PAGES, 19 FIGURES, 2 TABLES, SEPTEMBER 6, 1966, DOCKET 50-250 AND 50-251

SUPPLEMENT 4 SUBMITS REVISED ANSWERS TO QUESTIONS 1, 3, AND 7 OF SUPPLEMENT 2. INFORMATION COVERS CONTAINMENT PRESSURE TRANSIENTS, RCC SCRAM, POWER PROFILE CHANGES AS CORE FUEL IS DEPLETED, DISSIPATION OF ENERGY FROM PRIMARY COOLANT PUMP-DRIVE AFTER LOSS OF COOLANT, CONTAINMENT BUILDING DESIGN PRESSURE AND FREE VOLUME, AND EVALUATION OF SPATIAL STABILITY CONSIDERATIONS. SIX ANSWERS ARE GIVEN.

AVAILABILITY - USACC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20358 *CONTINUED*
AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURKEY POINT 3 AND 4

18-20392
SUPPLEMENT 8 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT
FLORIDA POWER AND LIGHT COMPANY.
166 PAGES, 27 FIGURES, 5 TABLES, 24 REFERENCES, NOV. 4, 1966, DOCKET 50-250 AND 50-251

ANSWERS 27 QUESTIONS ASKED BY DLR ON OCT. 20, 1966. INCLUDES ADDITIONAL INFORMATION TO
QUESTION 9 OF SUPPLEMENT 2 CONCERNING CONTAINMENT-SPRAY SYSTEM, AND ADDITIONAL INFORMATION TO
QUESTION 10 OF SUPPLEMENT 5 CONCERNING THE ACCUMULATOR SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURKEY POINT 3 AND 4

18-20424 ALSO IN CATEGORY 11
APPENDIX C--SPECIFICATION FOR TENDON SYSTEM
FLORIDA POWER AND LIGHT COMPANY
19 PAGES, PAGES C-1 THROUGH C-19 OF SUPPLEMENT 8 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY
ANALYSIS REPORT, NOV. 4, 1966, DOCKET 50-250 AND 50-251

REPORT IS IN GERMAN. NO ABSTRACT CAN BE GIVEN HERE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONCRETE, PRESTRESSED + *CONTAINMENT CONSTRUCTION + *CONTAINMENT DESIGN + AEC QUESTION + EXAMINATION +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TESTING + TURKEY POINT 3 AND 4

18-20459
FERRY PB + GLASS DN
HEAVY WATER ORGANIC COOLED REACTOR. LONG-TERM STRESS-RUPTURE PROPERTIES OF FINNED SAP CLADDING TUBES
ATOMICS INTERNATIONAL, CANOGA PARK
AI-CE-42 +. 32 PAGES, 14 FIGURES, 7 TABLES, 4 REFERENCES, SEPT. 25, 1967

DESCRIBES THE BIAxIAL TEST FACILITY FOR TESTING HWOCR FUEL-ELEMENT-CLAD DESIGNS, AND THE FIRST
SERIES OF TESTS DESIGNED TO EVALUATE THE SAP (SINTERED ALUMINUM POWDER) SHAPES. DATA WAS
ANALYZED BY LARSON-MILLER EVALUATIONS TO PROVIDE EXTRAPOLATIONS FOR PREDICTING MATERIAL
BEHAVIOR UNDER OPERATING CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*CLAD + *TESTING + EXTRAPOLATION FACTOR + HWOCR (HEAVY WATER ORGANIC COOLED REACTOR) +
REACTOR, HEAVY WATER + REACTOR, ORGANIC COOLED + STRESS

18-20460 ALSO IN CATEGORY 5
NOTLEY MJ + LANE AD
FACTORS AFFECTING THE DESIGN OF RODDED UO2 FUEL BUNDLES FOR HIGH POWER OUTPUTS
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, ONTARIO
AECL-2945 + SM-99135 +. 22 PAGES, 5 FIGURES, 29 REFERENCES, SEPTEMBER, 1967

AN EXCELLENT DISCUSSION OF FACTORS (SUCH AS ASSEMBLY GEOMETRY, ROD SIZE AND NUMBER,
FABRICATION COSTS, HEAT TRANSFER, CENTERLINE MELTING, CLAD STRESSES, FAILURE MODES, ETC.) IN
THE DESIGN OF FUEL ELEMENTS, CITING PERTINENT REFERENCES (29 REFERENCES IN BIBLIOGRAPHY).

AVAILABILITY - ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER, \$1.00 COPY

*FUEL ELEMENT + *PERFORMANCE LIMIT + BIBLIOGRAPHY + BURNOUT HEAT FLUX + CANADA + CENTERLINE MELTING +
CLAD + ECONOMICS + FABRICATION + FUEL BURNUP + FUEL INTEGRITY + FUEL MELTDOWN +
HEAT CONDUCTANCE, FUEL TO CLAD + HEAT FLUX, DRYOUT + HEAT TRANSFER + REACTOR, HEAVY WATER

18-20463
DEBOISBLANC DR
EOCR AS A FAST REACTOR FUEL TEST FACILITY - CONCEPTUAL DESIGN
PHILLIPS PETROLEUM CO., IDAHO FALLS
IN-1049 +. 253 PAGES, REFERENCES, MARCH 1965

COMPARES THE DESIGN CHARACTERISTICS OF THE CONVERTED SYSTEM TO THE AS-BUILT EOCR. SUMMARIZES
MAJOR MODIFICATIONS AND REASONS FOR CHANGES. FIVE EXPERIMENTAL IN-PILE LOOPS WERE DESIGNED
FOR FAST-REACTOR FUEL-PIN SPECIMENS. ONE IS SIZED FOR A 61-PIN CLUSTER, OTHERS ARE SIZED FOR
A 7-PIN CLUSTER. PRELIMINARY ANALYSES OF ACCIDENTS ARE GIVEN WHERE MODIFICATIONS INTRODUCED
NEW FACTORS. NO SIGNIFICANT CHANGE IN LOSS-OF-PRESSURE OR COOLANT ACCIDENTS. REASONS FOR
CHANGING COOLANT FROM SANTOWAX TO BIPHENYL ARE GIVEN.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20463 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *MODIFICATION, SYSTEM OR EQUIPMENT + ACCIDENT ANALYSIS +
EOCR (EXPERIMENTAL ORGANIC COOLED REACTOR) + IN PILE LOOP + REACTOR DESCRIPTION + REACTOR, ORGANIC COOLED

18-20482

PFLASTERER GR

SEFOR EXPERIMENTAL PROGRAM PLANNING. VOLUME 1. SPECIFICATIONS FOR THE PLANT AND EXPERIMENTAL EQUIPMENT.

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

GEAP-50921VOL. 1) +. 99 PAGES, REFERENCES, AUGUST 1966

Docket 50-231

PROGRAM IS TO OBTAIN PHYSICS AND ENGINEERING DATA ON SOFT-SPECTRUM FAST-BREEDER REACTORS.
VOL. 1 CONTAINS EQUIPMENT FUNCTIONAL REQUIREMENTS ON THE ROD-OSCILLATOR MECHANISM,
FAST-REACTIVITY-EXCURSION DEVICE, TRANSIENT-POWER DETECTORS, DATA-ACQUISITION SYSTEM,
INSTRUMENTED FUEL ASSEMBLIES, REACTOR-FUEL-TEMPERATURE CHANGES, REACTOR-POWER-DISTRIBUTION
MEASUREMENTS, PLANT CONTROL, PLANT INSTRUMENTATION, AND PLANT-TEMPERATURE CHANGES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
\$3.00 COPY, \$0.65 MICROFICHE

*DESIGN CRITERIA + DATA PROCESSING + EQUIPMENT, GENERAL + INSTRUMENTATION, CONTROL +
INSTRUMENTATION, GENERAL + INSTRUMENTATION, TEMPERATURE + OSCILLATOR, REACTIVITY + REACTOR TRANSIENT +
REACTOR, BREEDER + REACTOR, LIQUID METAL COOLED + RESEARCH AND DEVELOPMENT PROGRAM +
SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

18-20515

DRL LISTS OYSTER CREEK CHANGES NECESSARY FOR GRANTING OF PROVISIONAL OPERATING LICENSE.

DIVISION OF REACTOR LICENSING, AEC

5 PAGES, NOVEMBER 20, 1967, DOCKET 50-219

DRL CITES 12 NECESSARY ACTIONS AND 5 MATTERS THAT MUST BE RESOLVED BEFORE ISSUING LICENSE.
AREAS INCLUDED ARE AUTO-ISOLATION SYSTEM MODIFICATIONS, RELOCATION OF DIESEL STRUCTURE TO
PREVENT DAMAGE FROM FAILURE OF WATER-STORAGE TOWER, COOLING OF SAFEGUARDS PUMPS, WIND-SPEED
AND DIRECTION MONITORING FROM CONTROL ROOM, MORE EFFECTIVE STANDBY LIQUID CONTROL SYSTEM,
LIQUID EFFLUENT MONITOR BACKUP.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*OPERATING LICENSE PROCESS + MODIFICATION, SYSTEM OR EQUIPMENT + OYSTER CREEK + REACTOR, BOILING WATER

18-20521

SUPPLEMENT 11 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT FOR TURKEY POINT
FLORIDA POWER AND LIGHT COMPANY

61 PAGES, 11 FIGURES, JANUARY 4, 1967, DOCKET NOS. 50-250 AND 50-251

REVISED INFORMATION FOR VOL. I OF THE PRELIMINARY SAFETY ANALYSIS REPORT. PARAGRAPHS 1.2 AND
1.2.1 ARE SUBMITTED. ALSO INCLUDED IS ADDITIONAL INFORMATION ON EIGHT PREVIOUSLY ANSWERED
QUESTIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURKEY POINT 3 AND 4

18-20522

REVISION, VOL. I, SECTIONS 1.2 AND 1.2.1, DECEMBER 30, 1966. PLANT DESCRIPTION
FLORIDA POWER AND LIGHT COMPANY

5 PAGES, 3 FIGURES, PAGES 1-5 THROUGH 1-9 OF SUPPLEMENT 11 TO LICENSE APPLICATION AND THE PRELIMINARY
SAFETY ANALYSIS REPORT FOR FLORIDA POWER AND LIGHT COMPANY, TURKEY POINT NUCLEAR PLANT, DOCKETS NO.
50-250 AND NO. 50-251, JANUARY 4, 1967

THE REVISED PARAGRAPHS CONCERN PLANT DESCRIPTION SUMMARY AND STRUCTURES. MODIFICATIONS
INCLUDE MISSILE PROTECTION FOR SAFETY INJECTION AND CONTAINMENT-SPRAY PUMPS, PLUS
COMPONENT-COOLING-WATER HEAT EXCHANGERS AND PUMPS, AND RELOCATION OF WATER-STORAGE TANKS,
SAFETY INJECTION PUMPS, AND COMPONENT HEAT EXCHANGERS AND PUMPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*AUXILIARY COOLING + *ENGINEERED SAFETY FEATURE + *MISSILE GENERATION AND PROTECTION +
*REACTOR DESCRIPTION + AEC QUESTION + HEAT EXCHANGER + PUMP + REACTOR, PRESSURIZED WATER +
SAFETY ANALYSIS REPORT, PRELIMINARY + TURKEY POINT 3 AND 4

18-20526

ALSO IN CATEGORY 11

QUESTION 6 (SUPPLEMENT 8)--SAFE SHUTDOWN UNDER DESIGN BASIS ACCIDENT PLUS EARTHQUAKE LOADINGS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20526 *CONTINUED*

FLORIDA POWER AND LIGHT COMPANY

10 PAGES, 7 FIGURES, PAGES 1 THROUGH 10 OF SUPPLEMENT 11 TO LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT FOR FLORIDA POWER AND LIGHT COMPANY, TURKEY POINT NUCLEAR PLANT, DOCKETS NO. 50-250 AND NO. 50-251, JANUARY 4, 1967

IT IS THOUGHT THAT A FACTORED-LOAD CONDITION IS REQUIRED WHICH CONSIDERS THAT A SAFE SHUTDOWN CAN BE ASSURED UNDER THE COMBINED EFFECTS OF THE DESIGN-BASIS ACCIDENT AND A SEISMIC LOADING FOR TWICE THE DESIGN EARTHQUAKE. PROVIDE AN EQUATION THAT WILL BE INCLUDED IN THE DESIGN OF THE CONTAINMENT STRUCTURE WHICH REFLECTS THE FOREGOING. ***ADDITIONAL INFORMATION SUPPLIED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT VESSEL LOADING + *EARTHQUAKE ENGINEERING + *EQUATION, GENERAL + AEC QUESTION + ANALYTICAL MODEL + CONTAINMENT ANALYSIS + REACTOR, PRESSURIZED WATER + RESPONSE SPECTRUM + SAFETY ANALYSIS REPORT, PRELIMINARY + SYSTEM OPERABILITY IN ACCIDENT CONDITIONS + TURKEY POINT 3 AND 4

18-20799

RANCHO SECO NUCLEAR GENERATING STATION UNIT 1 - PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME I
SACRAMENTO MUNICIPAL UTILITY DISTRICT

158 PAGES, TABLES, FIGURES, REFERENCES, RANCHO SECO NUCLEAR GENERATING STATION UNIT NO. 1, VOLUME I, PRELIMINARY SAFETY ANALYSIS REPORT, NOVEMBER, 1967, DOCKET 50-312

B AND W PWR. (2452 MWT/850 MWE) LOCATED S.E. OF SACRAMENTO, CALIF., SCHEDULED FOR OPERATION BY 1 MAY 73. NEARLY IDENTICAL TO OCONEE AND CRYSTAL RIVER. MAXIMUM POWER IS 17.5 KW/FT. ONCE-THROUGH STEAM GENERATOR ALLOWS ADEQUATE NATURAL CIRCULATION FOR FULL DECAY-HEAT REMOVAL WITHOUT COOLANT PUMPS. PSAR IS A 4-VOLUME SET. VOLUME I COVERS (1) INTRODUCTION AND SUMMARY, (2) SITE AND ENVIRONMENT, AND (3) REACTOR. INTRODUCTION STATES THAT PSAR ORGANIZATION FOLLOWS AEC GUIDELINES, ATTEMPTS TO ANSWER ALL PERTINENT QUESTIONS ASKED OTHER APPLICANTS, AND ANSWERS JULY 67 CONSTRUCTION-PERMIT CRITERIA. PSAR IS NEARLY IDENTICAL TO THAT OF CRYSTAL RIVER AND OCONEE, WITH CRITERIA 28-20 ADDED TO THE DESIGN CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC CONSTRUCTION PERMIT CRITERIA + RANCHO SECO (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SITING, REACTOR

18-20800

RANCHO SECO NUCLEAR GENERATING STATION UNIT 1 - PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
SACRAMENTO MUNICIPAL UTILITY DISTRICT

158 PAGES, TABLES, FIGURES, REFERENCES, RANCHO SECO NUCLEAR GENERATING STATION UNIT 1, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, NOVEMBER 1967, DOCKET 50-312

VOLUME II CONTAINS SECTIONS (4) REACTOR COOLANT SYSTEM, (5) CONTAINMENT SYSTEM, (6) ENGINEERED SAFEGUARDS, (7) INSTRUMENTATION AND CONTROL, (8) ELECTRICAL SYSTEMS, (9) AUXILIARY AND EMERGENCY SYSTEMS. ENGINEERED SAFEGUARDS INCLUDE HIGH- AND LOW-PRESSURE INJECTION SYSTEMS, BUILDING COOLING SYSTEM, AND THE SPRAY AND IODINE-REMOVAL SYSTEMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CONTAINMENT, GENERAL + ELECTRIC POWER, GENERAL + EMERGENCY SYSTEM + ENGINEERED SAFETY FEATURE + INSTRUMENTATION, GENERAL + MAIN COOLING SYSTEM + RANCHO SECO (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-20801

RANCHO SECO NUCLEAR GENERATING STATION UNIT 1 - PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME III
SACRAMENTO MUNICIPAL UTILITY DISTRICT

53 PAGES, FIGURES, TABLES, REFERENCES, RANCHO SECO NUCLEAR GENERATING STATION UNIT 1, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, NOVEMBER 1967, DOCKET 50-312

VOLUME III CONTAINS (10) STEAM AND POWER CONVERSION SYSTEM, (11) RADIOACTIVE WASTES AND RADIATION PROTECTION, (12) CONDUCT OF OPERATIONS, (13) INITIAL TESTS AND OPERATION, (14) SAFETY ANALYSIS (146 PAGES INCLUDING 74 FIGURES AND 27 REFERENCES), (15) TECH.-SPEC. OUTLINE. 5 SQ. FT. COOLANT-LINE RUPTURE RESULTS IN HIGHEST EXCURSION (4.5 FPS), BUT 36-IN. DOUBLE-ENDED BREAK RESULTS IN HIGHEST FUEL-HOT-SPOT TEMPERATURE (1950 F). 2-HR THYROID DOSE IS 0.73 REM. MAX. HYPOTHETICAL ACCIDENT (GROSS FISSION PRODUCT RELEASE) RESULTS IN A 12.3-REM 2-HR THYROID DOSE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*ACCIDENT, LOSS OF COOLANT + ACCIDENT, HYPOTHETICAL + AIRBORNE RELEASE + DOSE + RANCHO SECO (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + WASTE DISPOSAL, GENERAL

18-20802

ALSO IN CATEGORY 2

RANCHO SECO NUCLEAR GENERATING STATION UNIT 1 - PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME IV
SACRAMENTO MUNICIPAL UTILITY DISTRICT

150 PAGES, FIGURES, TABLES, REFERENCES, RANCHO SECO NUCLEAR GENERATING STATION UNIT 1, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME IV, NOVEMBER 1967, DOCKET 50-312

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20802 *CONTINUED*

APPENDIX 2 - ON-SITE, 6-WEEK METEOROLOGICAL INVESTIGATION, POPULATION DATA, GEOLOGY AND SEISMOLOGY, SOIL REPORT. APPENDIX 5 - CONTAINMENT-DESIGN INFORMATION. SEISMIC REPORT BY BYERLY CONCLUDES NO REASON TO FEAR THE BREAKING OF A FAULT IN THE SITE AREA. SHOCKS WILL COME FROM SAN ANDREAS, 100 MILES WEST. SURFACE DESIGN ACCELERATION (0.1 G FOR CLASS 1, 0.2 G FOR SAFE SHUTDOWN) IS MOST CONSERVATIVE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CONTAINMENT CONSTRUCTION + CONTAINMENT DESIGN + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + METEOROLOGY + MONITORING PROGRAM, ENVIRONMENTAL + RANCHO SECO (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-20837

INDIAN POINT, UNIT 2, AMENDMENT 8 TO PSAR-PUMPS
LEBOEUF, LAMB AND LEIRY
4 PAGES, DOCKET NO. 50-247, OCTOBER 31, 1967

AMENDMENT 8 CONSISTS OF REVISED PAGE 1-21 OF EXHIBIT B-7, SEVENTH SUPPLEMENT TO PSAR. ORIGINAL PAGE WAS A DUPLICATE OF PAGE 1-20 BUT NUMBERED 1-21.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

INDIAN POINT 2 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-20847

ALSO IN CATEGORY 2

SUPPLEMENT 9 TO FORT CALHOUN FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
OMAHA PUBLIC POWER DISTRICT

7 PAGES, 9 REFERENCES, AMENDMENT 9 TO THE LICENSE APPLICATION (SUPPLEMENT 9 TO THE FORT CALHOUN UNIT 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT) NOVEMBER 9, 1967 (EXHIBIT F9 TO DOCKET 50-285)

DESCRIBES THE STRUCTURAL GEOLOGY OF THE SITE, WITH SPECIAL EMPHASIS ON THE LACK OF ANY KIND OF FAULTING IN THE IMMEDIATE VICINITY. THEIR CONSERVATIVE INTERPRETATION OF THE AVAILABLE GEOLOGICAL INFORMATION INDICATES THAT ANY STRUCTURE CONNECTED WITH THE NEMAHIA UPLIFT TRENDS TO THE NORTHEAST FROM JUST SOUTH OF OMAHA, NEBRASKA; AND DOES NOT CONTINUE CLOSER TO THE SITE. STRUCTURES TO THE NORTH ARE REASONABLY WELL DEFINED AND DO NOT EXTEND INTO THE SITE AREA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

FAULT + FT. CALHOUN + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TECTONICS

18-20864

AMENDMENT 3 TO THE LICENSE APPLICATION (THIRD SUPPLEMENT TO DIABLO CANYON PRELIMINARY SAFETY ANALYSIS REPORT)

PACIFIC GAS + ELECTRIC COMPANY

303 PAGES, 28 REFERENCES, 9 TABLES, 74 FIGURES, AMENDMENT 3 TO LICENSE APPLICATION (THIRD SUPPLEMENT TO DIABLO CANYON PRELIMINARY SAFETY ANALYSIS REPORT), JULY 31, 1967, DOCKET 50-275

AMENDMENT 3 CONTAINS ANSWERS TO ALL (92) REMAINING QUESTIONS ASKED BY AEC IN LETTERS OF MAY 5, MAY 18, AND JUNE 30, 1967. APPENDIX A IS A REPORT ON GEOLOGY OF DIABLO CANYON SITE, AND APPENDIX B IS 130 REVISED PAGES FOR PSAR.

I SITE	(12 QUESTIONS),
II PLANT LAYOUT AND DESIGN OF CLASS I EQUIPMENT	(4 QUESTIONS),
III DESIGN OF THE CONTAINMENT STRUCTURE	(3 QUESTIONS),
IV INSTRUMENTATION, CONTROL, AND POWER SYSTEMS	(6 QUESTIONS),
V PLANT SYSTEMS	(21 QUESTIONS),
VI ENGINEERED SAFETY SYSTEMS	(33 QUESTIONS),
VII ACCIDENT ANALYSIS	(23 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + DIABLO CANYON + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-20957

FIRST SUPPLEMENT TO DIABLO CANYON PRELIMINARY SAFETY ANALYSIS REPORT, AMENDMENT 1 TO LICENSE APPLICATION
PACIFIC GAS AND ELECTRIC COMPANY

156 PAGES, 4 TABLES, 42 FIGURES, AMENDMENT 1 TO THE LICENSE APPLICATION, (FIRST SUPPLEMENT TO DIABLO CANYON PRELIMINARY SAFETY ANALYSIS REPORT), JULY 10, 1967, DOCKET 50-275

AMENDMENT 1 ANSWERS 33 QUESTIONS ASKED BY AEC IN LETTER DATED MAY 5, 1967. INCLUDED ARE THREE APPENDIXES. APPENDIX B IS 12 REVISED PAGES FOR PSAR. APPENDIX A IS WCAP-5890
IMMEDIATE STRENGTH CRITERIA TO ENSURE NO LOSS OF SUCTION OF

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-20957 *CONTINUED*

PIPING AND VESSELS UNDER EARTHQUAKE LOADING). APPENDIX C IS ACAP-7072 (USE OF PART LENGTH ABSORBER RODS IN WESTINGHOUSE WATER REACTORS).

- I SITE (2 QUESTIONS),
- II PLANT LAYOUT AND DESIGN OF CLASS I EQUIPMENT (10 QUESTIONS),
- III DESIGN OF THE CONTAINMENT STRUCTURE (21 QUESTIONS).

AVAILABILITY -- USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + CONTAINMENT DESIGN + CONTROL ROD + DESIGN CRITERIA + DIABLO CANYON + EARTHQUAKE ENGINEERING + PIPING + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SITING, REACTOR

18-20993

AMENDMENT 2 TO DIABLO CANYON LICENSE APPLICATION (SECOND SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT) PACIFIC GAS AND ELECTRIC COMPANY

180 PAGES, 4 REFERENCES, 13 FIGURES, AMENDMENT 2 TO LICENSE APPLICATION (SECOND SUPPLEMENT TO DIABLO CANYON PRELIMINARY SAFETY ANALYSIS REPORT), JULY 24, 1967, DOCKET 50-275

AMENDMENT 2 CONTAINS ANSWERS TO 78 QUESTIONS ASKED BY AEC IN LETTERS DATED MAY 5, MAY 18, AND JUNE 30, 1967. (SOME ANSWERS WILL BE SUBMITTED LATER). APPENDIX A IS ALSO SUBMITTED. IT CONTAINS REVISED PAGES FOR PSAR REFLECTING CHANGES IN DESIGN AND ANSWERS TO AEC QUESTIONS.

- II PLANT LAYOUT AND DESIGN OF CLASS-I EQUIPMENT (5 QUESTIONS),
- III DESIGN OF THE CONTAINMENT STRUCTURE (7 QUESTIONS),
- IV INSTRUMENTATION, CONTROL, AND POWER SYSTEMS (22 QUESTIONS),
- V PLANT SYSTEMS (21 QUESTIONS),
- VI ENGINEERED SAFETY SYSTEMS (20 QUESTIONS),
- VI ACCIDENT ANALYSIS (3 QUESTIONS).

AVAILABILITY -- USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + DIABLO CANYON + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21084

CIHI J + ROSH D

EXPERIMENT DESCRIPTION AND HAZARDS ANALYSIS FOR CAPSULES UNC 78, 79, AND 80

UNITED NUCLEAR CORP., WHITE PLAINS, NEW YORK

UNC-5136 +. 87 PAGES, REFERENCES, OCTOBER 22, 1965

DESCRIBES THREE CAPSULES TO BE IRRADIATED IN EBR-II TO DETERMINE THE OPERATING LIMITS OF MIXED U-PU CARBIDE FUEL IN FAST BREEDER REACTORS. GIVES A BRIEF ANALYSIS OF THE HAZARDS ASSOCIATED WITH INDIVIDUAL CAPSULES.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

*FUEL ELEMENT + *IRRADIATION TESTING + CARBIDE + PLUTONIUM + REACTOR, BREEDER + SAFETY REVIEW (OPERATIONS, EXPERIMENTS) + URANIUM

18-21110

LARGE CLOSED-CYCLE WATER REACTOR RESEARCH AND DEVELOPMENT PROGRAM. PROGRESS REPORT, JULY 1-SEPTEMBER 30, 1965

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.

WCAP-3269-15 +. 24 PAGES, SEPTEMBER 30, 1965

ONE OF A SERIES OF PROGRESS REPORTS WITH TOPICS ON REACTOR PHYSICS, IRRADIATION TESTING OF ADVANCED FUEL ASSEMBLIES, FUEL-SWELLING STUDIES, CORE DESIGN, CHEMICAL SHIM CONTROL, CORROSION, LOSS-OF-COOLANT-FLOW ANALYSIS, HAZARDS ANALYSIS, AND CRITICALITY EXPERIMENTS.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

ACCIDENT, LOSS OF FLOW + CHEMICAL SHIM + CORROSION + CRITICALITY EXPERIMENT + DESIGN STUDY + FUEL ELEMENT + HAZARDS ANALYSIS + INTEGRITY + IRRADIATION TESTING + REACTOR PHYSICS + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM

18-21113

HORST KM

SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR DEVELOPMENT PROGRAM. FIFTH QUARTERLY REPORT, MAY-JULY 1965

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

GEAP-4934 +. 122 PAGES, AUGUST 1965

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21113 *CONTINUED*

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS INCLUDE STUDIES OF REACTIVITY EFFECTS OF FUEL, CLAD, AND COOLANT, MOCKUP TESTING, FUEL DEVELOPMENT, INSTRUMENTATION FOR FUEL-TEMPERATURE MEASUREMENT, STEADY-STATE AND TRANSIENT CHARACTERISTICS OF THE CORE ASSEMBLY, REACTIVITY CONTROL, FUEL HANDLING, AND CORE DESIGN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

DESIGN STUDY + FUEL ELEMENT + FUEL HANDLING + INSTRUMENTATION, IN CORE + MOCKUP + REACTIVITY EFFECT + REACTOR CONTROL + REACTOR STABILITY + REACTOR, LIQUID METAL COOLED + RESEARCH AND DEVELOPMENT PROGRAM + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

18-21115

HORST KM

SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR DEVELOPMENT PROGRAM. QUARTERLY REPORT NO. 11, NOVEMBER 1966-JANUARY 1967

GENERAL ELECTRIC COMPANY, SUNNYVALE, CALIF.

GEAP-5442 +. 86 PAGES, REFERENCES, FEBRUARY 1967

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS INCLUDE IRRADIATION TESTING OF FUEL ELEMENTS AND THERMOCOUPLES, STEADY-STATE AND TRANSIENT CHARACTERISTICS OF THE CORE, CONTROL-ROD DESIGN, FUEL HANDLING, AND CORE DESIGN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

DESIGN STUDY + FUEL ELEMENT + FUEL HANDLING + INSTRUMENTATION, IN CORE + IRRADIATION TESTING + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + RESEARCH AND DEVELOPMENT PROGRAM + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

18-21116

HORST KM

SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR DEVELOPMENT PROGRAM. QUARTERLY REPORT NO. 10, AUGUST-OCTOBER 1966

GENERAL ELECTRIC CO., SUNNYVALE, CALIF., ADVANCED PRODUCTS OPERATION

GEAP-5301 +. 108 PAGES, REFERENCES, NOVEMBER 1966

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS INCLUDE IRRADIATION TESTING OF FUEL PELLETS, TESTING OF IN-PILE THERMOCOUPLES, HYDRAULIC FLOW TESTS, FUEL HANDLING, CORE DESIGN, AND FUEL FABRICATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00 COPY, \$0.65 MICROFICHE

DESIGN STUDY + FABRICATION + FUEL ELEMENT + FUEL HANDLING + HYDRAULIC ANALYSIS + INSTRUMENTATION, IN CORE + IRRADIATION TESTING + REACTOR, FAST + REACTOR, LIQUID METAL COOLED + RESEARCH AND DEVELOPMENT PROGRAM + SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)

18-21148

HOFMAN W

DUTCH NUCLEAR PROPULSION SHIP REACTOR

REACTOR CENTRUM NEDERLAND, THE HAGUE

RCN-76 +. 14 PAGES, MAY 16, 1967

DESCRIBES THE NEREUS PWR REACTOR DESIGN AND REVIEWS RELATED R AND D WORK. FUEL IS SINTERED UO₂ WITH BURNABLE POISON IN THE FUEL PELLETS. STEAM IS TO BE MODERATELY SUPERHEATED (40 KG/SQ. CM AND 280 C). POWER LEVEL IS 62 MW.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN

EURATOM + NETHERLANDS + REACTOR DESCRIPTION + REACTOR, MARITIME + REACTOR, PRESSURIZED WATER

18-21419

CRYSTAL RIVER 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME 1

FLORIDA POWER CORPORATION

176 PAGES, TABLES, FIGURES, CRYSTAL RIVER UNITS 3 AND 4, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1, AUGUST 10, 1967, DOCKET 50-302/303

TWO B AND W PWRs LOCATED ON THE GULF OF MEXICO IN CITRUS COUNTY, FLORIDA (2452 MWT/855 MWE). ULTIMATE DESIGN POWER IS 2560 MWT/865 MWE, INCLUDING 16 MWT FROM COOLANT PUMPS. SAFETY ANALYSIS IS FOR 2544 MWT CORE POWER. UNIT 3 COMMERCIAL OPERATION BY 1 OCT., 72, WITH UNIT 4 TWO YEARS LATER. REACTORS ARE NEARLY IDENTICAL TO OCONEE 1 AND 2, AND PSAR IS ESSENTIALLY IDENTICAL IN FORM AND (EXCEPT FOR SITE CONSIDERATIONS) IN CONTENT TO THE OCONEE 1 AND 2 PSAR. VOLUME 1 COVERS INTRODUCTION AND SUMMARY, SITE, REACTOR, AND COOLANT SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21419 *CONTINUED*

CRYSTAL RIVER 3 AND 4 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21420

CRYSTAL RIVER 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
FLORIDA POWER CORPORATION122 PAGES, TABLES, FIGURES, CRYSTAL RIVER UNITS 3 AND 4, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II,
AUGUST 10, 1967, DOCKET 50-302/303VOLUME II COVERS (5) CONTAINMENT, (6) ENGINEERED SAFEGUARDS, (7) I AND C, (8) ELECTRICAL
SYSTEMS, (9) AUXILIARY AND EMERGENCY SYSTEMS, (10) STEAM SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CRYSTAL RIVER 3 AND 4 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21421

CRYSTAL RIVER 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME III
FLORIDA POWER CORPORATION88 PAGES, TABLES, FIGURES, REFERENCES, CRYSTAL RIVER UNITS 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT,
VOLUME III, AUGUST 10, 1967, DOCKET 50-302/303VOLUME III COVERS (11) WASTE DISPOSAL, (12) OPERATIONS, (13) INITIAL TESTS, AND (14) SAFETY
ANALYSIS (118 PAGES). EXCLUSION-BOUNDARY THYROID DOSE IS 1.45 REMS (2 HR), 5.4 REMS (24 HR),
AND 7.3 REMS (30 DAY). (THESE ARE CONSIDERABLY HIGHER THAN FOR OCONEE, DUE ONLY IN PART TO
THE DIFFERENCE IN EXCLUSION RADIUS - 4,400 FT VS 5,280 FT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *DOSE + ACCIDENT, LOSS OF COOLANT + CRYSTAL RIVER 3 AND 4 (PWR) +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21422

CRYSTAL RIVER 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME IV
FLORIDA POWER CORPORATION170 PAGES, TABLES, FIGURES, REFERENCES, CRYSTAL RIVER UNITS 3 AND 4 PRELIMINARY SAFETY ANALYSIS REPORT,
VOLUME IV, AUGUST 10, 1967, DOCKET 50-302/303

VOLUME IV CONTAINS 16 APPENDIXES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

CRYSTAL RIVER 3 AND 4 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21423

RUSSELLVILLE PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME I
ARKANSAS POWER AND LIGHT COMPANY323 PAGES, FIGURES, TABLES, RUSSELLVILLE NUCLEAR UNIT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME I,
DECEMBER 4, 1967, DOCKET 50-313A B AND W PWR LOCATED ON THE ARKANSAS RIVER, IN POPE COUNTY, ARKANSAS, ON THE DARDANELLE
RESERVOIR. 2452 MWT/850 MWE, 2584 MWT ULTIMATE POWER, IDENTICAL TO CRYSTAL RIVER UNITS LESS
THIOSULPHATE SPRAY. PSAR FOLLOWS USUAL B AND W FORMAT AND TABLE OF CONTENTS. VOLUME I
COVERS (1) INTRODUCTION AND SUMMARY, (2) SITE, (3) REACTOR, (4) COOLANT SYSTEM, (5)
CONTAINMENT, (6) ENGINEERED SAFEGUARDS, (7) I AND C, (8) ELECTRICAL SYSTEM (9) AUXILIARY AND
EMERGENCY SYSTEMS, AND (10) STEAM SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

REACTOR, PRESSURIZED WATER + RUSSELLVILLE (PWR) + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21424

RUSSELLVILLE PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
ARKANSAS POWER AND LIGHT COMPANY154 PAGES, TABLES, FIGURES, RUSSELLVILLE NUCLEAR UNIT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II,
DECEMBER 4, 1967, DOCKET 50-313VOLUME II CONTAINS (11) WASTE DISPOSAL, (12) OPERATIONS, (13) INITIAL TESTING, (14) SAFETY
ANALYSIS, AND 14 APPENDIXES. OFF-SITE THYROID DOSE FROM A LOCATION AT 0.65 MILE EXCLUSION
RADIUS IS 5.2 REMS (2 HR), 9.1 (24 HR) AND 24.5 (30 DAY).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*AIRBORNE RELEASE + *DOSE + ACCIDENT, LOSS OF COOLANT + REACTOR, PRESSURIZED WATER + RUSSELLVILLE (PWR) +
SAFETY ANALYSIS REPORT, PRELIMINARY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21477

AMENDMENT NO. 2 TO APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR CONSTRUCTION PERMIT AND CLASS 104 LICENSE FOR THE FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO
666 PAGES, 73 REFERENCES, 203 FIGURES, 30 TABLES, AMENDMENT 2 TO THE CONSTRUCTION PERMIT APPLICATION FOR FT. ST. VRAIN. MAY 24, 1967. DOCKET 50-267

ANSWERS TO 111 QUESTIONS RAISED BY DRL IN A LETTER OF APRIL 21, 1967. 23 QUESTIONS ASKED IN THAT SAME LETTER WILL BE ANSWERED IN LATER AMENDMENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + FT. ST. VRAIN + REACTOR, GAS COOLED + REACTOR, GRAPHITE MODERATED + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21589

SUPPLEMENT 1 TO THE PEACH BOTTOM 2 AND 3 PRELIMINARY SAFETY ANALYSIS REPORT
PHILADELPHIA ELECTRIC COMPANY
189 PAGES, 3 TABLES, 29 FIGURES, 5 REFERENCES, SUPPLEMENT 1 TO THE PEACH BOTTOM 2 AND 3 PRELIMINARY SAFETY ANALYSIS REPORT. JULY 1967. DOCKET 50-277 AND 50-278

SUPPLEMENT 1 CONTAINS ANSWERS TO 61 QUESTIONS SUBMITTED TO
PHILADELPHIA ELECTRIC IN AEC LETTER OF JUNE 13, 1967.

1.0 GENERAL	(2 QUESTIONS),
2.0 SITE	(7 QUESTIONS),
3.0 REACTOR AND PLANT DESIGN	(3 QUESTIONS),
4.0 RADIOACTIVE WASTE CONTROL	(3 QUESTIONS),
5.0 ENGINEERED SAFETY FEATURES	(4 QUESTIONS),
6.0 CONTAINMENT	(13 QUESTIONS),
7.0 SAFETY ANALYSES	(9 QUESTIONS),
8.0 INSTRUMENTATION AND CONTROL	(16 QUESTIONS),
9.0 ELECTRICAL SYSTEM	(4 QUESTIONS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + PEACH BOTTOM 2 AND 3 + REACTOR, BOILING WATER

18-21651

INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT. VOLUME 2-PART A
CONSOLIDATED EDISON COMPANY OF NEW YORK
242 PAGES, FIGURES, TABLES, REFERENCES, INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT VOLUME 2 PART A (EXHIBIT B, VOLUME 2, PART A). APRIL 1967. DOCKET 50-286

INDIAN POINT 3 IS IDENTICAL TO INDIAN POINT 2 EXCEPT (1) POWER LEVEL IS 3025 MWT (VS 2758 MWT), (2) ADDITION OF PRESSURIZED ACCUMULATORS CONTAINING BORATED WATER HELD BACK ONLY BY PRIMARY SYSTEM PRESSURE, SO THAT A DROP IN PRESSURE RESULTS IN IMMEDIATE ACTION, (3) NO REACTOR-PIT CRUCIBLE, (4) REDUCED PEAK HEAT FLUX AND LINEAR POWER DENSITY DUE TO REDUCED HOT-CHANNEL FACTORS, (5) THIOSULFATE SPRAY (VS CHARCOAL FILTERS), (6) REDUCED BORON CONCENTRATION, (7) HIGHER AVERAGE FUEL ENRICHMENT PER CORE, AND (8) HIGHER AVERAGE BURNUP PER CORE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*ENGINEERED SAFETY FEATURE + ACCUMULATOR + CORE MELTDOWN + HOT CHANNEL FACTOR + INDIAN POINT 3 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21652

INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT. VOLUME 2-PART B
CONSOLIDATED EDISON COMPANY OF NEW YORK
137 PAGES, TABLES, FIGURES, REFERENCES, INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 2 PART B (EXHIBIT B, VOLUME 2, PART B). APRIL 1967. DOCKET 50-286

CONTAINS CHAPTERS 7 THROUGH 12 (I AND C, ELECTRICAL SYSTEM, AUXILIARY AND EMERGENCY SYSTEMS, STEAM SYSTEM, WASTE DISPOSAL, AND AN 82-PAGE SAFETY ANALYSIS). APPENDIX 4 - SEISMIC-DESIGN CRITERIA. MCA IS A LOSS-OF-COOLANT ACCIDENT RESULTING IN 5.2-REM THYROID (2 HR) AT THE SITE BOUNDARY WITH 1 OF 2 SPRAY PUMPS OPERATIVE AND CONTAINMENT-LEAKAGE-CONTROL SYSTEM INOPERATIVE. WITH ALL ENGINEERED SAFEGUARDS OPERATIVE, 2-HR DOSE AT SITE BOUNDARY IS 1.6 REMS TO THYROID AND 1 MREM WHOLE BODY. WHOLE-BODY DOSE IS 110 MREM IF ISOLATION SYSTEM FAILS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AIRBORNE RELEASE + DOSE + HAZARDS ANALYSIS + INDIAN POINT 3 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21653 ALSO IN CATEGORY 2
INDIAN POINT 3 PRELIMINARY SAFETY ANALYSIS REPORT. VOLUME 1
CONSOLIDATED EDISON COMPANY OF NEW YORK
194 PAGES, TABLES, FIGURES, INDIAN POINT 3, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1 (EXHIBIT B,
VOLUME 1) APRIL 1967. DOCKET 50-286

VOLUME 1 (OF 3) COVERS SITE AND ENVIRONMENT. UNIT 3 WILL BE SOUTH OF UNIT 1. UNIT 2 IS BEING
BUILT NORTH OF UNIT 1 ON THE HUDSON RIVER IN UPPER WESTCHESTER COUNTY, 24 MILES NORTH OF NEW
YORK CITY BOUNDARY. NEAREST CITY (2.5 MILES) IS PEEKSKILL (POP. 19,000). GAS MAIN RUNS 700
FT SOUTH OF UNIT 3. INDIAN POINT 3 IS A 3025 MWT/965 MWE WESTINGHOUSE PWR. INCLUDED ARE A
1955 AND A 1965 REPORT ON HYDROLOGY, POPULATION AND LAND-USAGE PROJECTION TO 1980, AND
1957-58 METEOROLOGICAL REPORTS WITH A 4-PAGE DISCUSSION OF ITS APPLICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*SITING, REACTOR + HYDROLOGICAL CONSIDERATION, GENERAL + INDIAN POINT 3 + METEOROLOGY +
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21671
FT. ST. VRAIN AMENDMENT 5 TO PSAR. REVISIONS AND ANSWERS TO QUESTIONS.
PUBLIC SERVICE COMPANY OF COLORADO
356 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 5 TO LICENSE APPLICATION FOR FT. ST. VRAIN, 11 OCTOBER
1967, DOCKET 50-267

CONSISTS OF - ATTACHMENT A (REVISED ANSWERS TO QUESTIONS OF 21 APR. 67), ATTACHMENT B (REVISED
PAGES TO PSAR), ATTACHMENT C (ANSWERS TO QUESTIONS OF 30 AUG. 67), ATTACHMENT D (ANSWERS TO
ORAL QUESTIONS OF 8 AUG. 67), ATTACHMENT E (ANSWERS TO QUESTIONS OF 21 SEPT. 1967).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

AEC QUESTION + FT. ST. VRAIN + REACTOR, GAS COOLED + REACTOR, GRAPHITE MODERATED +
SAFETY ANALYSIS REPORT, PRELIMINARY

18-21835
DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME 1
INDIANA + MICHIGAN ELECTRIC COMPANY
317 PAGES, 54 TABLES, 124 FIGURES, REFERENCES, DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS
REPORT, VOLUME 1, DECEMBER 18, 1967, DOCKET 50-315/316

TWO WESTINGHOUSE PWRs (3250 MWT/1089 MWE GROSS, ALMOST IDENTICAL TO DIABLO CANYON, BURLINGTON,
AND ZION 1 AND 2) LOCATED ON LAKE MICHIGAN, 11 MILES SOUTH OF BENTON HARBOR, MICHIGAN, IN A
FARMING REGION. CONTAINMENT FEATURES NEW ICE CONDENSER CONCEPT, WHEREBY BORATED ICE ACTS AS
A HEAT SINK UPON A LOSS OF COOLANT. CONTAINMENT SPRAY MAY USE SODIUM HYDROXIDE FOR IODINE
REMOVAL. SOME FACILITIES AND EQUIPMENT ARE SHARED. UNIT 1 IS DUE FOR COMPLETION NOV. 7.
UNIT 2, JAN. 12.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT SPRAY + *CONTAINMENT, ICE CONDENSER + ADDITIVE + COOK 1 AND 2 (PWR) +
FISSION PRODUCT, IODINE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21836 ALSO IN CATEGORY 12
WESTINGHOUSE RESEARCH AND DEVELOPMENT FOR COOK 1 + 2
INDIANA + MICHIGAN ELECTRIC COMPANY
8 PAGES OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1, PAGE 1.6-1 TO 1.6-8,
DECEMBER 18, 1967, DOCKET 50-315/316

R AND D PROGRAM INCLUDES WORK ON CONTAINMENT-SPRAY ADDITIVES. PRELIMINARY RESULTS ON 3
SOLUTIONS, (1) 1 W/D SODIUM THIOSULPHATE IN 3000-PPM BORON, (2) SAME AS 1 EXCEPT NaOH ADDED
TO GIVE PH OF 9, AND (3) NaOH IN 3000-PPM BORON TO GIVE PH OF 9.5. SOLUTION 1 IS OXIDIZED BY
AIR AT ACCIDENT CONDITIONS, DESTROYING IODINE RETENTION AND PRODUCING AN ACID BYPRODUCT WHICH
ATTACKS CU, AL, BRASS, CARBON STEEL, AND GALVANIZED SURFACES. SOLUTION 2 IS STABLE
CHEMICALLY AND ATTACKS ONLY COPPER, BRASS, AND AL. SOLUTION 3 IS STABLE AND ATTACKS ONLY AL.
IODINE RETENTION OF EACH IS COMPARABLE. SOLUTION 3 HOWEVER LOSES SOME OF ITS IODINE
RETENTION IF PH IS BELOW 9.5. SOLUTIONS 1 AND 2 UNDERGO RADIOLYTICAL DECOMPOSITION UNDER
GAMMA RADIATION, SOLUTION 3 IS RADIOLYTICALLY STABLE AND RESULTS IN LESS NET HYDROGEN
LIBERATION. FURTHER STUDY IS BEING DONE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADDITIVE + *CONTAINMENT SPRAY + *FISSION PRODUCT, IODINE + COOK 1 AND 2 (PWR) +
FISSION PRODUCT RETENTION + REACTOR, PRESSURIZED WATER + RESEARCH AND DEVELOPMENT PROGRAM +
SAFETY ANALYSIS REPORT, PRELIMINARY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21837 ALSO IN CATEGORIES 11 AND 12
COOK 1 AND 2 ICE CONDENSER CONTAINMENT SYSTEM DESCRIPTION
INDIANA + MICHIGAN ELECTRIC COMPANY
118 PAGES, 23 FIGURES, 7 TABLES, REFERENCES, PAGES 5.1-1 TO 5.7-4 OF VOLUME 1, PAGES 14.3-1 TO 14.3-42 OF VOLUME 3 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, DECEMBER 18, 1967, DOCKET 50-315/316

CONTAINMENT SYSTEM IS DIVIDED INTO AN UPPER AND LOWER REGION, BY AN ANNULAR RING AROUND THE CONTAINMENT WALL WHICH CONTAINS BORATED ICE IN OPEN-MESH BASKETS. REACTOR AND ASSOCIATED PIPING IS IN THE LOWER REGION. UPON LOSS OF COOLANT, PRESSURE INCREASE OPENS DOORS AT BOTTOM OF ICE CONDENSER, THE STEAM IS QUENCHED, AND THE AIR PASSES TO THE UPPER REGION. THE INSIDE DIMENSIONS OF THE CONTAINMENT ARE ABOUT 166 FT TALL BY 115 FT DIA. VS 140 AND 212 FOR ZION STATION, WHICH IS NEARLY IDENTICAL. PROPRIETARY REPORTS WCAP-2951, -7040, -7079, AND -7079 SUPPLEMENTS 1 AND 2, COVER VARIOUS TESTS RELATING TO THIS TYPE OF CONTAINMENT. CONDENSATION OF STEAM IN THE ICE TRAPS 96% OF THE HALOGENS FROM A LOSS-OF-COOLANT ACCIDENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FISSION PRODUCT RETENTION + ACCIDENT, LOSS OF COOLANT + CONDENSATION + CONTAINMENT, ICE CONDENSER + COOK 1 AND 2 (PWR) + FISSION PRODUCT, IODINE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SYSTEM DESCRIPTION

18-21838 ALSO IN CATEGORY 15
COOK 1 + 2 ROUTINE ENVIRONMENTAL MONITORING PROGRAM.
INDIANA AND MICHIGAN ELECTRIC COMPANY
5 PAGES, 1 TABLE, PAGES 2.7-1 TO 2.7-4 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME 1, DECEMBER 18, 1967, DOCKET 50-315/316

3 LEVELS OF MONITORING (OF PRECIPITATION, AIR FILTRATION, AND FILM BADGES) WILL BE USED. (REGIME I) - ONLY SAMPLES THAT COULD NOT BE TAKEN AFTER A ACCIDENTAL RELEASE ARE TAKEN AND THEY ARE HELD WITHOUT ANALYSIS OTHER THAN A ROUTINE RADIATION CHECK. (REGIME II) - MOST OF THE USUAL SAMPLE ARE TAKEN AND THEN GIVEN BETA AND GAMMA SCANS. (REGIME III) - AN INTENSIVE SAMPLING AND ANALYSIS PROGRAM. *** STARTING PRIOR TO FUELING, REGIME II WILL BE IN EFFECT UNTIL A YEAR AFTER FUELING UNLESS INDICATIONS OF ACTUAL RELEASES MAKE REGIME III NECESSARY. AFTER ONE YEAR, THE SURVEY OPERATES IN REGIME I IF WEEKLY RELEASE IS LESS THAN AT/30 (WHERE A IS THE CONTINUOUS YEARLY 10 CRF 20 LIMIT). IF THE ACCUMULATED RELEASE IS BETWEEN AT/30 AND AT/10, REGIME II IS USED AND REGIME III IF THE PREVIOUS YEARS RELEASE IS BETWEEN AT/10 AND AT/3. REGIME IS DETERMINED ON A WEEK TO WEEK BASIS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*MONITORING PROGRAM, ENVIRONMENTAL + COOK 1 AND 2 (PWR) + EFFLUENT + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21839 ALSO IN CATEGORY 9
DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
INDIANA AND MICHIGAN ELECTRIC COMPANY
273 PAGES, 38 TABLES, 87 FIGURES, REFERENCES, DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, DECEMBER 18, 1967, DOCKET 50-315/316

VOL. II CONTAINS (6) ENGINEERED SAFETY FEATURES, (7) 1 AND C, (8) ELECTRICAL SYSTEMS, (9) AUX. AND EMERGENCY SYSTEMS, (10) STEAM SYSTEMS, (10) STEAM SYSTEM AND (11) WASTE-DISPOSAL SYSTEM. ENGINEERED SAFETY FEATURES INCLUDE (A) EMERGENCY CORE COOLING SYSTEM (BORATED WATER INJECTION), AND (B) CONTAINMENT SPRAY (WITH AN IODINE-REMOVAL ADDITIVE). ISOLATION OF REDUNDANT PROTECTION-SYSTEM CHANNELS IS DONE BY SEPARATION OF PROCESS SENSORS, BY USING SEPARATE WIRE WAYS, CABLE TRAYS, CONDUIT RUNS, AND PENETRATION, AND BY USING SEPARATE PROTECTION RACK FOR THE ANALOG EQUIPMENT. EACH ANALOG UNIT DRIVES TWO LOGIC RELAYS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ENGINEERED SAFETY FEATURE + *INDEPENDENCE + *REDUNDANCE + COOK 1 AND 2 (PWR) + FAILURE, SEQUENTIAL + INSTRUMENTATION, PROTECTIVE + PLANT PROTECTIVE SYSTEM + REACTOR SAFETY SYSTEM + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21840 ALSO IN CATEGORY 9
COOK 1 + 2 TURBINE LOADING AND CENTRAL LOAD CONTROL
INDIANA AND MICHIGAN ELECTRIC COMPANY
4 PAGES, PAGE 7.3-13 TO 7.3-16 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, DECEMBER 18, 1967, DOCKET 50-315/316

STEAM SUPPLY SYSTEM IS DESIGNED TO ACCEPT, WITHOUT A PLANT TRIP, A 10% LOAD CHANGE AND AUTOMATIC RAMP LOADING AND UNLOADING BETWEEN 15 AND 100% FULL POWER. SYSTEM LOAD CONTROL BY AEP USES A CENTRAL COMPUTER, LOCATED AT CANTON, OHIO, AND CONSIDERS FUEL COSTS AND TRANSMISSION LOSSES. CONTROL SIGNAL IS A PULSE (PROPORTIONAL TO THE DESIRED CHANGE), WHOSE DURATION CAN BE VARIED FROM 0.2 TO 1.2 SEC AND CAN BE REPEATED AS OFTEN AS EVERY 25 SEC. PULSE LENGTH IS DETERMINED BY THE RESPONSE RATE OF THE PARTICULAR FACILITY. AT THE COMPUTER, A CONTROL PANEL FOR EACH UNIT INCLUDES MANUAL ADJUSTMENTS FOR UPPER LIMIT, LOWER LIMIT, AND

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21840 *CONTINUED*
NORMAL GENERATION SET POINTS (SIMILAR PANEL AT THE REACTOR). THE CONTROL PULSES OPERATE THE TURBINE-GOVERNOR MOTOR. OPERATOR ACTION TAKES THE SYSTEM OUT OF COMPUTER CONTROL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 2043

*REACTOR POWER + COMPUTER CONTROL + COOK 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURBINE

18-21841
COOK 1 + 2 TURBINE BYPASS SYSTEM
INDIANA AND MICHIGAN ELECTRIC COMPANY
2 PAGES, PAGE 10.3-4 TO 10.3-5 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, DECEMBER 18, 1967, DOCKET 50-315/316

TURBINE-BYPASS SYSTEM IS DESIGNED TO BYPASS TO THE TURBINE CONDENSERS 85% OF FULL-LOAD STEAM FLOW AT FULL-LOAD STEAM PRESSURES. CAPACITY INCREASES WITH ANY TRANSIENT PRESSURE INCREASE. BYPASS VALVES OPEN IN 3 SEC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOAD REJECTION + *SYSTEM CAPABILITY + *VALVE + COOK 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + TURBINE

18-21842
DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME III
INDIANA AND MICHIGAN ELECTRIC COMPANY
179 PAGES, TABLES, FIGURES, REFERENCES, DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

VOL. III INCLUDES (SECT. 13) INITIAL TESTS, (SECT. 14) SAFETY ANALYSIS, (APPENDIX A) SITE ENVIRONMENTAL STUDIES REPORT BY DAMES AND MOORE, (APPENDIX B) STRUCTURAL DESIGN CRITERIA, (APPENDIX C) EVALUATION OF SHARED COMPONENTS, AND (APPENDIX D) DETERMINATION OF PRESSURE-VESSEL NDT. *** LOSS-OF-COOLANT ACCIDENT RESULTS IN AN OFF-SITE 2-HR THYROID-DOSE OF 0.25 REM AT THE 610-METER EXCLUSION RADIUS (16 REMS IF EMERGENCY CORE COOLING SYSTEM IS ASSUMED TO FAIL) WITHOUT CONTAMINATION SPRAY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ACCIDENT, LOSS OF COOLANT + *AIRBORNE RELEASE + *DOSE + COOK 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SHARED COMPONENTS

18-21843 ALSO IN CATEGORY 2
COOK 1 + 2 PSAR APPENDIX A - SITE ENVIRONMENT STUDIES
INDIANA AND MICHIGAN ELECTRIC COMPANY + DAMES AND MOORE
64 PAGES, TABLES, FIGURES, REFERENCES, PAGE 1A-1 TO 11C-A6 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

REPORT COVERS FIELD INVESTIGATIONS, LABORATORY TESTS, AND DISCUSSIONS OF GEOLOGY, HYDROLOGY, AND SEISMOLOGY. FIELD INVESTIGATIONS INCLUDED GEOLOGIC SURVEY, HYDROLOGICAL SURVEY, TEST-BORING PROGRAM, SEISMIC-REFRACTION SURVEY, AND UP-HOLE SEISMIC SURVEY, MICROMOTION MEASUREMENTS, AND PERMEABILITY TESTS. SITE IS ON THE GRAND MARAIS EMBAYMENT ON THE SHORE OF LAKE MICHIGAN, A SYSTEM OF SAND DUNES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SITING, REACTOR + COOK 1 AND 2 (PWR) + EARTHQUAKE ENGINEERING + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + RESPONSE SPECTRUM + SAFETY ANALYSIS REPORT, PRELIMINARY + SOIL, PROPERTY

18-21844
COOK 1 + 2 PSAR APPENDIX B - DESIGN CRITERIA FOR STRUCTURES AND EQUIPMENT
INDIANA AND MICHIGAN POWER COMPANY + DAMES AND MOORE
19 PAGES, 11 FIGURES, 5 TABLES, PAGE B-1 TO B-19 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

SPECIFIES CLASS TO WHICH STRUCTURES WILL BE DESIGNED, AND GIVES THE DESIGN CLASS OF VARIOUS EQUIPMENT AND SYSTEMS. ALSO LISTED ARE THE SAFETY MARGINS FOR STRESS DESIGN OF VARIOUS MATERIALS AND DESIGN CRITERIA FOR ABNORMAL OPERATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*DESIGN CRITERIA + CONTAINMENT, GENERAL + COOK 1 AND 2 (PWR) + PIPING + PRESSURE VESSEL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SUPPORT STRUCTURE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21845 ALSO IN CATEGORY 11
COOK 1 + 2 PSAR APPENDIX D - DETERMINATION OF REACTOR PRESSURE VESSEL. NDTT
INDIANA AND MICHIGAN POWER COMPANY
9 PAGES, 6 REFERENCES, PAGE D-1 TO D-9 OF DONALD C. COOK NUCLEAR PLANT PRELIMINARY SAFETY ANALYSIS REPORT,
VOLUME III, DECEMBER 18, 1967, DOCKET 50-315/316

DESCRIBES THE PROCEDURE FOR MEASURING THE INTEGRATED FAST NEUTRON FLUX AT IRRADIATION SAMPLES,
USING DOSIMETERS AND THE PIM6 CODE TO DETERMINE THE FAST SPECTRUM AND USING THE FE-54 (N,P)
MN-54 REACTION FOR FAST-FLUX MEASUREMENT. INITIAL NDTT IS MEASURED BY EITHER THE ASTM E206
DROPWEIGHT TEST OR THE ASTM E23 CHARPY V-NOTCH TEST. BOTH METHODS ARE DISCUSSED, INCLUDING
ERROR BOUNDS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*BRITTLE FRACTURE + *SURVEILLANCE PROGRAM + COOK 1 AND 2 (PWR) + IRRADIATION TESTING + PRESSURE VESSEL +
RADIATION DAMAGE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-21865
ANSWERS TO QUESTIONS ABOUT LACBWR RECEIVED FROM THE DIVISION OF REACTOR LICENSING
ALLIS-CHALMERS, BETHESDA, MARYLAND
ACNP-66531 +. 66 PAGES, 8 FIGURES, 1 TABLE, 2 REFERENCES, OF AMENDMENT 23 TO LA CROSSE CONSTRUCTION
AUTHORIZATION, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY, APRIL 1966

AMENDMENT 23 ANSWERS 4 QUESTIONS (NOS. 1, 4, 9, AND 11) RAISED BY DRL IN LETTER OF DECEMBER
29, 1965.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + LACROSSE + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-21879
AMENDMENT 24 TO LACROSSE BOILING WATER REACTOR CONSTRUCTION PERMIT
ALLIS-CHALMERS MFG. COMPANY
ACNP-66541 +. 53 PAGES, 6 TABLES, 4 FIGURES, 2 REFERENCES, JUNE 3, 1966, DOCKET 115-5

AMENDMENT 24 ANSWERS 16 DRL QUESTIONS, TWO (GROUP III) FROM LETTER OF DECEMBER 2, 1965, AND 14
(GROUP V) PRESENTED ORALLY AT MEETING ON APRIL 29, 1965. NINE PAGES OF REVISED MATERIAL ARE
INCLUDED AS QUESTION V-10.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + LACROSSE + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, GENERAL

18-21981
QUAC CITIES AMENDMENT 3--(II) FINANCIAL QUALIFICATION
COMMONWEALTH EDISON COMPANY
20 PAGES, 4 TABLES, DOCKET 50-754, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY, OCTOBER 18, 1966

PRESENTS MISCELLANEOUS DATA AND 1965 ANNUAL REPORT FOR COMMONWEALTH EDISON COMPANY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + ECONOMICS + QUAC CITIES 1 AND 2 + REACTOR, BOILING WATER + STAFFING, TRAINING, QUALIFICATION

18-21990
IMPROVEMENTS IN AND RELATING TO NUCLEAR REACTORS
SOCIETE BELGE POUR L-INDUSTRIE NUCLEAIRE
BRITISH PATENT 1,066,402 +. 5 PAGES, 1 FIGURE, APRIL 26, 1967

PATENT TO BELGONUCLEAIRE FOR CONTROLLING FUEL CONTENT AND COOLANT FLOW THROUGH ELEMENTS OF
FAST/INTERMEDIATE SPECTRUM REACTOR DURING OPERATION. APPARENTLY, THE PRESSURE-TUBE CONCEPT.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND, (\$0.49 PER COPY)

*PATENT + FUEL HANDLING + REACTOR, FAST + REACTOR, PRESSURE TUBE

18-22003
AMENDMENT 4 (SUPPLEMENT VOLUME 1) TO THE LICENSE APPLICATION FOR SURRY 1 AND 2.
VIRGINIA ELECTRIC AND POWER COMPANY
227 PAGES, 17 REFERENCES, 1 TABLE, 68 FIGURES, AMENDMENT 4 (SUPPLEMENT VOLUME 1) TO THE LICENSE
APPLICATION FOR SURRY 1 AND 2. OCTOBER 6, 1967, DOCKET 50-280/281

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22003 *CONTINUED*

AMENDMENT 4, TABULATING OF CHANGES, SUBMITS 83 ANSWERS TO 83 QUESTIONS RAISED BY AEC, JULY 17, 1967. INCLUDED ALSO IS A REPORT BY R. V. WHITMAN (MIT), FOUNDATION DYNAMICS FOR THE PROPOSED NUCLEAR POWER PLANT AT SURRY, VIRGINIA (JULY 1967).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 2043

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SURRY 1 AND 2

18-22072

AMENDMENT NO. 4 TO DUKE POWER COMPANY'S APPLICATION FOR LICENSE
DUKE POWER COMPANY

55 PAGES, 4 REFERENCES, 8 FIGURES, AMENDMENT 4 (SUPPLEMENT 4) TO THE APPLICATION FOR LICENSES FOR OCONEE 1, 2, AND 3. MAY 25, 1967, DOCKET 50-269, 270 AND 287

AMENDMENT 4 SUBMITS REVISED INFORMATION FOR THE PRELIMINARY SAFETY ANALYSIS REPORT AND SUPPLEMENTARY INFORMATION IN RESPONSE TO QUESTIONS FROM DRL IN LETTER OF MAY 11, 1967. THIS LETTER SECTION OF AMENDMENT 4 IS SUBMITTED AS SUPPLEMENT 4. IT CONTAINS 32 ANSWERS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + OCONEE 1, 2, AND 3 + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22166

MONTICELLO NUCLEAR GENERATING PLANT AMENDMENT NO. 6, ANSWERS TO AEC QUESTIONS
NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA

105 PAGES, 5 TABLES, 35 FIGURES, 5 REFERENCES, MONTICELLO CONSTRUCTION PERMIT APPLICATION, AMENDMENT 6, MARCH 3, 1967, DOCKET 50-263

24 ANSWERS ARE GIVEN TO QUESTIONS ASKED BY DRL FEBRUARY 27, 1967. ALSO INCLUDED ARE 15 PAGES OF CORRECTED INFORMATION FOR THE FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT. QUESTIONS COVER -

1. REACTOR VESSEL	(4 QUESTIONS),
2. CONTROL ROD SCRAMS AFTER LOSS-OF-COOLANT ACCIDENT	(1),
3. TURBINE-BYPASS CAPABILITY	(1),
4. OFF-SITE POWER RELIABILITY	(1),
5. RADIOLYTIC DECOMPOSITION OF WATER	(1),
6. DELAYED CORE COOLING AFTER LOSS-OF-COOLANT ACCIDENT	(1),
7. POWER AVAILABILITY FOR ENGINEERED SAFEGUARDS	(1),
8. GEOLOGIC AND SEISMIC DESIGN	(14).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY ANALYSIS REPORT, PRELIMINARY + AEC QUESTION + EARTHQUAKE ENGINEERING + GEOLOGICAL CONSIDERATION, GENERAL + MONTICELLO + REACTOR, BOILING WATER

18-22197

AMENDMENT 8 TO FT. ST. VRAIN CONSTRUCTION PERMIT APPLICATION
PUBLIC SERVICE COMPANY OF COLORADO

133 PAGES, 11 TABLES, 44 FIGURES, 9 REFERENCES, AMENDMENT 8 TO FT. ST. VRAIN CONSTRUCTION PERMIT APPLICATION, NOVEMBER 24, 1967, DOCKET 50-267

CONTAINS (A) REVISED ANSWERS AND SUPPLEMENTAL INFORMATION TO QUESTIONS IN LETTER OF APRIL 21, 1967, (B) REVISED PSAR PAGES, (C) REVISED PAGES FOR PREVIOUSLY SUBMITTED ANSWERS, (D) REVISIONS TO PREVIOUS ANSWERS TO ORAL QUESTIONS AND TO QUESTIONS RAISED AT MEETING ON NOV. 1 AND 2 WITH ACRS, AND (E) REVISED ANSWERS AND TWO NEW ANSWERS TO DRL QUESTIONS IN LETTER OF SEPT. 21.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + FT. ST. VRAIN + REACTOR, HIGH TEMP. GAS + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22255

AMENDMENT 9 TO FT. ST. VRAIN CONSTRUCTION PERMIT APPLICATION
PUBLIC SERVICE COMPANY OF COLORADO

350 PAGES, TABLES, FIGURES, REFERENCES, PAGE 1 THROUGH E-23 OF AMENDMENT 9 TO THE FT. ST. VRAIN CONSTRUCTION PERMIT APPLICATION, JANUARY 1967, DOCKET 50-267

TRANSMITS REVISED PAGES FOR THE PSAR AND ANSWERS TO PREVIOUS QUESTIONS, ALSO INFORMATION ON ADDITION OF SILICON CARBIDE TO THE FUEL COATINGS AND INFORMATION ON OPERATION AT 879 MWTH. RESPONDS TO ACRS SUBCOMMITTEE QUESTION IN DRL LETTER OF DEC. 27, 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22255 *CONTINUED*
AEC QUESTION + FT. ST. VRAIN + REACTOR, HIGH TEMP. GAS + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22260
SURREY PSAR. AMENDMENT 7 - RESPONSE TO AEC QUESTIONS
VIRGINIA ELECTRIC AND POWER COMPANY
150 PAGES, FIGURES, TABLES, AMENDMENT 7 TO APPLICATION FOR LICENSE FOR SURREY 1 AND 2, JANUARY 4, 1968,
DOCKET 50-280/281, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

REPLIES TO DRL LETTER OF NOV. 27, 1967, AND TRANSMITS DULY REVISED PSAR PAGES. AMONG MAJOR
ITEMS ARE (1) REVISED CONTAINMENT-PRESSURE ANALYSIS (TO INCLUDE CONTAINMENT AS A HEAT SINK)
AND (2) ANALYSIS OF EFFECTS OF HURRICANE-INDUCED TIDAL WAVE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SURREY 1 AND 2

18-22261
THREE MILE ISLAND. AMENDMENT 4
METROPOLITAN EDISON COMPANY
150 PAGES, TABLES, FIGURES, REFERENCES, AMENDMENT 4 (SUPPLEMENT 3) TO THE THREE MILE ISLAND APPLICATION
FOR CONSTRUCTION PERMIT (PSAR), DECEMBER 8, 1967, DOCKET 50-289 TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

INCLUDES BOTH REVISED PSAR PAGES, REVISED SUPPLEMENT-1 PAGES (WHICH IN TURN ARE ANSWERS TO AEC
QUESTION), AND SUPPLEMENT 3 (ANSWERS TO DRL QUESTIONS OF NOV. 22, 1967).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + THREE MILE ISLAND (PWR)

18-22446 ALSO IN CATEGORIES 3 AND 13
AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION
NUCLEAR FUEL SERVICES, INC.
200 PAGES, TABLES, FIGURES, REFERENCES, AMENDMENT 6 TO THE NUCLEAR FUEL SERVICES LICENSE APPLICATION
(NEPTUNIUM RECOVERY FACILITY), NOVEMBER 15, 1967, DOCKET 50-201

THIS DOCUMENT (NINE SECTIONS PLUS APPENDICES) REPRESENTS A DESCRIPTION AND SAFETY ANALYSIS OF
THE ADDITIONAL PROCESSING STEPS TO BE PERFORMED AS PART OF THE OVERALL REPROCESSING
OPERATIONS AT THE WESTERN NEW YORK NUCLEAR SERVICE CENTER TO RECOVER NEPTUNIUM AS WELL AS THE
PRESENT PRODUCTS, PLUTONIUM AND URANIUM. THESE ADDITIONAL PROCESSING STEPS WILL BE PERFORMED
IN STRUCTURES AND EQUIPMENT (THE NEPTUNIUM RECOVERY FACILITY OR NRF) WHICH NUCLEAR FUEL
SERVICES, INC. (NFS) AND THE NEW YORK STATE ATOMIC AND SPACE DEVELOPMENT AUTHORITY (ASDA)
PLAN TO ADD TO THE WEST VALLEY REPROCESSING PLANT (WVRP) PRESENTLY BEING OPERATED UNDER AEC
LICENSE NO. CFS-1.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*HAZARDS ANALYSIS + *NEPTUNIUM + *NFS (NUCLEAR FUEL SERVICES) + LICENSING STATUS OF NUCLEAR PROJECTS +
PROCEDURES AND MANUALS

18-22585
MONTICELLO NUCLEAR GENERATING PLANT UNIT 1, AMENDMENT 4, ANSWERS TO AEC QUESTIONS
NORTHERN STATES POWER COMPANY
181 PAGES, 57 FIGURES, 11 TABLES, 16 REFERENCES, AMENDMENT 4 TO MONTICELLO CONSTRUCTION PERMIT, JANUARY
10, 1967, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

THIS AMENDMENT PRESENTS ANSWERS TO 56 QUESTIONS RAISED BY DRL ON DECEMBER 27, 1966. ALSO
TRANSMITTED ARE 9 CORRECTED PAGES FOR THE FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*AEC QUESTION + MONTICELLO + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22769
POINT BEACH SUPPLEMENT 1 - RESPONSE TO AEC QUESTIONS
WISCONSIN ELECTRIC POWER COMPANY + WISCONSIN MICHIGAN POWER COMPANY
200 PAGES, FIGURES, TABLES, REFERENCES, FIRST SUPPLEMENT TO POINT BEACH APPLICATION FOR LICENSE, JANUARY
11, 1968, DOCKET 50-301, TYPE--PWR, MFG--WEST, AE--BECHTEL

PROVIDES REVISED PSAR PAGES AND RESPONSE TO DRL QUESTIONS OF OCT. 31, 1967. (1) ENGINEERED
SAFETY FEATURES - 20 QUESTIONS, (2) THERMAL SHOCK ON REACTOR VESSEL - 26 QUESTIONS, (3)
EMERGENCY AUXILIARY POWER - 6 QUESTIONS, (4) INSTRUMENTATION AND CONTROL - 4 QUESTIONS, (5)
ACCIDENT ANALYSIS - 23 QUESTIONS, (6) MISCELLANEOUS - 14 QUESTIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22769 *CONTINUED*

*AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22772

SECTION XVI - SAFETY ANALYSIS OF STANDBY SAFEGUARDS

OMAHA PUBLIC POWER DISTRICT

31 PAGES, 4 TABLES, 9 FIGURES, REFERENCES, PAGES XVI-1-1 THRU XVI-7-3 OF FT. CALHOUN 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 2, 1967, DOCKET 50-285, TYPE--PWR, MFG.--C.E., AE--GIBBS + HILL

PRESENTS PRELIMINARY ANALYSIS OF ACCIDENTS FOR WHICH THE COOLANT-SYSTEM BOUNDARY BARRIER TO FISSION-PRODUCT RELEASE IS VIOLATED. ACCIDENTS CONSIDERED INCLUDE ROD EJECTION, LOSS OF COOLANT, MAXIMUM HYPOTHETICAL, STEAM-GENERATOR-TUBE BREAK, FUEL HANDLING, AND WASTE DISPOSAL. A 0.4% REACTIVITY WORTH OF AN EJECTED CONTROL ELEMENT RESULTS IN A NET ENERGY RELEASE AT HOT ZERO POWER OF 1.77 FPS (FULL-POWER SEC). TO RUPTURE THE VESSEL, 13.8 FPS IS REQUIRED. FOR THE LOSS-OF-COOLANT ACCIDENT, A RANGE OF BREAK SIZES ARE CONSIDERED - SMALL LEAKS UP TO THE COMPLETE SEVERANCE OF A 32-IN. COOLANT PIPE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY ANALYSIS + *SAFETY ANALYSIS REPORT, PRELIMINARY + ACCIDENT, CONTROL ROD EJECTION + ACCIDENT, GENERAL + ACCIDENT, LOSS OF COOLANT + FT. CALHOUN + FUEL HANDLING + REACTOR, PRESSURIZED WATER + WASTE DISPOSAL, GENERAL

18-22773

ALSO IN CATEGORIES 12 AND 5

SECTION XV - SAFETY ANALYSIS OF CORE AND COOLANT BOUNDARY PROTECTION

OMAHA PUBLIC POWER DISTRICT

16 PAGES, 3 FIGURES, 1 TABLE, PAGES XV-1-1 THRU XV-4-8 OF FORT CALHOUN 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 2, 1967, DOCKET 50-285, TYPE--PWR, MFG.--C.E., AE--GIBBS + HILL

PRESENTS PRELIMINARY EVALUATION MAINLY BY DEFINING THE ACCIDENT TO DETERMINE THE CRITERIA FOR SAFETY AND TO CONSIDER SAFEGUARD FEATURES WHICH WILL BE INCORPORATED TO MEET THE CRITERIA. ACCIDENTS CONSIDERED INCLUDE STARTUP, CORE-BARREL FAILURE, BORON DILUTION OR COLD WATER, POWER-TO-FLOW MISMATCH, LOSS OF LOAD, STEAM-LINE BREAK, AND LOSS OF FEEDWATER FLOW. THESE ACCIDENTS DO NOT COMPROMISE THE COOLANT-SYSTEM BOUNDARY, AND NO GROSS FAILURES OF FUEL RODS OCCUR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*SAFETY ANALYSIS + ACCIDENT, COLD COOLANT + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOAD REJECTION + ACCIDENT, REACTIVITY + ACCIDENT, STEAM LINE RUPTURE + ENGINEERED SAFETY FEATURE + FT. CALHOUN + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

18-22774

FORT CALHOUN 1 - FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUMES 1 AND 2

OMAHA PUBLIC POWER DISTRICT

490 PAGES, TABLES, FIGURES, REFERENCES, 1967, DOCKET 50-285, TYPE--PWR, MFG.--C.E., AE--GIBBS + HILL

A 2-LOOP 1420-MWT/48-MWE PWR SCHEDULED FOR OPERATION IN MAY 1971. THREE-REGION CORE WITH SLIGHTLY ENRICHED UO₂ IN ZR-4 TUBES. CONTROLLED BY ROD CLUSTERS OF B4C IN SS CLADDING AND BY BORIC AND CHEMICAL SHIM. CONTAINMENT IS A STEEL-LINED CONCRETE STRUCTURE. SAFETY FEATURES INCLUDE SAFETY-INJECTION SYSTEM, CONTAINMENT SPRAY, AND AIR RECIRCULATING AND COOLING. SAFETY ANALYSIS MADE FOR REACTIVITY ACCIDENTS, POWER-TO-FLOW MISMATCH, LOAD LOSS, STEAM-LINE BREAK, ROD EJECTION, AND LOSS OF COOLANT. SITE-BOUNDARY DOSES FOR A DOUBLE-ENDED COOLANT-PIPE RUPTURE (THE MHA) AT 1200 FT IN 2 HR ARE - WHOLE BODY (19 REMS) AND THYROID (205 REMS). NO CREDIT TAKEN FOR IODINE-REMOVAL EQUIPMENT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*REACTOR DESCRIPTION + *SAFETY ANALYSIS + *SAFETY ANALYSIS REPORT, PRELIMINARY + ACCIDENT, HYPOTHETICAL + ACCIDENT, LOSS OF COOLANT + AIRBORNE RELEASE + DOSE + ENGINEERED SAFETY FEATURE + FT. CALHOUN + REACTOR, PRESSURIZED WATER.

18-22875

ALSO IN CATEGORY 2

SALEM 1 AND 2 PSAR - VOLUME 1

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

450 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--PWR, MFG.--WEST., AE--PUBLIC SERVICE OF N. J.

VOLUME 1 CONTAINS CHAPTERS 1 THRU 5 (SUMMARY DESCRIPTION, SITE, REACTOR, COOLING SYSTEM, AND CONTAINMENT). SALEM (FORMERLY BURLINGTON) CONSISTS OF TWO 3250-MWT WESTINGHOUSE PWRs, LOCATED ON THE JERSEY SIDE OF THE DELAWARE RIVER, 30 MILES SOUTHWEST OF PHILADELPHIA. SITE IS ON A SAND BAR IN THE RIVER, CONNECTED BY DREDGED FILL TO THE MAINLAND. THE REACTORS WILL BE AT ABOUT 11 FT MSL (HIGHEST TIDE IS 8.5 FT, AND SAFEGUARDS SYSTEMS WILL BE AT 23 FT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22875 *CONTINUED*
REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR) + SITING, REACTOR

18-22876
SALEM 1 AND 2 PSAR - VOLUME II
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
400 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--BWR, MFG.--G.E.,
AE--PUBLIC SERVICE OF N. J.

VOLUME II CONTAINS CHAPTERS 6 THRU 11 (ENGINEERED SAFEGUARDS, 1 AND C, ELECTRICAL SYSTEM, EMERGENCY AND AUXILIARY SYSTEMS, STEAM SYSTEM, WASTE DISPOSAL, AND RAD. PROTECTION). CONTAINMENT SPRAY SYSTEM USES NAOH AS AN ADDITIVE BECAUSE (1) NAOH IS MORE STABLE THAN THIOSULFATE UNDER ACCIDENT CONDITIONS, (2) THIOSULPHATE IS RADICLYTICALLY UNSTABLE, AND (3) THIOSULPHATE IS MORE CORROSIVE (ESPECIALLY TO COPPER). NAOH CORROSION RATE OF COPPER IS LESS THAN 0.01 MIL/MONTH AT 200 F. EMERGENCY POWER IS SUPPLIED BY 3 GENERATORS FOR EACH UNIT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*ADDITIVE + CONTAINMENT SPRAY + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR) + SODIUM

18-22877
SALEM 1 AND 2 PSAR - VOLUME III
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
400 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--BWR, MFG.--G.E.,
AE--PUBLIC SERVICE OF N. J.

CONTAINS (CHAPTER 12) SAFETY EVALUATION, APPENDIXES A (METEOROLOGY), B (SITE STUDIES), C (SEISMIC CRITERIA), D (QUALITY CONTROL), AND E (NDT CALCULATIONS), PLUS ANSWERS TO AEC QUESTIONS OF 3 JULY AND 20 JULY 1967. (SOME ANSWERED BY REFERENCE TO THE PSAR.) ***EMERGENCY CORE-COOLING LIMITS THE ACTIVITY RELEASE TO 3%. SPRAY-REMOVAL CONSTANT IS 23.0/HR. LOSS OF COOLANT RESULTS IN A 2-HR THYROID DOSE OF 0.6 REM (ALL ENGINEERED SAFEGUARDS), 2.6 REMS (50% RELEASE FROM FUEL AND ALL ENG. SAFEGUARDS BUT CORE COOLING), AND 1 AND 24 REMS (TID-14844 - NO ENG. SAFEGUARDS).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

ACCIDENT, LOSS OF COOLANT + AEC QUESTION + AIRBORNE RELEASE + DOSE + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR)

18-22878
SALEM 1 AND 2 PSAR VOLUME IV - ANSWERS TO AEC QUESTIONS ASKED OF DIABLO CANYON
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
300 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--BWR, MFG.--G.E., AE--STONE + WEBSTER

VOL. 4 CONTAINS SALEM ANSWERS TO 226 QUESTIONS ASKED OF DIABLO CANYON BY AEC ON 5 AND 18 MAY, 30 JUNE, 31 AUG., 24 OCT., AND 1 NOV. 1967. SOME QUESTIONS ARE ANSWERED BY REFERENCE TO THE PSAR. SECTIONS ARE - SITE (14), PLANT LAYOUT (19), CONTAINMENT (31), 1 AND C (21), PLANT SYSTEMS (43), ENGINEERED SAFETY SYSTEMS (51), ACCIDENT ANALYSIS (26), AEC LETTER OF 31 AUG. 67 (5), AEC LETTER OF 26 OCT. 67 (15), AND AEC LETTER OF 1 NOV. 67 (11).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

AEC QUESTION + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR)

18-22879 ALSO IN CATEGORY 2
SALEM 1 AND 2 PSAR - VOL 3 - APPENDIX H. SITE STUDIES BY DAMES AND MOORE
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
63 PAGES, TABLES, FIGURES, REFERENCES, PAGES 1A-1 THRU IIC-B2 OF SALEM 1 AND 2 PSAR, VOLUME III, JANUARY 22, 1968, DOCKETS 50-272/311, TYPE--BWR, MFG.--G.E., AE--STONE + WEBSTER

REPORT COVERS FIELD EXPLORATION AND LAB TESTS, GEOLOGY, HYDROLOGY, AND SEISMOLOGY. SOIL IS PRINCIPALLY SAND AND CLAY (40 FT OF QUATERNARY DEPOSITS, 20 FT OF KIRKWOOD FORMATION, AND 60 OF VINCEFTOWN FORMATION) DOWN TO AT LEAST 200 FT.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PRESSURIZED WATER + SAFETY ANALYSIS REPORT, PRELIMINARY + SALEM 1 AND 2 (PWR) + SITING, REACTOR + SOIL

18-22880
EASTON PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME 1
NIAGARA MOHAWK POWER CORPORATION
500 PAGES, TABLES, FIGURES, REFERENCES, AUGUST 1967, DOCKET 50-300, TYPE--BWR, MFG.--G.E., AE--STONE +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22880 *CONTINUED*
WEBSTER

VOL. 1 CONTAINS THE COMPLETE PSAR, INCLUDING APPENDIXES FOR THE G. E. BWR (2381 MWT/787 MWE, LOCATED ON THE HUDSON RIVER 22 MILES NORTH OF ALBANY, N. Y., PRESSURE-SUPPRESSION CONTAINMENT, HIGH- AND LOW-PRESSURE INJECTION SYSTEMS, 2 CORE SPRAYS, CONTAINMENT SPRAY, EXCLUSION RADIUS OF 2100 FT). ACCIDENT ANALYSIS SHOWS AN OFF-SITE THYROID DOSE OF 5.78 (STEAM-LINE RUPTURE), 0.018 (LOSS OF COOLANT), AND 0.02 REM (REFUELING ACCIDENT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

EASTON (BWR) + REACTOR, BOILING WATER + SAFETY ANALYSIS REPORT, PRELIMINARY

CATEGORY 19
BIBLIOGRAPHIES

19-19692 ALSO IN CATEGORY 11

SEBILLE J

PROCEEDINGS OF THE COLLOQUIUM ON BRITTLE FRACTURE AND SAFETY PROBLEMS IN NUCLEAR PRESSURE VESSELS,
BRUSSELS, JANUARY 11-13, 1966

EUROPEAN ATOMIC ENERGY COMMUNITY

EUR-3121.D,F,E + CONF-660117 +. 791 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 1966

A COMPILATION OF 33 PAPERS PRESENTED AT THE SUBJECT CONFERENCE. SESSIONS COVERED THE
FOLLOWING TOPICS - (A) TYPES OF EMBRITTLEMENT (B) BRITTLE-FRACTURE TESTING METHODS, (C)
BRITTLE FRACTURE, EXPERIMENTAL RESULTS, (D) BRITTLE FRACTURE, EXPERIMENTAL RESULTS OBTAINED
IN OTHER PROGRAMS, (E) SAFETY IN THE USE OF MATERIALS REACTOR SAFETY CODES.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*BRITTLE FRACTURE + *EMBRITTLEMENT + *PRESSURE VESSEL + CODES AND STANDARDS + FRACTURE TOUGHNESS +
IRRADIATION TESTING + NDT DATA (NIL DUCTILITY TRANSITION) + STEEL + TEST, NONDESTRUCTIVE + TESTING

INFORMATION AT NSIC IS DIVIDED INTO 19 CATEGORIES. AN ITEM OF INFORMATION MAY BE ASSIGNED TO AS MANY AS THREE OF THESE. A COLLECTION OF KEYWORDS IS USED TO DENOTE THE MAIN SAFETY RELATED POINTS COVERED IN AN ARTICLE. THE FOLLOWING INDEX IS AN ALPHABETICAL LISTING OF KEYWORDS GIVING REFERENCES TO EACH ARTICLE TO WHICH THAT KEYWORD IS ASSIGNED. THE CATEGORY NUMBER IS GIVEN FIRST, FOLLOWED BY THE ACCESSION NUMBER. THE ACCESSION NUMBERS ARE USED TO LOCATE BIBLIOGRAPHIC ITEMS WITHIN A CATEGORY.

ABLATION				17-20449	18-19182	18-22773	
14-20805				ACCIDENT, REFUELING			
ACCELERATION				3-19889	17-19889		
2-20594	2-20595	2-20601	2-20602	ACCIDENT, STEAM LINE RUPTURE			
2-20604	2-20607	2-20660	9-18917	5-22773	12-22773	14-18665	17-18665
ACCELERATOR				18-22773			
9-18917	9-19775	9-19780	9-19781	ACCUMULATOR			
9-19782	9-20752	14-20788	15-17549	5-19850	12-19850	12-19935	18-19850
15-19234	15-19492	15-19764	15-20704	18-19935	18-21651		
15-20774	15-20783	15-20788	15-22114	ACRS (ADVISORY COMMITTEE ON REACTOR SAFEGUARDS)			
17-17544	17-19760	17-19761	17-19801	1-19962	1-20624	2-20008	5-19107
17-20466				6-19934	12-19106	12-19107	12-19108
ACCIDENT ANALYSIS				12-19934	12-19935	12-20008	17-20624
2-19695	2-19993	2-19994	2-19998	18-18458	18-19106	18-19107	18-19108
4-19795	4-19873	5-16571	5-16574	18-19934	18-19935		
5-18892	5-18893	5-18901	5-19182	ACTINIUM			
5-19850	5-19873	5-19883	6-18334	15-19817			
6-18887	6-18892	6-18893	6-19222	ACTIVATION			
6-19873	8-16571	8-16574	8-19182	6-19979	14-18852	14-19264	15-18852
8-19883	9-19695	11-18640	12-19850	15-19264			
17-18334	18-19182	18-19695	18-19850	ACTIVATION PRODUCT			
18-20463				14-17817	14-18482		
ACCIDENT MODEL				ACTIVITY BUILDUP			
7-20546				7-19963	17-17162	17-19963	
ACCIDENT, COLD COOLANT				ACTUATOR			
5-22773	12-22773	17-21103	18-22773	9-20040			
ACCIDENT, CONSEQUENCES				ADDITIVE			
1-19844	2-19994	2-20003	2-20004	12-21836	18-21835	18-21836	18-22876
5-19182	5-19844	6-18941	8-19182	ADHESION			
12-19849	17-18941	18-19182	18-19844	7-17827	15-20095		
18-19849				ADMINISTRATIVE CONTROLS AND PRACTICES			
ACCIDENT, CONTROL ROD EJECTION				1-18673	1-18856	7-18752	9-19784
6-18334	17-18334	18-18907	18-22772	11-19784	15-18856	17-18668	17-18669
ACCIDENT, CONTROL ROD WITHDRAWAL				17-18673	17-18687	17-18752	17-18856
5-19182	5-22773	8-19182	12-22773	17-19250	17-19784	18-18905	18-18907
14-19768	15-19768	18-19182	18-19755	ADSORPTION			
18-22773				7-17673	7-20553	7-20554	14-18819
ACCIDENT, CRITICALITY				14-18827	14-20094	14-20099	15-18819
1-18856	5-18899	9-18900	14-19768	ADSORPTION SURFACE			
15-18856	15-18899	15-19257	15-19768	7-20553	7-20554		
17-18856	17-18899	17-18900		AEC CONSTRUCTION PERMIT CRITERIA			
ACCIDENT, GENERAL				18-20799			
18-22772				AEC QUESTION			
ACCIDENT, HYPOTHETICAL				2-19665	2-19695	6-19244	6-19934
18-20801	18-22774			9-19476	9-19668	9-19695	9-19752
ACCIDENT, LOAD REJECTION				9-21848	11-19248	11-19665	11-19668
5-19503	5-22773	6-19504	6-20051	11-20424	11-20526	12-19106	12-19447
6-20449	12-22773	17-19504	17-20051	12-19934	12-19935	14-19246	15-19246
17-20449	18-19503	18-21841	18-22773	17-17545	17-19146	17-19244	17-19246
ACCIDENT, LOSS OF COOLANT				17-19246	17-19250	17-19668	17-20848
5-19111	5-19182	5-19850	5-19851	17-21848	18-18995	18-19106	18-19149
5-19883	6-19111	6-19243	8-18333	18-19447	18-19476	18-19665	18-19665
8-19182	8-19883	11-19945	11-21837	18-19752	18-19933	18-19934	18-19935
12-19284	12-19286	12-19849	12-19850	18-19947	18-20107	18-20358	18-20352
12-19945	12-21837	17-17545	17-18333	18-20424	18-20521	18-20522	18-20526
17-18457	17-19111	17-19243	17-21655	18-20864	18-20957	18-20993	18-21477
18-18643	18-19182	18-19284	18-19286	18-21589	18-21671	18-21865	18-21879
18-19849	18-19850	18-19851	18-19945	18-21981	18-22003	18-22072	18-22166
18-20801	18-21421	18-21424	18-21837	18-22197	18-22255	18-22260	18-22261
18-21842	18-22772	18-22774	18-22877	18-22585	18-22769	18-22877	18-22878
ACCIDENT, LOSS OF FLOW				AEROSOL			
2-19665	4-19873	5-19873	6-18941	7-17824	7-17827	7-17828	7-17829
6-19873	11-19665	17-18941	18-19665	14-17829	14-18486	14-19434	14-19490
18-21110				14-22001	15-17829	15-18858	15-19434
ACCIDENT, MAXIMUM CREDIBLE (MCA)				15-19490	16-18865	16-18868	16-19554
1-17568	1-18673	1-19844	2-20002	16-20589	16-20688		
5-19844	6-19245	11-18906	12-18874	AEROSOL PRODUCTION			
12-18906	17-18673	17-18674	17-18906	7-17827			
17-18923	17-19245	18-18643	18-19142	AEROSOL PROPERTIES			
18-19755	18-19844			7-17827	7-17827	13-19103	15-19103
ACCIDENT, MONITOR				16-19554	17-19103		
9-20782				AEROSOL, RADIOACTIVE			
ACCIDENT, PROBABILITY OF				7-17824	14-18821	14-19207	14-19686
4-18914				14-20090	14-20094	14-20592	15-18821
ACCIDENT, RADIOISOTOPE				15-20083	15-20591	15-20827	15-20828
14-19822	15-19822	15-20667		15-20829	16-19207	16-19208	16-19213
ACCIDENT, REACTIVITY				16-19214	16-19552	16-19686	16-19689
1-18673	5-19182	5-22773	6-18647	16-20083	16-20090	16-20591	16-20592
6-18882	6-18941	6-19112	6-19245	16-21132			
6-20449	8-19182	12-22773	17-18647	AEROSPACE SAFETY			
17-18673	17-18941	17-19112	17-19245	4-16651	4-18724	4-18725	4-18726

4-18914	4-19795	4-19796	4-19873	14-21471	15-19494	15-20765	15-20828
4-20818	4-20819	4-20820	5-19873	15-20829	16-19689	17-18947	17-19863
6-19873	9-19796	11-20818	15-20591	ANALYTICAL TECHNIQUE, LIQUID			
16-20591				14-19296			
AF-NETR (AIR FORCE NUC. ENGINEERING TEST CTTR.)				ANALYTICAL TECHNIQUE, MILK			
17-17159				14-19157	14-20817		
AGGLOMERATE				ANALYTICAL TECHNIQUE, SOLID			
7-17827				14-16645	15-16645		
AGN (TRAINING REACTOR, AEROJET-GEN. NUCLEONICS)				ANALYTICAL TECHNIQUE, URINE			
6-18898	9-18658	9-18655	17-17667	13-19102	13-19276	14-19296	14-19526
17-18658	17-18655	17-18660	17-18663	15-18864	15-19102	17-19102	17-19276
18-17848				ANALYTICAL TECHNIQUE, VEGETATION			
AGR (ADVANCED GASCOOLED REACTOR, WINDSCALE, UK)				14-19427	14-20817		
2-20002	9-19444	9-19837		ANALYTICAL TECHNIQUE, WATER			
AGRICULTURAL CONSIDERATION				14-19401			
15-18838				ANL (ARGONNE NATIONAL LABORATORY)			
AIR				5-19868	6-19868	8-19868	12-18608
14-16643	14-17548	14-19426	14-19482	14-19298	14-20027	14-20656	15-20758
14-19490	14-19506	14-19533	14-19884	17-18608			
14-19957	14-20074	14-20384	14-20656	ANTIMONY			
14-20748	14-20761	14-20834	14-22001	14-20674	15-20674	17-18666	
15-16643	15-19482	15-19490	15-19957	ARGENTINA			
15-20430	15-20761	15-20627	15-20831	2-20011			
AIR CLEANING				ARGON			
7-17827	7-17828	7-20544	7-20545	14-16641	15-16641		
12-20544	12-20545	14-18486		ARGONAUT (ARGONNE NUC ASSEMBLY, UNIV TRAINING)			
AIRBORNE RELEASE				17-20490			
1-19693	1-19844	5-19844	7-19247	ATMOSPHERIC CHEMISTRY			
10-20519	12-19099	13-19103	13-19278	15-20083	16-18867	16-19550	16-19554
13-19279	13-19281	14-16640	14-16641	16-20083			
14-18665	14-19533	14-19535	14-20720	ATMOSPHERIC CIRCULATION, GLOBAL			
14-20722	14-20772	14-21657	14-21658	16-18800	16-19219	16-15551	16-19552
14-21660	15-16640	15-16641	15-17842	16-19553	16-19554	16-20091	16-21132
15-13672	15-19095	15-19103	15-19281	ATMOSPHERIC DIFFUSION			
15-19535	15-20618	15-20772	15-21659	2-20005	2-20009	5-18912	7-20005
17-17835	17-17842	17-18665	17-18672	14-18492	14-18493	14-19211	14-19875
17-19099	17-19103	17-19272	17-19278	14-19876	14-20592	16-18491	16-18452
17-19279	17-19281	17-19683	17-20496	16-18493	16-18807	16-18829	16-18512
17-20519	17-20720	17-20722	17-21657	16-19210	16-19211	16-19217	16-19687
17-21658	17-21659	17-21660	18-16652	16-19688	16-19875	16-19876	16-19877
18-18643	18-19247	18-19844	18-20801	16-20592	16-20686	16-21132	18-18912
18-21421	18-21424	18-21652	18-21842	ATMOSPHERIC DIFFUSION EXPERIMENT			
18-22774	18-22877			2-19991	16-18828	16-18831	16-18869
AIRBURST				16-20690	16-20691		
15-18832	16-19215			ATMOSPHERIC DIFFUSION, GLOBAL			
AIRCRAFT				16-19552	16-19553		
1-17849	4-18726	4-20551	15-20591	ATMOSPHERIC ELECTRICITY			
16-20591	17-17849			14-20592	16-20592		
ALASKA				ATMOSPHERIC POLLUTION			
14-20681	15-20681			14-17817	14-18394	14-18632	14-20092
ALLOY				15-20092	15-18632	16-18828	16-18865
5-19788	7-20545	12-20545	17-19788	16-18866	16-19548	16-20081	16-20082
ALPHA EMITTER				16-20757			
14-18793	14-19262	14-19264	14-19490	ATMOSPHERIC STABILITY			
14-20028	14-20695	14-21143	15-19262	14-20090	16-18828	16-18830	16-18831
15-19264	15-19490	15-19524	15-20020	16-19552	16-19687	16-20086	16-20088
15-21143	16-19208			16-20090	16-20542	18-20590	16-20685
ALPHA FACILITIES				16-20686	16-20687	16-20756	
14-20028	15-20028			ATMICS INTERNATIONAL			
ALUMINUM				14-20029	14-20805		
4-20551	9-19797	14-18827	14-18860	ATR (ADVANCED TEST REACTOR - NRTS)			
15-18860	17-18943	17-19865		4-19174	9-19174		
AMERICIUM				AUSTRALIA			
14-19225	14-20028	14-21657	14-21660	2-19994	9-18910	14-19161	15-19161
15-19225	15-19817	15-20028	15-20693	AUSTRIA			
15-21659	17-18666	17-18667	17-21657	14-19401			
17-21659	17-21660			AUXILIARY COOLING			
ANALOG SIMULATION				17-19556	18-20522		
6-18382	9-18382	9-19497	9-19859	BALING			
17-20588				14-19769			
ANALYTICAL MODEL				BARIUM			
5-19383	5-20517	6-18881	6-18888	7-19963	14-18789	14-20093	14-20813
6-19119	6-19130	7-17673	7-17824	15-18789	15-20093	15-20797	15-20831
7-17827	7-18474	7-20548	8-19883	17-19963			
9-18650	9-18651	9-18657	9-19119	BATTELLE NORTHWEST			
9-19130	9-19497	9-20517	11-20526	9-18653	9-20753	11-20753	14-17651
15-20083	16-20083	16-20091	18-20526	14-19299	14-19433	14-19525	14-19532
ANALYTICAL TECHNIQUE, AIR				14-19816	14-20569	14-20753	14-20773
7-20549	14-16645	14-18817	14-20073	14-20791	14-21143	15-19299	15-19433
14-20592	15-16645	15-18817	15-19529	15-20696	15-20773	15-20751	15-21143
16-20589	16-20592	16-21132		BEAM HOLE			
ANALYTICAL TECHNIQUE, CALIBRATION				1-18673	6-19245	9-18917	17-17544
7-18474	7-18476	7-18477	7-20549	17-17668	17-18673	17-19241	17-19245
15-19990				17-20509			
ANALYTICAL TECHNIQUE, FOOD				BELGIUM			
14-17817	14-18817	14-20817	15-18817	1-18856	14-17546	14-18460	14-19768
ANALYTICAL TECHNIQUE, GAS				15-18460	15-18856	15-19768	15-19772
7-18477	7-20554			17-18856	17-19846	18-16577	
ANALYTICAL TECHNIQUE, GENERAL				BERYLLIUM			
5-19871	6-19871	7-17824	7-18947	14-20674	15-20674	17-18607	
14-19494	14-19510	14-20765	14-20817	BETA EMITTER			

7-17824	7-20549	14-20748	14-20810	14-18466	14-18852	14-19507	14-19820
15-19235	15-19274	15-19529	15-20075	14-19827	14-20079	14-20744	15-17829
15-20431	15-20793	15-20827	15-20828	15-18466	15-18852	15-19229	15-19507
16-19208	17-19274			15-19773	15-19814	15-19820	15-19821
BETTIS (ATOMIC POWER LABORATORY)				15-19825	15-19827	15-20079	15-20100
18-18603				15-20103	15-20520	15-20667	15-20693
BISL TOGRAPHY				15-20744	15-20749	15-20775	
1-19890	5-20460	14-20092	15-19821	BLOWDOWN			
15-19919	15-20092	16-19552	16-19553	5-19111	5-19850	5-19851	5-19883
17-19846	18-20460			5-19937	6-19111	8-19883	9-19752
BIG ROCK POINT				12-19850	17-19111	18-19752	18-19850
5-20481	15-19274	17-19274	17-20480	18-19851	18-19937		
17-20481	17-20848			BNL (BROOKHAVEN NATIONAL LABORATORY)			
BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE				14-16641	14-18466	15-16641	15-18466
14-18465	14-18785	14-18851	14-19154	15-20572	15-20774	16-19220	18-19845
14-20582	14-20790	14-20808	14-20810	BOLSA ISLAND			
14-20811	15-18465	15-18785	15-18851	18-19800			
15-20790				BONUS (BOILING NUCLEAR SUPERHEAT PROJECT)			
BIOLOGICAL CONCENTRATION, ALGAE				9-17839	9-19113	9-20843	10-20519
14-19805				11-17840	11-19145	17-17835	17-17840
BIOLOGICAL CONCENTRATION, ANIMAL				17-18455	17-19113	17-19145	17-19189
14-16640	14-16641	14-19233	14-19299	17-19966	17-20455	17-20519	17-20843
14-19430	14-19431	14-19433	14-19522	17-21904	18-20065	18-20066	
14-19523	14-19532	14-20078	14-20079	BORAX, ALL (BOILING REACTOR EXPERIMENTS, NRTS)			
14-20440	14-20773	14-20791	15-16640	6-19222			
15-16641	15-18836	15-18839	15-19299	BORON			
15-19431	15-19433	15-19818	15-20078	6-20446	9-18651	9-19245	9-19497
15-20079	15-20773	15-20791		9-20510	14-20030	14-20575	15-20030
BIOLOGICAL CONCENTRATION, ANIMAL FEED				17-19249	17-20446	17-20510	17-21904
14-18795	14-19293	14-19532	14-19950	BOUNDARY LAYER			
14-20439	14-20681	14-20769	14-20814	14-20090	16-20090	16-20590	
15-18795	15-19950	15-20681		BOUNDARY LAYER, REACTING			
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS				5-17557			
14-18786	14-18787	14-18794	14-18825	BR 2 (BELGIAN RESEARCH REACTOR, CEN)			
14-19298	14-19432	14-19433	14-19532	17-19846			
14-19767	14-19805	14-19823	14-19828	BREEZE, MOUNTAIN			
14-19954	14-19955	14-20651	14-20773	14-19876	16-19876		
14-20791	14-21143	15-18786	15-18787	BREEZE, VALLEY			
15-18822	15-19433	15-20773	15-20791	14-19876	16-19876		
15-21143				BRITTLE FRACTURE			
BIOLOGICAL CONCENTRATION, FOOD				11-18073	11-19692	11-19694	11-19790
14-17017	14-18487	14-18489	14-18789	11-21072	11-21146	11-21147	11-21845
14-18353	14-19298	14-19299	14-19508	17-18873	17-19790	17-20061	17-20062
14-19508	14-19523	14-19532	14-19881	18-21845	19-19692		
14-19956	14-20557	14-20582	14-20651	BROWNS FERRY			
14-20652	14-20653	14-20681	14-20748	18-19664			
14-20760	14-20761	14-20770	14-20773	BSR (BULK SHIELDING REACTOR)			
14-20790	14-20812	14-20815	14-20816	9-20458	15-20458	17-20458	
14-21143	15-18789	15-18822	15-18853	BUILDING			
15-19299	15-19881	15-19956	15-20557	11-19287	16-18617	17-18617	17-19237
15-20681	15-20760	15-20761	15-20773	18-18903	18-19287		
15-20790	15-20815	15-20816	15-20831	BULGARIA			
15-21143				14-19295	15-19294		
BIOLOGICAL CONCENTRATION, GENERAL				BUOYANT RISE			
14-19153	14-19221	14-19433	14-20790	14-20084	16-20084		
14-20791	14-20795	14-20807	14-20812	BURNOUT HEAT FLUX			
15-19433	15-20668	15-20790	15-20791	5-17536	5-17804	5-17808	5-18901
16-19221				5-20460	6-17804	6-17808	8-17804
BIOLOGICAL CONCENTRATION, MAN				5-17808	9-19566	9-19847	17-17161
14-18790	14-18819	14-18853	14-19291	17-19613	17-19195	17-19566	17-19847
14-19299	14-19429	14-19434	14-19820	18-20460			
14-19881	14-19950	14-20071	14-20093	BYPRODUCT MATERIAL			
14-20656	14-20657	14-20681	14-20761	15-20106	17-19277		
14-20768	14-20791	14-20807	14-20815	CADMIUM			
15-18055	15-18790	15-18818	15-18819	9-19797			
15-18837	15-18842	15-18853	15-18858	CALCINATION			
15-19187	15-19295	15-19429	15-19434	14-17691			
15-19820	15-19881	15-19950	15-19951	CALCIUM			
15-20071	15-20093	15-20100	15-20657	14-18395	14-18465	14-18786	14-18789
15-20666	15-20681	15-20761	15-20768	14-19526	14-19956	14-20072	14-20078
15-20791	15-20815	15-20831		14-20813	14-20815	15-18395	15-18465
BIOLOGICAL CONCENTRATION, MILK				15-18786	15-18789	15-18822	15-19956
14-16641	14-18484	14-18487	14-18558	15-20078	15-20797	15-20815	
14-18795	14-19154	14-19293	14-19508	CALDER HALL (UK)			
14-19522	14-19523	14-19661	14-19950	9-19837	9-19931	17-18692	
14-20092	14-20093	14-20384	14-20652	CALIFORNIUM			
14-20653	14-20748	14-20761	14-20770	14-20028	14-21656	15-20028	17-21656
14-20773	14-20790	14-20813	14-20814	CANADA			
14-20815	14-20816	14-20834	15-16641	1-19962	2-19996	5-20460	7-19841
15-18558	15-18795	15-18838	15-19950	9-20751	9-21899	11-19996	13-19832
15-20092	15-20093	15-20761	15-20773	14-17821	14-18853	14-19487	14-19489
15-20790	15-20815	15-20816	15-20831	14-19827	14-19887	15-17821	15-18853
BIOLOGICAL CONCENTRATION, VEGETATION				15-19487	15-19489	15-19511	15-19827
14-16641	14-19153	14-19231	14-19233	15-20697	15-20797	15-20831	17-18604
14-19293	14-19300	14-19433	14-19532	17-19181	17-19642	17-19843	18-18604
14-19881	14-20439	14-20669	14-20670	18-19841	18-20460		
14-20769	14-20808	14-20809	14-20810	CANDU (CANADIAN NATURAL URANIUM REACTOR)			
14-20811	14-20812	14-20814	14-21825	17-18940			
15-16641	15-19433	15-19881		CARBIDE			
BIOMEDICAL				18-21084			
1-19890	4-20819	7-17829	14-17829	CARBON			

7-20553	8-18490	15-20617		COATING, SURFACE			
CARBON DIOXIDE				3-20719	5-21989	12-16584	13-16584
8-18490	16-19554			17-18605	17-20719	17-21989	
CARBON MONOXIDE				COBALT			
8-18490				13-19418	14-16641	14-17960	14-19532
CEN (CENTER, STUDY OF NUCLEAR ENERGY, BELGIUM)				14-19813	14-20080	14-20585	14-20804
14-19293				15-16641	15-16644	15-16791	15-19100
CENTERLINE MELTING				15-19141	15-19811	15-20080	15-20100
5-20460	5-20481	7-18684	17-18684	15-20103	15-20585	17-17544	17-17836
17-18685	17-20481	18-20460		17-19100			
CERAMICS				CODES AND STANDARDS			
5-17530	6-17530	17-18450		1-17696	1-17697	1-19791	1-19850
CERIUM				1-19959	1-19960	1-20456	2-20008
14-16641	14-17960	14-19293	14-19805	2-20609	5-19937	9-18651	11-19652
14-20804	14-20817	15-16641	16-19218	11-19693	11-19791	11-19939	12-20008
CESIUM				15-20827	18-19937	18-19938	18-19939
7-18474	14-16641	14-16645	14-17547	19-19692			
14-18462	14-18463	14-18464	14-18465	COMBUSTION			
14-18489	14-18817	14-18851	14-19154	5-17557			
14-19221	14-19231	14-19232	14-19233	COMPACTION			
14-19267	14-19293	14-19298	14-19299	2-20593			
14-19428	14-19434	14-19532	14-19537	COMPARISON, THEORY AND EXPERIENCE			
14-19803	14-19805	14-19950	14-20093	4-19501	5-18691	5-18901	5-19110
14-20098	14-20557	14-20657	14-20670	5-19180	5-19484	5-20041	6-16646
14-20681	14-20773	14-20792	14-20804	6-18894	6-18898	6-19979	6-19981
14-20807	14-20809	14-20811	14-20813	6-21988	9-19204	9-19206	9-19439
14-20816	14-20817	14-21143	15-16641	9-19501	9-19679	9-19777	9-19779
15-16645	15-18463	15-18464	15-18465	9-19753	9-19838	9-19923	9-20041
15-18817	15-18851	15-19267	15-19299	11-18384	11-18478	11-18690	12-18664
15-19434	15-19803	15-19950	15-19990	12-18944	14-19501	14-19988	17-18604
15-20093	15-20098	15-20100	15-20557	17-18664	17-18690	17-18691	17-18944
15-20657	15-20678	15-20681	15-20759	17-19110	17-19484	17-19753	17-20465
15-20773	15-20816	15-20831	15-21143	17-21988	18-18604	18-18986	
16-19218	16-19221			COMPUTER CONTROL			
CHALK RIVER				9-17894	9-17898	9-21840	10-17894
5-20751	14-19467	14-19535	14-19827	18-21840			
14-13887	15-19487	15-19535	15-19827	COMPUTER PROGRAM			
15-20697				2-19997	4-19423	5-18893	5-18912
CHAMBER, FISSION				5-19421	5-19423	5-19540	5-19546
9-19116				5-19850	5-19851	5-19869	5-19883
CHAMBER, GAMMA				6-18883	6-18886	6-18893	6-18897
9-13378				6-19115	6-19515	6-19519	6-19540
CHAMBER, ION				6-19546	6-19869	6-19985	6-19987
9-18917	9-20543			7-17829	8-19421	8-19540	8-19546
CHARCOAL				8-19869	8-19863	9-18650	9-19119
7-18471	7-20474	7-20553	17-20474	9-19204	9-19443	9-19519	9-19778
17-21102				9-19782	9-19899	9-20753	9-20755
CHARCOAL ADSORBER				11-15857	11-19694	11-20753	12-19850
7-18471	14-19263			14-17825	14-19657	14-19658	14-19770
CHEMICAL ANALYSIS				14-20571	14-20753	14-20772	14-20785
9-18920	14-19494	15-18864	15-19494	15-17818	15-17829	15-18376	15-19658
CHEMICAL EQUILIBRIUM				15-19770	15-20571	15-20772	15-20785
8-18490				16-18912	17-17164	17-19515	18-18912
CHEMICAL KINETICS				18-19850	18-19851		
7-17673	8-18490			COMPUTER PROGRAM, METEOROLOGICAL			
CHEMICAL REACTION				14-19211	16-18807	16-18829	16-19211
1-19890	5-17807	8-18490	12-19567	16-19212	16-19688	16-20085	16-20688
12-20429	15-20673			16-20687			
CHEMICAL SHIM				COMPUTER, ANALOG			
17-20723	17-20724	18-21110		9-19899			
CHEMICAL TOXICITY				COMPUTER, DIGITAL			
1-19890	7-17829	14-17929	15-17829	5-19869	6-18883	6-18886	6-18891
15-19817				6-19519	6-19869	8-19809	9-17898
CHEMISORPTION				9-18815	9-19169	9-19519	9-19778
7-17673	7-20553			9-19899	9-20034	9-20751	9-20752
CHLORINE				9-20754	12-18944	14-19657	14-19650
16-19550	17-19842	17-19843	17-19093	14-19770	14-19816	14-20571	14-20765
CHROMIUM				15-19658	15-19770	15-20571	15-20765
14-19532	17-18699			17-18944			
CIRCULATION, NATURAL (LOOPS AND REACTORS)				CONCENTRATION, AREA			
5-18912	5-20058	16-18912	17-20058	14-18493	14-18816	14-18817	14-19686
18-18912				14-19976	15-18816	15-18817	16-18491
CIVIL DEFENSE				16-18493	16-18207	16-19548	16-19686
14-17548	14-17822	14-17823	14-19657	16-19876	16-20082	16-20589	16-20757
14-19810	14-20671	14-20816	15-19810	CONCENTRATION, CENTERLINE, MAXIMUM			
15-20816				16-20691			
CLAD				CONCENTRATION, CROSSWIND INTEGRATED			
5-17837	5-18679	5-19238	5-20460	16-20690			
5-21989	7-20545	7-20555	8-18333	CONCENTRATION, CROUND LEVEL			
9-19797	9-20036	11-20555	11-21147	14-18816	14-18817	14-19875	14-20084
12-20545	17-17837	17-18333	17-18450	15-19816	15-18617	16-18829	16-18830
17-18451	17-18604	17-18613	17-18679	16-18631	16-19217	16-19220	16-19550
17-19238	17-20475	17-21989	18-18604	16-19687	16-19875	16-20084	16-20091
18-18745	18-19840	18-20459	18-20460	16-20685			
COALESCENCE				CONCENTRATION, ISOPLETH			
16-20689	16-20756			14-19211	16-19211	16-20690	
COATED PARTICLE				CONCENTRATION, MAXIMUM			
6-18882	9-18948	17-17162	17-18948	16-18830	16-20088		
17-18951	17-19863	18-19977		CONCRETE			
COATING				3-20719	11-18479	14-18824	15-18791
7-20546	17-19863			15-18824	17-18607	17-19561	17-20719

CONCRETE, PRESTRESSED				11-19194	11-19287	11-19670	12-19107
1-19791	9-18948	11-18383	11-18384	17-18333	17-19144	17-19670	18-18643
11-18478	11-18480	11-19193	11-19194	18-18644	18-19107	18-19287	
11-19791	11-19792	11-19793	11-20424	CONTAINMENT, SHOCK GENERATION AND PROTECTION			
11-22126	11-22127	17-18948	17-19792	11-19694			
17-19863	18-19977	18-20424		CONTAINMENT, UNDERGROUND			
CONDENSATION				11-19793			
11-21837	12-21837	18-21837		CONTAMINATION			
CONGRESSIONAL ACTIVITY				7-19963	9-18900	14-18398	14-19264
1-19683	1-20615	1-20624	1-20718	14-19266	14-19489	14-19535	14-19556
1-20876	17-19683	17-20612	17-20615	14-20092	14-20671	14-21656	14-21825
17-20624	17-20718	17-20876		15-18823	15-19264	15-19489	15-19535
CONSTRUCTION PERMIT PROCESS				15-19772	15-19956	15-20092	15-20055
2-17845	18-17830	18-17845	18-19947	17-18693	17-18900	17-19963	17-21656
CONTAINMENT ABSOLUTE MEASURING SYSTEM				CONTROL ROD			
11-19147	17-19147			4-19174	9-18429	9-18432	9-18720
CONTAINMENT AIR COOLING				9-18721	9-18722	9-19172	9-19173
9-19941	18-19941			9-19174	9-19202	9-19254	9-19255
CONTAINMENT AIR LOCK				9-19797	9-19858	9-20019	9-20035
17-17666				9-20036	9-20038	9-20039	9-20447
CONTAINMENT ANALYSIS				11-19248	12-19202	17-18680	17-19248
11-19694	11-19793	11-20526	15-18791	17-19254	17-19255	17-19974	17-19975
18-20526				17-20061	17-20447	17-20464	17-21504
CONTAINMENT CONSTRUCTION				18-17830	18-20957		
2-20802	11-18640	11-20031	11-20424	CONTROL ROD BURNUP			
17-18949	18-20031	18-20424	18-20802	9-17634	9-18611	9-19249	9-20447
CONTAINMENT DESIGN				9-20510	11-17840	11-19945	12-19945
2-20802	5-19883	8-19883	11-16576	17-17834	17-17840	17-18611	17-18612
11-20424	15-18791	18-16575	18-16576	17-19249	17-20061	17-20062	17-20447
18-20424	18-20802	18-20957		17-20510	17-20724	17-21904	18-19545
CONTAINMENT INSPECTION AND MAINTENANCE				CONTROL ROD CALIBRATION			
11-19185	17-19185			6-21129	6-22113	9-17801	9-19923
CONTAINMENT INSTRUMENTATION				9-20754	17-22113		
9-19784	9-19941	9-20753	11-18383	CONTROL ROD DRIVE			
11-18478	11-19784	11-20753	14-20753	6-18619	9-17839	9-18381	9-18454
17-19784	18-19941			9-18619	9-18656	9-18659	9-19202
CONTAINMENT INTEGRITY				9-19440	9-19498	9-20037	9-20040
11-19185	11-19694	17-17666	17-19185	9-20044	9-21848	10-20519	11-18454
CONTAINMENT LEAKAGE CONTROL				12-19202	12-19284	15-18672	17-17839
14-19770	15-19770			17-18454	17-18607	17-18659	17-18672
CONTAINMENT PENETRATION, CLOSURE OF				17-18681	17-18951	17-19557	17-19787
2-19665	9-18721	11-18671	11-19240	17-19894	17-19895	17-20519	17-21085
11-19665	12-18664	17-18664	17-18671	17-21102	17-21848	18-19284	18-19856
17-19240	18-19665			CONTROL ROD FABRICATION			
CONTAINMENT PENETRATION, ELECTRICAL				9-18381	9-18720	9-19172	9-20038
9-18454	9-19668	11-18454	11-18875	9-20039	17-17158		
11-19185	11-19248	11-19668	17-18454	CONTROL ROD INTERACTION			
17-18875	17-19185	17-19248	17-19668	9-18432	9-20841	17-20841	
17-20507				CONTROL ROD PROGRAM			
CONTAINMENT PENETRATION, GENERAL				5-19483	6-19483	6-19943	9-18381
9-18721	11-19691			9-19752	9-19943	17-19195	17-19483
CONTAINMENT PENETRATION, PIPE				18-19752	18-19943		
11-18671	11-19193	17-18671		CONTROL ROD SCRAM MECHANISM			
11-19147	17-19147			5-19148	5-19851	9-18656	9-19668
CONTAINMENT RESEARCH AND DEVELOPMENT				9-20037	9-20040	9-20044	9-20843
7-20555	9-20753	11-19193	11-19194	9-21152	9-21155	11-19668	17-18658
11-19694	11-19789	11-20555	11-20753	17-19148	17-19237	17-19668	17-20500
14-20753				17-20838	17-20843	10-19851	
CONTAINMENT SPRAY				CONTROL ROD WORTH			
1-21318	5-19111	6-19111	7-21318	5-18691	6-18881	6-18889	6-18891
11-18906	11-19287	11-21318	12-18906	6-18894	6-18911	6-20845	6-21129
12-21836	17-18906	17-19111	18-19287	6-21131	6-22113	9-18651	9-19204
18-21835	18-21836	18-22876		9-19443	9-19777	9-19785	9-19923
CONTAINMENT SYSTEM, OPERATION OF				9-20754	9-20841	9-20845	9-21848
18-19897				9-21849	17-18691	17-18911	17-19684
CONTAINMENT VACUUM BREAKER				17-19785	17-19976	17-20841	17-20845
9-18983	17-18983	18-19897		17-21848	17-21849	17-22113	
CONTAINMENT VESSEL LOADING				CONTROL ROD, SHIM SAFETY			
11-18383	11-18384	11-18478	11-18480	6-18619	6-19940	6-19943	9-18619
11-20526	18-20526			9-19940	9-19943	18-19940	18-19943
CONTAINMENT, GENERAL				CONTROL SYSTEM			
1-17568	1-21318	2-19993	2-19996	4-19115	4-19118	4-19174	9-18433
2-20015	7-21318	10-20519	11-18640	9-19113	9-19115	9-19118	9-19167
11-19793	11-19996	11-20015	11-21318	9-19174	9-19497	9-19774	9-19775
13-19835	17-19561	17-20519	18-16652	9-19859	9-19924	9-20543	9-20755
18-18674	18-20800	18-21844		12-19774	17-19113		
CONTAINMENT, HIGH PRESSURE				CONTROL, COMPUTER			
2-20000	11-17541	11-18906	11-19147	9-19169	9-19775	9-19780	9-19781
11-19694	11-19793	12-18906	17-17541	9-19782	9-19899	9-20034	9-20750
17-18906	17-19147	18-18907		9-20751	9-20753	9-20754	9-20755
CONTAINMENT, ICE CONDENSER				11-20753	14-20753		
11-21837	12-21837	18-21835	18-21837	CONTROL, GENERAL			
CONTAINMENT, LOW PRESSURE				9-19444	18-19142		
11-17840	11-19145	17-17840	17-19145	CONTROLLER			
CONTAINMENT, MULTIPLE				9-19921	17-19754		
11-18640	11-19793			COOK 1 AND 2 (PWR)			
CONTAINMENT, PRESSURE RELIEF				2-21843	9-21839	9-21840	11-21837
11-19691				11-21845	12-21836	12-21837	15-21838
CONTAINMENT, PRESSURE SUPPRESSION				18-21835	18-21836	18-21837	18-21838
5-19107	8-18333	11-19144	11-19193	18-21839	18-21840	18-21841	18-21842
				18-21843	18-21844	18-21845	

COOLANT CHEMISTRY					14-20725	17-19963	17-20561	17-20722
5-19685	7-19963	14-20722	17-17159		17-20725	17-21904	18-19941	
17-18450	17-18453	17-18606	17-18698		CRYSTAL RIVER 3 AND 4 (PWR)			
17-18699	17-19252	17-19685	17-19753		18-21419	18-21420	18-21421	18-21422
17-19786	17-19842	17-19843	17-19963		CSE (CONTAINMENT SYSTEMS EXPERIMENT)			
17-20475	17-20477	17-20488	17-20561		1-21318	7-21318	11-21318	
17-20722	17-20723	17-20724			CURIUM			
COOLANT COEFFICIENT					14-20028	15-19817	15-20028	17-19865
5-17807	6-16647				CVTR (CAROLINAS VIRGINIA TUBE REACTOR)			
COOLANT PURIFICATION SYSTEM					5-17700	5-18694	5-19110	17-17760
5-17807	9-20021	17-18607	17-18698		17-18694	17-19109	17-19110	17-19964
17-19557	17-19842	17-19843	17-20518		17-20560	17-20561	17-20726	17-21148
COOLANT QUALITY					DAMAGE			
5-17807	9-20018	9-20543	17-18681		2-20600	2-20660	6-19222	
COPPER					DAMPING			
5-19788	17-19788				2-20595			
CORE COMPONENTS, MISCELLANEOUS					DATA PROCESSING			
5-19238	5-19511	5-19937	9-18689		1-19960	9-17801	9-18815	9-19859
17-18613	17-18689	17-19238	17-19888		9-20543	9-20750	9-20754	17-20053
18-18701	18-19149	18-19851	18-19937		17-20054	18-20482		
CORE MELTDOWN					DECONTAMINATION			
5-19883	6-19854	8-19883	12-19854		7-20826	12-16584	12-20068	12-20826
12-19942	18-19854	18-19942	18-21651		13-16584	14-16400	14-18789	14-18909
CORE REFLOODING SYSTEM					14-19264	14-19489	14-19657	14-19867
5-19850	12-19284	12-19447	12-19850		14-20068	14-20679	14-20804	14-20826
12-19853	12-19935	12-19946	18-19284		14-21657	14-21660	15-18789	15-18838
18-19447	18-19850	18-19853	18-19935		15-18839	15-18864	15-18909	15-19264
18-19946					15-19489	15-19807	15-21659	17-18668
CURE SPRAY					17-19183	17-19865	17-21657	17-21659
5-19107	11-19287	12-19107	12-19283		17-21660			
12-19285	12-19286	12-19447	12-19669		DELAYED NEUTRON			
17-19669	17-20505	18-18643	18-19107		5-19111	6-19111	7-18477	17-19111
18-19283	18-19285	18-19286	18-19287		DEPOSITION			
13-19447					7-17827	7-18474	7-19963	7-20546
CORE, CAPSULE DRIVER (CDC)					14-19207	14-19221	15-18858	16-18708
6-17166	17-17166				16-18831	16-18868	16-19207	16-19213
CORE, PLATE TYPE					16-19221	16-19552	16-19688	16-19877
17-19241					17-19963			
CORROSION					DESIGN CRITERIA			
4-20547	5-18679	5-19483	5-19685		2-17845	2-18313	2-20000	2-20008
5-21989	6-19483	7-20547	9-17839		2-20606	2-20802	3-17962	5-19936
9-18689	11-19693	12-19567	14-20694		5-20481	9-19752	9-20033	10-20033
17-17158	17-17839	17-18605	17-18679		10-20567	11-18640	11-19193	11-19691
17-18680	17-18699	17-18699	17-19183		11-19693	12-19285	12-19567	12-19853
17-19493	17-19685	17-19760	17-20475		12-20008	14-18787	15-18787	15-20096
17-20561	17-21589	18-21110			17-19561	17-19760	17-19761	17-20481
COSMIC RADIATION					18-17845	18-18313	18-18701	18-19285
14-18816	15-18816	15-18818	16-19209		18-19560	18-19752	18-19853	18-19936
COUNTER					18-19938	18-20046	18-20482	18-20862
1-19960	9-19128	9-19129	9-20024		18-20557	18-21844		
14-18824	14-19526	14-19886	14-21143		DESIGN STUDY			
15-18818	15-18823	15-18824	15-18842		4-18725	4-18726	4-19518	5-19182
15-18858	15-18864	15-19129	15-19886		5-19422	6-18700	6-19776	8-19182
15-19919	15-21143				9-19518	9-19776	9-20543	9-20564
COUNTER, WHOLE BODY					15-19952	15-20591	16-20591	17-18951
14-20789	14-21143	14-21471	15-18837		17-19763	18-16652	18-18700	18-18761
15-19187	15-19990	15-20069	15-20096		18-19182	18-19422	18-19562	18-19568
15-20443	15-20667	15-20678	15-20693		18-19977	18-20046	18-20065	18-20066
15-20759	15-20787	15-20789	15-20796		18-20463	18-21110	18-21113	18-21115
15-21143					18-21116			
COUPLED CORES					DESORPTION			
6-18885	6-19586	6-21127			7-17673			
CREEP					DESTRUCTIVE TRANSIENT			
2-19802					6-18890	6-19222		
CREEP BEHAVIOR					DESTRUCTIVE WIND			
11-18480	11-19792	17-19792			1-20684	16-20684		
CRITICAL ASSEMBLY FACILITY					DEUTERIUM			
1-18856	1-19505	2-20000	5-18899		14-19263	14-19887	16-19550	16-20091
6-18880	6-19776	9-18900	9-19776		DIABLO CANYON			
9-20486	9-20841	13-19505	14-20025		9-19752	18-19752	18-19933	18-20864
15-18856	15-18899	15-20025	17-17544		10-20957	18-20993		
17-17664	17-18618	17-18693	17-18956		DIETARY HABIT			
17-18899	17-18900	17-19237	17-19505		14-18463	14-18489	14-18789	14-18790
17-20486	17-20512	17-20839	17-20840		14-18795	14-18817	14-19556	14-20557
17-20841	18-19149	18-19755	18-19845		15-18463	15-18789	15-18790	15-18755
CRITICALITY EXPERIMENT					15-18817	15-18822	15-19556	15-20557
6-18876	6-18877	6-18880	6-18891		DIFFUSION			
6-18894	6-19776	6-19978	6-19981		6-20446	7-17673	7-17827	7-18474
6-21129	6-21131	9-18377	9-18948		7-20548	14-18632	14-18851	14-19557
9-19776	17-18948	18-21110			14-20099	15-18851	15-19957	16-18632
CRITICALITY SAFETY					16-18830	16-19220	16-20088	16-20689
1-19505	1-19569	1-20461	6-18880		17-20446			
9-19168	9-19170	13-19280	13-19505		DIFFUSION COEFFICIENT			
13-19832	13-19835	14-19280	15-19168		7-20548	14-20090	16-20090	
15-19178	15-19569	17-19237	17-19277		DIFFUSIOPHORESIS			
17-19280	17-19505	17-19569	17-20839		7-17827			
17-20840	18-19149				DILUTION			
CROSS SECTION					5-18912	14-18616	14-18851	15-18851
1-19960	6-19987	6-19988			16-18615	16-18616	16-18617	16-18912
CRUD					17-18615	17-18616	17-18617	18-18912
5-17807	7-19963	9-19941	14-20722		DISPERSION			

2-20005	5-16571	7-20005	8-16571	15-20572	15-20578	15-20673	15-20763
16-18807	16-18869	16-19210	16-19688	15-20764	15-20774	15-20775	15-20783
DISPLACEMENT, DESIGN FOR	2-18801	5-19937	18-19937	15-20786	15-20794	15-20798	17-19161
DISPLACEMENT, GENERAL	2-18802	4-19117	9-19117	17-19274			
DISTANCE	2-19995	2-20004	2-20007	DOSIMETRY, PHOTOGRAPHIC	15-17549	15-20075	15-20431
DNB (DEPARTURE FROM NUCLEATE BOILING)	5-17804	5-17806	5-19180	15-20676	15-20786		15-20573
	5-19419	5-19788	6-17804	DOSIMETRY, RADIOPHOTOLUMINESCENCE	14-19436	14-19886	15-19492
	6-19198	8-17804	8-17806	15-19824	15-19886	15-20075	15-20794
	17-18450	17-19198	17-19788	DOSIMETRY, THERMOLUMINESCENCE	14-19827	15-19155	15-19258
DOPPLER COEFFICIENT	6-16646	6-18882	6-18888	15-20434	15-20677	15-20798	15-19827
	6-19223	6-19979	6-19980	DOWNREAY (UK)	5-18857	15-19549	16-19545
	6-19988	6-20758	6-20822	CRESDEN 1	5-19238	5-19788	11-19268
DOPPLER EFFECT	6-16573	6-16645	6-18891	17-18613	17-18614	17-19238	17-17161
	6-19987	6-19988	6-19980	17-19787	17-19788		17-19268
DOSE	1-19844	1-19890	2-19994	DYNAMICS, NONLINEAR	6-18885	6-19985	
	2-19998	2-20009	4-17995	EARTH MATERIAL, DYNAMIC PROPERTY	2-20593	2-20595	2-20596
	5-19111	5-19844	6-19111	2-20663	14-17958		2-20598
	7-19247	11-18906	11-19996	EARTHQUAKE	2-17701	2-20008	9-17701
	14-17822	14-17823	14-18665	EARTHQUAKE ENGINEERING	1-20624	2-17286	2-17701
	14-19225	14-19267	14-19535	2-18313	2-18798	2-18801	2-17845
	14-19767	14-19827	14-20098	2-19665	2-19857	2-19878	2-19880
	14-20788	14-21002	14-21988	2-19999	2-20007	2-20008	2-20600
	15-17818	15-18792	15-19225	2-20603	2-20604	2-20606	2-20607
	15-19267	15-19486	15-19491	2-20608	2-20609	2-20610	2-20660
	15-19535	15-19659	15-19764	2-20662	2-20802	2-21843	9-17701
	15-19811	15-19825	15-19827	9-19752	9-19857	11-19665	11-19654
	15-20098	15-20100	15-20102	11-20526	12-19285	12-20008	17-20624
	15-20783	15-20788	15-20797	18-16575	18-17844	18-17845	18-18313
	15-22114	17-18665	17-18906	18-19285	18-19665	18-19752	18-20526
	17-19111	17-20496	17-21988	18-20902	18-20957	18-21843	18-22166
	18-18643	18-19247	18-19844	EARTHQUAKE EPICENTER	2-20597	2-20605	
	18-21421	18-21424	18-21652	EARTHQUAKE PREDICTION	2-20595	2-20597	2-20603
	18-22774	18-22877		EARTHQUAKE RECORDS	2-18798	2-19201	2-19879
DOSE CALCULATION, EXTERNAL	4-19795	14-17820	14-19211	2-20601	2-20605		2-20599
	14-19538	14-19767	14-19770	EARTHQUAKE, GENERAL	2-17286	2-18798	2-18801
	14-20571	14-20772	14-20816	2-19201	2-19678	2-19879	2-19880
	15-17818	15-19141	15-19226	2-20593	2-20594	2-20595	2-20596
	15-19549	15-19770	15-19810	2-20597	2-20598	2-20599	2-20600
	15-20571	15-20675	15-20701	2-20601	2-20602	2-20603	2-20604
	15-20783	15-20784	15-20816	2-20605	2-20606	2-20607	2-20608
	15-22114	16-19211	16-19545	2-20609	2-20610	2-20660	2-20662
DOSE CALCULATION, INTERNAL	4-16651	4-19795	9-18648	2-20663	18-18644		
	14-18790	14-18824	14-19225	EASTON (BWR)	18-22880		
	14-19267	14-19531	14-19538	ERR 1 AND 2 (EXPERIMENTAL BREEDER REACTORS)	9-19930	12-18608	14-20027
	14-19767	14-19770	14-20571	17-18608			17-17164
	14-20791	14-20816	15-18055	EBWR (EXPERIMENTAL BOILING WATER REACTOR)	5-19111	6-19111	6-19112
	15-18648	15-18790	15-18824	17-19112			17-19111
	15-19256	15-19267	15-19435	ECOLOGICAL CONSIDERATION	14-19785	14-19153	14-19290
	15-19486	15-19514	15-19658	14-19819	14-20670	14-20807	14-19532
	15-19815	15-20571	15-20788	15-19290			15-18785
	15-20797	15-20816		ECGNOMIC STUDY	1-19652	9-18652	11-19793
DOSE MEASUREMENT, EXTERNAL	1-18856	9-19129	14-18396	ECGNOMICS	2-19995	2-20001	2-20011
	14-19264	14-19768	14-19768	2-20017	5-20460	9-19926	11-19193
	14-20080	14-20438	14-20441	17-18692	17-19181	17-19189	18-19568
	15-18399	15-18481	15-18836	18-19891	18-19947	18-20046	18-20460
	15-19129	15-19141	15-19155	18-21981			
	15-19236	15-19264	15-19768	EFFLUENT	2-20006	14-20006	14-20720
	15-19804	15-19886	15-20080	14-21658	15-21838	16-16708	16-20542
	15-20431	15-20434	15-20438	17-20720	17-20722	17-21658	18-21838
	15-20591	15-20622	15-20664	EGCR (EXPERIMENTAL GAS COOLED REACTOR)	9-19443		
	15-20704	15-20763	15-20764	ELASTICITY	2-20609	11-15857	11-18480
	16-20591	16-20683	17-18856	11-21147			11-21146
DOSE MEASUREMENT, INTERNAL	9-18648	14-18466	14-18825	ELECTRIC POWER, AUXILIARY	9-20566	10-18505	10-20022
	14-19482	14-20441	15-18466	10-20567			10-20566
	15-18836	15-18839	15-18842	ELECTRIC POWER, GENERAL	4-18725	9-17894	9-17897
	15-19227	15-19229	15-19267	10-17894	10-17897	10-18505	10-20566
	15-19482	15-19951	15-20101	11-19691	18-20800		
	15-20441	15-20787	17-19272				
DOSIMETRY, GENERAL	4-16651	4-19501	9-19501				
	14-17820	14-19159	14-19264				
	14-19501	14-19768	14-19827				
	15-16642	15-16644	15-17549				
	15-18864	15-19101	15-19155				
	15-19227	15-19234	15-19235				
	15-19258	15-19264	15-19274				
	15-19434	15-19485	15-19492				
	15-19536	15-19768	15-19811				
	15-19824	15-19827	15-19919				
	15-20070	15-20075	15-20103				

ELECTRIC POWER, NORMAL				ERROR ANALYSIS			
9-20566	10-18505	10-20566		5-19850	6-19223	9-21849	12-19850
ELECTRIC POWER, SHUTDOWN				17-21849	18-19650		
9-20566	10-20566			ESTUARY			
ELECTRIC POWER, VITAL				14-19765			
9-20566	10-20022	10-20519	10-20566	EURATUM			
17-20519				1-20876	5-17804	5-19542	5-20481
ELECTROHYDRODYNAMICS				5-20540	5-21969	6-17804	6-20540
5-17536				8-17804	6-20540	11-18640	14-19510
ELECTRON				15-19663	17-18945	17-20481	17-20876
15-20775				17-21989	18-16577	18-21149	
ELECTROSTATIC CHARGE				EVAPORATION			
6-20449	7-17827	16-20688	17-20449	12-18908	13-19632	13-19636	14-18908
ELEMENTS AND ISOTOPES				16-19213	17-18908		
14-18793				EXAMINATION			
ELK RIVER				5-19198	5-19685	6-19198	7-19841
5-18912	6-19515	6-21988	9-20447	9-19249	9-19254	9-20447	11-19852
14-20834	14-21988	16-18912	17-18698	11-19939	11-20424	17-17168	17-18612
17-18699	17-19195	17-19515	17-20061	17-18924	17-19196	17-19235	17-19249
17-20062	17-20063	17-20447	17-21988	17-19254	17-19684	17-19685	17-19787
18-18912				17-20447	17-20480	17-20507	17-20727
EMBRITTLEMENT				17-21148	18-19841	18-19852	18-19939
5-21089	11-19692	11-19693	11-21147	18-20424			
17-19865	17-21904	17-21989	19-19692	EXCURSION, LARGE			
EMERGENCY COOLING CONSIDERATIONS				6-17166	6-18647	6-18887	6-18080
1-20524	2-18313	5-17841	6-18647	6-18890	6-18896	6-19222	6-19224
7-20555	11-18640	11-19945	11-20555	6-19243	6-19982	17-17166	17-18647
12-18664	12-19283	12-19447	12-19849	17-19243			
12-19935	12-19945	17-17841	17-18647	EXPANSION			
17-18664	17-20508	17-20624	18-18313	11-18690	17-18690	17-19865	18-18603
18-18458	18-18674	18-19283	18-19447	EXPERIMENT, GENERAL			
18-19849	18-19935	18-19945	18-20107	5-19870	6-19870	7-20013	9-18653
EMERGENCY POWER, ELECTRIC				9-18811	9-18812	11-20013	16-19687
10-18456	10-18459	10-19288	10-20022	16-20685	16-20667	16-20685	16-20756
10-20448	12-19283	12-19284	12-19288	EXPLOSION			
17-18456	17-18459	17-20448	17-21655	2-19857	2-20000	6-19222	9-19857
18-19283	18-19284	18-19288		12-20429	14-18785	15-18785	16-20082
EMERGENCY POWER, NONELECTRIC				17-19199	17-20466		
11-18671	17-18671			EXTRAPOLATION FACTOR			
EMERGENCY PROCEDURE				6-19243	6-19244	11-19789	17-18662
11-18906	12-18906	17-18906	17-20455	17-19243	17-19244	15-20459	
17-20485	17-20492	17-20494	17-20496	FABRICATION			
17-20501				5-20460	7-19841	11-19692	12-19059
EMERGENCY SYSTEM				12-19101	13-18799	15-19099	15-19101
18-20800				15-20105	15-20621	15-20696	17-18604
ENERGY LEVEL				17-18702	17-18799	17-19099	17-19101
2-20600	2-20604	15-20704		17-20475	18-18604	18-19516	18-19840
ENERGY SOURCE				18-19841	18-19938	18-20460	18-21116
10-19289	18-19142	18-19289		FABRICATION FACILITY			
ENGINEERED SAFETY FEATURE				1-19138	13-18799	17-18799	
2-19999	2-20009	5-22773	6-19854	FAILURE, ADMINISTRATIVE CONTROL			
9-19206	9-21839	10-19288	11-18640	1-18856	1-19505	9-19785	9-19874
11-19945	12-18874	12-19288	12-19854	10-20448	12-19101	13-19102	13-19280
12-19942	12-19945	12-19946	12-22773	13-19505	14-19271	14-19280	14-20720
17-18874	18-18644	18-18674	18-19288	14-21656	14-21657	15-18856	15-19100
18-19854	18-19942	18-19945	18-19946	15-19101	15-19102	15-19275	15-20104
18-20107	18-20522	18-20800	18-21651	15-20621	15-21659	17-18680	17-18682
18-21839	18-22773	18-22774		17-18856	17-19100	17-19101	17-19102
ENGINEERING DRAWING LIST				17-19271	17-19273	17-19275	17-19280
10-19438				17-19282	17-19505	17-19785	17-19874
ENVIRONMENTAL CONDITION				17-20448	17-20619	17-20623	17-20720
2-20001	2-20006	2-20007	2-20009	17-21656	17-21657	17-21659	
2-20010	2-20011	2-20012	2-20014	FAILURE, CLADDING			
2-20015	9-19476	11-20015	14-18464	5-18679	5-19685	9-19255	11-18690
14-18465	14-18786	14-18788	14-18789	11-21147	17-18679	17-18681	17-18682
14-18820	14-18824	14-18825	14-18909	17-18688	17-18690	17-19183	17-19255
14-19266	14-19505	14-19803	14-19812	17-19685	17-19685	17-20480	18-18603
14-19319	14-19827	14-20006	14-20760	FAILURE, COMPONENT			
14-22001	15-18464	15-18465	15-18786	5-19929	9-17834	9-19440	9-19458
15-18788	15-18789	15-18820	15-18824	9-19799	9-19929	9-20042	17-17834
15-18909	15-19803	15-19827	15-20760	17-17835	17-17836	17-18692	
18-19476				FAILURE, DESIGN ERROR			
EOCR (EXPERIMENTAL ORGANIC COOLED REACTOR)				1-19505	4-20820	5-18857	6-20051
18-20463				9-17834	9-18658	9-18659	9-18689
EQUATION OF STATE				9-18900	9-19440	9-19864	9-19874
14-18820	15-18820			11-19240	13-19505	17-17834	17-18658
EQUATION, GENERAL				17-18659	17-18680	17-18681	17-18682
5-19936	11-20526	16-20542	18-19936	17-18689	17-18657	17-18900	17-19240
19-20526				17-19505	17-19556	17-19864	17-19874
EQUIPMENT DESIGN				17-19895	17-20051	17-21102	17-21103
1-19890	4-19403	9-19403	9-20020	FAILURE, EQUIPMENT			
9-20033	9-20036	9-20037	9-20564	4-20820	9-19249	9-19442	9-19498
9-20776	9-21154	10-20033	12-20776	5-20049	10-18456	10-20448	10-20519
17-20776				11-19240	11-19790	11-19945	12-19945
EQUIPMENT, GENERAL				17-18456	17-18605	17-18607	17-18680
12-18608	12-20068	12-20427	13-20427	17-18681	17-18682	17-18692	17-19184
14-20068	17-18467	17-18608	17-18950	17-19240	17-19249	17-19760	17-19762
17-18951	17-21098	17-21099	17-21100	17-19790	17-19893	17-19894	17-19895
17-21101	18-20482			17-20049	17-20064	17-20448	17-20518
EROSION				17-20519	17-20877	17-21079	17-21096
12-19567				17-21097	17-21103	18-19945	

FAILURE, FABRICATION ERROR				14-19659	14-19660	14-19661	14-19686
4-20820	9-19255	17-18680	17-18681	14-19803	14-19805	14-19820	14-19823
17-19255	17-19895	17-19966	17-20466	14-19884	14-19950	14-19956	14-20053
17-20518				14-20098	14-20384	14-20440	14-20441
FAILURE, FATIGUE				14-20442	14-20557	14-20581	14-20582
4-20820	5-19936	9-18689	11-21072	14-20592	14-20652	14-20653	14-20654
17-18689	17-20466	18-19936	18-19938	14-20655	14-20657	14-20669	14-20670
FAILURE, FUEL ELEMENT				14-20671	14-20681	14-20748	14-20762
1-19251	5-18857	6-18887	6-18946	14-20768	14-20769	14-20770	14-20773
6-19112	7-18947	7-19247	7-19963	14-20790	14-20791	14-20807	14-20808
7-20013	7-20474	9-18376	9-18809	14-20809	14-20810	14-20811	14-20813
9-18814	9-19566	9-20543	11-20013	14-20814	14-20815	14-20816	14-20817
15-19251	17-18683	17-18685	17-18688	14-20834	14-21002	14-21135	14-21143
17-18857	17-18946	17-18947	17-19112	14-21825	15-16640	15-16641	15-16643
17-19183	17-19184	17-19239	17-19251	15-16645	15-17821	15-18463	15-18466
17-19566	17-19787	17-19963	17-20474	15-18672	15-18785	15-18787	15-18788
17-20480	18-18601	18-18603	18-19247	15-18789	15-18795	15-18816	15-18817
FAILURE, FUEL ELEMENT WATERLOGGING				15-18824	15-18853	15-19161	15-19216
6-17166	17-17166			15-19299	15-19434	15-19482	15-19659
FAILURE, GENERAL				15-19660	15-19803	15-19820	15-19950
4-18724	4-20820	7-18752	9-17839	15-19956	15-20083	15-20093	15-20098
11-19185	12-19097	14-19097	17-17839	15-20441	15-20557	15-20591	15-20657
17-18680	17-18681	17-18682	17-18752	15-20681	15-20768	15-20773	15-20790
17-19097	17-19185	17-19557	17-19558	15-20791	15-20815	15-20816	15-20831
17-19559	17-21085	17-21096	17-21097	15-21002	15-21143	16-18491	16-18492
FAILURE, INSTALLATION ERROR				16-18493	16-18872	16-19207	16-19208
4-20820	17-18682	17-19186	17-19866	16-19216	16-19218	16-19221	16-19552
17-21079				16-19553	16-19686	16-19688	16-20083
FAILURE, INSTRUMENT				16-20591	16-20592	16-20683	16-21132
9-18655	9-18812	9-19113	9-19799	17-18672			
9-20023	9-20042	9-20049	10-20519	FAST NEUTRON			
12-19101	15-19101	17-18681	17-19101	15-16642	15-18864		
17-19109	17-19112	17-19754	17-19762	FAULT			
17-20049	17-20063	17-20464	17-20519	2-18798	2-18802	2-20604	2-20610
17-21085	17-21102	17-21103		2-20847	3-20719	11-18690	11-21654
FAILURE, MAINTENANCE ERROR				17-18690	17-20719	17-21654	18-20847
9-17834	11-19240	17-17834	17-19240	FAULT TREE ANALYSIS			
FAILURE, OPERATOR ERROR				1-19844	5-19844	18-19844	
1-18856	1-19505	3-19889	9-17834	FEDERAL RADIATION COUNCIL			
9-18900	9-19864	9-19874	10-20519	15-19164			
13-19280	13-19505	14-19280	14-21656	FERMI			
15-18856	15-19100	17-17834	17-18682	6-18946	7-18947	17-18946	17-18947
17-18692	17-18856	17-18900	17-19100	17-20727			
17-19109	17-19280	17-19505	17-19864	FFTF (TR)			
17-19874	17-19889	17-20063	17-20519	9-18815	9-19167	9-19169	9-19778
17-21656				9-19930	9-20717	9-20753	11-20753
FAILURE, PIPE				14-20753			
9-18653	11-19268	11-21072	11-21146	FILTER			
17-19184	17-19186	17-19268	17-19559	7-17828	7-20474	7-20499	7-20544
17-19787	17-19893	17-19894	17-19966	7-20549	12-20499	12-20544	14-16643
17-21096	18-18855			14-18816	14-18825	14-18850	14-20094
FAILURE, PRESSURE VESSEL				15-16643	15-18816	15-18850	15-20828
11-18478	11-19790	11-21072	11-21146	15-20829	17-20474	17-20499	
11-21147	11-22127	17-19790		FILTER CHARACTERISTICS			
FAILURE, SCRAM MECHANISM				7-17827	7-20544	12-20544	
9-17834	9-18658	9-18659	9-18689	FILTER EFFICIENCY			
9-18809	9-18900	9-19254	9-19255	7-17824	7-17828	7-18471	7-20474
9-19784	9-21848	9-21849	11-19704	13-19103	14-18486	15-19103	17-19103
14-20722	17-17545	17-17666	17-17834	17-20474			
17-18607	17-18658	17-18659	17-18680	FILTER INSPECTION			
17-18689	17-18900	17-19254	17-19255	7-20544	12-20544		
17-19784	17-19787	17-19888	17-19895	FILTER INSTALLATION			
17-20061	17-20062	17-20464	17-20722	7-20544	12-20544		
17-21085	17-21848	17-21849	17-21904	FILTER OPERATION			
18-19896				7-20544	12-20544		
FAILURE, SEQUENTIAL				FILTER PACK			
1-18856	6-17166	9-21839	15-18856	7-17824			
17-17166	17-18856	17-20466	18-21839	FILTER TEST REQUIREMENT			
FAILURE, SIMULTANEOUS				7-18471			
17-19184				FILTER, ABSOLUTE			
FAILURE, TUBING				7-17828			
5-19483	5-19936	5-20452	6-19483	FILTER, CASCADE IMPACTOR			
9-20452	11-19269	12-19567	14-19666	7-18813	9-18813	15-18813	
14-20722	17-18682	17-18699	17-19186	FILTER, EFFICIENCY OF			
17-19269	17-19483	17-19666	17-19754	16-18870	17-21102		
17-19893	17-20464	17-20473	17-20721	FILTER, FIBER			
17-20722	17-20723	17-20724	18-19936	7-17827			
FALLOUT				FILTER, GAS MASK			
14-16640	14-16641	14-16643	14-16645	15-17842	17-17842		
14-17548	14-17817	14-17820	14-17821	FILTER, HIGH EFFICIENCY			
14-17822	14-17823	14-17958	14-18462	13-19103	15-19103	17-19103	17-21846
14-18463	14-18466	14-18484	14-18485	FILTER, MEMBRANE			
14-18492	14-18493	14-18785	14-18787	7-17827	15-20828		
14-18788	14-18789	14-18794	14-18795	FILTER, PAPER			
14-18816	14-18817	14-18824	14-18853	14-16645	15-16645		
14-19153	14-19154	14-19156	14-19160	FILTER, TRAP			
14-19161	14-19207	14-19221	14-19231	7-18471			
14-19232	14-19233	14-19261	14-19293	FILTRATION			
14-19295	14-19298	14-19299	14-19434	7-17827	14-19261		
14-19482	14-19508	14-19509	14-19522	FINLAND			
14-19523	14-19532	14-19533	14-19534	15-19804			

FIRE					FLOW, RECIRCULATION			
1-19890	5-16574	7-20826	8-16574		5-19484	5-21847	6-19504	17-18680
12-20826	14-20789	14-20826	15-20789		17-19484	17-19504	17-21847	17-21504
17-19866	17-20466				FLOW, TUBE			
FISSION GAS RELEASE					5-16631	12-16631		
7-18477	7-18684	7-19247	7-20552		FLOW, TURBULENT			
17-18684	17-19195	17-19239	18-19247		5-17802	6-17802	8-17602	
FISSION PRODUCT ACTIVITY, GROSS					FLOW, TWO PHASE			
7-18947	9-19116	14-20651	17-18688		5-16631	5-17578	5-17805	5-19419
17-18947					5-19546	5-19871	5-20540	6-17805
FISSION PRODUCT RELEASE, GENERAL					6-19546	6-19871	6-20540	8-17805
1-21318	2-19595	2-19996	2-20002		6-19419	8-19546	8-20540	9-20563
2-20003	2-20004	2-20009	7-18474		12-16631	12-19286	18-19286	18-19867
7-18476	7-18752	7-18947	7-20013		FLOW, VORTEX			
7-20016	7-20474	7-20552	7-20555		17-18605			
7-21318	9-18948	11-19996	11-20013		FLUCTUATION			
11-20555	11-21318	12-20016	14-18488		5-18912	6-19504	16-18912	17-18680
14-18825	14-19327	14-19538	14-20439		17-19504	18-18912		
14-20570	14-20571	14-20575	14-20695		FLUORINE			
14-20706	14-20728	14-21825	15-20571		15-20434			
17-17162	17-18688	17-18752	17-18947		FLUX DISTRIBUTION			
17-18948	17-20474	17-20477	18-17481		9-20717	9-21095	15-22115	17-19976
FISSION PRODUCT RETENTION					FLUX TILT			
1-21318	7-19247	7-21318	11-21318		6-18884	5-18685		
1-21837	12-21836	12-21837	14-18660		FLUX, INTEGRATED			
14-20811	15-18660	17-19863	18-18643		9-17895	9-18910	9-19136	9-19679
18-19247	18-21836	18-21837			9-20543	9-20777	9-21899	
FISSION PRODUCT TRANSPORT					FOG			
1-21318	7-18474	7-10476	7-20546		18-19367			
7-20555	7-20556	7-21318	9-18948		FORECAST			
11-20555	11-21318	14-18489	14-20728		1-19140			
14-21135	14-21143	15-21143	17-18948		FOUNDATION ENGINEERING			
FISSION PRODUCT, AIRBORNE					2-20596	2-20598		
1-21318	7-17824	7-21318	11-21318		FRACTURE TOUGHNESS			
14-20570	14-20571	14-20807	14-20811		9-18653	11-19652	11-21146	11-21147
15-20571	18-19977				19-19692			
FISSION PRODUCT, IODINE					FRANCE			
7-18476	7-19247	7-20474	7-20545		1-19791	2-19995	2-20605	6-18647
7-20546	7-20555	7-20556	11-20555		6-18941	9-19661	9-19658	9-19520
11-21837	12-20545	12-21836	12-21837		9-19921	9-19922	9-19928	9-20035
14-18488	14-19822	15-19822	17-19272		9-20564	11-19751	14-18488	14-19482
17-20474	18-19247	18-21935	18-21836		14-19807	14-20030	14-21471	15-19482
18-21837					15-19514	15-19807	15-20030	15-20586
FISSION PRODUCT, NONVOLATILE					17-18646	17-18647	17-18641	17-19556
7-18476	7-19963	17-19963			17-19557	17-19559	17-19848	17-21079
FISSION PRODUCT, SEPARATION FROM WASTE					18-16575	18-16577	18-17695	18-19560
14-17691					18-19562			
FISSION PRODUCT, VOLATILE					FREQUENCY SPECTRA			
7-18476	7-18477	14-20439	14-20575		5-20452	9-20452		
14-20728					FT. CALHOUN			
FISSION RECOIL					2-20847	5-22773	12-22773	18-20847
7-20552					18-22772	18-22773	18-22774	
FLANGE					FT. ST. VRAIN			
17-21096	17-21097				17-18951	18-19947	18-19977	18-21477
FLAW					18-21671	18-22197	18-22255	
9-18653	11-19268	11-21072	11-21146		FICHS MODEL			
11-21147	17-19268				6-19982			
FLOODING COEFFICIENT					FUEL BURNUP			
17-20473					1-18652	3-20719	5-20460	6-20446
FLOW BLOCKAGE					7-19476	7-18684	7-19841	7-20545
6-18911	9-19784	11-19784	17-18455		9-18454	9-18652	9-21699	10-19289
17-18911	17-19270	17-19784	17-19888		11-18454	11-19248	12-20545	17-18454
17-20473	17-20727				17-18684	17-18685	17-19248	17-19684
FLOW DISTRIBUTION					17-19863	17-20050	17-20446	17-20715
5-17700	9-19858	17-17700			18-18603	18-19289	18-19841	18-19977
FLOW ORIFICE OR RESTRICTION					18-20460			
5-19788	12-19286	17-19786	17-20064		FUEL ELEMENT			
17-21904	18-19286				1-19138	5-17530	5-17802	5-17837
FLOW STABILITY					5-19198	5-19238	5-19685	5-19788
5-17536	5-18857	5-19542	5-19871		5-19871	5-19937	5-20460	5-20481
5-21847	6-19871	17-18857	17-21847		6-17530	6-17802	6-19198	6-19071
FLOW THEORY AND EXPERIMENTS					6-20446	7-18684	7-19247	7-19841
5-16631	5-19545	5-19871	6-19871		7-20555	7-20555	7-20556	8-17802
12-16631	18-18695				9-19168	9-19205	9-19255	9-19566
FLOW, ANNULAR					9-20036	9-20039	9-20564	11-18650
5-19419	8-19419	9-20021			11-20555	11-20555	13-18799	15-19168
FLOW, AXIAL					15-20105	17-17162	17-17831	17-17837
5-17802	6-17802	8-17802	9-20562		17-18450	17-18451	17-18604	17-18613
FLOW, CRITICAL					17-18670	17-18684	17-18685	17-18690
18-19867					17-18799	17-18913	17-19197	17-19158
FLOW, CROSS					17-19238	17-19255	17-19566	17-19685
5-17802	5-17806	5-17808	5-19545		17-19753	17-19781	17-19788	17-19960
5-19546	6-17802	6-17806	6-17808		17-20446	17-20475	17-20481	17-20512
6-19546	8-17802	8-17806	8-17808		18-17481	18-17830	18-17838	18-18601
8-19546					18-18604	18-18745	18-19247	18-19516
FLOW, MIST					18-19840	18-19841	18-19937	18-19977
5-16631	12-16631				18-20065	18-20066	18-20460	18-21084
FLOW, MIXING					18-21110	18-21113	18-21115	18-21116
5-19545	5-19546	6-19546	8-19546		FUEL ELEMENT BOWING			
FLOW, PULSATING					5-19198	6-19198	9-18720	17-17663
5-17805	6-17805	8-17805			17-17831	17-17832	17-18698	17-18924

17-19198				17-19874	17-21655	18-18674	
FUEL ELEMENT CLUSTER				GINNA			
5-17802	5-17806	5-19540	5-19868	12-18995			
5-19869	6-17802	6-17806	6-19540	GLASS			
6-19868	6-19869	8-17802	8-17806	6-19944	15-19952	18-19944	
8-19540	8-19868	8-19869		GLCIVE BOX			
FUEL HANDLING				1-19251	12-19099	13-19278	13-19279
3-19889	9-19785	9-20020	17-18607	15-19099	15-19251	17-19099	17-19251
17-19481	17-19557	17-19785	17-19889	17-19279			
18-19142	18-21113	18-21115	18-21116	GOLO			
18-21990	18-22772			6-19979	14-20080	15-20080	
FUEL HANDLING MACHINE				GRAPHITE			
9-19927	9-20020	9-20035	17-17164	8-18490	17-18607	17-18682	18-18701
17-18951	17-19181	17-19556	17-19558	18-19977			
17-19894	17-19895	18-18905	18-19892	GROSS ALPHA			
18-19977				14-18787	14-20654	15-16787	15-18823
FUEL INTEGRITY				GROSS BETA			
5-20460	7-20546	7-20552	18-20460	14-16640	14-16641	14-16643	14-18787
FUEL MELTDOWN				14-18788	14-18816	14-18825	14-19805
5-16571	5-19868	5-20460	6-19868	14-19823	14-20654	14-20655	14-20748
7-18476	7-20555	7-20556	8-16571	14-20770	15-16640	15-16641	15-16643
8-19868	11-20555	17-18607	17-20727	15-18787	15-18788	15-18816	15-20097
13-18601	18-20460			15-20831			
FUEL REPROCESSING				GROSS GAMMA			
1-19505	9-18948	12-18608	13-19102	9-18378	14-16640	14-16643	14-16645
13-19279	13-19280	13-19505	13-19835	14-18824	14-18825	14-18852	14-19805
14-19280	14-19662	14-20059	15-19102	14-19957	14-20770	15-16640	15-16643
15-20696	17-18608	17-18948	17-19102	15-16645	15-18824	15-18837	15-18852
17-19279	17-19280	17-19505	17-19863	15-19957	15-20097	15-20100	
FUEL SEGREGATION				GROUND MOTION			
6-16573	6-20446	17-20446		2-20602	2-20603	2-20605	2-20606
FUEL STORAGE				2-20610			
3-20719	13-19102	14-20720	15-19102	GROUND WATER, GENERAL			
17-18618	17-19102	17-19237	17-20487	14-18921	14-20072	14-20611	15-18821
17-20489	17-20719	17-20720	17-20839	GROUND WATER, NUCLIDE OCCURRENCE			
17-20840	17-21655			14-16641	14-18787	14-20072	14-21824
FUEL, METALLIC TYPE				15-16641	15-18787	15-20830	
12-19099	15-19099	17-19099		GROUND WATER, PROPERTY			
FUEL, PELLET TYPE				14-20072			
17-20848	18-19516			GROUND WATER, TRACER			
FUEL, POWDER TYPE				14-20611			
17-18685	17-20848			HADDAM NECK			
GADOLINIUM				1-20876	12-18664	14-18665	17-18457
5-19238	17-18613	17-18614	17-19238	17-18664	17-18665	17-20876	
GAMMA				HALLAM			
9-19129	9-19441	14-18465	14-18482	17-18681	17-18682	17-19481	17-19558
14-19264	14-19434	14-19770	14-19810	17-20516			
14-20028	14-20080	14-20384	14-20585	HANFORD PRODUCTION REACTOR			
14-20669	14-20772	14-20785	15-17549	9-18378			
15-18376	15-18465	15-18858	15-19129	HANFORD SITE			
15-19155	15-19235	15-19264	15-19294	11-19691	14-20569	14-20773	14-21824
15-19434	15-19437	15-19441	15-19491	15-18751	15-19257	15-20773	16-19687
15-19536	15-19770	15-19810	15-20028	16-20687	17-18751		
15-20075	15-20080	15-20431	15-20572	HARWELL (UK)			
15-20573	15-20585	15-20673	15-20675	14-19526	14-19822	14-20439	14-20795
15-20677	15-20701	15-20772	15-20785	15-19822	17-18467		
15-20787	15-20798			HAZARD, RELATIVE			
GAMMA EMITTER				1-19890	4-20819	14-20092	15-20092
14-20695	15-18842			HAZARDS ANALYSIS			
GAS				1-19844	3-22446	4-20819	5-19844
4-19423	5-19421	5-19423	8-19421	13-22446	14-19538	18-19844	18-21110
17-20724				18-21652	18-22446		
GAUSSIAN PLUME FORMULA				HBWR (HALDEN BOILING WATER REACTOR)			
14-18492	14-19875	16-18492	16-19220	9-20023			
16-19875	16-20542			HEALTH PHYSICS TRAINING			
GENERATOR, DIESEL				15-18751	15-20697	17-18751	17-19801
10-18456	10-18459	10-19289	10-20448	HEAT CONDUCTANCE, FUEL TO CLAD			
17-18456	17-18459	17-20448	18-19289	4-20818	5-20460	11-20818	17-18604
GEOLOGICAL CONSIDERATION, GENERAL				18-18604	18-20460		
2-18801	2-19591	2-20001	2-20017	HEAT EXCHANGER			
2-20847	2-21843	2-22875	14-17958	5-17160	5-19788	5-19936	5-20452
14-18827	14-20569	14-21824	15-20691	9-19202	9-20452	12-19202	12-19567
18-20847	18-21843	18-22166	18-22879	14-19666	17-17159	17-17160	17-17545
GEOLOGICAL CONSIDERATION, GEOCHEMICAL				17-18607	17-18681	17-18682	17-18951
14-19267	15-19267			17-19558	17-19666	17-19754	17-15762
GEOLOGICAL CONSIDERATION, STRATIGRAPHY				17-19780	17-20464	18-19936	18-19977
14-18793	14-21824			18-20522			
GERMANY				HEAT FLUX, CRITICAL			
1-19138	1-19139	1-19140	2-19993	5-17805	6-17805	8-17805	
5-17805	5-19542	6-16649	6-17805	HEAT FLUX, CRYOUT			
6-20822	6-20825	7-20826	8-17805	5-20460	18-20460		
8-18490	9-19927	9-21153	9-21154	HEAT GENERATION, INTERNAL			
9-21155	12-20826	13-19418	14-18487	4-20818	11-20818		
14-19262	14-19424	14-19509	14-20435	HEAT GENERATION, NONUNIFORM			
14-20679	14-20702	14-20703	14-20706	4-19423	5-19419	5-19423	8-19419
14-20771	14-20804	14-20826	15-18376	HEAT SINK			
15-19163	15-19262	17-18943	17-18950	11-19269	12-19106	12-19108	14-19666
17-21096	17-21097	17-21098	17-21099	17-19269	17-19666	18-19106	18-19108
17-21100	17-21101	18-19142		HEAT TRANSFER			
GETR (GENERAL ELECTRIC TEST REACTOR)				5-17557	5-20460	5-20540	6-18541
9-18983	9-19206	9-19874	17-18983	6-18882	6-18890	6-20540	8-20540

9-19202	9-21899	12-19202	17-18453	14-20767	15-19435	15-20557	15-20744
17-20475	17-20477	18-20460		ICRP (INT. COMM. ON RADIOLOGICAL PROTECTION)			
HEAT TRANSFER ANALYSIS				14-19482	14-19659	14-20747	15-18055
4-17809	5-16571	5-17160	5-17557	15-19164	15-19482	15-19659	15-19825
5-17809	5-18694	5-19540	5-19545	15-20745	15-20747		
5-19850	5-19869	6-17809	6-18541	ICRU (INT. COMM. RAD. UNITS AND MEASUREMENTS)			
6-19540	6-19854	6-19869	8-16571	15-20682			
8-19540	8-19869	12-19850	12-19854	IDAHO FALLS			
17-17160	17-18694	18-19516	18-19850	5-20452	9-20452	14-17691	14-19539
18-19854				14-20027	14-20728		
HEAT TRANSFER AUGMENTATION				IMPACT PROPERTY			
5-17536				1-21318	7-21318	11-21318	
HEAT TRANSFER CORRELATION				IMPOUNDMENT			
5-17804	5-19180	6-17804	8-17804	12-19097	12-19098	13-19102	14-19097
17-17161				14-19098	15-19102	17-19097	17-19058
HEAT TRANSFER EXPERIMENT				17-19102			
5-16571	5-17536	5-17802	5-17805	IN CORE MEASUREMENT			
5-19107	5-19180	6-17802	6-17805	9-19128	9-19837	9-20562	9-20563
8-16571	8-17802	8-17805	12-19107	9-20777	9-21153		
18-19107				IN PILE EXPERIMENT			
HEAT TRANSFER, BOILING				7-18477	11-16576	17-17545	18-16576
5-16571	5-17578	5-17808	5-19541	IN PILE LOOP			
5-19546	6-17808	6-19546	8-16571	17-17545	17-18467	17-18683	17-18685
8-17808	8-19546	12-19942	18-19942	17-17573	17-19842	17-19843	18-18674
HEAT TRANSFER, CONDUCTION				18-20463			
4-17809	4-20818	5-17809	6-17809	INCIDENT COMPILATION			
9-19774	11-20818	12-19774		1-20624	17-19190	17-20624	
HEAT TRANSFER, CONVECTION				INCIDENT, ACTUAL, EQUIPMENT			
5-16571	5-17557	5-17578	5-17802	5-18899	6-20449	9-18689	9-18560
5-20058	6-17802	8-16571	8-17802	9-19254	11-19240	13-19279	14-19666
17-20058				15-18899	17-17635	17-16689	17-18899
HEAT TRANSFER, RADIANT				17-18900	17-19240	17-19254	17-19279
5-17557	5-19541			17-19666	17-19888	17-20449	
HEAT TREATMENT				INCIDENT, ACTUAL, GENERAL			
11-18873	17-18873			1-19505	6-18946	7-18947	12-19057
HEAVY WATER				13-19276	13-19505	14-19097	15-19156
17-18680	17-18688			17-18683	17-18685	17-18546	17-18547
HEIGHT OF PISE				17-19097	17-19196	17-19270	17-19276
14-20084	16-20084	16-20542		17-19505	17-20612		
HELIUM				INCIDENT, ACTUAL, HUMAN ERROR			
1-20456	11-19789			1-18856	3-19889	9-18900	9-19874
HFIR (HIGH FLUX ISOTOPE REACTOR)				10-20448	13-19280	14-19280	14-19666
17-18607	17-19865	17-21102	17-21103	14-20725	15-18656	17-18856	17-18900
HIGH TEMPERATURE				17-19280	17-19666	17-19666	17-19874
4-19117	9-19117	9-19930	9-19932	17-19889	17-20448	17-20473	17-20725
9-20023	9-20753	11-20753	14-20753	INCIDENT, ACTUAL, NONNUCLEAR			
HOT CELL				1-17849	12-20429	17-17849	17-19159
12-18608	12-20068	13-19281	13-19418	INCIDENT, ACTUAL, NONREACTOR			
14-20068	15-19100	15-19281	17-18608	12-19101	15-19100	15-19101	17-19100
17-19100	17-19281			17-19101	17-20466		
HOT CHANNEL FACTOR				INCIDENT, ACTUAL, RECOVERY FROM			
18-21651				3-19889	17-19689		
HOT SPOT				INCIDENT, EXPOSURE			
5-19483	6-19483	9-19205	17-19483	1-18856	1-19569	15-18856	15-19187
HPRR (HEALTH PHYSICS RESEARCH REACTOR)				15-19569	17-18856	17-19569	
15-22115				INCIDENT, WOOD RIVER			
HUMBOLDT BAY				1-19569	1-19689	15-19569	17-19569
1-18336	6-18334	8-18333	11-19144	17-19683			
11-19670	17-18333	17-18334	17-18335	INCINERATION			
17-18336	17-19337	17-18338	17-19144	14-19488	14-19709	14-20094	14-20720
17-19670				14-20725	17-20720	17-20725	
HUMIDITY				INCLOY			
16-18866				18-19516			
HUNGARY				INCONEL			
2-20017	14-18374	15-20796		17-18680	17-19693	17-20480	
HWCTR (HEAVY WATER COMPONENT TEST REACTOR)				INDEPENDENCE			
9-18689	17-18689			9-21839	18-21839		
HWOCR (HEAVY WATER ORGANIC COOLED REACTOR)				INDIA			
17-18604	18-18604	18-19840	18-20459	14-19266	14-20442	15-19524	
HYDRAULIC ANALYSIS				INDIAN POINT 1			
5-19540	5-19685	5-19869	6-19540	3-19889	5-19148	10-20513	17-19148
6-19869	8-19540	8-19869	17-19685	17-19888	17-19889	17-20513	
18-19142	18-20107	18-21116		INDIAN POINT 2			
HYDRAULIC EFFECT				5-19850	5-19851	5-19936	5-19937
5-19484	17-19484			6-19854	6-19934	6-19940	6-19943
HYDRAULIC EXPERIMENT				6-19944	9-19940	9-19941	9-19943
5-16631	5-17806	6-17806	8-17806	11-19852	11-19939	12-19849	12-19850
12-16631				12-19853	12-19854	12-19934	17-19935
HYDRIDE				12-19942	18-19849	18-19850	18-19851
17-19183				18-19852	18-19853	18-19854	18-19934
HYDROGEN				18-19935	18-19936	18-19937	18-19938
1-20456	5-21989	7-17673	8-18490	18-19939	18-19940	18-19941	18-19942
14-19263	14-19949	14-20570	15-19949	18-19943	18-19944	10-20637	
16-20091	17-21589			INDIAN POINT 3			
HYDROLOGICAL CONSIDERATION, GENERAL				2-21653	18-21651	18-21652	18-21653
2-20001	2-20010	2-21653	2-21643	INDIUM			
14-18794	14-19555	18-21653	18-21843	15-20095			
HYDROLOGICAL CONSIDERATION, QUALITY OF WATER				INELASTIC BEHAVIOR			
14-18786	15-18786			2-20607			
IAEA (INTERNATIONAL ATOMIC ENERGY AGENCY)				INFORMATION RETRIEVAL			
14-19495	14-19813	14-20557	14-20744	1-20624	17-20624		

INGESTION				9-18658	17-18658	17-20615	
1-19890	14-18790	14-18795	14-20093	INSTRUMENTATION, INTERMEDIATE RANGE			
15-18790	15-18795	15-20093		9-19476	18-19476		
INHALATION				INSTRUMENTATION, LIQUID LEVEL DETECTION			
1-19890	2-20009	7-17829	12-19099	9-18655	9-20846	17-20846	
13-19103	13-19278	13-19281	14-17829	INSTRUMENTATION, METEOROLOGICAL			
14-19433	14-20789	14-21657	14-21660	14-18632	16-18632	16-18828	16-18865
15-17829	15-18842	15-19099	15-19103	16-18867	16-18868	16-18869	16-18870
15-19187	15-19281	15-19433	15-20105	16-19212	16-19550	16-19552	16-19554
15-20617	15-20789	15-21659	17-19099	16-19877	16-20686	16-20687	16-20690
17-19103	17-19278	17-19281	17-20620	16-20691	16-20756		
17-21657	17-21659	17-21660		INSTRUMENTATION, NUCLEAR			
INSPECTION AND COMPLIANCE				6-18898	6-19135	7-18477	9-17895
1-17696	1-17697	1-20615	3-17962	9-18811	9-18917	9-19116	9-19135
12-19097	13-19102	14-19097	15-19102	9-19170	9-19173	9-19333	9-19441
15-20105	15-20106	15-20614	15-20618	9-19752	9-19779	9-19920	9-19921
17-19097	17-19102	17-19277	17-20615	9-19922	9-19928	9-20024	9-20451
17-20619	17-20620	17-20623	17-21655	9-20777	9-21095	14-18374	14-20030
INSTABILITY				14-21143	15-19441	15-20030	15-20434
5-19870	6-19870			15-21143	18-19752		
INSTRUMENTATION CALIBRATION				INSTRUMENTATION, POWER RANGE			
2-19857	5-20452	7-18813	9-18813	6-19943	9-19476	9-19566	9-19943
9-18920	9-19857	9-19932	9-20452	17-19566	18-19476	18-19943	
14-20674	15-18813	15-20674	17-20509	INSTRUMENTATION, PRESSURE			
INSTRUMENTATION, ABNORMAL INDICATION				4-19117	5-20452	6-19504	9-18428
6-19504	6-19943	9-18655	9-18659	9-19113	9-19117	9-20452	9-21150
9-18812	9-19113	9-19785	9-19874	17-19113	17-19504		
9-19900	9-19943	9-20042	15-19274	INSTRUMENTATION, PROCESS			
15-20102	17-18659	17-19113	17-19274	9-17894	9-17897	9-16920	9-19941
17-19504	17-19785	17-19874	18-19943	10-17894	10-17897	18-19941	
INSTRUMENTATION, AIR SAMPLING				INSTRUMENTATION, PROTECTIVE			
7-18813	9-18813	9-19855	14-20672	9-19114	9-19136	9-21839	17-21085
15-18813	16-20082	16-20683		18-21839			
INSTRUMENTATION, AMPLIFIER				INSTRUMENTATION, PULSE			
9-18649	9-19136	9-19333	9-20451	6-19680	9-19134	9-19178	9-19680
INSTRUMENTATION, CAMPBELLING				9-20451	15-19178	17-19197	
9-19922	9-20024	9-20451		INSTRUMENTATION, RADIATION MONITORING			
INSTRUMENTATION, COINCIDENT				9-18648	9-18910	9-19441	9-19780
9-18433	9-19206	9-19921	17-18698	9-19855	9-20717	9-20782	14-19246
17-19195				14-19401	14-19886	14-20026	14-20441
INSTRUMENTATION, COMPONENT				14-20791	14-21143	15-16642	15-17549
9-18814	9-19114	9-19202	9-19205	15-18648	15-18823	15-19229	15-19236
9-19496	9-19799	9-19856	9-20033	15-19246	15-19441	15-19536	15-19824
10-20033	12-19202			15-19886	15-19952	15-19953	15-20026
INSTRUMENTATION, CONTROL				15-20434	15-20441	15-20578	15-20759
4-19118	6-20043	9-17894	9-17897	15-20764	15-20774	15-20786	15-20791
9-18815	9-19118	9-19775	9-19778	15-20793	15-20794	15-20796	15-20827
9-19780	9-19781	9-19782	9-19926	15-20828	15-20829	15-20830	15-21143
9-20034	9-20043	9-20543	9-20566	16-20683	17-19246		
9-20750	9-20751	9-20752	9-20753	INSTRUMENTATION, REDUNDANT			
9-20754	9-20755	9-20776	9-21150	9-18433	9-18815	9-19855	
9-21154	10-17894	10-17897	10-20566	INSTRUMENTATION, RELAY			
11-20753	12-20776	14-20753	17-18940	9-18658	17-18658		
17-20776	17-21085	18-20482		INSTRUMENTATION, SHUTDOWN REACTIVITY			
INSTRUMENTATION, COOLANT QUALITY				9-19137			
9-18421	9-18920	9-20543		INSTRUMENTATION, STARTUP RANGE			
INSTRUMENTATION, CURRENT				9-19476	9-19874	9-19921	17-17642
9-19114	9-19333	9-19496	9-21153	17-10452	17-19874	17-21102	18-17830
INSTRUMENTATION, DENSITY				18-19476			
15-20786				INSTRUMENTATION, SURVEILLANCE			
INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT				9-18814	9-19129	9-20782	15-19129
9-18378	9-19921	9-19928	9-20543	16-20081			
9-20750	17-17542			INSTRUMENTATION, TEMPERATURE			
INSTRUMENTATION, EARTHQUAKE				5-17700	9-18360	9-18723	9-18812
2-17701	2-18798	2-19879	2-20599	9-19838	9-19898	9-19900	9-19930
2-20601	2-20663	9-17701	9-18810	9-19932	9-20023	9-20753	11-18873
INSTRUMENTATION, FLOW				11-20753	14-20753	17-17700	17-16673
9-18421	9-19681	9-20562	9-20563	18-20482			
9-21150	17-18457			INSTRUMENTATION, TESTING			
INSTRUMENTATION, FLUCTUATION				2-19857	4-19174	5-20452	7-18477
9-19137				9-19174	9-19857	9-20452	
INSTRUMENTATION, GENERAL				INSURANCE			
2-19695	4-19117	4-19501	9-17897	1-18336	1-19138	1-19139	1-19962
9-19117	9-19167	9-19170	9-19178	17-18336			
9-19205	9-19442	9-19476	9-19501	INTEGRITY			
9-19695	9-20782	10-17897	14-19501	2-20015	9-18983	11-19253	11-20015
15-18837	15-19178	17-18607	18-19142	11-21146	17-18983	17-19253	18-21110
18-19476	18-19695	18-20482	18-20800	INTERACTION, SOIL AND STRUCTURE			
INSTRUMENTATION, IN CORE				2-20594	2-20596		
4-19117	5-20058	6-18700	9-17895	IODINE			
9-18380	9-18421	9-18910	9-19117	7-18474	14-16641	14-16645	14-18462
9-19128	9-19177	9-19752	9-19784	14-18464	14-18484	14-18488	14-18558
9-19847	9-20023	9-20543	9-20562	14-18786	14-18795	14-19157	14-19233
9-20563	9-20777	9-21153	9-21899	14-19293	14-19661	14-20093	14-20098
11-19784	14-20025	15-20025	17-19784	14-20439	14-20557	14-20770	14-20771
17-19847	17-20058	18-17830	18-18644	14-20773	14-20790	14-20813	14-20815
18-18700	18-19752	18-21113	18-21115	14-21143	15-16641	15-16645	15-18464
18-21116				15-18558	15-18786	15-18795	15-18836
INSTRUMENTATION, INDEPENDENT				15-19514	15-20093	15-20098	15-20557
9-20782				15-20773	15-20790	15-20815	15-20829
INSTRUMENTATION, INTERLOCK				15-20831	15-21143	16-19220	17-18698

ION EXCHANGE				LEAK			
9-18917	14-17547	14-17960	14-18487	9-19941	12-19098	13-19279	14-19098
14-19157	14-19296	14-19510	14-19955	17-17159	17-19098	17-19279	17-19556
14-20702	14-20703	14-20792	15-18838	17-20877	18-19941		
17-19272				LIABILITY			
IONIUM				1-19138	1-19139	1-19562	
14-18820	15-18820			LIAPUNOV'S FUNCTION			
IONOSPHERE				6-18885	6-19224		
16-18832	16-19210			LICENSING STATUS OF NUCLEAR PROJECTS			
IRON				2-17845	3-22446	13-22446	17-20489
14-17960	14-18827	14-19434	14-20791	17-20506	18-17845	18-22446	
14-21143	15-19434	15-20791	15-21143	LIQUEFACTION			
IRRADIATION FACILITY				2-19201	2-20593	2-20598	
6-19245	9-18983	17-17665	17-17666	LIQUID			
17-17667	17-18467	17-18746	17-18983	5-19421	8-19421		
17-19241	17-19245	17-20514		LIQUID FUEL			
IRRADIATION TESTING				5-18899	9-18900	15-18899	17-18899
5-17837	6-20446	7-18684	7-18752	17-18900	17-19763		
9-18815	9-18948	9-19566	9-19900	LITHIUM			
9-19930	9-20042	9-20717	9-20777	9-20018	15-20434		
9-21899	11-16576	11-19692	11-19693	LITR (LOW INTENSITY TEST REACTOR)			
11-21845	13-19418	17-17837	17-18450	17-18607			
17-18451	17-18604	17-18670	17-18680	LOFT (LOSS OF FLUID TEST)			
17-18684	17-18685	17-18746	17-18752	1-17568	1-21318	7-21318	11-21318
17-18948	17-19566	17-19753	17-19863	LRL (LAWRENCE RADIATION LABORATORY)			
17-20054	17-20446	17-20475	17-20477	14-19886	14-20674	14-20788	14-21002
18-16576	18-17481	18-18601	18-18603	15-19886	15-20674	15-20676	15-20704
18-18604	16-18745	18-19577	18-20065	15-20788	15-21002		
18-20066	18-21084	18-21110	18-21115	LUBRICATION			
18-21116	18-21845	19-19692		6-20449	17-18951	17-18995	17-20449
ISOCHEM, INC.				17-21102			
14-21824				LURCHING			
ISOTOPIIC FRACTIONATION				2-19878			
14-16645	14-17959	15-16645		MAGNESIUM			
ISOTOPIIC GENERATOR				14-20072			
5-20517	9-20517	14-20805		MAIN COOLING SYSTEM			
ISRAEL				5-20058	5-21847	7-18947	7-19563
14-19538				9-19941	11-19240	11-19268	11-19852
ITALY				11-19939	12-18664	12-19849	17-17162
2-20010	5-17804	5-20058	6-17804	17-17843	17-17847	17-18455	17-18664
6-20051	6-20052	8-17804	9-19924	17-18680	17-18682	17-18688	17-18923
9-20049	14-19823	14-19876	14-20440	17-18947	17-19143	17-19183	17-19240
15-19234	15-19806	15-19811	16-19876	17-19268	17-19270	17-19558	17-19561
17-19188	17-19754	17-20049	17-20050	17-19787	17-19865	17-19963	17-20058
17-20051	17-20052	17-20053	17-20054	17-20508	17-20877	17-21079	17-21847
17-20058	17-20059	17-20060	17-20064	16-19560	16-19849	18-19852	18-19891
17-20465	18-19892			18-19938	18-19939	18-19941	18-19977
JAPAN				18-20800			
2-19998	2-19999	2-20000	6-18619	MAINTENANCE AND REPAIR			
9-18619	9-20034	9-20036	9-20037	5-18857	9-18611	9-21095	11-21654
9-20038	9-20039	9-20040	9-21151	12-18608	12-20427	13-20427	14-20722
9-21152	14-19256	15-19216	15-19226	14-21657	14-21660	15-21659	17-18607
15-19256	15-19259	15-19437	15-19772	17-18608	17-18611	17-18857	17-18939
15-19821	15-20677	15-20678	15-20763	17-19252	17-19558	17-19760	17-19761
15-20783	16-19216	16-19550	16-20091	17-19786	17-19866	17-19966	17-20050
JEEP 2 (JOINT ESTABLISHMENT EXPTL FILE 2)				17-20053	17-20059	17-20518	17-20721
17-18702				17-20722	17-21103	17-21654	17-21657
KARL (KNOLLS ATOMIC POWER LABORATORY)				17-21659	17-21660	18-20046	
12-20068	14-19770	14-20068	15-19770	MAINTENANCE, REMOTE			
KARLSRUHE				5-18857	12-18608	12-20427	13-20427
19-19142				17-18608	17-18657	17-19760	17-19761
KIWI				MALIBU			
4-19118	9-19118	14-16640	15-16640	2-17845	18-17845		
KIWI TNT (TRANSIENT NUCLEAR TEST)				MANGANESE			
14-16645	15-16645			14-16641	14-17817	14-19261	14-19805
KRYPTON				15-16641			
7-20016	12-20016	14-19882	14-20099	MASS TRANSFER			
15-20793	17-19239			4-20547	7-20547		
LACROSSE				MATERIAL			
5-19484	5-21847	9-18381	9-19784	4-20551	9-20033	10-20033	14-20694
9-19785	11-19784	12-18874	12-19669	17-17158	17-18943	17-19561	
17-18687	17-18874	17-19484	17-19669	MATHEMATICAL STUDY			
17-19784	17-19785	17-19786	17-20505	1-20684	2-19879	2-20594	6-18700
17-21847	18-21865	18-21879		9-18948	11-21146	16-20684	17-18548
LANDSLIDE				18-18700			
2-19201	2-19878	2-20598		MATHEMATICAL TREATMENT			
LAPSE RATE, ADIABATIC, NEUTRAL				2-19993	2-19997	2-20015	2-20602
16-20005				2-20608	4-17809	5-17809	5-18892
LAPSE RATE, STABLE				5-18893	5-19929	6-17809	6-18885
14-19875	16-19875	16-20087		6-18807	6-18807	6-18892	6-18893
LAPSE RATE, UNSTABLE				6-18895	6-18896	6-18897	6-19112
16-20087				6-19224	6-19839	6-20043	9-19137
LASER				7-19777	9-19639	9-19859	9-19923
1-19890	15-19885	16-19877	18-18903	9-19924	9-19926	9-19929	9-20043
LASL (LOS ALAMOS SCIENTIFIC LABORATORY)				9-21849	11-18690	11-20015	12-18944
1-20456	14-19534	14-19808	14-19884	14-20084	16-18491	16-20084	16-20085
14-20807	14-20809	15-19817	15-19885	16-20086	16-20688	17-18690	17-18944
LAW				17-19112	17-21849		
1-19961	1-19962			MAXIMUM PERMISSIBLE BODY BURDEN			
LEAD				1-19251	14-20747	14-20789	15-18842
14-19300	14-19813			15-19251	15-20520	15-20666	15-20678

15-20747	15-20789	17-19251		14-19246	15-19246	17-17543	17-17666
MAXIMUM PERMISSIBLE CONCENTRATION (MPC)				17-17831	17-17836	17-17839	17-17841
1-19251	13-19281	14-18395	14-18398	17-17843	17-18454	17-18606	17-18646
14-18616	14-18790	14-18820	14-20706	17-18658	17-18668	17-18669	17-18671
14-20747	15-18055	15-18395	15-18790	17-18680	17-18698	17-18857	17-18875
15-18820	15-18822	15-19251	15-19281	17-18913	17-18923	17-18983	17-19111
15-20747	16-18615	16-18616	16-18617	17-19143	17-19147	17-19195	17-19242
17-18615	17-18616	17-18617	17-19251	17-19246	17-19248	17-19249	17-19255
17-19281				17-19556	17-19668	17-19669	17-19762
MAXIMUM PERMISSIBLE DOSE (MPD)				17-19866	17-19893	17-19894	17-19895
14-18792	14-18821	14-18824	15-18792	17-20051	17-20477	17-20486	17-20487
15-18821	15-18824	15-19491	15-19570	17-20505	17-20508	17-20509	17-20515
15-19773	15-19953	15-20745		17-20843	17-20846	17-21102	18-18505
MEASUREMENT, GENERAL				18-18907	18-19447	18-19667	18-19897
4-19501	9-19134	9-19501	14-19501	18-20463	18-20515		
15-19187	15-20096	15-20101	15-20102	MOLECULAR SIEVE			
16-19689	16-20589	16-20590	16-20690	7-20553	7-20554		
MEASUREMENT, NOISE				MOLTEN FUEL			
6-19135	6-21127	9-18810	9-19135	17-19763			
MEASUREMENT, REACTIVITY				MONITOR, RADIATION, AIR			
5-18691	6-18898	6-19978	6-20845	7-18813	9-18813	9-19855	9-19541
9-19679	9-20845	17-18662	17-18691	9-20458	14-16643	15-16643	15-18813
17-20053	17-20054	17-20845		15-20458	15-20827	15-20828	15-20829
MEASUREMENT, STRAIN GAGE				15-20830	15-20831	17-19195	17-20458
9-18809	11-19792	17-19792		16-19941			
MEASUREMENT, SUBCRITICALITY				MONITOR, RADIATION, BACKGROUND			
9-19137				14-19886	15-19886		
MEASUREMENT, TEMPERATURE				MONITOR, RADIATION, EMERGENCY			
9-18380	9-18723	9-18812	9-19205	9-20458	9-20782	15-20458	17-20458
9-19774	9-19838	9-19900	9-20023	MONITOR, RADIATION, ENVIRONMENTAL			
9-20543	12-19774	17-19561	17-20053	7-18813	9-18813	9-19129	9-19441
17-20054				9-19555	14-18788	14-18792	14-18821
MESOSPHERE				14-18853	14-18909	15-18788	15-18792
16-18800	16-19210	16-19554		15-18813	15-18821	15-18853	15-18864
METAL WATER REACTION				15-18909	15-19129	15-19441	15-19953
5-19111	5-19883	6-19111	8-18333	16-21132			
8-19883	17-18333	17-19111		MONITOR, RADIATION, GAS			
METAL, LIQUID				2-20005	7-20005		
4-20547	7-20547	7-20556	9-19177	MONITOR, RADIATION, GENERAL			
17-19763				4-19501	9-19501	14-19501	14-20026
METEOROLOGICAL SUPPORT				15-20026	17-18699		
1-20684	14-18816	14-19539	14-19957	MONITOR, RADIATION, GENERAL PRACTICE			
15-18816	15-19957	16-20684		9-20782			
METEOROLOGY				MONITOR, RADIATION, GROUND SURFACE			
2-19991	2-19998	2-20001	2-20007	14-18850	14-20728	15-18850	
2-20009	2-20010	2-20014	2-20017	MONITOR, RADIATION, PERSONNEL			
2-20902	2-21653	16-19209	16-19218	12-19101	14-18821	15-18821	15-19101
16-19551	16-20086	18-19897	18-20802	15-19919	15-20075	15-20097	15-20431
18-21653				15-20763	17-19101		
MEXICO				MONITOR, RADIATION, SAMPLING			
2-20012	14-20652			14-18795	15-18795	15-20591	16-20591
MFRP (MIDWEST FUEL RECOVERY PLANT)				MONITOR, RADIATION, STACK			
13-19835				13-19102	15-19102	17-19102	
MH 1A (MOBILE HIGH POWER PLANT 1A)				MONITOR, RADIATION, SURFACE			
18-18907				15-20095			
MILLING				MONITOR, RADIATION, TELEMETRY			
12-19097	12-19098	14-19097	14-19098	9-20782			
15-20618	17-19097	17-19098		MONITORING PROGRAM, ENVIRONMENTAL			
MINERAL EXCHANGE				2-20006	2-20802	14-17821	14-18462
14-19547	14-21824	14-21826		14-18464	14-19161	14-19232	14-19487
MINING				14-19495	14-19506	14-19507	14-19508
1-19683	17-19603			14-19522	14-19523	14-19539	14-19765
MISSILE GENERATION AND PROTECTION				14-19809	14-19827	14-19884	14-19887
11-19694	18-20522			14-20006	14-20384	14-20438	14-20441
MIST				14-20583	14-20652	14-20656	14-20657
16-19689				14-20747	14-20748	14-20761	14-20770
MIXING DEPTH				14-20773	14-20834	14-21143	14-22001
16-20085				15-17821	15-18464	15-18672	15-19161
MOCKUP				15-19487	15-19507	15-19827	15-20097
12-19286	17-19761	18-19286	18-21113	15-20438	15-20441	15-20657	15-20747
MODEL TESTING				15-20761	15-20773	15-21143	15-21838
2-20608	5-20517	9-20517	11-18383	16-19548	16-20081	16-20082	17-18672
11-18384	11-18478	14-18616	14-20611	16-20802	18-21838		
16-18616	16-18617	17-18616	17-18617	MONITORING SYSTEM, RADIATION			
18-16575	18-18695			9-18910	9-19855	14-19489	15-18481
MODEL, EARTHQUAKE RESISTANCE				15-19489	15-20097	15-26766	
2-20608				MONTE CARLO			
MODERATOR				6-18891	10-20567	15-19486	15-20701
6-21131	17-18682	18-18701		MONTICELLO			
MODERATOR COEFFICIENT				18-22166	18-22585		
6-18911	6-19243	6-19244	6-19940	MOUND LABORATORY			
6-19944	9-19940	12-18664	17-18662	14-22001			
17-18664	17-18911	17-19243	17-19244	MSRE (MOLTEN SALT REACTOR EXPERIMENT)			
18-18458	18-19940	18-19944		5-17160	9-19855	17-17160	18-16639
MODIFICATION, SYSTEM OR EQUIPMENT				N S SAVANNAH			
5-17841	5-18857	5-19111	6-19111	1-17697	5-19883	7-20499	8-19883
6-20051	9-17839	9-18454	9-18658	9-21848	9-21849	12-20499	17-17168
9-18983	9-19249	9-19255	9-19668	17-20492	17-20493	17-20494	17-20495
9-20486	9-20843	9-20846	10-20519	17-20496	17-20497	17-20498	17-20499
11-18454	11-18671	11-18875	11-19147	17-20500	17-20501	17-20838	17-20877
11-19248	11-19668	12-19447	12-19669	17-21226	17-21227	17-21228	17-21848

17-21849				14-16640	14-16645	15-16640	15-16645
NBS (NATIONAL BUREAU OF STANDARDS)				NUCLEATE BOILING			
1-19960	17-19948			5-18679	5-19685	17-18607	17-18679
NCRP (NATIONAL COMMITTEE RADIATION PROTECTION)				17-19685			
15-19164				OCEAN AND SEA			
NDT DATA (NLD DUCTILITY TRANSITION)				14-18485	14-19290	14-19327	14-19767
11-19692	19-19692			14-19805	14-19823	14-19949	14-19954
NEODYMIUM				14-19955	14-20568	14-21143	15-19290
14-19293				15-19949	15-21143	16-18872	
NEPTUNIUM				OCGNEE 1, 2, AND 3			
3-22446	13-22446	18-22446		18-22072			
NERVA PROGRAM				GECD (ORG. FOR ECONOMIC COOPERATION AND DEV.)			
4-19117	4-19118	9-19117	9-19118	9-20562	9-20563		
14-20570				GLDBURY (UK)			
NETHERLANDS				10-20022	11-19792	17-19792	
16-21149				ON SITE WORK			
NEUTRON				11-20031	18-20031		
4-19117	4-20551	9-17895	9-18811	OPERATING EXPERIENCE			
9-19117	9-19128	9-19178	9-19441	1-17849	1-19251	1-20456	4-19756
9-20024	9-20042	9-20543	9-20717	5-19198	6-19198	7-18752	9-17834
9-20752	9-21095	9-21150	9-21151	9-18454	9-18611	9-18658	9-18659
14-19159	14-19264	14-19434	14-19768	9-18919	9-19442	9-19796	9-18649
14-20025	14-20030	14-20575	15-17549	9-19931	9-20023	9-20543	9-20752
15-18376	15-18368	15-19159	15-19178	10-18419	11-18454	11-18671	15-18672
15-19234	15-19235	15-19264	15-19294	15-19251	17-17158	17-17164	17-17834
15-19434	15-19437	15-19441	15-19514	17-17849	17-18335	17-18454	17-18467
15-19536	15-19768	15-19919	15-20025	17-18602	17-18605	17-18606	17-18607
15-20030	15-20621	15-20673	15-20676	17-18611	17-18612	17-18646	17-18658
15-20784	15-20798	17-20047		17-18659	17-18671	17-18672	17-18680
NEUTRON INTERACTION				17-18681	17-18682	17-18692	17-18698
9-21151				17-18699	17-18752	17-18919	17-19181
NEVADA TEST SITE				17-19197	17-19198	17-19251	17-19557
2-20662	16-20683			17-19558	17-19760	17-19763	17-19842
NFS (NUCLEAR FUEL SERVICES)				17-19843	17-19864	17-19866	17-20473
3-22446	13-19102	13-22446	14-19882	OPERATING LICENSE PROCESS			
15-19102	17-19102	17-20616	18-22446	18-20515			
NINE MILE POINT				OPERATION			
12-19946	18-19946			4-18726	9-21095	17-18939	
NIOBIUM				OPERATIONS REPORT, ANALYSIS			
14-17960	14-18817	14-19293	14-19482	5-17160	5-18691	5-18899	5-18912
15-18817	15-19482			5-19483	5-19685	5-19788	6-19483
NITROGEN				6-19504	6-21988	9-18689	9-18500
9-19837	14-18394	14-20788	15-20788	12-19099	14-21988	15-18899	15-19059
16-19554	16-20081			16-18912	17-17159	17-17160	17-16689
NOBLE GAS				17-18691	17-18698	17-18699	17-18859
7-18477	7-20016	12-20016		17-18900	17-19099	17-19195	17-19483
NOISE				17-19504	17-19685	17-19787	17-19788
6-19517	9-18611	9-19517	9-19566	17-19964	17-21988	18-18912	
9-19874	17-17542	17-19566	17-19874	OPERATIONS REPORT, GENERAL			
NOISE ANALYSIS				3-20719	5-17700	6-18911	6-20051
6-18883	6-18698	6-19135	6-19517	6-22113	7-18752	7-18752	7-20474
6-19680	6-19984	6-20457	6-21127	9-18611	9-18659	9-19566	9-19784
9-19135	9-19137	9-19517	9-19680	9-19785	9-19847	9-20049	10-20519
9-20451	9-20457	17-19964	17-19975	11-19784	14-20720	14-20722	14-20725
17-19976	17-20047	17-20457		17-17700	17-18611	17-18659	17-18752
NOISE CROSS CORRELATION				17-18752	17-18911	17-19109	17-19188
6-18883	6-19517	6-19984	9-19517	17-19252	17-19481	17-19566	17-19664
NORWAY				17-19754	17-19784	17-19785	17-19786
9-19566	9-19847	9-20562	9-20563	17-19846	17-19847	17-19974	17-19975
14-19803	15-19803	17-18702	17-19566	17-19976	17-20049	17-20050	17-20051
17-19847	17-19974	17-19975	17-19976	17-20059	17-20060	17-20061	17-20062
17-20047				17-20063	17-20064	17-20464	17-20473
NOZZLE				17-20474	17-20485	17-20518	17-20519
1-21318	7-21318	9-21150	11-19790	17-20719	17-20720	17-20721	17-20722
11-21318	17-19790			17-20723	17-20724	17-20725	17-20727
NP2 (NUCLEAR POWER DEMONSTRATION REACTOR 2)				17-21079	17-21085	17-21096	17-21097
17-19181				17-21098	17-21099	17-21100	17-21101
NRDI (NAVAL RADIOLOGICAL DEFENSE LABORATORY)				17-21102	17-21103	17-22113	
14-17820				OPERATIONS SUMMARY FOR AEC			
NRIS (NATIONAL REACTOR TEST STATION)				9-18983	9-19254	9-19255	11-19253
1-17568	14-18795	14-20656	15-18795	17-17544	17-17665	17-17666	17-17836
NRU (CHALK RIVER NATURAL URANIUM REACTOR)				17-18913	17-18983	17-19242	17-19252
9-20751				17-19253	17-19254	17-19255	17-20508
NRX (CANADIAN NATURAL U-HEAVY WATER REACTOR)				17-20726			
4-19118	9-19118	17-19842	17-19843	ORGANIC COOLANT			
NUCLEAR DETONATION				17-19199	17-19753	17-19842	17-19843
2-17286	14-16645	14-18850	14-19256	ORGANIC IODIDE			
14-19810	14-19949	14-19956	14-20098	7-18474	7-20546		
15-16645	15-18850	15-19256	15-19259	GRNL (OAK RIDGE NATIONAL LABORATORY)			
15-19810	15-19949	15-19956	15-20098	1-20461	5-18899	9-18900	9-19855
16-18832				12-16584	12-20427	13-16584	13-20427
NUCLEAR EXPLOSION DEBRIS				14-17547	14-17691	14-19493	14-19768
4-19795	14-16640	14-16645	14-17958	14-19769	14-19809	14-19819	14-20364
14-18850	14-19686	14-20592	14-20762	14-20441	14-20670	14-20671	14-20664
14-20807	14-20816	14-21825	15-16640	14-20792	14-21826	15-18899	15-19227
15-16645	15-18850	15-20591	15-20816	15-19527	15-19536	15-19768	15-19802
16-19551	16-19552	16-19553	16-19554	15-20441	15-20783	15-20794	15-20806
15-19666	16-20591	16-20592	16-20683	15-22114	15-22115	17-17158	17-18607
NUCLEAR INCIDENT DOSIMETER				17-18899	17-18900		
14-19850	15-18850			ORR (OAK RIDGE RESEARCH REACTOR)			
NUCLEAR ROCKET				6-22113	17-18607	17-22113	18-18674

OSCILLATOR, REACTIVITY	17-21657	17-21660		
6-18898 6-20457 9-20457 17-18453	PERTURBATION METHOD			
17-20457 18-20482	6-16648 6-18884 6-18888			
OUT OF PILE LOOPS AND EXPERIMENTS	PH REACTIVITY EFFECT			
1-21318 4-20547 7-18476 7-20547	5-19483 6-19483 7-19963 17-19483			
7-20556 7-21318 11-21318	PH-REACTIVITY EFFECT			
OXIDATION	5-17807			
14-19949 15-19949	PHASE CHANGE			
OXIDE	4-17809 5-17530 5-17809 6-17530			
4-20551 14-18394 16-20081	6-17809			
OXYGEN	PHOSPHATE			
14-20788 15-20788 16-19554	14-18465 15-18465 15-19952			
OYSTER CREEK	PHOTOPHORESIS			
5-19503 9-19476 10-19288 10-19289	7-17827			
11-19287 11-19945 11-21654 12-19283	PILGRIM STATION			
12-19284 12-19285 12-19286 12-19288	11-20031 18-18643 18-18644 18-18645			
12-19447 12-19945 17-21654 18-19283	18-20031			
18-19284 18-19285 18-19286 18-19287	PIPING			
18-19288 18-19289 18-19447 18-19476	7-18474 11-19268 11-19852 11-19939			
18-19503 18-19945 18-20107 18-20515	12-19669 17-18605 17-19268 17-19557			
OZONE	17-19561 17-19669 17-19787 17-20505			
14-18394	18-19852 18-19938 18-19939 18-20957			
PAKISTAN	18-21844			
2-20014 9-19679 15-18746 17-18748	PIPING, CONTRACTION			
PALISADES POINT	5-16631 12-16631			
2-19665 11-19665 18-19665	PIPING, EXPANSION			
PARTICLE SIZE	5-16631 12-16631			
7-17827 7-18813 9-18813 14-16640	PIQUA			
14-16645 15-16640 15-16645 15-18813	6-18911 9-18611 17-18611 17-18911			
16-18865 16-19688	17-20464 17-21846			
PARTICLE SIZE DISTRIBUTION	PLANT PROTECTIVE SYSTEM			
7-17824 7-17827 7-17829 14-17829	9-21839 17-18661 18-21839			
15-17829 16-18866 16-19552 16-19554	PLASTICITY			
16-20756	11-21072 11-21146			
PARTICLE, RADIOACTIVE	PLOWSHARE PROGRAM			
14-16640 14-16645 14-20074 14-20672	2-19857 9-19857 14-18785 14-20076			
15-16640 15-16645 15-18858	15-18785 15-19164 15-19602 16-19877			
PARTICULATE	PLUM BROOK			
14-16640 14-16641 14-16645 14-18825	9-18454 9-19668 10-18459 11-18454			
14-18853 14-19957 14-20672 15-16640	11-18875 11-19147 11-19248 11-19668			
15-16641 15-16645 15-18853 15-19957	17-18454 17-18459 17-18875 17-19147			
15-20101 15-20831 16-20082 16-20688	17-19248 17-19250 17-19668 17-20507			
16-20689 16-20690	17-20508			
PATENT	PLUME BEHAVIOR, GENERAL			
6-18619 9-18428 9-18429 9-18432	14-20084 16-18617 16-18828 16-18829			
9-18619 9-18720 9-18721 9-18722	16-18669 16-19687 16-20084 16-20542			
9-20018 9-20019 9-20020 9-20021	16-20685 16-20691 17-18617			
9-20035 9-20036 9-20037 9-20038	PLUTONIUM			
9-20039 9-20040 9-20044 9-21150	1-19251 5-19111 5-19238 6-18880			
9-21151 9-21152 9-21153 9-21154	6-19111 9-18648 13-19276 13-19279			
9-21155 11-22126 11-22127 13-19832	13-19417 13-19832 13-19835 14-19225			
13-19836 14-20030 15-20030 15-20430	14-19261 14-19264 14-19433 14-19488			
15-20431 18-21990	14-19510 14-19886 14-20028 14-20655			
PATHFINDER	14-20657 14-20672 14-20674 14-20761			
5-17841 5-18691 6-19504 6-20457	14-20789 14-20817 14-21143 14-21471			
9-19249 9-20457 11-19240 11-19269	14-21825 14-22001 15-18055 15-18648			
14-19666 15-17842 17-17841 17-17842	15-18839 15-18842 15-18864 15-19225			
17-18691 17-19240 17-19249 17-19269	15-19251 15-19264 15-19275 15-19433			
17-19270 17-19504 17-19666 17-20457	15-19514 15-19817 15-19886 15-20028			
17-21085 18-19516	15-20657 15-20667 15-20674 15-20693			
PBF (POWER BURST FACILITY)	15-20696 15-20761 15-20789 15-21143			
18-18601	17-18688 17-19111 17-19238 17-19251			
PEACH BOTTOM 1	17-19275 17-19276 17-19277 17-19279			
17-17162 17-19866 17-19893 17-19894	17-19865 18-21084			
17-19895 17-20518 17-20588 18-19896	PLUTONIUM DIOXIDE			
18-19897	7-18684 17-18451 17-18684 17-18685			
PEACH BOTTOM 2 AND 3	PLUTONIUM OXIDE			
5-19107 12-19106 12-19107 18-19106	18-16575			
18-19107 18-21545	PM 1 (PORTABLE MEDIUM NUCLEAR POWER PLANT)			
PERFORMANCE LIMIT	9-19170 9-19440 12-18908 14-18908			
5-17700 5-19198 5-20058 5-20460	14-20575 17-18908			
6-18700 6-19198 17-17700 17-19198	PM 2A (PORTABLE MEDIUM NUCLEAR POWER PLANT)			
17-20058 18-18700 18-20460	9-19170 14-20575			
PERSONNEL EXPOSURE, RADIATION	PM 3A (PORTABLE MEDIUM NUCLEAR POWER PLANT)			
5-18899 9-18611 12-19099 13-19103	9-19170 9-19440 9-19498 14-20575			
13-19276 13-19278 13-19279 13-19281	POINT BEACH 1 AND 2 (PWR)			
14-18398 14-18909 14-21657 14-21660	2-19695 9-19695 18-18458 18-19695			
15-17842 15-18055 15-18899 15-18909	18-22769			
15-19099 15-19100 15-19103 15-19274	POISON, BURNABLE			
15-19275 15-19281 15-19951 15-20096	5-19238 6-18382 6-19940 6-19944			
15-20104 15-20617 15-20621 15-20622	6-20446 9-18382 9-18651 9-19940			
15-21659 17-17842 17-18611 17-18899	9-20841 17-18613 17-18614 17-18670			
17-19099 17-19100 17-19103 17-19252	17-19238 17-20446 17-20841 18-17838			
17-19272 17-19273 17-19274 17-19275	18-19940 18-19944			
17-19276 17-19277 17-19278 17-19279	POISON, FIXED			
17-19281 17-19282 17-20612 17-20623	6-19940 6-19944 9-19940 18-19940			
17-21657 17-21659 17-21660	18-19944			
PERSONNEL PROTECTIVE DEVICE	POISON, SOLUBLE			
1-19890 13-19281 14-21657 14-21660	5-19483 6-19244 6-19483 9-19785			
15-17842 15-19274 15-19281 15-20430	9-19864 17-18662 17-19244 17-19483			
17-17842 17-19274 17-19277 17-19281				

17-19785	17-19864	17-20723		13-22446	14-20577	15-18748	17-17839
POLAND				17-18748	17-19242	17-20455	17-20485
9-19129	14-19436	14-20581	14-20582	18-22446			
15-19129	15-19236			PRGMETHIUM			
POLONIUM				15-20666			
14-18820	14-19300	14-19426	14-19531	PRGMPT CRITICALITY			
14-19813	14-19881	14-21657	14-21660	1-18856	6-19982	15-18856	17-18856
14-22001	15-18820	15-19425	15-19881	PRGMPT NEUTRON			
15-21659	17-18666	17-21657	17-21659	5-19779			
17-21660				PRGMPT NEUTRON LIFETIME			
POPULATION DISTRIBUTION				6-18879			
1-18336	2-19993	2-19996	2-19998	PROPERTY, PHYSICAL			
2-19999	2-20007	2-20010	2-20011	11-18479	17-19561	18-19560	
2-20014	2-20017	11-18640	11-19996	PRCTACTINIUM			
17-18336				14-19426	14-19765	14-20073	
POPULATION EXPOSURE				PRTR (PLUTONIUM RECYCLE TEST REACTOR)			
2-19995	2-20003	2-20004	14-18787	1-19251	7-18684	11-19185	15-19251
14-18790	14-18624	14-20098	15-18787	17-18683	17-18684	17-18685	17-18688
15-18790	15-18824	15-19958	15-20098	17-19183	17-19184	17-19185	17-19186
POROUS DIFFUSION				17-19251			
7-20548	7-20553	7-20554		PULSED NEUTRON TECHNIQUE			
POROUS MEDIA				6-18879	9-19779	17-19974	17-19975
7-20548	7-20553	7-20554	14-19882	PULSTAR			
PORTSMOUTH PLANT				5-19198	6-19198	17-19197	17-19198
14-19296	14-20656			17-19242			
POTASSIUM				PUMP			
14-16641	14-18465	14-18851	14-19267	4-19403	5-19484	5-21847	6-20449
14-19434	14-20559	14-20813	14-20815	9-19202	9-19403	12-19202	12-19284
15-16641	15-18465	15-18837	15-18851	13-19279	17-18605	17-18606	17-19270
15-19267	15-19434	15-20443	15-20759	17-19279	17-19484	17-19558	17-19559
15-20815	17-18605			17-19762	17-19763	17-20449	17-21075
POWER COEFFICIENT				17-21847	18-19264	18-20522	
5-19870	6-16647	6-18911	6-18946	PUMP, JET			
6-19223	6-19244	6-19870	17-18911	5-20058	17-20058	18-18643	
17-18946	17-19244			QUAD CITIES 1 AND 2			
POWER DISTRIBUTION				18-21981			
5-19483	6-19483	6-19504	6-19515	QUALITY CONTROL			
6-19940	6-19943	9-19940	9-19943	1-17696	1-20624	9-19442	11-19693
9-20543	17-19483	17-19504	17-19515	11-19852	11-19939	12-19849	12-19853
18-19940	18-19943	18-19977		17-18943	17-18949	17-19895	17-19566
POWER UPGRATING				17-20518	17-20624	18-19849	18-19852
5-18694	9-18983	14-19246	15-19246	18-19853	18-19896	18-19938	18-19939
17-17831	17-17843	17-17847	17-18452	RADIATION DAMAGE			
17-18670	17-18694	17-18923	17-18983	1-19961	3-20719	4-20551	9-19759
17-19105	17-19143	17-19197	17-19241	9-19856	11-18873	11-21845	14-20744
17-19246	17-19558	17-19762	17-20483	14-21002	15-16644	15-18836	15-20578
17-20484	17-20490	17-20514		15-20622	15-20744	15-20745	15-21002
PRASEODYMIUM				17-18680	17-18873	17-19760	17-19763
14-19805				17-19865	17-20719	17-21904	18-19149
PRECIPITATION				18-21845			
14-17960	14-18788	14-18853	14-18860	RADIATION EFFECT			
14-19884	14-19887	14-20442	14-20761	4-20551	9-18655	9-19656	9-19900
14-20770	14-20804	14-20816	14-20834	11-19693	14-18394	14-18465	14-18824
15-18788	15-18853	15-18860	15-20083	14-19160	14-19433	14-19660	14-19949
15-20761	15-20816	16-10708	16-19213	14-20098	14-20585	15-16644	15-18465
16-19550	16-19552	16-19689	16-20083	15-18481	15-18824	15-19259	15-19433
16-20091	16-20589	16-20688	16-20689	15-19524	15-19660	15-19773	16-19949
16-20756				15-20098	15-20585	17-18607	18-18701
PRESSURE DROP				RADIATION IN PERSPECTIVE			
5-19484	5-19788	9-19858	12-19669	14-19487	15-19487	15-19802	15-20578
17-17542	17-19484	17-19669	17-19788	15-20682			
18-19516				RADIATION INJURY, TREATMENT OF			
PRESSURE RELIEF				1-19683	14-19256	14-19267	14-19660
12-19284	17-17544	18-19284		14-20080	14-20744	14-20789	15-16644
PRECIPITATION VESSEL				15-18839	15-19163	15-19226	15-19256
1-19791	1-21318	7-21318	9-18948	15-19257	15-19259	15-19267	15-19660
11-18383	11-18384	11-18478	11-18480	15-19777	15-19804	15-19814	15-20080
11-18873	11-18875	11-19253	11-19692	15-20443	15-20578	15-20706	15-20667
11-19693	11-19791	11-19797	11-19939	15-20744	15-20745	15-20749	15-20789
11-21072	11-21146	11-21147	11-21318	15-20806	17-19683		
11-21654	11-21845	11-22126	11-22127	RADIATION MODEL			
17-18873	17-18875	17-18943	17-18948	9-18648	15-18648		
17-19253	17-19557	17-19792	17-19863	RADIATION PROTECTION, CHEMICAL			
17-20505	17-20507	17-21654	18-19938	14-18460	14-20789	15-18460	15-19163
18-19939	18-19977	18-21844	18-21845	15-19817	15-20586	15-20667	15-20785
19-19692				15-20806			
PRESSURE, INTERNAL				RADIATION PROTECTION, ORGANIZATION			
5-16574	5-17837	5-19148	5-19503	1-19890	6-20825	7-20826	12-20826
6-20449	7-18752	8-16574	8-18333	14-19161	14-19487	14-19489	14-19512
11-19147	12-18944	12-19447	17-17837	14-20028	14-20441	14-20444	14-20826
17-18333	17-18451	17-18670	17-18752	15-19161	15-19487	15-19489	15-19512
17-18944	17-19147	17-19148	17-19754	15-19530	15-19606	15-19825	15-20028
17-20449	18-18907	18-19447	18-19503	15-20441	15-20444	15-20666	15-20657
18-19516				15-20774			
PRESSURIZER				RADIATION SAFETY AND CONTROL			
12-18944	17-18944	17-20724		1-19890	1-19961	6-20825	7-20826
PROBABILITY				9-20762	12-19101	12-20826	14-18356
1-19844	2-19996	5-19844	11-19996	14-18790	14-18792	14-18853	14-18909
18-19844				14-20441	14-20444	14-20826	15-16642
PROCEDURES AND MANUALS				15-16644	15-18396	15-18748	15-18750
3-17962	3-22446	9-17839	9-21095	15-18791	15-18792	15-18853	15-18909

15-19101	15-19164	15-19491	15-19802	15-20578	15-20666	15-21659	16-19214
15-19806	15-19958	15-20104	15-20105	17-21657	17-21659	17-21660	
15-20441	15-20444	15-20614	15-20697	RADON			
15-20766	15-20787	15-20827	15-20828	1-19683	14-18374	14-18790	14-18816
15-20830	17-18607	17-18748	17-19101	14-18819	14-19207	14-19490	15-18750
17-19761	17-19786	17-21085	18-18903	15-18816	15-18819	15-19425	15-19490
18-19142				15-19529	15-20830	16-19207	16-19552
RADIATION UNIT				16-19554	17-19683		
15-19802	15-19825	15-20682		RAINOUT			
RADIATION, PUBLIC EDUCATION/ACCEPTANCE				14-16641	14-18463	14-18493	14-18788
1-19569	1-19683	1-20718	1-20876	14-19232	14-19261	14-19884	14-19950
15-19196	15-19569	17-19190	17-19196	14-20442	14-20592	14-20652	14-20655
17-19569	17-19683	17-20718	17-20876	14-20748	14-20816	15-16641	15-18463
18-19800				15-18788	15-19216	15-19950	15-20816
RADIOACTIVITY, RELEASE				15-20831	16-18493	16-19209	16-19212
2-20004	14-18616	14-19539	14-19666	16-19213	16-19214	16-19216	16-19550
14-19765	14-19875	14-19957	14-20076	16-19552	16-19553	16-20091	16-20592
14-20077	14-20084	15-19957	16-18616	RANCHO SECO (PWR)			
16-18617	16-19217	16-19875	16-20084	2-20802	18-20799	18-20800	18-20801
16-20683	17-18616	17-18617	17-19666	18-20802			
17-20475				RATE			
RADIOBIOLOGY				5-17841	5-19484	17-17841	17-19484
14-18466	14-18786	14-19225	14-19267	REACTIVITY COEFFICIENT			
14-19290	14-19490	14-19507	14-19660	6-16647	6-18877	6-18879	6-18882
14-19820	14-19822	14-19827	14-20078	6-18888	6-18890	6-19223	
14-20079	14-20571	14-20585	14-20744	REACTIVITY EFFECT			
14-20765	14-20768	14-20770	14-20789	5-18691	5-18892	5-18893	5-20058
14-20791	14-21002	14-21143	15-18466	6-18892	6-18893	6-18896	6-19243
15-18786	15-18839	15-18839	15-18864	6-21129	6-21131	9-19752	17-18691
15-19187	15-19225	15-19227	15-19257	17-19243	17-19974	17-19975	17-20058
15-19267	15-19290	15-19485	15-19490	18-19752	18-21113		
15-19507	15-19524	15-19660	15-19773	REACTIVITY EFFECT, ANOMALOUS			
15-19817	15-19818	15-19820	15-19821	5-19483	6-18911	6-18946	6-19483
15-19822	15-19825	15-19827	15-20078	6-22113	17-18660	17-18911	17-18546
15-20079	15-20520	15-20571	15-20578	17-19483	17-22113		
15-20585	15-20586	15-20666	15-20668	REACTIVITY EFFECT, EXPANSION			
15-20693	15-20744	15-20745	15-20749	6-16647	6-16649	9-18720	18-19149
15-20765	15-20768	15-20774	15-20775	REACTIVITY, EXCESS			
15-20789	15-20791	15-20796	15-20797	1-18673	5-19148	6-18889	6-18890
15-20806	15-21002	15-21143		6-19515	6-21988	9-18659	9-19783
RADIOCHEMICAL ANALYSIS				14-21988	17-17545	17-18659	17-18660
7-18947	14-18785	14-18789	14-18852	17-18673	17-19148	17-19515	17-20484
14-19157	14-19427	14-19494	14-19526	17-21988	18-17838	18-17844	
14-19828	14-20570	14-20817	15-18785	REACTOR CONTROL			
15-18789	15-18852	15-19494	15-20083	4-19118	4-19518	6-18382	6-18854
16-20083	17-18947			6-19519	9-17801	9-17898	9-18382
RADIOCHEMICAL PLANT SAFETY				9-18428	9-18432	9-18650	9-18657
12-16584	12-20427	13-16584	13-18799	9-18722	9-19118	9-19203	9-19444
13-19417	13-19418	13-19832	13-19835	9-19497	9-19518	9-19519	9-19783
13-20427	14-19807	15-19807	15-20666	9-19859	9-19924	9-19926	9-20018
15-20693	15-20697	17-18799		9-20019	9-20543	9-20750	9-20751
RADIOCHEMICAL PROCESSING				9-20755	9-21150	9-21151	18-21113
12-16584	13-16584	13-19417	13-19832	REACTOR COOLANT			
13-19835	13-19836	14-18860	14-19537	9-19774	9-20018	9-20021	12-19774
14-20028	15-18838	15-18860	15-20028	REACTOR DECOMMISSIONING EXPERIENCE			
17-20616				17-18618	17-18653	17-19481	17-19550
RADIOGRAPHY				17-20487	17-20516	17-20726	17-21846
15-18399	15-19491			REACTOR DESCRIPTION			
RADIATIONISOTOPIC				4-18725	14-18852	14-19489	15-18852
1-19890	7-20549	14-18396	14-18464	15-19489	17-18602	17-18646	17-18702
14-18489	14-18852	14-19290	14-19531	17-18940	17-19848	17-20512	18-16575
14-19813	14-19828	14-20559	14-20611	18-16577	18-17699	18-18601	18-18654
14-20651	14-20792	14-20812	14-21143	18-19562	18-19568	18-20463	18-20522
14-22001	15-18396	15-18464	15-18852	18-21149	18-22774		
15-19187	15-19290	15-19802	15-20668	REACTOR DYNAMICS			
15-20749	15-20775	15-21143		5-18892	5-18893	6-18884	6-18886
RADIOLOGICAL ASSISTANCE				6-18892	6-18893	6-18895	6-18897
14-19957	14-20098	15-18823	15-19957	6-19223	6-19224	6-19504	6-19582
15-20096	17-20455			6-19985	6-19989	9-19566	17-19504
RADIOLOGY				17-19566			
14-18816	14-19434	14-19507	14-20080	REACTOR FUSE			
14-20092	14-20444	15-18816	15-19434	18-19755			
15-19507	15-19511	15-19570	15-19772	REACTOR KINETICS			
15-19804	15-19814	15-19821	15-19825	1-17568	5-18892	5-18893	6-16648
15-19919	15-19951	15-19958	15-20080	6-18700	6-18878	6-18882	6-18885
15-20092	15-20100	15-20102	15-20103	6-18887	6-18888	6-18892	6-18893
15-20106	15-20443	15-20444	15-20664	6-18896	6-18897	6-19224	6-19582
17-19801				6-19985	6-19986	6-21127	18-18700
RADIOLYTIC GAS				REACTOR OFFGAS			
14-20788	15-20673	15-20788	17-18680	2-20005	6-21988	7-16477	7-20605
RADIONUCLIDE, INDUCED				11-18671	14-18402	14-21988	15-19274
14-18785	14-18786	14-18795	14-20651	17-18671	17-19274	17-21988	
14-21825	15-18785	15-18786	15-18795	REACTOR PHYSICS			
15-18836	15-18839	17-19760	17-19761	6-19978	17-19974	17-19975	17-19976
RADIUM				18-21110			
14-18820	14-19225	14-19261	14-19267	REACTOR POWER			
14-19426	14-19434	14-19954	14-20071	5-17700	5-18912	6-19119	9-19119
14-20080	14-20444	14-20559	14-21657	9-19444	9-19921	9-20543	9-21840
14-21660	15-18055	15-18820	15-19225	16-18912	17-17700	17-19189	18-18912
15-19267	15-19425	15-19434	15-20071	18-21840			
15-20080	15-20103	15-20444	15-20520	REACTOR SAFETY SYSTEM			

9-17898	9-18658	9-18659	9-19921	REACTOR, FAST			
9-20486	9-20543	9-20846	9-21839	2-20000	5-18857	5-19182	5-19868
14-19246	14-20029	15-19246	17-18457	6-16647	6-16649	6-18883	6-18946
17-18658	17-18659	17-19195	17-19246	6-19224	6-19776	6-19868	6-19580
17-20486	17-20846	18-19149	18-21839	6-21127	7-18947	8-19182	8-19868
REACTOR STABILITY				9-18377	9-18814	9-18815	9-19167
5-19182	5-19870	5-20058	6-16649	9-19169	9-19776	9-19778	9-19930
6-18884	6-18895	6-18895	6-19224	9-20018	9-20717	9-20717	9-20753
6-19870	6-19944	6-19986	6-19989	11-20753	14-20753	17-17164	17-18602
6-20052	6-20457	8-19182	9-20457	17-18857	17-18946	17-18947	17-19561
17-20052	17-20058	17-20457	17-20465	18-16575	18-18745	18-19149	18-19182
17-21065	18-19182	18-19944	18-21113	18-19562	18-21115	18-21116	18-21990
REACTOR STARTUP EXPERIENCE, INITIAL				REACTOR, FAST BURST			
9-19203	17-18950	17-21085		9-18809	18-18601	18-16905	
REACTOR STARTUP TESTING				REACTOR, FLUX TRAP			
5-19110	5-19148	5-19198	6-19198	9-17834	11-16576	17-17542	17-17834
9-19785	12-18874	17-18874	17-18550	17-19865	17-21102	17-21103	18-16576
17-19110	17-19148	17-19198	17-19559	REACTOR, GAS COOLED			
17-19785	17-19894	17-19964	17-20060	2-20002	5-19182	6-18541	8-18450
17-21097	17-21103	18-18907	18-19896	8-19182	9-18378	9-18428	9-18429
REACTOR TEST FACILITY				9-19205	9-19443	9-19444	9-19837
5-20452	6-18886	9-20452	14-18852	9-19931	9-20020	9-20564	9-20750
15-18852	18-16652			10-20022	11-18383	11-19793	17-17162
REACTOR TRANSIENT				17-18692	17-19188	18-17699	18-18854
6-18882	6-18886	6-18890	6-19272	18-19182	18-21477	18-21671	
6-19223	6-19680	6-19982	6-19985	REACTOR, GENERAL			
9-19680	14-19957	14-20728	15-19957	5-17802	6-17802	6-19130	6-17002
18-19142	18-20482			9-19130	15-20831		
REACTOR, AEC OWNED				REACTOR, GRAPHITE MODERATED			
5-17160	6-13911	17-17160	17-17164	5-19866	6-19245	6-19868	6-19578
17-18607	17-18911			8-19868	9-18378	17-18681	17-18682
REACTOR, AIRCRAFT				17-19188	17-19245	17-19481	17-19558
4-19518	9-19518			17-20490	17-20516	18-18854	18-21477
REACTOR, SOILING WATER				18-21671			
1-18336	2-18313	5-17804	5-17805	REACTOR, HEAVY WATER			
5-17808	5-18679	5-18912	5-19107	4-19118	5-17700	5-19110	5-20460
5-19111	5-19180	5-19238	5-19419	7-19841	9-19118	9-19847	9-20562
5-19422	5-19484	5-19503	5-19540	9-20563	9-21899	11-19185	17-17700
5-19542	5-19546	5-19788	5-19870	17-18604	17-18680	17-18683	17-18685
5-20058	5-20481	5-21847	6-17804	17-18688	17-18702	17-19109	17-19110
6-17805	6-17808	6-18334	6-18867	17-19161	17-19183	17-19184	17-19185
6-19111	6-19112	6-19222	6-19515	17-19186	17-19753	17-19842	17-19843
6-19540	6-19546	6-19870	6-20051	17-19647	17-19948	17-19964	17-19974
6-20052	6-20449	6-21988	7-20016	17-19975	17-19976	17-20726	17-21148
8-17804	8-17805	8-17808	8-18333	18-17699	18-18604	18-19840	18-19841
8-19419	8-19540	8-19546	9-18381	18-20459	18-20460		
9-19113	9-19444	9-19476	9-19784	REACTOR, HIGH TEMP. GAS			
9-19785	9-20023	9-20049	9-20447	1-21318	6-18700	7-21318	9-18948
10-19268	10-19289	11-19144	11-19193	9-20841	11-21318	17-17162	17-18948
11-19194	11-19268	11-19269	11-19287	17-18951	17-19863	17-19666	17-19853
11-19670	11-19784	11-19945	11-20031	17-19894	17-19895	17-20518	17-20588
11-21654	12-18874	12-19106	12-19107	17-20341	18-18700	18-18701	18-19755
12-19233	12-19284	12-19285	12-19286	18-19896	18-19897	18-19947	18-19577
12-19288	12-19447	12-19669	12-19945	18-22197	18-22255		
12-19946	12-20016	14-21988	15-19274	REACTOR, HOMOGENEOUS			
16-18912	17-17161	17-18333	17-18234	18-17844			
17-18335	17-18336	17-18337	17-18338	REACTOR, INTERACTING			
17-18613	17-18614	17-18679	17-18687	6-18885			
17-18698	17-18699	17-18874	17-18950	REACTOR, INTERNAL SUPERHEAT			
17-19111	17-19112	17-19113	17-19144	5-17841	5-18691	6-19222	6-19504
17-19189	17-19195	17-19238	17-19268	6-20457	7-20474	9-17835	9-19113
17-19269	17-19270	17-19274	17-19484	9-19249	9-20457	9-20843	10-20519
17-19515	17-19669	17-19670	17-19754	11-17840	11-19145	11-19240	11-19269
17-19784	17-19785	17-19786	17-19787	14-19666	15-17842	17-17835	17-17840
17-19788	17-20049	17-20050	17-20051	17-17841	17-17842	17-18455	17-18691
17-20052	17-20053	17-20054	17-20058	17-19113	17-19145	17-19189	17-19240
17-20059	17-20060	17-20061	17-20062	17-19249	17-19269	17-19270	17-19504
17-20063	17-20064	17-20447	17-20449	17-19666	17-19666	17-20455	17-20457
17-20465	17-20480	17-20481	17-20505	17-20473	17-20474	17-20475	17-20477
17-20348	17-21096	17-21097	17-21098	17-20519	17-20643	17-21085	17-21904
17-21099	17-21100	17-21101	17-21654	18-17516	18-20065	18-20066	
17-21847	17-21988	18-18313	18-18643	REACTOR, LARGE SEED BLANKET			
18-18644	18-18645	18-18645	18-18912	11-18690	17-18690		
18-19106	18-19107	18-19283	18-19284	REACTOR, LIQUID METAL COOLED			
18-19285	18-19286	18-19287	18-19288	4-19115	5-18857	6-18946	7-18947
18-19289	18-19422	18-19447	18-19476	9-18814	9-19115	9-19442	11-16576
18-19503	18-19664	18-19945	18-19946	12-19567	17-17164	17-18606	17-18681
18-20031	18-20107	18-20515	18-21589	17-18682	17-18857	17-18946	17-18947
18-21865	18-21879	18-21981	18-22166	17-19481	17-19556	17-19557	17-19558
18-22585	18-22880			17-19559	17-19561	17-19762	17-19763
REACTOR, BREEDER				17-20516	17-20727	18-16576	18-16652
5-18857	6-16647	6-16649	6-18946	18-17659	18-18745	18-19142	18-19560
6-19224	6-19776	7-18947	9-18814	18-19562	18-19891	18-20046	18-20482
9-19202	9-19776	9-19930	12-19202	18-21113	18-21115	18-21116	
17-18857	17-18946	17-18947	17-19763	REACTOR, MARITIME			
18-16575	18-19562	18-19568	18-20482	1-17697	5-19883	8-19883	9-21848
18-21084				9-21849	17-17168	17-20493	17-20494
REACTOR, CIRCULATING FUEL				17-20495	17-20498	17-21226	17-21227
17-19763				17-21228	17-21248	17-21849	18-21149
REACTOR, DESALINATION				REACTOR, MILITARY			
6-18700	18-16700			9-19170	9-19440	9-19498	11-16873

11-18906	12-18906	12-18908	14-18908	18-20392	18-20424	18-20521	18-20522
14-20575	17-17159	17-18873	17-18906	18-20526	18-20799	18-20800	18-20801
17-18908	17-18939	18-18905	18-18907	18-20802	18-20837	18-20847	18-20864
REACTOR, MOLTEN SALT				18-20957	18-20993	18-21110	18-21149
5-17160	9-19202	9-19681	9-19855	18-21419	18-21420	18-21421	18-21422
9-20018	12-19202	17-17160	17-19763	18-21423	18-21424	18-21651	18-21652
18-16639	18-19568			18-21653	18-21835	18-21836	18-21837
REACTOR, ORGANIC COOLED				18-21836	18-21839	18-21840	18-21841
6-18911	9-18611	17-18604	17-18611	18-21842	18-21843	18-21844	18-21845
17-18911	17-19753	17-20464	17-21846	18-22003	18-22072	18-22260	18-22261
18-17699	18-18604	18-19840	18-19892	18-22769	18-22772	18-22773	18-22774
18-20459	18-20463			18-22875	18-22676	18-22877	18-22878
REACTOR, PEBBLE BED				18-22879			
6-18881				REACTOR, PRODUCTION			
REACTOR, POOL TYPE				9-18378	9-19864	11-19691	17-19864
1-18673	4-19873	5-18892	5-19869	REACTOR, PULSED			
5-19873	6-18647	6-18892	6-18941	5-19198	6-19198	9-17801	9-18723
6-19869	6-19873	7-18752	8-19869	14-19327	17-17663	17-17664	17-17832
9-19921	9-20021	10-18456	11-18671	17-18913	17-18923	17-18924	17-19197
14-18616	15-18672	16-18615	16-18616	17-19198	17-20839	17-20840	
16-18617	17-17668	17-17831	17-17835	REACTOR, RESEARCH			
17-17836	17-17843	17-17847	17-18452	1-18673	5-19198	6-19198	6-19245
17-18456	17-18612	17-18615	17-18616	6-20845	6-22113	7-18752	7-19247
17-18617	17-18646	17-18647	17-18671	9-17834	9-18454	9-19679	9-20034
17-18672	17-18673	17-18680	17-18752	9-20510	9-20845	9-20846	10-18456
17-18913	17-18941	17-19241	17-19848	10-18459	10-20448	11-18454	11-18671
17-20488	17-20489	17-20506	17-20511	14-18616	14-19246	15-18748	15-19246
17-20514	18-17830	18-19667		15-20070	15-22115	16-18615	16-18616
REACTOR, POWER				16-18617	17-17158	17-17159	17-17562
1-19139	1-19140	1-20684	9-17897	17-17544	17-17665	17-17831	17-17834
9-18919	9-20019	10-17897	10-18919	17-17835	17-17836	17-17843	17-17847
10-20022	16-20684	17-18680	17-18682	17-18452	17-18454	17-18456	17-18459
17-18919	17-18939	17-18940	17-18949	17-18607	17-18612	17-18615	17-18616
17-19181	17-19188	17-19754	18-17699	17-18617	17-18666	17-18667	17-18669
18-18854				17-18671	17-18673	17-18680	17-18702
REACTOR, PRESSURE TUBE				17-18746	17-18748	17-18752	17-18913
5-17700	5-19110	11-19185	17-17700	17-18923	17-18924	17-19143	17-19146
17-18683	17-18685	17-18688	17-19109	17-19197	17-19198	17-19239	17-19241
17-19110	17-19183	17-19184	17-19185	17-19242	17-19245	17-19246	17-19848
17-19186	17-19964	17-20560	17-20561	17-19974	17-19975	17-19976	17-20047
17-21148	18-21990			17-20448	17-20483	17-20484	17-20485
REACTOR, PRESSURIZED WATER				17-20487	17-20489	17-20490	17-20506
1-17697	2-17845	2-19665	2-19695	17-20509	17-20510	17-20511	17-20514
2-20802	2-20847	2-21653	2-21653	17-20836	17-20842	17-20844	17-20845
2-22875	2-22879	3-19889	3-20719	17-20846	17-22113	18-17699	18-17844
5-17700	5-17804	5-17806	5-17807	18-18674	18-19247	18-19667	
5-17808	5-17837	5-18679	5-18694	REACTOR, SAFETY RESEARCH			
5-19148	5-19419	5-19483	5-19545	6-18647	6-18941	14-19539	17-18667
5-19685	5-19850	5-19851	5-19883	17-18941	18-18601		
5-19936	5-19937	5-22773	6-17804	REACTOR, SPACE			
6-17806	6-17808	6-18887	6-19243	4-17809	4-18725	4-19115	4-19115
6-19244	6-19483	6-19854	6-19934	4-19118	4-19403	4-19423	4-19501
6-19940	6-19943	6-19944	7-19963	4-19518	4-19573	5-17809	5-19423
7-20499	8-17804	8-17806	8-17808	6-17809	9-19115	9-19115	9-19118
8-19419	8-19883	9-18689	9-19170	9-19403	9-19501	9-19518	14-16640
9-19254	9-19255	9-19444	9-19497	14-16645	14-19501	14-20805	15-16640
9-19695	9-19752	9-19859	9-19940	15-16645	17-18605	18-16652	
9-19941	9-19943	9-21095	9-21839	REACTOR, SPECTRAL SHIFT			
9-21840	9-21848	9-21849	10-20313	17-19846			
11-17341	11-18873	11-18906	11-19253	REACTOR, TEST			
11-19665	11-18852	11-19939	11-20424	1-19251	4-19174	4-19501	4-19873
11-20526	11-21837	11-21845	12-18664	5-19868	5-19873	6-18941	6-19868
12-18906	12-16908	12-18944	12-19108	6-19873	8-19868	9-18454	9-18815
12-19849	12-19850	12-19853	12-19854	9-18983	9-19167	9-19169	9-19174
12-19934	12-19935	12-19942	12-20499	9-19206	9-19501	9-19668	9-19778
12-21836	12-21837	12-22773	14-18665	9-19874	9-19921	9-19930	9-20717
14-18908	14-20575	14-20720	14-20722	9-20753	11-18454	11-18875	11-19147
14-20725	15-20696	15-21838	17-17168	11-19248	11-19668	11-20753	14-19501
17-17541	17-17700	17-17837	17-18450	14-20728	14-20753	15-19251	17-18454
17-18451	17-18453	17-18457	17-18662	17-18875	17-18941	17-18983	17-19147
17-18664	17-18665	17-18670	17-18679	17-19248	17-19250	17-19251	17-19668
17-18689	17-18694	17-18873	17-18906	17-19874	17-19948	17-20507	17-20508
17-18908	17-18944	17-19105	17-19148	17-20512	17-21655	18-18601	18-18674
17-19243	17-19244	17-19252	17-19253	REACTOR, THERMAL			
17-19254	17-19255	17-19483	17-19684	6-18888	9-19202	9-19783	12-19202
17-19685	17-19888	17-19889	17-19963	REACTOR, TRAINING			
17-20491	17-20492	17-20493	17-20494	9-18658	9-18659	15-18672	17-17543
17-20495	17-20496	17-20497	17-20498	17-17545	17-17663	17-17664	17-17665
17-20499	17-20500	17-20501	17-20513	17-17666	17-17667	17-18658	17-18659
17-20560	17-20561	17-20719	17-20720	17-18660	17-18663	17-18672	17-20488
17-20721	17-20722	17-20723	17-20724	18-17830	18-17838		
17-20725	17-20838	17-20877	17-21079	REACTOR, WATER			
17-21148	17-21226	17-21227	17-21228	1-17568	1-19505	2-20017	4-19518
17-21848	17-21849	18-16577	18-17845	6-18889	9-18651	9-19518	11-18690
18-18458	18-18732	18-18855	18-18907	11-19693	11-19694	13-19505	14-18488
18-18995	18-19108	18-19665	18-19695	17-18690	17-19505	17-20490	18-17481
18-19752	18-19849	18-19850	18-19851	REDUNDANCE			
18-19852	18-19853	18-19854	18-19933	1-20624	9-19898	9-19902	9-21839
18-19934	18-19935	18-19936	18-19937	12-19669	17-19669	17-20505	17-20624
18-19938	18-19939	18-19940	18-19941	18-21839			
18-19942	18-19943	18-19944	18-20358	REENTRY, ATMOSPHERIC			

4-16651	4-18914			14-21826			
REFLECTOR				ROCK MECHANICS			
6-21131	17-17542			2-20663			
REFRACTORY MATERIAL				ROCKY FLATS			
6-19854	12-19854	12-19942	18-19854	9-18648	14-19488	14-20789	15-18648
18-19942				15-20667	15-20693	15-20789	
REFUELING				ROSSI ALPHA			
5-19148	5-19238	6-19515	6-19940	6-19135	6-19517	6-19978	9-19135
9-18429	9-19940	9-20035	17-17161	5-19517	17-19576		
17-17542	17-17664	17-17836	17-18923	ROVER PROGRAM			
17-19143	17-19148	17-19181	17-19237	4-16651	4-19118	9-18656	9-19118
17-19238	17-19515	17-21226	17-21227	14-16640	14-16645	14-19957	15-16640
17-21228	18-19940			15-16645	15-19957		
REGULATION, AEC				RUBIDIUM			
1-16553	1-20615	1-20624	1-20876	7-18477	17-19239		
12-19098	13-19281	14-19098	15-19281	RUSSELLVILLE (PWR)			
17-16553	17-19098	17-19281	17-20612	18-21423	18-21424		
17-20615	17-20624	17-20876		RUTHENIUM			
REGULATION, GENERAL				14-16641	14-17560	14-19293	14-19805
1-17697	1-19959	1-19961	1-19962	14-20817	14-21624	15-16641	
6-20825	14-20767			SAFE FAILURE CRITERION			
REGULATION, IAEA				4-18724			
14-20767				SAFETY ANALYSIS			
RELIABILITY ANALYSIS				1-17568	5-22773	6-18880	6-19222
1-19844	4-18724	4-19796	5-19844	9-19925	12-22773	17-20477	18-22772
5-19929	5-20041	5-20517	9-18918	18-22773	18-22774		
9-18919	9-19206	9-19442	9-19796	SAFETY ANALYSIS REPORT, GENERAL			
9-19898	9-19902	9-19925	9-19929	2-18313	2-19695	5-19111	5-19503
9-20041	9-20517	10-18919	10-20567	6-19111	6-19245	7-19247	9-19476
12-18918	17-18692	17-18919	18-19844	9-19695	10-19288	10-19289	11-16576
RELIABILITY, COMPONENT				11-19287	12-18908	12-19283	12-19284
4-19796	5-19929	5-20041	5-20517	12-19285	12-19286	12-19288	12-19447
9-18918	9-19796	9-19898	9-19902	13-18799	13-19835	14-18908	17-18799
9-19920	9-19929	9-20041	9-20517	17-18908	17-18523	17-19111	17-19245
12-18918				18-16576	18-17838	18-18313	18-19142
RELIABILITY, SYSTEM				18-19247	18-19283	18-19284	18-19285
2-20002	4-19796	9-18918	9-18919	18-19286	18-19287	18-19288	18-19289
9-19796	9-19902	9-19928	9-19931	18-19447	18-19476	18-19503	18-19695
9-20543	10-18919	12-18918	12-19853	16-19755	18-19845	18-20107	18-21865
17-18606	17-18607	17-18692	17-18919	18-21879			
17-19763	18-19853			SAFETY ANALYSIS REPORT, METEORGLOGY			
REMOTE MANIPULATING AND VIEWING				14-19875	14-19876	16-19875	16-19876
3-19889	12-18608	17-18607	17-18608	SAFETY ANALYSIS REPORT, PRELIMINARY			
17-19760	17-19761	17-19889		2-19665	2-20602	2-20647	2-21653
RESEARCH AND DEVELOPMENT PROGRAM				2-21843	2-22675	2-22879	5-19850
1-17568	5-20481	5-20517	5-21989	5-19851	5-19937	5-22773	6-19854
6-16649	6-18941	6-20052	7-20474	6-19934	6-19940	9-19752	9-19940
7-20499	9-18948	9-19566	9-19847	9-19941	9-21839	9-21840	11-19665
9-20517	9-20841	12-19447	12-20499	11-19852	11-19939	11-20424	11-20526
12-21836	14-18792	14-18852	14-18909	11-21837	11-21845	12-19106	12-19849
15-18792	15-18852	15-18864	15-18909	12-19650	12-19853	12-19854	12-19934
17-18604	17-18941	17-18948	17-18951	12-19935	12-19942	12-21836	12-21837
17-19559	17-19566	17-19846	17-19847	12-22773	15-21838	17-17545	17-21226
17-19863	17-19964	17-20047	17-20052	18-18601	18-18643	18-18644	18-18645
17-20053	17-20054	17-20465	17-20473	18-18732	18-18995	18-19106	18-19664
17-20474	17-20475	17-20477	17-20481	18-19665	18-19752	18-19849	18-19850
17-20499	17-20560	17-20561	17-20841	18-19051	18-19852	18-19853	18-19854
17-21989	18-16639	18-17481	18-18603	18-19896	18-19897	18-19933	18-19934
18-18604	18-18695	18-18745	18-18855	18-19935	18-19937	18-19938	18-19939
18-19447	18-19516	18-19568	18-19891	18-19940	18-19941	18-19942	18-20358
18-19977	18-20065	18-20066	18-20482	18-20392	18-20424	18-20521	18-20522
18-21110	18-21113	18-21115	18-21116	18-20526	18-20799	18-20800	18-20801
18-21836				18-20802	18-20837	18-20847	18-20864
RESEARCH CONTRACT				16-20957	18-20993	18-21419	18-21420
17-20613				16-21421	18-21422	18-21423	18-21424
RESSIN				18-21477	18-21651	18-21652	18-21653
11-19185	17-19185	17-19272		16-21671	18-21835	18-21836	18-21837
RESONANCE OVERLAP				16-21030	18-21839	18-21840	18-21841
6-19988				18-21842	18-21843	18-21844	18-21845
RESPONSE SPECTRUM				18-22003	18-22072	18-22166	18-22197
2-19880	2-20595	2-20602	2-20603	18-22255	18-22260	18-22261	18-22585
2-20604	2-20607	2-20609	2-20610	18-22769	18-22772	18-22773	18-22774
2-20660	2-21843	11-20526	18-20526	18-22975	18-22876	18-22877	18-22878
18-21843				18-22879	18-22880		
RESPONSE TIME				SAFETY ANALYSIS REPORT, REVIEW OF			
6-19517	9-19517	9-20843	12-18664	18-18905	18-18907		
17-18664	17-20500	17-20838	17-20843	SAFETY EVALUATION			
REVIEW				2-19991	2-20002	5-17837	5-19148
1-19139	7-17827	9-19931	17-18951	5-19238	7-20555	9-20543	10-18459
RHENIUM				11-17541	11-20555	16-18615	17-17541
17-18607				17-17664	17-17667	17-17831	17-17837
RHODIUM				17-18450	17-18459	17-16615	17-18660
14-17960	14-19805			17-18667	17-18669	17-18670	17-19143
RIVER, CLINCH				17-19148	17-19238	17-19241	17-20495
14-19012	14-20384	14-21826		17-20509	17-20512	17-20516	17-20836
RIVER, COLUMBIA				17-20639	17-20640	18-17844	18-17848
14-20569	14-21143	15-21143		SAFETY PRINCIPLES AND PHILOSOPHY			
RIVER, GENERAL				1-19844	1-20456	1-20461	4-19501
2-19997	2-19999	14-19506	14-19812	5-19844	9-19501	9-19925	14-19501
14-22001				15-19885	18-16674	18-19844	
RIVER, TENNESSEE				SAFETY REVIEW (OPERATIONS, EXPERIMENTS)			

1-19251	5-18912	5-19107	6-21988	SHELL			
11-18873	11-18906	12-18906	12-19107	11-15857			
12-19108	12-19946	14-21988	15-19251	SHIELDING			
16-18912	17-18669	17-18698	17-18699	9-19856	13-19417	14-19489	14-19810
17-18746	17-18873	17-18906	17-19195	15-18376	15-18791	15-19163	15-19489
17-19251	17-20488	17-21655	17-21988	15-19810	15-20704	15-20787	17-19237
18-18458	18-18905	18-18907	18-18912	17-19241	17-19760	17-19761	18-17844
18-19107	18-19108	18-19946	18-21084	18-18674	18-18905		
SAFETY STUDY				SHIPPING ANALYSIS			
1-20684	2-19993	6-18941	7-20555	14-20576			
7-20556	9-18918	9-19925	11-20555	SHIPPING CONTAINER			
12-18918	14-20084	16-20084	16-20684	3-17962	14-20576	14-20577	14-20767
17-18941	18-16639			17-20487			
SALEM 1 AND 2 (PWR)				SHIPPINGPORT			
2-22875	2-22879	18-22875	18-22876	5-19483	6-19483	7-19563	9-21055
18-22877	18-22878	18-22879		12-19944	15-20696	17-16944	17-19483
SALMON EVENT				17-19963			
14-20695				SHOCK WAVE			
SAMARIUM				9-18810			
5-18691	6-19519	9-19519	17-18691	SHUTDOWN MARGIN			
18-17838				5-19148	6-18382	6-18889	6-19515
SAMPLING				6-20845	9-18382	9-19785	9-20754
7-18474	7-18477	7-20549	14-16640	9-20845	9-21848	9-21849	17-18924
14-16641	14-16643	14-16645	14-18785	17-19148	17-19515	17-19785	17-20845
14-19207	14-19494	14-19686	14-19886	17-21848	17-21849		
14-19955	14-19957	14-20092	14-20771	SHUTDOWN MECHANISM, SELF			
15-16640	15-16641	15-16643	15-16645	6-18887	9-21154		
15-18785	15-19216	15-19494	15-19886	SHUTDOWN SYSTEM, SECONDARY			
15-19957	15-20092	15-20831	16-18866	9-19883	9-19864	17-17543	17-18983
16-18867	16-18868	16-18870	16-19207	17-19864	17-21102		
16-19208	16-19212	16-19213	16-19214	SILICON			
16-19216	16-19218	16-19548	16-19686	9-19858			
16-20690	16-20757			SILVER			
SAMPLING, HIGH ALTITUDE				15-19187	15-19952	17-20724	
14-18850	15-18850	15-20591	16-19219	SIMULATION			
16-19551	16-20591			9-19497	9-19902		
SAN ONOFRE				SINGLE FAILURE CRITERION			
6-19243	6-19244	17-18662	17-19243	10-19288	12-19288	17-17545	18-16905
17-19244	17-20491			18-19288			
SAVANNAH RIVER PLANT				SITE CLIMATOLOGY			
9-20777	9-21899	14-20445	14-20656	14-19876	16-19676	16-20686	
14-20695	14-20772	15-19530	15-20772	SITING, GENERAL			
16-20686				2-19956	2-19957	2-20610	11-19956
SAVANNAH RIVER PRODUCTION REACTORS				14-20077			
9-19797	9-19864	17-19864		SITING, REACTOR			
SAXTON				1-20624	1-20684	2-19695	2-19991
5-17837	9-19254	9-19255	11-19253	2-19993	2-19594	2-19995	2-19997
17-17837	17-18450	17-18451	17-18453	2-19958	2-19999	2-20001	2-20002
17-18670	17-19105	17-19252	17-19253	2-20003	2-20004	2-20006	2-20007
17-19254	17-19255	17-19684		2-20008	2-20009	2-20010	2-20011
SCANDIUM				2-20012	2-20014	2-20015	2-20017
14-19532				2-21653	2-21843	2-22875	2-22879
SCATTERING (SKYSHINE)				9-19695	10-20513	11-18640	11-20015
5-18899	15-18899	17-18899		12-20008	14-19770	14-20006	15-19235
SCRAM, REAL				15-19770	16-20684	17-20493	17-20494
6-19504	17-19504	17-21103		17-20496	17-20497	17-20498	17-20501
SCRAM, SPURIOUS				17-20513	17-20624	18-19695	18-20759
5-17700	9-19864	10-20519	15-18672	18-20957	18-21653	18-21843	18-22875
17-17665	17-17700	17-18672	17-19107	18-22879			
17-18864	17-20519	17-20723	17-21085	SM 1 (STATIONARY MEDIUM POWER PLANT)			
SCRUBBER				17-18539			
2-20005	7-20005	14-21658	17-21658	SM 1A (STATIONARY MEDIUM POWER PLANT, ALASKA)			
SEAL				11-18873	11-18906	12-18906	17-18873
9-18721	11-19240	17-19240		17-18906			
SEDIMENT				SMOKE			
14-21826	15-19549	16-19549		16-19870	16-19548	16-20757	
SEFOR (SOUTHWEST EXP. FAST OXIDE REACTOR)				SNAP 10A (SYSTEMS FOR NUCLEAR AUXILIARY POWER)			
6-16647	6-16649	6-19224	6-19776	4-19115	4-19501	9-19115	9-19501
9-19776	16-20482	18-21113	18-21115	14-19501			
18-21116				SNAP 15 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)			
SEISMIC ZONE				5-20517	9-20517		
2-18798	2-18802	2-19201	2-19878	SNAP 2 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)			
2-20597	2-20603	2-20605		4-19115	9-19115		
SEISMOLOGY				SNAP 50 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)			
2-18798	2-20001	2-20007	2-20010	4-19403	9-19403		
9-18810				SNAP 8 (SYSTEMS FOR NUCLEAR AUXILIARY POWER)			
SEISMOLOGY, GENERAL				4-19115	4-19973	9-19115	9-19173
2-19879				17-18605			
SELF SHIELDING				SNAP, GENERAL (SYSTEMS FOR NUCLEAR AUX. POWER)			
6-19979				4-16651	14-20029	14-20805	
SENN (SOCIETA ELETTRONUCLEARE NAZIONALE)				SNAPTAN (SNAP TRANSIENT REACTOR TEST SERIES)			
5-20058	6-20051	6-20052	9-20049	4-19501	6-18890	9-19501	14-19501
17-20049	17-20050	17-20051	17-20052	14-19539	14-20728		
17-20053	17-20058	17-20059	17-20060	SODIUM			
17-20064	17-20465			4-20547	5-16571	5-16574	5-19868
SEPARATOR				6-19868	7-20547	7-20556	8-16571
9-18917	18-18695			8-16574	8-19868	9-18814	9-19177
SERVOMECHANISM				9-20018	12-19567	14-19532	14-20072
4-19115	9-19115	9-20543		17-18605	17-18682	17-19556	17-19559
SHARED COMPONENTS				17-19561	16-19560	18-20046	18-22876
18-19664	18-21842			SOIL			

2-27879	14-18827	14-19506	14-19508	11-16576	17-18606	17-19558	17-19762
14-19510	14-19950	14-20559	14-20748	16-16576			
14-21925	15-18672	15-19950	16-19218	STACK			
17-18672	18-22679			1-20876	2-20006	14-16641	14-18616
SOIL MECHANICS				14-20006	14-21658	15-16641	16-18616
2-18801	2-19878	2-20593	2-20594	16-18617	16-20081	17-18616	17-18617
2-20595	2-20596	2-20596		17-20876	17-21658		
SOIL PROPERTY, IN SITU				STAFFING, TRAINING, QUALIFICATION			
2-20610				1-20461	3-20719	15-18751	17-17164
SOIL, NUCLIDE OCCURRENCE				17-17168	17-18687	17-18751	17-18939
14-16641	14-20090	14-20559	14-20657	17-19801	17-20483	17-20485	17-20588
14-20748	14-20769	14-20808	14-20809	17-20613	17-20616	17-20719	18-21581
14-20810	14-20812	15-16641	15-20657	STATISTICAL CORRELATION			
15-20831	16-20090			2-20003	16-20687		
SOIL, PROPERTY				STATISTICAL FLUCTUATION			
2-21843	18-21843			0-21127			
SOIL, RADIONUCLIDE MOVEMENT THROUGH				STEAM			
14-19424	14-20769	14-20808	14-20809	6-18888	7-20545	8-18490	12-20545
14-20810	14-20816	14-21824	15-20816	STEAM GENERATOR			
SOL-GEL PROCESS				5-19483	6-19483	12-19567	14-20722
18-17481				17-18699	17-19483	17-19893	17-20518
SOLID				17-20722	17-20723	17-20724	18-18695
5-19421	8-19421			18-18855	18-19691	18-20046	
SOLID STATE DEVICE				STEAM QUALITY			
9-19799	9-19856	9-20042	9-20543	5-18901			
14-19768	15-19768	15-19919		STEEL			
SOLVENT EXTRACTION PROCFS				1-21318	7-21318	11-19692	11-19693
13-19417	14-20099			11-19793	11-21072	11-21146	11-21147
SORPTION				11-21318	19-19692		
14-17547	14-20792	14-21824	18-19977	STEEL, STAINLESS			
SOURCE MATERIAL				4-20547	5-18679	7-20547	9-20510
13-19102	14-19271	15-19102	17-19102	17-18450	17-18679	17-19893	17-20480
17-19271				17-20510	17-21904		
SOURCE, AREA				STICHIMETRY			
14-18632	14-19211	16-18632	16-19211	17-18604	18-18604		
SOURCE, CONTINUOUS				STORAGE CONTAINER			
6-21928	12-19106	14-18616	14-19675	1-20456	13-19102	15-19102	17-19102
14-20084	14-21588	16-18615	16-18616	STRATOSPHERE			
16-18617	16-19220	16-19687	16-19875	14-19156	14-20807	16-18800	16-19209
16-20084	17-18615	17-18616	17-18617	16-19219	16-19551	16-19554	16-19686
17-21988	18-19106			STRESS			
SOURCE, ELEVATED				5-17837	5-19685	11-15857	11-21072
14-18492	14-19675	16-18492	16-18830	11-21146	11-21147	17-17837	17-19557
16-18831	16-18869	16-19220	16-19687	17-19685	17-20466	18-20459	
16-19875	16-20088	16-20542	16-20685	STRESS ANALYSIS			
SOURCE, GROUND LEVEL				5-19937	11-15857	11-18383	11-18384
14-18492	16-18492	16-19687	16-20080	11-18478	11-19792	17-19792	18-19896
16-20685				18-19937			
SOURCE, INSTANTANEOUS				STRESS CORROSION			
16-19877				5-18679	17-18679	17-19893	17-19966
SOURCE, NEUTRON				STRESS STRAIN DATA			
9-18377	9-19785	12-19101	14-20674	4-19117	9-19117	9-19177	11-18650
15-19101	15-19275	15-20621	15-20674	17-18690			
17-17542	17-18666	17-18667	17-19101	STRONTIUM			
17-19275	17-19785	17-20842		7-19963	13-19281	14-16645	14-17547
SOURCE, POINT				14-18462	14-18463	14-18464	14-18465
16-18829				14-18484	14-18485	14-18487	14-18489
SOURCE, RADIATION				14-18789	14-18794	14-18817	14-18827
14-19886	15-19100	15-19886	17-19100	14-18860	14-19153	14-19156	14-19221
17-19282				14-19225	14-19232	14-19233	14-19283
SOURCE, RADIATION, LOST				14-19424	14-19427	14-19428	14-19429
1-19683	14-19271	15-19196	17-19196	14-19432	14-19434	14-19659	14-19661
17-19271	17-19683			14-19820	14-19829	14-19955	14-19956
SOUTH AFRICA				14-20072	14-20078	14-20093	14-20098
14-19506	14-19537			14-20440	14-20442	14-20557	14-20581
SPACE DEPENDENT DYNAMICS				14-20582	14-20654	14-20655	14-20656
6-18897	6-19589			14-20681	14-20748	14-20768	14-20770
SPACECRAFT				14-20773	14-20792	14-20804	14-20807
4-18691	4-18724	4-18725	4-18914	14-20806	14-20809	14-20811	14-20813
4-19973	4-20551	10-18505	14-16640	14-20814	14-20814	14-20815	14-20816
14-16645	14-20571	14-20805	15-16640	14-20817	14-21824	15-16645	15-18463
15-16645	15-20571	15-20784		15-18464	15-18465	15-18789	15-18817
SPAIN				15-18822	15-18838	15-18860	15-19216
2-19951				15-19225	15-19261	15-19429	15-19434
SPECIAL NUCLEAR MATERIAL				15-19659	15-19820	15-19829	15-19956
13-19280	14-19280	15-19275	15-20105	15-20078	15-20093	15-20098	15-20557
17-19275	17-19277	17-19280		15-20666	15-20668	15-20681	15-20768
SPECTROMETRY, ALPHA				15-20773	15-20797	15-20815	15-20816
15-18864				15-20831	16-18872	16-19216	16-19218
SPECTROMETRY, BETA				16-19219	16-19221	16-20082	17-19281
15-19235				17-19963			
SPECTROMETRY, GAMMA				STRUCTURAL INTEGRITY			
9-19168	14-18785	14-18817	14-18850	2-20600	2-20662	5-19937	11-19939
14-19532	14-20785	14-21143	15-18785	18-19937	18-19939		
15-13817	15-18850	15-19168	15-19235	SUBCOOLING			
15-20096	15-20785	15-20796	15-21143	5-20540	6-20540	8-20540	
SPECTROMETRY, NEUTRON				SUBSIDENCE			
9-20451	15-19235	15-19919		2-18802	2-19201	2-20593	
SPERT 4 (SPECIAL POWER EXCURSION REACTOR TEST)				SULFUR			
6-17166	17-17166			14-18460	15-18460		
SAC (SODIUM REACTOR EXPERIMENT)				SULFUR DIOXIDE			

16-18866	16-19548	16-20757		17-19668	17-19669	17-19670	17-19683
SUPPORT STRUCTURE				17-19894	17-19895	17-19948	17-20061
9-17839	9-18454	11-18454	17-17839	17-20062	17-20477	17-20483	17-20484
17-18454	18-21844			17-20486	17-20487	17-20488	17-20490
SURFACE CONTAMINATION				17-20491	17-20492	17-20493	17-20494
1-19890	7-19963	14-18398	14-19262	17-20495	17-20496	17-20497	17-20498
15-19262	17-19963			17-20500	17-20501	17-20505	17-20506
SURFACE FILM DEPOSIT				17-20507	17-20509	17-20510	17-20512
5-17160	5-17700	5-18679	5-19198	17-20513	17-20514	17-20836	17-20838
5-19483	5-19685	5-19788	6-19198	17-20842	17-20843	17-20844	17-20845
6-19483	9-20447	14-20720	17-17160	17-20846	17-20848	17-21226	17-21846
17-17700	17-18679	17-19197	17-19198	17-21847	17-21848	18-17844	
17-19483	17-19685	17-19753	17-19788	TECTONICS			
17-19842	17-19843	17-20064	17-20447	2-18796	2-18802	2-19201	2-20597
17-20480	17-20720	17-21904		2-20605	2-20847	18-20847	
SURFACE WATER, GENERAL				TELLURIUM			
14-19887				14-16645	15-16645	15-19514	
SURFACE WATER, NUCLIDE OCCURRENCE				TEMPERATURE COEFFICIENT			
14-16641	14-19954	15-16641	15-20831	6-16647	6-18690	18-19149	
SURFACE WATER, SEDIMENT				TEMPERATURE GRADIENT			
14-16641	15-16641			11-18479	11-19789		
SURFACE, GENERAL				TEMPERATURE TRANSIENT			
7-20553	7-20554	14-18400		5-19198	6-19112	6-19198	6-19582
SURRY 1 AND 2				17-19112	17-19198		
18-22003	18-22260			TENSILE PROPERTY			
SURVEILLANCE PROGRAM				5-18679	11-18479	17-16679	
11-21845	14-18787	14-18788	14-18792	TEST INTERVAL			
14-18821	14-19957	14-20770	15-18787	9-18454	10-18456	11-17840	11-18454
15-18788	15-18792	15-18821	15-19957	11-19144	11-19145	11-19248	11-19670
15-20106	15-20614	15-20618	17-17168	17-17832	17-17840	17-18454	17-18456
17-19252	17-20561	17-20619	17-20620	17-18924	17-19144	17-19145	17-19248
17-20623	18-21845			17-19670	17-20495	17-20500	
SURVEY, GENERAL				TEST, COMPONENT			
1-19140	9-18814	9-19202	12-19202	4-19115	4-20820	9-19115	9-20777
16-20757				TEST, CONTROL ROD DRIVE			
SURVEY, RADIATION, ENVIRONMENTAL				4-19174	9-19173	9-19174	9-19439
9-19129	14-16640	14-16641	14-19808	17-18951			
14-20747	15-16640	15-16641	15-19129	TEST, DROP			
15-20747	15-20831			9-19439			
SURVEY, RADIATION, GENERAL				TEST, FILTER			
14-19264	14-19808	14-21656	15-19264	7-20474	14-18486	17-20474	
15-19275	15-19953	17-19252	17-19275	TEST, FILTER SYSTEM			
17-19277	17-21656			7-18471			
SUTTON DIFFUSION FORMULA				TEST, INSTRUMENT RESPONSE			
16-19217				4-19174	9-19174	9-19779	9-19900
SWEDEN				9-19932	9-20717		
2-20001	5-19870	6-19870	14-19662	TEST, LEAK LOCATION			
14-20568	17-18602			4-20820	11-19789		
SWITZERLAND				TEST, LEAK RATE			
2-19997	15-20786			9-18454	9-19668	9-19941	11-17541
SYSTEM CAPABILITY				11-17840	11-18454	11-18640	11-18906
18-21841				11-19144	11-19145	11-19147	11-19185
SYSTEM DESCRIPTION				11-19668	11-19670	11-19694	11-19789
9-19752	9-19920	9-19921	9-19922	12-18906	17-17541	17-17545	17-17840
9-19928	11-21837	12-19935	12-19942	17-18454	17-18455	17-18906	17-19144
12-21837	18-19752	18-19892	18-19935	17-19145	17-19147	17-19185	17-19250
18-19942	18-21837			17-19668	17-19670	17-20495	16-18901
SYSTEM OPERABILITY IN ACCIDENT CONDITIONS				18-19941			
5-19851	11-20526	18-19851	18-20526	TEST, NONDESTRUCTIVE			
TANTALUM				7-18471	11-19253	11-19268	11-19692
17-18607				11-19693	11-19852	11-19939	17-19253
TECHNETIUM				17-19268	17-19787	17-19966	17-21148
14-21824				18-19852	18-19939	19-19692	
TECHNICAL SPECIFICATIONS				TEST, PHYSICS			
5-17837	5-17841	5-19148	5-19238	6-18911	6-19112	6-20457	6-22113
5-19484	5-21847	6-18334	6-19243	9-20457	12-18874	17-17832	17-18662
6-19244	6-20845	8-18333	9-17839	17-18874	17-18911	17-19112	17-19974
9-18454	9-18658	9-19668	9-20486	17-20053	17-20054	17-20457	17-20477
9-20510	9-20843	9-20845	9-20846	17-22113			
9-21848	10-18459	10-20513	11-17541	TEST, PLANT RESPONSE			
11-17840	11-18454	11-18875	11-18906	2-20000	5-20058	6-19504	6-20052
11-19144	11-19145	11-19248	11-19668	17-18950	17-19189	17-19252	17-19504
11-19670	12-18664	12-18906	12-19669	17-20052	17-20056	17-21096	17-21103
14-18616	14-18665	14-19246	15-17842	TEST, PREOPERATIONAL			
15-19246	16-18615	16-18616	16-18617	12-18874	17-18606	17-18674	17-19197
17-17541	17-17542	17-17543	17-17663	17-19556	17-19762	17-20505	17-21056
17-17664	17-17667	17-17668	17-17831	17-21099	17-21100	17-21101	
17-17832	17-17837	17-17839	17-17840	TEST, PRESSURE VESSEL			
17-17841	17-17842	17-17843	17-17847	11-18383	11-18384	11-18478	11-19253
17-18333	17-18334	17-18335	17-18337	17-19253			
17-18338	17-18450	17-18451	17-18452	TEST, PROOF			
17-18453	17-18454	17-18455	17-18457	5-17530	5-19198	6-17530	6-19198
17-18459	17-18613	17-18615	17-18616	11-18478	11-19790	11-19792	12-18944
17-18617	17-18618	17-18658	17-18660	17-18944	17-19198	17-19790	17-19792
17-18662	17-18663	17-18664	17-18665	18-18643			
17-18666	17-18667	17-18668	17-18669	TEST, SYSTEM OPERABILITY			
17-18670	17-18687	17-18875	17-18906	4-19973	5-20056	6-20052	9-18815
17-18924	17-19105	17-19143	17-19144	9-19921	11-19240	17-19240	17-19252
17-19145	17-19146	17-19148	17-19237	17-19762	17-20052	17-20053	17-20058
17-19238	17-19241	17-19243	17-19244	17-21085			
17-19246	17-19248	17-19250	17-19484	TEST, WEAPONS (HP ASPECTS)			

14-17822	14-17823	14-18466	14-19160	5-19868	6-19868	8-19868	14-19534
14-19522	14-19533	14-19659	14-19660	TRIGA (TRAINING REACTOR, ISOTOPE, G.A.)			
14-19808	14-20438	14-20762	14-20807	6-20845	7-19247	9-20845	9-20846
14-21002	15-18466	15-19659	15-19660	17-17544	17-17545	17-17663	17-17664
15-20438	15-20675	15-21002		17-17665	17-17666	17-17668	17-17831
TESTABILITY				17-17832	17-17843	17-18666	17-18667
17-17168				17-18668	17-18669	17-18913	17-18923
TESTING				17-18924	17-18943	17-19143	17-19146
2-19857	3-17962	4-20820	6-18911	17-19239	17-20483	17-20484	17-20485
7-18471	7-19841	7-20499	9-19857	17-20487	17-20509	17-20836	17-20842
9-19930	9-19932	9-21899	11-19253	17-20844	17-20845	17-20846	18-17830
11-19692	11-20424	12-18664	12-19286	18-17838	18-19247		
12-19567	12-20499	13-19102	14-16640	TRITIUM			
14-20090	15-16640	15-19102	16-20090	14-19263	14-19434	14-19535	14-19813
17-17831	17-18605	17-18664	17-18702	14-20442	14-20575	14-20722	14-21658
17-18911	17-18951	17-19102	17-19197	14-21824	14-22001	15-19434	15-19535
17-19253	17-19786	17-19894	17-20499	15-20666	17-20619	17-20620	17-20722
17-20724	18-19286	18-19516	18-19841	17-21658			
18-20424	18-20459	19-19692		TRCOSPHERE			
THEORETICAL INVESTIGATION				14-17958	14-20807	16-18491	16-19209
1-18652	6-18883	6-18884	6-18885	16-19554	16-19688		
6-18895	6-18896	6-19119	6-19130	TSUNAMI			
6-19135	6-19517	6-19839	6-19980	2-19201	2-19878		
6-19986	6-20043	6-21127	9-18650	TUBING			
9-18652	9-18657	9-19119	9-19130	5-19780	17-19788		
9-19135	9-19203	9-19443	9-19517	TUNGSTEN			
9-19839	9-19859	9-19924	9-19926	4-19518	9-19518	14-18785	15-18785
9-20024	9-20043	9-20451	10-20567	TURBINE			
14-20090	15-19437	16-18807	16-19217	5-19503	6-20051	6-20449	9-21840
16-19688	16-20085	16-20086	16-20087	11-19269	17-19269	17-20051	17-20063
16-20090	16-20688	17-20047		17-20449	17-20721	18-19503	18-19891
THERMAL ANALYSIS				18-21840	18-21841		
4-19423	5-19423	5-19685	6-18541	TURBULENCE, CONVECTIVE			
12-19942	17-19685	18-19942	18-20046	16-20590			
18-20107				TURBULENCE, MECHANICAL			
THERMAL CONSIDERATION				16-20590	16-20685		
4-19117	9-19117	17-19557		TURBULENCE, SHEAR (WIND)			
THERMAL EXPERIMENT				16-18491	16-18617	16-20085	17-18617
9-18809				TURBULENCE, STATISTICS			
THERMAL INSULATION				16-20086	16-20087	16-20687	
11-19193	11-19194	17-19866		TURKEY			
THERMAL MECHANICAL EFFECT				14-20094			
5-17841	5-18679	5-19198	6-19198	TURKEY POINT 3 AND 4			
9-17839	12-19283	17-17839	17-17841	11-20424	11-20526	18-20358	18-20392
17-18679	17-19198	17-19561	17-20466	18-20424	18-20521	18-20522	18-20526
18-19283				UNION OF SOVIET SOCIALIST REPUBLICS			
THERMAL NEUTRON				2-20005	2-20006	2-20015	7-20005
9-17895	9-18910	9-19679	15-19155	7-20016	9-18657	9-19116	9-19439
15-22115				9-19783	9-19923	11-20015	12-20016
THERMAL POLLUTION				14-17958	14-18394	14-18395	14-18396
2-19997	2-19999	2-20007	2-20017	14-18397	14-18398	14-18400	14-18401
12-19108	18-19108			14-18402	14-18482	14-19290	14-19426
THERMAL PROPERTY				14-19427	14-19428	14-19429	14-19430
5-16572	5-17530	5-19421	6-17530	14-19431	14-19432	14-19686	14-19829
8-19421	16-19560			14-20006	14-20071	14-20072	14-20073
THERMALIZATION				14-20074	14-20076	14-20077	14-20078
17-20047				14-20079	14-20080	14-20436	14-20437
THERMODYNAMICS				14-20559	14-21625	15-18395	15-18396
5-19421	8-19421			15-18399	15-18618	15-19235	15-19250
THERMOPHORESIS				15-19425	15-19429	15-19431	15-19818
7-17827				15-19829	15-20071	15-20075	15-20078
THORIUM				15-20079	15-20080	16-19686	
6-16646	14-16641	14-18400	14-18489	UNITED KINGDOM			
14-19267	14-19291	14-19765	14-20559	2-20002	2-20003	2-20004	5-18857
15-16641	15-19267	15-19435	15-19817	5-19540	6-19540	7-20013	8-19540
15-20520	16-19554	18-17481		9-19444	9-19837	9-19931	9-19932
THORON				9-20019	9-20020	9-20021	9-20044
14-18374	14-20090	15-19529	16-20090	9-20750	9-21150	10-20022	11-19792
THREE MILE ISLAND (PWR)				11-20013	14-18462	14-18463	14-18464
18-18732	18-22261			14-18465	14-18489	14-18790	14-19261
TITANIUM				14-19263	14-19434	14-19512	14-19659
14-18860	14-20030	15-18860	15-20030	14-19660	14-19765	14-19820	14-19822
TOPOGRAPHY				14-20030	14-20098	14-20672	14-20767
2-19991	16-20691			14-20795	15-18463	15-18464	15-18465
TRACER, GENERAL				15-18790	15-18864	15-19258	15-19434
16-19554				15-19512	15-19659	15-19660	15-19820
TRACER, RADIOACTIVE				15-19822	15-20030	15-20069	15-20070
14-18794	14-19225	15-19225	16-18708	15-20098	15-20430	15-20431	15-20434
TRANSFER FUNCTION				15-20666	15-20787	16-20757	17-18467
6-19119	6-19986	9-19119	17-20465	17-18692	17-18657	17-19792	18-18854
TRANSPORT PROPERTY				18-18855			
14-18851	15-18851			UNITED STATES			
TRANSPORTATION AND HANDLING				2-20007	2-20008	2-20009	9-18720
9-20776	12-20776	14-20576	14-20577	9-18721	9-18722	9-20018	9-21859
17-20776				12-20008	14-19327	14-19490	14-19657
TRANSURANIUM ELEMENT				14-19658	14-19805	14-19828	14-20438
12-20427	13-20427	14-20028	15-20028	14-20444	14-20570	14-20611	14-20669
TRANSURANIUM PROGRAM				14-20761	14-20762	14-20765	14-20768
12-20427	13-20427	14-18909	15-18909	14-20769	14-20785	14-20790	14-20808
17-19865				14-20810	14-20813	14-20814	14-20815
TREAT (TRANSIENT TEST REACTOR FACILITY)				14-20834	15-19490	15-19491	15-19492

15-19658	15-19764	15-19814	15-19824	14-19813			
15-19958	15-20438	15-20443	15-20444	WASTE DISPOSAL, ECONOMICS			
15-20573	15-20578	15-20673	15-20675	14-17691			
15-20701	15-20761	15-20764	15-20765	WASTE DISPOSAL, GAS			
15-20768	15-20784	15-20785	15-20790	14-19495	14-19769	14-19809	14-19812
15-20793	15-20815			14-19813	14-19882	14-20099	14-20755
URANIUM				WASTE DISPOSAL, GENERAL			
6-19978	6-19981	6-20758	9-19168	2-19998	2-20006	6-20825	13-19835
12-19099	13-19280	14-16641	14-18489	14-17691	14-18401	14-19161	14-19495
14-18820	14-18852	14-19261	14-19271	14-19662	14-19769	14-19809	14-19812
14-19280	14-19296	14-19327	14-19426	14-19813	14-20006	14-20077	14-20384
14-19430	14-19431	14-20028	14-20079	14-20435	14-20583	14-20773	14-20792
14-20672	14-20706	14-20760	15-16641	14-20795	14-20805	14-21143	14-21824
15-18820	15-18852	15-19099	15-19168	14-21826	15-19161	15-19663	15-20773
15-19431	15-20028	15-20079	15-20105	15-21143	17-19252	17-19277	18-20801
15-20618	15-20675	15-20760	17-19099	18-22772			
17-19271	17-19277	17-19280	18-17481	WASTE DISPOSAL, HYDRAULIC FRACTURING			
18-21084				14-19809	15-19663		
URANIUM CARBIDE				WASTE DISPOSAL, LIQUID			
17-18604	17-19753	18-18604	18-19840	1-19505	12-18908	13-19280	13-19505
URANIUM DIOXIDE				14-16641	14-17547	14-17960	14-18056
5-16572	5-19198	6-19198	7-18684	14-18397	14-18401	14-18821	14-18908
7-20545	12-20545	13-19417	13-19835	14-19246	14-19280	14-19495	14-19666
17-18451	17-18684	17-18685	17-19198	14-19767	14-19769	14-19813	14-20568
17-19753	18-18603	18-19516		14-20569	14-20771	14-20792	14-21824
URANIUM HEXAFLUORIDE				14-21826	15-16641	15-18821	15-19246
3-17962	14-20577			17-18908	17-19246	17-19272	17-19280
URANIUM OXIDE				17-19505	17-19666		
6-20758	15-19818	18-16575		WASTE DISPOSAL, OCEAN			
URANIUM, NATURAL				14-18794	14-19495	14-19767	14-19813
14-20583				14-20568	14-20805	15-19545	16-19545
USAEC (U.S. ATOMIC ENERGY COMMISSION)				WASTE DISPOSAL, RIVER			
1-16553	1-17696	14-19812	14-20384	11-19269	14-16641	14-19266	14-19495
14-20576	14-20577	14-20583	14-20760	14-19809	14-19812	14-19813	14-19828
14-20812	15-19990	15-20430	15-20431	14-20384	14-20583	14-20771	14-21826
15-20434	15-20759	15-20760	17-16553	15-16641	17-19269		
USASI (USA STANDARDS INSTITUTE)				WASTE DISPOSAL, SALT			
1-19959				14-19812	15-19527	15-19663	
VALVE				WASTE DISPOSAL, SOLID			
2-19665	6-20449	9-18428	9-19113	13-19281	14-18056	14-18397	14-18401
9-19202	9-19476	9-21150	11-18671	14-18821	14-18909	14-19271	14-19488
11-19240	11-19665	12-18664	12-19202	14-19495	14-19767	14-19769	14-19809
13-19280	14-19280	17-17835	17-18664	14-19813	14-20027	14-20445	14-20583
17-18671	17-18681	17-19113	17-19240	14-20720	14-20725	15-18821	15-18909
17-19280	17-19557	17-19558	17-19559	15-19281	15-19527	17-19271	17-19281
17-20449	17-20508	17-20877	17-21085	17-20720	17-20725		
18-19476	18-19665	18-21841		WASTE DISPOSAL, TERRESTRIAL			
VAPOR, VAPOR PRESSURE				12-19097	12-19098	14-17547	14-19097
7-18474				14-19098	14-19495	14-19809	14-19812
VBWR (VALLECITOS BOILING WATER REACTOR)				14-20027	14-20099	14-20445	14-20565
5-18679	17-18679			14-20773	14-20792	14-21824	15-20773
VELA UNIFORM PROGRAM				17-19097	17-19098		
14-20695				WASTE HANDLING			
VENTILATION SYSTEM				12-18908	13-18799	14-18821	14-18908
1-19890	2-20005	5-18899	7-20005	14-18909	15-18821	15-18909	17-18799
11-18671	12-19095	13-19278	13-19279	17-18908			
14-17548	14-18402	14-18616	14-19489	WASTE MANAGEMENT			
14-20788	14-21657	15-18899	15-19099	14-18401	14-19489	14-19495	14-19495
15-19489	15-20788	15-21659	16-18018	14-19662	14-19769	14-19809	14-19813
17-17835	17-17836	17-18616	17-18668	14-20435	15-19489	15-19663	17-20050
17-18669	17-18671	17-18899	17-19099	WASTE SOURCE AND TYPE			
17-19242	17-19272	17-19277	17-19279	14-19493	14-20435	15-19663	
17-19279	17-20488	17-21657	17-21659	WASTE STORAGE			
17-21846	18-19667			14-17691	14-18397	14-19769	14-20435
VERMONT YANKEE				17-20620			
2-18313	12-19108	18-18313	18-19108	WASTE TRANSPORTATION			
VESR (VALLECITOS EXP. SUPERHEAT REACTOR-ESADA)				14-18821	15-18821		
7-20474	17-20473	17-20474	17-20475	WASTE TREATMENT, EQUIPMENT			
17-20477				14-19525	14-20694		
VIBRATION				WASTE TREATMENT, FIXATION			
2-17286	2-20601	2-20604	4-19117	14-17546	14-17691	14-18056	14-18827
5-19871	5-20452	6-19871	9-19117	14-19493	14-19525	14-19769	14-19812
9-20452	12-19285	17-18680	17-18682	14-19813	14-19816	14-20436	14-20654
17-19762	17-21096	17-21102	18-18855	15-19663			
18-19285				WASTE TREATMENT, GAS			
VIBRATION ANALYSIS				14-19495	14-19813	14-20094	
2-20602	2-20606	2-20608	2-20609	WASTE TREATMENT, GENERAL			
5-19851	5-19936	18-19051	18-19936	14-17691	14-19493	14-19495	14-19809
VOID COEFFICIENT				14-19812	14-19813	14-19816	14-20436
5-20058	6-18887	6-19243	17-19243	14-20437	14-20568		
17-20058				WASTE TREATMENT, LIQUID			
VOID FRACTION				14-17546	14-17547	14-17691	14-17960
5-19542				14-19489	14-19495	14-19525	14-19813
WASHOUT				14-19816	14-20094	14-20437	14-20679
14-18493	15-19216	16-19493	16-18708	14-20702	14-20703	15-15489	15-19663
16-19214	16-19216	16-19552	16-19689	WASTE TREATMENT, SOLID			
16-20091	16-20589	16-20688	16-20689	14-17546	14-18909	14-19489	14-19455
16-20756				14-19813	14-20092	14-20094	15-18909
WASTE DISPOSAL, ATMOSPHERIC				15-19489	15-19663	15-20092	
13-19835	14-19809	14-19812		WATER BOILER			
WASTE DISPOSAL, BEDROCK				18-17844			

WATER POLLUTION				9-20750			
1-19890	14-18787	14-19829	14-20092	X-RAY			
15-18787	15-19829	15-20092		9-19441	14-18460	14-19161	14-19264
WATER TREATMENT				14-20444	14-21143	14-21471	15-18359
9-18920	9-20021	14-18860	14-19261	15-18460	15-18791	15-18836	15-18842
14-19428	14-20804	15-18860		15-19161	15-19226	15-19264	15-15437
WATER VAPOR				15-19441	15-19485	15-19491	15-19511
7-17827	7-20474	9-19941	17-20474	15-19804	15-19814	15-19951	15-19958
18-19941				15-20075	15-20101	15-20102	15-20431
WATER, DRINKING				15-20444	15-20573	15-20578	15-20664
14-18790	14-18819	14-19428	14-19523	15-20766	15-21143	17-19801	
14-19829	14-20652	14-20773	15-18790	XENON			
15-18819	15-19216	15-19425	15-19829	5-18691	6-18382	6-18911	6-19519
15-20773	16-19216			6-20043	7-19247	7-20016	9-18382
WATER, GENERAL				9-19519	9-20043	12-20016	17-18691
5-16571	7-19247	8-16571	12-19567	17-18911	17-21085	18-19247	
14-17548	14-19426	14-19506	14-19508	XENON OSCILLATION			
14-19523	14-19829	14-20569	14-20581	5-19483	6-18700	6-19119	6-19130
14-20654	14-20656	14-20706	14-20748	6-19483	6-19639	6-19940	6-19943
14-20792	14-20834	14-22001	15-19829	6-19944	6-19989	9-19119	9-19130
18-19247				9-19752	9-19839	9-19940	9-19943
WATER, IRRIGATION				17-19483	18-18700	18-19752	18-19940
14-19532	14-20772	15-20773		18-19943	18-19944		
WAVE, STRESS				YANKÉE			
2-17286	2-19860	2-20662		3-20719	5-19685	11-17541	14-20720
WELDING				14-20722	14-20725	17-17541	17-19685
11-21654	17-19895	17-19966	17-21654	17-20719	17-20720	17-20721	17-20722
18-19938				17-20723	17-20724	17-20725	
WELDS				YTTRIUM			
9-19249	11-19945	11-21147	12-19945	14-19424	14-20804		
17-19186	17-19249	17-19787	17-20507	YUGOSLAVIA			
17-20518	18-19945			2-20001	14-20585	15-20585	
WIND PROFILE				ZINC			
14-19876	16-19876	16-19877	16-20085	14-19532	14-19666	14-19613	15-19187
16-20087	16-20590	16-20685	16-20686	15-20796	17-19666		
16-20687				ZIRCALOY			
WIND STATISTICS				5-17837	5-19238	5-21989	6-19112
5-18912	14-19875	15-19549	16-18617	8-18333	9-18669	11-18690	17-17837
16-18912	16-19217	16-19549	16-19875	17-18333	17-18451	17-18670	17-18689
16-20586	17-18617	18-18912		17-18690	17-19112	17-19238	17-20480
WIND TUNNEL EXPERIMENT				17-21989	18-18603		
16-16617	17-18617			ZIRCONIUM			
WINDSCALE AGR (UK)				6-18890	7-20545	12-20545	14-17960
7-20013	11-20013			14-18817	14-19293	14-19482	14-19805
WR 1 (WHITESHELL REACTOR NO. 1, CANADA)				15-18817	15-19482	16-21132	
17-18604	18-18604			ZPR 3 (ANL ZERO POWER REACTOR)			
WYLFPA (UK)				6-19776	9-19776		

FOLLOWING IS A LIST OF AUTHORS WHOSE DOCUMENTS
HAVE BEEN ABSTRACTED IN THIS PUBLICATION

AARKROG A			5-20481	17-20481
14-18850	15-18850		ARNDT J	
ABRAHAM P			14-20771	
7-17828	15-19529		ARNOLD AB	
ADAMS CA			2-18801	
2-20003			ASHWORTH JD	
ADAMS WH			15-20097	
14-20809			ATHAVALE RN	
ADLER FT			14-20442	
6-19986			ATKINS DH	
ADLEY FE			14-20439	
14-18486			AUCHAPT P	
AEBY JW			13-19832	13-19836
14-19884			AURAND K	
AGNEDAL PO			14-20771	
14-20568			AUXIER JA	
AHMAD M			14-19768	15-19768
15-18748	17-18748		AXT CJ	
AHMED JU			16-18866	
2-20014			BABALA D	
AHMED MI			6-19135	9-19135
9-19136			BABECKI AJ	
AILLOUD J			4-20820	
17-18646			BAI D	
AINSWORTH EJ			14-19508	
15-16644	15-19524		BAILEY HS	
AKAISHI J			6-18888	
14-18817	15-18817		BAILEY RE	
AKINO K			9-19203	
2-20606			BAILY FG	
ALASIA AM			9-20566	10-20566
14-20440			BAIRD R	
ALBERS LU			14-20760	15-20760
4-17809	5-17809	6-17809	BAKER JW	
ALBERT RE			17-17159	
14-19291	15-18858		BAKER L	
ALBRECHT G			5-16571	0-16571
16-19209			BALDUCCI G	
ALCORN FM			9-19128	
9-18651			BALKE VS	
ALEKSAKHIM RM			17-18943	
14-21825			BALL CJ	
ALEXANDER LT			6-18880	
14-19300			BALLARD RF	
ALLEN RS			2-19857	9-19857
14-20093	15-20093		BANERJI P	
ALLGEIER JP			16-19214	
9-19173			BAPTIST JP	
ALLRED DO			14-18825	
9-18378			BARETE MV	
ALONSO A			14-20652	
2-19991	14-18492	16-18492	BARRAGAN A	
ALSMILLER RG			17-18746	
15-22114			BARRIENTOS C	
AMBRASEYS NN			16-19551	
2-19878			BARTH NH	
AMOS A			5-20481	17-20481
14-20762			BARTHOUX A	
AMRHEIN WG			7-20556	
16-20081			BARTON CJ	
ANDERSON CA			7-18476	
6-18886			BARTON DR	
ANDERSON DC			16-18601	
15-19486			BARTON JA	
ANDERSON HF			4-18726	
14-22001			BASHAM SJ	
ANDERSON HJ			9-19173	
13-18799	17-18799		BASHMAKOVA TA	
ANDERSON JL			14-18821	15-18821
9-19333			BASSLER EA	
ANDERSON LE			6-19944	18-19944
18-20066			BATCH JM	
ANDERSON WB			17-18685	
4-19796	9-19796		BATENBURG A	
ANDREEV SV			9-19497	
14-18819	15-18819	15-19425	BATES FC	
ANDREWS VE			1-20684	16-20684
14-19957	15-19957		BAUMEISTER KJ	
ANGINO EE			5-19541	
14-19805	14-19955		BAXTER A	
AOKI R			5-19182	8-19182 18-19182
9-21151			BAYRON LA	
ARIEMMA A			17-20455	
6-18889			BAZANT Z	
ARIS R			2-20593	
9-19926			BAZARNIC PR	
ARLT WH			9-19170	

BEASLEY TM	15-20791			15-20693		
14-20791				BOULENGER RR		
BEATTIE WC				14-19293		
17-19888				BOURGEOIS J		
BEAUCHAMP IL				2-19995		
15-20578				BOUOTOT P		
BEAUDRY RJ				14-19807	15-19807	
7-18947	17-18947			BOUZOU G		
BECK CK				13-19832		
2-20008	12-20008	17-20612		BOUEN VT		
BECKER K				14-18485		
15-19824				BOWRING RW		
BECKER KM				5-19540	6-19540	8-19540
5-18901				BOYD FC		
BELCKHOVA NC				2-19996	11-19996	
14-20090	16-20090			BOYD RS		
BELIARD L				5-17837	17-17837	
9-19779				BRACEWELL GM		
BELLER LS				7-20555	11-20555	
6-19979				BRAR SS		
BELOVA RS				14-19298		
14-20079	15-20079			BRATZLER GE		
BELTER WG				10-20567		
14-19812				BRAUN VH		
BEMENT AL				1-19139		
11-21147				BREIZY CE		
BENDER MA				18-18745		
15-19257				BRENDAKOV VF		
BENHAM RD				14-20559		
6-18382	9-18382			BRICKSTOCK A		
BENJAMIN AJ				6-19519	6-20758	9-19519
14-19810	15-19810			BRIGGS RB		
BENNETT CA				18-19568		
13-18799	17-18799			BRION J		
BENNETT GL				7-20544	12-20544	
18-18601				BROIDO J		
BENSON PA				5-19182	8-19182	18-19182
14-20762				BROOKS RG		
BERGE PH				9-18810		
5-21989	17-21989			BROOKSBANK RE		
BERGSTROM RN				14-19769		
17-19561				BROWN DE		
BERGSTROM SO				4-19796	9-19796	
14-20568				BROWN DG		
BERMAN RM				14-19160		
18-18603				BROWN DJ		
BERNSTEIN GJ				14-21824		
14-20027				BROWN KK		
BERRY DA				17-19181		
7-20546				BROWN NJ		
BERRY WE				4-18725		
7-20546				BROWN RM		
BERTA FJ				14-19887		
14-16640	15-16640			BRUBER HT		
BERTA VT				9-19173		
4-19501	9-19501	14-19501		BRYAN FA		
BILLARD F				14-19657	14-19810	15-19810
7-20544	12-20544			BRYAN J		
BILLIAU R				14-20674	15-20674	
17-19846				BUCK P		
BIRON RD				17-17161		
17-20466				BUDD KO		
BISTLINE RW				15-18799	17-18799	
9-18648	15-18648			BUECHNER II		
BLANC H				15-19951		
5-10092	5-18893	6-18892	6-18893	BUIS GR		
BLANCO RE				9-19497		
14-19493				BUKOVAC MJ		
BLOCK S				14-20811		
14-20674	15-20674			BULANOVA ID		
BLUME JA				14-23073		
2-20610				BULLOCK JB		
BLUNDELL R				9-17898		
11-18480				BUNCH DF		
BODDY K				14-19539		
15-20069				BUNNEY LR		
BOEHM RF				14-17820	15-20675	
5-19180				BUNTAIN RE		
BOLAND JR				17-19481		
14-20438	15-20438			BUGNI FB		
BOLOTIN YA				17-17159		
2-20005	7-20005			BURDEN BA		
BONNER WP				14-19261		
14-20769				BURDG CE		
BONNET JA				5-17530	6-17530	
17-19189	17-20455			BURNETT IB		
BOSHOLM J				9-18910		
14-20702	14-20703			BURTGN C		
BOSNAK RJ				14-21002	15-21002	
1-17697				BUSH WR		
BOSS MR				14-19535	15-19535	15-20697

BUSLIK AJ				CHAUVIN M		
6-19939	9-19839			17-19556	17-19557	
BUSSY P				CHELAPATI CV		
17-19559				2-20607		
BUSTAMANTE JI				CHIRILOV B		
2-20609				9-18649		
BUTLER HS				CHITTENDEN WA		
9-19781				17-19561		
BUTLER RI				CHOU A		
2-17701	9-17701			9-19926		
BUYSE L				CHRISTENSEN JA		
17-19846				14-20785	15-20785	
BUZACOTT JA				CHRISTENSON CW		
9-19925				14-20809		
BYARS RF				CHRISTOPHER SS		
9-20777				6-20446	17-20446	
BYKHOVSKII AV				CHUBAKOV AA		
14-20074				7-20016	12-20016	
BYKHOVSKY AV				CHURCH BW		
14-19686	16-19686			14-20765	15-20785	
CALAMINI A				CHURKIN VN		
15-18791				14-20559		
CALDAROLA L				CHURKIN YI		
6-16647	6-19224			9-19783		
CALDWELL R				CIHI J		
15-20105				18-21084		
CALDWELL RD				CLABAUGH WJ		
13-19103	15-19103	17-19103		11-19193		
CALLEN RC				CLARK RH		
6-18946	9-18814	17-18946		2-20597		
CALLIHAN D				CLARK WE		
5-18899	9-18900	15-18899	17-18899	14-18056	14-19493	14-20694
17-18900				CLARKE WG		
CAMPBELL JE				6-18897		
14-20813				CLAUSSE R		
CAMPBELL-ALLEN D				9-20020		
11-18479				CLERICI GC		
CANOSA J				5-17804	6-17804	8-17804
6-18896				CLOUGH RW		
CARLBOM L				2-20602		
2-20001				COBB JS		
CARLE R				9-19113	17-19113	
18-19562				COCHE A		
CARLESON G				9-19920		
14-19662				COE RJ		
CARPENTER RB				1-16553	17-16553	
4-18724				COHN CE		
CARPENTER WP				6-18883	9-20754	
18-18601				COLE LJ		
CARRAI M				15-19485		
15-19806				COLEMAN JR		
CARRIGAN PH				4-16651		
14-21826				COLEMAN RD		
CARSON CE				14-19957	15-19957	
9-19443				COLLINS DA		
CARTER MW				7-18474		
14-18789	15-18789			COLLINS ED		
CASABIANCA M				12-20427	13-20427	
17-18746				COLLINS RD		
CASEY DF				7-18474	7-20545	12-20545
18-20046				COLLIS RT		
CASSULO J				16-19877		
5-16571	8-16571			COMAR CL		
CAVE L				14-20815	15-20815	
2-20002	7-20555	11-20555		CONARD RA		
CAZEMAJOU J				14-18466	15-18466	
9-19779				CONNOR RR		
CESARI F				9-19167		
18-19892				CONNOR JA		
CHADWICK RC				4-19796	9-19796	
14-20439				COOPER LJ		
CHALLENGER RS				17-19481		
9-20044				COOPER MH		
CHAMBERLAIN AC				5-19883	8-19883	
14-20439				COOPER RE		
CHAMPION DF				14-20772	15-20772	16-20686
14-18027				COOPS MS		
CHAPELOT A				9-20776	12-20776	17-20776
17-19556	17-19557			CORBETT BL		
CHARLESWORTH FR				17-21102	17-21103	
2-20004				CORDES OL		
CHARLSON RJ				14-19539		
16-18865				COTTRELL WB		
CHARNOFF G				1-21318	7-21318	11-21318
1-16553	17-16553			COURT A		
CHASANOV MG				10-19845		
6-16573				COWAN FP		
CHASE WL				15-20774		
12-19567				COWPER G		
CHATFIELD EJ				14-19487	15-19487	
16-19868				COWSER KE		

14-20099	15-19164			DEJONGHE P			
COX EL				14-17546			
9-17834	17-17834			DELCHAMBRE PH			
COX JA				6-18647	17-18647		
17-18607				DELEMEN M			
CRAIG D				15-20586			
14-18851	15-18851			DELISLE JP			
CRANCHER OW				9-19681	17-19556	17-19557	
2-19994				DEMULDER R			
CRASE KW				15-19772			
15-22115				DENHAM DH			
CRAWFORD TV				14-18909	14-20028	15-18909	15-20028
16-18807				DENHAM RS			
CREEK GC				4-16651			
7-18476				DENIEF DU G			
CREMEANS GE				17-19556	17-19557	17-19556	
7-20546				DESAI MV			
CROCKER GR				14-19266			
14-16645	15-16645			DESAI PM			
CROLEY JJ				11-18479			
15-19530				DETERMAN RL			
CROMROY HL				14-20029	14-20805		
14-20769				DEWART WG			
CRUSE T				4-19115	9-19115		
17-18939				DEZSI Z			
CSANADY GT				14-18374			
16-18829				DIABBLE RR			
CULLEY GE				2-20597			
17-19753				DIEDRICH G			
CULLOM RR				4-17809	5-17809	6-17809	
4-17809	5-17809	6-17809		DIEM M			
CUNNINGHAM G				14-19876	16-19876		
15-20572				DIETZ KA			
CUNNINGHAM GE				14-20728			
15-18751	17-18751			DINGLE AN			
CZOSNOWSKA W				16-19212			
14-20582				DIRCHNER RA			
D-HARCOURT A				14-20789	15-20789		
9-19920				DMITRIEV MT			
DACEY R				14-18394			
9-19838				DMITRIEVA GV			
DADILLON J				16-19689			
14-18488				DOAN RL			
DAHL AH				18-17848			
14-19233				DODGEN HW			
DAHL RE				17-17847			
9-20717				DOGGETT WO			
DAHLBERG RC				14-19657			
6-18882				DOIREAU M			
CAILEY WV				9-19920			
16-20081				DONNERT HJ			
DALFES A				1-19960			
9-19779				DOSE G			
DAMASKIN PT				9-19927			
14-18396	15-18396			DOSHAY I			
DARLEY D				4-19796	9-19796		
4-20547	7-20547			DOTSON WL			
DAVIDSON RH				16-20690			
17-18682				DOUGHERTY TF			
DAVIES AR				14-19225	15-19225		
6-19519	6-20758	9-19519		DOUSSET M			
DAVIES CN				15-19514			
7-17827				DOVE RC			
DAVIES I				2-17701	9-17701		
16-18869				DOWNES KW			
DAVIS RM				18-19845			
14-19537				DOYLE M			
DAVIS JA				15-20775			
14-19805				UKAGT JO			
DAVIS WK				6-19517	6-19964	9-18811	9-19517
2-20007				DRAPER WO			
DAVISON HW				9-19778			
4-19423	5-19423			DRIVER GE			
DAY GM				9-19169	9-20753	11-20753	14-20753
7-18477				DUDLEY RA			
DE LORENZO JT				15-19435			
6-19680	9-19680			DUFFIELD RR			
DE VATHAIRE F				17-17162			
2-19995				DUFLOU PC			
DEAGAZIO AW				2-20599			
4-19795				DUNCAN KN			
DEAN PN				17-20480			
15-19990	15-20759			DUNCCMBE E			
DEAN RA				9-19859			
6-19943	9-19943	18-19943		DUNHAM AB			
DEBOISBLANC DR				14-19770	15-19770		
18-20463				DURAND RE			
DEBORTOLI MC				17-19558			
14-19510				DURFEE RL			
DEIGHTON MO				5-17536			
9-20451				DUTRAIVE P			

5-18893	6-18893			FERRELL JK			
DUTTON JW				5-16631	12-16631		
14-19765				FERRY PB			
DVORNIK I				18-20459			
15-18481				FERTIN J			
DYER RE				9-19920			
17-18605				FETT JD			
EACIE DM				2-18802			
11-19792	17-19792			FETT W			
EANES WF				14-19509			
4-19518	9-19518			FEY FL			
EASTON CR				14-19808			
4-18914				FIELDHOUSE P			
EDESKUTY FJ				6-20758			
1-20456				FIELDING JR			
EDMONDSON LF				14-19539			
15-18838				FILATOV AS			
EHRENKRANZ TE				2-20005	2-20006	7-20005	14-20006
15-19885				FINEMAN			
EIBY GA				14-17691			
2-20600				FISCHER DF			
EISLER JD				6-16573			
2-20663				FISCHER EA			
EKLIND O				6-15648			
5-19870	6-19870			FISHER JR			
ELBAUM GJ				6-19515	17-19515		
6-18887				FISHER PS			
ELDERKIN CE				14-20785	15-20785		
16-19687	16-20687			FLEMING FA			
ELLISON TH				2-18802			
14-19770	15-19770			FLEMING JF			
ENGELMANN RJ				2-20594			
16-18708	16-20589	16-20756		FLETCHER WD			
ENGLANDER M				4-19518	9-19518		
9-20564				FOELL WK			
ENGLISH JL				6-20822			
14-20694				FOMIN YK			
ERICHSEN LV				14-20436			
14-20679				FOPPL H			
ERISKAT H				16-19210			
14-18792	15-18792			FORBES R			
ERKES P				14-21826			
18-16577				FORSLUND RP			
ERNST BB				5-17578			
6-18876	6-19581			FORTESCUE P			
ESSIG TH				5-19182	8-19182	9-18426	18-19182
14-20773	15-20773			FOSTER J			
ETTINGER HJ				18-16652			
7-17829	14-17829	15-17829	15-19885	FOSTER RS			
EVANS EJ				14-19488			
9-19838				FOWLER EB			
EVANS RA				14-20809			
9-19932				FOWLER KL			
EVANS RD				9-18920			
15-20520				FRANK ML			
EVANS WW				14-20670			
12-20427	13-20427			FRANK PW			
FABREGA S				7-19963	17-19963		
5-18893	6-18893			FRANKEL HE			
FAIRMAN WD				4-20820			
14-19157				FRANKEL R			
FARLEY FJ				9-19782			
9-18917				FRANKLIN HV			
FARRAR IV H				17-19481			
6-19979				FREDERICK EJ			
FARRELL GJ				14-19493			
17-19199				FREDRIX H			
FARRIS GC				17-19846			
14-19233				FREEDMAN MB			
FASANO AN				12-18908	14-18908	17-18908	
17-17159				FREILING EC			
FAURE J				14-16645	14-19534	15-16645	
18-19562				FRENCH RL			
FAUSKE HK				9-19837			
18-19867				FRERE MH			
FEELY HW				14-18627			
16-19551				FRESHLEY M.D.			
FEKETE L				7-18684	17-18684		
2-20017				FRESHLEY MD			
FELDES JG				17-18685			
7-18947	17-18947			FRIEND PC			
FELDMAN MJ				9-19178	15-19178		
12-18608	17-18608			FRISCHBIER HJ			
FENECH H				15-20103			
5-19182	8-19182	18-19182		FRISCHKORN R			
FENN JH				15-20101			
15-20697				FROELICHER B			
FENTON AW				9-19779			
9-19838				FROMM LW			
FERRARI T				9-18432			
6-18879				FUJITA M			

5-19541				HITCHCOCK AJ			
HAMILTON DH				9-18722			
2-18802				HOAGLAND RG			
HAMILTON EI				11-21147			
14-18794				HODGSON JH			
HAMPSON DC				2-18798			
12-18608	17-18608			HOEFER-JANKER H			
HANAUER SH				15-20102			
6-19680	9-19680			HOEHNE P			
HANEY WA				9-21153			
14-20569				HOFFMAN RC			
HANKEL RD				11-19691			
5-19883	8-19883			HOFMAN W			
HANKS GE				18-21149			
15-16644				HOHMANN GL			
HANNISDAHL B				4-19118	9-19118		
14-19803	15-19803			HOLLAND LB			
HANRAHAN FP				17-17158			
15-18838				HOLMES A			
HANSON CL				15-19187			
9-20776	12-20776	17-20776		HOLMES RE			
HANSON JN				2-20002			
6-19988				HOLT J			
HANSON WC				9-19932			
14-19299	15-19299			HOLZ HB			
HARD JE				18-19891			
17-18688				HOOD DS			
HARDY EP				14-19531			
14-19221	16-19221			HOPENFENFELD J			
HARDY J				4-20547	7-20547		
6-16646				HOPKINS BJ			
HARLEY JH				15-20668			
14-19494	15-19494			HORN L			
HARLEY N				9-20033	10-20033		
14-19300				HORNAK LP			
HARRIS CC				17-21148			
15-19227				HORNBY P			
HARRIS J				18-18903			
17-19760				HORST KM			
HARTWIG S				18-21113	18-21115	18-21116	
15-19209				HORTON JH			
HARY LB				14-20445			
17-17159				HORVATH H			
HASER L				16-18865			
16-19210				HOUGHTON G			
HASHIZUME T				14-20025	15-20025		
15-19226				HOUSNER GW			
HAVENS WW				2-20604			
1-19960				HOUSTON RW			
HAWKINS RH				17-17635	17-17636		
14-20445				HOWARD CL			
HAWLEY CA				6-20052	17-20052	17-20053	17-20465
14-18795	15-18795			17-20480			
HAY JD				HUEBNER H			
11-22126				14-18487			
HEFFAN H				HUEBOTTER PR			
15-19491				6-10014			
HELF S				HUGHES-CALEY F			
14-20657	15-20657	16-21132		14-17548			
HEMS G				HULL AP			
14-18790	15-18055	15-18790		14-16641	15-16641	16-19220	
HENCH JE				HUNGATE FP			
5-19180				14-20681	15-20681		
HENNINGER WA				HUNN JB			
14-20570				14-18786	15-18786		
HENRY AF				HURT SS			
9-16650				6-22113	17-22113		
HERRERA I				HUTCHESON CG			
2-20595				14-19263			
HERRICK RC				HUTCHINS BA			
5-20452	9-20452			6-19223			
HERRMANN DB				HUTTER E			
15-20830				9-18721			
HESS DN				HUTTON PH			
14-20694				9-18653			
HESSON GM				HUZITA A			
17-18685				14-20592	16-20592		
HESSON J				IANSITI E			
5-16571	8-16571			2-20010			
HICK CE				IJIMA T			
9-19930				14-19211	16-19211		
HILBORN HS				IKEBUCHI H			
9-21899				15-19216	16-19216		
HILL PC				IMAI K			
14-20444	15-20444			14-19211	16-19211		
HILLARY JJ				INOUE T			
7-20545	12-20545			2-19959			
HINDS WT				IOKHELSON SV			
16-20685	16-20691			14-20559			
HIRSCHBERG MH				IONAITIS RR			
11-21072				9-19439			

IRELAND DR			15-18399		
9-20447	17-20447		KARNI JL		
IRIARTE M			14-20090	16-19552	16-20090
9-17839	17-17839		KARR CH		
IRIATE M			5-20517	9-20517	
11-17840	17-17840		KARRACKER DG		
ISHIHARA T			14-20695		
15-20678			KASAI A		
ISHII Y			14-18817	15-18817	
9-20037			KASE KR		
ISKENDERIAN HP			14-20788	15-20788	
9-19777			KASTEN PR		
ISO Y			18-16639		
2-20000			KATO Y		
ISOLA A			15-19226		
15-19953			KATOH K		
ISONO K			15-20763		
16-20091			KATREN RL		
IVINS RG			15-20676		
5-16571	8-16571		KATZ R		
IWAI S			6-18541		
9-21152			KATZMAN D		
IZRAEL YA			16-19551		
14-17958			KAUFFMAN PE		
JACKSON CN			14-20761	15-20761	
9-17895			KAYE SV		
JACKSON EL			14-19819		
17-17168			KAZAKOVA TA		
JACKSON JL			14-19428		
9-20717			KEDZIERSKI T		
JACKSON MW			17-17168		
2-20660			KEEFE DJ		
JACKSON WA			9-19114		
14-18851	15-18851		KEESE H		
JACKSON WR			14-20804		
18-19840			KEILHOLTZ GW		
JACOBS DG			4-20551		
14-20192			KELBER CN		
JACOBSON LO			9-18432		
15-20775			KELLER EL		
JACQUOTTE M			3-17562		
13-19836			KELLER LE		
JAGIELSKI A			17-18682		
14-20581			KELLOGG LG		
JAGIELSKI E J			4-19115	9-19115	
12-20068	14-20068		KELTSEV NV		
JAMES KW			7-20554		
16-18869			KENDRICK ED		
JAMIESON HD			6-19515	17-19515	
14-18824	15-18824		KENNEDY WR		
JARVIS GM			14-19684		
1-19962			KESSLER WE		
JASON RH			6-18890		
6-18895			KHOMCHIK LM		
JENSCHKE VA			14-18397		
2-20602			KHVOSTOV NN		
JOFFRE H			14-18398		
9-19922			KIDO Y		
JOHNSON CE			15-19216	16-19216	
4-19973			KIMEL LR		
JOHNSON CF			15-19235		
9-19056			KING AE		
JOHNSON DF			10-18505		
14-19160			KING HW		
JOHNSON DR			6-18876		
15-19536			KIRCHMANN RJ		
JOHNSON JE			14-19293		
14-19154	14-19950	15-19950	KIRICHENKO LV		
JOHNSON T			16-19552		
14-19657			KIRSCHBAUM HS		
JOHNSON VP			4-19118	9-19118	
9-18640	15-18648		KISTNER G		
JOHNSTON JE			14-17817		
14-19434	15-19434		KITANO K		
JONES HM			14-19159	15-19159	
9-18651			KLEFFNER JO		
JONES MB			12-18608	17-18608	
5-18694	17-18694	17-21148	KLEMFNT AW		
JONES PM			14-20812		
14-19263			KLICKMAN AE		
JUPITER C			6-18946	17-18946	
14-20025	15-20025		KLUIZ WS		
KAHN B			14-18852	15-18852	
14-18789	15-18789		KNAPP RW		
KAPLAN S			18-20066		
6-20043	9-20043		KNAPP WG		
KARANOVIC J			6-18877		
14-20585	15-20585		KNECHT O		
KARIM F			2-19993		
2-20014			KNOWLES DJ		
KARLAŠENKO NI			9-19855	9-20458	15-20458 17-20458

KOCH HW					14-19956	15-19956
1-19960					LAMPE DA	
KOCHENDORFER DB					18-19516	
14-20571	15-20571				LANE AD	
KOHLER WH					5-20460	18-20460
6-19982					LANG RM	
KOLAR OC					9-18656	
4-18725					LANGHAM WH	
KOLB WL					14-20807	
5-19868	5-19868	8-19868			LANGLEY RW	
KOLGANOVA LI					4-18914	
9-19439					LANZOLA E	
KOMABAYASI M					14-20440	
16-19550	16-20091				LAO SK	
KOMAROVA VI					16-18491	
14-20080	15-20080				LARSEN JE	
KOMATSU T					18-19755	
14-18860	15-18860				LARSEN RM	
KOMURO T					15-19524	
9-20038					LARSON KH	
KONAKOV PK					14-20810	
5-17557					LARSON S	
KONDNER RL					15-20786	
2-20594	2-20596				LAUGHON KO	
KONIG LA					9-19443	
14-19262	15-19262				LAVIE JM	
KORENKOV IP					2-19995	
15-20075					LAWRENCE DB	
KORNBERG HA					14-19153	
15-18839					LAWRENCE LA	
KOUTS HJ					9-19902	
18-19845					LAZARSKI R	
KOYANAKA Y					14-20581	
14-17960					LE BERRE F	
KOZIOL JJ					5-18892	6-18892
5-17530	6-17530	6-20446	17-20446		LEBLANC JG	
KOZLOV VM					17-19753	
2-20005	2-20006	7-20005	14-20006		LEDUC J	
KRASIN AK					18-19562	
9-19783					LEE H	
KRASNOPEVTSEV YV					14-21135	
16-19552					LEE RE	
KREMSEK JA					16-18866	
6-19776	9-19776				LEES EA	
KREVIIT R					5-20481	17-20481
17-19761					LEGRAND J	
KRIEGER GL					9-19920	
15-20095					LEHMANN D	
KRUGER P					11-19793	
14-20817					LEIBOWITZ L	
KUBOTA H					5-16572	5-16574 8-16574
15-19527					LENGEMANN FW	
KUDIRKA AA					14-18558	14-20815 15-18558 15-20815
18-18695					LENK M	
KUHHAEE AI					14-20702	
9-19923					LENK PA	
KUKHAEV AI					9-19170	
9-19783					LEU B	
KULBASHNAYA MV					18-16577	
14-20436					LEONARD BH	
KULP JL					18-19560	
14-20816	15-20816				LEONARD JH	
KUPRIYANOVA VM					9-19900	
14-19430					LEONG GF	
KURGANSKAYA VM					15-16644	
16-19552					LERIDON AM	
KURLYANDASKAYA EB					6-19776	9-19776
15-19818					LESNONI LA PAROLA G	
KUZMICHEVA MN					6-18889	
14-18401					LEVADNYI VA	
LA COUR CHRISTENSEN P					9-19783	
9-19899					LEVENTHAL L	
LABAT P					14-20762	
17-19559					LEWINS J	
LACER DA					6-18382	9-18382
2-20603					LEWIS KH	
LACOUR J					14-20813	
9-19920					LEWIS M	
LACY PS					9-18920	
5-18691	17-18691				LIEBEN J	
LADU M					14-20444	15-20444
15-19234					LIEBERMAN JA	
LAFITTE R					14-19812	
11-19793					LILLIE AF	
LAGERQUIST CR					17-18604	17-19753 18-18604
15-20667					LINDSAY WL	
LAI JR					14-19950	15-19950
14-16645	14-19534	15-16645			LINUMA TA	
LAL D					15-20678	
14-20442					LIPPETT J	
LAMB FC					14-18850	15-18850

LIPPMANN M					15-20586			
15-18858					MANDEL VH			
LITTAUER R					1-19140			
9-19775					MANGAN MA			
LITTLE JB					9-19497			
14-19881	15-19881				MANN JR			
LIUZZI A					9-18648	14-20789	15-16648	15-20653
15-18858					15-20789			
LLOYD RD					MANNESCHMIDT JF			
14-20785	15-20785				14-19809			
LOCKHART LB					MANSON SS			
7-17824	7-20549				11-21072			
LOCKHART RW					MANTZ JM			
5-19422	16-19422				15-20586			
LOIDL J					MAREI AN			
16-19210					14-19429	14-20077	15-15429	
LOMENICK TF					MARESH M			
14-20792					15-18837			
LONG JK					MARGOLIS SG			
6-19776	9-19776				6-18897	12-16944	17-16944	
LONGOOD RJ					MARKELS M			
15-19196	17-19196				5-17536			
LORENZ RA					MARKILLIE WR			
7-18476					9-18815			
LOUGH SA					MARSH OD			
15-19990	15-20759				17-19481			
LOVE DL					MARSH RO			
14-19327					11-18478			
LOVING JJ					MARSHALL JF			
4-19518	9-19518				15-20701			
LOW LD					MARSHALL RP			
1-20615	17-20615				9-18689	17-18669		
LOWE P					MARTIN A			
5-19545					14-20765	15-20765		
LUCAS DH					MARTIN JA			
16-18828	16-18869				15-19764			
LUCIA A					MARTIN JH			
6-18898					15-18864			
LUGO HM					MARTIN WJ			
14-18851	15-18851				7-18476			
LUMB RF					MARTINI M			
5-19198	6-19198	17-19197	17-19198		9-19128			
LUST R					MARUYAMA S			
16-19210					15-19226			
LUTJENS P					MARUYAMA T			
16-19210					15-19226			
LUZANOVA LM					MASUDA Y			
7-20016	12-20016				9-20040			
LYERLY RL					MATHERNE JL			
18-20065					12-20427	13-20427		
LYONS ME					MATHISEN RP			
5-20481	17-20461				5-19670	6-19670		
MAAGDENBERG HJ					MATSUNAMI T			
14-19956	15-19956				14-18493	16-18493		
MACCABEE HD					MAUREK H			
15-19492					11-18640			
MACDONALD PE					MAXWELL WA			
6-19944	18-19944				18-20065			
MACPHEE J					MAYINGER F			
5-19198	6-19198	17-19197	17-19198		5-17805	6-17805	8-17805	
MAGNO PJ					MAYOR JC			
14-20761	15-20761				6-19985			
MAHAGIN DE					MAYS CW			
6-20446	17-20446				14-20785	15-20785		
MAHAJAN KK					MAZARGV AG			
16-18833					2-20608			
MAINWALD E					MCBRIDE DJ			
15-20827					5-19421	8-19421		
MAIWALD E					MCCLANAHAN DJ			
15-20828					15-18836			
MAKHON KO KP					MCCLINTOCK DC			
16-19609					17-19561			
MALAKHOV SG					MCCUNVILLE JH			
14-20074	16-19552				4-19403	9-19403		
MALETOSKOS CJ					MCCORD RV			
15-19990	15-20759				17-21102	17-21103		
MALICK FS					MCCREARY JC			
4-19117	9-19117				9-19170			
MALKINA RM					MCDOWELL WP			
14-20078	15-20078				9-19114			
MALLORY KB					MCDUFFIE WT			
9-19780					14-19769			
MALMSTROM SA					MCFLROY DF			
9-19205					5-17841	17-17841		
MALONEY GE					MCGANDY RB			
17-17166					14-19881	15-19881		
MAMURO T					MC GEE JW			
14-18493	16-18493				5-16631	12-16631		
MANCA G					MCINTOSH AE			
6-21129					7-18474			
MANDEL P					MCKEE G			

5-17802	6-17802	8-17802	15-19549	16-19549
MCMURRAY TR			MORGAN KZ	
10-20567			15-19802	
MCQUILLING OW			MORGAN RH	
15-19824			15-20664	
MCTAGGART MH			MORK HM	
6-19978			14-18540	14-19533 15-18640
MCVEAN RL			MORKEN DA	
6-19776	9-19776		14-19490	15-19490
MECHALI D			MORRIS PA	
15-19514			2-20009	
MEHANN RO			MORRIS WR	
17-20877			4-19118	9-19118
MEIERAN HB			MORRISON DL	
18-18603			7-20546	
MELZNER F METER B			MORROW GW	
16-19210			9-18378	
MENNIG J			MORTON JR	
6-19985			6-18880	
MENTZ RM			MOSKOVITZ AI	
6-19943	9-19943	18-19943	4-19796	9-19796
MENZEL RG			MUEH H	
14-20808			16-19209	
MERCER WA			MUELLER RE	
14-19956	15-19956		7-18947	17-18947
MERCHIE F			MUENCHOW HO	
9-19858			12-19567	
MERKOVA MA			MUHLBAIER DR	
15-18399			7-18471	
MERRILL MH			MULLINS LR	
6-18882			14-19296	
MESHALKINA NG			MUNIAK SE	
15-18822			14-19298	
MEYER JC			MURAVEVA LI	
4-19796	9-19796		14-19431	15-19431
MEYER LM			MURAYAMA N	
14-18466	15-18466		14-18816	15-18816
MICHAELIDIS P			MURTHY GK	
15-20586			14-20813	
MIDDLEBROOKS EJ			NACHTWEY DS	
14-19028			15-16644	
MILLER CE			NADACHOWSKI M	
15-19990	15-20443	15-20759	9-19134	
MILLER CF			NAGAI T	
14-21135			15-20678	
MILLER HL			NAGASAWA K	
9-19441	15-19441		15-19216	16-19216
MILLER WG			NAGLE CM	
15-19155			16-19220	
MILLOT JP			NAKAMURA S	
5-18892	5-18893	6-18647	9-20036	9-20039
6-18893	6-18941	17-18647	NASYROV F	
MISHEV IT			9-19116	
14-19295			NATH RJ	
MISHLER LW			5-19110	17-19110
5-16572			NATHANS MW	
MITCHELL W			14-20762	
1-16553	17-16553		NAUMOV VA	
MOEN RH			9-19703	
18-18695			NEEL JV	
MOISEENKO EI			15-19773	
14-19429	15-19429		NELSON DJ	
MOISEITSEV PI			14-19819	
14-18402			NELSON DK	
MOJOVIE L			14-20029	14-20805
2-20001			NELSON N	
MOLE PH			15-18858	
15-18055			NELSON P	
MOLLA MA			1-18652	9-18652
15-20787			NEUMANN PO	
MONTA K			14-20694	
9-20034			NEUSS H	
MONTAN D			16-19210	
14-20674	15-20674		NEWELL RE	
MOORE DJ			16-18800	
16-18831			NEWMAN J	
MOORE R			14-20671	
7-17829	14-17829	15-17829	NEWMARK NM	
MOORE RE			2-20607	
4-20551			NEWTON D	
MORAN HS			15-19187	
15-22114			NGUYEN DH	
MORDARSKI WJ			7-20552	
18-20066			NICHOLLS AB	
MORGAN A			14-19810	15-19810
14-19822	15-19822		NICHOLS CR	
MORGAN DJ			5-17536	
14-19822	15-19822		NICHOLS PF	
MORGAN EE			18-19755	
2-20011			NICKOLA PW	
MORGAN F			16-20690	

NICOLL D				PANISKO FE			
9-18429				7-18684	17-18684		
NIELSEN JM				PAOLETTI GUALANDI M			
14-19532				6-18889			
NIELSEN P				PARDO G			
9-17894	10-17894			15-19514			
NIKIFOROVA OA				PARKER E			
14-18821	15-18821			9-19931	17-18692		
NIRSCHL RJ				PARKER FL			
18-19755				14-19767			
NISHITA H				PARKER GW			
14-20810				7-18476			
NORELLI F				PARKER R			
6-18878				9-18723			
NORENA S				PARKKISON CD			
2-19991				9-20776	12-20776	17-2C776	
NORRIS EB				PARRISH JR			
9-20447	17-20447			9-20566	10-20566		
NORTHUP TE				PARTAIN CL			
11-18478				9-19203			
NOSHKIN VE				PASCOUET A			
14-18485				6-19222			
NOTLEY MJ				PASCUAL JN			
5-20460	18-20460			14-16645	15-16645		
NOVENDSTERN EH				PASHKIN NF			
5-18694	17-18694			9-19116			
NOVIKOV YV				PASQUILL F			
14-20071	15-20071			16-20590			
NULMAN RM				PATANE M			
14-20652				9-18812			
NUTT R				PATERSON WJ			
9-19333				6-19978			
NYER WE				PATIN SA			
1-17568				16-18872			
O BRIEN HG				PATTERSON HW			
9-20782				15-20704			
O CONNER JD				PATTERSON PW			
14-16645	15-16645			18-18603			
O-BRIEN B				PATTERSON RL			
1-20876	17-20876			7-17824	7-20549		
O-DONNELL WJ				PAULSON AE			
11-18690	17-18690			9-18651			
O-NEILL HJ				PAVLIC J			
17-19199				5-16571	8-16571		
OBLANAS JW				PAVLOTSKAYA FG			
16-19877				14-19427			
OBOYLE MJ				PAVLOVSKAYA NA			
5-19685	17-19685			14-18400			
OBRADOVIC J				PAXSON E			
2-20001				17-21148			
OHMURA M				PEARCE DW			
2-20606				14-21143	15-21143		
OLIVARES MUNOZ MP				PEARSON A			
15-17141				9-20751			
OLIVER R				PECKINPAUCH CL			
14-19512	15-19512			17-18606			
OMELYANENKO LM				PEDERSON OM			
15-18399				9-17897	10-17897		
ONDREJCIN RS				PEERS AM			
9-19797				7-17673			
OPLÉ FS				PEKAREK HJ			
11-18384				2-19997			
ORLOVA EI				PELLICIONI M			
14-20072				15-19234			
OSAWA H				PENDLETON RC			
2-19998				14-20785	15-20785		
OTT K				PENOTET M			
6-19223				15-19514			
OVINGTON JD				PENSKI J			
14-19153				9-19129	15-19129		
OWENS JE				PENZIEN J			
17-19558				2-20602			
PACILIO N				PEPINO A			
6-18379				6-18878			
PADDLEFORD DF				PEPPER EW			
6-19944	18-19944			14-18789	15-18789		
PAGE NP				PERKIN JL			
15-16644				6-20756			
PAGE RD				PERKINS RW			
7-19941	18-19841			14-19532	16-18708	16-20589	
PAIGE DM				PERKINS WC			
12-18608	17-18608			14-20695			
PAINTER HE				PERMYAKOV AA			
16-18870				14-18821	15-18821		
PALLADINO NJ				PERRY KE			
5-19107	12-19107	12-19108	18-19107	15-19258			
18-19108				PERRY TR			
PALMER HE				6-19982			
14-20791	15-20791			PERTSCV LA			
PALOWITCH BL				14-20076			
6-16644				PERTTALA Y			

15-19804			PUGH MC			
PESTANER JF			9-20044			
14-19327	14-19549	15-19949	PULCINELLI M			
PETERSON CO			15-19806			
16-20081			PURCELL RH			
PETIT R			11-19185	17-19183	17-19184	17-19185
9-19920			17-19186			
PFEFFER H			PUSCH WM			
9-19775			14-19401			
PFLASTERER GR			PUTZIER EA			
18-20482			15-20667			
PHILLIPS CR			QAZI MN			
14-20769			9-19679			
PHILLIPS JL			QUIRK AI			
5-18857	17-18857		14-18852	15-18852		
PICKERING RJ			QURESHI MH			
14-21826			9-19679			
PICKETT RT			RABY TM			
4-19174	9-19174		5-18691	17-18691	18-19516	
PIERCE GA			RACH K			
6-18880			15-19163			
PIETRI G			RADICHEVA MA			
9-19920			14-19295			
PIGGOTT MR			RAJAN			
11-21146			14-19493			
PILLAI KC			RAJU MR			
14-19266			15-19492			
PILTINGSRUD CW			RALLS JW			
15-20667			14-19956	15-19956		
PIPER HB			RAMA			
5-17160	17-17160		14-20442			
PIPES EW			RAMDOHR H			
15-20766			14-20435			
PLANTE J			RAMEY JT			
9-18428	9-21150		1-17696			
PLATT AM			RAMP RL			
14-19525	14-19816		4-19117	9-19117		
PLAWCHAN JD			RANOGAJEC F			
18-19560			15-18481			
PLUTA PR			RASCON DA			
6-18888			2-20595			
POLACKI Z			RASCUAL F			
14-19436			2-19991			
POLIKARPOV GG			RASETTI M			
14-19290	15-19290		9-19924			
POLYNAKOVA AA			RASHID YR			
14-20071	15-20071		11-18384			
PONTIER R			RASO DJ			
17-19559			15-17818			
POPOV NI			RASTOGI V			
16-18872			9-19177			
POPPER GF			RASTOIN J			
9-20024			18-19562			
PORTER CR			RASZL K			
14-18789	15-18789		2-20017			
POSEY JC			RAUZEN FV			
4-20818	11-20818		14-20437			
POSNER S			RAY JW			
7-17829	14-17829	15-17829	14-20575			
POST RG			RAY WH			
15-20573			9-19926			
POSTON JW			RECHEN HJ			
15-19536	15-22115		14-18788	15-18788		
POTTIER J			REDFIELD JA			
9-19920			12-18944	17-18944		
POUND OC			REDMAN JD			
18-19755			5-17802	6-17802	8-17802	
POZDNYAKOV AL			REHNBERG GL			
14-19431	15-19431		14-18789	15-18789		
PRAEL RE			REIK M			
6-18890			9-18433			
PRATT MW			REIST PC			
14-21002	15-21002		14-19882			
PRATT OR			REMENCHIK AP			
7-17829	14-17829	15-17829	15-20443			
PRESCOP V			REMICK FJ			
12-18944	17-18944		7-18752	17-18752		
PREVO C			REMMENGA EE			
14-20674	15-20674		14-20669			
PRIMBSCH S			RENNER KH			
14-19956	15-19956		15-20102			
PRINZ WH			REUSCHER JA			
14-18487			9-18809			
PRZYBOROWSKI S			REYNES L			
15-20827			17-19556	17-19557		
PUCHKOVA SM			REYNOLDS RA			
14-20078	15-20078		14-19160			
PUCKER N			RHOADS WA			
6-19980			14-18785	15-18785		
PUESCHEL RF			RICE L			
16-18865			14-20694			

RICHERT KD				14-18489		
5-19869	6-19869	8-19869		RUTKOWSKI W		
RICHTER D				9-19172		
14-19424	14-20702			RUWE DM		
RICKARD WH				15-19486		
14-19231				RYERSON CM		
RIEGER E				4-19796	9-19796	
16-19210				RYMER GT		
RILEY PJ				14-20570		
9-20023				RYSEV OA		
RINEHART J				15-20083	16-20083	
14-19956	15-19956			RYTILLAE A		
RINNE R				15-19804		
15-19804				RYUFUKU H		
RIVERA J				14-19159	15-19159	
14-19221	16-19221			RYZHOV AI		
RIZZO FX				2-20006	14-20006	
15-20572				SADDINGTON K		
ROACH KE				7-20013	11-20013	
18-20065				SADLER AM		
ROBERTS H				15-18638		
14-20808				SAHA AK		
ROBERTS J				16-18632		
2-17286				SAIKI M		
ROBIN M				15-20678		
18-19562				SALA A		
ROBINSON EM				9-19920	9-19921	
15-22115				SALA R		
ROCKENHAUSER W				5-17804	6-17804	8-17804
11-18478				SAM D		
ROECKER JH				14-17820	15-20675	
4-19973				SANDALLS FJ		
ROFF RR				14-19526		
17-20477				SANDERSON FL		
ROGOSA GL				14-18824	15-18624	
1-19960				SANDOVAL E		
ROHSENOW WM				17-18746		
5-17578	5-19419	8-19419		SANTASILIA, FRANCO		
ROLIE AG				5-20058	17-20058	
14-18486				SAPARLYEV CH		
ROMNEY EM				14-19427		
14-18785	14-19533	14-20810	15-18785	SARLOS G		
ROOF RR				6-19985		
17-20475				SASAKI S		
ROSAL ER				9-20037		
4-19518	9-19518			SASS RE		
ROSEN L				15-17549		
1-19960				SASSE RA		
ROSENBERG HS				15-20673		
7-20546				SASSE S		
ROSENBLUETH E				15-18376		
2-20595				SASSER LB		
ROSH D				14-18795	15-18795	
18-21084				SATO T		
RUSINGER VS				2-19880		
13-19418				SAUNDERS AW		
ROSS DA				7-17824	7-20549	
17-18913				SAUTER E		
ROSYANOV SP				16-19217		
15-20083	16-20083			SAUTERAY R		
ROTH CE				13-19832		
4-19796	9-19796			SAUTRAY R		
ROTHE JP				13-19836		
2-20605				SAXE D		
ROTONDI E				12-19099	15-19099	17-19099
15-19234				SCHAD O		
ROUX DP				5-17805	6-17805	8-17805
6-19680	9-19137	9-19680		SCHEEL H		
ROWE DS				7-20826	12-20826	14-20826
5-19546	6-19546	8-19546		SCHENK K		
ROWE RG				9-20562	9-20563	
11-21147				SCHIKARSKI W		
ROY GM				6-16647		
9-20566	10-20566			SCHILLING G		
ROYS WB				14-19424		
7-18474				SCHIMMERLING W		
ROZENHAI C M				15-17549		
17-19559	18-19562			SCHIPFER P		
RUDDER E				14-19807	15-19807	
17-17843				SCHIPPER P		
RUDY GL				15-20100		
6-20457	9-20457	17-20457		SCHMITT C		
RULE IC				15-20586		
5-17802	6-17802	8-17802		SCHNEIDER G		
RUPPERT VH				18-19891		
1-19138				SCHOW H		
RUSCHE BC				9-17801		
16-20660				SCHROEDER F		
RUSSELL JA				1-17566		
9-19855	9-20458	15-20456	17-20458	SCHUETTE FJ		
RUSSELL RS				16-18867		

SCHULL WJ					6-18884				
15-19773					SHOUPP WE				
SCHULTZ HF					1-19959				
15-19817					SHUKHOVTSEV BI				
SCHULZ EH					15-18822				
17-19190					SHULTZ TG				
SCHUMANN G					6-19504		17-19504		
16-19553					SHUMWAY RH				
SCHUSKE CL					14-20814				
6-18876					SICARD F				
SCHWALM D					9-19920				
6-18885					SIDDIQI AA				
SCIUTO F					15-18748		17-18748		
6-18898					SIDNEY SINGER				
SCOTCHER RJ					9-19496				
9-19902					SILVER L				
SCOTT AF					12-20429				
18-17838					SILVERMAN M				
SCOTT CC					5-16571		8-16571		
9-18814					SIMEK JE				
SCOTT D					14-19805				
9-19202	12-19202				SIMMONS RB				
SCOTT JK					14-19489		15-19489		
14-19490	15-19490				SIMPSON CL				
SCOTT RF					14-19875		16-19875		
2-20598					SIMPSON JD				
SCOTT RL					15-20787				
9-18919	10-18919	17-18919			SING KSW				
SCOTT WM					7-20553				
15-20070					SITTKUS A				
SCREWALA FN					16-19208		16-19209		
2-20594					SKAARDAL RC				
SCRIVEN RA					17-18680				
16-18830					SKAVDAHL RE				
SEBBA F					7-18684		17-18684		
14-19537					SKINNER RI				
SEBILLE J					2-20599				
11-19692	19-19692				SKOVHOLT DJ				
SEBILLEAU F					17-17664		17-17831	17-17832	18-17844
18-19562					SKRIPCENKO ES				
SEDLER J					14-18400				
14-19157					SKRYABIN AM				
SEIGEL DG					15-18822				
15-19259					SLINN WG				
SEKKESAETER H					16-20688				
17-18702					SMEE JL				
SELBY CL					17-19842		17-19843		
9-18689	17-18689				SMITH FA				
SEVNIS C					17-18681				
2-20010					SMITH FB				
SEPPI EJ					16-20085		16-20086		
17-19760					SMITH ME				
SEREDA GA					16-19220				
16-19552					SMITH PG				
SEREDIN YV					17-19763				
14-18402					SMITH RC				
SERGEEV BV					15-20696				
2-20005	7-20005				SMITS FM				
SERVENT JM					9-20042				
9-19920					SNARELY DR				
SEVILLA A					14-19522				
2-19991					SNYDER WR				
SHAFIROV YB					17-20561				
14-19829	15-19829				SNYDER WS				
SHALAEV IL					15-19164				
14-18820	14-19426	15-10820			SOBULEV IA				
SHAMOV VP					14-18397				
14-19430					SOBOLEVSKII MA				

SPERGEL MS					SULLIVAN MF				
15-20784					15-18836				
SPERRY K					SULLIVAN TE				
1-19961					9-18721				
SPIEGELMAN J					SUCMELA M				
15-18858					15-20096				
SPIES J					SUTOW WW				
9-21154					14-18466		15-18466		
SPINA AM					SWANSON AE				
14-20440					1-20684		16-20684		
SPINKS N					SWANSON CD				
6-18881	6-18894				9-19167				
SPURLOCK JM					SWANSON L				
5-17536					5-20517		9-20517		
STACEY WM					SWETNAM RL				
6-19119	6-19589	9-19119			15-20591		16-20591		
STANOCH A					SWEZEA EG				
14-20581					14-19433		15-19433		
STAUB FW					SWINGLE KF				
5-20540	6-20540	8-20540			15-19465				
STAVITSKII RV					SWINTH KL				
15-18399					15-18842				
STEELE OP					SZABO RJ				
4-19115	9-19115				14-19954				
STEEN AJ					SZTEKE W				
14-18785	15-18785				9-19172				
STEEN NM					TABOR WH				
6-19988					6-22113		17-22113		
STEERE NY					TADMUR J				
1-19890					14-19538		14-20099		
STEGEMANN DH					TAJIMI H				
6-21127					2-20606				
STEIN JM					TAKAHASHI J				
5-19182	8-19182	18-19182			6-18619		9-18619		
STEPANOV SA					TAKAHASHI T				
14-20079	15-20079				16-20091				
STEPHAN LA					TAKAHASHI Y				
6-17166	17-17166				9-20034				
STEUER J					TAKAMATSU S				
15-18823					9-20034				
STEVENS WH					TAKIZAWA M				
14-19887					15-19226				
STEVENSON CN					TALBERT WL				
12-18608	17-18608				7-18477				
STEWART PG					TAMURA T				
4-20819					14-17547		14-21826		
STOBBS JJ					TANAKA E				
2-19997					15-20763				
STOCKBURGER H					TASSI-PELATI L				
16-19208					14-19823				
STONE GN					TATSUTA H				
2-20003					14-19159		15-19159		
STUNE JT					TAYLOR JC				
6-19504	6-20457	9-20457	17-19504		7-20545		12-20545		
17-20457					TAYLOR LS				
STONEMAN DW					15-20764				
15-19511					TAYLOR R				
STORY EJ					7-18474				
16-20683					TEBBERT H				
STRAIT BG					13-19417				
9-18656					TELEGADAS K				
STRATTON WR					16-19219				
1-19505	6-21131	13-19505	17-19505		TEMLER J				
STRAUB CP					5-19929		9-19929		
14-20813					TERNOV VI				
STRAUSS H					14-18395		15-18395		
14-20706					THCMAS DM				
STRITTMATTER JA					7-13813		9-18813	15-18813	
9-19497					THCMAS JT		9-18900	15-18899	17-18859
STROMME A					5-18899				
14-19803	15-19803				17-18900				
STRONG GH					THCMPSON DH				
11-19691					5-19868		6-19868	8-19868	
STRUXNESS EG					THOMPSON JC				
14-20792	15-19164				14-20790		14-20815	15-20790	15-20815
STUEMKE H					THCMPSON RC				
16-20542					14-19433		15-19433		
STUERMER W					THCMPSON TJ				
9-21155					6-18007				
STYRO BI					THRUN E				
16-19213					8-18490				
SUCAR FS					THURSTON WM				
2-20012					14-19687				
SUGALSKI A					TILBE HE				
12-20068	14-20068				17-18467				
SUGIHARA TT					TITOVA IN				
14-18485					14-20071		15-20071		
SUKALSKAYA SY					TOBIAS CA				
14-18821	15-18821				4-20819				
SUKHOVATYKH LS					TOCHILIN E				
14-20080	15-20080				15-19155				

TOCREAS NE				VERSTRAETE P			
5-19419	8-19419			11-19793			
TOIVONEN M				VESTERGAARD R			
15-19952				17-18602			
TOOMB DS				VIGO A			
9-19898				9-19128			
TOPPEL BJ				VILLENEUVE J			
5-19111	6-19111	6-19112	17-19111	18-19562			
17-19112				VINCK W			
TORI P				11-18640			
15-19811				VOGELBERGER PJ			
TOROCHESHNIKOV NS				5-19111	6-19111	6-19112	17-19111
7-20554				17-19112			
TOZZI A				VOLCHOK HL			
5-17804	6-17804	8-17804		14-19156			
TRENHOLME WM				VON EICKE A			
9-19114				9-21155			
TRIMBLE G				VOROBEV AM			
14-20025	15-20025			14-20073			
TRINKO JR				VOTA AV			
6-19680	9-19680			9-18650			
TRIPP CG				WACKS ME			
14-18824	15-18824			15-20573			
TRIULZI C				WADE JE			
14-19823				15-18751	17-18751		
TROSHEV T				WAGGENER JP			
15-19294				5-20452	9-20452		
TROUBLE M				WAGMAN J			
14-21471				16-18866			
TRUNDLE AS				WALL JF			
16-20683				2-20662			
TSO TC				WALL MA			
14-19300				14-20768	15-20768		
TSUJI A				WALTER CE			
9-20040				4-18725			
TUCHSCHEERER T				WALTER HE			
14-18482				15-18838			
TUCKER AB				WALTON JW			
7-18477				4-19403	9-19403		
TUERKCAN E				WARD DR			
9-18811	9-19204			17-17158			
TUKEY HB				WARD GM			
14-20811				14-19154			
TURNER JE				WARKENTIN JK			
15-20783				14-19539			
TURNER RF				WARNER GP			
17-17162				6-20758			
TUTTLE RJ				WARNER WK			
9-18377				4-19796	9-19796		
TYREE PM				WARZEE M			
15-19100	17-19100			5-21989	17-21989		
UCHIDA T				WASSERMAN RH			
2-20000	2-20606			14-20815	15-20815		
UCHIYAMA M				WATERFIELD R			
15-20678				16-20088			
ULBERG JC				WATSON CD			
14-20571	15-20571			12-16584	13-16584		
ULLMANN W				WATSON EC			
15-20827	15-20829			14-19875	16-19875		
URAKUBO G				WATSON LC			
15-19216	16-19216			15-20697			
UTKU S				WEALE JW			
11-15857				6-19978			
VALLAURI M				WEAVER CL			
9-19924				14-20651			
VAN AS AD				WEAVER L			
14-19506				14-18787	15-18787		
VAN DE VOORDE N				WEAVING AH			
14-17546				9-19925			
VAN DER LINDE KH				WEBER M			
14-19876	16-19876			9-19774	12-19774		
VAN HEUGTEN F				WEIDNER H			
9-18910				17-19760			
VAN TUYL HH				WEINREICH WA			
15-20696				6-19839	9-19839		
VAUTREY L				WEIR A			
17-19559	18-19562			17-17663			
VEBRIENE B				WEISS DT			
16-19213				5-20481	17-20481		
VELETSOS AS				WEISS E			
2-20607				5-17805	6-17805	8-17805	
VELEZ GA				WEISWEILER W			
17-19189				14-19876	16-19876		
VENDRYES G				WEITZBERG A			
18-19562				6-19776	9-19776		
VENNART J				WELBOURNE D			
15-20666				9-20750			
VERAS A				WELFORD GA			
17-17161				14-20760	15-20760		
VERESKUNOV V				WELLS BJ			
14-20094				14-20672			

WELLS MB				WOOD RA			
15-20701				14-18785	15-18785		
WESOLOWSKI-LOW TA				WOODRUFF RW			
9-19925				17-19558			
WEST GA				WOOLF S			
12-16584	13-16584			15-17818			
WEYDERT LN				WORTLEY G			
6-18890				14-20557	15-20557		
WHALEN JF				WRIGHT JC			
9-20752				14-19810	15-19810		
WHEELER FJ				WRIGHT MO			
6-19987				14-19810	15-19810		
WHEELER RG				WURSTER DE			
17-18685				9-19170			
WHICKER FW				WYKE TF			
14-19233	14-20669			5-19110	17-19110		
WHIPPLE HO				YAGODOVSKII IV			
15-19817				16-19552			
WHITE WP				YAMAGATA N			
9-20044				15-20678			
WHITENER HL				YAMAMOTO O			
6-17166	17-17166			15-19437			
WHITHAM GK				YAMBROVSKY YM			
17-17164				2-20006	14-20006		
WHITMAN GD				YAROSHEVICH OI			
11-19693				9-19783			
WIBERG DM				YARTSEV EI			
6-19130	9-19130			14-19429	15-19429		
WIECZORKOWSKI M				YIH TS			
9-19172				5-19871	6-19871		
WILCOX TP				YOSHIDA Y			
4-18725				14-19159	15-19159		
WILLIAMS AJ				YOUNG G			
16-20082				1-18652	9-18652		
WILLIS CA				YUDIN MF			
1-19844	5-19844	18-19844		15-20682			
WILLIS WL				ZALESKI CP			
9-18655				18-19562			
WILSON DW				ZALESKI P			
14-19154	14-19950	15-19950		17-19559			
WILSON EA				ZANOT JR			
15-17842	17-17842			9-19206	9-19874	17-19874	
WILSON EJ				ZARAEV OM			
14-20767				14-19686	16-19686		
WILSON TR				ZARTMAN IF			
1-17568				9-20755			
WIMUNC EA				ZASFDATELEV AA			
5-19111	6-19111	6-19112	9-18720	14-19430			
17-19111	17-19112			ZASLER J			
WINSCHKE WE				18-18674			
9-20018				ZATSEPINA LN			
WIRTH JL				14-19427			
9-20042				ZEC U			
WITKAMP M				15-18481			
14-20610				ZEDLER P			
WITKOWSKI EJ				14-19876	16-19876		
14-19809				ZEL CHINSKII M			
WITTE L				15-19236			
5-16571	8-16571			ZELLER AF			
WITTENBROCK NG				1-17849	17-17849		
1-19251	15-19251	17-19251		ZHAKOV IG			
WITTWER SH				14-20080	15-20080		
14-20811				ZHARNOVETSKII K			
WOLF MA				15-19236			
16-20690				ZHILKINA MI			
WOLTER R				15-20083	16-20083		
14-20771				ZIELCZNSKII M			
WOMELSDUFF RE				15-19815			
14-16643	15-16643			ZIELENBACH WJ			
WONG P				9-17173			
14-19658	15-19658			ZLOBIN VS			
WOOD MR				14-19432			
9-19167				ZNEZEVIC Z			
WOOD PM				14-20585	15-20585		
6-19943	6-19944	9-19943	18-19943	ZUROMSKY G			
18-19944				5-17530	6-17530		
WOOD R				ZVEREV FP			
14-19261				14-20080	15-20080		

APPENDIX

REFERENCE SOURCES

THE ONLY REPORTS DISTRIBUTED BY NSIC ARE THOSE GENERATED BY THE CENTER, I.E., THOSE WITH ORNL-NSIC NUMBERS. UNDER NO CIRCUMSTANCES ARE COPIES OF THE OTHER REPORTS REFERENCED IN THIS BIBLIOGRAPHY FURNISHED, ALTHOUGH ALL AVAILABLE DOCUMENTS MAY BE EXAMINED AT THE CENTER BY QUALIFIED PERSONNEL.

NSIC HAS INITIATED A NEW FORMAT FOR DOCUMENT AVAILABILITY AND PRICE. THIS INFORMATION IS NOW PRESENTED, WHERE APPLICABLE AND AVAILABLE, IN A LINE TO ITSELF FOLLOWING THE DOCUMENT ABSTRACT. WHERE PREVIOUSLY THE NAME OF THE SOURCE ORGANIZATION APPEARED AT THE END OF THE LINE PRECEDING THE ABSTRACT AND WAS ABBREVIATED, IT IS NOW SPOelled OUT IN THE NEW LOCATION. SINCE IT WILL TAKE SOME TIME TO CONVERT COMPLETELY TO THE NEW SYSTEM, NSIC WILL CONTINUE TO FURNISH A KEY TO THE ABBREVIATIONS. THIS KEY ALONG WITH THE ADDRESSES OF THE SOURCE ORGANIZATIONS FOLLOWS.

AEC-DOS	*AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.
AEC-FL	AEC FILM LIBRARY, OAK RIDGE OPERATIONS OFFICE, OAK RIDGE, TENNESSEE 37830
AECL	ATOMIC ENERGY OF CANADA, LTD., CHALK RIVER, ONTARIO, CANADA
AIF	ATOMIC INDUSTRIAL FORUM, 850 THIRD AVENUE, NEW YORK 22, N. Y.
APC	AMERICAN POWER CONFERENCE E.R. WHITEHEAD, SECRETARY, ILLINOIS INSTITUTE OF TECHNOLOGY, CHICAGO, ILLINOIS 60616
ASME	(PREPRINTS) AMERICAN SOCIETY OF MECHANICAL ENGINEERS ORDER DEPARTMENT, 345 E. 47TH ST., NEW YORK, N. Y. 10017
BIS	BRITISH INFORMATION SERVICE, 845 THIRD AVE., NEW YORK, N. Y. 10022
CEA	DOCUMENTATION FRANCAISE, SECRETARIAT GENERAL DU GOVERNMENT, DIRECTION DE LA DOCUMENTATION 16, RUE LORD BYRON, PARIS VILLIEME
CFSTI	CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NBS, USDC, SPRINGFIELD, VIRGINIA 22151
CY	INDICATES THAT THE FORMAT OF THE ITEM SOLD MAY BE EITHER A PRINTED DOCUMENT OR A PHOTOGRAPHIC REPRODUCTION (TWO-THIRDS OF ORIGINAL SIZE) DEPENDING UPON THE AVAILABILITY OF PRINTED STOCK. THE INDICATED PRICE IS FOR EITHER FORMAT.
DDC	DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA 20545
DEP	AEC REPORTS - FULL-SIZE COPY IS ON DEPOSIT IN THE DEPOSITORY LIBRARIES BOTH INSIDE AND OUTSIDE THE UNITED STATES. THESE REPORTS ARE ALSO FOR SALE BY MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPARTMENT, WEST SALEM, WISCONSIN 54669 NON-AEC REPORTS - FULL-SIZE COPY ON DEPOSIT IN THE DEPOSITORY LIBRARIES IN THE UNITED STATES ONLY.
DEP(MC)	SAME AS FOR DEP, EXCEPT COPY IS IN MICROCARD FORM.
DEP(MN)	SAME AS FOR DEP, EXCEPT COPY IS IN MICRONEGATIVE (MICROFICHE) FORM.
DPI	AEC, DIVISION OF PUBLIC INFORMATION, WASHINGTON, D. C. 20545
GI	GMELIN INSTITUTE, 40-42 VARRENTRAPPSTRASSE, FRANKFURT (MAIN) WEST GERMANY
GIH	AMERICAN CONFERENCE OF GOVERNMENTAL HYGIENISTS, 1014 BROADWAY, CINCINNATI, OHIO
GPO	U. S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402
HMSO	(HER) MAJESTY S STATIONERY OFFICE, LONDON
IAEA	NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, NEW YORK 10016
JCL	JOHN CRERAR LIBRARY, 35 WEST 33RD ST., CHICAGO, ILLINOIS 60616
JUL	JUL. GJELLERUP, 87, SOLVGAEDE, COPENHAGEN K, DENMARK
MN	USED TO INDICATE THAT COPY IS ALSO AVAILABLE IN THE FORM OF MICRONEGATIVES (MICROFICHE).
NRC	NATIONAL RESEARCH COUNCIL OF CANADA, OTTAWA, ONTARIO, CANADA
NSIC	NUCLEAR SAFETY INFORMATION CENTER, OAK RIDGE NATIONAL LABORATORY, P. O. BOX Y, OAK RIDGE, TENNESSEE 37830
OCE	SAFETY OFFICE, OFFICE OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, WASHINGTON, D.C.
OEEC	O.E.E.C. MISSION, PUBLICATIONS OFFICE, SUITE 1223, 1346 CONNECTICUT, WASHINGTON, D.C.

ORAU	AVAILABLE ON INTERLIBRARY LOAN FROM THE LIBRARY, OAK RIDGE ASSOCIATED UNIVERSITIES, POST OFFICE BOX 117, OAK RIDGE, TENNESSEE 37830.
PATENTS (BRITISH)	THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS PER COPY)
PATENTS (FOREIGN)	(OTHER THAN BRITISH) IT IS OUR UNDERSTANDING THAT FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (30 CENTS PER PAGE)
PATENTS (U. S.)	THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (25 CENTS PER COPY)
PDR	**USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.
SOURCE	ORIGINATOR OF DOCUMENT (AUTHOR, CORPORATE AUTHOR, OR PUBLISHER)
UKAEA, (LONDON)	UNITED KINGDOM ATOMIC ENERGY AUTHORITY, 11 CHARLES II STREET, LONDON, S. W. 1
USGS	U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242

*PREPARED BY USAEC DIVISION OF OPERATIONAL SAFETY, AVAILABLE FROM DOS IF
THE SUPPLY OF A PARTICULAR ISSUE IS NOT EXHAUSTED.

**USUALLY DOCUMENTS MAY BE EXAMINED ONLY AT THE PUBLIC DOCUMENT ROOM.
OCCASIONALLY EXTRA COPIES ARE AVAILABLE FOR DISTRIBUTION.

DISTRIBUTION FOR ORNL-NSIC-45

INTERNAL

1.	T. D. ANDERSON	32.	C. M. MURPHY
2.	H. F. BAUMAN	33.	H. G. OBRIEN
3.	S. E. BEALL	34.	L. F. PARSLY, JR.
4.	J. P. BLAKELY	35.	A. M. PERRY
5.	W. E. BROWNING	36.	H. B. PIPER
6.	R. H. BRYAN	37.	B. E. PRINCE
7.	J. R. BUCHANAN	38.	T. H. ROW
8.	D. W. CARDWELL	39.	A. W. SAVOLAINEN
9.	W. B. COTTRELL	40.	R. L. SCOTT
10.	K. E. COWSER	41.	L. B. SHAPPERT
11.	E. N. CRAMER	42.	O. L. SMITH
12.	F. L. CULLER	43.	W. G. STOCKDALE
13.	F. M. EMPSON	44.	B. H. STOUTT (K-25)
14.	M. H. FONTANA	45.	C. S. WALKER
15.	A. P. FRAAS	46.	J. L. WANTLAND
16.	W. R. GRIMES	47.	A. M. WEINBERG
17.	E. W. HAGEN	48.	H. B. WHETSEL
18.	B. L. HOUSER	49.	J. V. WILSON
19.	W. H. JORDAN	50.	M. L. WINTON
20.	G. W. KEILHOLTZ	51.	S. L. YOUNT (K-25)
21.	F. KERTESZ	52.	BIOLOGY LIBRARY
22.	J. O. KOLB	53-55.	CENTRAL RESEARCH LIBRARY
23.	C. E. LARSON	56-57.	ORNL- Y-12 TECHNICAL LIBRARY
24.	C. G. LAWSON		DOCUMENT REFERENCE SECTION
25.	T. F. LOMENICK	58-912.	LABORATORY RECORDS DEPARTMENT
26.	H. G. MACPHERSON		(FOR NSIC DISTRIBUTION)
27.	W. C. MCCLAIN	913.	LABORATORY RECORDS, ORNL R.C.
28.	H. C. MCCURDY	914-1013.	NUCLEAR SAFETY INFORMATION CENTER
29.	H. A. MCLAIN		J. R. BUCHANAN, BLDG. 9711-1
30.	T. L. MCLEAN	1014-1033.	OTHER ORNL INFORMATION CENTERS
31.	J. G. MERKLE		

EXTERNAL

1034.	W. A. KEE, AEC-DTI
1035.	G. A. BRIGGS, USWB-ORG
1036.	F. A. GIFFORD, USWB-ORG
1037.	S. D. SWISHER, USWB-ORG
1038-1041.	A. J. PRESSESKEY, AEC-DRD
1042.	S. J. LANES, AEC-DRD
1043.	J. A. LIEBERMAN, AEC - WASHINGTON
1044-1300.	GIVEN DISTRIBUTION AS SHOWN IN TID-4500 UNDER REACTOR TECHNOLOGY CATEGORY (25 COPIES - CFSTI)