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NUCLEAR SAFETY

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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.

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JANUARY 1969

OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE
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FOREWORD

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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.

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PARTS AND METHOD OF INDEXING ABSTRACTS

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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 LEAK 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

1-21968 ALSO IN CATEGORY 17
AEC TESTIMONY TO JCAE ON FERMI MELTDOWN CAUSE
ATOMIC ENERGY COMMISSION, US
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(7), PAGE 46 (FEBRUARY 12, 1968)

ACCORDING TO MILTON SHAW, THE FLOW-BLOCKING OBJECT WAS A PIECE OF A CONICAL FLOW GUIDE WHICH HAD VIBRATED LOOSE. REP. HOSMER NOTED THAT THE DESIGNER IN 1959 COVERED THE VESSEL BOTTOM WITH ZIRCONIUM SHEET, AND SAID PADA HAD RECEIVED A MEMO INDICATING IT WAS EASIER TO PUT ZIRCONIUM SHROUDS OVER THE CORE THAN TO JUSTIFY NOT PUTTING IT IN TO THE ACRS. SHAW OBSERVED IT WAS A LAST-MINUTE DECISION HURRIEDLY MADE, NOT SHOWN IN THE FINAL CONSTRUCTION DRAWINGS. HOSMER ASKED IF ACRS HAD PEOPLE SO FRIGHTENED. SHAW REPLIED, NO, AND THIS WAS NOT AN EXCUSE NOT TO DO A THOROUGH ENGINEERING JOB.

*FLOW BLOCKAGE + *FUEL MELTDOWN + *QUALITY CONTROL + ACRS + CONGRESSIONAL ACTIVITY + FERMI (LMFBR) + REACTOR, FAST + REACTOR, LMCR

1-22462
BRITO SS + LEPECKI WP
A PRELIMINARY ASSESSMENT ON THE USE OF HEAVY WATER THORIUM REACTORS IN THE BRAZILIAN NUCLEAR PROGRAM MINAS GERAIS UNIV., BELO HORIZONTE, BRAZIL. DIVISAO DE ENGENHARIA DE REATOES DER-7(REV.) + CONF-670917-4 + SM-99/26 +. 34 PAGES, JULY 1967, PAPER PRESENTED AT SYMPOSIUM ON HEAVY WATER POWER REACTORS, VIENNA, AUSTRIA

SINCE LATE 1965, THE INSTITUTE DE PESQUISAS RADIOATIVAS HAS BEEN STUDYING THE FEASIBILITY OF A THORIUM REACTOR PROGRAM FOR THE BRAZILIAN NUCLEAR ENERGY COMMISSION. THE PROGRAM IS BEING DEVELOPED IN CLOSE COOPERATION WITH THE FRENCH ATOMIC ENERGY COMMISSION. A REFERENCE CONCEPTUAL DESIGN OF A HEAVY-WATER-COOLED AND MODERATED THORIUM CONVERTER REACTOR HAS BEEN DEVELOPED. THE MAIN FEATURES ARE THE USE OF A PRESTRESSED CONCRETE PRESSURE VESSEL, INTEGRATED ARRANGEMENT OF THE PRIMARY CIRCUIT, AND THE POSSIBILITY OF ON-LOAD FUEL MANAGEMENT. ECONOMIC COMPETITIVITY COULD BE THE RESULT OF HIGH CAPACITY, LOW CAPITAL COSTS AND LOW FUEL CONSUMPTION. TECHNOLOGY INVOLVED IS NOT VERY SOPHISTICATED. INTENSIVE ENGINEERING DEVELOPMENT WORK MUST BE DONE IN THE AREAS OF FUEL-CHARGE MACHINE, CONCRETE-VESSEL INSULATION, AND DESIGN OF HEAT EXCHANGERS.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*BRAZIL + *REACTOR, HWR + *THORIUM + DESIGN STUDY

1-23221 ALSO IN CATEGORY 13
IBRAGIMOV Sh + SYSCHIKOV LA
PROCEDURE FOR WORKING WITH RADIOACTIVE MATERIALS
3 PAGES, 3 FIGURES, 2 REFERENCES, INDUSTRIAL LABORATORY 30(2), PAGES 321-323 (1964)

PREPARATION OF SAMPLES OF IRRADIATED METALS (GRINDING, POLISHING AND ETCHING), MICROSTRUCTURAL INVESTIGATION, AND DETERMINATION OF THE MICROHARDNESS ARE CARRIED OUT BY REMOTE CONTROL IN TWO SPECIAL HOT CELLS. THE IRRADIATED SAMPLES ARE FED TO THE CELL BY A CONVEYER AND INSTALLED IN A SPECIAL CASING BY THE MANIPULATORS. COVERED WITH LOW-MELTING ALLOY OR SULFUR AND THEN GROUND AND POLISHED IN THE SPECIAL MACHINE. AFTER THE SECTIONS HAVE BEEN POLISHED, THEY ARE SUBJECTED TO ANODIC AND CHEMICAL ETCHING OR ELECTROPOLISHING AND THEN EXAMINED IN THE MMD-1 AT MAGNIFICATIONS OF 100 AND 200. THE FINISHED MICROSECTION IS TRANSFERRED BY TROLLEY TO THE METALLOGRAPHIC INVESTIGATION CHAMBER WHICH CONTAINS THE METALLOGRAPHIC MICROSCOPE AND DEVICE FOR MICROHARDNESS DETERMINATIONS. THE CONTROL SYSTEM OF THESE INSTRUMENTS IS LOCATED ON THE FRONT WALL OF THE CELL.

*HOT CELL + *RADIOCHEMICAL PLANT SAFETY + *TRANSPORTATION AND HANDLING + *USSR

1-23222
HISTORY OF THE FRENCH NUCLEAR EFFORT THROUGH 1965
AEC-TR-6853 + NP-TR-1392 +. 203 PAGES, ENERG. NUCL (PARIS) 7, PAGES 451-3, 455-83, 485-97, 499-505, 507-27, 529-36, (DECEMBER 1965)

THIS PUBLICATION CONTAINS TRANSLATIONS OF NINE ARTICLES RELATED TO THE HISTORY OF THE FRENCH NUCLEAR EFFORT IN THE LAST TWENTY YEARS, ON THE SPECIFIC SUBJECTS INDICATED BELOW. COMPLETE BIBLIOGRAPHIC INFORMATION ACCOMPANIES EACH ARTICLE (THE ROLE OF THE FRENCH ATOMIC ENERGY COMMISSION IN THE DEVELOPMENT OF FRENCH ATOMIC POWER, TWENTY YEARS LATER, THE FRENCH INDUSTRIAL EFFORT, TWENTY YEARS OF THE URANIUM MINING INDUSTRY IN FRANCE, TWENTY YEARS OF RESEARCH ON MATERIALS, TWENTY YEARS OF BASIC PHYSICS RESEARCH, FROM ZCE TO RAPSODIE--20 YEARS OF STUDY AND CONSTRUCTION OF NUCLEAR REACTORS BY THE FRENCH ATOMIC ENERGY COMMISSION, INDUSTRIAL MANUFACTURING OF FUEL ELEMENTS IN FRANCE, AND NUCLEAR ELECTRICITY IN FRANCE (ADVENT, DEVELOPMENT, PROGRAM)).

*FRANCE + *FUEL ELEMENT + *MATERIAL + *MINING + *R AND D PROGRAM + *REACTOR, POWER + *REACTOR, RESEARCH + *REGULATION, GENERAL + *URANIUM

CATEGORY 1
GENERAL SAFETY CRITERIA

1-23223
JACCHIA E
LEGAL PROBLEMS CONNECTED WITH A NUCLEAR ACCIDENT
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
CONF-660412-6 +. 22 PAGES, FROM PAPER PRESENTED AT THE SYMPOSIUM ON ACCIDENTAL IRRADIATION AT PLACE OF
WORK, NICE, FRANCE, APRIL 25-29, 1966

THE PROBLEM OF COMPENSATION FOR DAMAGE CAUSED BY NUCLEAR ACCIDENTS HAS BEEN CONSIDERED AS ONE
WHOSE SATISFACTORY SOLUTION MIGHT CONSTITUTE A NECESSARY CONDITION FOR THE DEVELOPMENT OF THE
NUCLEAR INDUSTRY. INTERNATIONAL CONVENTIONS HAVE MADE A SUBSTANTIAL CONTRIBUTION TO THE
SOLUTION OF THIS PROBLEM AND SOME SUITABLE LEGISLATIVE CONDITIONS HAVE BEEN PROMULGATED OR
ARE IN THE PROCESS OF ADOPTION IN THE COUNTRIES WHERE NUCLEAR ACTIVITIES HAVE REACHED A
CERTAIN STAGE OF DEVELOPMENT. THE CONVENTIONS AIM AT JOINING TOGETHER THE BASIC RULES
APPLICABLE IN THE VARIOUS COUNTRIES FOR THE CIVIL RESPONSIBILITY OF OPERATORS OF NUCLEAR
INSTALLATIONS, WITHOUT REPLACING THE NATIONAL REGULATIONS FOR MEDICAL INSURANCE, SOCIAL
SECURITY OR COMPENSATION FOR INDUSTRIAL INJURIES AND INDUSTRIAL DISEASES. PARTICULAR
PROBLEMS INVOLVED ARE THOSE OF CASUALTY, ESTIMATION OF INJURIES, TIME LIMIT, DEFINITIONS OF
RADIATION INJURIES VS RADIATION DISEASES, THRESHOLD DOSES, AND COUNTRY-TO-COUNTRY DIFFERENCES
IN LAWS.

*ACCIDENT, GENERAL + *EURATOM + *IAEA + *LAW + *LIABILITY

1-23224
COSTING METHODS FOR NUCLEAR DESALINATION
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
STI-DOC-10/69 + TECHNICAL REPORTS SERIES NO. 69 +. 50 PAGES, 6 FIGURES, NOVEMBER 1966

THE QUESTION OF THE METHODS USED FOR COSTING DESALINATION PLANTS HAS BEEN RECOGNIZED AS VERY
IMPORTANT IN THE ECONOMIC CHOICE OF A PLANT AND ITS OPTIMIZATION. THIS IAEA REPORT CONTAINS
A REVIEW OF THE UNDERLYING PRINCIPLES FOR COSTING DESALINATION PLANTS AND OF THE VARIOUS
METHODS THAT HAVE BEEN PROPOSED FOR ALLOCATING COSTS IN DUAL-PURPOSE PLANTS. THE EFFECT OF
THE DIFFERENT ALLOCATION METHODS ON THE WATER AND POWER COSTS IS SHOWN AT THE END OF THE
REPORT. NO ATTEMPT IS MADE TO RECOMMEND ANY PARTICULAR METHOD, BUT THE POSSIBLE LIMITATIONS
OF EACH ARE INDICATED. IT IS HOPED THAT THIS REPORT WILL HELP THOSE INVOLVED IN THE VARIOUS
PHASES OF DESALINATION PROJECTS.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, \$1.00 COPY

*DESALINATION + *ECONOMIC STUDY + *IAEA + *REACTOR, DESALINATION

1-23230 ALSO IN CATEGORY 2
THE ALASKA EARTHQUAKE
THE NATIONAL BOARD OF FIRE UNDERWRITERS + PACIFIC FIRE RATING BUREAU
35 PAGES, FIGURES, 1964

GIVES A GENERAL DESCRIPTION OF THE EFFECTS OF THE MARCH 27, 1967, ALASKAN EARTHQUAKE, WITH
HEAVY EMPHASIS ON STRUCTURAL DAMAGE TO PUBLIC BUILDINGS. ALSO INCLUDED IS DISCUSSION OF THE
DAMAGE TO FIRE-FIGHTING EQUIPMENT. DESCRIPTION AND DISCUSSION COVERS ANCHORAGE, SEWARD,
VALDEZ, AND KODIAK, ALASKA, PLUS CRESENT CITY, CALIF.

AVAILABILITY - NATIONAL BOARD OF FIRE UNDERWRITERS, 465 CALIFORNIA STREET, SAN FRANCISCO, CALIF. 94104

*EARTHQUAKE ENGINEERING + CONCRETE + DAMAGE + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + SOIL MECHANICS

1-23286 ALSO IN CATEGORY 15
MOELLER DW
ADMINISTRATIVE PRACTICES IN RADIATION PROTECTION
HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MASS.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 941, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A PRESSING NEED IN THE FIELD OF HEALTH PHYSICS IS GUIDANCE FOR ADMINISTRATIVE AND SUPERVISORY
PERSONNEL IN MEDICAL AND INDUSTRIAL GROUPS UNDERTAKING WORK INVOLVING RADIATION EXPOSURE.
SUBCOMMITTEE N2-6 OF THE NUCLEAR STANDARDS BOARD, AMERICAN STANDARDS ASSOCIATION (NOW THE
UNITED STATES OF AMERICA STANDARDS INSTITUTE) HAS BEEN STUDYING THIS PROBLEM AND DEVELOPING A
PROPOSED GUIDE ON ADMINISTRATIVE PRACTICES IN RADIATION PROTECTION. FOR GIVEN TYPES,
QUANTITIES AND LEVELS OF RADIATION, THE GUIDE OUTLINES CONTROL PROCEDURES CONSIDERED
ESSENTIAL. SUCH PROCEDURES INCLUDE MEDICAL EXAMINATIONS, PERSONNEL DOSIMETRY, WORK-AREA
EVALUATIONS, AND ENVIRONMENTAL SURVEILLANCE.

MONITORING PROGRAM, ENVIRONMENTAL + RADIATION INJURY, TREATMENT OF + RADIATION PROTECTION, ORGANIZATION +
RADIATION SAFETY AND CONTROL

1-23884 ALSO IN CATEGORY 15

CATEGORY 1
GENERAL SAFETY CRITERIA

1-23884 *CONTINUED*

CLARK T

DOSE PREDICTIONS AND BIOLOGICAL CONSEQUENCES FOLLOWING BURNUP OF A SR-90TIO-3 SOURCE IN SPACE

SANDIA LABORATORIES

SC-CR-67-2792 +. 21 PAGES, 2 FIGURES, 4 TABLES, REFERENCES, AUGUST 1967

THIS STUDY IS CONCERNED WITH THE RADIOLOGICAL HAZARD TO THE GENERAL POPULATION FROM THE POSSIBLE RELEASE OF SR-90 FUEL. RISK ESTIMATES ARE BASED ON THE INDUCTION OF LEUKEMIA AND BONE CANCER IN MAN.

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

*AEROSPACE SAFETY + *AIRBORNE RELEASE + *STRONTIUM + BIOMEDICAL + DOSE + DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + FEDERAL RADIATION COUNCIL + INGESTION + REACTOR, SPACE + SNAP, GENERAL (SR) + SOIL

1-24124 ALSO IN CATEGORY 15

LYARSKII PP + TERMAN AV

SANITARY LAWS OF THE COUNTRIES PARTICIPATING IN THE COUNCIL OF ECCNMCIC COOPERATION IN THE FIELD OF RADIATION HYGIENE

6 PAGES, GIG. SANIT., 4, PAGES 81-86 (APRIL 1967) IN RUSSIAN

A BRIEF REVIEW IS GIVEN OF THE HISTORY OF THE HEALTH LAWS IN THE FIELD OF RADIATION HYGIENE. THE MAXIMUM PERMISSIBLE DOSES OF EXTERNAL AND INTERNAL RADIATION OF THE WHOLE BODY AND OF THE VITAL ORGANS ARE TABULATED. VARIOUS TYPES OF RADIATION ARE ANALYZED AND THEIR EFFECTS CORRELATED. THE MAXIMUM PERMISSIBLE LEVELS OF CLOTHING CONTAMINATION ARE ALSO TABULATED FOR ALPHA AND BETA EMITTING ISOTOPES.

*CONTAMINATION + *LAW + *MAXIMUM PERMISSIBLE DOSE (MPD) + *RADIATION PROTECTION, ORGANIZATION

1-24125 ALSO IN CATEGORY 15

KREMPIEN J

REGULATIONS FOR PROTECTION AGAINST INJURIES CAUSED BY IONIZING RADIATIONS IN SCHOOLS. (2ND REGULATION ON RADIATION PROTECTION)

4 PAGES, ROENTGENPRAXIS, 18, PAGES 257-60 (NOVEMBER 1965) IN GERMAN

THE AUTHOR BRIEFLY SUMMARIZES AND DISCUSSES REGULATIONS PUT INTO EFFECT IN 1964 FOR PROTECTION AGAINST IRRADIATION FROM DEVICES AND EQUIPMENT USED IN UNIVERSITIES AND MEDICAL SCHOOLS. THESE INCLUDE DEFINITION OF THE SCOPE AND APPLICATION OF THE REGULATIONS, USE, INSTALLATION, REMOVAL, AND TRANSFER OF RADIOACTIVE MATERIALS, OPERATION OF X-RAY EQUIPMENT, AND NEUTRON SOURCES, APPROVAL OF CONSTRUCTION OF INSTALLATIONS THAT CONTAIN RADIOACTIVE MATERIALS, NEUTRON SOURCES, AND X-RAY EQUIPMENT, PROTECTIVE MEASURES FOR INSTALLATION, USE, AND OPERATION OF MEASUREMENT EQUIPMENT, NEUTRON SOURCES, AND X-RAY DEVICES, RESPONSIBILITIES FOR RADIATION PROTECTION, AND PROCEDURES FOR APPLICATION OF THE REGULATIONS.

*RADIATION SAFETY AND CONTROL + *REGULATION, GENERAL + GERMANY + PERSONNEL EXPOSURE, RADIATION + SOURCE, NEUTRON + X-RAY

1-24126

VON ZUR MUEHLEN M

SHIP-PROPULSION REACTORS, STATUS AND PROSPECTS

GESELLSCHAFT FUER KERNENERGIEVERWERTUNG IN SCHIFFBAU AND SCHIFFFAHRT MBH, HAMBURG

2 PAGES, KERntechnik 9, PAGES 334-335 (AUG. 1967) IN GERMAN

A RETROSPECTIVE VIEW IS GIVEN ON THE 10 YEAR PERIOD OF MARINE REACTOR DEVELOPMENT IN THE FEDERAL REPUBLIC OF GERMANY. THE TASK OF NUCLEAR RESEARCH SHIP OTTO HAHN, NEW UNDER CONSTRUCTION, IS DESCRIBED. BASED ON A COMPARISON OF NUCLEAR SHIPS AND SHIPS WITH CONVENTIONAL PROPULSION, CONSEQUENCES WITH REGARD TO THE POSSIBLE ECONOMIC OPERATION OF NUCLEAR SHIPS ARE DRAWN.

*OTTO HAHN (PWR) + *REACTOR, MARITIME + *REVIEW + ECONOMIC STUDY + GERMANY + REACTOR, PWR

1-24127 ALSO IN CATEGORY 15

MULLETT GW

PROTECTION FROM IONIZING RADIATIONS - A REVIEW OF THE REGULATIONS

ROYAL HOSPITAL, WOLVERHAMPTON, ENGLAND

8 PAGES, ANN. OCCUP. HYG., 10, PAGES 265-76 (JULY 1967)

FIVE YEARS EXPERIENCE OF THE RELEVANT LEGISLATION HAS SHOWN THAT WHILE MUCH OF THE RADIATION PROTECTION IN INDUSTRY IS ADEQUATELY PROVIDED WITHOUT UNDUE DISRUPTION OF THE INDUSTRIAL PROCESS, DIFFICULTIES DO ARISE WHICH CAUSE CONCERN. SOME OF THE REQUIREMENTS OF THE REGULATIONS ARE OVERSTRINGENT, CAUSING UNNECESSARY INTERFERENCE WITH INDUSTRY. THE APPROPRIATE PARTS OF THE REGULATIONS SHOULD BE REVISED TO ALLOW GREATER FLEXIBILITY WITHOUT CAUSING ANY SIGNIFICANT INCREASE IN THE RADIATION HAZARD.

*RADIATION PROTECTION, ORGANIZATION + *REGULATION, GENERAL + *REVIEW + UNITED KINGDOM + X-RAY

CATEGORY 1
GENERAL SAFETY CRITERIA

1-24158
ABEGG MT + LESLIE WB
ANTIFLASH DEVICE
U.S. PATENT 3-342-540 +. 10 PAGES, 6 FIGURES, REFERENCES, SEPT. 19, 1967, PATENT (U.S.)

GOGGLES ARE DESCRIBED WHICH MAY BE USED TO QUICKLY SHUT OUT LIGHT EMISSION OF A NUCLEAR EXPLOSION. A LIGHT SENSOR ACTUATES A MILD EXPLOSIVE SO AS TO QUICKLY DISPERSE OPAQUING MATERIAL AND RENDER THE GOGGLES OPAQUE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C., (\$0.25 CENTS/COPY)

*NUCLEAR DETONATION + *PERSONNEL PROTECTIVE DEVICE + CIVIL DEFENSE + LASER

1-24210 ALSO IN CATEGORY 18
APPENDIX 1B - QUALITY ASSURANCE OPERATIONS
SACRAMENTO MUNICIPAL UTILITY DISTRICT
5 PAGES, PAGES 1B-1 THRU 1B-5 OF AMENDMENT 1 TO RANCHO SECO PSAR, DOCKET 50-312, FEBRUARY 2, 1966
TYPE--PWR, MFG.--B+W, AE--BECHTEL

A QUALITY-ASSURANCE ENGINEER (QAE) WILL WORK IN THE PROJECT-ENGINEERING GROUP (PEG) TO ESTABLISH PROCEDURES AND CRITERIA AND TO ARRANGE FOR APPROPRIATE TESTS AND INSPECTIONS.

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

*QUALITY CONTROL + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

1-24237 ALSO IN CATEGORY 18
DISCUSSION OF THE CONCEPT OF THE MAXIMUM POTENTIAL ACCIDENTS
INSTITUT FUER REAKTORSICHERHEIT DET TUEV, E. V., GERMANY
2 PAGES, ATOMWIRTSCHAFT, 12(2) PAGE 147 AND 148, (MARCH 1967), (IN GERMAN)

THE INSTITUTE FOR REACTOR SAFETY OF THE TECHNICAL SURVEY ASSOCIATION HELD ON AUGUST 11, 1966, AT THE JULICH NUCLEAR RESEARCH PLANT A TECHNICAL DISCUSSION ON THE THEME - THE MAXIMUM POTENTIAL ACCIDENT AS THE CRITERION FOR THE SAFETY OF THE ATOMIC PLANTS. THE INTERNATIONAL DETERMINABLE DISPLEASURE OVER THIS CONCEPT WAS ALSO VISIBLE. UNFORTUNATELY THE REPORTS CONVEY QUITE GENERAL CONSIDERATIONS ON THE PHILOSOPHY OF SAFETY EXCEPT THAT THE BELIEFS, WHICH IN PART ARE VERY INTERESTING, ARE MADE USEFUL BY CONCRETE PROPOSALS AND EXAMPLES OF THE PRACTICE.

ACCIDENT, MAXIMUM CREDIBLE (MCA) + GERMANY + SAFETY PRINCIPLES AND PHILOSOPHY

1-24249
THERMAL POLLUTION. SENATOR MUSKIE TELLS AEC TO COOL IT
2 PAGES, SCIENCE 158(3802), PAGE 755 AND 756, (NOV. 11, 1967)

THE GROWING NUMBER OF NUCLEAR POWER PLANTS SCHEDULED FOR CONSTRUCTION IS DIRECTING MORE ATTENTION TO THE POLLUTION ASSOCIATED WITH THE PRODUCTION OF THIS POWER. CONGRESS HAS PASSED SOME POLLUTION-CONTROL MEASURES, AND THIS ARTICLE PRESENTS AN EXAMPLE OF THE (QUOTE) DEMOCRATIC PROCESSES AT WORK (UNQUOTE) IN THE UNITED STATES.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *THERMAL CONSIDERATION + ATMOSPHERIC POLLUTION + OCEAN AND SEA + USAEC

1-24324
NUCLEAR INDUSTRY PLANS TO CONTROL ITS THERMAL POLLUTION
VERMONT YANKEE NUCLEAR POWER CORP.
1 PAGE, ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 2(3), PAGE 165 (MARCH 1968)

THE VERMONT YANKEE NUCLEAR POWER CORPORATION AGREED TO CONSTRUCT COOLING TOWERS TO CONTROL THERMAL OUTPUT TO THE CONNECTICUT RIVER. THE EFFLUENT WATER WILL CAUSE NO INCREASE IN TEMPERATURE OF THE RIVER DURING SUMMER MONTHS AND NO MORE THAN 4 F INCREASE DURING WINTER. THE RESULTING EFFECT WILL BE A 1% INCREASE IN THE COST OF ELECTRICITY.

*EFFLUENT + *REACTOR POWER + *THERMAL POLLUTION + MAINTENANCE AND REPAIR + OPERATION + POPULATION EXPOSURE + REACTOR, BWR + RIVER, GENERAL + VERMONT YANKEE (BWR)

1-24581
JANKOWSKI FJ
FORMAL EDUCATION IN NUCLEAR REACTOR SAFETY
RUTGERS UNIVERSITY

CATEGORY 1
GENERAL SAFETY CRITERIA

1-24581 *CONTINUED*
7 PAGES, 1 TABLE, 8 REFERENCES, NUCLEAR SAFETY 8(6), PAGES 597-603 (NOV.-DEC. 1967)

REPORTS A SURVEY OF UNIVERSITY COURSES IN NUCLEAR SAFETY ENGINEERING, AND GIVES BRIEF DESCRIPTIONS OF COURSES OFFERED AT 9 UNIVERSITIES (UNIV. OF ARIZONA, GA. TECH, HARVARD SCHOOL OF PUBLIC HEALTH, IOWA STATE, KANSAS STATE, LOWELL TECH., RUTGERS, PENN STATE, AND UNIV. OF VIRGINIA) AND OF THE SINGLE UNIVERSITY PROGRAM IN NUCLEAR SAFETY (PENN STATE). PRACTICALLY ALL NUCLEAR SAFETY EDUCATION IN CENTERED IN THE U.S.

*STAFFING, TRAINING, QUALIFICATION + REVIEW

1-24601 ALSO IN CATEGORY 11
AEC PROPOSES CRITERIA FOR PRESSURE VESSELS, INVITES COMMENTS
14 PAGES, 2 TABLES, REACTOR AND FUEL-PROCESSING TECHNOLOGY, 10(4), PAGE 289-302, (SEPT. 1967)

THE USAEC ISSUED ON AUG. 23, 1967, A SET OF 34 CRITERIA FOR THE DESIGN, MATERIAL, FABRICATION, INSPECTION, AND TESTING OF SUCH VESSELS ENTITLED TENTATIVE REGULATORY SUPPLEMENTARY CRITERIA FOR ASME CODE-CONSTRUCTED NUCLEAR PRESSURE VESSELS. THE NEW CRITERIA SUPPLEMENT THE RULES OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE, SECTION III, RULES FOR CONSTRUCTION OF NUCLEAR VESSELS, 1965 EDITION, AND ITS ADDENDA. EACH CRITERION IS REFERENCED TO THE APPROPRIATE ASME CODE PARAGRAPH, AND EXPLANATIONS GIVE THE REASONS FOR EACH CRITERION.

*CODES AND STANDARDS + *PRESSURE VESSEL + COMPUTER PROGRAM + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + FRACTURE TOUGHNESS + INSPECTION AND COMPLIANCE + MATERIAL + NDT DATA + QUALITY CONTROL + REACTOR, WATER + REGULATION, AEC + STEEL + TEST, PROOF + WELDING

1-24813 ALSO IN CATEGORY 17
COE RJ
CONN. YANKEE SUGGESTS SYSTEM 24 HR TECHNICAL SPECIFICATION WAIVERS.
CONNECTICUT YANKEE
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(15), PAGES 27-28 (APRIL 8, 1968), DOCKET 50-213

(LETTER, MAR. 20) A FEB. 21, 1968, COMPLIANCE CITATION (RELATING TO LEAKAGE FEB. 7 AND 8) WAS ANSWERED MAR. 12. IN OUR OPINION THE TECH. SPEC. SET LEAKAGE AT TOO LOW A VALUE FROM THE SAFETY STANDPOINT, AND WE HAVE PROPOSED A HIGHER VALUE. *** THIS NEW FORM OF TECH. SPECS. ESTABLISHES MANY MORE LIMITS AND CONDITIONS ON MORE VARIABLES THAN BEFORE. SECTION 3 (LIMITING CONDITIONS FOR OPERATION) CONTAINS MANY CALCULATED VALUES BELOW SAFETY LIMITS, AND STRICT COMPLIANCE WITH THESE COULD LEAD TO UNNECESSARY SHUTDOWN. *** THERE SHOULD BE A MECHANISM FOR AEC TO GRANT A 24-HR WAIVER OF TECH. SPEC. SO SITUATION COULD BE CORRECTED, REPLACEMENT POWER PURCHASED, OR SITUATION ANALYZED.

*OPERATING EXPERIENCE SUMMARY + *TECHNICAL SPECIFICATIONS + HADDAM NECK (PWR) + REACTOR, PWR

1-24814 ALSO IN CATEGORY 18
COMMENTS ON INDIAN POINT 3 PSAR
CONSOLIDATED EDISON COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 28-29 (APRIL 8, 1968) DOCKET 50-286

(FILED IN POR, JAN. 30) A REPORT BY BELGIAN CONSULTANTS RETAINED BY CITY OF NEW YORK. AGREES THAT PLANT CAN BE BUILT AND OPERATED WITHOUT ADVERSE CONSEQUENCES IN TERMS OF PUBLIC SAFETY. FOLLOWING POINTS SHOULD BE BORNE IN MIND - (A) CONTAINMENT SHOULD BE MAINTAINED AND TESTED, (B) FEEDWATER AND STEAM LINES SHOULD BE PROTECTED FROM MISSILES, (C) FAN AND SPRAY COOLING ADEQUACY, (D) SAFETY-INJECTION DELAY EFFECT SHOULD BE ANALYZED, (E) ELECTRICAL FIRE SHOULD BE ANALYZED, (F) NO LOSS OF POWER SHOULD ENTAIL FALSE INDICATION FROM VITAL INSTRUMENTATION, (G) GAS-WASTE MONITORING ANALYZED, (H) METHYL IODIDE INVESTIGATED, (I) PRIMARY-COOLANT CONTINUOUS BORON MONITORING ADVISED.

*REPORT, PSAR + ENGINEERED SAFETY FEATURE + INDIAN POINT 3 (PWR) + REACTOR, PWR

1-24881
MOORADIAN AJ + ROBERTSON RF + HATCHER SR + HART RG + TEGARD OR + SUMMACH AJ
CURRENT STATUS OF CANADIAN ORGANIC COOLED REACTOR TECHNOLOGY
ATOMIC ENERGY OF CANADA LTD, PINAWA, MANITOBA
AECL-2943 + CONF-670917 +. 20 PAGES, 2 FIGURES, 30 REFERENCES, SEPTEMBER 1967, FROM SYMPOSIUM ON HEAVY WATER POWER REACTORS, VIENNA, AUSTRIA

CANADA HAS BEEN OPERATING THE FIRST ORGANIC COOLED D2O MODERATED PRESSURE TUBE REACTOR (WR-1) SINCE NOVEMBER 1965. HB-40, A PARTIALLY HYDROGENATED TERPHENYL MIXTURE, HAS BEEN USED ROUTINELY IN WR-1 AT TEMPERATURES UP TO 370 C. ZIRCONIUM BASE ALLOYS CAN BE MADE COMPATIBLE WITH ORGANIC COOLANTS PROVIDED 50 PPM TO 300 PPM OF WATER ARE ADDED. FUEL CAN BE OPERATED AT PRACTICAL RATINGS WITHOUT LIMITATIONS IMPOSED BY FOULING PROVIDED REASONABLE ATTENTION IS PAID TO COOLANT CHEMISTRY. NON-BONDED URANIUM CARBIDE FUELS HAVE BEEN TAKEN TO BURNUPS AS HIGH AS 11,000 MWD/TU. THE EXCELLENT PERFORMANCE OF WR-1 INDICATES THAT NO INSURMOUNTABLE TECHNICAL LIMITATION FACES THE DESIGNERS OF ORGANIC COOLED REACTORS.

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

CATEGORY 1
GENERAL SAFETY CRITERIA

1-24881 *CONTINUED*
*CANADA + *REACTOR, ORGANIC COOLED + *WR 1 (OCR) + HEAVY WATER + ORGANIC COOLANT + REACTOR, PRESSURE TUBE + URANIUM CARBIDE + ZIRCONIUM

1-24882 ALSO IN CATEGORY 15
WEAVER CL + HARWARD ED
SURVEILLANCE OF NUCLEAR POWER REACTORS
PUBLIC HEALTH SERVICE, WASHINGTON, D. C.
14 PAGES, 3 TABLES, PUBLIC HEALTH REP. (U.S.), 82, PAGES 899-912 (OCT. 1967)

GIVES A GENERALIZED CONCEPT OF NUCLEAR POWER PLANTS, PARTICULARLY AS THEY PERTAIN TO PUBLIC SAFETY AND ENVIRONMENTAL SURVEYS, TOGETHER WITH SIMPLIFIED FLOW DIAGRAMS FOR A TYPICAL BOILING WATER REACTOR AND A TYPICAL PRESSURIZED WATER REACTOR. BIOLOGICAL PROPERTIES OF IMPORTANT RADIONUCLIDES ARE LISTED AS WELL AS FISSION PRODUCTS WHICH ARE IMPORTANT DUE TO ATOM YIELD OR HALF LIFE. SURVEILLANCE METHODS FOR REACTOR PRE-OPERATIONAL AND OPERATIONAL PHASES ARE OUTLINED. A TYPICAL ENVIRONMENTAL SURVEILLANCE PROGRAM IS GIVEN AND EMERGENCY PROCEDURES ARE DISCUSSED BRIEFLY.

*REACTOR, BWR + *REACTOR, POWER + *REACTOR, PWR + *REVIEW + *SURVEILLANCE PROGRAM +
*SURVEY, RADIATION, ENVIRONMENTAL + *SURVEY, RADIATION, USPHS

1-24883
YANG L
A NEW CHINESE NUCLEAR SHIP
1 PAGE, ENERGIE NUCLEAIRE, 9(6), PAGE 401 (OCTOBER 1967)

RED CHINA IS PREPARING TO LAUNCH A SECOND NUCLEAR SHIP, THE BAC PHUN (WHITE PHOENIX), DESCRIBED AS A GENERAL-PURPOSE SHIP. THE REACTOR IS A PWR WITH THERMAL POWER OF 210 MW (THE FIRST NUCLEAR SHIP, ZAN THAN, HAS A 180-MW REACTOR). THE CORE HAS 108 CHANNELS AND 39 CRUCIFORM CONTROL RODS, SURROUNDED BY A DOUBLE ENVELOPE OF CONCENTRIC STAINLESS-STEEL CYLINDERS. IT CONTAINS ABOUT 9490 KG OF 1.8%-ENRICHED UO₂ PELLETS IN ZIRCONIUM-ALLOY TUBES. THE TWO MAIN STEAM GENERATORS ARE LOCATED IN A LEAKTIGHT ENCLOSURE SEALED WITH IRRADIATED NEOPRENE, DEVELOPED BY THE PEKING TECHNOLOGICAL INSTITUTE. THE BAC PHAN WILL BE ABLE TO OPERATE AT FULL POWER FOR MORE THAN 10,000 HR, CORRESPONDING TO A FUEL BURNUP OF 10,300 MW/DAYS PER METRIC TON OF UO₂. THE NUCLEAR SYSTEM IS CONSIDERED TO BE A MARKED IMPROVEMENT OVER THE ZAN THAN REACTOR.

*CHINA + *REACTOR DESCRIPTION + *REACTOR, MARITIME + REACTOR, PWR

1-24884
GARLOCK EA
FDA REGULATIONS FOR IRRADIATED FOODS AND PACKAGING MATERIALS
HAZLETON LABS., INC., FALLS CHURCH, VA.
5 PAGES, ISOTOP. RADIAT. TECHNOL., 4, PAGES 137-141 (WINTER 1966-1967)

THE FDA RECENTLY EXHIBITED RELUCTANCE TO ACCEPT THE DATA SUBMITTED IN SUPPORT OF PETITIONS FOR CLEARANCES OF A NUMBER OF IRRADIATED FOODS. THE ARTICLE OUTLINES THE TYPES OF INFORMATION REQUIRED. IN THIS WAY ORGANIZATIONS INVOLVED IN FOOD-IRRADIATION EXPERIMENTS WILL BE BETTER ABLE TO ANTICIPATE THE FDA REQUIREMENTS AND CAN PROPERLY PLAN THEIR EVALUATION BEFORE THE START OF THEIR INVESTIGATIONS.

*IRRADIATED FOOD + *RADIATION SAFETY AND CONTROL + *REGULATION, FDA

1-24898 ALSO IN CATEGORY 17
SENATE TESTIMONY ON POWER PLANT THERMAL EFFECTS
U. S. SENATE
7 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 2-7 (APRIL 22, 1968)

TESTIMONY BEFORE SUBCOMMITTEE ON AIR AND WATER POLLUTION BY S. LISS (MARYLAND PUB. SERVICE COMMISSION), J. W. GORE (BALTIMORE GAS AND ELECTRIC), L. W. CADWELLADER (PEPCO), P. W. MCKEE (MD. DEPT. OF WATER RESOURCES). *** LISS REFERRED TO MD. SENATE BILL 22 AS A MODEL OF STATE CONTROL, BELIEVES STATES ARE CLOSEST TO AFFECTED INDIVIDUALS. MCKEE AND GORE DEcriED USE OF EMOTION-PROVOKING WORDS RATHER THAN FACTS. *** A COMPUTATION SHOWS THAT THE THERMAL EFFECT ON CHEASEPEAKE BAY WOULD BE A TEMP. RISE LESS THAN 1 DEG, EVEN IF ALL PLANTS BUILT IN MD. REST OF CENTURY WERE BUILT ON THIS BODY OF WATER.

*CONGRESSIONAL ACTIVITY + *THERMAL POLLUTION

1-25063 ALSO IN CATEGORY 15
SUPPLEMENTAL INSERT SHEETS FOR ENGINEERING MATERIALS LIST
USAECD DIVISION OF TECHNICAL INFORMATION
TID-4100(SUPPL.43) +. 25 PAGES, FEBRUARY 1968

INCLUDES DRAWING LISTS FOR, AMONG OTHERS, LEAK DETECTOR WITH FREON-12 TRACER FOR IN-PLACE TESTING OF INSTALLED CARBON BEDS AT SRL, CONTAINER FOR PACKAGING U-233, U-235, OR PU-239,

CATEGORY 1
GENERAL SAFETY CRITERIA

1-25063 *CONTINUED*

CONSTRUCTION OF UF6 SAMPLING AND TRANSFER FACILITY IN PREPARATION FOR TOLL ENRICHMENT AT ORGDP, AND PACKAGING FOR UF6 SHIPPING CYLINDERS.

AVAILABILITY - USAEC DIVISION OF TECHNICAL INFORMATION, OAK RIDGE, TENN.

*ENGINEERING DRAWING LIST + CHARCOAL + FILTER + PLUTONIUM + SAMPLING + SHIPPING CONTAINER + STORAGE CONTAINER + TEST, FILTER + TRANSPORTATION AND HANDLING + URANIUM HEXAFLUORIDE + URANIUM-233 + URANIUM-235

1-25086

ALSO IN CATEGORIES 7 AND 11

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR JANUARY-FEBRUARY 1968
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-TM-2164 +. 144 PAGES, TABLES, FIGURES, REFERENCES, MARCH 26, 1968

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 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 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
\$3.00 COPY, \$0.65 MICROFICHE

*CHEMICAL KINETICS + *CONTAINMENT, GENERAL + *CSE + *FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *IN PILE EXPERIMENT + *LOFT (S-RR) + *NOZZLE + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT RETENTION + PRESSURE VESSEL + REACTOR, HTGR

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-09182 ALSO IN CATEGORY 16

PILE FOUNDATION DESIGN

OMAHA PUBLIC POWER DISTRICT

5 PAGES OF SUPPLEMENT 4, EXHIBIT F4, TO FT. CALHOUN 1 - FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, DOCKET 50-285, TYPE--PWR, MFG--C.E., AE--GIBBS + HILL

EXTENDS INFORMATION RELATIVE TO FOUNDATIONS AS COVERED IN SECTION V-2.5.3 OF THE PSAR AND REFLECTS SUBSEQUENT DEVELOPMENTS RESULTING FROM SITE EXPLORATION. CAVITIES IN THE BEDROCK BENEATH THE PLANT SITE WERE DISCLOSED BY BORINGS. DESCRIBES THE PILES TO SUPPORT THE CLASS-I STRUCTURES, METHOD OF INSTALLATION, AND TEST PROGRAM.

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

*FOUNDATION ENGINEERING + FT. CALHOUN (PWR) + REACTOR, PWR + REPORT, PSAR + SOIL PROPERTY, IN SITU

2-21863 ALSO IN CATEGORY 18

QUESTION III.1(C)--PROTECTION OF EQUIPMENT ESSENTIAL TO PLANT SAFETY FROM FLOODING

WISCONSIN MICHIGAN POWER COMPANY

2 PAGES, PAGES III.1 (C)-1/III.1(C)-2, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST, AE--BECHTEL

DOES MAXIMUM RUNUP FROM WAVE ACTION OF 9.23 FT INCLUDE EFFECT OF SEICHE. DISCUSS SEICHES AT PT. BEACH.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*EQUIPMENT, GENERAL + *FLOOD + *SEICHE + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR + SITING, REACTOR

2-23225

BLUME JA

A STRUCTURAL-DYNAMIC ANALYSIS OF STEEL PLANT STRUCTURES SUBJECTED TO THE MAY 1960 CHILEAN EARTHQUAKES JOHN A. BLUME AND ASSOCIATES

42 PAGES, FIGURES, REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 53(2) PAGES 439-480 (FEBRUARY 1963)

A MAJOR STEEL PLANT NEAR CONCEPCION, IN CENTRAL CHILE, WAS EXPOSED TO THE VIOLENT EARTHQUAKES OF MAY 21ST AND MAY 22ND, 1960. THE MANY AND DIVERSIFIED INDUSTRIAL TYPE STRUCTURES OF THIS PLANT, SOME DAMAGED AND SOME UNDAAGED, OFFERED A CHALLENGING PROBLEM FOR DETAILED STRUCTURAL-DYNAMIC ANALYSIS WITH THE GENERAL OBJECTIVE OF RECONCILING CAUSE-AND-EFFECT RELATIONSHIPS. TEN STEEL STACKS, FOUR BLAST FURNACE STOVES, AND TWO INVERTED-PENDULUM TYPE ELEVATED STEEL WATER TANKS, WHICH TOGETHER CONSTITUTE ALL OF THE SLENDER STRUCTURES OF THE PLANT, WERE SELECTED FOR THIS STUDY TO OBTAIN MORE KNOWLEDGE OF THE EARTHQUAKE CHARACTERISTICS OF SUCH STRUCTURES AND ALSO TO ESTIMATE THE GROUND MOTION EXPERIENCED AT THE PLANT.

*EARTHQUAKE ENGINEERING + DAMAGE + DAMPING + EARTHQUAKE, GENERAL + FOUNDATION ENGINEERING + VIBRATION ANALYSIS

2-23226

ALBEE AL + SMITH JL

GEOLOGIC SITE CRITERIA FOR NUCLEAR POWER PLANT LOCATION

CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CALIFORNIA

5 PAGES, TRANS. AIME, 238, PAGES 430-434 (DECEMBER 1967)

GIVES A SERIES OF GUIDELINES BY WHICH THE GEOLOGIST CAN EVALUATE THE LIKELIHOOD OF SURFACE FAULTING AND ITS PROBABLE EXTENT AT ANY GIVEN SITE IN SOUTHERN CALIFORNIA AND NEVADA. THE INFORMATION IS INTENDED PRIMARILY FOR GEOLOGISTS CONCERNED WITH ESTABLISHING DESIGN CRITERIA FOR PROPOSED NUCLEAR PLANTS.

*SITE CRITERIA, EARTHQUAKE + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + FAULT + GEOLOGICAL CONSIDERATION, GENERAL + GROUND MOTION

2-23230 ALSO IN CATEGORY 1

THE ALASKA EARTHQUAKE

THE NATIONAL BOARD OF FIRE UNDERWRITERS + PACIFIC FIRE RATING BUREAU

35 PAGES, FIGURES, 1964

GIVES A GENERAL DESCRIPTION OF THE EFFECTS OF THE MARCH 27, 1967, ALASKAN EARTHQUAKE, WITH HEAVY EMPHASIS ON STRUCTURAL DAMAGE TO PUBLIC BUILDINGS. ALSO INCLUDED IS DISCUSSION OF THE DAMAGE TO FIRE-FIGHTING EQUIPMENT. DESCRIPTION COVERS ANCHORAGE, SEWARD, VALDEZ, AND KODIAC, ALASKA, PLUS CRESENT CITY, CALIF.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-23230 *CONTINUED*
 AVAILABILITY - NATIONAL BOARD OF FIRE UNDERWRITERS, 465 CALIFORNIA STREET, SAN FRANCISCO, CALIF. 94104
 *EARTHQUAKE ENGINEERING + CONCRETE + DAMAGE + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + SOIL MECHANICS

2-23231
 GUIDE FOR THE OBSERVATION OF EARTHQUAKE DAMAGE TO BUILDINGS
 EARTHQUAKE ENGINEERING RESEARCH INSTITUTE
 20 PAGES, PREPARED BY THE DAMAGE ANALYSIS COMMITTEE, EARTHQUAKE ENGINEERING RESEARCH INSTITUTE, 1964

THIS GUIDE IS FOR THE USE BY MEMBERS OF GROUPS ORGANIZED FOR THE OBSERVATION OF BUILDINGS DAMAGED BY EARTHQUAKES. IT IS INTENDED TO FACILITATE THE PROPER ORGANIZATION OF SUCH GROUPS. IN ORDER THAT OBSERVATIONS OF EARTHQUAKE EFFECTS MAY BE USEFUL IN ADDING TO KNOWLEDGE OF ASEISMIC DESIGN AND CONSTRUCTION, THEY MUST BE BOTH COMPREHENSIVE AND SYSTEMATIC AND MUST DEVELOP SIGNIFICANT FACTS AND DATA. IT IS HOPED THAT THE GUIDE WILL BE AN AID IN MAKING SUCH OBSERVATIONS.

AVAILABILITY - ENGINEERING RESEARCH INSTITUTE, 465 CALIFORNIA STREET, SAN FRANCISCO, CALIFORNIA
 *DAMAGE + DEFORMATION + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + STRUCTURAL INTEGRITY

2-23232
 HUDSON DE + CLOUD WK
 AN ANALYSIS OF SEISMOSCOPE DATA FROM THE PARKFIELD EARTHQUAKE OF JUNE 27, 1966
 17 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6), PAGES 1143-1159 (DECEMBER 1967)

AN ANALYSIS OF 16 SEISMOSCOPE RECORDS FROM THE PARKFIELD EARTHQUAKE INDICATES THE GENERAL USEFULNESS OF SEISMOSCOPE DATA AS A SUPPLEMENT TO INFORMATION PRODUCED BY RECORDING ACCELEROGRAPHS. THE PATTERN OF ATTENUATION OF RESPONSE-SPECTRUM VALUES WITH DISTANCE FROM THE FAULT WAS OBTAINED, AND CERTAIN ANOMALIES IN RESPONSE-SPECTRUM VALUES WHICH MAY BE RELATED TO LOCAL GEOLOGIC STRUCTURE WERE NOTED. THE INITIAL STRONG GROUND MOTIONS IN THE IMMEDIATE VICINITY OF THE FAULT WERE FOUND TO BE PREDOMINATELY TRANSVERSE TO THE FAULT. A DIRECT COMPARISON OF SEISMOSCOPE RESULTS WITH RESPONSE-SPECTRUM CURVES CALCULATED FROM RECORDED GROUND-ACCELERATION/TIME CURVES INDICATES AN OVERALL SEISMOSCOPE ACCURACY UNDER TYPICAL FIELD CONDITIONS OF 10-15%.

*EARTHQUAKE RECORDS + EARTHQUAKE ENGINEERING + EARTHQUAKE, GENERAL + ENERGY LEVEL + RESPONSE SPECTRUM

2-23233
 CLOUD WK + PEREZ V
 ACCELEROGRAMS--PARKFIELD EARTHQUAKE
 14 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6) PAGES 1179-92 (DECEMBER 1967)

FIVE ACCELEROGRAMS OBTAINED DURING THE MAIN SHOCK OF THE PARKFIELD EARTHQUAKE SERIES AT LOCATIONS ADJACENT TO AND WITHIN 10 MILES OF THE TRACE OF THE SAN ANDREAS FAULT ARE PRESENTED TOGETHER WITH LIMITED ANALYSIS BY ELECTRIC ANALOG METHODS. WITH ONE EXCEPTION, RECORDS FROM HORIZONTAL ACCELEROMETERS ARE CHARACTERIZED BY A SHORT DURATION SECTION OF HIGH ACCELERATION. ADJACENT TO FAULTING, AN ACCELERATION PULSE OF 0.5 GRAVITY WAS RECORDED. JUDGED BY A RECORD FROM A STATION EAST OF THE FAULT ON ROCK AND A RECORD FROM A STATION APPROXIMATELY THE SAME DISTANCE WEST OF THE FAULT ON ALLUVIUM, MAGNIFICATION OF RESPONSE SPECTRA BY ALLUVIUM WAS LESS THAN A FACTOR OF 3.

*EARTHQUAKE RECORDS + ACCELERATION + EARTHQUAKE, GENERAL + FAULT + GROUND MOTION + INSTRUMENTATION, EARTHQUAKE

2-23234
 MCEVILLY TV + BAKUN WH + CASADY KB
 THE PARKFIELD, CALIFORNIA, EARTHQUAKES OF 1966
 24 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6), PAGES 1221-1244 (DECEMBER 1967)

THE CHARACTERISTICS OF THE PARKFIELD, CALIFORNIA, EARTHQUAKE SEQUENCE OF 1966 ARE PRESENTED. HISTORICALLY, THE EPICENTRAL REGION IS ONE OF THE THREE MOST SEISMIC AREAS ALONG THE SAN ANDREAS FAULT IN CENTRAL CALIFORNIA. IT IS CHARACTERIZED, HOWEVER, BY A RELATIVELY HIGH INCIDENCE OF LARGE EARTHQUAKES IN PROPORTION TO SMALLER SHOCKS, COMPARED WITH OTHER ACTIVE ZONES. THE 1966 SEQUENCE OCCURRED IN AN AREA WHERE MEASURED DEFORMATION ACROSS THE FAULT FOR 1959-1965 SHOWS A DECREASE FROM ABOUT 2 CM/YEAR TO THE NORTH TO ZERO TO THE SOUTH OF THE AREA. NEITHER MICRO-EARTHQUAKE NOR NORMAL SEISMIC ACTIVITY PRIOR TO THE SEQUENCE GAVE INDICATION OF ITS COMING. SEISMICITY BEFORE THE SEQUENCE WAS CONFINED TO THE NORTH OF THE ACTIVE ZONE. THE EARLY AFTERSHOCK DISTRIBUTION EXTENDED 20 KM SOUTH OF THE MAIN SHOCK, CRACKING OCCURRED TO 33 KM SOUTH OF THE MAIN SHOCK. INTENSE AFTERSHOCK ACTIVITY FOR THE ENTIRE SEQUENCE EXTENDED 27 KM SOUTH OF THE MAIN SHOCK.

*EARTHQUAKE RECORDS + ACCELERATION + EARTHQUAKE, GENERAL + GROUND MOTION

2-23235

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-23235 *CONTINUED*

MURRAY GF

NOTE ON STRONG MOTION RECORDS FROM THE JUNE 1966 PARKFIELD, CALIFORNIA, EARTHQUAKE SEQUENCE
8 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6), PAGES 1259-1266 (DECEMBER 1967)

DATA IS PRESENTED FOR ALL OF THE JUNE 1966 PARKFIELD, CALIFORNIA, EARTHQUAKES THAT WERE
RECORDED BY FIVE STRONG-MOTION ACCELEROGRAPHS IN THE SHANDON-CHOLAME AREA SOUTH OF PARKFIELD.
THE INSTRUMENT ARRAY IS GENERALLY TRANSVERSE TO THE FAULT, INTERSECTING IT JUST NORTH OF THE
SOUTHERN LIMIT OF THE JUNE SURFACE FRACTURES. UNIQUE SEISMOGRAMS WERE OBTAINED OF SMALL
SHOCKS DURING WAVE MOTION FROM THE PRINCIPAL EARTHQUAKE. IN THE THREE MINUTES FOLLOWING THE
ONSET AT 0426, JUNE 28, GMT, TWO OF THE STRONG-MOTION INSTRUMENTS RECORDED COMPLETELY TEN
DIFFERENT EARTHQUAKES. APPROXIMATE EPICENTERS ARE LOCATED FOR THIRTEEN.

*EARTHQUAKE RECORDS + ACCELERATION + EARTHQUAKE, GENERAL + GROUND MOTION + SEISMOLOGY

2-23236

WESTPHAL WH + LANGE AL

LOCAL SEISMIC MONITORING--FAIRVIEW PEAK AREA, NEVADA
FOUR P

FOUR PORTABLE SEISMOGRAPHS WERE USED IN JANUARY-FEBRUARY AND APRIL TO AUGUST 1965 TO RECORD
LOCAL EARTHQUAKES IN THE FAIRVIEW PEAK AREA OF WEST-CENTRAL NEVADA. DURING THESE RECORDING
PERIODS, WHICH TOTALLED 129 DAYS, OVER 1300 LOCAL SHOCKS WERE RECORDED, OF WHICH 224 WERE
LARGE ENOUGH FOR DETERMINATION OF FOCAL POINTS. THESE HYPOCENTERS DEFINED THE ACTIVE FAULTS
OF THE REGION AND PROVIDED A MEANS FOR MAPPING THE PROBABLE EXTENT OF THESE FAULTS AT DEPTH.

*MICROEARTHQUAKE + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + ENERGY LEVEL + FAULT +
GEOLOGICAL CONSIDERATION, GENERAL

2-23237

STAUDER W + RYALL A

SPATIAL DISTRIBUTION AND SOURCE MECHANISM OF MICROEARTHQUAKES IN CENTRAL NEVADA

29 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6), PAGES 1317-1345 (DECEMBER 1967)

DURING THE SUMMER OF 1966 A SMALL TRIPARTITE ARRAY WAS ESTABLISHED AT THE SOUTHERN EXTREMITY
OF THE SURFACE FAULTING OF THE FAIRVIEW PEAK EARTHQUAKE OF 1954. OVER A PERIOD OF SIX WEEKS
AN AVERAGE 31 EARTHQUAKES PER DAY WERE DETECTED. OF THESE, ABOUT 400 WERE SELECTED FOR
DETAILED STUDY. SITE CORRECTIONS WERE MADE TO REDUCE ARRIVAL TIMES FOR ALL ELEMENTS OF THE
ARRAY TO A COMMON BASE, AND THE PROPERTIES OF THE ARRAY AND S-P TIME INTERVALS WERE USED TO
DETERMINE DIRECTION OF APPROACH, APPARENT SURFACE VELOCITY ACROSS THE ARRAY, AND HYPOCENTRAL
COORDINATES.

*MICROEARTHQUAKE + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + FAULT +
GEOLOGICAL CONSIDERATION, GENERAL + SEISMOLOGY + SOURCE MECHANISM

2-23238

WIDEMAN CJ + MAJOR MW

STRAIN STEPS ASSOCIATED WITH EARTHQUAKES

16 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA 57(6), PAGES 1429-1444 (DECEMBER 1967)

STRAIN STEPS HAVE BEEN OBSERVED AFTER EARTHQUAKES RANGING IN MAGNITUDE FROM 3.0 TO 8.5. AN
EMPIRICAL RELATIONSHIP IS DERIVED WHICH INDICATES THAT THE MAGNITUDE M OF THE SMALLEST
EARTHQUAKE FROM WHICH A STRAIN STEP OF THE ORDER OF $10(-9\text{TH})$ MAY BE EXPECTED AT DISTANCE.
FAULT LENGTH IS RELATED EMPIRICALLY TO THE MAGNITUDE. COMPARISON OF THESE TWO RELATIONSHIPS
SHOWS THAT STRAINS OF THE ORDER OF $10(-9\text{TH})$ MAY BE EXPECTED AT DISTANCES OF ABOUT 20 FAULT
LENGTHS. THE FAULT-LENGTH-VERSUS-MAGNITUDE EQUATION PRESENTED IS SHOWN TO BE COMPATIBLE WITH
PREVIOUSLY PUBLISHED ENERGY-MAGNITUDE RELATIONSHIPS. STRAIN STEPS ARE SHOWN TO HAVE TWO
CHARACTERISTICS WHICH ARE SIMILAR TO THOSE OF SURFACE WAVES. THE SPEED OF PROPAGATION IS
NEARLY CONSTANT OVER A WIDE RANGE OF EPICENTRAL DISTANCES. DEPENDING UPON WHETHER THE TRAVEL
PATHS ARE CONTINENTAL OR OCEANIC, THE SPEEDS ARE, RESPECTIVELY, 3.0 PLUS OR MINUS 0.3 KM/SEC
OR NEAR 3.6 MK/SEC. THE STRAIN-STEP AMPLITUDE DEPENDENCE UPON DISTANCE IS LIKE R TO THE
MINUS $3/2$.

*DEFORMATION + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FAULT + GROUND MOTION + SEISMOLOGY

2-23239

CRAWFORD WD

PUBLIC ACCEPTANCE OF THE NUCLEAR INDUSTRY

UNITED STATES ATOMIC ENERGY COMMISSION

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 925, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

AS CONCERN REGARDING AIR POLLUTION BECOMES MORE INTENSE, AND AS THE HIGH COST OF UNDERGROUND
TRANSMISSION INCREASES, THE DESIRABILITY OF SITING NUCLEAR POWER PLANTS WITHIN OR VERY NEAR
CITIES WILL BECOME EVEN MORE IMPORTANT. ENGINEERS AND REGULATORY AUTHORITIES MUST ACCELERATE
THEIR EFFORTS TO ARRIVE AT SOUND TECHNICAL SOLUTIONS TO THIS PROBLEM SO THAT THE BENEFITS OF
METROPOLITAN NUCLEAR POWER PLANTS MAY BE ACHIEVED IN THE SHORTEST POSSIBLE TIME.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-23239 *CONTINUED*
*RADIATION IN PERSPECTIVE + *SITING, REACTOR + ATMOSPHERIC POLLUTION

2-23240
PRICE HL
SITING OF POWER REACTORS AND FUEL REPROCESSING PLANTS
UNITED STATES ATOMIC ENERGY COMMISSION
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 925, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE COMMISSION APPLIES GUIDELINES CONTAINED IN ITS REACTOR-SITE CRITERIA WHICH RECOGNIZE THAT ENGINEERED SAFETY FEATURES BUILT INTO A NUCLEAR FACILITY CAN COMPENSATE FOR A LESSER ISOLATION DISTANCE THAN OTHERWISE WOULD BE REQUIRED. THIS PRINCIPLE HAS BEEN APPLIED TO SOME EXTENT. CONSIDERABLE PROGRESS HAS BEEN MADE IN IMPROVING REACTORS AND THEIR SAFETY SYSTEMS, BUT MANY FACTORS AFFECTING ANY DECISION ON METROPOLITAN SITING HAVE NOT BEEN RESOLVED ADEQUATELY TO PERMIT EASY EVALUATION. SOME OF THESE ARISE FROM THE LARGE INCREASES IN SIZE AND POWER LEVEL OF REACTORS NOW BEING PLANNED.

*SITING, CHEMICAL PROCESS PLANT + *SITING, REACTOR + RADIATION IN PERSPECTIVE + SAFETY PRINCIPLES AND PHILOSOPHY + USAEC

2-24076
BENDER RJ
THERE ARE NEW TRENDS IN REACTOR SITING
4 PAGES, FIGURES, TABLES, POWER, 111, PAGES 108-111 (SEPTEMBER 1967)

PRESENTS A GENERAL DISCUSSION OF REACTOR SITING, INCLUDING REFERENCES TO PAPERS PRESENTED AT THE IAEA VIENNA MEETING AND ANS SAN DIEGO MEETING. THE ECONOMIC BALANCE BETWEEN ENGINEERED SAFETY FEATURES AND OVERALL PLANT SAFETY IS POINTED OUT. CAISSON CONTAINMENT AND THE NEGATIVE-PRESSURE CONCEPT ARE DISCUSSED BRIEFLY. COOLING-WATER AVAILABILITY, COST OF POWER TRANSMISSION, SEISMIC DESIGN, AND UNUSUAL WEATHER CONDITIONS ARE CITED AS IMPORTANT CONSIDERATIONS.

*ECONOMICS + *ENGINEERED SAFETY FEATURE + *SITING, REACTOR + SEISMOLOGY, GENERAL + SITING, URBAN + THERMAL POLLUTION

2-24211 ALSO IN CATEGORY 18
PYERLY P
APPENDIX 2D - REPORT ON SEISMIC HAZARD AT THE SIERRA SITES AREA
SACRAMENTO MUNICIPAL UTILITY DISTRICT
9 PAGES, PAGES 1 THRU 9 OF AMENDMENT 1 TO RANCHO SECO PSAR, FEBRUARY 2, 1968, DOCKET 50-312, TYPE--PWR, MFG.--B+W, AE--BECHTEL

(REPORT DATED MARCH 3, 1964) A LISTING OF ALL RECORDED EARTHQUAKES SINCE 1854 IN THE LOCAL AREA, USING THE MODIFIED MERCALLI SCALE. ONLY 3 OF THE 17 WERE AS HIGH AS V. RISK APPEARS NEGLIGIBLE. NO REASON TO SUSPECT ANY EPICENTERS. THE GREATEST INTENSITY TO EXPECT WOULD BE ABOUT 4.5, WITH AN ACCELERATION OF 10 CM/SEC-SEC.

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

*EARTHQUAKE RECORDS + EARTHQUAKE EPICENTER + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

2-24213 ALSO IN CATEGORY 18
APPENDIX 2G - STORAGE RESERVOIR CRITERIA
SACRAMENTO MUNICIPAL UTILITY DISTRICT
3 PAGES, PAGES 2G-1 THRU 2G-A1 OF AMENDMENT 1 TO RANCHO SECO PSAR, DOCKET 50-312, FEBRUARY 2, 1968, TYPE--PWR, MFG.--B+W, AE--BECHTEL

THE CREST OF THE EASTERN EMBANKMENT (LOCATED 1 MILE EAST OF THE PLANT) IS 60 FT ABOVE THE STREAM BED AND 22 FT WIDE. CONVENTIONAL METHODS WILL BE USED TO ANALYZE THE STABILITY OF THE EMBANKMENT SECTIONS. SAFETY FACTORS OF 1.5 (NORMAL OPERATING CONDITION), 1.2 (DESIGN EARTHQUAKE OR RAPID DRAWDOWN), AND 1.0 (MAXIMUM HYPOTHETICAL EARTHQUAKE) HAVE BEEN ESTABLISHED. ONE-PAGE SUPPLEMENT INDICATES A SOIL-INVESTIGATION PROGRAM.

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

*DESIGN CRITERIA + *IMPOUNDMENT + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR + SOIL PROPERTY, IN SITU

2-24511 ALSO IN CATEGORY 18
COOPER PSAR APPENDIX A - SITE STUDIES
CONSUMERS PUBLIC POWER DISTRICT
80 PAGES, 50 FIGURES, 17 TABLES, REFERENCES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-24511 *CONTINUED*

GEOLOGY, SEISMOLOGY, SUBSURFACE INVESTIGATION, AND FOUNDATION RECOMMENDATIONS. SEISMOLOGICAL CONSIDERATIONS INCLUDE DISCUSSIONS OF PERTINENT EARTHQUAKES (1811 AND 1812 NEW MADRID, 1877 LINCOLN, 1935 TECUMSEH, AND 1952 EL RENO). A DETAILED ANALYSIS OF THE SOIL PROPERTIES IS GIVEN, WITH STRESS ON LIQUEFACTION. CONCLUSION (ALTHOUGH BASED ON NONCONSERVATIVE ASSUMPTIONS) IS THAT THE LIQUEFACTION OF THE SUBSOIL (SAND) WOULD PROBABLY OCCUR DURING THE DESIGN EARTHQUAKE. SOLUTIONS LISTED ARE (1) RAISING SITE GRADE BY AT LEAST 20 TO 40 FT, (2) STABILIZATION OF THE LOCAL SAND STRATUM BY EITHER VIBROFLotation GF GROUTING, (3) USE OF A PILE FOUNDATION, AND (4) STRUCTURAL-FILL FOUNDATION. THE LAST TWO ARE BOTH TECHNICALLY AND ECONOMICALLY FEASIBLE. A FILL FOUNDATION IS RECOMMENDED. THIS CONSISTS IN EXCAVATING TO BED ROCK AND BACK-FILLING WITH DENSE MATERIAL. STRUCTURES WOULD REST ON REINFORCED CONCRETE MATS ON THIS FILL.

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

*FOUNDATION ENGINEERING + *LIQUEFACTION + COOPER (BWR) + EARTHQUAKE + EARTHQUAKE ENGINEERING + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, BWR + REPORT, PSAR + SEISMOLOGY + SITING, REACTOR + SOIL + SOIL MECHANICS

2-24594 ALSO IN CATEGORY 5

LOMENICK TF + ROBERTSON H
SEISMOLOGICAL AND GEOPHYSICAL INSTRUMENTATION IN REACTOR SAFETY
OAK RIDGE NATIONAL LAB., TENN. + GEOTECH DIVISION, TELEDYNE INDUSTRIES, GARLAND, TEX.
5 PAGES, 3 FIGURES, 9 REFERENCES, NUCLEAR SAFETY 9(2), PAGE 120-124, (APRIL 1968)

SEISMIC INSTRUMENTS FOR OPERATING SCRAM SYSTEMS ARE USED IN SOME EXPERIMENTAL AND FISSILE-MATERIAL-PRODUCTION REACTORS. HOWEVER, THEY ARE NOT BEING GENERALLY CONSIDERED FOR MOST POWER REACTORS. INSTRUMENTATION FOR EVALUATING REACTOR SITES INCLUDES CERTAIN SYSTEMS DEVELOPED FOR SEISMOLOGY AND GEOPHYSICS. ACCELEROGRAPHS COULD BE USED TO RECORD STRONG MOTION AT REACTOR SITES, AND SEISMOGRAPHS COULD BE USED TO RECORD EARTHQUAKE ACTIVITY AT PROSPECTIVE SITES. OTHER INSTRUMENTS OF POSSIBLE BUT UNPROVED VALUE IN REACTOR SITING INCLUDE TILTMETERS, STRAINMETERS, MAGNETOMETERS, GRAVITY METERS, EARTH RESISTIVITY METERS, AND TELLURIC CURRENT SENSORS. GEOPHYSICAL TECHNIQUES, SUCH AS THE REFRACTION AND REFLECTION SEISMIC METHODS DEVELOPED FOR OIL EXPLORATION, MAY BE USED FOR INVESTIGATING REACTOR SITES BOTH ON LAND AND AT SEA.

*INSTRUMENTATION, EARTHQUAKE + EARTHQUAKE + ENGINEERED SAFETY FEATURE + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROTECTIVE + REACTOR SAFETY SYSTEM + SCRAM, REAL + SEISMOLOGY, GENERAL

2-24637

SCHOLZ CH
EXPERIMENTAL STUDY OF THE FRACTURING PROCESS IN BRITTLE ROCK
DEPT. OF GEOLOGY AND GEOPHYSICS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASSACHUSETTS 02139
8 PAGES, 5 FIGURES, 1 TABLE, 13 REFERENCES, JOURNAL OF GEOPHYSICAL RESEARCH, 73(4), PAGE 1447-1454, (FEBRUARY 1968)

MANY SMALL CRACKING EVENTS OR MICROFRACTURES PRECEDE FRACTURE IN LABORATORY COMPRESSION TESTS ON ROCK. EACH EVENT RADIATES ELASTIC WAVES. DURING THE COMPRESSION OF GRANITE TO FRACTURE, 22 OF THE LARGEST MICROFRACTURE EVENTS WERE LOCATED IN SPACE BY USING FIRST ARRIVALS OF S WAVES DETECTED WITH A MULTITRANSducer ARRAY. AT ABOUT 92% OF THE FRACTURE STRESS, A RAPID ACCELERATION OF MICROFRACTURING ACTIVITY OCCURRED. THE LOCATION OF THE EVENTS THAT OCCURRED BELOW THIS POINT SHOWED NO OBVIOUS RELATION TO THE EVENTUAL FAULT. AT STRESSES WITHIN THE REGION OF ACCELERATED ACTIVITY, HOWEVER, THERE WAS A MARKED CLUSTERING OF MICROFRACTURES ON THE EVENTUAL FAULT PLANE. THESE OBSERVATIONS SUGGEST THAT THE APPROXIMATE TIME AND PLACE OF FRACTURE COULD HAVE BEEN PREDICTED. IN THE LIGHT OF THE SIMILARITY OF MICROFRACTURES AND EARTHQUAKES, THIS SUGGESTS A POSSIBLE METHOD FOR PREDICTING EARTHQUAKES.

EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + MICROEARTHQUAKE + MODEL TESTING + ROCK MECHANICS

2-24638

BRACE WF + ORANGE AS
ELECTRICAL RESISTIVITY CHANGES IN SATURATED ROCKS DURING FRACTURE AND FRICTIONAL SLIDING
DEPT. OF GEOLOGY AND GEOPHYSICS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS. 02139 + GEOSCIENCE INCORPORATED, CAMBRIDGE, MASS. 02139
13 PAGES, 8 FIGURES, 1 TABLE, 14 REFERENCES, JOURNAL OF GEOPHYSICAL RESEARCH, 73(4), PAGE 1433-1445, (FEB. 1968)

CHANGES IN ELECTRICAL RESISTIVITY WERE OBSERVED AS A FUNCTION OF COMPRESSIVE STRESS IN A VARIETY OF CRYSTALLINE ROCKS THAT WERE SUBJECTED TO CONFINING PRESSURE OF UP TO 5 KB AND TO PORE PRESSURE OF WATER OF 500 BARS. IN THE MAJORITY OF THE ROCKS, RESISTIVITY INCREASED SLIGHTLY UP TO ABOUT HALF THE FRACTURE STRESS, JUST THE REVERSE EFFECT HAS BEEN NOTED ELSEWHERE FOR ROCKS THAT WERE APPARENTLY PARTIALLY SATURATED. BEYOND HALF AND PARTICULARLY WITHIN ABOUT 20% OF THE FRACTURE STRESS, RESISTIVITY DROPPED TYPICALLY BY AN ORDER OF MAGNITUDE. THIS SHARP DECREASE CORRESPONDED CLOSELY TO AN INCREASE IN POROSITY, OR DILATANCY, WHICH TOOK PLACE UNDER COMPRESSIVE STRESS.

EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + FAULT + GEOLOGICAL CONSIDERATION, GEOPHYSICAL + ROCK MECHANICS

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-24639
SCHOLZ CH
MICROFRACTURING AND THE INELASTIC DEFORMATION OF ROCK IN COMPRESSION
DEPT. OF GEOLOGY AND GEOPHYSICS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASSACHUSETTS 02139
16 PAGES, 12 FIGURES, 4 TABLES, 19 REFERENCES, JOURNAL OF GEOPHYSICAL RESEARCH, 73(4), PAGE 1417-1432,
(FEBRUARY 1968)

THE CRACKING THAT OCCURS DURING THE DEFORMATION OF ROCK IN COMPRESSION WAS STUDIED BY DETECTING AND ANALYZING THE RADIATED ELASTIC WAVES. A NEW EXPERIMENTAL METHOD WHICH INCREASED THE SENSITIVITY OF DETECTION BY SEVERAL ORDERS OF MAGNITUDE OVER THAT OF PREVIOUS STUDIES WAS USED. THE PATTERN OF CRACK OCCURRENCE FOR A WIDE VARIETY OF ROCKS AND AT CONFINING PRESSURES UP TO 5 KB WAS FOUND TO BE CLOSELY RELATED TO THE STRESS-STRAIN BEHAVIOR. DILATANCY IN THE REGION ABOVE HALF THE FRACTURE STRESS WAS FOUND TO BE DIRECTLY PROPORTIONAL TO CRACKING. MICROFRACTURING, I.E. CRACKING, OF BRITTLE ROCK WAS COMPARED WITH THE MICROFRACTURING OBSERVED IN FRICTIONAL SLIDING AND IN THE DEFORMATION OF DUCTILE ROCK. CATACLASTIC DEFORMATION OF MARBLE WAS FOUND TO BE SIMILAR TO FRICTIONAL SLIDING IN THIS RESPECT BUT DISTINCTLY DIFFERENT FROM BRITTLE DEFORMATION.

EARTHQUAKE, GENERAL + MICROEARTHQUAKE + MODEL TESTING + ROCK MECHANICS

2-24641
BOLT BA
THE FOCUS OF THE 1906 CALIFORNIA EARTHQUAKE
UNIVERSITY OF CALIFORNIA, BERKELEY
15 PAGES, 3 FIGURES, 5 TABLES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 50(1), PAGES 457-471
(FEBRUARY 1968)

THE LOCATION OF THE 1906 CALIFORNIA EARTHQUAKE IS REEXAMINED USING BOTH THE P AND S RECORDINGS AT TELESEISMIC DISTANCES AND THE LOCAL OBSERVATIONS. ANALYSIS OF THE OBSERVED TRAVEL TIMES USING MODERN EMPIRICAL TABLES RULES OUT A FOCUS OF THE PRINCIPAL SHOCK SOUTH OF THE SANTA CRUZ MOUNTAINS OR NORTH OF POINT ARENA. BY INTER-COMPARISON WITH THE MEASUREMENTS FROM THE 1957 SAN FRANCISCO EARTHQUAKE, IT IS DEMONSTRATED THAT THE LINES OF EVIDENCE ARE SLIGHTLY MORE FAVORABLE TO A PRINCIPAL FOCUS NEAR THAT OF THE 1957 CALIFORNIA SHOCK THAN TO REIDS FOCUS NEAR OLEMA, ALTHOUGH THE LATTER IS NOT PRECLUDED. THERE IS NO EVIDENCE FROM THE TRAVEL TIMES AGAINST THE HYPOTHESIS THAT THE FIRST RUPTURE WAS ASSOCIATED WITH THE SAN ANDREAS FAULT AND OCCURRED WITHIN THE CRUST. THE ANALYSIS CONFIRMS THAT THE RUPTURE WAS OF THE (PERHAPS UNUSUAL) BILATERAL TYPE. CALCULATIONS WHICH CONFIRM THE CONTENTIOUS MAGNITUDE OF 8 1/4 ARE SET DOWN.

DISPLACEMENT, GENERAL + EARTHQUAKE EPICENTER + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FAULT

2-24642
SCHOLZ CH
THE FREQUENCY-MAGNITUDE RELATION OF MICROFRACTURING IN ROCK AND ITS RELATION TO EARTHQUAKES
CALIFORNIA INSTITUTE OF TECHNOLOGY
17 PAGES, 6 FIGURES, 3 TABLES, REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 50(1), PAGES 399-415 (FEBRUARY 1968)

DURING THE DEFORMATION OF ROCK IN LABORATORY EXPERIMENTS, SMALL CRACKING EVENTS, I.E., MICROFRACTURES, OCCUR WHICH RADIATE ELASTIC WAVES IN A MANNER SIMILAR TO EARTHQUAKES. THESE RADIATIONS WERE DETECTED DURING UNIAxIAL AND TRIAXIAL COMPRESSION TESTS AND THEIR FREQUENCY-MAGNITUDE RELATION STUDIED. THEY WERE FOUND TO OBEY THE GUTENBERG AND RICHTER RELATION $\log N = A + Bm$, WHERE N IS THE NUMBER OF EVENTS WHICH OCCURRED OF MAGNITUDE m , AND A AND B CONSTANTS. THE DEPENDENCE OF THE PARAMETER B ON ROCK TYPE, STRESS, AND CONFINING PRESSURE WAS STUDIED. IT WAS FOUND TO DEPEND PRIMARILY ON STRESS, IN A CHARACTERISTIC WAY.

*ROCK MECHANICS + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + MICROEARTHQUAKE

2-24643
KING CU + KNOPOFF L
STRESS DROP IN EARTHQUAKES
UNIVERSITY OF CALIFORNIA, LOS ANGELES
8 PAGES, 3 FIGURES, 3 TABLES, REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 50(1), PAGES 249-257 (FEBRUARY 1968)

A CORRELATION IS MADE BETWEEN EARTHQUAKE MAGNITUDE AND PARAMETERS OF FAULT TRACE ON THE BASIS OF DISLOCATION THEORY. FOR EARTHQUAKES WITH MAGNITUDES m BETWEEN 5.5 AND 8.5, THE CORRELATION WITH FAULT LENGTH L AND THE MAXIMUM HORIZONTAL OR VERTICAL OFFSET D (BOTH IN CM) IS APPROXIMATELY $\log LD = 2.24m - 4.99$. COMBINING THIS RESULT WITH A MAGNITUDE-ENERGY FORMULA, IT IS FOUND THAT THE STRESS DROP IS DEPENDENT UPON MAGNITUDE, WITH THE FRACTIONAL STRESS DROP INCREASING WITH MAGNITUDE.

*FAULT + DISPLACEMENT, GENERAL + EARTHQUAKE, GENERAL + GEOLOGICAL CONSIDERATION, GEOPHYSICAL + MATHEMATICAL STUDY + TECTONICS

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-24644
WALLACE RE
EARTHQUAKE OF AUGUST 19, 1966, VARTO AREA, EASTERN TURKEY
U. S. GEOLOGICAL SURVEY, MENLO PARK, CALIF.
35 PAGES, 34 FIGURES, REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 50(1), PAGES 11-45
(FEBRUARY 1968)

THE EARTHQUAKE OF AUGUST 19, 1966, CENTERED NEAR VARTO IN EASTERN TURKEY. IT OCCURRED AT 12 TWENTY-TWO G.M.T. AND HAD A RICHTER MAGNITUDE OF ABOUT 7. INTENSITIES REACHED IX. REPORTEDLY, 2,529 PEOPLE WERE KILLED, 1,500 INJURED, AND 19,013 BUILDINGS WERE DEMOLISHED OR HEAVILY DAMAGED. SURFACE FRACTURES IN THREE PARALLEL FRACTURE ZONES TRENDING N65-70 W DISPLAY BOTH RIGHT-LATERAL STRIKE SLIP AND EXTENSION NORMAL TO THE FRACTURES. THE TREND AND SENSE OF DISPLACEMENT RELATE THE FRACTURING TO THE NORTH ANATOLIA FAULT SYSTEM. EXAMPLES OF GEOLOGIC FACTORS INFLUENCING DAMAGE INCLUDE (1) DEGREE OF SATURATION OF THE ALLUVIUM, (2) PROXIMITY TO LANDSLIDES, AND (3) RELATION TO SURFACE FAULTING.

DAMAGE + EARTHQUAKE ENGINEERING + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FAULT + LANDSLIDE + SOIL MECHANICS

2-24645
RYALL A + VANWORMER JD + JONES AE
TRIGGERING OF MICROEARTHQUAKES BY EARTH TIDES, AND OTHER FEATURES OF THE TRUCKEE, CALIFORNIA, EARTHQUAKE SEQUENCE OF SEPTEMBER 1966
UNIVERSITY OF NEVADA, RENO, NEVADA
34 PAGES, 17 FIGURES, 5 TABLES, REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 50(1), PAGES 215-248 (FEBRUARY 1968)

DURING AN EARTHQUAKE SEQUENCE NEAR TRUCKEE, CALIFORNIA, IN SEPTEMBER 1966, SEVERAL THOUSAND AFTERSHOCKS WERE TAPE-RECORDED ON A SMALL, TRIPARTITE SEISMIC ARRAY. USING PLAYBACKS OF THESE RECORDINGS, TOGETHER WITH SEISMOGRAMS FROM THREE NEARBY STATIONS, FOCAL COORDINATES WERE CALCULATED FOR 79 OF THE LARGER AFTERSHOCKS, AND EPICENTERS WERE DETERMINED FOR AN ADDITIONAL 29 SHOCKS. THE FOCAL REGION IN WHICH THESE EARTHQUAKES WERE LOCATED HAD APPROXIMATE DIMENSIONS 2 X 6 X 10 KM, WITH ITS LONG AXIS TRENDING N22-DEG E AND PLUNGING ABOUT 45-DEG NE. A P-WAVE FAULT-PLANE SOLUTION FOR THE MAIN SHOCK AGREED BOTH WITH THE LINE OF SURFACE BREAKAGE AND WITH A PLANE FITTED TO THE ZONE OF AFTERSHOCK FOCI. OF 245 OBSERVATIONS OF FIRST-MOTION FOR WELL-LOCATED AFTERSHOCKS, ALL BUT 11 WERE EXPLAINED BY A SINGLE TYPE OF MECHANISM, WITH SLIGHT VARIATIONS IN ORIENTATION.

AFTERSHOCK + EARTHQUAKE, GENERAL + FAULT + MICROEARTHQUAKE + SOURCE MECHANISM

2-24779
KING CY + KNOPOFF L
MODEL SEISMICITY. RUPTURE PARAMETERS, STRESS, AND ENERGY RELATIONS
INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS, UNIVERSITY OF CALIFORNIA, LOS ANGELES, CALIFORNIA
8 PAGES, 12 FIGURES, 9 REFERENCES, JOURNAL OF GEOPHYSICAL RESEARCH, 73(4), PAGE 1399-1406, (FEBRUARY 1968)

FOR A SEQUENCE OF SHOCKS OF VARIOUS SIZES GENERATED IN A LABORATORY MODEL OF A SEISMIC FAULT, THE POTENTIAL ENERGY RELEASED IN A SHOCK IS WELL CORRELATED WITH THE ASSOCIATED RUPTURE PARAMETERS OF LENGTH AND DISPLACEMENT. THE STRESS DROP ASSOCIATED WITH A SHOCK INCREASES MONOTONICALLY WITH THE SIZE OF THE SHOCK. TSUBOI'S HYPOTHESIS ON THE APPROXIMATE CONSTANT POTENTIAL ENERGY DENSITY BEFORE A SHOCK IS FOUND TO BE VALID. A BETTER APPROXIMATION, HOWEVER, IS TO ASSUME THAT THE AVERAGE STRESS ON THE FAULT IMMEDIATELY BEFORE AND AFTER THE SHOCK IS CONSTANT. LARGE SHOCKS, ALTHOUGH FEW IN NUMBER, ARE RESPONSIBLE FOR A LARGE FRACTION OF THE TOTAL ENERGY RELEASE.

EARTHQUAKE, GENERAL + ENERGY LEVEL + FAULT + MODEL TESTING + ROCK MECHANICS + TECTONICS

2-24812 ALSO IN CATEGORY 18
SENATE BILL 3330 - ELECTRIC POWER PLANT SITING ACT OF 1968
U. S. SENATE
6 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 20-25 (APRIL 22, 1968)

TO AMEND FEDERAL POWER ACT SO THAT AEC SHALL NOT ISSUE A (POWER REACTOR) LICENSE UNDER ATOMIC ENERGY ACT SECT. 103 OR 104 (EXCEPT FOR NATIONAL EMERGENCY OR NO ECONOMICALLY FEASIBLE ALTERNATIVE) UNTIL THE FPC COMPLETES A NATIONAL POWER-PLANT-SITING STUDY, AND SUBMITS A NATIONAL POWER-PLANT-SITING PLAN TO CONGRESS. PLAN TO BE SUBMITTED WITHIN 2 YEARS OF PASSAGE OF BILL. *** E. KENNEDY STATEMENT REFERS TO GROWTH OF ELECTRIC POWER, PREPONDERANCE OF LARGE PLANTS BEING NUCLEAR, SPECIAL PROBLEMS OF NUCLEAR PLANTS DISCHARGING WATER 11 TO 23 DEG HOTTER THAN ON INTAKE, POTENTIALLY DISASTROUS EFFECT ON AQUATIC LIFE AND IRRIGATION.

*CONGRESSIONAL ACTIVITY + *SITING, REACTOR + *THERMAL POLLUTION

2-24917 ALSO IN CATEGORY 18
RESPONSE TO QUESTION 10.1--LOADING DURING MAXIMUM EARTHQUAKE FOR CLASS I EQUIPMENT

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-24917 *CONTINUED*

VIRGINIA ELECTRIC AND POWER COMPANY

6 PAGES, 2 TABLES, PAGE S10.1-1 THRU -6 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

STATE YOUR CRITERION REGARDING ACCEPTABLE STRESSES AND STRAINS IN EQUIPMENT RATED CLASS I FOR SEISMIC DESIGN DURING THE MAXIMUM EARTHQUAKE. IN EACH CASE, ARE FUNCTIONAL, ACCIDENT, AND SEISMIC LOADS ASSUMED TO OCCUR SIMULTANEOUSLY. ***(ANSWER ON PAGES S10.1-1 THRU -6.)

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*STRESS + EQUIPMENT, GENERAL + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

2-24919

ALSO IN CATEGORY 18

RESPONSE TO QUESTION 10.3--SEISMIC DESIGN OF SECONDARY SYSTEM COMPONENTS

VIRGINIA ELECTRIC AND POWER COMPANY

1 PAGE, PAGE S10.3-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

LIST THOSE PORTIONS OF THE SECONDARY SYSTEM WHICH ARE RATED AS CLASS I FOR SEISMIC DESIGN. IN PARTICULAR, INDICATE THE SEISMIC-DESIGN CRITERIA FOR THE STEAM-GENERATOR SHELL AND THE MAIN STEAM LINES FROM THE STEAM GENERATOR TO THE TRIP VALVES. ***(ANSWER) LIST GIVEN. STEAM-GENERATOR SHELL AND MAIN STEAM LINES FROM GENERATOR TO TRIP VALVES ARE INCLUDED IN LIST.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*MAIN COOLING SYSTEM + *PIPING + *STEAM GENERATOR + REACTOR, PWR + REPORT, PSAR

2-25088

ALSO IN CATEGORY 18

PUBLIC INTERVENTION ON COLUMBIA UNIVERSITY TRIGA

3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(19), PAGES 18-20 (MAY 6, 1968)

(APRIL 30 FILING FROM REGULATORY STAFF - SUMMARIZES THREE INTERVENTION PETITIONS, ASSERTS THAT MOST OF THE MATTERS ARE NOT PERTINENT TO PUBLIC HEALTH AND SAFETY, AND REQUESTS INTERVENTION BE LIMITED TO RELEVANT MATTERS. (APRIL 24 LETTER FROM RIVERSIDE DEMOCRATS, INC. - ASSERTS BENEFITS TO COMMUNITY WOULD NOT COMPENSATE FOR HAZARDS, NOR IS THERE COMMUNITY PARTICIPATION TO ENSURE SAFE OPERATION). (APRIL 20 LETTER FROM COMMITTEE TO END RADIOLOGICAL HAZARDS) - REFERS TO ACCIDENT POTENTIAL, SABOTAGE. REACTOR SHOULD NOT BE ALLOWED WITHIN CITY OF NEW YORK. (APRIL 19, LETTER FROM MORNINGSIDE RENEWAL COUNCIL) - REFERS TO FERMI, THRESHER, AND NE BLACKOUT AS FALLIBILITY OF TESTIMONY OF ENGINEERS.

*SITING, URBAN + OPERATING LICENSE PROCESS + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + REACTOR, RESEARCH + TRIGA (RR)

2-25168

AKINO

ASEISMIC DESIGN OF THE TSURUGA NUCLEAR POWER PLANT

JAPAN ATOMIC POWER COMPANY

10 PAGES, MARCH 1968

THIS NOTE IS A SUMMARY DESCRIBED FROM VIEWPOINT OF HISTORY OF THE OCCURRENCE AND SCHEDULED PROGRAM CONCERNING THE ASEISMIC DESIGN OF TSURUGA NUCLEAR POWER PLANT FOR HALF A DECADE. THE NOTE COULD BE A GUIDE TO MAKE READERS UNDERSTAND PROGRESSIVE ACTIVITY AND JUDGEMENTS PERFORMED BY JAPC, BECAUSE TECHNICAL MATTERS MENTIONED HEREIN ARE EXPLAINED TIMELINE IN RELATION WITH OTHER CONCERNS.

AVAILABILITY - DR. AKINO, JAPANESE ATOMIC POWER COMPANY

EARTHQUAKE, GENERAL + FAULT + SITE CRITERIA, EARTHQUAKE + SITING, GENERAL

2-25169

BONILLA MG

HISTORIC SURFACE FAULTING IN CONTINENTAL UNITED STATES AND ADJACENT PARTS OF MEXICO. A FACTOR IN NUCLEAR FACILITY SITING AND DESIGN

NATIONAL CENTER FOR EARTHQUAKE RESEARCH, MENLO PARK, CALIF.

TID-24124 +. 36 PAGES, 10 FIGURES, 76 REFERENCES, 1967

SUMMARIZES GEOMETRIC ASPECTS OF 35 INSTANCES OF HISTORIC FAULTING OF THE GROUND SURFACE IN THE U.S. AND ADJACENT PARTS OF MEXICO. SEVERAL TENTATIVE CONCLUSIONS, IMPORTANT IN THE SITING OF STRUCTURES SUCH AS NUCLEAR REACTORS, CAN BE REACHED - (1) BRANCH AND SECONDARY FAULTING COMMONLY ACCOMPANIES THE MAIN FAULTING. (2) DISPLACEMENTS ON INDIVIDUAL BRANCH AND SECONDARY FAULTS WERE LESS THAN 30% AS LARGE AS THE DISPLACEMENT ON THE MAIN FAULT. (3) MAIN, BRANCH, AND SECONDARY FAULT ZONES ARE NARROWER FOR STRIKE-SLIP FAULTS THAN FOR VERTICAL-SLIP FAULTS. (4) MAIN FAULTING APPEARS TO OCCUR ALONG PRE-EXISTING FAULTS, WITHOUT EXCEPTION. (5) BRANCH AND SECONDARY FAULTING OCCURS ON PRE-EXISTING FAULT LINES 30% OF THE TIME.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-25169 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*FAULT + CREEP + DISPLACEMENT, GENERAL + EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + LANDSLIDE +
SUBSIDENCE + TECTONICS

2-25170
SANFORD AR + SINGH S
MINIMUM RECORDING TIMES FOR DETERMINING SHORT-TERM SEISMICITY FROM MICROEARTHQUAKE ACTIVITY
1 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 58(2), PAGE 639-644, (APRIL 1968)

THE MINIMUM MICROEARTHQUAKE RECORDING TIME NEEDED TO DETERMINE SHORT-TERM SEISMICITY (10 YEARS) HAS BEEN ESTABLISHED FOR REGIONS HAVING THE SAME DEGREE OF ACTIVITY AS SOCORRO (400 SHOCKS WITH M EQUAL TO OR GREATER THAN 0 EACH YEAR). AN ANALYSIS OF MORE THAN FIVE YEARS OF MICROEARTHQUAKE DATA INDICATES THAT ABOUT SIX MONTHS OF RECORDING ARE REQUIRED FOR A RELIABLE ESTIMATE OF THE EARTHQUAKE-FREQUENCY RELATION FROM WHICH SEISMICITY IS CALCULATED. LONG-TERM SEISMICITY (100 YEARS) PREDICTED FROM THE PRESENT LEVEL OF MICROEARTHQUAKE ACTIVITY IN SOCORRO IS MUCH LOWER THAN THE KNOWN SEISMICITY OF THE REGION. THE NUMBER OF MICROEARTHQUAKES WOULD HAVE TO INCREASE BY A FACTOR OF 20, OR THE VALUE OF B DECREASE APPROXIMATELY 20%, BEFORE PREDICTION WOULD AGREE WITH THE LONG-TERM SEISMIC ACTIVITY OF THE REGION.

*MICROEARTHQUAKE + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + MATHEMATICAL STUDY + SEISMIC ZONE

2-25171
LOMNITZ C + CABRE R
THE PERU EARTHQUAKE OF OCTOBER 17, 1966
1 PAGE, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 58(2), PAGE 645-661, (APRIL 1968)

SEISMOLOGICAL RESULTS ON THE DESTRUCTIVE PERU EARTHQUAKE (M EQUAL TO 7.5) INCLUDE - DETERMINATION OF EPICENTER, ISOSEISMAL MAP, TSUNAMI OBSERVATIONS, AND SOME CORRELATIONS BETWEEN INTENSITY AND GEOLOGIC FACTORS. THE EPICENTER WAS LOCATED OFF THE COAST OF CENTRAL PERU, ABOUT 190 KILOMETERS NORTHWEST OF LIMA. ISOSEISMALS WERE ELONGATED IN THE DIRECTION OF THE COAST LINE. THE INTENSITY EXCEEDED VIII IN THE REGION OF HUACHO, AND REACHED VII IN LIMA. THERE ARE INDICATIONS, HOWEVER, THAT ACCELERATIONS AND FREQUENCIES WERE BOTH HIGHER THAN WOULD BE EXPECTED IN THE REGIONS FOR WHICH THE MODIFIED MERCALLI SCALE WAS DEVELOPED. LOCAL HIGH INTENSITIES WERE FREQUENTLY CORRELATED WITH THE OCCURRENCE OF RECENT ALLUVIUM. ANALYSIS OF TSUNAMI TRAVEL TIMES SHOWS THAT THE PERU TRENCH ACTS AS A HIGH-VELOCITY CHANNEL WHICH REFRACTS WAVE ENERGY TO THE COAST IN ADVANCE OF THE EXPECTED ARRIVAL OVER THE DIRECT PATH.

*EARTHQUAKE RECORDS + ACCELERATION + DAMAGE + EARTHQUAKE, GENERAL + GEOLOGICAL CONSIDERATION, GENERAL + TSUNAMI

2-25172
PAGE RA + MOLNAR PH + OLIVER J.
SEISMICITY IN THE VICINITY OF THE RAMAPO FAULT, NEW JERSEY-NEW YORK
1 PAGE, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 58(2), PAGE 681-687, (APRIL 1968)

SINCE 1962, THE LAMONT SEISMOGRAPH NETWORK IN SOUTHEASTERN NEW YORK AND NORTHERN NEW JERSEY HAS RECORDED FOUR SMALL EARTHQUAKES WITH EPICENTERS ALONG THE RAMAPO FAULT NEAR THE NEW YORK-NEW JERSEY BORDER. THE NORTHEAST TRENDING FAULT SEPARATES THE TRIASSIC BASIN TO THE SOUTHEAST FROM THE PRECAMBRIAN HIGHLAND TO THE NORTHWEST. THE PROXIMITY OF THESE EVENTS TO THE FAULT, AND THE PREVIOUS EARTHQUAKE HISTORY OF THE AREA, SUGGEST THAT MUCH OF THE SEISMIC ACTIVITY OF THE AREA IS ASSOCIATED WITH THIS MAJOR TECTONIC FEATURE, WHICH HAS APPARENTLY NOT BEEN HIGHLY ACTIVE SINCE THE TRIASSIC.

EARTHQUAKE RECORDS + EARTHQUAKE, GENERAL + FAULT + SEISMIC ZONE + SEISMOLOGY

2-25173
YAMAKAWA N
FORESHOCKS, AFTERSHOCKS AND EARTHQUAKE SWARMS
METEOROLOGICAL RESEARCH INSTITUTE, TOKYO + METEOROLOGICAL COLLEGE, KASHIWA, CHIBA PREF.
33 PAGES, 8 FIGURES, 10 TABLES, 20 REFERENCES, PAPERS IN METEOROL. AND GEOPHYS., 17(3), PAGE 157-189, (1966)

THIS IS THE FIRST PART OF A STUDY DEALING WITH VARIOUS SEISMOLOGICAL, GEOPHYSICAL, AND GEOLOGICAL CHARACTERISTICS SUCH AS TIME AND SPACE DISTRIBUTIONS, ENERGY RELEASE AND FOCAL MECHANISMS OF FORESHOCKS AFTERSHOCKS AND EARTHQUAKE SWARMS. SEISMOLOGICAL DATA OF THE JAPAN METEOROLOGICAL AGENCY ARE CHIEFLY MADE USE OF. BEFORE ANY INVESTIGATION OF FORESHOCK, AND EARTHQUAKE SWARMS IS UNDERTAKEN, IT IS FUNDAMENTALLY IMPORTANT TO GIVE A CLEAR DEFINITION OF THESE SEISMIC ACTIVITIES WHICH ARE HERE TENTATIVELY CALLED ABNORMAL SEISMIC ACTIVITIES. A DEFINITION OF ABNORMAL SEISMIC ACTIVITIES BASED ON A STATISTICAL METHOD IS PROPOSED. THIS METHOD IS APPLIED TO DISTINGUISH ABNORMAL SEISMIC ACTIVITIES FROM THE NORMAL OR BACKGROUND SEISMIC ACTIVITY IN ONE OF THE SEISMICALLY ACTIVE REGIONS IN AND NEAR THE JAPANESE ISLANDS.

AFTERSHOCK + EARTHQUAKE PREDICTION + EARTHQUAKE, GENERAL + ENERGY LEVEL + FORESHOCK + SEISMIC ZONE +

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-25173 *CONTINUED*
SEISMOLOGY

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-23749
TRANSPORT FLASKS FOR HOT PLUTONIUM
2 PAGES, 3 FIGURES, NUCLEAR ENGINEERING 13(140), PAGE 38-39, (JAN. 1968)

DESCRIBES A SHIPPING CONTAINER DESIGNED TO TRANSPORT PU-238. THE SOURCE PRODUCES 1500 W OF HEAT, WHICH IS DISSIPATED FROM THE CASH SURFACE BY NICKEL-PLATED COPPER FINS. PRIMARY COOLANT CONSISTS OF SMALL NICKEL SPHERES AND ETHYLENE GLYCCL.

EQUIPMENT DESIGN + HEAT TRANSFER + PLUTONIUM + REACTOR, SPACE + SNAP, GENERAL (SR) + TRANSPORTATION AND HANDLING

3-23750
INTERNATIONAL REGULATIONS FOR TRANSPORT OF RADIONUCLIDES
8 PAGES, 3 FIGURES, 6 TABLES, 9 REFERENCES, NUCLEAR ENGINEERING 13(140), PAGE 31-38, (JANUARY 1968)

DISCUSSES THE EVALUATION OF THE INTERNATIONAL REGULATIONS CCNSIDERING IN SOME DETAIL THE 1964 AND 1967 REVISIONS TO THE 1961 IAEA REGULATIONS. ALSO DISCUSSES THE COMPETENT AUTHORITY AND INSURANCE AND INDEMNITY OF GOVERNMENTS. THE OPERATING EXPERIENCE OF SHIPPING IS NOTED ALONG WITH AN ANALYSIS OF THE NUMBER, TYPE, AND RESULTS OF ACCIDENTS THAT HAVE OCCURRED IN THE UK.

ACCIDENT ANALYSIS + INSURANCE + OPERATING EXPERIENCE + REGULATION, IAEA + SHIPPING ANALYSIS + UNITED KINGDOM

3-23751
ACTIVE MATERIAL TRANSPORT
AKTIEBOLAGET ATOMENERGI, STOCKHOLM
3 PAGES, 2 FIGURES, NUCLEAR ENGINEERING 13(140), PAGE 40-42, (JAN. 1968)

DISCUSSES THE PROBLEM OF TRANSPORTING LARGE AMOUNTS OF RADICACTIVE MATERIALS (NUCLEAR FUEL AND OTHER SOURCES). ON THE BASIS OF PRESENT REGULATIONS, TRANSPORT FACILITIES HAVE BEEN DEVELOPED, CONSTRUCTED AND TESTED, PARTLY IN COLLARORATION WITH IAEA. A CONSIDERABLE NUMBER OF TRANSPORTS HAVE BEEN EFFECTED TO A POINT OF NEAR ROUTINE. THE EXPERIENCE IS DESCRIBED AND SOME TRANSPORT COSTS AND STATISTICS ARE GIVEN.

OPERATING EXPERIENCE + REGULATION, IAEA + SHIPPING ANALYSIS + SWEDEN + TRANSPORTATION AND HANDLING

3-23752 ALSO IN CATEGORY 13
GUTMAN T
A SURFACE CENSITY EVALUATION OF CRITICAL ARRAY DATA
WESTINGHOUSE ELECTRIC CORP.
5 PAGES, 5 FIGURES, 12 REFERENCES, NUCLEAR APPLICATION 4(2) PAGE 121-125, (FEBRUARY 1968)

CORRELATIONS OF DATA CHARACTERIZING ARRAYS OF SUBCRITICAL UNITS THAT INTERACT TO RENDER WHOLE ARRAYS CRITICAL SHOW THAT THE RESULTING THICKNESS OF FISSILE MATERIAL SOLUTION CONTAINED IN AN ARRAY, WHEN SMEARED OVER THE BASE AREA OF THAT ARRAY, CAN BE CCMPARED TO THE THICKNESS OF A SINGLE HOMOGENEOUS UNIT HAVING A COMPOSITION AND SHAPE SIMIIAR TO THAT OF THE ARRAY. THE CUKKRELAIHUNS RESULIED IN CURVES THAT CAN BE USED TO PREDICT CRITICAL ARRAYS OF SOLUTIONS OR TO DETERMINE SAFE SPACING USING APPROPRIATE SAFETY FACTORS. ALTHOUGH THE SAME RELATIONSHIP BETWEEN ARRAY-SMEARED THICKNESS AND SINGLE-UNIT THICKNESS DOES NOT APPEAR TO APPLY TO METAL SYSTEMS, A USEFUL CURVE THAT GUIDES THE DETERMINATION OF CRITERIA FOR ADEQUATE SPACING IS DEVELOPED.

CRITICALITY EXPERIMENT + CRITICALITY SAFETY + FUEL STORAGE

3-23753
FAIRBAIRN A + GIBSON R
THE IMPACT OF THE IAEA REGULATIONS OF THE TRANSPORT OF IRRADIATED FUEL
UNITED KINGDOM ATOMIC ENERGY AUTHORITY.
6 PAGES, 3 TABLES, 6 REFERENCES, J. BPIT. NUCL. ENERGY SOC. 5, PAGE 558-563, (OCTOBER 1966)

DESCRIBES REGULATIONS RECENTLY DEVELOPED BY THE IAEA FOR THE CARRIAGE OF LARGE RADIOACTIVE SOURCES, PARTICULARLY IRRADIATED NUCLEAR FUEL. EMPHASIS IS LAID ON THE NEED FOR THESE INTERNATIONAL TRANSPORT REQUIREMENTS TO BE TAKEN INTO ACCOUNT AT AN EARLY STAGE IN REACTOR PROJECTS. THE IMPLICATIONS OF THE REGULATIONS FOR DESIGNERS OF IRRADIATED FUEL PACKAGING ARE EXAMINED, AND ATTENTION IS DRAWN TO SOME SPECIFIC PROBLEMS.

RADIATION SAFETY AND CONTROL + REGULATION, IAEA + SAFETY PRINCIPLES AND PHILOGSOPHY + UNITED KINGDOM

3-23754 ALSO IN CATEGORY 15
SAWAI S + SHICHI D
BIBLIOGRAPHY ON IRRADIATED FUEL SHIPPING AND ITS SHIPPING CASKS

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-23754 *CONTINUED*
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-4039 +. 33 PAGES, REFERENCES, OCTOBER 1966

PRESENT PROBLEMS OF IRRADIATED FUEL SHIPPING AND SHIPPING CASKS, ESPECIALLY FROM THE STANDPOINT OF ITS DESIGN AND MANUFACTURE, ARE DESCRIBED. ABOUT 400 FOREIGN AND NATIONAL REPORTS ARE DIVIDED INTO 12 GROUPS ACCORDING TO THEIR OWN FIELDS, AND LISTED CHRONOLOGICALLY. DOCUMENTS PUBLISHED AFTER 1959 ARE MAINLY COLLECTED, CONSIDERING EFFORTS AND DEVELOPMENT WORKS ON THESE PROBLEMS DONE BY THE IAEA AND MANY COUNTRIES IN THESE SEVERAL YEARS.

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

BIBLIOGRAPHY + JAPAN + SHIPPING CONTAINER

3-23755
BERGER S + BONYHADY K + DAVIS B
HNPF SIX-ELEMENT IRRADIATED FUEL SHIPPING CASK
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-12,547 +. 442 PAGES, FIGURES, TABLES, NOVEMBER 23, 1967

PRESENTS DETAILED ANALYSES AND DRAWINGS OF THE HALLAM SPENT-FUEL SHIPPING CASK. THE CASK IS DESIGNED AS A GENERAL-PURPOSE CASK FOR USE AFTER THE HALLAM FUEL SHIPMENTS ARE COMPLETED BY THE AEC. ALSO DESIGNED TO MEET REQUIREMENTS OF USAEC MANUAL CHAPTER 0529, DATED 8/22/66, WHICH PARALLELS CFR TITLE 10 PART 71.

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

CRITICALITY SAFETY + HALLAM (LMR) + HEAT TRANSFER ANALYSIS + REACTOR, GRAPHITE MODERATED + REACTOR, LMCR + SAFETY ANALYSIS + SHIELDING + SHIPPING CONTAINER + STRUCTURAL INTEGRITY

3-24218 ALSO IN CATEGORY 13
MULOT P
THE HANDLING OF THE FUELS FOR RAPSODIE AND THE EFFECTS OF THE PRESENCE OF SODIUM
CEA, PARIS
7 PAGES, FIGURES, IND. AT., 11(5-6), PAGES 77-83 (1967) IN FRENCH

THE GENERAL ASPECTS OF THE HANDLING AND MAINTENANCE OF FUEL AND IRRADIATED ELEMENTS WITH THE REACTOR RAPSODIE AND THE MAIN DIFFICULTIES ENCOUNTERED WITH THE EQUIPMENT USED FOR HANDLING OF FUEL ASSEMBLIES IN THE PRESENCE OF NA ARE DISCUSSED.

FRANCE + FUEL HANDLING + REACTOR, FAST + SODIUM

3-24222
KLIMA BB + SHAPPERT LB + STODDART WC
STRUCTURAL ANALYSIS OF SHIPPING CASKS. VOLUME 6. IMPACT TESTING OF A LONG CYLINDRICAL LEAD-SHIELDED CASK MODEL
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1312(VOL.6) +. 36 PAGES, 16 FIGURES, 4 TABLES, 10 REFERENCES, MARCH 1968

SETTLING OF LEAD IN LEAD-FILLED FISSILE AND RADIOACTIVE MATERIALS SHIPPING CASKS DUE TO IMPACT WAS INVESTIGATED. THE CASK TESTING FACILITY AT THE UNIVERSITY OF TENNESSEE IS DESCRIBED. RESULTS INDICATE THAT WHEN AN UNBONDED CYLINDRICAL CASK IS SUBJECTED TO AN IMPACT, LEAD WILL MOVE RELATIVE TO THE STEEL SHELL. A MATHEMATICAL MODEL IS DEVELOPED TO QUANTITATIVELY PREDICT THE MAGNITUDE OF THE LEAD MOVEMENT. DATA ACQUIRED IN THE U.T. TESTING PROGRAM AND DURING THE TESTING OF A SMALLER MODEL BY FRANKLIN INSTITUTE CONFIRMS THE APPLICABILITY OF THIS DEVELOPED EQUATION TO PREDICT LEAD MOVEMENT IN AN UNBONDED CASK.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*IMPACT SHOCK + DEFORMATION + LEAD + SHIELDING + SHIPPING CONTAINER + TEST, DESTRUCTIVE

3-24755
SCHMER H
THE HANDLING OF FUEL ELEMENTS IN THE FIRST SWISS EXPERIMENTAL POWER STATION, LUCENS
THERM-ATOM AG, GENEVA
5 PAGES, 6 FIGURES, 2 REFERENCES, KERntechnik, 9, PAGE 297-301, (JULY 1967), (IN GERMAN)

THE PRINCIPLES OF NUCLEAR-FUEL HANDLING SYSTEMS ARE BRIEFLY OUTLINED. PRACTICAL APPLICATIONS OF THESE PRINCIPLES TO FACILITIES OF THE LUCENS EXPERIMENTAL NUCLEAR POWER STATION ARE THEN DESCRIBED. THESE FACILITIES HAVE THE CHARACTERISTICS OF A DISPERSED SYSTEM, IN WHICH EACH MACHINE HAS BUT A FEW SPECIFIED FUNCTIONS. THIS CONCEPT GUARANTEES THE POSSIBILITY OF SWITCHING OVER TO OTHER HANDLING CYCLES, WHICH SEEMS ESSENTIAL FOR AN EXPERIMENTAL REACTOR.

FUEL HANDLING MACHINE + GERMANY + REACTOR, RESEARCH + SAFETY PRINCIPLES AND PHILOSOPHY + SWITZERLAND

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-24756
DIXON FE + PARTRIDGE AH
IMPROVEMENTS IN OR RELATING TO CONTAINERS FOR TRANSPORTING RADIOACTIVE MATERIALS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY
BRITISH PATENT 1-048-967 +. 2 PAGES, 1 FIGURE, NOVEMBER 1966, PATENT (BRITISH)

A CONTAINER WHICH MINIMIZES THE EFFECT OF HEAT AND ACCIDENTAL DAMAGE IN TRANSPORTING RADIOACTIVE MATERIALS IS DESCRIBED. THE CONTAINER CONSISTS OF AN INNER LEAD VESSEL WITH A CAVITY 1.036 IN. IN DIA AND 2.5 IN. DEEP, WITH A WALL THICKNESS OF 1.5 IN. THE LEAD VESSEL IS CLOSED BY A SPIGOTED LID. THE LEAD VESSEL IS HERMETICALLY ENCLOSED WITHIN A CLOSE FITTING MILD-STEEL CANISTER WITH A LID RIM WHICH SEALS TO THE TOP WHEN CLOSED. THE CANISTER IS THERMALLY INSULATED BY A NUMBER OF DISCS AND ANNULAR RINGS WHICH SURROUND AND CENTRALLY LOCATE THE CANISTER IN AN OUTER DRUM OF 20-GAUGE MS STEEL.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (0.49 CENTS/COPY)

IRIDIUM + LEAD + PATENT + SHIELDING + SHIPPING CONTAINER + UNITED KINGDOM

3-24757
KANAMORI N
DEVICE FOR FIXING A CONTAINER IN A TRANSPORT TUBE
HITACHI, LTD., JAPAN
JAPANESE PATENT 1966-2326 +. 3 PAGES, 4 FIGURES, FEBRUARY 1966, PATENT (FOREIGN) IN JAPANESE

A CONTAINER FOR A FUEL-TRANSPORT TUBE IS PROPOSED. A FUEL-TRANSPORT TUBE RUNNING THROUGH THE SHIELD OF A REACTOR HAS AN OPENING FOR THE CHARGE AND DISCHARGE OF REACTOR FUEL. THE FUEL IS TRANSPORTED THROUGH THE TUBE IN ITS CONTAINER. THE CONTAINER HAS AN OPENING CORRESPONDING TO THE OPENING OF THE TRANSPORT TUBE. THE CONTAINER TRAVELS THROUGH THE TRANSPORT TUBE BY MEANS OF A ROPE, AND SO IT IS DIFFICULT TO POSITION THE CONTAINER PROPERLY AT THE UPPER OR LOWER END OF THE TUBE.

AVAILABILITY - IT IS OUR UNDERSTANDING THAT FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 CENTS/PAGE)

EQUIPMENT DESIGN + FUEL HANDLING + JAPAN + PATENT

3-24758
NASH GJ + HARDING K
IMPROVEMENTS IN OR RELATING TO CONTAINERS FOR TRANSPORTING RADIOACTIVE AND/OR FISSILE MATERIALS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY
BRITISH PATENT 1-073-751 +. 2 PAGES, 1 FIGURE, JUNE 1967, PATENT (BRITISH)

THE INNER VESSEL OF THE CONTAINER WHICH HOLDS THE RADIOACTIVE MATERIAL IS MADE OF ALUMINUM. A CASING SURROUNDING THE VESSEL IS MADE OF A NEUTRON MODERATING SUBSTANCE AND A NEUTRON CAPTURING SUBSTANCE UNIFORMLY DISTRIBUTED IN A MATRIX OF CAST SYNTHETIC PLASTIC MATERIAL WHICH ALSO PROVIDES FIRE PROTECTION TO THE VESSEL. THE MIXTURE IS DESIGNED TO CONSIST OF EPOXY RESIN AND HYDRATED SALT BORAX WITH A 1/1 WEIGHT RATIO. THE OUTER COVERING OF THE CONTAINER IS MADE OF STEEL. IN THIS ARRANGEMENT, NEUTRONS EMITTED FROM THE FISSILE MATERIAL INSIDE OR OUTSIDE THE CONTAINER WILL BE SUFFICIENTLY MODERATED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (0.49 CENTS/COPY)

CRITICALITY SAFETY + EQUIPMENT DESIGN + PATENT + SHIPPING CONTAINER + UNITED KINGDOM

3-24759
LORIOT P + MAS RG
IMPROVEMENTS IN DEVICES FOR HANDLING RADIOACTIVE CHARGES
FRANCE. COMMISSARIAT A L-ENERGIE ATOMIQUE
BRITISH PATENT 1-075-819 +. 4 PAGES, 5 FIGURES, JULY 1967, PATENT (BRITISH)

A REMOTELY CONTROLLED DEVICE IS DESCRIBED FOR HANDLING RADIOACTIVE MATERIALS BETWEEN TWO OR MORE CELLS. ONE CELL IS USED FOR HIGH-ACTIVITY WORK AND ONE PERMITS OPERATOR ACCESS. THE DEVICE CONSISTS OF TRAVERSING BRIDGES IN EACH CELL, A SELF-PROPELLED CARRIAGE ADAPTED TO RUN ON ROLLER TRACKS SUPPORTED BY THE BRIDGES, AND AN OPENING WHICH ALLOWS THE CARRIAGE TO PASS FROM ONE AREA TO ANOTHER.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

EQUIPMENT DESIGN + PATENT + UNITED KINGDOM + WASTE HANDLING

3-24760
ITO Y
DEVICE FOR TRANSPORTING A RADIOACTIVE MATERIAL
HITACHI, LTD., JAPAN

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-24760 *CONTINUED*
JAPANESE PATENT 1966-5653 +. 2 PAGES, 1 FIGURE, MARCH 28, 1966, PATENT (FOREIGN), IN JAPANESE

AN IMPROVED DEVICE IS DESCRIBED FOR TRANSPORTING RADIOACTIVE MATERIALS SUCH AS REACTOR-IRRADIATED NUCLEAR FUELS. WHEN REPLACING REACTOR FUEL, THE HIGHLY RADIOACTIVE SPENT FUEL IS USUALLY TRANSFERRED TO ITS COOLING POND, EITHER CONTAINED IN THE TRANSPORT CONTAINER OR BY PASSING THROUGH THE WATER SHIELD. IN THE DEVICE DESCRIBED, HOWEVER, THE SPENT FUEL STORAGE POND AND THE WATER TANK ON TOP OF THE REACTOR ARE CONNECTED VIA THE SPENT FUEL TRANSPORT PIPE.

AVAILABILITY - IT IS OUR UNDERSTANDING THAT FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., (\$0.30 CENTS/PAGE)

EQUIPMENT DESIGN + JAPAN + PATENT + SHIELDING + SHIPPING CONTAINER

3-24761
PLATOW G
STORAGE OF RADIOACTIVE MATERIAL
STAALICHE ZENTRALE FUER STRAHLENSCHUTZ, MUEGGLSEEDAMM, GER.
3 PAGES, ISOTOPENPRAXIS, 3, PAGE 112-114, (MARCH 1967), (IN GERMAN)

THE LEGAL REQUIREMENTS ON THE CONSTRUCTION AND EQUIPPING OF STORAGE SITES ARE GIVEN. THE REGULATIONS ON THE STORAGE OF OPEN AND SEALED RADIOACTIVE SOURCES WERE SUMMARIZED. THE RESPONSIBLE AUTHORITY FOR THE STORAGE OF RADIOACTIVE MATERIALS IS INDICATED.

GERMANY + LIABILITY + SAFETY PRINCIPLES AND PHILOSOPHY + SITING, WASTE DISPOSAL + WASTE STORAGE

3-24762 ALSO IN CATEGORY 13
BUCCI P
PU IN NUCLEAR REACTORS. V. SAFETY PROBLEMS IN THE HANDLING AND PROCESSING OF PU
WILLIAM H. JOHNSON LAB., INC.
8 PAGES, ING. NUCL., 7(3-4-5-6), PAGE 31-38, (MAY-DEC. 1966), (IN ITALIAN)

THE TOXICITY OF PU AND THE MAXIMUM PERMISSIBLE CONCENTRATION OF ITS ISOTOPES IN AIR ARE DISCUSSED. THE METHOD ADOPTED FOR HANDLING AND PROCESSING OF PU IS PRINCIPALLY GLOVE BOXES. THE CIRCUMSTANCES UNDER WHICH THESE MAY BE USED ARE DISCUSSED. ADDITIONAL PRECAUTIONS TO BE TAKEN IN THE HANDLING OF PU ARE TABULATED.

GLOVE BOX + ITALY + PLUTONIUM + SAFETY PRINCIPLES AND PHILOSOPHY

3-24763
REMY J + LABROUSSE M
OUTLINE OF PROBLEMS SET BY RESEARCH AND CONSTRUCTION OF PACKAGING
5 PAGES, ENERG. NUCL. (PARIS), 9, PAGE 227-231, (JUNE-JULY 1967), (IN FRENCH)

FACTORS WHICH AFFECT RESEARCH ON THE PACKAGING OF LARGE RADIATION SOURCES ARE REVIEWED. THE SPECIFIC PROBLEMS ENCOUNTERED IN THE CONSTRUCTION OF SUCH PACKAGING ARE EXAMINED IN A GENERAL FASHION. THE SOLUTIONS DISCOVERED FOR SOME SPECIFIC POINTS ARE DEFINED.

DESIGN CRITERIA + FRANCE + SHIPPING CONTAINER + TRANSPORTATION AND HANDLING

3-24764
TAKAYANAGI F
TRANSPORT OF USED NUCLEAR FUEL
ATOMIC ENERGY RESEARCH INST., TOKYO
7 PAGES, GENSHIYOKU KOGYO, 13(4), PAGE 23-29, (APRIL 1967), (IN JAPANESE)

JRR-2 OF JAPAN ATOMIC ENERGY RESEARCH INSTITUTE OPERATES AT 10 MW IN 17 CYCLES PER YEAR. SOME 40 SPENT FUEL RODS ARE DISCHARGED IN A YEAR, WITH AVERAGE BURN-UP 20%. SINCE THESE FUEL RODS ARE RENTED FROM THE UNITED STATES THEY MUST BE RETURNED IMMEDIATELY AFTER THE CONSUMPTION. THE OVERSEAS TRANSPORT OF SPENT FUEL IS DESCRIBED IN THE FOLLOWING SECTIONS - REPROCESSING AGREEMENT, TRANSPORT CONTAINER AND THE USED NUCLEAR FUEL, REMOVAL OF THE USELESS PART OF USED FUEL RODS, CONTAINMENT OF USED NUCLEAR FUEL, TRANSPORT IN JAPAN, TRANSPORT IN THE PACIFIC OCEAN, TRANSPORT IN THE UNITED STATES, AND TURNOVER OF THE USED FUEL.

CASK OPERATING EXPERIENCE + FUEL HANDLING + JAPAN + OCEAN AND SEA + SHIPPING ANALYSIS + TRANSPORTATION AND HANDLING

3-24765
HAYES DJ
IMPROVEMENTS IN OR RELATING TO SEALED CONTAINERS AND TO METHODS OF AND APPARATUS FOR TESTING FOR LEAKS THEREFROM
CENTRAL ELECTRICITY GENERATING BOARD
BRITISH PATENT 1,071,794 +. 4 PAGES, 2 FIGURES, JUNE 1967, PATENT (BRITISH)

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-24765 *CONTINUED*

A METHOD AND THE EQUIPMENT USED FOR LEAK TESTING A SEALED CONTAINER ARE DESCRIBED. A RADIOACTIVE GAS, PREFERABLY KR-85, IS INSERTED INTO THE CONTAINER BEFORE SEALING. THE KR-85 IS MEASURED WITH A THALLIUM-ACTIVATED NAI SCINTILLATION DETECTOR. THE RADIATION OF THE KR-85 WHICH PENETRATES THE WALLS OF THE CONTAINER IS MEASURED, AND WITH THE CONTAINER IN A CHAMBER WITH REDUCED PRESSURE, THE RADIOACTIVITY WHICH HAS LEAKED INTO THE CHAMBER IS MEASURED WITH AN ORGANIC SCINTILLATION DETECTOR. THIS METHOD IS APPLICABLE FOR AUTOMATICALLY LEAK TESTING REACTOR FUEL ELEMENTS IN WHICH THE FUEL MATERIAL IS SEALED IN A CAN.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

EQUIPMENT DESIGN + FUEL ELEMENT + KRYPTON + PATENT + STORAGE CONTAINER + TEST, LEAK RATE + UNITED KINGDOM

3-24790

LETCURNEAU RO
LOADS IN SHIPPING CONTAINER TID-DOWN LINES
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-TM-65-320 +. 15 PAGES, JULY 1965

HEAVY AND BULKY STRUCTURES MUST BE SECURED FOR TRANSPORTATION. ONE METHOD FOR ACCOMPLISHING THIS IS TO SECURE THE STRUCTURES WITH TIE LINES ON OR IN THE TRANSPORT VEHICLE. MULTIPLE TIES INTRODUCE A STATICALLY INDETERMINATE PROBLEM AND THE TENSILE LOADS TRANSMITTED THROUGH THE TIE LINES CANNOT BE CALCULATED DIRECTLY. HOWEVER, WITH THE USE OF THE DIGITAL COMPUTER, IN THIS CASE THE 7090, A DOUBLE ITERATION PROCESS TO DETERMINE THE TRANSLATION AND ROTATION IS REPEATED UNTIL THE EQUATIONS OF EQUILIBRIUM ARE SATISFIED. THE FINAL DEFORMATION OF EACH LINE IS THEN USED TO CALCULATE ITS TENSILE LOAD.

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

COMPUTER PROGRAM + CONTAINER TIEDOWN + SHIPPING ANALYSIS + STRESS ANALYSIS

3-24818

ALSO IN CATEGORY 17

FREDERICKSON RL
LOST RADIOPHARMACEUTICALS ON HIGHWAY
ABBOTT LABORATORIES
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 34-35 (APRIL 8, 1968)

(LETTER, FEB. 19) ON FEB. 10, ABOUT 2/30 A.M., THE HOOD OF A VW BLEW OFF ON THE SANTA ANA FREEWAY IN CALIFORNIA, AND 5 PACKAGES OF RADIOPHARMACEUTICALS BLEW OUT. TWO WERE RECOVERED AFTER BEING RUN OVER, BUT STILL SEALED. ANOTHER WAS LATER RECOVERED. STILL MISSING ARE TWO PACKAGES (2 MILLICURIES OF CR-51, 900 MICROCURIES OF I-131 AND 500 OF I-125), ALTHOUGH FRAGMENTS OF THE PACKAGE WERE FOUND.

*RADIOISOTOPE + *SOURCE, RADIATION, LOST + CHROMIUM + IODINE + TRANSPORTATION AND HANDLING

CATEGORY 4
AEROSPACE SAFETY

4-22470 ALSO IN CATEGORY 7
CONNER WV
REACTION VESSEL FOR PRODUCTION OF PLUTONIUM
U. S. PATENT 3-328-017 +. 3 PAGES, 1 FIGURE, JUNE 1967, PATENT (U. S.)

THIS INVENTION RELATES GENERALLY TO REACTION VESSELS WITHIN WHICH ACTINIDE COMPOUNDS ARE REDUCED TO ACTINIDE METALS, AND MORE PARTICULARLY TO A REACTION VESSEL FOR USE IN PRODUCTION OF PLUTONIUM WHEREIN A REUSABLE LINER IS USED FOR SUCCESSIVE REDUCTIONS.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., (\$0.25 PER COPY)

*PLUTONIUM + EQUIPMENT DESIGN + FUEL REPROCESSING

4-22490 ALSO IN CATEGORY 7
VILES FJ + HIMOT P + FIRST MW
HIGH CAPACITY--HIGH EFFICIENCY FILTERS FOR SODIUM AEROSOLS
HARVARD AIR CLEANING LABORATORY
NYO-841-10 +. 176 PAGES, FIGURES, TABLES, AUGUST 1967

CONFIGURATIONS OF GRADED, DEEP BED FILTERS WERE TESTED TO EVALUATE THEIR APPLICATION FOR CONTROLLING SUCH FUMES AND TO DETERMINE THEIR COLLECTION EFFICIENCY AND MAXIMUM FILTER LOADING CAPACITY. THESE STUDIES HAVE SHOWN THAT DEEP BED FIBER MEDIA, WHEN ARRANGED IN GRADED FIBER DIAMETERS AND GRADED PACKING DENSITIES, AND WHEN FOLLOWED BY A PLEATED ABSOLUTE FILTER, ARE CAPABLE OF COLLECTING ELEMENTAL SODIUM AND SODIUM OXIDE FUMES AT HIGH EFFICIENCY AND STORING LARGE AMOUNTS OF FUME IN THE FILTER WITH ACCEPTABLE RESISTANCE INCREASES. THE FILTER PACK DESIGN THAT HAS BEEN RECOMMENDED PROVIDES COLLECTION EFFICIENCIES GREATER THAN 99.9% AND SODIUM FUME STORAGE IN EXCESS OF 0.5 LB OF SODIUM PER SQUARE FOOT OF FILTER FACE AREA WITH FILTRATION VELOCITIES OF 6-12 FT/MIN (NTP) AND A TERMINAL FILTER RESISTANCE OF 20 IN. W.G.

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

*AEROSOL + *FILTER, BED + *FILTER, METALLIC + *FIRE + *SODIUM + *TEST, FILTER SYSTEM + FILTER + FILTER SYSTEM + FILTER, HIGH EFFICIENCY + FILTER, PREFILTER + OXIDE + STEEL, STAINLESS

4-24363
PROBERT SD
THERMAL INSULATION IN RELATION TO CRYOGENICS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY
TRG-REPORT-1455 (R/X) +. 106 PAGES, FIGURES, 11 TABLES, REFERENCES, FEB. 28, 1967

MODERN CRYOGENIC CONTAINER DESIGNS ARE CONSIDERED, AND IN PARTICULAR THE MEANS OF INHIBITING HEAT LEAKS (A) ACROSS THE VACUUM SPACE VIA RADIATION, CONDUCTION AND CONVECTION (B) VIA THE VAPOR ABOVE THE BOILING REFRIGERANT, (C) BY THERMAL CONDUCTION ALONG THE NECK THROUGH WHICH FILLING, VENTING AND EMPTYING OCCUR, (D) THROUGH MECHANICALLY STRONG SUPPORTS (OTHER THAN THE NECK) BETWEEN THE INNER AND OUT SHELLS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CRYOGENICS + *DESIGN CRITERIA + *DESIGN STUDY + THERMAL EXPERIMENT + THERMAL INSULATION + THERMAL PROPERTY

4-24368 ALSO IN CATEGORY 12
RAIZ GA + BRICKNER KG
EFFECT OF LIQUID SODIUM ON WELDED AISI TYPE-304 STAINLESS-STEEL PIPE
APPLIED RESEARCH LAB., UNITED STATES STEEL CORPORATION, MONROEVILLE, PA.
5 PAGES, 1 FIGURE, 3 TABLES, 14 REFERENCES, NUCLEAR APPLICATIONS 4(3), PAGE 154-158, (MARCH 1966)

AN INVESTIGATION OF A SAMPLE OF WELDED AISI TYPE-304 STAINLESS-STEEL PIPE EXPOSED TO LIQUID SODIUM AT 572 TO 1472 F FOR ABOUT 7800 H AND AN UNEXPOSED SAMPLE OF PIPE FROM THE SAME HEAT OF TYPE-304 STEEL SHOWED THAT, EXCEPT FOR NITROGEN, NO MARKED CHANGE IN COMPOSITION OF THE PIPE OCCURRED. NITROGEN WAS ABSORBED AT THE SURFACES OF THE PIPE, A GREATER AMOUNT BEING ABSORBED AT THE INSIDE SURFACE THAT HAD BEEN EXPOSED TO THE LIQUID SODIUM, THAN AT THE OUTSIDE SURFACE THAT HAD BEEN EXPOSED TO AIR. UNDER THE CONDITIONS STUDIED, THE STEEL DID NOT UNDERGO ANY MARKED DELETERIOUS CHANGE IN MECHANICAL PROPERTIES. HOWEVER, THE ABSORPTION OF NITROGEN DID DECREASE THE DUCTILITY OF THE SURFACE THAT HAD BEEN IN CONTACT WITH THE LIQUID SODIUM. THUS, WHEN TYPE-304 STEEL IS USED FOR LIQUID-SODIUM SERVICE, PRECAUTIONS SHOULD BE TAKEN TO KEEP THE SODIUM AS FREE AS POSSIBLE FROM NITROGEN-CONTAINING CONTAMINANTS.

*METAL, LIQUID + *OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM + *STEEL, STAINLESS + CORROSION + METAL, ALKALI + NITRIDE + PROPERTY, PHYSICAL

4-24369 ALSO IN CATEGORY 7

CATEGORY 4
AEROSPACE SAFETY

4-24369 *CONTINUED*

GREENBERG S + CHENG CF + RUTHER

IN-REACTOR SODIUM CORROSION OF VANADIUM AND VANADIUM-TITANIUM ALLOYS

METALLURGY DIVISION, ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

3 PAGES, 1 FIGURE, 4 TABLES, 7 REFERENCES, NUCLEAR APPLICATIONS, 4(3), PAGE 170-172, (MARCH 1968)

VANADIUM-TITANIUM, VANADIUM-CHROMIUM, AND VANADIUM-TITANIUM-CHROMIUM ALLOYS HAVE DEMONSTRATED SUFFICIENT CORROSION RESISTANCE IN LOW-OXYGEN SODIUM AT TEMPERATURES UP TO AT LEAST 650 C TO MAKE THEM OF POTENTIAL INTEREST AS FUEL-JACKETING MATERIALS FOR SODIUM-COOLED FAST REACTORS. FINAL JUDGMENT AS TO THEIR ADEQUACY MUST BE BASED UPON PERFORMANCE OF FUEL ELEMENTS JACKETED WITH THE MATERIAL OF INTEREST. VANADIUM-TITANIUM ALLOYS, EXPOSED TO FLOWING SODIUM IN THE EBR-II CORE SUFFERED SMALL WEIGHT LOSSES. IN CONTRAST TO THE BEHAVIOR OF THESE MATERIALS WHEN EXPOSED EX-REACTOR, NO HARDENED LAYERS WERE PRODUCED.

*ALLOY + *CORROSION + *METAL, LIQUID + *TITANIUM + *VANADIUM + CLAD + FUEL ELEMENT + METAL, ALKALI + PROPERTY, PHYSICAL + REACTOR, LMCR

4-24372 ALSO IN CATEGORY 7

KASSNER TF + SMITH DL

CALCULATIONS ON THE KINETICS OF OXYGEN SOLUTION IN TANTALUM AND NIOBIUM IN A LIQUID-SODIUM ENVIRONMENT ARGONNE NATIONAL LABORATORY, ILL.

ANL-7335 +. 22 PAGES, FIGURES, REFERENCES, SEPTEMBER 1967

THE ACTIVATION ENERGY FOR THE SOLUTION PROCESS WAS LESS THAN THE ACTIVATION ENERGY FOR OXYGEN DIFFUSION IN THE REFRACTORY METALS. AT LOW OXYGEN CONCENTRATIONS IN SODIUM, PLOTS OF THE LOGARITHM OF THE PARABOLIC RATE CONSTANTS VERSUS RECIPROCAL TEMPERATURE WERE NONLINEAR FOR LOW INITIAL OXYGEN CONCENTRATIONS IN THE REFRACTORY METALS. ALSO, ON THE BASIS OF PHASE EQUILIBRIA CALCULATIONS IN THE TA-O-NA AND NB-O-NA SYSTEMS, WE HAVE PREDICTED THE CONDITIONS OF TEMPERATURE AND OXYGEN CONCENTRATION IN SODIUM OVER WHICH THE PHASES TANTALUM AND TA2O5, AND NIOBIUM, NbO, AND NbO2 ARE THERMODYNAMICALLY STABLE IN SODIUM.

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

*CHEMICAL KINETICS + *NIOBIUM + *SODIUM + *TANTALUM + ACTIVATION ENERGY + COOLANT CHEMISTRY + OXYGEN + THERMAL EXPERIMENT

4-24373 ALSO IN CATEGORY 12

FREED WJ + NEWCOMB L + KENNEDY RS

STATIC AND SLIDING CONTACT BEHAVIOR OF MATERIALS IN SODIUM ENVIRONMENTS AT ELEVATED TEMPERATURES

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

NAA-SR-12,446 +. 64 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 29, 1967

TESTS ARE IN PROGRESS TO DETERMINE STATIC AND SLIDING CONTACT BEHAVIOR CHARACTERISTICS OF SELECTED CANDIDATE MATERIAL COMBINATIONS IN LIQUID AND VAPOR SODIUM ENVIRONMENTS WITH INERT COVER GAS AT ELEVATED TEMPERATURES. MOST STATIC CONTACT TESTS SHOWED THAT SELF-WELDING OF MATERIALS IN SODIUM TENDED TO PROGRESS WITH TIME. COMPOSITION AND NOT HARDNESS OF SPECIMENS AFFECTED RESULTS MORE THAN DID VARIATIONS IN SODIUM. SLIDING CONTACT TESTS INDICATED THAT METALS SHOULD BE HEAT-TREATED TO THEIR MAXIMUM PRACTICAL HARDNESS. MATERIAL COMBINATIONS OF HARD VS HARD TENDED TO BE MORE WEAR-RESISTANT THAN HARD VS SOFT. MATERIAL BUILDUP INSTEAD OF WEAR ON SLIDING CONTACT SURFACES WAS OBSERVED IN A NUMBER OF TESTS. SUBSTANTIAL DIFFERENCES IN WEAR BEHAVIOR WERE OBSERVED IN MATERIALS OF DIFFERENT COMPOSITIONS WITH SOMEWHAT SIMILAR NOT HARDNESS CHARACTERISTICS.

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

*PROPERTY, PHYSICAL + *REACTOR, LMCR + *SODIUM + *WELDING + ALLOY + FAILURE, GENERAL + REACTOR, BREEDER + REACTOR, FAST + TITANIUM

4-24382 ALSO IN CATEGORY 7

DAVYDOV EF + ZAVIDOVSKII VU + SOCHILIN GI + SYUZYEV VN + CHUSHKIN YV

THE GENERATION OF GAS FROM IRRADIATED BERYLLIUM OXIDE AND BORON CARBIDE IN AN ISOTHERMAL ANNEALING PROCESS 3 PAGES, FIGURES, REFERENCES, AT. ENERG. (USSR), 22(6), PAGES 501-3 (JUNE 1967) IN RUSSIAN

THE RELEASE OF GASES FROM IRRADIATED BEO AND B4C WAS INVESTIGATED ON SPECIMENS OF ANNEALED, DISPERSED, BEG AND B4C POWDERS, USING NATURAL B. THE COMPACTED POWDERED SPECIMENS, POSSESSING 20% POROSITY WERE EXPOSED TO AN INTEGRAL FLUX OF 8×10^{12} THERMAL NEUTRONS PER CM SQUARED AT A TEMPERATURE NOT EXCEEDING 200 C WHILE PLACED IN STAINLESS-STEEL TUBES. THE B-10 AMOUNTED TO 80%. THE TUBES WERE PIERCED IN A HOT CELL TO DETERMINE THE AMOUNT OF GAS RELEASED DURING ANNEALING AT TEMPERATURES RAISED GRADUALLY TO 1100 C. COMPARISON WITH UNIRRADIATED SPECIMENS REVEALED THAT THE SMALL AMOUNT OF ADSORBED GASES MAY BE NEGLECTED. IT WAS FOUND THAT 70% OF THE GASES WAS RELEASED FROM THE BEO WITHIN 250 TO 300 C. THE REMAINING 30% WAS RELEASED WITHIN THE 700 TO 900 C RANGE. IN THE CASE OF B4C, THE RELEASE STARTED AT 400 C AND REACHED ITS MAXIMUM BETWEEN 400 AND 500 C.

*BERYLLIUM + *CARBIDE + *MODERATOR + *OXIDE + *RADIATION DAMAGE + *RELEASE RATE + FISSION GAS RELEASE + RADIATION EFFECT + THERMAL EXPERIMENT

CATEGORY 4
AEROSPACE SAFETY

4-24386 ALSO IN CATEGORY 7
QUARTERLY TECHNICAL PROGRESS REPORT, JANUARY-MARCH 1967. AEC UNCLASSIFIED PROGRAMS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NAA-SR-12395 +. 183 PAGES, FIGURES, TABLES, MAY 31, 1967

THIS QUARTERLY PROGRESS REPORT INCLUDES A DESCRIPTION OF CURRENT ACTIVITIES RANGING FROM
CROSS-SECTION ANALYSIS TO DYNAMIC-LOOP TESTING.

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

*ATOMICS INTERNATIONAL + *COOLANT CHEMISTRY + *FAILURE, FUEL ELEMENT + *FISSION PRODUCT TRANSPORT +
*OUT OF PILE LOOPS AND EXPERIMENTS + *REACTOR, LMCR + *SODIUM + FUEL ELEMENT + FUEL INTEGRITY +
METAL, LIQUID + RADIATION DAMAGE + RADIATION SAFETY AND CONTROL + RADIOCHEMICAL PROCESSING

4-24387
HANSON MP
GLASS-, BORON-, AND GRAPHITE-FILAMENT-WOUND RESIN COMPOSITES AND LINERS FOR CRYOGENIC PRESSURE VESSELS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-4412 +. 16 PAGES, FIGURES, FEBRUARY, 1968

AN EXPERIMENTAL INVESTIGATION WAS CONDUCTED TO DETERMINE THE TENSILE-STRENGTH PROPERTIES OF
GLASS, BORON, AND GRAPHITE COMPOSITES AT 75, -320, AND 423 F. COMPOSITE TENSILE-STRENGTH AND
INTERLAMINAR-SHEAR-STRENGTH TESTS WERE MADE OF NAVAL ORDNANCE LABORATORY (NOL) RINGS.
TENSILE STRENGTHS OF BORON FILAMENTS WERE DETERMINED AT 75 AND -320 F. STRENGTHS OF GLASS
COMPOSITES WERE ABOUT 29% HIGHER AT CRYOGENIC TEMPERATURES THAN AT AMBIENT TEMPERATURE.
BORON- AND GRAPHITE-COMPOSITE STRENGTHS WERE ESSENTIALLY THE SAME IN THE TEMPERATURE RANGE
INVESTIGATED. INTERLAMINAR SHEAR STRENGTH IN GLASS COMPOSITES ALSO INCREASED FROM 75 TO -320
F. BORON AND GRAPHITE SHOWED NO SIGNIFICANT CHANGE WITHIN THE TEMPERATURE RANGE. FILAMENT
TRANSLATION EFFICIENCIES RANGED FROM 58 TO 69% FOR THE MATERIALS INVESTIGATED. ALUMINUM-FOIL
LINERS THAT WERE ADHESIVELY BONDED TO THE INTERNAL SURFACE OF GLASS-FILAMENT-WOUND CYLINDERS
WITHSTOOD PRESSURE CYCLING TO 2.5% STRAIN FOR A CYCLIC LIFE RANGING FROM 14 TO 165 CYCLES AT
CRYOGENIC TEMPERATURES. LINER FAILURES WERE ASSOCIATED WITH BUCKLING OF THE SEAM AREAS.

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

*CRYOGENICS + *GLASS + *GRAPHITE + *TENSILE PROPERTY + *THERMAL INSULATION + *THERMAL PROPERTY + ALUMINUM +
BORON + PRESSURE VESSEL + RESIN

4-25140
EFFECT OF NUCLEAR RADIATION ON MATERIALS AT CRYOGENIC TEMPERATURES. QUARTERLY REPORT NO. 5, JULY 21,
1966-OCTOBER 21, 1966
LOCKHEED NUCLEAR PRODUCTS, MARIETTA, GA.
LAC-ER-8811 + N68-13825 +. 70 PAGES, 14 FIGURES, 17 TABLES, REFERENCES, NOV. 1967

THIS IS THE FIFTH QUARTERLY REPORT SUMMARIZING THE WORK TO DATE ON CONTRACT NAS 3-7985,
ENTITLED, THE EFFECT OF NUCLEAR RADIATION ON MATERIAL AT CRYOGENIC TEMPERATURES. THE STUDIES
UNDER THIS CONTRACT INCLUDE THE EFFECTS OF (1) BASE ALLOYS, (2) IRRADIATION TEMPERATURE (30
TO 540 R) ON TENSILE PROPERTIES OF ALUMINUM 1099-H14 FOLLOWING IRRADIATIONS UP TO 3 X
10(17TH) N/SQ. CM, (3) ANNEALING FOLLOWING IRRADIATION AT 30 R TO 10(17TH) N/SQ. CM, ON
TENSILE PROPERTIES OF ALUMINUM 1099, AND (4) IRRADIATION AT 30 R ON AXIAL, LOW-CYCLE FATIGUE
PROPERTIES OF TITANIUM BASE ALLOYS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*ALLOY + *CRYOGENICS + *IRRADIATION TESTING + *RADIATION EFFECT + *TENSILE PROPERTY + ALUMINUM +
PROPERTY, PHYSICAL + RADIATION DAMAGE + STRESS STRAIN DATA + TESTING + TITANIUM + VANADIUM

4-25141
EFFECT OF NUCLEAR RADIATION ON MATERIALS AT CRYOGENIC TEMPERATURES
LOCKHEED NUCLEAR PRODUCTS, A DIV. OF LOCKHEED AIRCRAFT CORPORATION, MARIETTA, GA.
NASA-CR-72-332 + LAC-ER-9757 +. 130 PAGES, FIGURES, TABLES, 16 REFERENCES, AUGUST 1967

DESCRIBES THE RESULT OF A TEST PROGRAM INVESTIGATING THE EFFECTS OF CRYOGENIC AND COMBINED
NUCLEAR-CRYOGENIC ENVIRONMENTS ON THE MECHANICAL PROPERTIES OF SEVERAL METALS AND ALLOYS.
THE EFFECTS ON TENSILE PROPERTIES OF STRAIN-HARDENED POLYCRYSTALLINE HIGH PURITY ALUMINUM,
COMMERCIAL PURE TITANIUM, TITANIUM - 5 ALUMINUM - 2.5 TIN, AND TITANIUM - 6 ALUMINUM - 4
VANADIUM ARE REPORTED IN DETAIL. THE TITANIUM - 5 ALUMINUM - 2.5 TIN WAS TESTED AT TWO
LEVELS OF INTERSTITIAL CONTENT, THE TITANIUM - 6 ALUMINUM - 4 VANADIUM WAS TESTED IN BOTH THE
ANNEALED AND THE AGED CONDITIONS. EFFECTS ON THE FATIGUE BEHAVIOR UNDER HIGH LOAD, LOW CYCLE
RATE LOADING CONDITIONS ARE REPORTED FOR COMMERCIAL PURE TITANIUM AND TITANIUM - 5 ALUMINUM
- 2.5 TIN. IN ALL CASES, UNIRRADIATED ROOM TEMPERATURE CONTROL SPECIMEN WERE TESTED AND THE
RESULTS ARE HEREIN REPORTED AS REFERENCE DATA.

AVAILABILITY - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, OFFICE OF SCIENTIFIC AND TECHNICAL

CATEGORY 4
AEROSPACE SAFETY

4-25141 *CONTINUED*
INFORMATION, (ATTENTION) AFSS-A, WASHINGTON, D. C. 20546

*ALLOY + *CRYOGENICS + *IRRADIATION TESTING + *RADIATION EFFECT + *TENSILE PROPERTY + ALUMINUM +
PROPERTY, PHYSICAL + RADIATION DAMAGE + STRESS STRAIN DATA + TESTING + TIN + TITANIUM + VANADIUM

4-25143
KEILHOLTZ GW + MOORE RE + GSBORNE MF
FAST-NEUTRON EFFECTS ON CARBIDES
OAK RIDGE NATIONAL LAB., TENN.
1 PAGE, NUCLEAR APPLICATIONS, 4(5), PAGE 330 THROUGH 336, (MAY 1968)

SMALL, SOLID CARBIDE CYLINDERS OF TI, ZR, TA, NB, AND W MANUFACTURED BY THREE DIFFERENT
METHODS WERE EXAMINED FOR VOLUME CHANGES FOLLOWING EXPOSURES OF ABOUT 2×10^{-21} N/SQ. CM
(FAST NEUTRONS). THE BULK OF THE GROSS VOLUME EXPANSION IS BELIEVED TO RESULT FROM POINT
DEFECTS PRODUCED BY THE FAST NEUTRONS.

*CARBIDE + *IRRADIATION TESTING + *RADIATION DAMAGE + *RADIATION EFFECT + *REFRACTORY MATERIAL +
HIGH TEMPERATURE + NIOBIUM + PROPERTY, PHYSICAL + TANTALUM + TITANIUM + TUNGSTEN + ZIRCONIUM

4-25144
WENTZ LB + NEAL LG + WRIGHT RW
X-RAY MEASUREMENT OF VOID DYNAMICS IN BOILING LIQUID METALS
TRW SYSTEMS, REDONDO BEACH, CALIFORNIA
9 PAGES, 6 FIGURES, 1 TABLE, 13 REFERENCES, NUCLEAR APPLICATIONS, 4(5), PAGE 347-355, (MAY 1968)

X-RAY VOID-MEASUREMENT PRINCIPLES AND INTERPRETATION ARE APPLIED TO RAPID VOID CHANGES IN
BOILING LIQUID METALS. MEASUREMENTS ON A BOILING POTASSIUM LOOP SHOW THAT MILLISECOND
RESPONSE TIMES ARE NECESSARY TO FOLLOW THE MOVEMENT OF LIQUID-VAPOR INTERFACES UPON
NUCLEATION.

*ANALYTICAL TECHNIQUE, CALIBRATION + *CONVECTIVE BOILING + *HEAT TRANSFER, BOILING + *METAL, LIQUID +
*POTASSIUM + COOLANT CHEMISTRY + X-RAY

CATEGORY 5
ACCIDENT ANALYSIS

5-21864 ALSO IN CATEGORY 18
QUESTION IV.6--CORE DAMAGE FROM STEAM LINE RUPTURE
WISCONSIN MICHIGAN POWER COMPANY
1 PAGE, PAGE IV.6-1 OF POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14
APRIL 67, Docket 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

YOUR ANALYSIS OF THE TRANSIENT EFFECTS FROM A STEAM-LINE RUPTURE INDICATED THAT LIMITED CORE
DAMAGE WOULD BE ACCEPTED. PLEASE PROVIDE YOUR CRITERION FOR THE AMOUNT OF CORE DAMAGE THAT
YOU CONSIDER ACCEPTABLE UNDER THESE CONDITIONS, AND THE BASIS FOR THIS CRITERION. INCLUDE A
DISCUSSION OF STUCK CONTROL RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT, STEAM LINE RUPTURE + ACCIDENT, CONSEQUENCES + AEC QUESTION + CORE MELTDOWN + DESIGN CRITERIA +
FAILURE, SCRAM MECHANISM + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

5-23323
COLMAR RJ
A PRELIMINARY SEMI-EMPIRICAL APPROACH FOR ESTIMATING VESSEL MOTION ARISING FROM A NUCLEAR EXCURSION
GENERAL ELECTRIC COMPANY, SUNNYVALE, CALIF.
GEAP-5164 +. 41 PAGES, MARCH 1966

A SIMPLIFIED SEMIEMPIRICAL RATIONALE IS DEVELOPED FOR THE EVESR SYSTEM TO ESTIMATE THE EXTENT
OF THE POTENTIAL VESSEL MOTION RESULTING FROM A SERIOUS NUCLEAR EXCURSION. A WATER PISTON IS
POSTULATED TO OCCUR WITHIN THE VESSEL, AS WAS EVIDENCED IN THE SL-1 ACCIDENT. BASED ON
EVALUATIONS OF THE SL-1 INCIDENT AS WELL AS TEST DATA FROM SIMULATED NUCLEAR EXCURSIONS AT
SPERT AND STANFORD RESEARCH INSTITUTE, THE KINETIC ENERGY DEVELOPED IN THE WATER PISTON WAS
TAKEN TO BE 2% OF THE TOTAL NUCLEAR ENERGY RELEASED. CONSISTENT WITH THIS ENERGY, PRESSURE
HISTORIES INTERNAL TO THE VESSEL WERE SYNTHESIZED AND FOLLOWED THE FORM OBSERVED IN
UNDERWATER DEFLAGRATIONS AS A GENERAL MODEL.

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

*ACCIDENT MODEL + *DESTRUCTIVE TRANSIENT + *HYDRAULIC ANALYSIS + *HYDRAULIC EFFECT + PRESSURE TRANSIENT +
PRESSURE VESSEL + PRESSURE, INTERNAL + REACTOR, INTERNAL SUPERHEAT + VESR (ISR)

5-23723 ALSO IN CATEGORIES 9 AND 11
PARRY DL
NONDESTRUCTIVE FLAW DETECTION IN NUCLEAR POWER INSTALLATIONS
PHILLIPS PETROLEUM COMPANY
CONF-671011 +. 20 PAGES, 22 FIGURES, PAGES 107-126 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND
AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1,
1967

INVESTIGATIONS AND FEASIBILITY STUDIES INVOLVING THE APPLICATION OF THE ACOUSTIC-ANALYSIS
PHENOMENA FOR FLAW DETECTION, FLAW DEFINITIONS, AND INCIPIENT-FAILURE PREDICTION HAVE LED TO
THE USE OF AN IN-PLANT ANALYSIS SYSTEM. THIS SYSTEM HAS SHOWN CAPABILITY FOR DETECTING AND
LOCATING FLAWS IN THE COMPLEX REACTOR PRESSURE VESSEL AND PRIMARY LOOP PIPING OF OPERATIVE
NUCLEAR POWER INSTALLATIONS. DUE TO FLUID-FLOW NOISE INTERFERENCE, IT IS LIMITED AT THIS
TIME TO APPLICATIONS IN THE HYDROSTATIC TEST MADE.

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

*FLAW + *TEST, NONDESTRUCTIVE + *TESTING + INSTRUMENTATION, ABNORMAL INDICATION +
INSTRUMENTATION, PRESSURE + MEASUREMENT, NOISE + PIPING + PRESSURE VESSEL + TEST, PRESSURE VESSEL

5-23858 ALSO IN CATEGORY 11
GALLI RB + LURD BG
CALCULATION OF MAXIMUM EQUILIBRIUM PRESSURE AND TEMPERATURE INSIDE THE CONTAINMENT OF A PRESSURIZED WATER
REACTOR FOLLOWING RUPTURE OF THE PRIMARY COOLANT CIRCUIT
SUISELECTRA, BASEL, SWITZERLAND
8 PAGES, 3 FIGURES, 1 TABLE, NUCLEAR ENGINEERING AND DESIGN 4(4), PAGE 331 THRU 338, (AUGUST 20, 1966)

REVIEWS SIMPLE METHODS FOR CALCULATING THE INITIAL MAXIMUM EQUILIBRIUM PRESSURE AND
TEMPERATURE INSIDE THE CONTAINMENT. THE FLASHING TO STEAM OF THE PRIMARY COOLANT THROUGH THE
RUPTURE IS CONSIDERED AS A CONSTANT INTERNAL ENERGY EXPANSION PROCESS. USING THE PARAMETERS
OF A TYPICAL 700-MWE PWR, THE EQUILIBRIUM PRESSURE AND TEMPERATURE ARE CALCULATED AS A
FUNCTION OF THE CONTAINMENT VOLUME.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *MATHEMATICAL TREATMENT + *PRESSURE, INTERNAL +
*TEMPERATURE TRANSIENT + PRESSURE PULSE + REACTOR, PWR

CATEGORY 5
ACCIDENT ANALYSIS

5-24128 ALSO IN CATEGORY 9
WATTS RG + SCHOENHALS RJ
FEEDBACK CONTROL OPTIMIZATION OF A SINGLE FLUID HEAT EXCHANGER OR NUCLEAR REACTOR
TULANE UNIVERSITY, NEW ORLEANS, LA. + PURDUE UNIVERSITY, LAFAYETTE, IND.
9 PAGES, 6 FIGURES, 1 TABLE, 13 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, 7(1), PAGES 40-48 (JANUARY 1968)

ATTENTION WAS FOCUSED ON THE PROBLEM OF SUBSTANTIALLY IMPROVING THE OUTLET-TEMPERATURE CONTROL OF A HEAT EXCHANGER BY UTILIZING THE UNIQUE NATURE OF THE EXCHANGER, NAMELY, ITS DISTRIBUTION IN SPACE. THE PERFORMANCE OF A SINGLE FLUID HEAT EXCHANGER IS ANALYZED UNDER CONDITIONS OF PROPORTIONAL CONTROL OF HEAT FLUX. THE ERROR IS OBTAINED FROM A SINGLE TEMPERATURE PROBE WHOSE AXIAL LOCATION CAN BE VARIED. RESULTS SHOW THAT SIMULTANEOUS OPTIMIZATION OF GAIN CONSTANT AND AXIAL PROBE LOCATION CAN PRODUCE LARGE IMPROVEMENTS IN SYSTEM PERFORMANCE.

*HEAT TRANSFER ANALYSIS + HEAT EXCHANGER + MEASUREMENT, TEMPERATURE + THEORETICAL INVESTIGATION

5-24512 ALSO IN CATEGORIES 18 AND 12
COOPER PSAR APPENDIX E - REACTOR COPE SPRAY COOLING TEST PROGRAM
CONSUMERS PUBLIC POWER DISTRICT
7 PAGES, 15 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

(2, SPRAY DISTRIBUTION) - MOCKUP TESTS SHOWED THAT SOME WATER SPLASHED OFF. A FLOW-DEFICIENT REGION WITHIN A FUEL ELEMENT BETWEEN CENTER AND OUTSIDE CAN BE IMPROVED FROM 35% TO 40% OF AVERAGE FLOW. (3, COOLING EFFECTIVENESS) - A 36-ROD TEST SECTION SHOWED NEGLIGIBLE EFFECTS OF FLOW FROM 1.8 - 2.8 GPM, NOR VENTING TOP OR BOTTOM, AS RADIANT HEAT TRANSFER IS IMPORTANT. (4, FLOODING EFFECTIVENESS) - WATER ONLY 2/3 HEIGHT OF CORE HELD TYPES OF RODS TO A MAX. OF 975 F. (6, BLOWDOWN HEAT TRANSFER) - SUMMARIZES GE-APED TESTS DONE THE SUMMER OF 1965. BOILING HEAT TRANSFER COEFFICIENTS CONTINUE UNTIL THE WATER FILM IS DRIED OUT, WHICH DEPENDS ON POWER DENSITY.

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

*CORE SPRAY + *SYSTEM CAPABILITY + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + COOPER (BWR) + HEAT FLUX, DRYOUT + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, RADIANT + MODEL TESTING + REACTOR, BWR + REPORT, PSAR

5-24513 ALSO IN CATEGORIES 18 AND 9
COOPER PSAR APPENDIX F - REACTOR CORE THERMAL DESIGN
CONSUMERS PUBLIC POWER DISTRICT
15 PAGES, 9 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

ANALYSIS HERE IS SIMILAR TO THAT OF APPENDIX G FOR BROWNS FERRY. BASIC CRITERION REMAINS UNCHANGED BUT SIGNIFICANT NEW DATA IS APPLIED. THE 1962 MCHFR LIMITS WOULD BE 1.3, BUT THE NEW ONES GIVE 1.9 AT 10% POWER. SENSITIVITY OF MCHFR DISCUSSED, ALSO FISSION GAS PRESSURE ON FUEL CLAD. (SECT. 5, CORE PERFORMANCE BENEFITS OF IMPROVED PLANT EQUIPMENT). BEGINNING WITH THIS REACTOR, PROTECTION AGAINST LOCAL FLUX PEAKING WILL BE PROVIDED BY THE ROD-BLOCK MONITOR. AS DIFFERENT CONTROL RODS ARE SELECTED, A SPECIAL SWITCHING SYSTEM APPLIES SIGNALS FROM THE NEAREST 16 LPRM CHANNELS TO THE RBM SYSTEM. ON-LINE COMPUTER WILL PROVIDE QUICK INFORMATION TO THE OPERATOR ON CALCULATED POWER DISTRIBUTION. AN ANTICIPATING LOAD TRIP SCRAM WILL BE ADDED BECAUSE TURBINE BYPASS IS ONLY 25%.

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

COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

5-24580 ALSO IN CATEGORY 17
WEBSTER CC
WATER-LOSS TESTS IN WATER-COOLED AND -MODERATED RESEARCH REACTORS
OAK RIDGE NATIONAL LABORATORY
7 PAGES, 5 FIGURES, 15 REFERENCES, NUCLEAR SAFETY 8(6), PAGES 590-96 (NOV.-DEC. 1967)

DISCUSSES LOSS-OF-WATER TESTS IN LTR, ASTR, AND LPJR. THE TESTS INDICATE THAT A WATER-COOLED-AND-MODERATED REACTOR CAN OPERATE FOR A WEEK AT 3 MW AND THEN LOSE THE COOLANT WITHOUT CORE DAMAGE, BUT THAT ALL THE EXPERIMENTS TO PROVE MATHEMATICAL MODELS LEAVE CONSIDERABLE WORK TO GO ABOVE THIS LEVEL. SHIELDING TESTS MENTIONED.

*ACCIDENT, LOSS OF COOLANT + *MATHEMATICAL STUDY + *TEST, PROOF + REACTOR, RESEARCH + REACTOR, WATER + REVIEW + SHIELDING

5-24587 ALSO IN CATEGORY 18

CATEGORY 5
ACCIDENT ANALYSIS

5-24587 *CONTINUED*

KEWAUNEE PSAR LOSS OF LOAD ANALYSIS
WISCONSIN PUBLIC SERVICE CORPORATION

1 PAGE, PAGE 14.1.6-1 OF VOLUME 11 OF THE FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, AUGUST 23, 1967, DOCKET 50-305, TYPE--PWR, MFG--WEST, AE--PIONEER SERV.

PLANT WILL BE DESIGNED TO ACCEPT COMPLETE LOSS OF EXTERNAL ELECTRICAL LOAD WITHOUT REACTOR OR TURBINE TRIP. UPON LOSS OF LOAD, (1) TURBINE CONTROL VALVE CLOSSES, INCREASING REACTOR TEMPERATURE, (2) CONTROL RODS DRIVE IN, (3) STEAM DUMP VALVES OPEN. STEAM SYSTEM IS DESIGNED TO DUMP 40% OF FULL-LOAD STEAM FLOW TO THE CONDENSER AND 45% TO THE ATMOSPHERE.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF POWER + EFFLUENT + KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR + TURBINE

5-24600

ALSO IN CATEGORY 11

GALLAGHER EV

PROGRESS REPORT FOR AUGUST - SEPTEMBER 1967. STUDIES OF REACTOR CONTAINMENT

IIT RESEARCH INSTITUTE

IITRI-578P21-32 +. 11 PAGES, 4 FIGURES, 2 REFERENCES, SEPT. 1967

THE MAIN ACTIVITIES PERFORMED DURING THIS BIMONTHLY PROGRESS REPORT INCLUDED - (A) TRANSIENT BLOWDOWN TESTS CONDUCTED IN THE TWELVE-FOOT-LONG DRIVER SECTION WATER SHOCK TUBE. (B) DESIGN AND FABRICATION OF A FORCE SENSOR ROD FOR THE FLOW-OBSTRUCTION MODEL. (C) STUDY OF THE NEED AND FEASIBILITY FOR HEATING RODS OF THE FLOW-OBSTRUCTION MODEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BLOWDOWN + *MODEL TESTING + CONTAINMENT RESEARCH AND DEVELOPMENT + FLOW ORIFICE + SHOCK WAVE + WATER, GENERAL

5-24810

ALSO IN CATEGORIES 17 AND 7

MILLER PH

HIGHER TRIGA ARGON ACTIVITY FROM INCREASED TRANSFER COEFFICIENT

GULF GENERAL ATOMIC, INC.

1 PAGE, APRIL 5, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGE 10 (APRIL 22, 1968) DOCKET 50-227

(LETTER, APRIL 5) DURING A THERMIONIC TRIGA COMPLIANCE INSPECTION MARCH 6-7, AR-41 RELEASE FROM REACTOR POOL APPEARED TO BE HIGHER DUE TO TURBULENCE IN THE POOL WATER, INCREASING THE TRANSFER COEFFICIENT. RECALCULATING THE AR-41 ACTIVITY WITH THE HIGHEST COEFF. FROM SAR GIVES $8.2 \times 10(-6TH)$ MICROCURIE/CC VS A MEASUREMENT OF $4 \times 10(-6TH)$. THE ACTIVITY DISCHARGED IS 6.4 RATHER THAN 2.48 MICROCURIES/SEC AND GIVES A MAX. DOWNWIND CONCENTRATION ONLY A FACTOR OF 6 LESS THAN MPC. THIS REQUIRES A DILUTION FACTOR OF 6.7. COMPUTATIONS ARE CONSERVATIVE BY A FACTOR OF 2.

*ARGON + *COMPARISON, THEORY AND EXPERIENCE + *REACTOR, POOL TYPE + *WATER, GENERAL + DILUTION + INSPECTION AND COMPLIANCE + PARTITION COEFFICIENT + REACTOR, RESEARCH + STACK + TRIGA (RR)

5-25030

ALSO IN CATEGORY 5

LOTTE PA

APPLYING HIGH-TEMPERATURE INSTRUMENTATION IN LIQUID-METAL EXPERIMENTS

14 PAGES, 22 FIGURES, REFERENCES, POWER REACTOR TECHNOLOGY, 9(3), PAGES 123-136 (JULY 1966)

BECAUSE LIQUID METALS ARE DIFFICULT TO HANDLE AND TEMPERATURES ARE HIGH, EXOTIC LOOPS AND HEATERS ARE REQUIRED, AS ARE UNUSUAL PRESSURE-MEASURING DEVICES. VOID-FRACTION MEASUREMENTS ARE MADE WITH GAMMA, ELECTROMAGNETIC, AND X-RAY METHODS AND CALORIMETERS. BEARING-FILM MEASUREMENTS, OF SPECIAL INTEREST FOR AEROSPACE APPLICATION, RELY HEAVILY ON EDDY-CURRENT METHODS, ALTHOUGH MAGNETIC INDUCTANCE UNDERLIES SOME INSTRUMENTS. UNIQUE EQUIPMENT IS BEING USED FOR LIQUID-LEVEL AND IMPURITY MEASUREMENTS AND FOR CAVITATION DAMAGE STUDIES.

*HEAT TRANSFER + *HIGH TEMPERATURE + *INSTRUMENTATION, GENERAL + *METAL, LIQUID + FLOW, TWO PHASE + INSTRUMENTATION, FLOW + INSTRUMENTATION, LIQUID LEVEL DETECTION + INSTRUMENTATION, PRESSURE + INSTRUMENTATION, TEMPERATURE + MERCURY + POTASSIUM + SODIUM + TEMPERATURE GRADIENT

5-25045

ALSO IN CATEGORY 18

BLOWDOWN FORCES IN STEAM GENERATOR BARRIERS

CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.

8 PAGES, 2 FIGURES, PAGE 3-1 THROUGH 3-8 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ANALYSIS SHOWS THAT STRESSES IN TUBES AND TUBE SHEET WILL NOT EXCEED DESIGN STRESSES. ANALYSIS FOR DIVIDER PLATE INDICATES THAT EVEN IF FAILURE OCCURS, SEVERITY OF LOSS-OF-COOLANT ACCIDENT WILL NOT INCREASE. STEAM GENERATOR IS DESCRIBED. THE ANALYSIS WAS COMPUTED USING THE DIGITAL COMPUTER PROGRAM SATAN.

CATEGORY 5
ACCIDENT ANALYSIS

5-25045 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BLOWDOWN + *STEAM GENERATOR + *STRESS + ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + COMPUTER PROGRAM + HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR + TUBING

5-25046 ALSO IN CATEGORY 18

LOSS OF COOLANT TRANSIENT ANALYSIS

CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.

12 PAGES, 8 FIGURES, 2 TABLES, 4 REFERENCES, PAGE 2-1 THROUGH 2-12 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

DESCRIBES IN DETAIL THE THREE PHASES OF ANALYSIS (BLOWDOWN, REACTOR KINETICS, AND CORE COOLING). METHOD USED AND RESULTS FOR EACH ARE GIVEN. RESULTS OF LOSS-OF-COOLANT CALCULATIONS FOR POSITIVE MODERATOR COEFFICIENT INDICATES NO CLAD MELTING AS LONG AS OUTSIDE POWER IS AVAILABLE, AND LESS THAN 2.7% CLAD MELTING IN THE LARGEST BREAK OF 8.25 SQ. FT, EVEN WITH NO OUTSIDE POWER. FOR BREAKS UNDER 3 SQ. FEET, CLAD MELTING IS LIMITED TO A FRACTION OF A PERCENT, EVEN WITH NO OUTSIDE POWER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ANALYTICAL TECHNIQUE, GENERAL + *BLOWDOWN + *REACTOR KINETICS + EMERGENCY COOLING CONSIDERATIONS + FAILURE, CLADDING + HADDAM NECK (PWR) + MODERATOR COEFFICIENT + REACTOR, PWR + REPORT, SAR

5-25124 ALSO IN CATEGORY 5

HORNBAKER DR + RALL DL

HEAT FLUX MEASUREMENTS- A PRACTICAL GUIDE

HORNBAKER AND RALL, CONSULTING ENGINEERS

6 PAGES, FIGURES, REFERENCES, INSTRUMENTATION TECHNOLOGY, 15(2), PAGES 51-56 (FEBRUARY 1968)

HEAT-TRANSFER MEASUREMENTS ARE DEFINED, AND CHARACTERISTICS OF SLUG-TYPE, THIN-FOIL, THERMOPILE, AND THIN-FILM HEAT-FLUX SENSORS ARE DISCUSSED.

*INSTRUMENTATION, TEMPERATURE + HEAT TRANSFER + INSTRUMENTATION, COMPONENT + MEASUREMENT, TEMPERATURE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-21860 ALSO IN CATEGORY 18
QUESTION 1.13.B--OPERATION WITH FAILED FUEL
WISCONSIN MICHIGAN POWER COMPANY
4 PAGES, 1 FIGURE, PAGES 1.13.B-1/1.13.B-4, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDE EXPERIMENTAL EVIDENCE THAT OPERATION WITH DNB FAILED FUEL WILL NOT DAMAGE NEIGHBORING RODS SUFFICIENTLY AND SPREAD FAILURE. EXPLAIN HOW CONTROL AND PROTECTION SYSTEMS GUARD AGAINST A LOW DNB.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DNB + AEC QUESTION + FAILURE, FUEL ELEMENT + FAILURE, SEQUENTIAL + POINT BEACH 1 AND 2 (PWR) + REACTOR SAFETY SYSTEM + REACTOR, PWR + REPORT, PSAR

6-23588 ALSO IN CATEGORY 17
STUART MR + SPHAR CD
DEPLETION ANALYSIS OF SHIPPINGPORT (PWR) CORE-1, SEEDS-1 AND 2 USING THE TINT2 COMPUTER PROGRAM
WESTINGHOUSE ELECTRIC CORPORATION, BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-637 +. 68 PAGES, 40 FIGURES, 13 TABLES, 17 REFERENCES, NOVEMBER, 1967

COVERS BURNUP CALCULATIONS ON CORE 1, SEEDS 1 AND 2, AND COMPARES RESULTS WITH ACTUAL ROD POSITIONS. DESCRIBES APPROXIMATIONS MADE (INCLUDING HOMOGENIZATION) AND VARIOUS PROGRAMS FOR OBTAINING BASIC DATA (CROSS SECTIONS, ETC.). RESULTS INDICATE A DISTINCT IMPROVEMENT IN (1) REACTIVITY VARIATION WITH LIFETIME, THE TOTAL VARIATION BEING 1.5% DELTA-K FOR 2 SEED LIFETIMES (VS 2.5% IN EARLIER STUDIES) (2) GROSS POWER DISTRIBUTION, AND (3) MATERIALS INVENTORY.

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

*COMPUTER PROGRAM + *FUEL BURNUP + ANALYTICAL MODEL + MATHEMATICAL TREATMENT + REACTOR, PWR + SHIPPINGPORT (PWR)

6-23738 ALSO IN CATEGORY 9
FUKAI Y
CROWN--AN IBM-7090 CODE FOR CALCULATION OF CRUCIFORM CONTROL ROD WORTH FOR MONOENERGETIC NEUTRONS
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
JAERI-1128 +. 28 PAGES, TABLES, DECEMBER 1966

A CRUCIFORM-CONTROL-ROD WORTH FOR MONOENERGETIC NEUTRONS CAN BE EXACTLY CALCULATED BY A NEW COLLISION PROBABILITY METHOD. FIRST A HOMOGENIZED MEDIUM WHICH CONSISTS OF FUELS AND MODERATOR AND SURROUNDS THE CRUCIFORM CONTROL ROD IS DIVIDED INTO A NUMBER OF IDENTICAL CYLINDERS WITH A SQUARE CROSS SECTION. AFTER COLLISION PROBABILITIES FOR THE TWO-DIMENSIONAL X-Y SYSTEM ARE CALCULATED, SOLVING A NEUTRON BALANCE EQUATION WITH AN AVERAGED NEUTRON FLUX FOR EACH MESH CYLINDER, A FLOW-IN CURRENT TO THE CONTROL ROD AND VARIOUS PHYSICAL NUCLEAR PROPERTIES ARE OBTAINED. AN IBM-7090 CODE (CROWN) FOR THIS CALCULATION IS PROGRAMED BY FORTRAN II AND FAP. THE DETAILED CALCULATING METHOD FOR THIS PROBLEM IS FIRST REPRESENTED, AND THE CONTENT OF THE CROWN CODE IS DESCRIBED.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669.

COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + COMPUTER, DIGITAL + CONTROL ROD WORTH + JAPAN + NEUTRON INTERACTION

6-23870 ALSO IN CATEGORIES 8 AND 18
DEFELICE J + HYLAND M
FAST TEST REACTOR HYPOTHETICAL MELTDOWN ACCIDENT. PROGRESS REPORT. OCTOBER 1965 - DECEMBER 1965
BATTELLE NORTHWEST, RICHLAND, WASH.
COO-1430-3 +. 65 PAGES, 3 FIGURES, 17 TABLES, 10 REFERENCES, JAN. 21, 1966

A STUDY OF THE ENERGY YIELD FROM A MELTDOWN IS IN PROGRESS. FUEL-ZONING EFFECTS WERE EXPLORED IN DETAIL WITH AX-1 AND WEAK-EXPLOSION COMPUTER CODES. AX-1 INDICATES A SMALLER ENERGY RELEASE DUE TO FUEL ZONING THAN EXPECTED, AND INSENSITIVENESS TO DEGREE OF ZONING. WEAK-EXPLOSION RESULTS IN A LARGE ENERGY RELEASE INCREASE WITH ZONING, HOWEVER ITS LACK OF TREATMENT OF SURFACE EFFECTS UNDOUBTEDLY OVERESTIMATES ZONING EFFECTS. WORK CONTINUES.

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

*ACCIDENT ANALYSIS + *ACCIDENT, REACTIVITY + COMPUTER PROGRAM + FFTF (TR) + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-23875 ALSO IN CATEGORY 17

O-BOYLE MJ

SPECIAL ISOTOPES IN YANKEE CGRE

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIVISION

WCAP-6085 +. 56 PAGES, 4 FIGURES, 7 TABLES, YANKEE CORE EVALUATION PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JUNE 30, 1967, OCTOBER 1967

(PG 350.1 THROUGH .14) 26 FUEL SAMPLES WHICH HAD BEEN IN VARIOUS YANKEE CORES WERE CHECKED FOR U, PU, NP, AM, CM ISOTOPIC CONTENT. ND-148 WAS ANALYSED AS AN ACCURATE FUEL BURNUP INDICATOR. A COMPUTER CODE BASED ON LASER WHO DEVELOPED TO PREDICT HEAVY-ELEMENT FORMATION. ITS CHECK AGAINST MEASURED CONCENTRATION WAS BEGUN. EXCEPT FOR COMPLETION OF THE MOVIE (INSIDE THE YANKEE CORE), THIS APPEARS TO BE ALL THAT WAS DONE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*FUEL BURNUP + *TRANSURANIUM PROGRAM + COMPUTER PROGRAM + R AND D PROGRAM + REACTOR, PWR + YANKEE (PWR)

6-23916

FORTI G + VINCENTI E

THE CODES COSTANZA FOR THE DYNAMICS OF LIQUID-COOLED NUCLEAR REACTORS

EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA, ITALY

EUR-3633E +. 112 PAGES, AUGUST 7, 1967

COSTANZA CYLINDRICAL AND COSTANZA AXIAL ARE FORTRAN CODES WHICH SOLVE THE KINETICS DIFFUSION EQUATIONS IN TWO GROUPS AND ONE DIMENSION. THE NEUTRONIC CALCULATION IS COUPLED WITH THE CALCULATION OF THE HEAT TRANSFER FROM FUEL TO CLADDING AND COOLANT, AND WITH THE THERMOHYDRAULICS OF CHANNELS WITH FORCED CIRCULATION OF LIQUID COOLANT. THE GEOMETRY OF FUEL ELEMENT AND CHANNEL MAY BE CYLINDRICAL OR SLAB. UP TO TEN GROUPS OF DELAYED NEUTRONS ARE ALLOWED. TEMPERATURE FEEDBACK OF FUEL (DOPPLER) AND COOLANT ARE CONSIDERED. CONTROL-ROD MOVEMENT OR DIFFUSED-POISON CONCENTRATIONS ARE SIMULATED. INLET TEMPERATURES AND MASS FLOW IN COOLANT CHANNELS MAY BE VARIED.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*COMPUTER PROGRAM + *REACTOR DYNAMICS + CONTROL SYSTEM + COOLANT COEFFICIENT + DOPPLER COEFFICIENT + FUEL ELEMENT + HEAT TRANSFER + REACTOR KINETICS + THERMAL ANALYSIS

6-24001

ALSO IN CATEGORIES 17 AND 9

TABOR WH + HURT SS

OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHanneled ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT + CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

6-24351

ALSO IN CATEGORY 9

UOTINEN VO + PITNER AL

REACTIVITY WORTH OF A CENTRAL SAFETY ROD WITH AND WITHOUT AN INTERNAL SCATTERER.

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-618 +. 21 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

AN EXPERIMENT WAS PERFORMED IN THE HEAVY-WATER-MODERATED PLUTONIUM RECYCLE CRITICAL FACILITY TO DETERMINE THE INCREASE IN THE NEGATIVE REACTIVITY WORTH OF A HOLLOW CADMIUM SAFETY ROD WHEN A SCATTERING MATERIAL (LUCITE) IS PLACED INSIDE THE SAFETY ROD. THE FEASIBILITY OF INCREASING THE WORTH OF THE SAFETY SYSTEM WAS INVESTIGATED, AND CALCULATIONAL METHODS WERE EVALUATED FOR DETERMINING THE WORTH OF SAFETY RODS WITH INTERNAL SCATTERING. THE EFFECT PRODUCED WAS SMALL AND INDICATED THAT THIS IS NOT A PRACTICAL METHOD OF INCREASING THE WORTH OF THIS SAFETY SYSTEM.

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

*COMPARISON, THEORY AND EXPERIENCE + *CONTROL ROD WORTH + REACTIVITY EFFECT + REACTOR SAFETY SYSTEM

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-24649 ALSO IN CATEGORIES 17 AND 9
SELECTED BONUS OPERATING EXPERIENCE

PUERTO RICO WATER RESOURCES AUTHORITY

PRWRA-106 + WRA-8-66-7 +. SECTIONS FROM REACTOR OPERATIONS AT THE BONUS PLANT, MONTHLY REPORT NO. 11, 46 PAGES, NOVEMBER 1966

(PG 5) RODS 4 AND 15 CONTINUED TO MOVE OUT OF THE CORE AFTER RAISE SWITCH RELEASED, AS RELAY CONTACTS REMAINED CLOSED EVEN WHEN THE SPRING WAS SET FOR MAXIMUM FORCE. AFTER ROUGHENING THE CONTACTS (WHICH HAD BEEN DRY AND HIGHLY POLISHED), THERE WAS NO MORE FAILURE. (PG 6,31) PLACING THE PURIFICATION SYSTEM IN OPERATION WAS NOT PROPERLY DONE, AND THE COLD-WATER INJECTION CAUSED A POWER LEVEL INCREASE FROM 3 TO 4.15 MWTH. (PG 17) AFTER A SCRAM AND DIVERSION OF OFF-GAS TO THE VAPOR SPHERE, VARIOUS DRAINS WOULD PLUG, CAUSING PRESSURE BUILDUP TO BLOW THE WATER SEALS, RELEASING RADIOGAS. (PG 23) AN ABNORMAL RCD PROGRAM TO MAINTAIN SUPERHEAT TEMPERATURES WAS CAUSED BY CARRYOVER BY TOO HIGH A WATER LEVEL. THE INDICATED WATER LEVEL WAS LOW BECAUSE OF TOO LOW A FLOW IN THE WATER COLUMN. OPENING THE RECIRCULATION VALVE INCREASED THE BOTTOM TEMP. FROM 425 TO 481 F. (PG 28) AN ANALYSIS OF THE OCT. 24 LOAD REJECTION SHOWS THAT THE SCRAM MAY HAVE BEEN FROM HIGH FLUX CR FROM TURBINE BYPASS VALVE OPENING. WITH THE ADMISSION VALVES IN AUTOMATIC, A LINE-FREQUENCY CHANGE CAUSES THE PRESSURE ERROR AND THE SPEED ERROR TO OPPOSE.

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

*ACCIDENT, COLD COOLANT + *ACCIDENT, LOAD REJECTION + *AIRBORNE RELEASE + *FAILURE, COMPONENT + *INSTRUMENTATION, ABNORMAL INDICATION + *INSTRUMENTATION, RELAY + BONUS (ISR) + CONTROL ROD DRIVE + CONTROLLER + COOLANT PURIFICATION SYSTEM + FAILURE, OPERATOR ERROR + INSTRUMENTATION, LIQUID LEVEL DETECTION + OFF GAS + OPERATING EXPERIENCE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TURBINE

6-24785 ALSO IN CATEGORY 17
BARKER DG

THE MEASUREMENT OF THERMAL NEUTRON FLUX DISTRIBUTIONS THROUGH A VARIABLE WATER GAP AND A VOID
TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS
NSC-22 +. 10 PAGES, 5 FIGURES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 22, SEPT. 1967

FLUX DISTRIBUTIONS AND REACTIVITY CHANGES WERE MEASURED FOR EFFECTS OF PLACING A 4-IN.-THICK VOID 3, 2, AND 1 IN. FROM THE CORE FACE. RESULTS ARE COMPARED WITH THOSE FOR A SIMILAR TEST CONDUCTED WITH GRAPHITE (SEE TECHNICAL REPORT 18). VOID WAS CONSTRUCTED WITH ALUMINUM PLATES. THE FLUX TRANSMITTED ACROSS THE VOID TO BEAM PORTS WOULD BE 1 TIMES 10(12TH), ASSUMING A PEAK FLUX OF 2 TIMES 10(12TH) IN A 2-IN. WATER GAP. THE VALUE FOR A GRAPHITE REFLECTOR IS 7 TIMES 10(11TH). SUGGESTED PLACEMENT IS A 4-IN. GRAPHITE (WITH INTERNAL VOID) REFLECTOR 2 IN. FROM CORE. THIS MINIMIZES REACTIVITY OF VOID.

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*BEAM HOLE + *FLUX DISTRIBUTION + *MEASUREMENT, GENERAL + REACTIVITY EFFECT, VOID + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFLECTOR

6-24791

FOX JN + LAWLER BE + BUTZ HR

FORE II. A COMPUTATIONAL PROGRAM FOR THE ANALYSIS OF STEADY-STATE AND TRANSIENT REACTOR PERFORMANCE
GENERAL ELECTRIC CO., SUNNYVALE, CALIF.
GEAP-5273 +. 206 PAGES, SEPT. 1966

FORE II IS A COUPLED THERMAL HYDRAULICS--POINT KINETICS DIGITAL COMPUTER CODE DESIGNED TO CALCULATE SIGNIFICANT REACTOR PARAMETERS UNDER STEADY-STATE CONDITIONS, OR AS FUNCTIONS OF TIME DURING TRANSIENTS. THE TRANSIENTS MAY RESULT FROM A PROGRAMMED REACTIVITY INSERTION OR A POWER CHANGE. VARIABLE INLET COOLANT FLOW RATE AND TEMPERATURE ARE CONSIDERED. THE CODE CALCULATES THE REACTOR POWER, THE INDIVIDUAL REACTIVITY FEEDBACKS, AND THE TEMPERATURE OF COOLANT, CLADDING, FUEL, STRUCTURE, AND ADDITIONAL MATERIAL FOR UP TO SEVEN AXIAL POSITIONS IN THREE CHANNEL TYPES WHICH REPRESENT RADIAL ZONES OF THE REACTOR. THE HEAT OF FUSION ACCOMPANYING FUEL MELTING, THE LIQUID METAL VOIDING REACTIVITY, AND THE SPACIAL AND THE TIME VARIATION OF THE FUEL CLADDING GAP COEFFICIENT DUE TO CHANGES IN GAP SIZE ARE CONSIDERED. FORE II IS VALID ONLY WHILE THE CORE RETAINS ITS INITIAL GEOMETRY. USES FORTRAN-IV LANGUAGES.

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

COMPUTER PROGRAM + DYNAMICS, NONLINEAR + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR TRANSIENT

6-24792

RICHEY CR

THEORETICAL ANALYSES OF HOMOGENEOUS PLUTONIUM CRITICAL EXPERIMENTS
BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-780 +. 16 PAGES, OCT. 3, 1966

PRESENTS A COMPUTATIONAL ANALYSIS OF REPRESENTATIVE DATA FROM THE ACCUMULATION OF CLEAN

1
CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-24792 *CONTINUED*

EXPERIMENTS WITH PLUTONIUM-FUELED ASSEMBLIES. VARIOUS APPROXIMATIONS FOR SIMPLIFYING THE TRANSPORT EQUATION AND CROSS-SECTION DATA ARE EVALUATED, AND THEIR EXPECTED ERRORS ARE ESTABLISHED. VALUES FOR CRITICALLY SAFE MASSES AND DIMENSIONS ARE RECOMMENDED FOR AQUEOUS PU(NO₃)₄ SOLUTIONS AND MIXTURES OF PU-239 AND WATER.

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

CRITICALITY EXPERIMENT + CROSS SECTION + THEORETICAL INVESTIGATION + TRANSPORT THEORY

6-24793

HUNT DC + TUCK G
PLUTONIUM HANDLING SAFETY ANALYSIS OF THE ROCKY FLATS NUCLEAR SAFETY FACILITY
DOW CHEMICAL CO., GOLDEN, COLO.
RFP-977 +. 29 PAGES, NOV. 8, 1967

AS A SEQUEL TO RFP-334 (CLASSIFIED), SAFETY REVIEW OF THE ROCKY FLATS PROPOSED NUCLEAR SAFETY FACILITY, THIS REPORT EMPHASIZES OPERATIONAL SAFETY WITH RESPECT TO CRITICAL MASS EXPERIMENTS INVOLVING PLUTONIUM.

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

ACCIDENT ANALYSIS + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CRITICALITY EXPERIMENT + CRITICALITY SAFETY

6-24794

MEYER RA + WOLFE B + FRIEDMAN NF + SEIFERT R
FAST REACTOR MELTDOWN ACCIDENTS USING BETHE-TAIT ANALYSIS
GENERAL ELECTRIC CO., SUNNYVALE, CALIF.
GEAP-4809 +. 85 PAGES, JAN. 1967

IN THIS REPORT, THE ENERGY RELEASE FROM A MELTDOWN ACCIDENT IS EXAMINED WITH REFERENCE TO A 1000-MWE FAST CERAMIC-FUELED POWER REACTOR. THE INTENT IS TO SHOW THE EFFECT OF THE BASIC PARAMETERS ON THE ENERGY RELEASE. NO ATTEMPT IS MADE TO FIND A SERIES OF EVENTS WHICH WOULD LEAD TO A GIVEN POSITIVE REACTIVITY INSERTION. INSTEAD, VARIOUS REACTIVITY INSERTION RATES OR REACTIVITY STEPS ARE ASSUMED, AND THE ENERGY RELEASE AS A FUNCTION OF THE REACTOR PARAMETERS IS INVESTIGATED TO ASSESS THE IMPORTANCE OF THESE PARAMETERS AND THE SENSITIVITY OF THE RESULTS TO THE ASSUMPTIONS THAT MUST BE MADE. SPECIFIC PARAMETERS CONSIDERED ARE DOPPLER COEFFICIENTS, NEUTRON LIFETIME, PRESSURE-ENERGY RELATIONSHIP FOR THE FUEL, CORE COMPOSITION, POWER FLATTENING, SPECIFIC HEAT OF THE FUEL, CORE SHAPE, AND INITIAL CONDITIONS AT THE START OF THE REACTIVITY INPUT. IT IS SHOWN THAT IF THE DOPPLER COEFFICIENT IS MADE LARGE ENOUGH, THE ENERGY RELEASE FROM A LARGE POWER REACTOR EXCURSION CAN BE MADE OF THE SAME ORDER OF MAGNITUDE AS THAT FOR WHICH CONTAINMENT HAS ALREADY BEEN ENGINEERED IN THE PRESENT GENERATION OF EXPERIMENTAL REACTORS.

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

ACCIDENT ANALYSIS + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CORE MELTDOWN + CRITICALITY SAFETY + DAMAGE + DESTRUCTIVE TRANSIENT + DOPPLER COEFFICIENT + EQUATION OF STATE + EXCURSION, LARGE + FUEL MELTDOWN

6-24795

GANCINI A + LEO M + SALVATORES M
LIFE EFFECTS ON THE PERFORMANCE OF CERAMIC FAST BREEDERS
COMITATO NAZIONALE PER L'ENERGIA NUCLEARE, ROME, ITALY
RT-FI-(67)23 +. 15 PAGES, 1967

IN ASSESSING THE DYNAMIC BEHAVIOUR OF LARGE FAST CERAMIC REACTORS IT IS IMPORTANT TO EVALUATE THE DEPENDENCE ON BURN-UP OF THE MOST RELEVANT INTEGRAL PARAMETERS, IN PARTICULAR THE SODIUM VOID COEFFICIENT, THE DOPPLER EFFECT AND THE PROMPT NEUTRON LIFETIME. IT HAS BEEN APPROPRIATE, THEN, TO MAKE A THOROUGH ANALYSIS, IN THIS RESPECT, OF TWO REFERENCE REACTORS, SUITABLY SIMPLIFIED, REPRESENTING RESPECTIVELY AN OXIDE PANCAKE AND A CARBIDE SYSTEM. THE CALCULATIONS HAVE BEEN MADE USING THE RUSSIAN CROSS SECTION LIBRARY AND AVAILABLE COMPUTATIONAL CODES ADOPTING CONVENTIONAL MULTIGROUP DIFFUSION METHODS AND GENERALIZED PERTURBATION TECHNIQUES INTRODUCED BY USACHEV AND DEVELOPED AT CNEN.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES, US AND OVERSEAS

COOLANT COEFFICIENT + DOPPLER COEFFICIENT + FUEL BURNUP + PERTURBATION METHOD + PROMPT NEUTRON LIFETIME + REACTIVITY COEFFICIENT

6-24797

LELLOUCHE GS
EFFECT OF SPATIAL SHAPE ON STABILITY
BROOKHAVEN NATIONAL LABORATORY, UPTON, N. Y.
CONF-670602 +. 19 PAGES, 12 FIGURES, JUNE 1967, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY ANNUAL MEETING, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967, ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 204

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-24797 *CONTINUED*

STARTING WITH THE PARTIAL DIFFERENTIAL EQUATION FOR THE AXIAL TEMPERATURE DISTRIBUTION OF FUEL AND COOLANT, A STUDY OF THE EFFECT OF FLOW PATH, POWER SPATIAL DISTRIBUTION, AND SOME ASPECTS OF REACTIVITY FEEDBACK DISTRIBUTION ON STABILITY CONSIDERATIONS IS CARRIED OUT. THE RESULTS SHOW IN GENERAL THAT THE POINT MODEL OF REACTOR DYNAMICS IS OFTEN OPTIMISTIC. CONTINUING THE STUDIES STARTED IN PART I, SYSTEMS CONTAINING MULTIPLE CORES SEPARATED BY FEEDBACK PRODUCING REFLECTORS AND COUPLED BY A FLOWING COOLANT ARE EXAMINED. THE EQUIVALENT-POINT MODEL IS DEFINED AND SHOWN TO BE TOTALLY AND OPTIMISTICALLY INCORRECT IN THE REGIONS OF INTEREST.

COUPLED CORES + DYNAMICS, NONLINEAR + FLUX DISTRIBUTION + REACTOR DYNAMICS + REACTOR STABILITY + REACTOR TRANSIENT + REFLECTOR + SPACE DEPENDENT DYNAMICS

6-24885 ALSO IN CATEGORY 18
FRANK FJ
THE NUCLEAR DESIGN OF THE SENA REACTOR
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-2785 +. 124 PAGES, MAY 1965

THE SENA REACTOR IS A CLOSED-CYCLE PWR TO BE BUILT ALONG THE MEUSE RIVER AT CHOOZ, FRANCE. IT INCORPORATES CHEMICAL-POISON SHIM CONTROL, NONUNIFORM MULTIREGION FUEL LOADING, AND PARTIAL CORE REFUELING. THE REACTIVITY CONTROL OF THE CORE, USING BOTH ROD AND CHEMICAL POISON, IS DESCRIBED. THE X-Y POWER DISTRIBUTION IS GIVEN FOR THE CORE AT THE BEGINNING OF LIFE FOR VARIOUS CONTROL-ROD PATTERNS AND ALSO DESCRIBED AS A FUNCTION OF BURNUP WITH NO RODS INSERTED. REACTIVITY COEFFICIENTS AND THE PROMPT AND DELAYED-NEUTRON CHARACTERISTICS ARE PRESENTED.

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

*REACTOR CONTROL + CONTROL ROD INTERACTION + FRANCE + REACTOR POWER + REACTOR, POWER + REACTOR, PWR

6-24896 ALSO IN CATEGORY 9
MCMILLAN RN + ODELL FP + WRAY D
THE PHYSICS AND CONTROL OF THE STEAM GENERATING HEAVY WATER REACTOR
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISELY, ENGLAND
TRG-REPORT-1343 +. 45 PAGES, 1968, A REVISED VERSION OF A LECTURE PRESENTED TO THE FEDERAL INSTITUTE FOR REACTOR RESEARCH ON 3 NOVEMBER 1966

BRIEFLY REVIEWS REACTOR-PHYSICS METHODS USED IN THE PERFORMANCE ANALYSIS OF S.G.H.W. REACTORS WITH PARTICULAR REFERENCE TO THE VOID COEFFICIENT OF REACTIVITY. IT DESCRIBES THE DYNAMIC CHARACTERISTICS OF THE UNCONTROLLED REACTOR, SHOWING THE IMPORTANT REACTIVITY FEEDBACK EFFECTS. THE CONTROL SYSTEM FOR THE WINFRITH S.G.H.W.R. IS DESCRIBED AND TRANSIENTS ARE PRESENTED TO DEMONSTRATE THE SATISFACTORY PERFORMANCE WITHIN THE EXPECTED RANGE OF VOID COEFFICIENTS OF THE LOOPS WHICH CONTROL NEUTRON FLUX, STEAM FLOW, STEAM PRESSURE AND FEEDWATER FLOW.

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

*REACTOR CONTROL + REACTIVITY EFFECT, VOID + REACTOR, HWR + UNITED KINGDOM + VOID COEFFICIENT

6-25001 ALSO IN CATEGORIES 17 AND 9
TABOR WH + HURT SS
OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHanneled ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT + CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

6-25004
NOBLE L + PFISTERER GR + WILKINSON CD + CALDAROLA L
RECENT DEVELOPMENTS IN THE SEFOR EXPERIMENTAL PROGRAM
KERNFORSCHUNGSZENTRUM, INSTITUTE FÜR ANGEWANDTE REAKTORPHYSIK, KARLSRUHE
KFK-649 +. 32 PAGES, FIGURES, TABLES, REFERENCES, AUGUST, 1967

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25004 *CONTINUED*

DESCRIBES THE STATUS OF THE PREOPERATIONAL PLANNING AND ANALYSIS OF THE PHYSICS EXPERIMENTS TO BE PERFORMED TO OBTAIN SEFOR REACTIVITY COEFFICIENTS. THE EXPERIMENTS ARE - STATIC, OSCILLATOR, AND TRANSIENTS TESTS. ANALYTICAL MODELS FOR FEEDBACK EFFECTS AND CALCULATED COEFFICIENTS ARE GIVEN. PROPOSED INSTRUMENTATION, DATA-ACQUISITION SYSTEM, AND DATA-PROCESSING TECHNIQUES ARE DESCRIBED.

AVAILABILITY - GESELLSCHAFT FUR KERNFORSCHUNG M.B.H., KARLSRUHE

*REACTIVITY COEFFICIENT + *REACTOR KINETICS + *TEST, PHYSICS + ANALYTICAL MODEL + DATA PROCESSING + GERMANY + INSTRUMENTATION, GENERAL + REACTOR TRANSIENT + REACTOR, FAST + REACTOR, SAFETY RESEARCH + SEFOR (RE)

6-25047 ALSO IN CATEGORY 18

POSITIVE MODERATOR COEFFICIENT IN HADDAM NECK CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS. 3 PAGES, 4 FIGURES, 5 REFERENCES, PAGE 1-1 THROUGH 1-3 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

THE COEFFICIENT WILL BE POSITIVE AT BEGINNING OF LIFE OF FIRST CYCLE, ZERO AT BURNUP OF 2000 MWD/MTU, AND NEGATIVE THEREAFTER. ANALYSES GIVEN HERE SHOWS THAT THE MAXIMUM REACTIVITY INSERT IS 0.005 DELTA K AND IS CONSERVATIVE. COMPARES MEASUREMENTS TO VERIFY CALCULATION METHOD. FIGURES SHOW POTENTIAL REACTIVITY INSERT VS MODERATOR TEMP. COEFF., MOD. TEMP. COEFF. VS MOD. TEMP., DIFFERENCE BETWEEN MEASURED AND PREDICTED ACTIVITY POWER-DENSITY DISTRIBUTIONS IN THE SELMI REACTOR FOR BEGINNING OF LIFE AND AFTER BURNUP OF 10,038 MWD/MTU.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*MODERATOR COEFFICIENT + *REACTIVITY COEFFICIENT + COMPARISON, THEORY AND EXPERIENCE + HADDAM NECK (PWR) + MEASUREMENT, REACTIVITY + POWER DISTRIBUTION + REACTOR, PWR + REPORT, SAR

6-25058 ALSO IN CATEGORY 17

KARP J
POSITIVE MODERATOR COEFF. AT PLATR
UNITED NUCLEAR CORPORATION
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(18), PAGE 16 (APRIL 29, 1968), DOCKET 50-101

(LETTER, APRIL 10) REPORTS THAT MARCH MEASUREMENTS SUGGEST THAT THE OVERALL MODERATOR TEMPERATURE COEFFICIENT AT PAWLING LATTICE TEST RIG WAS SLIGHTLY POSITIVE. ON MAR. 15, SYSTEM WAS SHUT DOWN. EVALUATION SHOWS COEF. BETWEEN 65-90 F IS +0.00003 DK/K PER DEG C. SYSTEM WILL NOT BE OPERATED UNTIL EITHER THE SYSTEM OR TECHNICAL SPECIFICATION IS MODIFIED TO CONFORM.

*MODERATOR COEFFICIENT + *TECHNICAL SPECIFICATIONS + CRITICAL ASSEMBLY FACILITY + OPERATING EXPERIENCE + TEMPERATURE COEFFICIENT

6-25067 ALSO IN CATEGORY 17

PELLARIN DJ + RAUMANN NP + CRANDALL JL + G-NEILL GF + SATTERFIELD RM
ZERO POWER EXPERIMENTS WITH U-235-ENRICHED THORIA AND THORIUM METAL LATTICES FOR THE HWOCR DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.
DP-1125 +. 100 PAGES, 46 FIGURES, 32 TABLES, 19 REFERENCES, NOV. 1967

CRITICAL AND EXPONENTIAL SUBSTITUTION BUCKLING MEASUREMENTS AND FOIL ACTIVATIONS WERE PERFORMED TO DETERMINE SUBCADMIUM NEUTRON DISTRIBUTIONS, NEUTRON TEMPERATURES, CADMIUM RATIOS FOR 232-TH AND 235-TH CAPTURES, AND 232-TH/235-U FISSION RATIOS. EXPERIMENTAL RESULTS AGREED WITH HAMMER CODE CALCULATIONS WITHIN PLUS OR MINUS 25 MICROBARN. IT WAS ESTIMATED THAT HAMMER CODE COULD CALCULATE NEUTRON ECONOMY OF ALL SYSTEMS STUDIED WITHIN 1%.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY EXPERIMENT + *REACTOR, HWR + *REACTOR, ORGANIC COOLED + BUCKLING + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + CRITICAL ASSEMBLY FACILITY + THORIUM + URANIUM-235

6-25080 ALSO IN CATEGORIES 17 AND 9

FILIPCZAK N + FILIPCZAK W + FURET J + KAISER J
REPORT OF BLIND STARTUP EXPERIMENTS CARRIED OUT ON THE REACTOR CABRI BETWEEN JULY 4 AND 8, 1966 COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY, FRANCE
CEA-R-3341 +. 24 PAGES, FIGURES, NOV. 1967, IN FRENCH

(IN FRENCH) TWELVE STARTUPS (WITH VARYING RATIOS OF GAMMA/NEUTRON INDUCED CURRENT IN THE COMPENSATED CHAMBERS) WERE RUN WITH VARYING REACTIVITY INSERTION RATES (BOTH LINEAR AND EXPONENTIAL) TO OBTAIN COMPARISONS WITH ANALOGUE STUDIES (1966/SER/1233 BY M.W. FILIPCZAK). OUTPUT IS A GRAPH FOR EACH STARTUP, SHOWING POWER, GAMMA, AND NEUTRON SIGNALS. ALTHOUGH THE NUMBER OF EXPERIMENTS WAS TOO LOW FOR A DEFINITE CONCLUSION, THE BLIND STARTUP METHOD DOES NOT APPEAR INCOMPATIBLE WITH SAFETY.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25080 *CONTINUED*

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*MEASUREMENT, GENERAL + *REACTOR STARTUP, LOW SOURCE + *SOURCE, NEUTRON + *TEST, PROOF +
ANALOG SIMULATION + CHAMBER, COMPENSATED + REACTOR TRANSIENT + REACTOR, RESEARCH

6-25156 ALSO IN CATEGORY 17

PRINCE BE + BALL SJ + ENGEL JR + HAUBENREICH PN + KERLIN TW
ZERO-POWER PHYSICS EXPERIMENTS ON THE MOLTEN-SALT REACTOR EXPERIMENT
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4233 +. 60 PAGES, 24 FIGURES, 4 TABLES, 25 REFERENCES, EAB. 1968

COMPLETE DESCRIPTION OF ALL MEASUREMENTS MADE OF NEUTRONIC BEHAVIOR BEFORE SUBSTANTIAL NUCLEAR
HEAT WAS GENERATED. IN ADDITION TO CONTROL-ROD CALIBRATION AND TEMPERATURE AND PRESSURE
REACTIVITY EFFECTS, DYNAMICS TESTS CONSISTING OF FREQUENCY-RESPONSE MEASUREMENTS, PULSE
TESTS, PSEUDO-RANDOM BINARY SEQUENCE TESTS, NEUTRON FLUCTUATION, AND TRANSIENT FLOW-RATE
TESTS WERE CONDUCTED. NO EVIDENCE OF OPERATIONAL STABILITY PROBLEMS WAS FOUND.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY EXPERIMENT + *REACTOR STARTUP TESTING + *REACTOR, MOLTEN SALT + *TEST, PHYSICS +
CONTROL ROD CALIBRATION + DYNAMICS, NONLINEAR + MSRE (RE) + REACTIVITY EFFECT, PRESSURE +
REACTOR, CIRCULATING FUEL + TEMPERATURE REACTIVITY EFFECT

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-22470 ALSO IN CATEGORY 4
CONNER WV
REACTION VESSEL FOR PRODUCTION OF PLUTONIUM
U. S. PATENT 3-328-017 +. 3 PAGES, 1 FIGURE, JUNE 1967, PATENT (U. S.)

THIS INVENTION RELATES GENERALLY TO REACTION VESSELS WITHIN WHICH ACTINIDE COMPOUNDS ARE REDUCED TO ACTINIDE METALS, AND MORE PARTICULARLY TO A REACTION VESSEL FOR USE IN PRODUCTION OF PLUTONIUM WHEREIN A REUSABLE LINER IS USED FOR SUCCESSIVE REDUCTIONS.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., (\$0.25 PER COPY)

*PLUTONIUM + EQUIPMENT DESIGN + FUEL REPROCESSING

7-22490 ALSO IN CATEGORY 4
VILES FJ + HIMOT P + FIRST MW
HIGH CAPACITY--HIGH EFFICIENCY FILTERS FOR SODIUM AEROSOLS
HARVARD AIR CLEANING LABORATORY
NYO-841-10 +. 176 PAGES, FIGURES, TABLES, AUGUST 1967

CONFIGURATIONS OF GRADED, DEEP BED FILTERS WERE TESTED TO EVALUATE THEIR APPLICATION FOR CONTROLLING SUCH FUMES AND TO DETERMINE THEIR COLLECTION EFFICIENCY AND MAXIMUM FILTER LOADING CAPACITY. THESE STUDIES HAVE SHOWN THAT DEEP BED FIBER MEDIA, WHEN ARRANGED IN GRADED FIBER DIAMETERS AND GRADED PACKING DENSITIES, AND WHEN FOLLOWED BY A PLEATED ABSOLUTE FILTER, ARE CAPABLE OF COLLECTING ELEMENTAL SODIUM AND SODIUM OXIDE FUMES AT HIGH EFFICIENCY AND STORING LARGE AMOUNTS OF FUME IN THE FILTER WITH ACCEPTABLE RESISTANCE INCREASES. THE FILTER PACK DESIGN THAT HAS BEEN RECOMMENDED PROVIDES COLLECTION EFFICIENCIES GREATER THAN 99.9% AND SODIUM FUME STORAGE IN EXCESS OF 0.5 LB OF SODIUM PER SQUARE FOOT OF FILTER FACE AREA WITH FILTRATION VELOCITIES OF 6-12 FT/MIN (NTP) AND A TERMINAL FILTER RESISTANCE OF 20 IN. W.G.

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

*AEROSOL + *FILTER, BED + *FILTER, METALLIC + *FIRE + *SODIUM + *TEST, FILTER SYSTEM + FILTER + FILTER SYSTEM + FILTER, HIGH EFFICIENCY + FILTER, PREFILTER + OXIDE + STEEL, STAINLESS

7-22540
SCHROERSCHWARZ R + LINDNER R
DIFFUSION OF NON VOLATILE FISSION PRODUCTS IN SUBSTOICHIOMETRIC UC
EUROPEAN ATOMIC ENERGY COMMUNITY
3 PAGES, 3 FIGURES, 2 TABLES, RADIOCHIMICA ACTA 6, PAGES 190-192 (1966)

THE DIFFUSION OF SOME FISSION-PRODUCT ISOTOPES (ZR-95, NB-95, MO-99, TC-99M, PM-147) IN SUBSTOICHIOMETRIC CAST URANIUM CARBIDE OF ABOUT 4.5% CARBON CONTENT WAS MEASURED IN THE TEMPERATURE RANGE 1300-1800 C. THE DIFFUSION ACTIVATION ENERGIES RANGE BETWEEN 40 AND 65 KCAL/MOLE, AND DIFFUSION COEFFICIENTS OF THE ORDER OF 10(-12TH) SQ. CM/SEC ARE FOUND AT ABOUT 1500 C. APART FROM THESE VALUES REFERRING MAINLY TO VOLUME DIFFUSION THE CONTRIBUTION OF GRAIN BOUNDARY TRANSFER HAS TENTATIVELY BEEN INVESTIGATED AND ACTIVATION ENERGIES ARE INDICATED 10-40% LOWER THAN THOSE OF THE BULK DIFFUSION.

*CARBIDE + *DIFFUSION + *FISSION PRODUCT RETENTION + *URANIUM + MOLYBDENUM + NIOBIUM + TECHNETIUM + ZIRCONIUM

7-24343
HAFELC W + HELLER F + SCHIKARSKI W
THE PRINCIPLE OF DOUBLE CONTAINMENT AND THE BEHAVIOUR OF AEROSOLS IN ITS RELATION TO THE SAFETY OF REACTORS WITH A HIGH PLUTONIUM INVENTORY
GESELLSCHAFT FÜR KERNFORSCHUNG M.B.H., KARLSRUHE
EURFNR-425 + KFK 669 + EUR-3702 + CONF-671043-5 +. 17 PAGES, FIGURES, OCTOBER 1967

THIS PAPER REPORTS ON INVESTIGATIONS OF THE INTERRELATION BETWEEN CONTAINMENT SYSTEM, INVENTORY OF RADIOACTIVE MATERIAL AND THE RADIATION BURDEN TO THE ENVIRONMENT, IF THE ACTIVITY IS ACCIDENTLY RELEASED. SPECIAL EMPHASIS WAS PAID TO THE RELEASE OF VARIOUS FISSION PRODUCTS AND FUEL ISOTOPES, PARTICULARLY IODINE AND PLUTONIUM, BECAUSE THEY REPRESENT THE LARGEST HAZARD POTENTIAL TO THE ENVIRONMENT OF A LARGE FAST-BREEDER REACTOR. THE CALCULATIONS WERE PERFORMED FOR THE CASE OF A TYPICAL LARGE, FAST, SODIUM-COOLED BREEDER OF 1000 MWE POWER, WHICH IS THE ULTIMATE GOAL OF THE PRESENT PHASE OF FAST-BREEDER DEVELOPMENT. THE OVER ALL CONCLUSION IS THAT, IN VIEW OF THE FORTHCOMING ERA OF 1000-MWE FAST BREEDER REACTORS, THERE IS A LARGE AND WELL-FOUNDED INCENTIVE TO PUT GREAT EMPHASIS ON THE INVESTIGATION OF AEROSOL BEHAVIOUR IN THE CONTEXT OF FAST-REACTOR ACCIDENTS.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE US AND OVERSEAS

*ANALYTICAL MODEL + *COMPUTER PROGRAM + *CONTAINMENT RESEARCH AND DEVELOPMENT + *IODINE + *PLUTONIUM + *REACTOR, BREEDER + *REACTOR, FAST + CONTAINMENT DESIGN + FISSION PRODUCT, IODINE + GERMANY + REACTOR, LMCR + SODIUM

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24364
YUILLE WD + ADAMS RE
BEHAVIOR OF OXIDE AEROSOLS OF URANIUM AND STAINLESS STEEL IN HUMID ATMOSPHERES
OAK RIDGE NATIONAL LABORATORY
CRNL-4198 +. 43 PAGES, 15 FIGURES, 2 TABLES, 9 REFERENCES, SEPT. 1967

LABORATORY EXPERIMENTS WERE MADE TO EXAMINE THE EFFECT OF MOISTURE ON AEROSOLS PRODUCED BY ARC-MELTING SIMULANT REACTOR FUEL IN AIR. THE ONLY SIMULANT USED WAS STAINLESS-STEEL-CLAD URANIUM DIOXIDE. ANALYSIS OF SAMPLES TAKEN WITH THERMAL PRECIPITATORS AND BY FIBROUS FILTER ANALYZERS SHOWED THAT MOISTURE AFFECTS BOTH SIZE AND SHAPE OF AEROSOL AGGLOMERATES. A MARKED REDUCTION IN FILTERING EFFICIENCY OF THE WET AEROSOL WAS MEASURED THROUGH OPEN STRUCTURE ROUGHING FILTERS. BY ANALOGY, IT WAS SHOWN THAT HUMIDITY DOES NOT BRING ABOUT PHYSICAL CHANGES BY OPERATING ON THE ELECTRICAL CHARGE PROPERTIES OF THE AEROSOL. PROBABLY, A CHEMICAL REACTION BETWEEN WATER VAPOR AND THE CONSTITUENTS OF THE AEROSOL AGGLOMERATES INITIATES THE CHANGES IN PARTICLE SIZE AND SHAPE OBSERVED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *FILTER EFFICIENCY + *PARTICLE SIZE DISTRIBUTION + *STEEL, STAINLESS + *TESTING + *URANIUM DIOXIDE + AIR CLEANING + FILTER PACK + FILTER, FIBER + HUMIDITY + OXIDE + PARTICLE SIZE + PARTICULATE + THERMAL EXPERIMENT

7-24366
VENERUS ER + OZISIK MN
ON THE DISPERSION OF FISSION PRODUCTS FROM LAMINAR STREAMS IN OPEN- AND CLOSED-LOOP CONDUITS
KNOLLS ATOMIC POWER LAB., GENERAL ELECTRIC CO., SCHENECTADY, NEW YORK + NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA
9 PAGES, 1 FIGURE, NUCLEAR SCIENCE AND ENGINEERING, 31(3), PAGE 531-539, (MARCH 1968)

TWO SIMPLIFIED MODELS WHICH DESCRIBE THE DEPOSITION OF FISSION PRODUCTS FROM LAMINAR GAS STREAMS ON THE SURFACE OF A CYLINDRICAL CONDUIT ARE FORMULATED FOR BOTH OPEN- AND CLOSED-LOOP SYSTEMS. A UNIFORM SOURCE IS ASSUMED TO RELEASE A PRECURSOR INTO A GAS STREAM. SOLUTIONS ARE OBTAINED FOR THE DEPOSITION OF THE PRECURSOR AND ITS ASSOCIATED DAUGHTER PRODUCTS. THE BOUNDARY VALUE PROBLEM CONSISTING OF TWO COUPLED PARTIAL DIFFERENTIAL EQUATIONS FOR EACH NUCLEAR SPECIES IS ANALYZED FOR TWO MODELS. THE CLOSED-FORM SOLUTIONS OBTAINED WITH THE TWO SIMPLIFIED MODELS PROVIDE A GOOD INSIGHT TO THE EFFECTS OF VARIOUS PARAMETERS ON DEPOSITION OF FISSION PRODUCTS IN CLOSED-LOOP SYSTEMS AND ON THE DEPOSITION OF DAUGHTER PRODUCTS BOTH IN OPEN- AND CLOSED-LOOP SYSTEMS.

*ANALYTICAL MODEL + *DEPOSITION + *FISSION PRODUCT RELEASE, GENERAL + *FISSION PRODUCT TRANSPORT + AIR CLEANING + MASS TRANSFER + THEORETICAL INVESTIGATION

7-24367
WELLS EL + WEISSENBERGER WR
ANALYSIS AND RETRIEVAL OF PROCESSED GAMMA SPECTRA DATA
BATTELLE-NORTHWEST
BNWL-669 +. 57 PAGES, 5 FIGURES, 9 TABLES, 3 REFERENCES, MARCH 5, 1968

DISCUSSES THE GAMMA-ENERGY ANALYTICAL SYSTEM ESTABLISHED FOR THE CONTAINMENT SYSTEMS EXPERIMENT AND THE ASSOCIATED DIGITAL COMPUTER PROGRAMS. A GENERAL DESCRIPTION OF COMPONENTS, CODING METHODS, MATHEMATICAL TREATMENT, AND ANALYTICAL RESULTS ARE GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *CSE + *SPECTROMETRY, GAMMA + ANALYTICAL MODEL + GAMMA

7-24369 ALSO IN CATEGORY 4
GREENBERG S + CHENG CF + RUTHER
IN-REACTOR SODIUM CORROSION OF VANADIUM AND VANADIUM-TITANIUM ALLOYS
METALLURGY DIVISION, ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
3 PAGES, 1 FIGURE, 4 TABLES, 7 REFERENCES, NUCLEAR APPLICATIONS, 4(3), PAGE 170-172, (MARCH 1968)

VANADIUM-TITANIUM, VANADIUM-CHROMIUM, AND VANADIUM-TITANIUM-CHROMIUM ALLOYS HAVE DEMONSTRATED SUFFICIENT CORROSION RESISTANCE IN LOW-OXYGEN SODIUM AT TEMPERATURES UP TO AT LEAST 650 C TO MAKE THEM OF POTENTIAL INTEREST AS FUEL-JACKETING MATERIALS FOR SODIUM-COOLED FAST REACTORS. FINAL JUDGMENT AS TO THEIR ADEQUACY MUST BE BASED UPON PERFORMANCE OF FUEL ELEMENTS JACKETED WITH THE MATERIAL OF INTEREST. VANADIUM-TITANIUM ALLOYS, EXPOSED TO FLOWING SODIUM IN THE EBR-II CORE SUFFERED SMALL WEIGHT LOSSES. IN CONTRAST TO THE BEHAVIOR OF THESE MATERIALS WHEN EXPOSED EX-REACTOR, NO HARDENED LAYERS WERE PRODUCED.

*ALLEY + *CORROSION + *METAL, LIQUID + *TITANIUM + *VANADIUM + CLAD + FUEL ELEMENT + METAL, ALKALI + PROPERTY, PHYSICAL + REACTOR, LMCR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24371 ALSO IN CATEGORY 14
MCKNIGHT ME + NORGON RW
A STUDY OF THE EXCHANGE CHARACTERISTICS OF MONTMORILLONITE CLAY FOR FISSION PRODUCT CATIONS FOR USE IN THE GENERATION OF INSOLUBLE AEROSOLS
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, N. MEXICO
LF-37 +. 12 PAGES, 4 FIGURES, 12 REFERENCES, OCTOBER 1967

THE EXCHANGE OF CESIUM, CERIUM, STRONTIUM, AND YTTRIUM WITH EXCHANGEABLE IONS IN MONTMORILLONITE CLAY IN AQUEOUS SUSPENSION HAS BEEN STUDIED. THE PERCENT OF THE INITIAL ION CONCENTRATION EXCHANGED INTO THE CLAY HAS BEEN DETERMINED AS A FUNCTION OF THE INITIAL CONCENTRATION. THIS DATA IS USEFUL IN THE PREPARATION OF CLAY HAVING A HIGH SPECIFIC ACTIVITY. IT WAS FOUND THAT CLAY CAN BE PREPARED WHICH HAS A SPECIFIC ACTIVITY OF 2 MCI PER MG FOR CS-137 AND 6 MCI PER MG FOR Y-91 AND CE-144.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *FISSION PRODUCT TRANSPORT + *WASTE HANDLING + ACTIVITY BUILDUP + CERIUM + CESIUM + RADIOCHEMICAL PROCESSING + STRONTIUM + YTTRIUM

7-24372 ALSO IN CATEGORY 4
KASSNER TF + SMITH DL
CALCULATIONS ON THE KINETICS OF OXYGEN SOLUTION IN TANTALUM AND NIOBIUM IN A LIQUID-SODIUM ENVIRONMENT
ARGONNE NATIONAL LABORATORY, ILL.
ANL-7335 +. 22 PAGES, FIGURES, REFERENCES, SEPTEMBER 1967

THE ACTIVATION ENERGY FOR THE SOLUTION PROCESS WAS LESS THAN THE ACTIVATION ENERGY FOR OXYGEN DIFFUSION IN THE REFRACTORY METALS. AT LOW OXYGEN CONCENTRATIONS IN SODIUM, PLOTS OF THE LOGARITHM OF THE PARABOLIC RATE CONSTANTS VERSUS RECIPROCAL TEMPERATURE WERE NONLINEAR FOR LOW INITIAL OXYGEN CONCENTRATIONS IN THE REFRACTORY METALS. ALSO, ON THE BASIS OF PHASE EQUILIBRIA CALCULATIONS IN THE TA-O-NA AND NB-O-NA SYSTEMS, WE HAVE PREDICTED THE CONDITIONS OF TEMPERATURE AND OXYGEN CONCENTRATION IN SODIUM OVER WHICH THE PHASES TANTALUM AND TA2O5, AND NIOBIUM, NBO, AND NBO2 ARE THERMODYNAMICALLY STABLE IN SODIUM.

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

*CHEMICAL KINETICS + *NIOBIUM + *SODIUM + *TANTALUM + ACTIVATION ENERGY + COOLANT CHEMISTRY + OXYGEN + THERMAL EXPERIMENT

7-24380
CASTLEMAN AW + MUNKELWITZ HR
THE DIFFUSION OF IODINE IN URANIUM MONOCARBIDE
BROOKHAVEN NATIONAL LABORATORY
BNL-12212 +. 4 PAGES, 1 FIGURE, JANUARY 1968

THE DIFFUSIVITY OF IODINE IN URANIUM MONOCARBIDE WAS MEASURED OVER THE TEMPERATURE RANGE 1524 TO 1760 C UTILIZING A CONTINUOUS FLOW TECHNIQUE. THE EXPERIMENTS WERE CARRIED OUT WITH 0.3-CM-DIAM HYPOSTOICHIOMETRIC URANIUM CARBIDE SPHERES HAVING AN AVERAGE CARBON CONTENT OF 4.60 WT % AND A U-235 ENRICHMENT OF 5.0%. BEFORE AN EXPERIMENT, EACH OF THE SPECIMENS WAS IRRADIATED IN THE BROOKHAVEN GRAPHITE RESEARCH REACTOR TO AN INTEGRATED NEUTRON DOSE OF 3 X 10 TO THE 18 TO BUILD UP A SUFFICIENT IODINE CONCENTRATION FOR RADIOACTIVE-TRACER MEASUREMENTS. THE DATA FROM THESE EXPERIMENTS TOGETHER WITH INFORMATION ON VARIATION OF THE UC MICROSTRUCTURE AS A FUNCTION OF TIME AND TEMPERATURE INDICATED THAT DIFFUSION WITHIN THE GRAIN IS THE RATE-CONTROLLING PROCESS. THE ACTIVATION ENERGY OF 110 KCAL/MOLE FOR IODINE DIFFUSION IS APPROXIMATELY 25 KCAL/MOLE LARGER THAN THE ACTIVATION ENERGIES REPORTED FOR CARBON AND URANIUM SELF-DIFFUSION IN THE CARBIDE.

AVAILABILITY - A. W. CASTLEMAN OR H. R. MUNKELWITZ, BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK 11973

CHEMICAL KINETICS + DIFFUSION + FISSION PRODUCT TRANSPORT + FISSION PRODUCT, IODINE + THERMAL EXPERIMENT + URANIUM CARBIDE

7-24381
POSTMA AK + SCHWENDIMAN LC
CURRENT RESEARCH ON AEROSOLS AT PACIFIC NORTHWEST LABORATORY
BATTELLE MEMORIAL INSTITUTE
4 PAGES, J. AIR POLLUT. CONTR. ASS. 17, PAGES 599-602 (SEPT. 1967)

BRIEF SUMMARIES ARE GIVEN OF CURRENT RESEARCH ON AEROSOLS AT THE PACIFIC NORTHWEST LABORATORY. THESE INCLUDE STUDIES OF THE DEPOSITION, FLOW PATTERNS, PRECIPITATION, AND INHALATION OF PARTICLES IN GASES AND IN THE ATMOSPHERE, AND AEROSOL RESEARCH RELATED TO NUCLEAR SAFETY.

*AEROSOL + *AIR CLEANING + *BATTELLE NORTHWEST + *RADIATION SAFETY AND CONTROL + AEROSOL PRODUCTION + DEPOSITION + FLOW, GENERAL + PARTICLE SIZE DISTRIBUTION + PLUTONIUM

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24382 ALSO IN CATEGORY 4
DAVYDOV EF + ZAVIDOVSKII VU + SOCHILIN GI + SYUZYEV VN + CHUSHKIN YV
THE GENERATION OF GAS FROM IRRADIATED BERYLLIUM OXIDE AND BORON CARBIDE IN AN ISOTHERMAL ANNEALING PROCESS
3 PAGES, FIGURES, REFERENCES, AT. ENERG. (USSR), 22(6), PAGES 501-3 (JUNE 1967) IN RUSSIAN

THE RELEASE OF GASES FROM IRRADIATED BEO AND B4C WAS INVESTIGATED ON SPECIMENS OF ANNEALED, DISPERSED, BEC AND B4C POWDERS, USING NATURAL B. THE COMPACTED POWDERED SPECIMENS, POSSESSING 20% POROSITY WERE EXPOSED TO AN INTEGRAL FLUX OF 8×10^{20} THERMAL NEUTRONS PER CM SQUARED AT A TEMPERATURE NOT EXCEEDING 200 C WHILE PLACED IN STAINLESS-STEEL TUBES. THE B-10 AMOUNTED TO 80%. THE TUBES WERE PIERCED IN A HOT CELL TO DETERMINE THE AMOUNT OF GAS RELEASED DURING ANNEALING AT TEMPERATURES RAISED GRADUALLY TO 1100 C. COMPARISON WITH UNIRRADIATED SPECIMENS REVEALED THAT THE SMALL AMOUNT OF ADSORBED GASES MAY BE NEGLECTED. IT WAS FOUND THAT 70% OF THE GASES WAS RELEASED FROM THE BEO WITHIN 250 TO 300 C. THE REMAINING 30% WAS RELEASED WITHIN THE 700 TO 900 C RANGE. IN THE CASE OF B4C, THE RELEASE STARTED AT 400 C AND REACHED ITS MAXIMUM BETWEEN 400 AND 500 C.

*BERYLLIUM + *CARBIDE + *MODERATOR + *OXIDE + *RADIATION DAMAGE + *RELEASE RATE + FISSION GAS RELEASE + RADIATION EFFECT + THERMAL EXPERIMENT

7-24383
CHAMBERLAIN AC
RADIOACTIVE AEROSOLS AND VAPOURS
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, BERKSHIRE, ENGLAND
22 PAGES, FIGURES, TABLES, REFERENCES, CONTEMPORARY PHYSICS, 8(6), PAGES 561-581 (1967)

RADIOACTIVE SUBSTANCES MAY BE PRESENT IN AIR AS DUST, FUME, OR VAPOR, VERY OFTEN ATTACHED TO THE NATURAL AEROSOL. MANY NUCLIDES ARE PRODUCED IN THE UPPER ATMOSPHERE BY THE INTERACTION OF COSMIC RAYS AND ATMOSPHERIC GASES, AND AS A RESULT OF NUCLEAR REACTOR TESTS. RADIO-IODINE HAS ALSO BEEN RELEASED ACCIDENTALLY FROM NUCLEAR REACTORS. RADIOACTIVE VAPOURS AND AEROSOLS HAVE BEEN USED TO STUDY MASS TRANSFER BETWEEN AIRSTREAMS AND SURFACES. THE RESULTS ARE APPLICABLE TO PROBLEMS SUCH AS THE TRAVEL AND DEPOSITION OF SPORES AND POLLEN.

*AEROSOL + *AIRBORNE RELEASE + *FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, IODINE + *PARTICLE SIZE DISTRIBUTION + *PARTICULATE + *RADIOACTIVITY RELEASE + ATMOSPHERIC CHEMISTRY + ELECTRON MICROSCOPY + FALLOUT + IODINE + MASS TRANSFER + PLUTONIUM + RADON + SMOKE + THORON + VAPOR, VAPOR PRESSURE + WATER VAPOR

7-24384
PIEKAAR HW + CLARENBURG LA
AEROSOL FILTERS - PORE SIZE DISTRIBUTION IN FIBROUS FILTERS
NATIONAL DEFENCE RESEARCH ORGANIZATION T.N.O., RIJSWIJK, THE NETHERLANDS
9 PAGES, FIGURES, CHEMICAL ENGINEERING SCIENCE, 22, PAGES 1399-1408 (1967)

A FIBROUS FILTER HAS BEEN DEPICTED AS A RANDOM ARRAY OF CYLINDERS TRANSVERSE TO FLOW DIRECTION. PROPERTIES OF THE RESULTING AGGREGATE OF INTERLOCKING PORES ARE EVALUATED. TO THIS END A MONTE CARLO TECHNIQUE IS APPLIED TO GENERATE AN ISOTROPIC RANDOM LINE ARRAY. IT COULD BE PROVED THAT PROPERTIES DERIVED FOR THIS MATHEMATICAL LINE MODEL, RETAIN THEIR VALIDITY FOR ACTUAL FILTERS. THE LOGARITHMIC-NORMAL DISTRIBUTION FUNCTION IS SHOWN TO BE REPRESENTATIVE FOR THE DISTRIBUTION OF THE SURFACE AREAS OF THE PORES AND OF THEIR HYDRAULIC RADIUS. THE GEOMETRIC STANDARD DEVIATIONS OF BOTH DISTRIBUTIONS ARE INDEPENDENT OF THE NUMBER OF FIBRES PER UNIT OF FILTER AREA. EXPRESSIONS COULD BE ESTABLISHED FOR THE GEOMETRIC MEAN HYDRAULIC RADIUS AND FOR THE NUMBER OF PORES PER UNIT OF FILTER AREA.

AEROSOL + ANALYTICAL MODEL + FILTER + FILTER, FIBER + PARTICLE SIZE DISTRIBUTION + THEORETICAL INVESTIGATION

7-24385
TANG IN + CASTLEMEN AW
RADIATION INDUCED DECOMPOSITION OF METHYL IODIDE IN AIR
BROOKHAVEN NATIONAL LABORATORY, UPTON, N.Y.
BNL-12219 +. 4 PAGES, 1 FIGURE, JANUARY 1968, SUBMITTED TO JUNE 1968 AHS MEETING, TORONTO, CANADA

THE PHOTOCHEMICAL OXIDATION OF CH₃I IN PURE OXYGEN HAS BEEN STUDIED EXTENSIVELY. HOWEVER, NO DATA ON THE STABILITY OF CH₃I IN A COMBINED RADIATION AND OXIDIZING ENVIRONMENT IS AVAILABLE IN THE LITERATURE. THIS PAPER PRESENTS THE RESULTS OF A STUDY ON THE CO-60 GAMMA-RAY-INDUCED DECOMPOSITION OF CH₃I IN AIR. THE INFORMATION IS OF BOTH FUNDAMENTAL AND PRACTICAL INTEREST SINCE CH₃I HAS BEEN SHOWN TO FORM WHEN CARRIER-FREE AMOUNTS OF IODINE ARE RELEASED UNDER CONDITIONS LIKELY TO EXIST IN A REACTOR ACCIDENT.

AVAILABILITY - A.W. CASTLEMEN, BROOKHAVEN NATIONAL LAB., UPTON, N. Y.

*CHEMICAL KINETICS + *GAMMA + *ORGANIC IODIDE + *RADIATION DAMAGE + *RADIATION EFFECT + CHROMATOGRAPHY + FISSION PRODUCT, IODINE + OXIDATION

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24386 ALSO IN CATEGORY 4
QUARTERLY TECHNICAL PROGRESS REPORT, JANUARY-MARCH 1967. AEC UNCLASSIFIED PROGRAMS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NAA-SR-12395 +. 183 PAGES, FIGURES, TABLES, MAY 31, 1967

THIS QUARTERLY PROGRESS REPORT INCLUDES A DESCRIPTION OF CURRENT ACTIVITIES RANGING FROM
CROSS-SECTION ANALYSIS TO DYNAMIC-LOOP TESTING.

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

*ATOMICS INTERNATIONAL + *COOLANT CHEMISTRY + *FAILURE, FUEL ELEMENT + *FISSION PRODUCT TRANSPORT +
*CUT OF PILE LOOPS AND EXPERIMENTS + *REACTOR, LMC + *SODIUM + FUEL ELEMENT + FUEL INTEGRITY +
METAL, LIQUID + RADIATION DAMAGE + RADIATION SAFETY AND CONTROL + RADIOCHEMICAL PROCESSING

7-24391
FAITH LE + BUSTANY SN + HANSON DN + WILKE CR
PARTICLE PRECIPITATION BY SPACE CHARGE IN TUBULAR FLOW
UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF.
8 PAGES, INDUSTRIAL AND ENGINEERING CHEMISTRY, FUNDAMENTALS, 6(4), PAGES 519-526 (NOVEMBER 1967)

PRECIPITATION OF CHARGED PARTICLES BY THEIR OWN SPACE CHARGE IS INVESTIGATED BOTH
THEORETICALLY AND EXPERIMENTALLY. MATHEMATICAL MODELS ARE DEVELOPED FOR THE PRECIPITATION OF
CHARGED PARTICLES FROM A GAS MOVING THROUGH A CYLINDRICAL PRECIPITATOR. COMPARISON OF
CALCULATED RESULTS FOR PLUG-FLOW AND TURBULENT-FLOW MODELS DEMONSTRATES THAT PRECIPITATION
RATES MAY BE SATISFACTORILY PREDICTED BY THE PLUG-FLOW MODEL. EXPERIMENTAL POINTS VERIFY THE
CALCULATIONS.

*ANALYTICAL MODEL + *ELECTROSTATIC CHARGE + *PARTICULATE + AEROSOL + FLOW, GENERAL + SPRAY, GENERAL +
THEORETICAL INVESTIGATION

7-24392
NAKAJIMA Y + GOTOH K + TANAKA T
ON-LINE PARTICLE SIZE ANALYZER
HOKKAIDO UNIVERSITY, SAPPORO, JAPAN
6 PAGES, FIGURES, INDUSTRIAL AND ENGINEERING CHEMISTRY, FUNDAMENTALS 6(4), PAGE 687-692 (NOVEMBER 1967)

TWO NEW INSTRUMENTS FOR ON-LINE MEASUREMENT OF PARTICLE FINENESS ARE DESCRIBED. EXPERIMENTAL
RESULTS SHOW THAT AVERAGE PARTICLE SIZE CAN BE DETECTED CONTINUOUSLY WITHIN ABOUT 10 TO 15
SEC AND THE CUMULATIVE OVERSIZE DISTRIBUTION CURVE OBTAINED IN LESS THAN 1 MIN. ONLY
PARTICLES FROM 100 TO 500 MICRONS WERE OBSERVED.

*ANALYTICAL TECHNIQUE, AIR + *PARTICLE SIZE + *PARTICLE SIZE DISTRIBUTION + *SAMPLING +
INSTRUMENTATION, AIR SAMPLING

7-24393
POLLOCK WA + TOMANY JP + FRIELING G
FLUE-GAS SCRUBBER
WISCONSIN ELECTRIC POWER COMPANY
5 PAGES, FIGURES, MECHANICAL ENGINEERING, 89(8), PAGES 21-25 (AUG. 1967)

A WET SCRUBBER HAS BEEN INSTALLED AT THE 120-MW OAK CREEK UNIT TO REMOVE SO₂ AND FLY ASH FROM
FLUE GAS. A TURBULENT CONTACT ABSORBER IS USED, THE ABSORPTION BEDS COMPRISING 1.5 IN HOLLOW
POLYPROPYLENE SPHERES. SODIUM CARBONATE WAS THE MOST EFFECTIVE ABSORBENT. FLY ASH
COLLECTION EFFICIENCIES OF 98% AND 91% SO₂ REMOVAL WERE ATTAINED. TRIALS WERE ALSO CONDUCTED
WITH LIMESTONE INJECTION INTO THE FURNACE.

*AIR CLEANING + *SCRUBBER + *SMOKE + *SULFUR DIOXIDE + FILTER + FILTER SPRAY + PARTICULATE + SPRAY, GENERAL

7-24394
GOUGH JR + KERN D
STUDIES ON THE COATING OF FUEL PARTICLES FOR THE DRAGON REACTOR EXPERIMENT
AEE, WINFRITH, ENGLAND
20 PAGES, FIGURES, JOURNAL OF NUCLEAR ENERGY, 21(8), PAGES 623-642 (AUG. 1967)

THE REQUIREMENTS OF FISSION PRODUCT RETAINING COATINGS ON COATED FUEL PARTICLES ARE REVIEWED
AND THE SCOPE OF DEVELOPMENT NECESSARY TO MEET THESE REQUIREMENTS FOR THE INITIAL CHARGES OF
THE DRAGON REACTOR EXPERIMENT IS DESCRIBED. THESE STUDIES ON THE COATING OF FUEL PARTICLES
WERE CARRIED OUT USING A LABORATORY SCALE FLUIDIZED BED TYPE OF COATING FURNACE. THE RATE OF
DEPOSITION OF PYROLYTIC CARBON WAS FOUND TO INCREASE LINEARLY WITH METHANE CONCENTRATION AT A
GIVEN TEMPERATURE, AND WITHIN SPECIFIED LIMITS OF METHANE CONCENTRATION SUCH THAT THE
RELATIONSHIP WAS LINEAR WITHIN EACH OF TWO SEPARATE RANGES OF CONCENTRATION CORRESPONDING TO
THE DIFFERENT METALLOGRAPHIC STRUCTURES. THE DEPOSITION OF SILICON CARBIDE INTERLAYERS FROM
METHYLTRICHLOROSILANE IS DESCRIBED.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24394 *CONTINUED*
*COATED PARTICLE + *DRAGON (HTGR) + *FISSION GAS RELEASE + *FISSION PRODUCT RETENTION + *PYROLYTIC +
CARBIDE + CARBON + DEPOSITION + DIFFUSION + FUEL INTEGRITY + REACTOR, HTGR + SILICON

7-24395
IWAI S + INOUE Y + TERASIMA Y + SUGAWARA M
REMOVAL OF RADIOACTIVE IODINE VAPOR WITH ION-EXCHANGER
KYOTO UNIVERSITY
10 PAGES, 6 FIGURES, 7 TABLES, 3 REFERENCES, NIPPON GENSHIYOKU GAKKAISHI 9, PAGES 249-58 (MAY 1967) (IN
JAPANESE)

THE USE OF ION EXCHANGE MATERIALS FOR THE REMOVAL OF RADIOACTIVE IODINE FROM AIR STREAMS IS
INVESTIGATED. EXPERIMENTS WERE CARRIED OUT WITH ION EXCHANGE RESIN, LIQUID ION EXCHANGERS
AND OTHER MATERIALS TO EVALUATE THE REMOVAL EFFICIENCY AND FACTORS AFFECTING THE REMOVAL. A
PACKED COLUMN OF AMBERLITE-IRA-400-OH SHOWED A HIGH EXCHANGE ABSORPTION CAPACITY FOR GASEOUS
IODINE. THE PRESENCE OF 50% CO₂ IN THE AIR STREAM PROVIDED LITTLE INTERFERENCE WITH THE
EXCHANGE ABILITY OF AMBERLITE DUE TO THE LARGE MASS ACTION CONSTANT BETWEEN IODIDE AND
CARBONATE IONS. AN AMINE SHOWED SMALLER REMOVAL EFFICIENCY THAN SOLUTIONS OF EITHER SILVER
NITRATE, SODIUM HYDROXIDE, OR SODIUM THIOSULFATE UNDER CONDITIONS OF IDENTICAL VOLUME AND
CONCENTRATION.

*DECONTAMINATION FACTOR + *FISSION PRODUCT, IODINE + *ION EXCHANGE + *RESIN + AIR CLEANING +
CARBON DIOXIDE + IODINE

7-24396
WATSON GM + PEREZ RB + FONTANA MH
EFFECTS OF CONTAINMENT-SYSTEM SIZE ON FISSION-PRODUCT BEHAVIOR
OAK RIDGE NATIONAL LABORATORY
10 PAGES, 7 FIGURES, 2 TABLES, 8 REFERENCES, NUCLEAR SAFETY 9(2), PAGES 128-37 (MAR.-APR. 1968)

SIMPLE MATHEMATICAL MODELS ARE POSTULATED TO ASSESS THE EFFECT OF CONTAINMENT-VESSEL SIZE ON
RATE OF DEPOSITION OF RADIOIODINE FROM GAS MIXTURES BOTH WITH AND WITHOUT CONDENSABLE STEAM.
FOR SYSTEMS WITHOUT STEAM IT IS ASSUMED THAT THE ACTIVE SPECIES IS MOLECULAR IODINE, THAT
COMPLETE MIXING OCCURS IN THE GAS PHASE, AND THAT THE RATE-LIMITING PROCESS IS DIFFUSION
THROUGH A STAGNANT BOUNDARY LAYER OF GAS PRESUMED TO ENVELOP ALL SURFACES. MATHEMATICAL
EXPRESSIONS IN TERMS OF MASS-TRANSFER COEFFICIENTS AND SURFACE-TO-VOLUME RATIOS OF CONTAINERS
AND SURFACE CHARACTERIZATION PARAMETERS ARE DEVELOPED FOR CASES WITH AND WITHOUT DESORPTION
FROM PARTIALLY COVERED SURFACES.

*CONTAINMENT RESEARCH AND DEVELOPMENT + *FISSION PRODUCT TRANSPORT + *STEAM + *THEORETICAL INVESTIGATION +
CONTAINMENT SPRAY + DEPOSITION + MASS TRANSFER + SPRAY, GENERAL

7-24397
KIPPING PJ + JEFFERY PG + SAVAGE CA
APPLICATIONS OF CONTINUOUS FLOW METHODS IN GAS ADSORPTION STUDIES
WARREN SPRING LABORATORY, GREAT BRITAIN
5 PAGES, 6 FIGURES, 9 REFERENCES, RESEARCH AND DEVELOP. FOR INDUSTRY 39, PAGES 18-22 (1965)

NEW METHODS, USING TECHNIQUES ORIGINALLY DEVELOPED FOR GAS CHROMATOGRAPHY AND BASED UPON
CONTINUOUS MEASUREMENT OF THE THERMAL CONDUCTIVITY OF A GAS STREAM, HAVE BEEN APPLIED TO THE
DETERMINATION OF GAS ADSORPTION. THE APPARATUS REQUIRED FOR THIS CAN ALSO BE USED, WITH
LITTLE MODIFICATION, FOR THE DETERMINATION OF OTHER PROPERTIES, INCLUDING METAL SURFACE AREA
(BY A CHEMISORPTION MECHANISM), ADSORPTION ISOTHERMS, DENSITY, AND POROSITY.

*ADSORPTION + *ANALYTICAL TECHNIQUE, AIR + *CHARCOAL + *SULFUR DIOXIDE + CHEMISORPTION + CHROMATOGRAPHY +
INSTRUMENTATION, AIR SAMPLING + SURFACE, GENERAL

7-24398
IWAMOTO K + OISHI J
ANALYSIS OF THE ESCAPE BEHAVIOR OF XENON CAPTURED IN GRAPHITE BY NUCLEAR RECOIL, (II)
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
12 PAGES, 12 FIGURES, 1 TABLE, 11 REFERENCES, J. NUCL. SCI. TECHNOL (TGKYO) 4, PAGES 431-42 (AUGUST 1967)

THE ESCAPE OF XE-133 INTRODUCED INTO NATURAL GRAPHITE BY RECOIL FROM UO₂ PARTICLES WAS STUDIED
AT TEMPERATURES RANGING FROM 200 TO 1450 C AND THE RESULTING DATA CORRELATED WITH THE
DURATION OF ISOTHERMAL POSTIRRADIATION HEATING. THE ESCAPE DATA WERE USED TO VERIFY THE
PROPOSED ESCAPE MECHANISM, WHICH POSTULATES THREE SUCCESSIVE PROCESSES--RELEASE FROM TRAPPING
SITE, DIFFUSION OF THE RELEASED XENON, AND DESORPTION FROM SURFACE.

*FISSION GAS RELEASE + *FISSION RECOIL + *GRAPHITE + *XENON + DIFFUSION + MATHEMATICAL TREATMENT +
RADIATION DAMAGE + RADIATION EFFECT + THEORETICAL INVESTIGATION

7-24399
BARRER RM
SPECIFICITY IN PHYSICAL SORPTION

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24399 *CONTINUED*
IMPERIAL COLLEGE, LONDON, S.W.
19 PAGES, 12 FIGURES, 6 TABLES, 33 REFERENCES, JOURNAL OF COLLOID AND INTERFACE SCIENCE 21, PAGES 415-434 (1966)

THE ABILITY OF A SORBENT TO PRODUCE HIGH VACUA DEPENDS UPON THE ACCESSIBLE AREA IT PRESENTS AND UPON THE AFFINITY IT SHOWS FOR THE GASES WHICH ARE TO BE REMOVED. THERE ARE VARIOUS SORBENTS OF HIGH AREA WHICH IN CERTAIN CASES CAN BE RELATIVELY SELECTIVE. THE DIVERSITY OF THE ENERGY TERMS WHICH MAY CONTRIBUTE TO THE PHYSICAL BOND HELPS, TOGETHER WITH PORE GEOMETRY, TO DETERMINE SELECTIVITY, AND POROUS (ZEOLITIC) AND NONPOROUS SORBENTS ARE CONSIDERED AND COMPARED FROM THESE VIEW-POINTS. A PROCEDURE IS SUGGESTED FOR ESTIMATING ELECTROSTATIC ENERGIES, ASSOCIATED WITH PERMANENT ELECTRIC MOMENTS, AS AGAINST DISPERSION AND POLARIZATION ENERGIES. THE ELECTROSTATIC ENERGIES CAN RENDER MOLECULAR SIEVE ZEOLITES HIGHLY SPECIFIC. SPECIFICITY OF A GIVEN SORBENT CAN ALSO BE MODIFIED BY CHEMICAL TREATMENT (CARBON AND SILICA GEL) OR BY CATION EXCHANGE AND BY DECATIONIZATION (MOLECULAR SIEVES).

*ELECTROSTATIC CHARGE + *MOLECULAR SIEVE + *SORPTION + ADSORPTION + RESIN

7-24410
GENCO JM + ROSENBERG HS + BERRY DA + BERRY WE + CREMEANS GE + MORRISON DL
FISSION PRODUCT DEPOSITION AND ITS ENHANCEMENT UNDER REACTOR ACCIDENT CONDITIONS. QUARTERLY PROGRESS REPORT FOR OCTOBER-DECEMBER 1967
BATTTELLE MEMORIAL INSTITUTE
BMI-X-10222 + EURAEC-1994 +. 42 PAGES, 24 FIGURES, 14 TABLES, 9 REFERENCES, JAN. 1, 1968

FUNDAMENTAL EXPERIMENTAL STUDIES WILL BE PERFORMED FOR BOTH CONTAINMENT- AND PRIMARY-SYSTEM SURFACES TO DETERMINE THE KINETIC BEHAVIOR OF IODINE AND ITS FISSION-PRODUCT PRECURSORS DURING REACTION AND DEPOSITION UNDER CONDITIONS POSTULATED FOR SERIOUS REACTOR ACCIDENTS. TO DEVELOP A SURFACE COATING CAPABLE OF RETAINING IODINE RELEASED IN AN ACCIDENT, POLYMER FILMS THAT HAVE A POTENTIAL OF REACTING WITH IODINE, HI, AND ALKYL IODIDES WILL BE CONSIDERED, AS WELL AS REACTIVE PIGMENTS IN EITHER CONVENTIONAL COATINGS OR IN A TYPE OF COATING THAT HAS A PROPENSITY TO REACT WITH FISSION PRODUCTS. THE COATINGS WHICH ARE DEVELOPED WILL BE EVALUATED FOR THEIR SORPTIVE EFFECTIVENESS, AND THE OPTIMUM METHOD OF APPLICATION OF THE COATING WILL BE DETERMINED.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*COATING, SURFACE + *FISSION PRODUCT, IODINE + *ORGANIC IODIDE + *SURFACE, GENERAL + *SURFACE, PAINTED + ADSORPTION + DEPOSITION + DESORPTION + IODINE + TELLURIUM

7-24451
BOUVILLE A + FONTAN J
RETENTION POWER OF FIBER PAPER FILTERS FOR SMALL RADIOACTIVE IONS IN THE AIR
UNIVERSITE DE TOULOUSE
3 PAGES, J. MEC. PHYS. ATMOS. 6, PAGES 9-11 (JAN.-MARCH 1964) (IN FRENCH)

THE EFFICIENCY OF FILTRATION OF SCHNEIDER-POELMAN FIBROUS FILTERS WAS MEASURED FOR RN DESCENDANTS CREATED IN THE DISINTEGRATION CHAMBERS OF AN APPARATUS USED FOR MEASURING DOSES OF RADIOACTIVE GASES. FOR AEROSOLS LESS THAN 1/10 MICRON IN DIAMETER, FILTER PAPER IS EXTREMELY EFFECTIVE BECAUSE THE AEROSOLS ARE STOPPED BY DIFFUSION ON THE FIBERS. FURTHERMORE IT WAS INFERRED THAT ACTIVE DEPOSITS OF RADON AND THORON DO NOT HAVE TO BE FIXED IN THE ATMOSPHERE ON THE LARGER AEROSOLS TO BE FILTERED OUT AND MEASURED.

*ELECTROSTATIC CHARGE + *FILTER EFFICIENCY + *TESTING + *TRACER, RADIOACTIVE + ADSORPTION + AEROSOL + FILTER + FILTER, FIBER + FILTER, PAPER + RADON

7-24453
REIST PC
STEADY-STATE MEASUREMENT OF KR-85--AIR DIFFUSION COEFFICIENTS IN POROUS MEDIA
HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON
4 PAGES, 4 FIGURES, 1 TABLE, 10 REFERENCES, ENVIRON. SCI. TECHNOL. 1 (7) PAGES 566-9 (JULY 1967)

A DIFFUSION CELL WAS DESIGNED AND USED TO MEASURE DIFFUSION COEFFICIENTS OF KR-AIR MIXTURES UNDER VARIOUS CONDITIONS OF POROSITY AND MOISTURE CONTENT FOR EVALUATION OF POROUS UNDERGROUND FORMATIONS FOR THE RETENTION AND DISPOSAL OF WASTE KR-85. RESULTS REPRESENT TO A GOOD APPROXIMATION THE ACTUAL DIFFUSION COEFFICIENT OF AIR-KR-85 IN POROUS MEDIA. SINCE GROSS AIR FLOWS THROUGH THE SAMPLE WERE MAINTAINED AT LEAST BELOW 0.15 CC/SEC, MEASUREMENT ERRORS DUE TO PRESSURE DIFFERENCE ACROSS THE SAMPLE WERE AT MOST LESS THAN 10% OF THE TRUE VALUE OF THE DIFFUSION COEFFICIENT. IT WAS FOUND THAT THE ADDITION OF MOISTURE TO A POROUS MEDIA GREATLY INCREASES ITS ABILITY TO RETAIN OR RETARD GASES TRAPPED WITHIN IT.

*DIFFUSION COEFFICIENT + *KRYPTON + *NOBLE GAS + *POROUS MEDIA + HUMIDITY

7-24455
KITANI S + TAKADA J
ADSORPTION OF KRYPTON AND XENON ON VARIOUS ADSORBENTS
6 PAGES, FIGURES, 3 TABLES, 11 REFERENCES, JOURNAL OF NUCLEAR SCIENCE AND TECHNOLOGY 2(2), PAGES 51-56

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24455 *CONTINUED*
(FEB. 1965)

KRYPTON AND XENON WERE ADSORBED ON THREE KINDS OF MOLECULAR-SIEVES (AW-500, 5A, AND 13X), AS WELL AS ON ACTIVATED CHARCOALS (TSURUMI-IIC-30, TAKEDA-G, -I) AT PRESSURES FROM 10 TO THE MINUS 2 MMHG TO 1 ATM AT TEMPERATURES RANGING FROM MINUS 78, 0, TO 25 C. THE ADSORPTION ISOTHERMS OF KRYPTON AND XENON ON MS-5A AND -13X ARE LINEARLY PROPORTIONAL TO PRESSURE, AND ARE CONSIDERED TO FOLLOW DE BOER TYPE ISOTHERMS. HOWEVER, THE ISOTHERMS FOR OTHER ADSORBENTS ARE SHOWN TO FOLLOW THE LANGMUIR PATTERN. ALL THE ISOTHERMS ARE DISCUSSED IN TERMS OF FUNCTIONS OF THE HEAT OF ADSORPTION AND SURFACE AREA. THE ADSORBENTS THAT SHOW THE LANGMUIR ISOTHERM PATTERN ARE CONSIDERED TO BE EFFICIENT FOR PRACTICAL USE IN REMOVING OR RECOVERING NOBLE GASES.

*ADSORPTION + *CHARCOAL + *KRYPTON + *MOLECULAR SIEVE + *NOBLE GAS + *XENON + CHARCOAL ADSORBER +
CHEMICAL KINETICS + THERMAL EXPERIMENT

7-24457

CUNINGHAME JG + GOODALL JA + KITT GP + WEBSTER CB + WILLIS HH
THE SEPARATION, PURIFICATION, MOUNTING, AND COUNTING OF FISSION PRODUCTS
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
AERE-R-5587 +. 83 PAGES, OCTOBER 1967

THE MAIN BODY OF THIS REPORT CONSISTS OF TWO PARTS. PROCEDURES FOR GROUP SEPARATION OF SPECIFIC FRESH FISSION PRODUCTS FROM EACH OTHER AND FROM UP TO GRAM AMOUNTS OF VARIOUS FISSIONABLE MATERIALS, AND PROCEDURES FOR PURIFYING THE SEPARATED FISSION PRODUCTS. THE PROCEDURES HAVE BEEN DEVELOPED OVER A PERIOD OF 18 YEARS AND HAVE BEEN CULLED FROM THE LABORATORY NOTEBOOKS OF ONE OF THE AUTHORS (J.G.C.). ALL OF THEM HAVE BEEN EXTENSIVELY EMPLOYED AND ARE NOW THE STANDARD METHODS USED IN OUR LABORATORY. THE SEPARATION PROCEDURES HAVE NOT BEEN PUBLISHED BEFORE AND WERE ALL DEVELOPED IN OUR LABORATORY. THE REPORT ALSO CONTAINS SECTIONS ON CARRIER PREPARATION AND STANDARDISATION, ON SOURCE MOUNTING, AND ON COUNTING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*AMERICIUM + *ANALYTICAL TECHNIQUE, CALIBRATION + *PLUTONIUM + *SOURCE MATERIAL + *URANIUM +
TRACER, RADIOACTIVE

7-24458

DE BOER JH + BRUEKHUFF JC + LINSSEN BG + MEIJER AL
STUDIES ON PORE SYSTEMS IN CATALYSTS VIII. THE ADSORPTION OF KRYPTON AND OF NITROGEN ON GRAPHITIZED CARBON
UNIVERSITY OF DELFT, THE NETHERLANDS
5 PAGES, 1 FIGURE, 14 REFERENCES, JOURNAL OF CATALYSIS 7, PAGES 135-139 (1967)

THE DEVIATION BETWEEN THE S-SUB-T AND THE S-SUB-BET VALUES FOUND WITH THE GRAPHITIZED CARBON BLACKS, IN ARTICLE VI OF THIS SERIES, IS CAUSED BY THE HOMOGENEITY OF THE GRAPHITIZED CARBON BLACKS, AS IS CLEAR FROM THE COMPARISON OF THE BEHAVIOR OF ADSORBED KRYPTON AND ADSORBED NITROGEN. A MONOLAYER CAPACITY IS DERIVED FROM THE KRYPTON ISOTHERM AND COMPARED WITH THE FIGURE DERIVED FROM THE S-SUB-T VALUE OF THE NITROGEN ISOTHERM. IF THE MOLECULAR AREA OF A NITROGEN MOLECULE IS FIXED AS TO BE 16.3 SQ. ANGSTROMS, THE KRYPTON VALUE SEEMS TO BE BETWEEN 15.3 AND 15.45.

ADSORPTION + CARBON + CHARCOAL + CHARCOAL ADSORBER + KRYPTON + NITROGEN + NOBLE GAS

7-24460

VYDRA M
DEVICE FOR CONTINUOUS MEASURING OF CONCENTRATIONS OF RADIOACTIVE AEROSOLS
CZECHOSLOVAK ACADEMY OF SCIENCES, REZ
2 PAGES, JAD. ENERG. 13, PAGES 25-6 (JAN. 1967)

A DEVICE IS DESCRIBED FOR CONTINUOUS MONITORING OF LONG-LIFE ALPHA-ACTIVE AEROSOLS. A COINCIDENCE METHOD WAS USED FOR COMPENSATING THE SHORT-LIFE ACTIVITY OF NATURALLY RADIOACTIVE PRECIPITATES.

*ANALYTICAL TECHNIQUE, CALIBRATION + *INSTRUMENTATION, RADIATION MONITORING + *MONITOR, RADIATION, AIR +
AEROSOL + ALPHA EMITTER + TRACER, RADIOACTIVE

7-24461

STARCUK Z + VYDRA M
MEASUREMENT OF SMALL AEROSOL CONCENTRATIONS OF LONG-LIVED ALPHA SOURCES
4 PAGES, JAD. ENERG. 13, PAGES 332-5 (SEPT. 1967)

A COMPENSATION OR COINCIDENCE METHOD WAS DEVELOPED FOR MEASURING NATURAL AEROSOLS. THE BASIC PARAMETERS WERE FOUND FOR OPTIMUM COMPENSATION IN THE STATE OF EQUILIBRIUM, DEFLECTION DUE TO THE INEQUILIBRIUM STATE, INFLUENCE OF STATISTICAL FLUCTUATION OF NUCLEAR DECAY, AND INFLUENCE OF INCIDENTAL COINCIDENCES. THE TIME DELAY BETWEEN THE WARNING SIGNAL OF THE PRESENCE OF ARTIFICIAL RADIOACTIVE AEROSOL AND THE MOMENT OF ITS APPEARANCE WAS ESTIMATED.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24461 *CONTINUED*
*ALPHA EMITTER + *ANALYTICAL TECHNIQUE, CALIBRATION + *MGNIOR, RADIATION, AIR + AEROSOL +
TRACER, RADIOACTIVE

7-24462
WALKER PL + PALMER HB + DIETHAM WS
RESEARCH ON GRAPHITE
PENNSYLVANIA STATE UNIVERSITY
TID-21415 +. 64 PAGES, DECEMBER 10, 1964

THE RESEARCH PROGRAM CAN BE CONVENIENTLY DIVIDED INTO THREE MAIN AREAS - CARBON FORMATION AND GRAPHITIZATION, GAS-GRAPHITE INTERACTION AND SOLID STATE STUDIES, AND MECHANISM OF FISSION GAS DIFFUSION IN GRAPHITE. THIS REPORT SUMMARIZES PERTINENT RESEARCH IN THESE AREAS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*DIFFUSION + *FILM, GENERAL + *FISSION PRODUCT TRANSPORT + *GRAPHITE + CARBON + OXIDATION

7-24463
SIMON RH + GITTERMAN M + WEBB GB
CHEMICAL ENGINEERING IN THE HTGR
GENERAL DYNAMICS, GENERAL ATOMICS DIVISION
GA-6126 + CONF-650559-1 +. 12 PAGES, 4 REFERENCES, TO BE PRESENTED AT THE AMERICAN INST. OF CHEM. ENG.
MEETING IN SAN FRANCISCO, MAY 17-19, 1965

THE HIGH-TEMPERATURE GAS-COOLED REACTOR (HTGR) SYSTEM IS AN ADVANCED TYPE OF NUCLEAR POWER SYSTEM EMPLOYING HELIUM COOLING AND GRAPHITE FUEL ELEMENTS WITHOUT METALLIC CLADDING. THE FIRST HTGR POWER PLANT, LOCATED AT PEACH BOTTOM, PENNSYLVANIA, ON THE PHILADELPHIA ELECTRIC COMPANY SYSTEM, IS UNDERGOING SHAKEDOWN AND START-UP TESTS. THIS PLANT HAS A DESIGN CORE OUTLET TEMPERATURE OF 1380 F, A STEAM TEMPERATURE OF 1000 F, AND A POWER OUTPUT OF 40,000 KW(E). BECAUSE OF THE HIGH REACTOR COOLANT TEMPERATURE FULL ADVANTAGE CAN BE TAKEN OF THE HIGH-TEMPERATURE STEAM CYCLES AND TURBINES DEVELOPED FOR CONVENTIONAL GENERATING PLANTS, THAT IS, WITH STEAM TEMPERATURES IN THE RANGE 1000 TO 1100 F. THE LARGE TEMPERATURE DIFFERENCE BETWEEN THE HELIUM AND THE STEAM IS AN IMPORTANT FACTOR IN REDUCING THE SIZE OF THE STEAM GENERATORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *GRAPHITE + *HELIUM + *PEACH BOTTOM 1 (HTGR) + *REACTOR, HTGR + ADSORPTION + FILTER +
REACTOR, GCR + STEAM

7-24465
KING J + BENSON SW
ELECTROSTATIC INTERACTIONS IN GAS-SOLID CHROMATOGRAPHY
CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CALIF.
5 PAGES, 2 FIGURES, 3 TABLES, 22 REFERENCES, ANALYTICAL CHEMISTRY 39(2), PAGES 261-65 (FEBRUARY 1966)

AN ELECTROSTATIC THEORY OF PHYSICAL ADSORPTION IS APPLIED TO GAS-SOLID CHROMATOGRAPHY AND PREDICTS THE ELUTION ORDER OF MANY GASES FROM COLUMNS. WHEN APPLIED TO THE SEPARATION OF THE RARE GASES AND METHANE ON A GAMMA AL₂O₃ COLUMN AT ROOM TEMPERATURE, THE THEORY NOT ONLY GIVES THE CORRECT ELUTION ORDER, BUT IT ALSO QUANTITATIVELY EXPLAINS THE BEHAVIOR OF METHANE ON THE COLUMN. THE THEORY GIVES A QUALITATIVE EXPLANATION OF THE CHROMATOGRAPHIC INSEPARABILITY OF ARGON AND OXYGEN AT ROOM TEMPERATURE. THE APPLICATION OF THE THEORY TO MOLECULAR SIEVE COLUMN LEADS TO THE SUGGESTION THAT ADSORPTION ON MOLECULAR SIEVES IS VERY SIMILAR TO ADSORPTION ON OTHER ADSORBENTS LIKE GAMMA ALUMINA AND SILICA GEL. THE THEORY PROPOSES THAT ADSORPTION ON ALL THESE ADSORBENTS IS GOVERNED BY ELECTROSTATIC INTERACTIONS. THIS CONCEPT WHEN APPLIED TO SIEVE COLUMNS LEADS TO REFUTATION OF THE ACCEPTED HYPOTHESIS THAT THE SEPARATION OF MOLECULES ON THE COLUMN IS CAUSED BY SOME TYPE OF SIEVE ACTION.

*ADSORPTION + *ALUMINUM + *CHROMATOGRAPHY + *ELECTROSTATIC CHARGE + *OXIDE + *THEORETICAL INVESTIGATION +
ARGON + SILICON

7-24632 ALSO IN CATEGORIES 17 AND 13
AEC-NFS CORRESPONDENCE ON NFS FILTER SYSTEM PROBLEMS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 33-34 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO COMPLIANCE, MARCH 22.) DISSOLVER OPERATIONS SUSPENDED AS DISSOLVER OFF-GAS FILTER FAILURES AND REPLACEMENTS ALLOWED MONTHLY RELEASE OF PARTICLES TO REACH 115%. (REPORT TO COMPLIANCE, MARCH 24) FILTER FAILURES DUE TO RADIATION WEAKENING ORGANIC BINDER OR GASKETS. (MARCH 26 TWX FROM COMPLIANCE) CONDITIONAL AUTHORIZATION TO RESUME OPERATIONS. (APRIL 2 LETTER FROM COMPLIANCE) LISTS 5 QUESTIONS TO BE ANSWERED IN REPORT - (1) CONSEQUENCES OF A PUFF RELEASE OF 100% OF MATERIAL IN FILTER. (2) MAXIMUM AMOUNT POSSIBLE ON FILTERS. (3) RADIATION-DAMAGE EFFECTS. (4) POSSIBILITY OF CHEMICAL AGENTS TRANSPORTED TO THE FILTER. (5) DO RADIATION/CHEMICAL AFFECTS AGGRAVATE EACH OTHERS EFFECTS.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-24632 *CONTINUED*

*AIRBORNE RELEASE + *FILTER, DAMAGED + AEC QUESTION + EFFLUENT + FUEL REPROCESSING + HAZARDS ANALYSIS + INSPECTION AND COMPLIANCE + NFS + RADIATION DAMAGE + STACK

7-24810

ALSO IN CATEGORIES 17 AND 5

MILLER PH

HIGHER TRIGA ARGON ACTIVITY FROM INCREASED TRANSFER COEFFICIENT

GULF GENERAL ATOMIC, INC.

1 PAGE, APRIL 5, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGE 10 (APRIL 22, 1968) DOCKET 50-227

(LETTER, APRIL 5) DURING A THERMIONIC TRIGA COMPLIANCE INSPECTION MARCH 6-7, AR-41 RELEASE FROM REACTOR POOL APPEARED TO BE HIGHER DUE TO TURBULENCE IN THE POOL WATER, INCREASING THE TRANSFER COEFFICIENT. RECALCULATING THE AR-41 ACTIVITY WITH THE HIGHEST COEFF. FROM SAR GIVES $8.2 \times 10^{(-6)}$ TH MICROCURIE/CC VS A MEASUREMENT OF $4 \times 10^{(-6)}$ TH. THE ACTIVITY DISCHARGED IS 6.4 RATHER THAN 2.48 MICROCURIES/SEC AND GIVES A MAX. DOWNWIND CONCENTRATION ONLY A FACTOR OF 6 LESS THAN MPC. THIS REQUIRES A DILUTION FACTOR OF 6.7. COMPUTATIONS ARE CONSERVATIVE BY A FACTOR OF 2.

*ARGON + *COMPARISON, THEORY AND EXPERIENCE + *REACTOR, POOL TYPE + *WATER, GENERAL + DILUTION + INSPECTION AND COMPLIANCE + PARTITION COEFFICIENT + REACTOR, RESEARCH + STACK + TRIGA (RR)

7-25086

ALSO IN CATEGORIES 11 AND 1

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR JANUARY-FEBRUARY 1968

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-TM-2164 +. 144 PAGES, TABLES, FIGURES, REFERENCES, MARCH 26, 1968

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 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 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
\$3.00 COPY, \$0.65 MICROFICHE

*CHEMICAL KINETICS + *CONTAINMENT, GENERAL + *CSE + *FISSION PRODUCT TRANSPORT + *FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *IN PILE EXPERIMENT + *LOFT (S-RR) + *NOZZLE + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT RETENTION + PRESSURE VESSEL + REACTOR, HTGR

7-25126

LOFING DR + BURNETTE RD

HIGH-TEMPERATURE ADSORPTION STUDIES FOR THE PSC REACTOR DEVELOPMENT PROGRAM

GULF GENERAL ATOMIC, INC., SAN DIEGO, CALIF.

GA-8083 +. 18 PAGES, 7 FIGURES, TABLES, REFERENCES, NOV. 30, 1967

EXPERIMENTAL WORK RELATED TO THE HIGH-TEMPERATURE FILTER-ADSORBER UNIT FOR THE PUBLIC SERVICE COMPANY OF COLORADO (PSC) REACTOR IS DESCRIBED. RESULTS - (1) NORMAL GAS FLOW AND PRESSURE CYCLING ARE NOT SUFFICIENT TO CAUSE APPRECIABLE DUSTING BY PARTICLE DEGRADATION IN A PACKED CARBON BED. (2) FOR LOW LOADINGS, THE PSC HIGH-TEMPERATURE FILTER-ADSORBER UNIT IS EXPECTED TO BE GREATER THAN 90% EFFICIENT IN REMOVING ENTRAINED DUST FROM A PROCESS STREAM. (3) IODINE IS ESSENTIALLY IRREVERSIBLY ADSORBED ON CARBON AT 400 C. REACTION WITH IMPURITIES TO FORM METAL IODIDES IS DEEMED LIKELY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ADSORPTION + *AEROSOL + *FILTER EFFICIENCY + *IODINE + *PARTICLE SIZE + *TESTING + EXPERIMENT, GENERAL + REACTOR, POWER

7-25133

KOPITA R + GLEASON TG

WET SCRUBBING OF BOILER FLUE GAS

PEABODY ENGINEERING CORP., NEW YORK, N. Y.

5 PAGES, 4 FIGURES, 3 TABLES, 5 REFERENCES, CHEMICAL ENGINEERING PROGRESS, 64(1), PAGE 74-78, (JANUARY 1968)

THE WET SCRUBBER, WHICH CAN REMOVE SULFUR DIOXIDE, NITROGEN OXIDES, AND PARTICULATE MATTER IN

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-25133 *CONTINUED*

A SINGLE UNIT, SHOULD BE CAREFULLY CONSIDERED WHEN INSTALLING AIR POLLUTION CONTROL EQUIPMENT ON A BOILER.

*AIR CLEANING + *NITROGEN + *OXIDE + *SCRUBBER + *SULFUR DIOXIDE + *WASTE TREATMENT, GAS + AEROSOL + PARTICULATE

7-25134

SMITH JL + SNELL HA

SELECTING DUST COLLECTORS

J. R. SIMPLOT CO., POCATELLO, IDA.

5 PAGES, 4 FIGURES, 3 TABLES, CHEMICAL ENGINEERING PROGRESS, 64(1), PAGE 60-64, (JANUARY 1968)

THE SELECTION OF THE FINAL COLLECTOR FOR A PHOSPHATE ROASTER WAS MADE ON THE BASIS OF A COLLECTION EFFICIENCY OF 99%. FABRIC BAGHOUSES, WET SCRUBBERS, AND ELECTROSTATIC PRECIPITATORS WERE CONSIDERED.

*AIR CLEANING + *ELECTROSTATIC PRECIPITATION + *FILTER, ROUGHING + *SCRUBBER + FILTER, BED + FILTER, FIBER

7-25135

CULHANE FR

PRODUCTION BAGHOUSES

THE WHEELABRATOR CORP., MISHAWAKA, IND.

9 PAGES, 13 FIGURES, CHEMICAL ENGINEERING PROGRESS, 64(1), PAGE 65-73, (JANUARY 1968)

PRODUCTION BAGHOUSES - ONE OF THE BEST ANSWER TODAY FOR EFFECTIVE CONTROL OF AIR POLLUTION, THIS METHOD OF GAS CLEANING HAS BEEN BROADLY APPLIED THROUGHOUT THE METALLURGICAL INDUSTRY.

*AIR CLEANING + *FILTER, ROUGHING + AEROSOL + FILTER, BED + FILTER, FIBER + METAL + OXIDE + ZINC

7-25136

STERN SA + CIPAULO FS

THE ADSORPTION OF ATMOSPHERIC GASES ON MOLECULAR SIEVES AT LOW PRESSURES AND TEMPERATURES. THE EFFECT OF PREADSORBED WATER

LINDE DIVISION, RESEARCH LABORATORY, UNION CARBIDE CORP., TONAWANDA, NEW YORK

9 PAGES, 13 FIGURES, 5 TABLES, 24 REFERENCES, JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY, 4(6), PAGE 347-355, (DEC. 1967)

THE ADSORPTION OF NITROGEN, HELIUM, NEON, AND AIR ON MOLECULAR SIEVES 5A, 10X, AND 13X WAS STUDIED AT 77.3 K AND IN THE PRESSURE RANGE FROM 0.01 TO 1×10^{-16} TORR. THE CAPACITIES OF FRESHLY ACTIVATED ADSORBENT SAMPLES FOR NITROGEN WERE FOUND TO INCREASE MARKEDLY BELOW 0.001 TORR AFTER CONSECUTIVE ADSORPTION-DESORPTION CYCLES. THE EFFECT OF PREADSORBED WATER IS TO DECREASE THE ADSORPTIVE CAPACITY OF MOLECULAR SIEVE 5A FOR NITROGEN. WHEN THE AMOUNT OF WATER EXCEEDS 7 WT%, THE CAPACITY FOR NITROGEN IS ALMOST COMPLETELY SUPPRESSED. IT IS SUGGESTED THAT THIS BEHAVIOR IS DUE TO THE MIGRATION OF HYDRATED CATIONS, WHICH BLOCK THE APERTURES TO THE CUBE OCTAHEDRAL CAVITIES OF THE ADSORBENT.

*ADSORPTION + *CRYOGENICS + *MOLECULAR SIEVE + *WATER VAPOR + AIR + HELIUM + NEON + NITROGEN + VAPOR, VAPOR PRESSURE

7-25137

AUTOMATIC CLOSURE DEVICE FOR ADJUSTING THE RATE OF FLOW OF GASES, ADAPTED TO AVOID DRAGGING OF NUCLEAR FUEL ELEMENTS BY THE GAS STREAM

SNAM S.P.A.

BRITISH PATENT 1,081,188 +. 2 PAGES, 3 FIGURES, AUGUST 1967, PATENT (BRITISH)

A HOLLOW CYLINDRICAL CLOSURE, OF PREDETERMINED WEIGHT, SUPPORTS FUEL ELEMENTS IN THE COOLING GAS CHANNEL OF A GRAPHITE-MODERATED REACTOR AND IS DESIGNED TO RISE IN THE CHANNEL AND THROTTLE GAS FLOW AS THE WEIGHT OF THE SUPPORTED FUEL ELEMENTS DECREASES, THUS PREVENTING EXPULSION OF THE FUEL ELEMENTS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*DESIGN CRITERIA + *DESIGN STUDY + *FLOW, GENERAL + *FUEL ELEMENT + *REACTOR, GCR + GRAPHITE

7-25138

ALSO IN CATEGORY 8

KOCH C + RANC R

METHOD OF INHIBITING THE CORROSION OF GRAPHITE IN NUCLEAR REACTORS

COMMISSARIAT A L-ENERGIE ATOMIQUE

BRITISH PATENT 1,084,922 +. 2 PAGES, SEPT. 1967, PATENT (BRITISH)

A METHOD OF INHIBITING THE CORROSION OF GRAPHITE IN GRAPHITE-MODERATED CO₂-COOLED NUCLEAR REACTORS IS GIVEN. THE ADDITION OF A COMPOUND CONTAINING SILICON AND HYDROGEN TO THE CO₂ AT A MINIMUM TEMPERATURE OF THE CO₂ IN THE REACTOR COOLING LOOP IS PERFORMED.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-25138 *CONTINUED*
AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)
*CARBON DIOXIDE + *COOLANT CHEMISTRY + *CORROSION + *GRAPHITE + REACTOR, GCR

7-25139
HOLMES JT + KOPPEL LB + JONKE AA
FLUIDIZED-BED DISPOSAL OF FLUORINE
ARGONNE NATIONAL LAB., ILL.
6 PAGES, 4 FIGURES, 4 TABLES, 16 REFERENCES, IND. ENG. CHEM., PROCESS DESIGN DEVELOP., 6, PAGE 408-413, (OCT. 1967)

A FLUIDIZED BED PROCESS DEVELOPED FOR THE DISPOSAL OF FLUORINE USING ACTIVATED ALUMINA AS THE REACTIVE SOLID, WAS FOUND TO BE OVER 99.9% EFFECTIVE IN THE REMOVAL OF FLUORINE FROM A GAS STREAM AND UTILIZED THE ACTIVATED ALUMINA TO NEAR THE THEORETICAL CONVERSION. IT HAS CAPABILITY FOR HIGH FLUORINE DISPOSAL RATES AND PRODUCES A FREE-FLOWING SOLID PRODUCT FOR WASTE DISPOSAL.

*FLUIDIZED BED + *FLUORINE + FUEL REPROCESSING + WASTE DISPOSAL, GAS

7-25142
ZUMWALT LR
FREVAP-8 CODE FOR ESTIMATING THE RELEASE OF METALLIC FISSION PRODUCTS FROM HTGR FUEL ELEMENTS
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF. GENERAL ATOMIC DIV.
GAMD-7535 +. 39 PAGES, DEC. 8, 1966

THE FREVAP-8 COMPUTER CODE IS DESCRIBED HEREIN AS IT EXISTED ON DECEMBER 8, 1966. THE CODE HAS BEEN IN CONTINUOUS DEVELOPMENT FOR 1 YEAR AND IN ITS PRESENT FORM HAS BEEN APPLIED SUCCESSFULLY BY GENERAL ATOMIC TO THE KIND OF PROBLEMS DISCUSSED LATER IN THIS REPORT. HOWEVER, THE DEVELOPMENT AND IMPROVEMENT OF THE CODE ARE BEING CONTINUED SO THAT DUPLICATION OF RESULTS (OR EVEN CLOSE AGREEMENT) BETWEEN PROBLEMS RUN WITH THE CODE AS PUBLISHED AND THE CODE AS IT EXISTED EITHER BEFORE OR AFTER THIS TIME IS NOT NECESSARILY TO BE EXPECTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*COMPUTER PROGRAM + *FISSION PRODUCT RELEASE, GENERAL + *FISSION PRODUCT TRANSPORT + FUEL ELEMENT + REACTOR, HTGR + THEORETICAL INVESTIGATION

7-25145
ARINO H + KRAMER H+
DETERMINATION OF SPECIFIC ACTIVITY OF I-131 SOLUTIONS VIA AN IODIDE ELECTRODE
UNION CARBIDE CORP., TUXEDO, NEW YORK
5 PAGES, 2 FIGURES, 3 TABLES, 10 REFERENCES, NUCLEAR APPLICATIONS, 4(5), PAGE 356-360, (MAY 1968)

THE SPECIFIC ACTIVITY OF I-131 SOLUTIONS IS CALCULATED FROM THE MEASURED I-131 ACTIVITY AND THE TOTAL IODIDE CONTENT. THE LATTER IS MEASURED RAPIDLY (WITHIN FIVE MINUTES) AND ACCURATELY (RELATIVE STANDARD DEVIATION OF PLUS OR MINUS 1%) WITH A RADIATION-SENSITIVE/IODIDE-SENSITIVE MEMBRANE ELECTRODE THAT PERMITS ACCURATE IODIDE MEASUREMENTS OF COMMERCIAL CARRIER-FREE HIGH-ACTIVITY I-131 SOLUTIONS.

*ANALYTICAL TECHNIQUE, LIQUID + *COOLANT CHEMISTRY + *FISSION PRODUCT, IODINE +
*INSTRUMENTATION, RADIATION MONITORING + *WATER, GENERAL + INSTRUMENTATION, GENERAL + RADIOISOTOPE + TRACER, RADIOACTIVE

7-25146
HILLIARD RK + COLEMAN LF + MCCORMACK JO
COMPARISONS OF THE CONTAINMENT BEHAVIOR OF A SIMULANT WITH FISSION PRODUCTS RELEASED FROM IRRADIATED UO-2
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-581 +. 80 PAGES, 59 FIGURES, 34 TABLES, 24 REFERENCES, MARCH 1968

EXPERIMENTS WERE PERFORMED IN WHICH EITHER SIMULANT AEROSOLS OR FISSION PRODUCTS RELEASED FROM HEATED TRACE-IRRADIATED UO2 WERE RELEASED INTO SMALL VESSELS CONTAINING CONDENSING STEAM-AIR ATMOSPHERES. THE BEHAVIOR OF THE TWO DIFFERENT TYPES OF AEROSOL MATERIALS WAS CHARACTERIZED AND COMPARED WITH EACH OTHER AND WITH TRANSPORT THEORY. THE CONCLUSION WAS THAT THE SIMULANT AEROSOL DEVELOPED FOR THE CONTAINMENT SYSTEMS EXPERIMENT (CSE) IS A FULLY SATISFACTORY SUBSTITUTE FOR REAL FISSION PRODUCTS IN CONTAINMENT TRANSPORT TESTS INVESTIGATING REMOVAL BY NATURAL PROCESSES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*AEROSOL PRODUCTION + *AEROSOL PROPERTIES + *CSE + *FISSION PRODUCT RELEASE, GENERAL + *SIMULATION + AEROSOL + CONTAINMENT RESEARCH AND DEVELOPMENT + FISSION PRODUCT TRANSPORT + TESTING

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-25147
SPIELMAN L + GOREN SL
MODEL FOR PREDICTING PRESSURE DROP AND FILTRATION EFFICIENCY IN FIBROUS MEDIA
DEPT. OF CHEMICAL ENGINEERING, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIF.
9 PAGES, 5 FIGURES, 1 TABLE, 35 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 2(4), PAGE 279-287,
(APRIL 1968)

BRINKMANS MODEL FOR FLOW THROUGH UNCONSOLIDATED POROUS MEDIA IS APPLIED TO FLOW THROUGH FIBROUS MEDIA TO PREDICT PRESSURE DROP FOR SEVERAL DIFFERENT INTERNAL ARRANGEMENTS OF THE FIBERS. THE ESSENCE OF THE MODEL IS THAT, ON THE AVERAGE, THE FLUID IN PROXIMITY TO AN OBSTACLE EMBEDDED IN A POROUS MEDIUM EXPERIENCES, IN ADDITION TO THE USUAL FORCE TERMS, A BODY DAMPING FORCE PROPORTIONAL TO THE LOCAL VELOCITY ACCOUNTING FOR THE INFLUENCE OF NEIGHBORING OBJECTS ON THE FLOW. IMPLICATIONS OF THE MODEL FOR CORRELATING PRESSURE DROP AND FILTRATION EFFICIENCY ARE GIVEN.

*ANALYTICAL MODEL + *FILTER EFFICIENCY + *FILTER, FIBER + *MODEL TESTING + AEROSOL + FILTER, BED

7-25148
LEE RE + PATTERSON RK + WAGMAN J
PARTICLE-SIZE DISTRIBUTION OF METAL COMPONENTS IN URBAN AIR
U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL, CONTROL TECHNOLOGY, RESEARCH AND DEVELOPMENT PROGRAM, NATIONAL CENTER FOR AIR POLLUTION CONTROL, CINCINNATI, OHIO
3 PAGES, 2 FIGURES, 1 TABLE, 12 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 2(4), PAGE 288-290,
(APRIL 1968)

CONCENTRATION AND PARTICLE-SIZE DISTRIBUTION OF SIX SUSPENDED METALS (IRON, LEAD, CADMIUM, CHROMIUM, MAGNESIUM, AND COPPER) WERE MEASURED IN DOWNTOWN CINCINNATI AND IN FAIRFAX, A SUBURB. PARTICLES WERE COLLECTED AND SIZE-FRACTIONATED IN CASCADE IMPACTORS, THE METALS WERE EXTRACTED WITH ACIDS AND ANALYZED BY ATOMIC ABSORPTION SPECTROPHOTOMETRY. SAMPLES OBTAINED FROM THE TWO LOCATIONS EXHIBITED DIFFERENT PARTICLE-SIZE DISTRIBUTIONS AT BOTH LOCATIONS. HOWEVER, ONLY LEAD WAS PREDOMINANTLY SUBMICRON. CONCENTRATIONS OF THE METALS WERE TYPICALLY THREE TO FIVE TIMES HIGHER IN CINCINNATI THAN IN FAIRFAX. MAGNESIUM CONCENTRATIONS WERE ABOUT 17 TIMES HIGHER.

*AEROSOL + *AEROSOL PROPERTIES + *AIRBORNE RELEASE + *METAL + FILTER THEORY, IMPACTION + PARTICLE SIZE DISTRIBUTION + PARTICULATE + SAMPLING

7-25149
COUGHLIN RW + EZRA FS
ROLE OF SURFACE ACIDITY IN THE ADSORPTION OF ORGANIC POLLUTANTS ON THE SURFACE OF CARBON
DEPT. OF CHEMICAL ENGINEERING, WHITAKER LABORATORY, LEHIGH UNIVERSITY, BETHLEHEM, PA.
7 PAGES, 6 FIGURES, 4 TABLES, 29 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 2(4), PAGE 291-297,
(APRIL 1968)

IN PREVIOUS STUDIES OF ADSORPTION ON CARBON, SOME ADSORBENTS HAVE DISPLAYED MARKEDLY LARGER ADSORPTIVE CAPACITIES THAN OTHERS, PRESUMABLY DUE TO DIFFERENCES IN SPECIFIC SURFACE AREA AS WELL AS THE NATURE OF THE CARBON SURFACE IN EACH INSTANCE. THIS PAPER REPORTS CHANGES IN ADSORPTIVE CAPACITY OF CARBON ADSORBENTS RESULTING FROM ALTERATION OF THE CARBON SURFACE BY CHEMICAL TREATMENT, PARTICULARLY WITH RESPECT TO FORMATION AND REMOVAL OF ACIDIC SURFACE OXIDES. INCREASED CONCENTRATION OF SURFACE OXIDES ON CARBON GREATLY REDUCES THE AMOUNT OF PHENOL AND NITROBENZENE THAT CAN BE ADSORBED FROM DILUTE AQUEOUS SOLUTION OF THESE COMPOUNDS.

ADSORPTION + AIR CLEANING + CARBON + CHARCOAL + CHARCOAL ADSORBER + WASTE TREATMENT, GAS

7-25150
SEMMEL GA
AEROSOL DEPOSITION FROM TURBULENT AIRSTREAMS IN VERTICAL CONDUITS
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-578 +. 70 PAGES, 15 FIGURES, 2 TABLES, 69 REFERENCES, MARCH 1968

THE GENERAL EQUATIONS OF CONTINUITY ARE SET UP TO DESCRIBE DEPOSITION OF PARTICLES IN WHICH THE EDDY DIFFUSIVITY IS RELATED TO THE REYNOLDS STRESS. SIMPLIFYING ASSUMPTIONS IN THE GENERAL EQUATIONS AS WELL AS SIMPLIFYING ASSUMPTIONS TO OBTAIN A WORKABLE MODEL ARE DISCUSSED. THE GENERAL EQUATIONS ARE USED AS A BASIS FROM WHICH TO DISCUSS EXISTING MODELS OF TURBULENT DEPOSITION. A MODEL IS BEING DEVELOPED FOR THE CASE OF DEPOSITION IN TUBES. DEPOSITION VELOCITIES ARE SHOWN USING THE INITIAL ASSUMPTIONS FOR SOLVING THE MODEL. DEPOSITION VELOCITIES ARE FROM ABOUT 0.0001 TO 10 CM/SEC.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *DEPOSITION + *DIFFUSION + *FLOW THEORY AND EXPERIMENTS + *FLOW, TUBE + AIR CLEANING + ANALYTICAL MODEL + FLOW, LAMINAR + FLOW, TURBULENT + MODEL TESTING

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-25151 ALSO IN CATEGORY 14
CONNORS DR + LITKE HJ + RAMPOLLA DS
IDENTIFICATION OF IMPORTANT FISSION PRODUCT NUCLIDES FOR RADIOLOGICAL DOSE CALCULATIONS FOLLOWING A
U-235-FUELED REACTOR ACCIDENT
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-599 +. 123 PAGES, 4 FIGURES, TABLES, 25 REFERENCES, FEB. 1967

A SET OF FISSION-PRODUCT DATA IS COMPILED FOR ALL KNOWN NUCLIDES BELIEVED TO BE IMPORTANT TO THE RADIOACTIVITY OF A URANIUM-FUELED REACTOR FOLLOWING POWER OPERATION. DATA ARE PRESENTED FOR 326 NUCLIDES AND METASTABLE STATES AND ARE RESOLVED INTO A SET OF 175 LINEAR CHAINS FOR COMPUTATION OF THE INVENTORY OF RADIOACTIVE PRODUCTS. BASED UPON THESE DATA, A CALCULATION IS PRESENTED OF THE ACTIVITY CONTAINED IN A HYPOTHETICAL REACTOR CORE FOLLOWING EXTENDED POWER OPERATION. THE TOTAL DOSE DELIVERED DOWNWIND IN THE EVENT OF THE RELEASE OF PORTIONS OF THIS INVENTORY TO THE ATMOSPHERE FOLLOWING A REACTOR ACCIDENT IS CALCULATED FOR VARIOUS INTERNAL AND EXTERNAL ORGANS OF A MAN LOCATED AT VARIOUS DISTANCES DOWNWIND FROM THE POINT OF RELEASE. THE FRACTION OF THE DOSE TO EACH ORGAN THAT ARISES FROM EACH NUCLIDE OR METASTABLE STATE IS DETERMINED FOR TWO CHARACTERISTIC DOWNWIND LOCATIONS. A SELECTION IS MADE OF THE MOST IMPORTANT NUCLIDES AND CHAINS TO BE USED IN SIMILAR TYPES OF DOWNWIND DOSE CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AIRBORNE RELEASE + *DEPOSITION + *ISOTOPIC GENERATOR + *RADIATION SAFETY AND CONTROL + *RADIOISOTOPE + *RADIONUCLIDE, INDUCED + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT TRANSPORT + FUEL BURNUP + ISOTOPIC FRACTIONATION

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-21402
QUARTERLY TECHNICAL PROGRESS REPORT ON AEC-SPONSORED ACTIVITIES, JUNE 15-SEPTEMBER 15, 1966
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-195 +. 86 PAGES, DECEMBER 15, 1966

PRESENTS RESULTS OF A FEW TESTS TO DETERMINE EFFECTS OF A SODIUM-WATER REACTION FROM A SMALL TUBE LEAK IN A STEAM GENERATOR. DEVELOPMENTS REPORTED IN EVALUATION OF IN-LINE DETECTORS AND PURIFICATION DEVICES FOR SODIUM IMPURITIES. HYDROGEN SOLUBILITY IN SODIUM IS DISCUSSED. ADEQUATE SCALING WAS OBTAINED FOR AN ULTRASONIC TRANSDUCER TO BE USED UNDER SODIUM FOR LOCATING OBJECTS IN LIQUID SODIUM.

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

*METAL WATER REACTION + *SODIUM + FAILURE, TUBING + INSTRUMENTATION, GENERAL + INSTRUMENTATION, PROCESS + METAL, LIQUID + STEAM GENERATOR

8-23870 ALSO IN CATEGORIES 6 AND 18
DEFELICE J + HYLAND M
FAST TEST REACTOR HYPOTHETICAL MELTDOWN ACCIDENT. PROGRESS REPORT. OCTOBER 1965 - DECEMBER 1965
BATTELLE NORTHWEST, RICHLAND, WASH.
COO-1430-3 +. 65 PAGES, 3 FIGURES, 17 TABLES, 10 REFERENCES, JAN. 21, 1966

A STUDY OF THE ENERGY YIELD FROM A MELTDOWN IS IN PROGRESS. FUEL-ZONING EFFECTS WERE EXPLORED IN DETAIL WITH AX-1 AND WEAK-EXPLOSION COMPUTER CODES. AX-1 INDICATES A SMALLER ENERGY RELEASE DUE TO FUEL ZONING THAN EXPECTED, AND INSENSITIVENESS TO DEGREE OF ZONING. WEAK-EXPLOSION RESULTS IN A LARGE ENERGY RELEASE INCREASE WITH ZONING, HOWEVER ITS LACK OF TREATMENT OF SURFACE EFFECTS UNDOUBTEDLY OVERESTIMATES ZONING EFFECTS. WORK CONTINUES.

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

*ACCIDENT ANALYSIS + *ACCIDENT, REACTIVITY + COMPUTER PROGRAM + FFTF (TR) + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST

8-25084 ALSO IN CATEGORY 17
VILLARD R
CHEMICAL PROBLEMS POSED BY THE OPERATION OF REACTORS. SYMPOSIUM ON THE CHEMISTRY OF REACTORS, JUELICH, OCTOBER 1966
CEA, PARIS
7 PAGES, RADIOCHIM. ACTA, 8, PAGES 1-6 (SEPT. 1967) IN FRENCH

CONTAMINATION AND PURIFICATION OF WATER IN REACTORS MODERATED WITH EITHER D2O OR H2O IS DISCUSSED. THE PROBLEM OF THE HOMOGENEOUS POISONING OF THE WATER THAT CAN BE USED AS A CONTROLLING DEVICE IN H2O- AND D2O-REACTORS IS CONSIDERED. DIFFICULTIES RELATED TO THE ISOTOPIC DILUTION OF HEAVY WATER AND SOME PRECAUTIONS THAT HAVE TO BE TAKEN IN ORDER TO AVOID SUCH POLLUTION ARE DESCRIBED. SOME METHODS USED FOR RECOVERING HEAVY WATER AND CONVERTING IT INTO A FORM SUITABLE FOR FURTHER USE ARE REPORTED.

*CONTAMINATION + *COOLANT CHEMISTRY + *HEAVY WATER + *WATER, GENERAL + COOLANT PURIFICATION SYSTEM + FRANCE + IMPURITY + REACTOR COOLANT + RECOVERY PROCESS

8-25085
REEVE KD
THE STABILITY OF FISSION-FERTILE OXIDE SOLID SOLUTIONS IN AIR
AUSTRALIAN ATOMIC ENERGY COMMISSION, LUCAS HEIGHTS
AAEC-TM-352 +. 12 PAGES, 3 TABLES, REFERENCES, OCTOBER 1966

THE STABILITY OF (UTh)O₂, (PuTh)O₂, AND (PuTh)C₂ SOLID SOLUTIONS WHEN HEATED TO HIGH TEMPERATURES IN AIR IS REVIEWED AND DISCUSSED. (PuTh)O₂ IS CHEMICALLY STABLE UNDER THESE CONDITIONS, BUT COMPOSITIONS CONTAINING URANIUM OXIDIZE TO GIVE EITHER A NONSTOICHIOMETRIC CUBIC PHASE CONTAINING EXCESS OXYGEN, OR TO THIS PHASE PLUS ORTHORHOMBIC U₃O₈. U₃O₈ FORMATION IS TO BE AVOIDED IF MAXIMUM DIMENSIONAL STABILITY IS REQUIRED. (UTh)O₂ COMPOSITIONS CONTAINING 50 M/O OR MORE OF ThO₂ DO NOT FORM AN ORTHORHOMBIC PHASE UNDER ANY CONDITIONS OF OXIDATION.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*AIR + *CHEMICAL EQUILIBRIUM + *OXIDE + *PLUTONIUM + *THORIUM + *URANIUM + AUSTRALIA + CHEMICAL REACTION + REACTOR, GCR + REVIEW

8-25138 ALSO IN CATEGORY 7
KOCH C + RANC R
METHOD OF INHIBITING THE CORROSION OF GRAPHITE IN NUCLEAR REACTORS

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-25138 *CONTINUED*
COMMISSARIAT A L-ENERGIE ATOMIQUE
BRITISH PATENT 1,084,922 +. 2 PAGES, SEPT. 1967, PATENT (BRITISH)

A METHOD OF INHIBITING THE CORROSION OF GRAPHITE IN GRAPHITE-MODERATED CO₂-COOLED NUCLEAR REACTORS IS GIVEN. THE ADDITION OF A COMPOUND CONTAINING SILICON AND HYDROGEN TO THE CO₂ AT A MINIMUM TEMPERATURE OF THE CO₂ IN THE REACTOR COOLING LOOP IS PERFORMED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CARBON DIOXIDE + *COOLANT CHEMISTRY + *CORROSION + *GRAPHITE + REACTOR, GCR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-21915 ALSO IN CATEGORY 17
UNIVERSITY OF MICHIGAN AMENDMENT 18--CONTROL ROD INSPECTION SHIELDING
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, DOCKET 50-2, DECEMBER 26, 1967

TO ALLOW AN OPERATING CYCLE OF 32 DAYS AT 2 MW CHANGES THE INSPECTION INTERVAL FROM EVERY 6 MONTHS OR 50 MWD TO EVERY 6 MONTHS (WITH EXPOSURE LESS THAN 1.7×10^{20}) OR TO WHICHEVER OF THE FOLLOWING COMES FIRST - 6 MONTHS OR 65 MWD (WITH GREATER EXPOSURES). ***EXPOSURE CRITERIA BASED ON ELK RIVER AND PATHFINDER CRACKING AT THIS LEVEL.

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

*CONTROL ROD + *CONTROL ROD BURNUP + *EXAMINATION + BORON + RADIATION DAMAGE + REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

9-22578 ALSO IN CATEGORIES 12 AND 17
YANKEE REVIEW OF EMERGENCY CORE COOLING
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
2 PAGES, JANUARY 12, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ONE PHASE OF THE RE-EVALUATION OF A YANKEE PRIMARY-COOLANT-SYSTEM RUPTURE, BEGUN IN 1967, RESULTED IN THE INTENTION TO (1,2) INSTALL A SECOND LOW-PRESSURE INSTRUMENT SO THAT EITHER WILL INITIATE SAFETY INJECTION, (3) DYE-PENETRANT INSPECT THE 12-IN.-LONG PIPE BETWEEN COOLANT LOOP AND SAFETY-INJECTION ISOLATION VALVE, (4) INSTALL A NEW CHECK VALVE IN THE 2-IN. CHARGING LINE. ***OTHER MODIFICATIONS ARE BEING CONSIDERED AND WILL BE SUBMITTED IN MARCH 1968.

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

*CORE REFLOODING SYSTEM + *MODIFICATION, SYSTEM OR EQUIPMENT + EXAMINATION + INSTRUMENTATION, PRESSURE + PIPING + PLANT PROTECTIVE SYSTEM + REACTOR, PWR + REDUNDANCE + VALVE + YANKEE (PWR)

9-23203 ALSO IN CATEGORY 18
REVISED PSAR SECT 7.1 - PROTECTION SYSTEMS
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
35 PAGES, PAGE 7.1-1 THRU 7.1-35 OF AMENDMENT 3 TO LICENSE APPLICATION, REVISED PRELIMINARY SAFETY ANALYSIS REPORT, JAN. 15, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

REVISES SECTION TO SHOW INTENT TO MEET PROPOSED IEEE STANDARD. BRIEF DISCUSSION OF INDEPENDENCE AND TESTING ON-LINE BY INJECTING A TEST SIGNAL AT THE SENSOR. CIRCUIT SCHEMATIC SHOWN.

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

*CODES AND STANDARDS + *PLANT PROTECTIVE SYSTEM + *REACTOR SAFETY SYSTEM + INDEPENDENCE + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR + TEST, ON LINE

9-23208
ANCERSON JL
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 38 - ION CHAMBER POWER SUPPLY, ORNL MODEL Q-2638
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638, PT. 38 +. 13 PAGES, 2 FIGURES, 2 TABLES, NOVEMBER 15, 1967

THE ION-CHAMBER POWER SUPPLY IS A DC-TO-DC CONVERTER THAT OPERATES FROM AN INPUT OF PLUS 28 TO PLUS 36 VOLTS DC AND DELIVERS AN OUTPUT OF ABOUT PLUS 250 VOLTS AT 5 MA.

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

*INSTRUMENTATION, AMPLIFIER + *INSTRUMENTATION, COMPONENT + CHAMBER, ION + ELECTRIC POWER, NORMAL + EQUIPMENT DESIGN + INSTRUMENTATION, POWER RANGE

9-23212
LEWINS J + WOODCOCK GR + WILLIAMSON TJ + BABB AL
ENERGY OPTIMAL XENON SHUTDOWN
UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON
10 PAGES, 5 FIGURES, NUCLEAR SCIENCE AND ENGINEERING 31(2), PAGES 272-281 (FEB. 1968)

PONTRYAGIN'S OPTIMUM THEORY IS APPLIED TO THE PROBLEM OF DETERMINING A FLUX SHUTDOWN PROGRAM THAT LIMITS XENON POISONING IN A REACTOR WHILE USING THE MINIMUM NUCLEAR ENERGY OR FLUX TIME. THE ANALYSIS SHOWS SEVERAL POINTS OF DIFFERENCE FROM THE TIME-OPTIMAL PROBLEM. SOLUTIONS ARE FOUND FOR BOTH THE UNRESTRICTED PROBLEM AND THE PROBLEM WHERE THE XENON DENSITY IS RESTRICTED WITHIN THE CONTROL PERIOD TO SOME MAXIMUM ACCEPTABLE PCISGNG. THE METHOD OF SOLUTION IS NEW IN UTILIZING A MORE STRAIGHTFORWARD OPTIMUM THEOREM AND (OF NECESSITY) GIVING THE FULL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23212 *CONTINUED*

ADJOINT SOLUTIONS. A FULL SOLUTION TO THE RESTRAINED PROBLEM SHOWS THAT A FREE END-TIME OPTIMUM SOLUTION RISES AT ZERO FLUX TO THE XENON RESTRAINT VALUE AND FOLLOWS THIS VALUE TO THE TARGET CURVE, ENDING THE PROBLEM.

*SHUTDOWN MARGIN + *XENON + PONTRYAGINS PRINCIPLE + THEORETICAL INVESTIGATION + XENON OSCILLATION

9-23213

NATHAN A

NUCLEAR PLANT PROTECTIVE SYSTEM

SARGENT AND LUNDY, CHICAGO, ILL.

4 PAGES, 2 FIGURES, POWER ENGINEERING 72(2), PAGES 45-48 (FEBRUARY 1968)

A TWO-PART ARTICLE ON SPECIAL INSTRUMENTS AND CONTROLS TO PROTECT A NUCLEAR POWER PLANT. THE MOST CRITICAL INSTRUMENT SYSTEMS AND THEIR FUNCTIONS ARE DESCRIBED IN THE FIRST PART. THESE INCLUDE MONITORING DEVICES AND THEIR ROLES IN THE STARTUP AND POWER-RANGE OPERATIONS OF A REACTOR. PART TWO REVIEWS THE COMPLETE PROTECTIVE SYSTEM FOR A REACTOR.

INSTRUMENTATION, CONTROL + INSTRUMENTATION, GENERAL + INSTRUMENTATION, POWER RANGE + INSTRUMENTATION, PROTECTIVE + INSTRUMENTATION, SHUTDOWN REACTIVITY + INSTRUMENTATION, STARTUP + INSTRUMENTATION, STARTUP RANGE + REACTOR SAFETY SYSTEM

9-23219

SZUTA M + BUDZINSKI W

APPLICATION OF THE CHERENKOV EFFECT TO THE DETECTION OF FAILED FUEL ELEMENTS IN THE WWR-S REACTOR
INSTITUTE OF NUCLEAR RESEARCH, SWIERK

10 PAGES, 8 FIGURES, 1 TABLE, 4 REFERENCES, NUKLEONIKA 12, PAGES 431-40 (1967)

GIVES A SHORT DESCRIPTION OF THE CHERENKOV-EFFECT MONITOR AND ITS APPLICATION TO THE DETECTION OF FUEL ELEMENT FAILURE IN GENERAL AND TO THE LOCALIZATION OF A PARTICULAR FAILED FUEL ASSEMBLY. EXPERIMENTS WITH A FAILED FUEL ELEMENT ARE DESCRIBED.

*INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, FUEL ELEMENT + INSTRUMENTATION, FUEL SCANNING + INSTRUMENTATION, NUCLEAR

9-23220

ARNAUD P

EVOLUTION OF MEASURING EQUIPMENT IN FRENCH REACTORS

1 PAGE, ATOMPRAXIS 13 (11/12) PAGE 534 (1967) IN GERMAN

THE EVOLUTION OF THE FRENCH MEASURING EQUIPMENT, AS REGARDS THE CONTROL OF REACTORS, HAS DEVELOPED IN TWO PARALLEL DIRECTIONS - (1) EVOLUTION AS TO THE METHODS USED (FOR INSTANCE AS TO THE AUTOMATIC GUIDANCE, THE EXTENSION OF THE MEASURING RANGES, AND THE MEASURING OF REACTIVITY), (2) EVOLUTION OF TECHNOLOGY REGARDING THE MEANS OF MEASUREMENT LEADING TO THE USE OF SEMICONDUCTORS AND A FUNCTIONAL DESIGN OF THE MATERIAL.

*INSTRUMENTATION, CONTROL + *INSTRUMENTATION, GENERAL + *REACTOR CONTROL + FRANCE + INSTRUMENTATION, OPERATING REACTIVITY + SOLID STATE DEVICE

9-23292

ALSO IN CATEGORIES 17 AND 12

DRESDEN 1 PLANS TO INSTALL CONTROL ROD DRIVE THIMBLE SUPPORTS

COMMONWEALTH EDISON COMPANY

13 PAGES, TABLES, FIGURES, JANUARY 18, 1968; DOCKET 50-10, TYPE OWN, MFG.--C.E., AG--BECHTEL

PROPOSED SUPPORTS ARE ANCHORED BY BOLTS WELDED TO THE THIMBLE GUIDE PLATE IN THE SPACES BETWEEN THIMBLES. THE SUPPORTS ARE SHAPED LIKE THE SPACE BETWEEN FOUR ADJACENT THIMBLES (I.E., LIKE A FOUR-POINTED STAR). EACH HOLDS PART OF FOUR THIMBLES, AND FOUR SUPPORTS HOLD A THIMBLE. EACH MUST BE TURNED 45 DEG TO REMOVE THE THIMBLE. A SETSCREW IN THE POINTS OF THE SUPPORT MAKE CONTACT WITH THE THIMBLES. DESIGN BASIS IS TO KEEP THIMBLE FROM MOVING MORE THAN 1/8 IN. IN CASE OF THIMBLE FAILURE.

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

*CONTROL ROD DRIVE + *SUPPORT STRUCTURE + ACCIDENT, CONTROL ROD EJECTION + DRESDEN 1 (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR

9-23714

SCHULTZ MA

AVAILABLE SCHEMES FOR TESTING REACTOR INSTRUMENTATION CIRCUITS AND PROTECTION SYSTEMS

MILLETRON, INC.

CONF-671011 +. 3 PAGES, PAGES 13-15 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

REVIEWS THE VARIOUS PRINCIPLES USED IN PRESENT-DAY REACTOR INSTRUMENTATION TEST-CIRCUITRY. EMPHASIS IS PLACED ONLY ON THOROUGHNESS AND INDEPENDENCE OF TEST.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23714 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., \$3.00
COPY, \$0.65 MICROFICHE

*PLANT PROTECTIVE SYSTEM + *REVIEW + *TEST, SYSTEM OPERABILITY + INSTRUMENTATION, COMPONENT + TESTING

9-23715
ANDERSON JL
ON-LINE TESTING OF SAFETY INSTRUMENTATION FOR THE HFIR
OAK RIDGE NATIONAL LABORATORY
CONF-671011 +. 12 PAGES, 6 FIGURES, 6 REFERENCES, PAGES 16-27 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING
SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER
30--NOVEMBER 1, 1967

DESCRIBES THE DESIGN POLICY AND THE ROUTINE ON-LINE PROTECTION SYSTEM TESTS FOR THE HFIR.
MANY PROVISIONS EXIST FOR NONROUTINE TESTING, TROUBLE ISOLATION, AND MORE PRECISE CALIBRATION
CHECKS. WITH THE GENERAL COINCIDENCE ARRANGEMENT AND GOOD CHANNEL ISOLATION, THE ABILITY TO
TEST AND REPAIR IS LIMITED ONLY BY ACCESSIBILITY. A HIGH DEGREE OF CHANNEL INDEPENDENCE AND
THE SEPARATION AND IDENTIFICATION OF THE PROTECTION SYSTEM APART FROM OTHER FUNCTIONS, ARE
THE KEYS TO ACHIEVING HIGH RELIABILITY, GOOD TESTABILITY, AND THE ABILITY TO PERFORM ON-LINE
MAINTENANCE.

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

*REACTOR SAFETY SYSTEM + *TEST, SYSTEM OPERABILITY + HFIR (FTR) + INSTRUMENTATION, COINCIDENT +
INSTRUMENTATION, PROTECTIVE + REACTOR, AEC OWNED + REACTOR, FLUX TRAP + REACTOR, RESEARCH +
SAFETY PRINCIPLES AND PHILOSOPHY

9-23716
PATTERSON ES
THE FREQUENCY OF ON-LINE TESTS FOR NUCLEAR PROTECTIVE SYSTEMS
BABCOCK AND WILCOX COMPANY
CONF-671011 +. 5 PAGES, PAGES 28-32 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY
OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

THE PURPOSE OF ON-LINE TESTING IS TO ENSURE THE MAINTENANCE OF THE PROTECTIVE SYSTEMS REQUIRED
RELIABILITY. THE CRITERION PROPOSED IS BASED ON APPLYING STATISTICAL-RELIABILITY PRINCIPLES
TO THE OBSERVED PERFORMANCE OF THE PROTECTIVE SYSTEM. THE TEST FREQUENCY AND THE RELIABILITY
OF THE PROTECTIVE SYSTEM, CALCULATED FROM THE OBSERVED MTBF DETERMINED AT THE 95% CONFIDENCE
LEVEL, SHALL BE CONTINUOUSLY ADJUSTED AND MAINTAINED SO THAT THE CHANCES OF THE PROTECTIVE
SYSTEMS DECAYING TO THE CANNOT-TRIP STATE SHALL BE LESS THAN OR EQUAL TO 1×10^{-4} TH.

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

*INSTRUMENTATION, PROTECTIVE + *RELIABILITY, SYSTEM + *TESTING + REACTOR SAFETY SYSTEM +
SAFETY PRINCIPLES AND PHILOSOPHY + TEST, SYSTEM OPERABILITY + THEORETICAL INVESTIGATION

9-23717
SAXE RF
SURVEY OF BOILING DETECTION METHODS IN REACTORS
NORTH CAROLINA STATE UNIVERSITY
CONF-671011 +. 15 PAGES, 45 REFERENCES, PAGES 41-55 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY
AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER
1, 1967

PROBLEMS INVOLVED IN THE DETECTION OF BOILING IN NUCLEAR REACTORS ARE DEFINED AND ANALYZED,
AND AN EXAMINATION OF THE METHODS FOR SOLUTION ARE DISCUSSED. AT PRESENT, THREE MAIN METHODS
ARE BEING INVESTIGATED TO PRODUCE AN EFFECTIVE BOILING DETECTOR - (1) NEUTRON-FLUX NOISE, (2)
ULTRASONIC PROBE, AND (3) ACOUSTIC-EMISSION DETECTOR. ALL THREE HAVE ONE THING IN COMMON IN
THAT THE DETECTION WILL DEPEND ON THE ABILITY TO DETECT WANTED SIGNALS ABOVE AN UNWANTED
BACKGROUND. OF THESE METHODS, ONLY THE ULTRASONIC METHOD IS CAPABLE OF DETECTING INCIPIENT
BOILING.

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

*IN CORE MEASUREMENT + *NUCLEATE BOILING + *SURVEY, RADIATION, GENERAL + CONVECTIVE BOILING +
HEAT TRANSFER, BOILING + HIGH TEMPERATURE + INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, IN CORE +
REACTOR COOLANT + REVIEW

9-23718
ENGEL JR
EXPERIENCE WITH AN ON-LINE REACTIVITY BALANCE CALCULATION AS A GUIDE FOR REACTOR OPERATION
OAK RIDGE NATIONAL LABORATORY
CONF-671011 +. 3 PAGES, 2 FIGURES, 2 REFERENCES, PAGES 58-60 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING
SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23718 *CONTINUED*
30--NOVEMBER 1, 1967

DURING REACTOR OPERATION (MSRE) A REACTIVITY BALANCE IS AUTOMATICALLY CALCULATED EVERY 5 MIN BY AN ON-LINE DIGITAL COMPUTER. IN ADDITION, THE REACTIVITY BALANCE HAS PROVED TO BE USEFUL FOR ANALYZING DETAILED ASPECTS OF THE OPERATION THAT MIGHT OTHERWISE NOT HAVE BEEN APPARENT.

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

*INSTRUMENTATION, OPERATING REACTIVITY + COMPUTER, DIGITAL + MSRE (RE) + OPERATING EXPERIENCE + REACTIVITY COEFFICIENT + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT

9-23719
BULLOCK JB

REACTIVITY ANOMALY DETECTION IN THE HFIR WITH AN ON-LINE COMPUTER
OAK RIDGE NATIONAL LABORATORY

CONF-671011 +. 8 PAGES, 4 FIGURES, 5 REFERENCES, PAGES 61-68 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

TO AID THE OPERATOR IN DETECTING AND PREVENTING REACTIVITY ANOMALIES IN THE HFIR, AN ON-LINE CONTROL-DATA-1700 DIGITAL COMPUTER WAS ACQUIRED TO PROVIDE ADEQUATE CONTROL INFORMATION. CONTINUOUSLY MEASURED HEAT POWER AND TEMPERATURE INFORMATION FROM THE EXISTING INSTRUMENTATION IS USED TO CALCULATE THE EXPECTED REACTIVITY BALANCE AT ALL TIMES DURING THE LIFE OF A CORE FOR BOTH NORMAL OPERATION AND TRANSIENT CONDITIONS. BY USE OF AN APPROPRIATE REACTIVITY MODEL FOR THE SYSTEM, A CONTINUOUS CALCULATION IS MADE FOR CHANGES IN THE REACTIVITY ASSOCIATED WITH FUEL BURNUP, BURNABLE-POISON DEPLETION, FISSION PRODUCTS, AND TEMPERATURE CHANGES.

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

*INSTRUMENTATION, OPERATING REACTIVITY + *REACTIVITY EFFECT, ANOMALOUS + COMPUTER, DIGITAL + HFIR (FTR) + REACTOR, AEC OWNED + REACTOR, FLUX TRAP + REACTOR, RESEARCH

9-23720
RANDALL RL

APPLICATION OF NOISE ANALYSIS TECHNIQUES TO DETECTION OF INCIPIENT MALFUNCTIONS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

CONF-671011 +. 16 PAGES, 6 FIGURES, 1 TABLE, 15 REFERENCES, PAGES 71-86 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

TECHNIQUES ARE DESCRIBED WHICH USE NOISE OR FLUCTUATION SIGNALS FROM ELECTRONIC TRANSDUCERS SENSITIVE TO VIBRATIONS, TEMPERATURE, POWER, CONDUCTIVITY, PRESSURE, SOUND LEVEL, FLOW RATE, ETC., TO DETECT AND STUDY ABNORMAL CONDITIONS IN REACTOR SYSTEMS OR TEST MODELS. APPLICATIONS WHICH ARE SUMMARIZED RANGE FROM FEASIBILITY TESTS TO DEVELOPMENT OF AUTOMATIC ON-LINE INCIPIENT-MALFUNCTIONS-DETECTION SYSTEMS. SPECIFIC PHENOMENA ENCOUNTERED IN THESE APPLICATIONS INCLUDE BOILING, CAVITATION, GAS ENTRAINMENT THROUGH A REACTOR CORE, MOVEMENT OF BUBBLES THROUGH PIPES, HYDRAULIC TRANSIENTS, MECHANICAL VIBRATIONS, AND BREAKDOWN OF ELECTRICAL INSULATORS.

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

*IN CORE MEASUREMENT + *NOISE ANALYSIS + HYDRAULIC EFFECT + NUCLEATE BOILING + VIBRATION

9-23721
RAJAGOPAL V

REACTIVITY NOISE ANALYSIS AS A POSSIBLE TOOL FOR DIAGNOSIS OF OPERATIONAL MALFUNCTIONS
WESTINGHOUSE ELECTRIC COMPANY

CONF-671011 +. 2 PAGES, 1 REFERENCE, PAGE 87 AND 88 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

SOME PECULIARITIES WERE OBSERVED IN THE NOISE SPECTRA IN CERTAIN POWER REACTOR PLANTS. LATER OPERATIONAL PROBLEMS OBSERVED ON THESE PLANTS INDICATE THAT THESE MIGHT HAVE BEEN A RELATION BETWEEN THE PECULIARITIES IN THE SPECTRA AND THE PROBLEMS. HOWEVER, TO DATE NO FIRM RELATION HAS BEEN ESTABLISHED.

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

*FAILURE, EQUIPMENT + *NOISE ANALYSIS + *OPERATING EXPERIENCE + REACTOR, POWER + REACTOR, PWR

9-23722
FRY DN + ROBINSON JC

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23722 *CONTINUED*
NEUTRON DENSITY FLUCTUATIONS AS A REACTOR DIAGNOSTIC TOOL
OAK RIDGE NATIONAL LABORATORY
CONF-671011 +. 13 PAGES, 8 FIGURES, 7 REFERENCES, PAGES 89-101 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

EXPERIENCE AT THE HFIR AND MSRE REACTORS INDICATES THAT NEUTRON-FLUCTUATION ANALYSIS CAN BE USEFUL IN REACTOR DIAGNOSIS. THIS TECHNIQUE IS ESPECIALLY ATTRACTIVE AS AN ON-LINE ANOMALY-DETECTION METHOD BECAUSE IT DOES NOT DISTURB THE REACTOR OPERATION IN ANY WAY. HOWEVER, THE USEFULNESS OF THE METHOD DEPENDS A GREAT DEAL ON HAVING A REFERENCE LIBRARY OF NORMAL AND ABNORMAL SPECTRA FOR KNOWN REACTOR ANOMALIES IN ORDER TO RECOGNIZE SIMILAR ANOMALIES.

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

*FLUCTUATION + *NEUTRON + *REACTIVITY EFFECT, ANOMALOUS + FAILURE, EQUIPMENT + HFIR (FTR) + MSRE (RE) + NOISE ANALYSIS + OPERATING EXPERIENCE + REACTOR, AEC OWNED + REACTOR, FLUX TRAP + REACTOR, MOLTEN SALT + REACTOR, RESEARCH

9-23723 ALSO IN CATEGORIES 5 AND 11
PARRY DL
NONDESTRUCTIVE FLAW DETECTION IN NUCLEAR POWER INSTALLATIONS
PHILLIPS PETROLEUM COMPANY
CONF-671011 +. 20 PAGES, 22 FIGURES, PAGES 107-126 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

INVESTIGATIONS AND FEASIBILITY STUDIES INVOLVING THE APPLICATION OF THE ACOUSTIC-ANALYSIS PHENOMENA FOR FLAW DETECTION, FLAW DEFINITIONS, AND INCIPIENT-FAILURE PREDICTION HAVE LED TO THE USE OF AN IN-PLANT ANALYSIS SYSTEM. THIS SYSTEM HAS SHOWN CAPABILITY FOR DETECTING AND LOCATING FLAWS IN THE COMPLEX REACTOR PRESSURE VESSEL AND PRIMARY LOOP PIPING OF OPERATIVE NUCLEAR POWER INSTALLATIONS. DUE TO FLUID-FLOW NOISE INTERFERENCE, IT IS LIMITED AT THIS TIME TO APPLICATIONS IN THE HYDROSTATIC TEST MADE.

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

*FLAW + *TEST, NONDESTRUCTIVE + *TESTING + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + MEASUREMENT, NOISE + PIPING + PRESSURE VESSEL + TEST, PRESSURE VESSEL

9-23724
SOWARDS NK
THE BENEFITS AND LIMITATIONS OF DESIGNING FOR NUCLEAR POWER-PLANT SAFETY-SYSTEM TESTABILITY
PHILLIPS PETROLEUM COMPANY
CONF-671011 +. 7 PAGES, 2 FIGURES, PAGES 204-210 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

SAFETY SYSTEMS CAN BE VIEWED AS ADDITIONAL ACCIDENT BARRIERS ONLY IF THERE IS A HIGH DEGREE OF ASSURANCE THAT THEY WILL OPERATE AS DESIGNED WHEN CALLED UPON TO DO SO. A SPECIFIC BENEFIT OF DESIGNING SAFETY SYSTEMS FOR TESTABILITY IS THAT, IF PROPERLY USED, IT CAN ENHANCE THE OVERALL PLANT AVAILABILITY. THE MAJOR LIMITATION IS THE LACK OF ABILITY TO TEST UNDER A REALISTIC ACCIDENT ENVIRONMENT.

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

*SAFETY PRINCIPLES AND PHILOSOPHY + REACTOR SAFETY SYSTEM + TEST, SYSTEM OPERABILITY + TESTING

9-23725
NIMS JB
MALFUNCTION DETECTION SYSTEMS FOR LIQUID-METAL FAST BREEDER REACTORS
ATOMIC POWER DEVELOPMENT ASSOCIATION
CONF-671011 +. 9 PAGES, 2 FIGURES, 3 TABLES, 3 REFERENCES, PAGES 211-19 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

FOR MANY YEARS, COMPUTERS, BOTH DIGITAL AND ANALOG, HAVE BEEN AN IMPORTANT TOOL IN REACTOR DESIGN AND ANALYSIS, WITH LITTLE EFFORT BEING DEVOTED TO THE USE OF THE COMPUTER AS AN ON-LINE SAFETY-ANALYSIS DEVICE. AS SUCH, THE COMPUTER WOULD FUNCTION AS A GENERALIZED MALFUNCTION-DETECTION ANALYZER. WITH THE PRESENT TREND TOWARDS GREATER CORE INSTRUMENTATION, MALFUNCTION DETECTION CAN BE MADE MORE POSITIVELY, AND THE MALFUNCTION DETECTOR ASPECTS CAN BE EXPECTED TO BECOME MORE IMPORTANT.

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

*COMPUTER CONTROL + *INSTRUMENTATION, CONTROL + *REACTOR SAFETY SYSTEM + FAILURE, GENERAL + SAFETY PRINCIPLES AND PHILOSOPHY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23726 ALSO IN CATEGORY 12

KLOSE AH + MILLER DR
DETECTION OF LEAKS IN INACCESSIBLE AREAS OF THE BOILING-WATER-REACTOR NUCLEAR POWER PLANT
GENERAL ELECTRIC COMPANY
CONF-671011 +. 10 PAGES, 5 FIGURES, PAGES 228-37 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND
AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1,
1967

DISCUSSES THE DETECTION OF LEAKS FROM THE NUCLEAR STEAM-SUPPLY SYSTEM INSIDE THE DRY WELL OF A
PRESSURE-SUPPRESSION CONTAINMENT FOR A LARGE BOILING-WATER REACTOR. INSTRUMENTATION IN USE
BY THE GENERAL ELECTRIC CO. IS SHOWN TO GIVE LEAK DETECTABILITY OF BELOW 5 GPM OF CONDENSATE,
USING INSTRUMENTS SUCH AS FLOWMETERS, TEMPERATURE SENSORS, AND PRESSURE SENSORS. IF FUTURE
APPLICATIONS WARRANT, SENSITIVITY DOWN TO ABOUT 1 GPM IS POSSIBLE WITH ADDITIONAL INSTRUMENTS
TO MONITOR COOLING-COIL-CONDENSATE FLOW AND DEW-POINT TEMPERATURE.

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

*CONTAINMENT, CONTINUOUS MONITORING SYSTEM + *LEAK RATE + CONTAINMENT LEAKAGE CONTROL +
INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, PROCESS + LEAK + REACTOR COOLANT + REACTOR, BWR +
STEAM

9-23727 ALSO IN CATEGORY 12

BALDERSTON HL
INCIPIENT FAILURE DETECTION--A SYSTEM CONCEPT
THE BOEING COMPANY
CONF-671011 +. 9 PAGES, REFERENCES, PAGES 247-55 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND
AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1,
1967

THE DETECTION OF INCIPIENT FAILURE OF A PART, COMPONENT, SUBSYSTEM, OR SYSTEM IS RELATED TO
THE DETECTION OF LATENT DEFECTS WHICH ALREADY EXIST IN A DEVICE, DEVELOP DURING OPERATION OF
THE DEVICE, OR APPEAR AS A RESULT OF OPERATIONAL ENVIRONMENT OR HUMAN ERROR. PRESENT
KNOWLEDGE AND NEW RESEARCH CAN BE COMBINED TO DEVELOP AN INCIPIENT-FAILURE-DETECTION
SUBSYSTEM WITH BROAD APPLICABILITY. THE APPLICATION OF THESE TECHNIQUES WILL REQUIRE
INSTRUMENTATION, DATA COLLECTION, AND DATA ANALYSIS.

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

*SAFETY PRINCIPLES AND PHILOSOPHY + *SYSTEM DESCRIPTION + FAILURE, COMPONENT + FAILURE, GENERAL +
INSTRUMENTATION, COMPONENT + NOISE + TEST, PROOF + TESTING + VIBRATION

9-23728 ALSO IN CATEGORY 12

WEICHBRODT B
MECHANICAL SIGNATURE ANALYSIS--A NEW TOOL FOR PRODUCT ASSURANCE AND EARLY FAULT DETECTION
GENERAL ELECTRIC COMPANY
CONF-671011 +. 26 PAGES, 20 FIGURES, 1 TABLE, 4 REFERENCES, PAGES 314-39 OF INCIPIENT FAILURE DIAGNOSIS
FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN.,
OCTOBER 30--NOVEMBER 1, 1967

MECHANICAL SIGNATURE ANALYSIS IS DEFINED BY EXAMPLES, AND ITS GENERAL SCOPE IS DISCUSSED, IN
PARTICULAR ITS POTENTIAL FOR INCREASING THE RELIABILITY, MAINTAINABILITY, AND QUALITY
ASSURANCE OF A VARIETY OF EQUIPMENT. TO ACHIEVE HIGH AND PREDICTABLE RELIABILITY FOR A
SYSTEM, IT IS NOT SUFFICIENT JUST TO BUILD IT FROM HIGH-QUALITY COMPONENTS. IT IS ESSENTIAL
THAT EFFECTIVE METHODS BE AVAILABLE FOR CHECKOUT OF A COMPLETELY ASSEMBLED PRODUCT FROM THE
OUTSIDE, BEFORE IT IS FINALLY ACCEPTED. ALSO, IT CALLS FOR METHODS WHICH CAN DETECT AN
INTERNAL MALFUNCTION EARLY, DURING ACTUAL OPERATION, SO THAT PREVENTIVE MAINTENANCE CAN BE
SCHEDULED BEFORE CRITICAL FAILURE OCCURS.

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

*QUALITY CONTROL + *RELIABILITY ANALYSIS + COMPONENTS, MISCELLANEOUS + EXAMINATION + INTEGRITY

9-23738 ALSO IN CATEGORY 6

FUKAI Y
CRGWN--AN IBM-7090 CODE FOR CALCULATION OF CRUCIFORM CONTROL ROD WORTH FOR MONOENERGETIC NEUTRONS
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
JAERT-1128 +. 28 PAGES, TABLES, DECEMBER 1966

A CRUCIFORM-CONTROL-ROD WORTH FOR MONOENERGETIC NEUTRONS CAN BE EXACTLY CALCULATED BY A NEW
COLLISION PROBABILITY METHOD. FIRST A HOMOGENIZED MEDIUM WHICH CONSISTS OF FUELS AND
MODERATOR AND SURROUNDS THE CRUCIFORM CONTROL ROD IS DIVIDED INTO A NUMBER OF IDENTICAL
CYLINDERS WITH A SQUARE CROSS SECTION. AFTER COLLISION PROBABILITIES FOR THE TWO-DIMENSIONAL
X-Y SYSTEM ARE CALCULATED, SOLVING A NEUTRON BALANCE EQUATION WITH AN AVERAGED NEUTRON FLUX
FOR EACH MESH CYLINDER, A FLOW-IN CURRENT TO THE CONTROL ROD AND VARIOUS PHYSICAL NUCLEAR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23738 *CONTINUED*

PROPERTIES ARE OBTAINED. AN IBM-7090 CODE (CROWN) FOR THIS CALCULATION IS PROGRAMED BY FORTRAN II AND FAP. THE DETAILED CALCULATING METHOD FOR THIS PROBLEM IS FIRST REPRESENTED, AND THE CONTENT OF THE CROWN CODE IS DESCRIBED.

AVAILABILITY - MICROCARD EDITION, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + COMPUTER, DIGITAL + CENTROL ROD WORTH + JAPAN + NEUTRON INTERACTION

9-23853

NIELSEN DS

INVESTIGATION OF THE DYNAMIC CHARACTERISTICS OF THE ELECTROMAGNETIC COUPLING BETWEEN MAGNET AND ABSORBER IN A FAST-RELEASING SAFETY ROD PLANNED FOR DR 3
DANISH ATOMIC ENERGY COMMISSION, RISØE. RESEARCH ESTABLISHMENT
RISO-M-627 +. 30 PAGES, SEPT. 1967, (IN DANISH)

AN ANALOG MODEL OF THE ELECTROMAGNET FOR THE PLANNED FAST-RELEASING SAFETY ROD FOR DR 3 WAS USED FOR INVESTIGATING THE DYNAMICS IN THE ELECTROMAGNETIC COUPLING UPON INTERRUPTION OF THE MAGNET CURRENT. EMPHASIS WAS PLACED ON INVESTIGATING THE WAY IN WHICH AIR GAP AND EDDY CURRENTS INFLUENCE THE MAGNET RELEASE TIME AND THE FIRST PART OF THE DROPPING CURVE OF THE ABSORBER. THEORETICAL RESULTS ARE COMPARED WITH MEASUREMENTS ON AN ACTUAL MAGNET.

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

*COMPARISON, THEORY AND EXPERIENCE + *CONTROL ROD SCRAM MECHANISM + ANALOG SIMULATION + INSTRUMENTATION, COMPONENT + RESPONSE TIME + SIMULATION

9-23907

ALSO IN CATEGORIES 12 AND 17

MAXWELL WA

A SURVEY OF LEAK DETECTION METHODS FOR THE ON-LINE MONITORING OF BWR AND PWR PRIMARY LOOPS
SOUTHERN NUCLEAR ENGINEERING, INC., DUNEDIN, FLA.
SNE-36 +. 43 PAGES, 10 REFERENCES, OCTOBER 1967

LITERATURE SEARCH REVEALED LITTLE, EXCEPT IN OIL REFINING. DISCUSSES EXPERIENCE WITH THREE MAIN METHODS - (1) RADIOACTIVITY MONITORING OF CONTAINMENT AIR (POWER REACTORS WITH CLEAN FUEL AND COOLANT AFTER A REFUELING MIGHT HAVE A DEAD-TIME), (2) HUMIDITY MONITORING (NEEDS A FLOATING SETPOINT FOR NORMAL CONDITION), (3) SOUND (DEPENDS ON OPERATORS AUDIOSENSITIVITY AND BACKGROUND NOISE). OTHER LEAKS HAVE BEEN DETECTED BY MATERIAL BALANCE, INSPECTION, ETC. HUMIDITY MONITORING LOOKS BEST. ACOUSTIC-EMISSION DETECTORS WILL BE APPLIED TO ELK RIVER AND PM 1A.

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

*INSTRUMENTATION, SURVEILLANCE + *LEAK + *MAIN COOLING SYSTEM + CONTAINMENT INSTRUMENTATION + FAILURE, PIPE + HUMIDITY + MONITOR, RADIATION, AIR + REACTOR, BWR + REACTOR, PWR

9-23933

RAJAGOPAL V + GALLAGHER JM

SOME APPLICATIONS OF DYNAMIC MEASUREMENTS IN PRESSURIZED WATER REACTOR NUCLEAR POWER PLANTS
WESTINGHOUSE ELECTRIC CORPORATION, ATOMIC POWER DIVISION, PITTSBURGH, PENNSYLVANIA
7 PAGES, 5 FIGURES, 2 TABLES, 13 REFERENCES, IEEE TRANSACTIONS ON NUCLEAR SCIENCE 14(2), PAGE 15-21, (APRIL 1967)

APPLICATIONS OF RANDOM-THEORY TECHNIQUES TO AN UNDERSTANDING OF NUCLEAR PLANTS SYSTEM DYNAMICS ARE SUMMARIZED. USING CORRELATION-ANALYSIS TECHNIQUES, INVESTIGATIONS WERE CARRIED OUT IN FOUR NUCLEAR POWER PLANTS. POWER AND CROSS-POWER SPECTRAL-DENSITY MEASUREMENTS WERE MADE ON THE INHERENT NOISE. RESPONSE TO SMALL FORCED REACTIVITY MODULATIONS WERE STUDIED, USING CROSS-POWER SPECTRAL TECHNIQUES. SPECIAL DATA-REDUCTION EQUIPMENT WAS DEVELOPED. THE RESULTS SHOW THAT DYNAMIC MEASUREMENTS IN COMMERCIAL NUCLEAR POWER PLANTS ARE FEASIBLE WITH EXISTING PLANT HARDWARE AND INSTRUMENTATION.

*MEASUREMENT, GENERAL + *TEST, PLANT RESPONSE + CVTR (PWR) + NOISE ANALYSIS + NUCLEATE BOILING + PH REACTIVITY EFFECT + REACTOR, HWR + REACTOR, PRESSURE TUBE + REACTOR, PWR + REACTOR, TEST + SAXTON (PWR) + TRANSFER FUNCTION + TRINO (PWR) + YANKEE (PWR)

9-23946

ALSO IN CATEGORY 17

BALL GL

RESULTS OF THE LOW-POWER NUCLEAR TEST PROGRAM FOR THE ENRICO FERMI FAST BREEDER REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-302 +. 128 PAGES, 29 FIGURES, 16 TABLES, REFERENCES, FEB. 1967

(PG 41) 1/M FUEL-LOADING PLOTS EXTRAPOLATED VERY CLOSE TO CRITICAL VALUE, HOWEVER WAS NOT USED FOR OFFICIAL PREDICTIONS BECAUSE LINEAR EXTRAPOLATION GAVE UNACCEPTABLE OVERESTIMATES. (PG 67) NEUTRON-DETECTOR GUIDE TUBES WERE FLUX-MAPPED (GAMMA AND NEUTRON) TO SET DETECTOR LOCATIONS. GAMMA PEAKS WERE FOUND NEAR SODIUM PIPES, AND NEUTRON PEAKS DUE TO BORON WINDOW

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-23946 *CONTINUED*

AND TO TRANSITION DECK. (PG 87) INDIVIDUAL SAFETY RODS WERE WORTH 15% LESS THAN PREDICTED, AND THE GROUP WAS SHADOWED BY 11%, GIVING AN \$8 WORTH. (PG 118) RELATIVELY LARGE INCREASES IN REACTIVITY FOLLOWING SHORT PERIODS WITH THE COOLANT SYSTEM ISOTHERMAL AT 700 F, ARE CALCULATED TO BE FROM PHASE-TRANSFORMATION SHRINKAGE (27 IN-HOURS) AND HYDRIDING OF THE CLAD (22 IN-HOURS).

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

*INSTRUMENTATION, ABNORMAL INDICATION + *REACTIVITY EFFECT, ANOMALOUS + *REACTOR STARTUP TESTING + CONTROL ROD INTERACTION + CONTROL ROD WORTH + FERMI (LMFBR) + HYDRIDE + INSTRUMENTATION CALIBRATION + REACTIVITY EFFECT, EXPANSION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, FAST + REACTOR, LMCR + ZIRCALOY

9-23947

ALSO IN CATEGORY 18

QUARTERLY TECHNICAL PROGRESS REPORT ON AEC-SPONSORED ACTIVITIES. MARCH 15-JUNE 15, 1966
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-193 +. 107 PAGES, 26 FIGURES, 9 TABLES, REFERENCES, MARCH 15, 1966

INDIVIDUAL PROJECTS ARE - (PROJECT 8) PASTE CONCEPT FOR BLANKETS (29 PG) - TEST LOOP OPERATED, IN-PILE LOOP DESIGNED, 1000-MWE REF.-DESIGN MADE. (10) SMALL-LEAK SODIUM-WATER REACTION (10 PG) - SOME TESTS ON TUBE WASTAGE MADE. (11) SODIUM LOOP OPERATION FOR IMPURITY DETECTION AND REMOVAL (43 PG). (14) UNDER-SODIUM SCANNER (8 PG) - DISPLAY OF ULTRASONIC SIGNAL ON TV TUBE BEING ASSEMBLED. (15) COMPILATION OF FERMI EXPERIENCE (3 PG) - LISTS TOPICAL REPORTS IN PROGRESS. (16) FAST-FLUX TEST FACILITY (3 PG) - WORK REPORTED IN APDA 186, 187, 188.

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

*FAILURE, TUBING + *OUT OF PILE LOOPS AND EXPERIMENTS + *REMOTE MANIPULATING AND VIEWING + COOLANT PURIFICATION SYSTEM + CORROSION + FFTF (TR) + FUEL HANDLING + INSTRUMENTATION, COOLANT QUALITY + R AND D PROGRAM + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + SODIUM

9-24001

ALSO IN CATEGORIES 17 AND 6

TABOR WH + HURT SS

OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHANNELLED ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT + CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

9-24052

ALSO IN CATEGORY 17

SELECTED BONUS OPERATING EXPERIENCES

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO

13 PAGES, 4 TABLES, SEPT. 1967, BONUS NUCLEAR POWER PLANT ORL MONTHLY REPORT, NO. 9, DOCKET NO. 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

DURING INSPECTION OF THE CONTROL RODS, A 6-SQUARE-INCH PIECE OF A CONTROL ROD WAS FOUND ON THE CORE-STRUCTURE COVER PLATE. MEASUREMENTS OF SHUTDOWN MARGIN AND CONTROL-ROD WORTH DISCUSSED. TESTS CONDUCTED ON RECIRCULATION FLOW MEASUREMENT SYSTEM TO VERIFY THAT REDUCTIONS IN FLOW WERE REAL. AN AUXILIARY HOIST PUSH-BUTTON CONTROL UNIT FAILED BY STICKING IN THE UP POSITION. THE POWER TO THE UNIT WAS DISCONNECTED, AND A BROKEN ACTUATOR WAS REPLACED.

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

*FAILURE, EQUIPMENT + *FAILURE, SCRAM MECHANISM + *FUEL HANDLING MACHINE + *SHUTDOWN MARGIN + BONUS (ISR) + CONTROL ROD + CONTROL ROD WORTH + FLUX, RECIRCULATION + INSTRUMENTATION, ABNORMAL INDICATION + MEASUREMENT, SUBCRITICALITY + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS

9-24053

ALSO IN CATEGORY 17

SELECTED BONUS OPERATING EXPERIENCE

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO

12 PAGES, 3 TABLES, BONUS NUCLEAR POWER PLANT ORL MONTHLY REPORT NO. 10, OCTOBER 1967, DOCKET NO. 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24053 *CONTINUED*

INSPECTION OF CORE PERFORMED TO DETERMINE CAUSE OF REDUCTION IN RECIRCULATION FLOW. HIGH-COPPER-CONTENT CRUD OBSERVED ON CORE-STRUCTURE-BOX ORIFICES AND FUEL-ASSEMBLY END PIECES. CONTROL-ROD INSPECTIONS DISCUSSED. BELLEVILLE SPRINGS (EMERGENCY SHOCK ABSORBERS) ON ROD NO. 9 FOUND FLATTENED DUE TO POOR HYDRAULIC SNUBBING ACTION CAUSED BY LOW OIL VISCOSITY.

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

*CRUD + *SURFACE FILM DEPOSIT + BONUS (ISR) + CONTROL ROD + COPPER + CORE COMPONENTS + EXAMINATION + FAILURE, SCRAM MECHANISM + FUEL ELEMENT + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + SHOCK ABSORBER

9-24068

NUCLEAR REACTOR CONTROL METHOD AND MEANS
KABUSHIKI KAISHA HITACHI SEISAKUSHO
BRITISH PATENT 1,067,523 +. 5 PAGES, FIGURES, TABLES, MAY 3, 1967

THE SAFETY CONTROL OF A THERMAL REACTOR IS DESCRIBED. ONE OR MORE NEUTRON ABSORBING ELEMENTS HAVING A RESONANCE ABSORPTION ENERGY LEVEL IN A RANGE FROM THE NORMAL THERMAL NEUTRON REGION TO 10 EV ARE APPLIED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (40 CENTS/COPY)

*REACTOR CONTROL + *REACTOR, THERMAL + PATENT + THERMAL NEUTRON + UNITED KINGDOM

9-24128 ALSO IN CATEGORY 5

WATTS RG + SCHOENHALS RJ
FEEDBACK CONTROL OPTIMIZATION OF A SINGLE FLUID HEAT EXCHANGER OR NUCLEAR REACTOR
TULANE UNIVERSITY, NEW ORLEANS, LA. + PURDUE UNIVERSITY, LAFAYETTE, IND.
9 PAGES, 6 FIGURES, 1 TABLE, 13 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, 7(1), PAGES 40-48 (JANUARY 1968)

ATTENTION WAS FOCUSED ON THE PROBLEM OF SUBSTANTIALLY IMPROVING THE OUTLET-TEMPERATURE CONTROL OF A HEAT EXCHANGER BY UTILIZING THE UNIQUE NATURE OF THE EXCHANGER, NAMELY, ITS DISTRIBUTION IN SPACE. THE PERFORMANCE OF A SINGLE FLUID HEAT EXCHANGER IS ANALYZED UNDER CONDITIONS OF PROPORTIONAL CONTROL OF HEAT FLUX. THE ERROR IS OBTAINED FROM A SINGLE TEMPERATURE PROBE WHOSE AXIAL LOCATION CAN BE VARIED. RESULTS SHOW THAT SIMULTANEOUS OPTIMIZATION OF GAIN CONSTANT AND AXIAL PROBE LOCATION CAN PRODUCE LARGE IMPROVEMENTS IN SYSTEM PERFORMANCE.

*HEAT TRANSFER ANALYSIS + HEAT EXCHANGER + MEASUREMENT, TEMPERATURE + THEORETICAL INVESTIGATION

9-24133

STRINDEHAG O
FAILED ELEMENT DETECTION SYSTEMS
AR ATOMFNRGT
2 PAGES, 2 TABLES, 1 FIGURE, REFERENCES, NUCLEAR ENGINEERING 13(141), PAGES 117-118 (FEBRUARY 1968)

DURING THE LAST FEW YEARS SEVERAL NEW SYSTEMS FOR FAILED-FUEL ELEMENT DETECTION HAVE BEEN INSTALLED IN SWEDISH WATER COOLED REACTORS AND TEST LOOPS. IT FOLLOWS FROM THE EXPERIENCE WITH THESE SYSTEMS THAT IT IS POSSIBLE TO OBTAIN SATISFACTORY SENSITIVITY AND RELIABILITY WITH VERY DIFFERENT DETECTION SYSTEMS.

*INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + BETA EMITTER + FAILURE, FUEL ELEMENT + GAMMA EMITTER + INSTRUMENTATION, IN CORE + INSTRUMENTATION, NUCLEAR + REACTOR, WATER + SWEDEN

9-24151

BLAHO D
ELECTRONIC EQUIPMENT FOR THE CONTROL OF A REACTOR
INST. OF NUCLEAR RESEARCH, CZECHOSLOVAK ACADEMY OF SCIENCES, REZ.
4 PAGES, JAD. ENERG., 13, PAGE 226 THRU 229, (JUNE 1967), (IN CZECH)

ELECTRONIC EQUIPMENT USED FOR THE CONTROL OF REACTORS IS DESCRIBED. THE EQUIPMENT CONSISTS OF LINEAR PULSE AMPLIFIERS, PULSE HEIGHT DISCRIMINATORS, AND LINEAR AND LOGARITHMIC RATE METERS.

INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, CONTROL + INSTRUMENTATION, LINEAR + INSTRUMENTATION, LOGARITHMIC + INSTRUMENTATION, PULSE + INSTRUMENTATION, RATE OF CHANGE

9-24153

SCOTT CC + YING SP
DEVELOPMENT OF THE UNDERSODIUM ULTRASONIC SCANNER
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-210 +. 86 PAGES, 20 FIGURES, 4 TABLES, 15 REFERENCES, OCT. 1967

A SCANNING SYSTEM WAS DEVELOPED THAT EMPLOYS A FOCUSING TRANSDUCER FOR PRODUCING A SINGLE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24153 *CONTINUED*

NARROW ULTRASONIC BEAM FOR LOCATING AND DISCERNING OBJECTS IN HIGH-TEMPERATURE OPAQUE MEDIA, SUCH AS 600-F LIQUID SODIUM. THE FEASIBILITY STUDIES THAT PRECEDED DEVELOPMENT OF THE SYSTEM AND THE DEVELOPMENT WORK INVOLVING ACOUSTIC PARAMETERS, DESIGN AND ANALYSIS OF THE MECHANISM, EXPERIMENTAL RESULTS, AND PRACTICAL DEMONSTRATIONS ARE DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, SURVEILLANCE + *TEST, NONDESTRUCTIVE + EQUIPMENT DESIGN + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + INSTRUMENTATION, POSITION + LIQUID + SODIUM + TEST, INSTRUMENT RESPONSE

9-24200

ALSO IN CATEGORY 17

MORE INFORMATION ON REQUEST FOR EXEMPTION FROM 10 CFR 20.203 (C)(2)

YANKEE ATOMIC ELECTRIC COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 9-10 (MARCH 18, 1968), DOCKET 50-213

(LETTER TO DRL, MARCH 1) GENERAL DISCUSSION IN SUPPLEMENT OF THE JAN. 3 REQUEST. ALARM AND CONTROL DEVICES FOR HIGH-RADIATION AREAS DO NOT LEND THEMSELVES TO NUCLEAR POWER PLANTS WHERE RADIATION LEVELS ARE CONSTANTLY CHANGING. ADMINISTRATIVE AND PHYSICAL CONTROLS ARE BETTER. A REVIEW OF PAST INCIDENTS WILL REVEAL MANY CASES WHERE OVER-RELIANCE UPON PROTECTIVE DEVICES. WAS THE DIRECT CAUSE OF OVER EXPOSURE.

*RADIATION SAFETY AND CONTROL + ADMINISTRATIVE CONTROL + HADDAM NECK (PWR) + MONITOR, RADIATION, AREA + REACTOR, PWR + REGULATION, AEC

9-24201

ALSO IN CATEGORY 17

GAYETER RL

BIG ROCK POINT INCORE INSPECTION

CONSUMERS POWER COMPANY, JACKSON, MICHIGAN

2 PAGES, MARCH 5, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 21-22 (MARCH 18, 1968) DOCKET 50-155

(LETTER, MARCH 5) ROD F-5 WAS JAMMED BY A STAINLESS-STEEL BOLT (FROM THE UPPER GRID PLATE) IN THE ROD-DRIVE-NOZZLE EXTENSION. DRIVE D-3 WAS JAMMED BY A PIECE OF STEEL, POSSIBLY FROM A FIELD MODIFICATION TO THE UPPER GRID. ONE OF THE SIX WEDGES AT THE LOWER THERMAL SHIELD WAS FOUND IN THE VESSEL BOTTOM. UNIDENTIFIED MONEL GASKET MATERIAL WAS FOUND WEDGED BETWEEN REACTOR VESSEL AND CORE-SUPPORT PLATE. A SMALL PIECE OF FLEXITALLIC GASKET FROM RECIRC. PUMP REPAIR OF MAY 1967 WAS REMOVED FROM THE REACTOR. VESSEL INTERNALS AND PRIMARY SYSTEM ARE IN GOOD CONDITION.

*EXAMINATION + *PRESSURE VESSEL + BIG ROCK POINT (BWR) + FAILURE, SCRAM MECHANISM + INCIDENT, EQUIPMENT + REACTOR, BWR

9-24205

ALSO IN CATEGORY 17

PETERSON RH

PROPOSED HUMBOLDT BAY ADDENDUM E - ONE STARTUP CHANNEL

PACIFIC GAS AND ELECTRIC COMPANY

1 PAGE, MARCH 8, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 23 (MARCH 18, 1968) DOCKET 50-133

(LETTER, MARCH 8) REQUESTS IMPLEMENTATION OF ONE OF THE TECHNICAL SPECIFICATIONS IN PROPOSED CHANGE 22, AS ONE OF TWO STARTUP CHANNELS HAS FAILED, SO A SHUTDOWN WOULD REQUIRE AT LEAST 5 DAYS OF REPAIR. REVISION SOUGHT IS TO ALLOW ONLY ONE OPERABLE STARTUP CHANNEL FOR CONTROL-ROD-WITHDRAWAL PATTERNS WHICH HAVE DEMONSTRATED THAT INTERMEDIATE- AND POWER-RANGE CHANNELS RESPOND PRIOR TO CRITICALITY.

*INSTRUMENTATION, STARTUP RANGE + HUMBOLDT BAY (BWR) + REACTOR, BWR + TECHNICAL SPECIFICATIONS

9-24225

ALSO IN CATEGORY 12

GRAFTIEAUX J

THE REACTOR PHENIX. CARTRIDGE RUPTURE DETECTION

COMMISSARIAT A L-ENERGIE ATOMIQUE, SACLAY (FRANCE), CENTRE D-ETUDES NUCLEAIRES

CEA-R-3339 +. 13 PAGES, NOV. 1967, (IN FRENCH)

THIS REPORT DEFINES THE ROLE OF CARTRIDGE-RUPTURE DETECTION IN THE REACTOR. IT GIVES THE POSSIBLE METHODS, THEIR PROBABLE PERFORMANCES, THEIR ADVANTAGES AND DISADVANTAGES. THE FINAL FORM OF THE INSTALLATION WILL BE DETERMINED MAINLY BY THE DEGREE OF SAFETY REQUIRED, BY THE TECHNICAL POSSIBILITIES OF THE REACTOR DESIGN, AND BY THE OPERATIONAL FLEXIBILITY WANTED.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, CLADDING + FAILURE, FUEL ELEMENT + FRANCE

9-24226

FURET J + GUYOT C

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24226 *CONTINUED*
CONSIDERATIONS CONCERNING THE RELIABILITY OF REACTOR SAFETY EQUIPMENT
COMMISSARIAT A L-ENERGIE ATOMIQUE, SACLAY (FRANCE, CENTRE D-ETUDES NUCLEAIRES
CEA-R-3292 +. 39 PAGES, 78 FIGURES, 7 REFERENCES, SEPT. 1967, (IN FRENCH)

PARTICULAR ASPECTS OF ELECTRONICS RELIABILITY IN REACTOR CONTROL ARE REVIEWED FOR THE SAFETY ASSEMBLIES OF POWER REACTORS AND LOW-POWER EXPERIMENTAL REACTORS. RESULTS ARE PRESENTED OF RELIABILITY ANALYSIS WHICH COULD BE APPLIED TO THE USE OF FUNCTIONAL MODULAR ELEMENTS, DEVELOPED INDUSTRIALLY IN FRANCE. IMPROVEMENTS IN THIS RELIABILITY APPEAR TO BE FAIRLY LIMITED BY AN INCREASE IN THE REDUNDANCY. ON THE OTHER HAND, IT IS SHOWN HOW IT MAY BE VERY MARKEDLY IMPROVED BY THE USE OF AUTOMATIC TESTS WITH DIFFERENT FREQUENCIES FOR DETECTING UNSAFE FAILURES RATES OF MEASUREMENTS FOR THE SUBASSEMBLIES AND FOR THE LOGIC SUBASSEMBLIES.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS.

*REACTOR SAFETY SYSTEM + *RELIABILITY, SYSTEM + FRANCE + INSTRUMENTATION, COMPONENT + RELIABILITY ANALYSIS

9-24255
HOOTON IN + BEST GC
MEAN RATE ANALYSIS OF MULTICHANNEL NUCLEAR DATA
UKAEA, RESEARCH GROUP, HARKWELL, ENGLAND
5 PAGES, 7 FIGURES, REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 56(2), PAGES 284-288 (1967)

PROPOSES A METHOD OF MULTICHANNEL ANALYSIS IN WHICH THE MEAN RATE IN EACH CHANNEL IS PRESENTED DIRECTLY AS COUNTS PER UNIT TIME INTERVAL, INDEPENDENT OF THE TOTAL EXPERIMENT TIME. NEARLY THE TOTAL STORAGE CAPACITY OF A MEAN-RATE ANALYSER IS DIVIDED INTO TWO INDEPENDENT HALVES. ONE HALF CONTAINS THE LATEST ASSESSMENT OF THE MEAN RATE PER CHANNEL AND IS COUPLED TO THE DISPLAY SYSTEM, WHILE THE OTHER HALF CONTAINS THE COUNTS CURRENTLY BEING COLLECTED AND HAS RANDOM ACCESS FROM THE DATA INPUT. THE DISPLAY PROVIDED IS VERY NEARLY STATIC IN AMPLITUDE BUT HAS INCREASING PRECISION AS THE EXPERIMENT CONTINUES.

*INSTRUMENTATION, RATE OF CHANGE + COMPUTER, DIGITAL + COUNTER + INSTRUMENTATION, PULSE

9-24331
EAMES AR
DATA STORE REQUIREMENTS ARISING OUT OF RELIABILITY ANALYSES
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, ENGLAND
AHSB(SJR)-138 +. 51 PAGES, 1967

INFORMATION ON THE RELIABILITY OF ITEMS OF PLANT IS REQUIRED BY THE RELIABILITY ANALYST IN CARRYING OUT SAFETY ASSESSMENTS. THIS REPORT OUTLINES AN EXAMPLE OF HOW SUCH RELIABILITY INFORMATION MIGHT BE COLLECTED, ANALYSED, AND STORED, USING COMPUTER TECHNIQUES.

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

*INFORMATION RETRIEVAL + *RELIABILITY ANALYSIS + DATA PROCESSING + RELIABILITY, COMPONENT

9-24332
BATCH ML + KLINKMAN AE
TRANSFER FUNCTIONS FROM REACTIVITY PULSES GENERATED BY THE REGULATING ROD. ENRICO FERMI REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-NTS-14 +. 31 PAGES, DECEMBER 1967

DESCRIBES THE MEASUREMENT OF REACTOR POWER AND TEMPERATURE RESPONSES TO REACTIVITY PULSES GENERATED BY A SINGLE, TRAPEZOIDAL MOVEMENT OF THE REGULATING ROD. DATA OBTAINED AT THREE POWER LEVELS ARE REDUCED BY FOURIER ANALYSIS OF THEIR TIME DERIVATIVES. RESULTS ARE PRESENTED IN TERMS OF TRANSFER FUNCTIONS BETWEEN REACTIVITY AND POWER AND BETWEEN POWER AND OUTLET TEMPERATURES. THE ADVANTAGES AND DISADVANTAGES OF THIS TECHNIQUE WITH RESPECT TO AN ALTERNATE OSCILLATOR-ROD TECHNIQUE ARE EXAMINED.

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

*COMPARISON, REACTOR CHARACTERISTICS + *PULSED NEUTRON TECHNIQUE + *TRANSFER FUNCTION + FERMI (LMFBR) + INSTRUMENTATION, PULSE + REACTOR POWER + REACTOR, FAST + REACTOR, LMCR + TEST, PLANT RESPONSE

9-24335
FRAY EN
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 27. SYNCHRONOUS DEMODULATOR, ORNL MODEL Q-2627
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638, PART 27 +. 9 PAGES, 1 FIGURE, 1 TABLE, JANUARY 9, 1968

THE SYNCHRONOUS DEMODULATOR IS DESIGNED TO PRODUCE A DC VOLTAGE WHOSE MAGNITUDE IS PROPORTIONAL TO THE MAGNITUDE OF THE AC INPUT VOLTAGES AND WHOSE POLARITY IS DETERMINED BY THE PHASE OF THE INPUT AC VOLTAGE. THE CIRCUIT, APPLICATION, AND MAINTENANCE INSTRUCTIONS FOR A SYNCHRONOUS DEMODULATOR ARE DESCRIBED. THE CIRCUIT IS CONSTRUCTED IN A 2-UNIT MODULE OF THE ORNL MODULAR REACTOR INSTRUMENTATION SERIES Q-2600, AND IS INTENDED FOR USE IN CONTROL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24335 *CONTINUED*
SYSTEMS OF REACTORS EMPLOYING THIS SERIES OF INSTRUMENTS.

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

*INSTRUMENTATION, VOLTAGE + INSTRUMENTATION, COMPONENT + ORNL

9-24336
FRAY EN
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 24. COINCIDENCE MATRIX MONITOR, ORNL MODEL Q-2624
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638 (PT.24) +. 9 PAGES, 1 FIGURE, 1 TABLE, JANUARY 9, 1968

THE COINCIDENCE MATRIX MONITOR IS DESIGNED TO MONITOR AND TO INDICATE ON FRONT-PANEL METERS THE CURRENT THROUGH EACH LEG AND THE TOTAL CURRENT IN A TWO-OUT-OF-THREE RELAY MATRIX. THE CIRCUIT, APPLICATIONS, AND MAINTENANCE INSTRUCTIONS FOR A RELAY COINCIDENCE MATRIX MONITOR ARE DESCRIBED. THE CIRCUIT IS CONSTRUCTED IN A 4-UNIT MODULE OF THE ORNL MODULAR REACTOR INSTRUMENTATION SERIES Q-2600 AND IS INTENDED FOR USE IN SAFETY SYSTEMS OF REACTORS EMPLOYING THIS SERIES OF INSTRUMENTS.

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

*INSTRUMENTATION, CURRENT + *INSTRUMENTATION; RELAY + INSTRUMENTATION, INDICATOR + ORNL

9-24337
ANDERSON JL
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 5. DUAL OPERATIONAL AMPLIFIER, ORNL MODEL Q-2605
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638, PART 5 +. 29 PAGES, TABLES, JANUARY 30, 1968

DESCRIBES THE CIRCUIT, APPLICATIONS, MAINTENANCE PROCEDURES, AND ACCEPTANCE TESTS FOR DUAL OPERATIONAL AMPLIFIER, ORNL MODEL Q-2605. THE AMPLIFIER IS A COMMERCIAL DESIGN MANUFACTURED TO ORNL SPECIFICATION SP-232 BY ELECTRONIC ASSOCIATES, INC., AS EAI MODEL 6.720. THE UNIT CONSISTS OF TWO INDEPENDENT HIGH-GAIN AMPLIFIER CIRCUITS PACKAGED ON AN ETCHED CIRCUIT BOARD. THE CIRCUIT IS HOUSED IN A 1-UNIT MODULE OF THE MODULAR REACTOR INSTRUMENTATION SERIES Q-2600. EACH AMPLIFIER CAN BE USED IN CONJUNCTION WITH APPROPRIATE NETWORKS TO PERFORM LINEAR COMPUTATIONS, SUCH AS SUMMATION, INTEGRATION, AND MULTIPLICATION BY A CONSTANT.

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

*INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, COMPONENT + ORNL + SOLID STATE DEVICE

9-24346
TALLACKSON JR
MSRE DESIGN AND OPERATIONS REPORT PART IIA NUCLEAR AND PROCESS INSTRUMENTATION
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-729 +. 393 PAGES, TABLES, FIGURES, FEBRUARY 1968

THE EXPERIMENTAL NATURE OF THE MSRE REACTOR HAS INCREASED THE INSTRUMENTATION REQUIREMENT IF COMPARED TO A POWER REACTOR. BOTH NUCLEAR AND NONNUCLEAR INSTRUMENTS ARE USED FOR MEASUREMENT, CONTROL, AND PROTECTION. TWO GRADES OF INSTRUMENTS (CONTROL AND SAFETY) ARE FOUND IN THE MSRE. CONTROL-GRADE INSTRUMENTATION IS USED WHERE A FAILURE OF CONTROL OR A LOSS OF INFORMATION OR PROTECTIVE ACTION (THOUGH UNDESIRABLE) CAN BE TOLERATED. SAFETY-GRADE INSTRUMENTATION IS USED WHERE SUCH FAILURES OR LOSSES CANNOT BE ACCEPTED. A DESCRIPTION OF THE MSRE INSTRUMENT AND CONTROL SYSTEMS IS PRESENTED.

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

*INSTRUMENTATION, GENERAL + *MSRE (RE) + *SYSTEM DESCRIPTION + DESIGN CRITERIA + INSTRUMENTATION, CONTROL + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, PROCESS + REACTOR SAFETY SYSTEM + REACTOR, MOLTEN SALT

9-24347
BALDREY RH
RANDOM PULSE GENERATOR FOR TESTING NUCLEAR INSTRUMENTATION
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1909 +. 19 PAGES, FIGURES, NOVEMBER 15, 1967

A RANDOM-PULSE GENERATOR (ORNL MODEL Q-3029A-1) WAS DEVELOPED IN WHICH THE SOURCE IS A NOISY-AVALANCHE DIODE. THE OUTPUT RATE IS DETERMINED BY THE NUMBER OF AMPLIFIED NOISE PULSES EXCEEDING A DISCRIMINATOR THRESHOLD, AND THE MEAN RATE IS STABILIZED BY OBSERVING THE OUTPUT WITH A RATE METER AND CONTROLLING THE AVALANCHE-DIODE STANDING CURRENT. THE MEASURED TIME DISTRIBUTION OF OUTPUT PULSES FROM THE PULSE GENERATOR CLOSELY MATCH THE CALCULATED POISSON DISTRIBUTION. OUTPUT MEAN RATES FROM 100 HZ TO 10 KHZ CAN BE SELECTED.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24347 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$3.00
COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, PULSE + INSTRUMENTATION, TESTING + SOLID STATE DEVICE + TEST, INSTRUMENT RESPONSE

9-24348
SAR-EL ZH
THE CYLINDRICAL CAPACITOR AS AN ANALYZER. II. RELATIVISTIC PART
ISRAEL ATOMIC ENERGY COMMISSION, YAVNE, SOREQ NUCLEAR RESEARCH CENTER
IA-1131 +. 31 PAGES, OCTOBER 1967

THE STUDY OF THE DYNAMIC AND OPTICAL PROPERTIES OF THE CYLINDRICAL CAPACITOR AS AN ANALYZER FOR CHARGED PARTICLES IS EXTENDED TO THE RELATIVISTIC REGION. THE PROPOSED ANALYZER IS UNRESTRICTED BY THE RELATIVISTIC EFFECT, THE LATTER INTRODUCING SOME CHANGES WHICH DO NOT HOWEVER IMPAIR THE ANALYTICAL FEATURES OF THE DEVICE. THE FIGURES OF MERIT OF THE ANALYZER CONCERNING RESOLUTION AND LUMINOSITY ARE COMPARABLE WITH THOSE OF THE BEST MAGNETIC SPECTROMETERS. THE ANALYZER SEEMS TO BE SIMPLER AND CHEAPER THAN THE MAGNETIC TYPE BUT CALLS FOR VERY HIGH DEFLECTING VOLTAGES, WHICH MAY BE A DISADVANTAGE IN OPERATION.

AVAILABILITY - AEC DEPOSITORY LIBRARIES, IN THE US AND OVERSEAS

*INSTRUMENTATION, NUCLEAR + SPECTROMETRY, ALPHA + SPECTROMETRY, BETA + SPECTROMETRY, GAMMA

9-24349
TAPU C
STUDY OF THE RELIABILITY OF AUTOMATIC CONTROL SYSTEMS FOR NUCLEAR REACTORS
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY, FRANCE
CEA-R-3360 +. 32 PAGES, FIGURES, DECEMBER 1967, IN FRENCH

STUDIED THE RELIABILITY OF AUTOMATIC CONTROL SYSTEMS APPLICABLE TO NUCLEAR REACTORS. TWO TYPES OF REDUNDANCE WERE STUDIED (SEQUENTIAL AND PARALLEL), SHOWING THE IMPORTANCE OF THE DETECTION OF ACTIVE AND PASSIVE FAILURES AND OF MAINTENANCE. THE CALCULATIONS MAKE POSSIBLE THE ORIENTATION OF THE CHOICE OF THE SCHEME AND OF THE ELEMENT USED, AS A FUNCTION OF THE OPERATIONAL SAFETY.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CONTROL SYSTEM + *RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + INSTRUMENTATION, CONTROL + REACTOR CONTROL + REDUNDANCE + THEORETICAL INVESTIGATION

9-24351 ALSO IN CATEGORY 6
UOTINEN VO + PITNER AL
REACTIVITY WORTH OF A CENTRAL SAFETY ROD WITH AND WITHOUT AN INTERNAL SCATTERER.
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-618 +. 21 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

AN EXPERIMENT WAS PERFORMED IN THE HEAVY-WATER-MODERATED PLUTONIUM RECYCLE CRITICAL FACILITY TO DETERMINE THE INCREASE IN THE NEGATIVE REACTIVITY WORTH OF A HOLLOW CADMIUM SAFETY ROD WHEN A SCATTERING MATERIAL (LUCITE) IS PLACED INSIDE THE SAFETY ROD. THE FEASIBILITY OF INCREASING THE WORTH OF THE SAFETY SYSTEM WAS INVESTIGATED, AND CALCULATIONAL METHODS WERE EVALUATED FOR DETERMINING THE WORTH OF SAFETY RODS WITH INTERNAL SCATTERING. THE EFFECT PRODUCED WAS SMALL AND INDICATED THAT THIS IS NOT A PRACTICAL METHOD OF INCREASING THE WORTH OF THIS SAFETY SYSTEM.

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

*COMPARISON, THEORY AND EXPERIENCE + *CONTROL ROD WORTH + REACTIVITY EFFECT + REACTOR SAFETY SYSTEM

9-24352
LONG WG
S8DR ACTUATOR INTERIM REPORT
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-12605 +. 35 PAGES, FIGURES, TABLES, DECEMBER 30, 1967

AN ELECTROMAGNETIC ROTARY ACTUATOR WAS BUILT AND TESTED FOR SERVICE AT 1025 F ON THE S8DR SYSTEM. A COMPREHENSIVE PROGRAM WAS CONDUCTED TO EVALUATE THE PERFORMANCE OF THE ACTUATOR IN CONDITIONS SIMULATING ACTUAL REACTOR SERVICE. THE ACTUATORS SUCCESSFULLY COMPLETED LIFE TESTS.

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

*ACTUATOR + *TESTING + DESIGN CRITERIA + ENVIRONMENTAL CONDITION + EQUIPMENT DESIGN + REACTOR, SPACE + SNAP 8 (SR) + TEST, SYSTEM OPERABILITY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24449
BROWN JR + VAN HOWE KR
CONTROL ROD CALIBRATIONS DURING INITIAL RISE TO POWER IN PEACH BOTTOM (RESULTS OF POSTCONSTRUCTION R AND D
PROCEDURE DP-9)
GULF GENERAL ATOMIC, INC., SAN DIEGO, CALIF.
GAMD-7912 +. 21 PAGES, 12 FIGURES, 1 TABLE, JAN. 22, 1968

A SERIES OF KINETICS CALCULATIONS WERE PERFORMED TO STUDY THE FEASIBILITY OF CONTROL-ROD
CALIBRATIONS AT POWER FOR TWO TECHNIQUES - FIRST, SINGLE POSITIVE OR NEGATIVE REACTIVITY
INSERTIONS, AND SECOND, ROD WITHDRAWAL FOLLOWED BY IMMEDIATE INSERTION (OR INSERTION FOLLOWED
BY IMMEDIATE WITHDRAWAL). BOTH TECHNIQUES WERE BASED ON THE USE OF A REACTIVITY COMPUTER TO
OBTAIN THE INSTANTANEOUS CORE REACTIVITY CHANGES WITH CONTROL-ROD-POSITION CHANGES.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*CONTROL ROD CALIBRATION + CONTROL ROD + CONTROL ROD WORTH + PEACH BOTTOM 2 AND 3 (BWR) +
REACTIVITY EFFECT + REACTOR, BWR + TESTING

9-24472
MASLENOK BA
TESTING THE CONTROL ROD DRIVES OF MARINE NUCLEAR REACTORS
JPRS-43834 +. 173 PAGES, DECEMBER 26, 1967, TRANSLATION OF PP 1-164 FROM ISPYTANIYA PRIVODOV UPRAVLENIYA
SUODOVYKH YADERNYKH REAKTOROV, SHIPBUILDING PUBLISHING HOUSE, LENINGRAD, 1967

THE CHAPTER TITLES OF THIS TRANSLATED RUSSIAN-LANGUAGE BOOK ARE AS FOLLOWS - (I) BASIC
REQUIREMENTS IMPOSED ON THE CONSTRUCTION OF CONTROL ROD DRIVES FOR MARINE NUCLEAR REACTORS,
(II) PURPOSES AND PROBLEMS FOR TEST UNIT TESTING OF CONTROL ROD DRIVES, (III) CONTROL ROD
DRIVES, (IV) PROGRAMS AND EXPERIMENTAL PROCEDURES, (V) TESTING UNITS, (VI) CONTROL SYSTEMS,
MONITORING AND MEASURING DEVICES, (VII) ORGANIZATION OF PRODUCTION, (VIII) MATERIALS USED IN
THE MANUFACTURE OF PARTS FOR CONTROL ROD DRIVES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*CONTROL ROD DRIVE + *REACTOR, MARITIME + DESIGN CRITERIA + INSTRUMENTATION, CONTROL +
TEST, CONTROL ROD DRIVE + USSR

9-24473
KONISHI T + AN S + TOGO Y + NAGAI F
SOME STUDIES ON THE EFFECTIVENESS OF CONTROL RODS
TOKYO UNIVERSITY
6 PAGES, 8 FIGURES, 2 TABLES, 2 REFERENCES, J. NUCL. SCI. TECHNOL. (TOKYO), 4, PAGES 394-9 (AUGUST 1967)

THE LINEAR EXTRAPOLATION DISTANCES FOR EPITHERMAL NEUTRONS ON VARIOUS NEUTRON ABSORBERS WERE
OBTAINED EXPERIMENTALLY WITH THE USE OF A NATURAL UO₂-H₂O CYLINDRICAL EXPONENTIAL COLUMN.
THE MEASURED FLUX DISTRIBUTIONS OR FLUX-DEPRESSION DISTRIBUTIONS AROUND THE CONTROL ROD WERE
COMPARED WITH CALCULATED VALUES. IT WAS CONFIRMED THAT, EXCEPT IN THE REGION IMMEDIATELY
AROUND THE ABSORBER, THE RADIAL FLUX DISTRIBUTIONS OR DEPRESSIONS CAN BE CALCULATED
ACCURATELY BY THE TWO-GROUP APPROXIMATION USING THESE LINEAR EXTRAPOLATION DISTANCES OBTAINED
EXPERIMENTALLY FOR EPITHERMAL NEUTRONS, AND THOSE CALCULATED BY THE KUSHNERIUK-MCKAY METHOD
FOR THERMAL NEUTRONS.

*CONTROL ROD WORTH + *REACTIVITY EFFECT + COMPARISON, THEORY AND EXPERIENCE + MATHEMATICAL TREATMENT

9-24476
PLOTKIN M + EINHORN S
RELIABILITY PREDICTION FOR CONTINUOUSLY OPERATING SYSTEMS
8 PAGES, 1 TABLE, 6 REFERENCES, IEEE TRANS. ON RELIABILITY, R14(1), PAGE 15-22, (MARCH 1965)

CONSIDERS THE PREDICTION OF RELIABILITY FOR A COMPLEX SYSTEM DESIGNED FOR CONTINUOUS
OPERATION. THE STATE OF THE SYSTEM IS DEFINED BY IDENTIFYING THE SUBSYSTEMS WHICH ARE
FUNCTIONING, THE REMAINDER UNDERGOING REPAIR (NO INACTIVE STANDBY). THE SYSTEM IS DESCRIBED
AS UP WHEN IT IS IN ONE OF AN ARBITRARILY SELECTED SET OF THE SYSTEM STATES.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + MATHEMATICAL TREATMENT

9-24477
APPLEBAUM SP
STEADY-STATE RELIABILITY OF SYSTEMS OF MUTUALLY INDEPENDENT SUBSYSTEMS
SYRACUSE UNIVERSITY, NEW YORK
7 PAGES, 2 FIGURES, 3 REFERENCES, IEEE TRANS. ON RELIABILITY, R14(1), PAGE 23-29, (MARCH 1965)

PREDICTING THE RELIABILITY OF A REDUNDANT SYSTEM WITH REPAIR IS CONSIDERABLY SIMPLIFIED WHEN

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24477 *CONTINUED*

THE SYSTEM CAN BE SUBDIVIDED INTO MUTUALLY INDEPENDENT SUBSYSTEMS. RESULTS CAN BE OBTAINED WITHOUT KNOWING THE FAILURE OF REPAIR TIME DISTRIBUTIONS OF THE SUBSYSTEMS. IN THIS PAPER FORMULAE ARE DEVELOPED FOR THE STEADY-STATE AVAILABILITY AND MTBF OF A COMPLEX SYSTEM IN TERMS OF THE AVAILABILITIES AND MTBFS OF ITS CONSTITUENT SUBSYSTEMS. THE BASIC CONCEPTS REQUIRED ARE INTRODUCED AND DISCUSSED IN A REVIEW OF A SIMPLEX SYSTEM. THESE CONCEPTS ARE THEN APPLIED TO A COMPLEX SYSTEM TO OBTAIN THE MAIN RESULTS OF THE PAPER. FINALLY, TWO EXAMPLES ARE GIVEN TO ILLUSTRATE THE APPLICATION OF THESE RESULTS.

MATHEMATICAL TREATMENT + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM

9-24478 ALSO IN CATEGORY 10

DESIGN OF CF + STINE LL

A PROBABILITY METHOD FOR DETERMINING THE RELIABILITY OF ELECTRIC POWER SYSTEMS

AMERICAN ELECTRIC POWER SERVICE CORP. + STANFORD UNIVERSITY

6 PAGES, 8 FIGURES, 9 REFERENCES, IEEE TRANS. ON RELIABILITY, R14(1), PAGE 30-35, (MARCH 1965)

RELIABILITY MEASURES HOW WELL A SYSTEM CAN BE EXPECTED TO PERFORM ITS INTENDED PURPOSE. IT IS EXPRESSED AS A PROBABILITY FUNCTION, WITH TIME AND ENVIRONMENT AS VARIABLES. THIS PAPER DISCUSSES THE MECHANICS OF COMPONENT FAILURE AND REPAIR AND SHOWS THAT POWER SYSTEM BEHAVIOR FOLLOWS A MARKOV PROCESS. THE RELIABILITY OF SIMPLE SYSTEM CONFIGURATIONS IS EVALUATED ANALYTICALLY BY SOLVING THE MARKOV EQUATIONS. THE RELIABILITY OF COMPLEX SYSTEMS IS MORE EASILY EVALUATED BY THE USE OF DIGITAL COMPUTER SIMULATION. THE SIMULATION METHOD IS DESCRIBED.

*ELECTRIC POWER, NORMAL + *RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + THEORETICAL INVESTIGATION

9-24513 ALSO IN CATEGORIES 18 AND 5

COOPER PSAR APPENDIX F - REACTOR CORE THERMAL DESIGN

CONSUMERS PUBLIC POWER DISTRICT

15 PAGES, 9 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

ANALYSIS HERE IS SIMILAR TO THAT OF APPENDIX G FOR BROWNS FERRY. BASIC CRITERION REMAINS UNCHANGED BUT SIGNIFICANT NEW DATA IS APPLIED. THE 1962 MCHFR LIMITS WOULD BE 1.3, BUT THE NEW ONES GIVE 1.9 AT 100% POWER. SENSITIVITY OF MCHFR DISCUSSED, ALSO FISSION GAS PRESSURE ON FUEL CLAD. (SECT. 5, CORE PERFORMANCE BENEFITS OF IMPROVED PLANT EQUIPMENT). BEGINNING WITH THIS REACTOR, PROTECTION AGAINST LOCAL FLUX PEAKING WILL BE PROVIDED BY THE ROD-BLOCK MONITOR. AS DIFFERENT CONTROL RODS ARE SELECTED, A SPECIAL SWITCHING SYSTEM APPLIES SIGNALS FROM THE NEAREST 16 LPRM CHANNELS TO THE RBM SYSTEM. ON-LINE COMPUTER WILL PROVIDE QUICK INFORMATION TO THE OPERATOR ON CALCULATED POWER DISTRIBUTION. AN ANTICIPATING LOAD TRIP SCRAM WILL BE ADDED BECAUSE TURBINE BYPASS IS ONLY 25%.

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

COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

9-24585 ALSO IN CATEGORY 15

PETROCK KF

A SYSTEM FOR READING THERMOLUMINESCENT RADIATION DOSIMETERS USING A HEATED INERT GAS

LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE

UCRL-50007-67-2 +. 7 PAGES, PAGE 1 THROUGH 7 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 8 FIGURES, 1 TABLE, AUGUST 1967

HEATING THERMOLUMINESCENT DOSIMETERS TO READ OUT TEMPERATURE, USING NITROGEN GAS AS THE HEATING MEDIUM, OFFERS MANY ADVANTAGES FOR PRECISE DOSIMETRY. THE PRINCIPAL ADVANTAGES OF THIS SYSTEM ARE - (1) THE RAPID READOUT RATE OF 100 OR MORE DOSIMETERS PER HOUR, (2) GOOD THERMAL CONTACT REGARDLESS OF SHAPE VARIATIONS IN THE DOSIMETERS, AND (3) REDUCED NONRADIATION-INDUCED THERMOLUMINESCENCE BY HEATING IN AN INERT GAS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, THERMOLUMINESCENCE + EQUIPMENT DESIGN + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, PERSONNEL

9-24590 ALSO IN CATEGORY 15

CATE JL + PREVO CT

DESIGN AND CALIBRATION OF A FLOW COUNTER FOR KR-85 IN NATURAL GAS

LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE

UCRL-50007-67-2 +. 3 PAGES, PAGE 7 THROUGH 9 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 2 FIGURES, AUGUST 1967

DESCRIBES THE DESIGN AND CALIBRATION OF A DETECTOR FOR MONITORING THE QUANTITY OF KR-85 IN THE NATURAL GAS PRODUCED BY THE GASBUGGY PROJECT.

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

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24590 *CONTINUED*
22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, RADIATION MONITORING + *KRYPTON + COUNTER + INSTRUMENTATION CALIBRATION +
INSTRUMENTATION, FLOW + PLOWSHARE PROGRAM, GASBUGGY

9-24591
LINDEKEN CL + SANTOMASSIMO VC
TRITIUM-IN-AIR GENERATOR FOR DYNAMIC CALIBRATION OF TRITIUM MONITORS
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
UCRL-50007-67-2 +. 4 PAGES, PAGE 13 THROUGH 16 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 3 FIGURES, 2
TABLES, AUGUST 1967

PRESENTS A TECHNIQUE FOR GENERATING TRITIUM IN AIR. SIMPLE ENOUGH TO PERMIT ROUTINE
INSTRUMENT CHECKS. THE GENERATOR USES TRITIATED ACETONE AS A SOURCE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION CALIBRATION + *TRITIUM + TEST, INSTRUMENT RESPONSE

9-24592 ALSO IN CATEGORY 15
COHEN JJ + TAYLOR RD
DEVELOPMENT OF A LIGHTWEIGHT PORTABLE HI-VOL AIR SAMPLER
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
UCRL-50007-67-2 +. 2 PAGES, PAGE 19 AND 20 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 3 FIGURES, AUGUST
1967

DEVELOPED A CONVENIENT, LIGHTWEIGHT, PORTABLE AIR SAMPLER FOR USE IN AREAS WITHOUT ELECTRIC
POWER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, AIR SAMPLING + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, AIR

9-24593
SATOMI M + YUSA H + GCA A + UGA T + MOCHIZUKI K
DEVELOPMENT OF AN IN-CORE VOID METER
AEC-TR-6929 +. 17 PAGES, 13 FIGURES, TABLES, 6 REFERENCES, TRANSLATED FROM KEISOKU TO SEIGYO, 3, PAGE
69-75, (SEPT. 1967)

TWO TYPES OF ELECTRONIC VOID METERS WERE DEVELOPED - A SOLENOID TYPE AND A DIGITAL TYPE. BOTH
HAVE HIGH SENSITIVITY AND CAN WITHSTAND HIGH TEMPERATURES, HIGH PRESSURES, AND HIGH RADIATION
FIELDS. THESE HAVE BEEN USED IN THE JAPAN POWER DEMONSTRATION REACTOR (JPDR, A
NATURAL-CIRCULATION BOILING WATER REACTOR) SINCE 1964 TO MEASURE THE VOID FRACTIONS IN THE
UPPER SECTION OF THE CHIMNEY AND THE DOWNCOMER OUTLET AND WILL SOON BE USED IN THE FLOW PATHS
WITHIN THE FUEL ELEMENTS. THIS REPORT PRESENTS THE PRINCIPLE AND CONSTRUCTION OF THE VOID
METERS, DETECTOR CIRCUITS, AND MEASUREMENT RESULTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, FLOW + *INSTRUMENTATION, IN CORE + EQUIPMENT DESIGN + FLOW, TWO PHASE +
IN CORE MEASUREMENT + VOID COEFFICIENT

9-24594 ALSO IN CATEGORY 2
LOMENICK TF + ROBERTSON H
SEISMOLOGICAL AND GEOPHYSICAL INSTRUMENTATION IN REACTOR SAFETY
OAK RIDGE NATIONAL LAB., TENN. + GEOTECH DIVISION, TELEDYNE INDUSTRIES, GARLAND, TEX.
5 PAGES, 3 FIGURES, 9 REFERENCES, NUCLEAR SAFETY 9(2), PAGE 120-124, (APRIL 1968)

SEISMIC INSTRUMENTS FOR OPERATING SCRAM SYSTEMS ARE USED IN SOME EXPERIMENTAL AND
FISSILE-MATERIAL-PRODUCTION REACTORS. HOWEVER, THEY ARE NOT BEING GENERALLY CONSIDERED FOR
MOST POWER REACTORS. INSTRUMENTATION FOR EVALUATING REACTOR SITES INCLUDES CERTAIN SYSTEMS
DEVELOPED FOR SEISMOLOGY AND GEOPHYSICS. ACCELEROGRAPHS COULD BE USED TO RECORD STRONG
MOTION AT REACTOR SITES, AND SEISMOGRAPHS COULD BE USED TO RECORD EARTHQUAKE ACTIVITY AT
PROSPECTIVE SITES. OTHER INSTRUMENTS OF POSSIBLE BUT UNPROVED VALUE IN REACTOR SITING
INCLUDE TILTMETERS, STRAINMETERS, MAGNETOMETERS, GRAVITY METERS, EARTH RESISTIVITY METERS,
AND TELLURIC CURRENT SENSORS. GEOPHYSICAL TECHNIQUES, SUCH AS THE REFRACTION AND REFLECTION
SEISMIC METHODS DEVELOPED FOR OIL EXPLORATION, MAY BE USED FOR INVESTIGATING REACTOR SITES
BOTH ON LAND AND AT SEA.

*INSTRUMENTATION, EARTHQUAKE + EARTHQUAKE + ENGINEERED SAFETY FEATURE + INSTRUMENTATION, CONTROL +
INSTRUMENTATION, PROTECTIVE + REACTOR SAFETY SYSTEM + SCRAM, REAL + SEISMOLOGY, GENERAL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24595 ALSO IN CATEGORY 15
BISTINE RW + TYREE WH
COMPARISON OF LOW-ENERGY PHOTON DETECTORS FOR PLUTONIUM AND AMERICIUM WOUND COUNTING
DOW CHEMICAL CO., GOLDEN, COLO. ROCKY FLATS DIV.
RFP-1068 +. 5 PAGES, 5 FIGURES, 17 REFERENCES, DEC. 18, 1967

A LITHIUM-DRIFTED SILICON, SI(LI), DETECTOR SYSTEM WAS USED TO PREDICT THE NUCLIDE CONTENT AND APPARENT DEPTH OF PLUTONIUM AND AMERICIUM EMBEDDED IN AN ACTUAL WOUND. DATA COMPARING THE L X-RAY ENERGY RESOLUTION CAPABILITY OF A GAS PROPORTIONAL AND SI(LI) DETECTOR FOR A PLUTONIUM SOURCE WERE OBTAINED. A SI(LI) DETECTOR SYSTEM WAS USED WITH AN AMERICIUM SOURCE TO OBTAIN L X-RAY AND LOW-ENERGY GAMMA RAY ABSORPTION DATA WITH UNTEMPERED MASONITE ABSORBERS. THE RATIOS OF PHOTON ABSORPTION FROM THE SI(LI) DETECTOR SYSTEM ALLOWED APPARENT DEPTH DETERMINATIONS TO BE MADE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, RADIATION MONITORING + *MONITOR, RADIATION, PERSONNEL + AMERICIUM + COUNTER + INSTRUMENTATION, SURVEILLANCE + PLUTONIUM

9-24649 ALSO IN CATEGORIES 17 AND 6
SELECTED BONUS OPERATING EXPERIENCE
PUERTO RICO WATER RESOURCES AUTHORITY
PRWRA-106 + WRA-B-66-7 +. SECTIONS FROM REACTOR OPERATIONS AT THE BONUS PLANT, MONTHLY REPORT NO. 11, 46 PAGES, NOVEMBER 1966

(PG 5) RODS 4 AND 15 CONTINUED TO MOVE OUT OF THE CORE AFTER RAISE SWITCH RELEASED, AS RELAY CONTACTS REMAINED CLOSED EVEN WHEN THE SPRING WAS SET FOR MAXIMUM FORCE. AFTER ROUGHENING THE CONTACTS (WHICH HAD BEEN DRY AND HIGHLY POLISHED), THERE WAS NO MORE FAILURE. (PG 6,31) PLACING THE PURIFICATION SYSTEM IN OPERATION WAS NOT PROPERLY DONE, AND THE COLD-WATER INJECTION CAUSED A POWER LEVEL INCREASE FROM 3 TO 4.15 MWTH. (PG 17) AFTER A SCRAM AND DIVERSION OF OFF-GAS TO THE VAPOR SPHERE, VARIOUS DRAINS WOULD PLUG, CAUSING PRESSURE BUILDUP TO BLOW THE WATER SEALS, RELEASING RADIOGAS. (PG 23) AN ABNORMAL ROD PROGRAM TO MAINTAIN SUPERHEAT TEMPERATURES WAS CAUSED BY CARRYOVER BY TOO HIGH A WATER LEVEL. THE INDICATED WATER LEVEL WAS LOW BECAUSE OF TOO LOW A FLOW IN THE WATER COLUMN. OPENING THE RECIRCULATION VALVE INCREASED THE BOTTOM TEMP. FROM 425 TO 481 F. (PG 28) AN ANALYSIS OF THE OCT. 24 LOAD REJECTION SHOWS THAT THE SCRAM MAY HAVE BEEN FROM HIGH FLUX OR FROM TURBINE BYPASS VALVE OPENING. WITH THE ADMISSION VALVES IN AUTOMATIC, A LINE-FREQUENCY CHANGE CAUSES THE PRESSURE ERROR AND THE SPEED ERROR TO OPPOSE.

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

*ACCIDENT, COLD COOLANT + *ACCIDENT, LOAD REJECTION + *AIRBORNE RELEASE + *FAILURE, COMPONENT + *INSTRUMENTATION, ABNORMAL INDICATION + *INSTRUMENTATION, RELAY + BONUS (ISR) + CONTROL ROD DRIVE + CONTROLLER + COOLANT PURIFICATION SYSTEM + FAILURE, OPERATOR ERROR + INSTRUMENTATION, LIQUID LEVEL DETECTION + OFF GAS + OPERATING EXPERIENCE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TURBINE

9-24751
HTUN LT
RELIABILITY OF A SYSTEM HAVING QUASI-REDUNDANCY
RELIABILITY SECTION, QUALITY ASSURANCE DEPT., WAYLAND, LAB., WAYLAND, MASS.
6 PAGES, 8 FIGURES, 2 TABLES, 4 REFERENCES, IEEE TRANS. ON RELIABILITY, R-15(1), PAGE 37-42, (MAY 1966)

RELIABILITY MATHEMATICAL MODELS OF A CERTAIN TYPE OF SYSTEM WITH A BRANCHING CONFIGURATION, POSSESSING QUASI-REDUNDANT PROPERTIES, ARE DEVELOPED FOR THE NONREPAIR ENVIRONMENT. A SIMPLE SYSTEM OF THIS TYPE IS CHOSEN AS A VEHICLE TO ILLUSTRATE THE METHOD OF APPROACH WHEN IN A REPAIR ENVIRONMENT. TO SOLVE THE SIMULTANEOUS DIFFERENTIAL EQUATIONS FOR SUCH A SYSTEM IN A REPAIR ENVIRONMENT, ANALOG COMPUTER SIMULATION IS FOUND TO BE VERY SUITABLE.

*REDUNDANCE + *RELIABILITY ANALYSIS + ANALOG SIMULATION + RELIABILITY, SYSTEM

9-24752
HTUN LT
RELIABILITY PREDICTION TECHNIQUES FOR COMPLEX SYSTEMS
RAYTHEON CO., WAYLAND, MASS.
11 PAGES, 11 FIGURES, 9 REFERENCES, IEEE TRANS. ON RELIABILITY, R-15(2), PAGE 58-69, (AUGUST 1966), PAPER PRESENTED AT THE 17TH ANNUAL NATIONAL AEROSPACE ELECTRONICS CONFERENCE, DAYTON, OHIO, MAY 10-12, 1965

AS ELECTRONIC SYSTEMS CONTINUE TO EVOLVE INTO MORE AND MORE COMPLEX STRUCTURES, THE SEARCH FOR BETTER AND MORE EFFICIENT RELIABILITY PREDICTION TECHNIQUES NATURALLY TAKES ON ADDED MOMENTUM. THIS PAPER ILLUSTRATES THE APPLICABILITY OF TRANSITION DIAGRAM IN DESCRIBING THE STATE SPACE OF A COMPLEX SYSTEM, REPAIRABLE OR NONREPAIRABLE, AND SHOWS THE METHODOLOGY OF WRITING THE SET OF FIRST-ORDER LINEAR DIFFERENTIAL EQUATIONS REPRESENTING THE SYSTEM PERFORMANCE BY INSPECTION OF THE TRANSITION DIAGRAM. A DISCUSSION OF SOME APPLICABLE PROPERTIES OF LINEAR SIGNAL-FLOW GRAPHS IS INCLUDED. METHODS OF SOLVING PROBLEMS BY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24752 *CONTINUED*

INSPECTION TECHNIQUES ARE CLEARLY EXPLAINED, AND SPECIFIC EXAMPLES ARE GIVEN TO ILLUSTRATE THE CONCEPTS.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-24753

MUTH EJ

RELIABILITY OF A SYSTEM HAVING STANDBY SPARE PLUS MULTIPLE-REPAIR CAPABILITY

GENERAL ELECTRIC CO., APOLLO SUPPORT DEPT., DAYTONA BEACH, FLA.

6 PAGES, 5 FIGURES, 2 TABLES, 6 REFERENCES, IEEE TRANS. ON RELIABILITY, R-15(2), PAGE 76-81, (AUGUST 1966)

THE RELIABILITY OF A SYSTEM HAVING TWO IDENTICAL AND REPAIRABLE UNITS, ONE OF WHICH IS OPERATING WHILE THE OTHER IS IN INACTIVE STANDBY, IS TREATED. IT IS ASSUMED THAT EACH UNIT HAS INDEPENDENT EXPONENTIALLY DISTRIBUTED FAILURE TIMES AND INDEPENDENT GAMMA DISTRIBUTED REPAIR TIMES. FORMULAS ARE DERIVED WHICH EXPRESS SYSTEM RELIABILITY AND EXPECTED TIME TO SYSTEM FAILURE, SPECIFICALLY, AS A FUNCTION OF THE CAPABILITY FOR ONE REPAIR, TWO REPAIRS, AND SO ON.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + MAINTENANCE AND REPAIR + REDUNDANCE

9-24781

ALSO IN CATEGORY 17

POLASKI CA + COCHRAN RG

EXPERIMENTAL DETERMINATION OF THE SOURCE OF PHOTONEUTRONS IN A WATER MODERATED NUCLEAR REACTOR

TEXAS A + M UNIVERSITY COLLEGE STATION, TEXAS

NSC-17 +. 34 PAGES, 11 FIGURES, 1 TABLE, 14 REFERENCES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 17, JANUARY 1966

PRESENTS DETAILS OF EXPERIMENTS WHICH DETERMINED THAT LA-140 GAMMA RAYS PRODUCED PHOTONEUTRONS FROM DEUTERIUM IN ORDINARY WATER. THE ABSOLUTE THERMAL FLUX AFTER 6 DAYS OF SHUTDOWN FROM 100-KW OPERATION WAS 154 N/CM SQUARED-SEC. CONTENDS THAT SOURCELESS STARTUPS SHOULD BE RECONSIDERED, PROVIDED THAT CERTAIN SAFETY PRECAUTIONS ARE SATISFIED SUCH AS PLACING DETECTOR CLOSER THAN 60 CM TO CORE TO OBSERVE MULTIPLIED NEUTRONS RATHER THAN THOSE PRODUCED IN REFLECTOR (SEE TECHNICAL REPORT 20).

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*DEUTERIUM + *SOURCE, NEUTRON + INSTRUMENTATION, STARTUP RANGE + LANTHANUM + MEASUREMENT, GENERAL + REACTOR STARTUP, LOW SOURCE + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFLECTOR + TEST, PHYSICS

9-24784

ALSO IN CATEGORY 17

RANDALL JD + POLASKI CA + BECK CL + PERRY RT + WILSON WB

INVESTIGATION OF THE PROPERTIES OF PHOTONEUTRONS IN THE NSCR CORE

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-20 +. 12 PAGES, 7 FIGURES, 2 REFERENCES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 20, MAY 1967

DISCUSSES MEASUREMENTS OF THE PHOTONEUTRONS IN THE CORE AND REFLECTOR. DISTRIBUTION IN THE CORE WAS THE SAME AS THE OPERATING FLUX BUT DECREASED SLOWER WITH DISTANCE IN THE WATER REFLECTOR. WITH THE SOURCE REMOVED, MEASUREMENTS SHOWED THAT NEUTRON POPULATION RESPONDED TO SUBCRITICAL MULTIPLICATION CHANGES (FROM -6.9% TO -0.4%) JUST AS WITH PO-BE SOURCE. CONCLUDES THAT NO SOURCE IS NEEDED IF REACTOR LOGS GREATER THAN 1000 KWHR/WEEK AND IF STARTUP-CHANNEL DETECTOR IS POSITIONED NEAR THE CORE (SEE ALSO TECHNICAL REPORT 17).

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*DEUTERIUM + *GAMMA + *SOURCE, NEUTRON + FLUX DISTRIBUTION + INSTRUMENTATION, STARTUP RANGE + MEASUREMENT, GENERAL + NEUTRON + REACTOR STARTUP, LOW SOURCE + REACTOR, POOL TYPE + REACTOR, RESEARCH

9-24811

ALSO IN CATEGORY 17

JOHNSON WR

FAILURE OF BEAM HOLE MODERATOR, RESTART ATTEMPTED WITHOUT SRO

UNIVERSITY OF VIRGINIA

2 PAGES, APRIL 3, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 11-12 (APRIL 22, 1968) DOCKET 50-62

(LETTER, APRIL 3) ON MARCH 10, A WELDED SEAM FAILED ON THE MODERATOR BOX OF THE OLD TANGENTIAL BEAM PORT, PUTTING GRAPHITE POWDER INTO THE REACTOR POOL. THE REACTOR WAS SCRAMMED BY PERIOD AND HIGH FLUX (VARIOUS RECORDS SHOWED 117-161% POWER). THE OPERATOR INCORRECTLY ASCERTAINED THAT THIS WAS FAILURE OF THE POWER-CONTROL SERVO AND TRIED TO RESTART THE REACTOR WITHOUT NOTIFYING A SENIOR OPERATOR. THE REACTOR COULD NOT OVERCOME XENON. *** THE NEXT DAY, POOL-WATER DARKENING WAS SEEN. ON MAR. 14, COMPLIANCE WAS NOTIFIED, AND, ON MAR. 25, INSPECTORS WITNESSED RESTART. *** POOR THERMAL CONDUCTIVITY AND A LARGE PLATE SUPPORTED ONLY AT THE SIDES CAUSED THE FAILURE. *** OPERATOR PERFORMANCE WAS NOT SATISFACTORY, IN PART BECAUSE AUTOMATIC SHUTDOWNS DUE TO INSTRUMENT MALFUNCTION ARE TOO FREQUENT.

*BEAM HOLE + *FAILURE, EQUIPMENT + *REACTIVITY EFFECT, ANOMALOUS + CONTROLLER + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + GRAPHITE + INCIDENT, HUMAN ERROR + INSPECTION AND COMPLIANCE + MODERATOR + REACTOR POWER + REACTOR, POOL TYPE + REACTOR, RESEARCH + RELIABILITY, SYSTEM + SCRAM, SPURIOUS + STAFFING, TRAINING, QUALIFICATION + WELDS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24886 ALSO IN CATEGORY 15
CROMWELL HH
AUTOMATED INSTRUMENTATION FOR IN VIVO RADIATION MONITORING
UNION CARBIDE CORP., Y-12 PLANT, OAK RIDGE, TENN.
Y-1595 +. 62 PAGES, JAN. 30, 1968

AN IN-VIVO SPECTROMETER UTILIZES A SMALL DIGITAL COMPUTER TO COLLECT, STORE, AND PROCESS RADIATION DATA OBTAINED FROM MONITORING THE INTERNAL BODY BURDENS OF GAMMA-EMITTING RADIOISOTOPES. A SIGNIFICANT FEATURE OF THE INSTRUMENTATION IS THE STORAGE OF DIFFERENTIAL RATHER THAN ABSOLUTE SPECTRA. IN ADDITION TO PERFORMING THE FUNCTION OF A MULTICHANNEL ANALYZER, THE COMPUTER CALCULATES BODY BURDENS AND MAKES THE RESULTS IMMEDIATELY AVAILABLE TO THE OPERATOR. IT ALSO FACILITATES SYSTEM CALIBRATION AND MAINTENANCE AND CAN BE REPROGRAMMED FOR OTHER FUNCTIONS.

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

*DOSE MEASUREMENT, INTERNAL + *PERSONNEL EXPOSURE, RADIATION + COMPUTER, DIGITAL + DOSIMETRY, GENERAL + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, PERSONNEL + SPECTROMETRY, GAMMA

9-24887
CARBON METER FOR SODIUM. QUARTERLY PROGRESS REPORT, JULY 1-SEPTEMBER 30, 1966
UNITED NUCLEAR CORP., ELMSFORD, N. Y.
UNC-5172 +. 28 PAGES, MAR. 15, 1967

UNITED NUCLEAR CORP. - DEVELOPMENT PROGRAM REPORT FOR PERIOD 7/1/66 TO 9/30/66. THIS REPORT IS ONE OF A SERIES CONCERNED WITH THE DEVELOPMENT, MODEL TESTING, AND PERFORMANCE DETERMINATION OF A METER-PROBE TO MEASURE CARBON IN SODIUM AT HIGH TEMPERATURES.

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

*DESIGN STUDY + CARBON + HIGH TEMPERATURE + INSTRUMENTATION, COMPONENT + SODIUM + TEST, INSTRUMENT RESPONSE

9-24891
RYAN RD
LOW LEVEL ALPHA PAIR COUNTING SYSTEM
AAEC RESEARCH ESTABLISHMENT, SUTHERLAND, AUSTRALIA
3 PAGES, 3 FIGURES, 4 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 57(1), PAGES 43-45 (1967)

DESCRIBES A LOW-LEVEL ALPHA SCINTILLATION COUNTING SYSTEM. BOTH SINGLE AND PAIR COUNTS ARE RECORDED ON MECHANICAL REGISTERS. A LOW-THRESHOLD DISCRIMINATOR PERMITS THE OPERATION OF THE PHOTOMULTIPLIER AT LESS THAN 800 V WITH HIGH DETECTION EFFICIENCY AND LOW BACKGROUND LEVEL.

*INSTRUMENTATION, RADIATION MONITORING + ALPHA EMITTER + COUNTER + INSTRUMENTATION, NUCLEAR

9-24892
WHITTAKER JF
INSTABILITY AND DECOUPLING IN NUCLEAR ELECTRONICS
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D. C.
1 PAGE, NUCLEAR INSTRUMENTS AND METHODS, 57(1), PAGE 156 (1967)

DISCUSSES THE INSTABILITIES THAT CAN OCCUR IN SEMICONDUCTOR ELECTRONICS AND THE NECESSARY DECOUPLING TO REMOVE THESE INSTABILITIES AND THEIR EFFECTS, WITH PARTICULAR REFERENCE TO THE PRESENT CONCEPT OF MODULAR ELECTRONIC SYSTEMS.

*INSTRUMENTATION, ABNORMAL INDICATION + EQUIPMENT DESIGN + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, GENERAL + SOLID STATE DEVICE

9-24893
GURFINKEL Y + NOTEA A
USE OF 133BA AS A CALIBRATION STANDARD FOR GE(LI) DETECTORS
NUCLEAR CHEMISTRY DEPARTMENT, SOREQ NUCLEAR RESEARCH CENTRE, YAVNE, ISRAEL
2 PAGES, 2 FIGURES, 1 TABLE, 4 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 57(1), PAGES 173-174 (1967)

THE ENERGIES AND INTENSITIES OF THE GAMMA AND X-RAYS IN THE DECAY OF 8A-133 WERE MEASURED. THIS NUCLEUS IS RECOMMENDED FOR USE AS A CALIBRATION STANDARD FOR GERMANIUM (LITHIUM) DETECTORS. THE RELATIVE EFFICIENCY OF THE DETECTOR MAY BE FOUND WITH AN ACCURACY BETTER THAN 10%, AND THE ABSOLUTE EFFICIENCY WITH AN ACCURACY BETTER THAN 15%.

*INSTRUMENTATION CALIBRATION + BARIUM + COUNTER + INSTRUMENTATION, NUCLEAR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24894
HOOTON IN
THE DISPLAY OF STATISTICAL DATA FROM NUCLEAR COUNTING EXPERIMENTS
UKAEA, HARWELL, ENGLAND
7 PAGES, 8 FIGURES, NUCLEAR INSTRUMENTS AND METHODS, 56(2), PAGES 277-283 (1967)

MANY NUCLEAR EXPERIMENTS MEASURE THE RELATIVE PROBABILITY OF DIFFERENT EVENTS OCCURRING AT RANDOM. THE RESULTS ARE DISPLAYED AS HISTOGRAMS ON CATHODE RAY TUBES BOTH DURING AND AFTER THE EXPERIMENT. IN THIS PAPER A COMPARISON IS MADE BETWEEN THE PRECISION OF THE DATA AND OF THE DISPLAY FOR LINEAR, LOGARITHMIC AND SQUARE ROOT RELATIONSHIPS BETWEEN THE DATA AND THE DISPLAY. IT IS SUGGESTED THAT A SQUARE ROOT LAW IS THE MOST APPROPRIATE FOR THE DISPLAY OF STATISTICAL DATA.

*RELIABILITY ANALYSIS + DATA PROCESSING

9-24895
ELAD E
RECENT DEVELOPMENTS IN LOW-NOISE PREAMPLIFIERS
UNIVERSITY OF CALIFORNIA, LAWRENCE RADIATION LAB., BERKELEY, CALIF.
UCRL-18005 + CONF-680302-1 +. 14 PAGES, DECEMBER 27, 1967, FROM INTERNATIONAL SYMPOSIUM ON NUCLEAR ELECTRONICS AND RADIOPROTECTION, TOULOUSE, FRANCE

A NOVEL LOW-NOISE PREAMPLIFIER FOR USE WITH SEMICONDUCTOR RADIATION DETECTORS IS DESCRIBED. THE PREAMPLIFIER UTILIZES THE LOW-NOISE CHARACTERISTICS OF A LIQUID-HELIUM-COOLED GERMANIUM-JUNCTION FIELD-EFFECT TRANSISTOR (JFET). THE NEW GERMANIUM DEVICE IS COMPARED WITH THE CURRENTLY USED SILICON JFETS. PULSE GENERATOR RESOLUTION OF THE PREAMPLIFIER FOR ZERO EXTERNAL CAPACITANCE IS 0.28 KEV FWHM (GE) WITH A SLOPE OF 0.016 KEV/PF. TYPICAL RESOLUTION OBTAINED WITH SILICON AND GERMANIUM DETECTORS FOR LOW-ENERGY X RAYS IS LESS THAN 0.4 KEV.

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

*INSTRUMENTATION, AMPLIFIER + SOLID STATE DEVICE

9-24896 ALSO IN CATEGORY 6
MCMILLAN RN + ODELL FP + WRAY D
THE PHYSICS AND CONTROL OF THE STEAM GENERATING HEAVY WATER REACTOR
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISELY, ENGLAND
TRG-REPORT-1343 +. 45 PAGES, 1968, A REVISED VERSION OF A LECTURE PRESENTED TO THE FEDERAL INSTITUTE FOR REACTOR RESEARCH ON 3 NOVEMBER 1966

BRIEFLY REVIEWS REACTOR-PHYSICS METHODS USED IN THE PERFORMANCE ANALYSIS OF S.G.H.W. REACTORS WITH PARTICULAR REFERENCE TO THE VOID COEFFICIENT OF REACTIVITY. IT DESCRIBES THE DYNAMIC CHARACTERISTICS OF THE UNCONTROLLED REACTOR, SHOWING THE IMPORTANT REACTIVITY FEEDBACK EFFECTS. THE CONTROL SYSTEM FOR THE WINFRITH S.G.H.W.R. IS DESCRIBED AND TRANSIENTS ARE PRESENTED TO DEMONSTRATE THE SATISFACTORY PERFORMANCE WITHIN THE EXPECTED RANGE OF VOID COEFFICIENTS OF THE LOOPS WHICH CONTROL NEUTRON FLUX, STEAM FLOW, STEAM PRESSURE AND FEEDWATER FLOW.

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

*REACTOR CONTROL + REACTIVITY EFFECT, VOID + REACTOR, HWR + UNITED KINGDOM + VOID COEFFICIENT

9-24897
NEUENHANN P
KNK--REAKTORREGELUNG
INSTITUT FUER MESS-U. REGELUNGSTECHNIK
MRR-35 +. FIGURES, JUNE 1967, IN GERMAN

FOR THE KNK REACTOR, THE COOLANT OUTLET TEMPERATURE IS TO BE KEPT CONSTANT AND THE REACTOR POWER IS TO BE ADAPTED TO THE LOAD. THE CONTROL SYSTEM REQUIRED FOR THIS PURPOSE IS TO BE BUILT UP WITH A DISCONTINUOUS CONTROLLER (ON-OFF CONTROLLER). DYNAMIC STUDIES DESIGN OF THE CONTROL SYSTEM HAVE BEEN PERFORMED WITH THE AID OF AN ANALOG COMPUTER. THE STUDIES WERE DONE NOT ONLY WITH THE CONTROL SYSTEM SIMULATED ON THE ANALOG COMPUTER, BUT ALSO WITH THE ORIGINAL CONTROL SYSTEM, CONNECTED TO THE ANALOG MODEL OF THE REACTOR.

AVAILABILITY - P. NEUENHANN, LABORATORIUM FUR REAKTORREGELUNG U. ANLAGENSICHERUNG, TECHNISCHE HOCHSCHULE MUNCHEN

*REACTOR CONTROL + ANALOG SIMULATION + CONTROL SYSTEM + GERMANY + REACTOR, POWER

9-24903 ALSO IN CATEGORY 12
SUPPLEMENTAL INFORMATION ON INSTRUMENTATION AND CONTROL SYSTEM

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-24903 *CONTINUED*
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
11 PAGES, 12 FIGURES, PAGE 1-7 THRU 1-17 AND 1-23 THRU 1-35 OF AMENDMENT 7 TO THE DIABLO CANYON APPLICATION (SUPPLEMENT 6) TO THE PRELIMINARY SAFETY ANALYSIS REPORT, NGV. 9, 1967, DOCKET NO. 50-275, TYPE--PWR, MFG--WEST., AE--PG+E

ADDITIONAL INFORMATION SUPPLIED IN RESPONSE TO AEC LETTER DATED OCTOBER 26, 1967. THE PRELIMINARY DESIGN AND SAFETY EVALUATION IS GIVEN, BASED ON THE CURRENT STATE OF THE DETAILED DESIGN. DISCUSSES REACTOR PROTECTION AND CONTROL SYSTEM AND THE EMERGENCY ELECTRICAL POWER SYSTEM. INTERLOCKS, INDEPENDENCE, INTERACTION, AND TEST AND CALIBRATION CAPABILITY ARE DESCRIBED TO DEMONSTRATE HOW DESIGN CRITERIA WILL BE IMPLEMENTED.

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

*INSTRUMENTATION, CONTROL + *INSTRUMENTATION, PROTECTIVE + *SYSTEM DESCRIPTION + CODES AND STANDARDS + DIABLO CANYON (PWR) + EMERGENCY POWER, ELECTRIC + INDEPENDENCE + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TESTING + REACTOR, PWR

9-24950 ALSO IN CATEGORY 18
RESPONSE TO QUESTION 13.3--TEST OF DIFFERENTIAL PRESSURE DEVICES
VIRGINIA ELECTRIC AND POWER COMPANY
1 PAGE, PAGE S13.3-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

WILL DIFFERENTIAL-PRESSURE DEVICES (TYPICAL OF THOSE TO BE USED FOR MEASURING PRESSURIZER LEVEL) BE TESTED UNDER SIMULATED BLOWDOWN CONDITIONS TO DETERMINE THAT THEY WILL, IN FACT, SENSE LOW LEVEL UNDER WET CONDITIONS. ***(ANSWER) WESTINGHOUSE HAS A PROGRAM UNDERWAY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, LIQUID LEVEL DETECTION + *INSTRUMENTATION, PRESSURE + *SYSTEM OPERABILITY IN ACCIDENT + *TEST, INSTRUMENT RESPONSE + BLOWDOWN + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR, PWR + REPORT, PSAR + SIMULATION + SURRY 1 AND 2 (PWR)

9-25001 ALSO IN CATEGORIES 17 AND 6
LABOR W. + HURT SS
OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHANNELLED ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT + CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

9-25009
DEYO JN + WINTUCKY WT
INSTRUMENTATION OF A SNAP-8 SIMULATOR FACILITY
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TM-X-1525 +. 58 PAGES, TABLES, FIGURES, REFERENCES, MARCH 1968

THE PHILOSOPHY AND EXPERIENCE WITH HIGH-TEMPERATURE (UP TO 1300 F (1000 K)) INSTRUMENTATION, PRESSURE SENSORS, THERMOCOUPLES, AND FLOWMETERS ARE DISCUSSED. SECONDARY AND SUPPORT INSTRUMENTATION IN THE TEST FACILITY AND CONTROL ROOM ARE ALSO INCLUDED. THE APPROACH DESCRIBED IS BASED ON THE PARAMETERS TO BE MEASURED AS WELL AS THE TIME SCHEDULE, PHYSICAL CHARACTERISTICS, AND AVAILABLE INSTRUMENTATION FOR THE FACILITY. THE RESULTS INCLUDE DATA HANDLING, ACCURACY, AND RELIABILITY OF THE SYSTEM. OVER 2000 HOURS OF OPERATION WERE ACCUMULATED, DURING WHICH TIME THE MERCURY LOOP WAS AT OPERATING TEMPERATURE FOR ABOUT 1000 HOURS. MORE THAN 2000 DATA RUNS WERE TAKEN.

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

*INSTRUMENTATION, GENERAL + *SNAP 8 (SR) + *TEST, INSTRUMENT RESPONSE + DATA PROCESSING + DESIGN CRITERIA + HIGH TEMPERATURE + INSTRUMENTATION, FLOW + INSTRUMENTATION, PRESSURE + INSTRUMENTATION, TEMPERATURE + REACTOR, SPACE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25010
DELORENZO JT
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 15. 0.1 HP DC SERVO AMPLIFIER, ORNL MODEL Q-2615
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt.15) +. 17 PAGES, 3 TABLES, 2 FIGURES, JAN. 22, 1968

THE 0.1-HP DC SERVO AMPLIFIER IS A DC POWER AMPLIFIER WHICH CAN SUPPLY A MAXIMUM OF 75 W AT VOLTAGE AND CURRENT LIMITS OF 25 V AND 5 AMP RESPECTIVELY. THE AMPLIFIER WAS DESIGNED TO DRIVE A GLOBE INDUSTRIES, INC., TYPE 8D DC MOTOR WITH A 27 V ARMATURE. IN A TYPICAL APPLICATION THIS MOTOR IS USED AS THE SERVO MOTOR TO POSITION A FISSION CHAMBER IN A WIDE-RANGE COUNTING-RATE CHANNEL. THE SIGNAL INPUT VOLTAGE SWING REQUIRED FOR FULL OUTPUT IS +10 AND -10 V.

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

*INSTRUMENTATION, AMPLIFIER + ORNL + SERVOMECHANISM

9-25011
FRAY EN
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 16. VERNISTAT ADJUSTABLE FUNCTION GENERATOR, ORNL
MODEL Q-2616
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt.16) +. 9 PAGES, 2 FIGURES, JAN. 9, 1968

THE VERNISTAT ADJUSTABLE FUNCTION GENERATOR IS COMPOSED OF TWO SEPARATE BUT INTEGRAL UNITS - (1) A FUNCTION ADJUSTING ASSEMBLY AND (2) AN INTERPOLATING VERNISTAT POTENTIOMETER. A FUNCTION IS SET UP SIMPLY BY MANUALLY ADJUSTING THE POSITIONS OF SLIDERS ON THE FUNCTION ADJUSTING ASSEMBLY PANEL. THE PANEL IS MARKED OFF IN RECTANGULAR COORDINATES, WITH PERCENT OUTPUT AS THE ORDINATE AND SHAFT POSITION AS THE ABSCISSA. THE SLIDERS PROVIDE A VISUAL PLOT OF THE FUNCTION THAT IS SET INTO THE FUNCTION GENERATOR.

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

*INSTRUMENTATION, VOLTAGE + ANALOG SIMULATION + INSTRUMENTATION, GENERAL + ORNL

9-25012
LINGAR WE
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 19. +15 VOLT AND +25 VOLT VOLTAGE REGULATORS, ORNL
MODEL Q-2619.
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt.19) +. 15 PAGES, 2 TABLES, 2 FIGURES, JAN. 22, 1968

THE +15 VOLT AND +25 VOLT VOLTAGE REGULATOR MODULE (ORNL MODEL Q-2619) IS FOR USE IN PROVIDING REGULATED VOLTAGES FOR NUCLEAR REACTOR INSTRUMENTATION. THE INPUT TO THE REGULATOR CIRCUITS IS A DC VOLTAGE IN THE RANGE OF +28 TO +36 V. THE REGULATOR OUTPUTS HAVE A COMMON ELECTRICAL GROUND.

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

*INSTRUMENTATION, VOLTAGE + ORNL

9-25013
LINGAR WE
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 20. -15 VOLT AND -25 VOLT VOLTAGE REGULATORS, ORNL
MODEL Q-2620
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt. 20) +. 15 PAGES, 2 FIGURES, 2 TABLES, JAN. 22, 1968

THE -15 VOLT AND -25 VOLT VOLTAGE REGULATOR MODULE IS INTENDED FOR USE IN PROVIDING REGULATED VOLTAGES FOR NUCLEAR REACTOR INSTRUMENTATION. THE INPUT TO THE REGULATOR CIRCUITS IS A DC VOLTAGE IN THE RANGE OF -28 TO -26 V. THE REGULATOR OUTPUTS HAVE A COMMON ELECTRICAL GROUND.

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

*INSTRUMENTATION, VOLTAGE + ORNL

9-25014
LINGAR WE
NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 21. +10 VOLT AND -10 VOLT VOLTAGE REGULATORS, ORNL
MODEL Q-2621

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25014 *CONTINUED*

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt.21) +. 15 PAGES, 2 FIGURES, 2 TABLES, JANUARY 22, 1968

THE +10 VOLT AND -10 VOLT VOLTAGE-REGULATOR MODULE IS FOR USE IN PROVIDING REGULATED VOLTAGES FOR NUCLEAR REACTOR INSTRUMENTATION. THE INPUT TO THE +10 V REGULATOR CIRCUIT IS A DC VOLTAGE IN THE RANGE OF +28 TO +36V. THE INPUT TO THE -10 V REGULATOR CIRCUIT IS IN THE RANGE OF -28 TO -36 V. THE REGULATOR OUTPUTS HAVE A COMMON ELECTRICAL GROUND.

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

*INSTRUMENTATION, VOLTAGE + ORNL

9-25015

DELORENZO JT

NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 22. LINEAR COUNT-RATE METER, ORNL MODEL Q-2622
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-1638(Pt.22) +. 25 PAGES, JANUARY 8, 1968

A LINEAR COUNT-RATE METER MODULE WAS DESIGNED TO PROVIDE A DC CURRENT PROPORTIONAL TO THE COUNTING RATE OF INPUT PULSES IN FOUR SWITCHABLE RANGES. IT CONSISTS OF A FLIP-FLOP, LIMITING AMPLIFIER, DIODE PUMP DRIVER, AND DIODE PUMP. THE CURRENT OUTPUT OF THE DIODE PUMP FEEDS DIRECTLY INTO THE SUMMING JUNCTION OF AN EXTERNAL OPERATIONAL AMPLIFIER. THE INSTRUMENT WAS INTENDED PRIMARILY FOR USE IN THE NEUTRON-COUNTING CHANNELS OF THE ORNL HIGH FLUX ISOTOPE REACTOR.

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

*INSTRUMENTATION, LINEAR + COUNTER + HFIR (FTR) + INSTRUMENTATION, RATE OF CHANGE + ORNL +
REACTOR, AEC OWNED + REACTOR, FLUX TRAP + REACTOR, RESEARCH

9-25016

FRAY EN

NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 23. RELAY SAFETY ELEMENT, ORNL MODEL Q-2623
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638(Pt. 23) +. 9 PAGES, 1 FIGURE, 1 TABLE, JANUARY 8, 1968

THE RELAY SAFETY ELEMENT IS A LOGIC ELEMENT INTENDED FOR USE IN THE SAFETY SYSTEM OF REACTORS. THE CIRCUIT HAS A SINGLE INPUT WHICH IS NORMAL (115-VAC) OR TRIP (0 V). THE OUTPUT IS A FAMILY OF RELAY CONTACTS INTENDED TO COMBINE WITH OTHER RELAY SAFETY ELEMENT OUTPUTS TO FORM COINCIDENCE RELAY MATRICES.

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

*INSTRUMENTATION, RELAY + INSTRUMENTATION, COMPONENT + ORNL

9-25017

FRAY EN

NUCLEAR INSTRUMENT MODULE MAINTENANCE MANUAL. PART 28. TEMPERATURE SERVO DEMAND DRIVE UNIT, ORNL MODEL Q-2628.
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1638 (Pt.28) +. 13 PAGES, FIGURES, TABLES, REFERENCES, JAN. 22, 1968

THE TEMPERATURE SERVO DEMAND DRIVE UNIT PROVIDES A MEANS OF CHANGING THE SET-POINT, AT A FIXED RATE, OF A ROD CONTROLLER OR SERVO. THE MODULE BASICALLY CONSISTS OF A MOTOR-DRIVEN POTENTIOMETER WITH ADJUSTABLE LIMIT SWITCHES. THE MODULE IS INTENDED FOR USE IN THE MOLTEN-SALT REACTOR EXPERIMENT TEMPERATURE SERVO.

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

*INSTRUMENTATION, TEMPERATURE + *SERVOMECHANISM + INSTRUMENTATION, POSITION + MSRE (RE) + ORNL

9-25021

STEWART RG

A CASUAL REDEFINITION OF FAILURE RATE - THEOREMS, STRESS DEPENDENCE, AND APPLICATION TO DEVICES AND DISTRIBUTIONS
LOCKHEED COMPANY, PALO ALTO, CALIFORNIA
20 PAGES, 14 FIGURES, 2 TABLES, REFERENCES, IEEE TRANS. ON RELIABILITY, R-15(3), PAGES 95-114 (DECEMBER 1966)

THE FAILURE OF DEVICES OCCURS DUE TO NATURAL LAWS OF CHANGE, NOT TO THE FINGER OF FATE HANDLING AT RANDOM ON ONE OF A GROUP OF DEVICES AND COMMANDING FAIL. NEVERTHELESS, THE FIELD OF RELIABILITY HAS LARGELY DEVELOPED AS AN APPLICATION OF STATISTICS AND PROBABILITY THEORY. A FORMALISM IS ESTABLISHED FOR CALCULATING THE RELIABILITY OF DEVICES STARTING FROM CAUSAL,

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25021 *CONTINUED*

PHYSICAL ANALYSIS OF THE DEVICES OPERATIONAL AND FAILURE MODES. CERTAIN PREVAILING RELIABILITY PRACTICES ARE FOUND TO HAVE SERIOUS DEFICIENCIES IN TERMS OF UNDERESTIMATING THE SIGNIFICANCE OF EARLY FAILURES, WHEN COMPARED WITH THE RESULTS OF THE ABOVE CAUSAL FORMALISM.

*CCMPARISON, THEORY AND EXPERIENCE + *RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT + STATISTICAL CORRELATION

9-25022

DOLAZZA E

SYSTEM STATES ANALYSIS AND FLOW GRAPH DIAGRAMS IN RELIABILITY

OLIVETTI GENERAL ELECTRIC, O.P.S., MILAN, ITALY

10 PAGES, FIGURES, IEEE TRANS. ON RELIABILITY, R-15(3), PAGES 85-94 (DEC. 1966)

A METHOD IS DESCRIBED WHICH PERMITS RAPID EVALUATION OF RELIABILITY FUNCTIONS AND SOME PROBABILISTIC PARAMETERS RELATED TO THE OPERATION OF SYSTEMS. THE METHOD IS BASED ON THE CONCEPT OF SYSTEM STATES AND ON THE OBSERVATION THAT, IN TERMS OF SUCH STATES, THE PROBABILISTIC BEHAVIOR OF SYSTEMS IS WELL DESCRIBED BY THE MARKOV PROCESS IN INFINITESIMAL DT, WHENEVER SUBSYSTEMS BEHAVE INDEPENDENTLY OF EACH OTHER AND RANDOMLY IN TIME.

*RELIABILITY ANALYSIS + ANALYTICAL MODEL + MATHEMATICAL TREATMENT + RELIABILITY, SYSTEM

9-25023

BENNING CJ

THE ANALYSIS OF A CLASS OF NON-SERIES PARALLEL REDUNDANT SYSTEMS

TRACOR, INC., AUSTIN, TEXAS

11 PAGES, TABLES, FIGURES, IEEE TRANS. ON RELIABILITY, R-15(3), PAGES 127-137 (DECEMBER 1966)

TWO ANALYSIS TECHNIQUES FOR USE IN THE STUDY OF A CLASS OF NON-SERIES PARALLEL, DUAL CHANNEL SYSTEMS ARE PRESENTED. THE FIRST TECHNIQUE IS A METHOD FOR OBTAINING AN APPROXIMATE SOLUTION FOR THE SYSTEM. IT IS BASED ON A SYSTEMATIC ANALYSIS OF FIRST-AND SECOND-ORDER FAILURE MODES AND INVOLVES THE USE OF MATRIX ALGEBRA. THE SECOND TECHNIQUE IS A METHOD FOR GENERATING THE EXACT SOLUTION FROM THE APPROXIMATE SOLUTION. THIS METHOD INVOLVES A TRANSFORMATION WHICH CONVERTS THE SYSTEM INTO A LOGICALLY EQUIVALENT SYSTEM. AN EXACT SOLUTION FOR THE TRANSFORMED SYSTEM IS DERIVED AND IS SHOWN TO BE THE EXACT SOLUTION FOR THE ORIGINAL SYSTEM.

*REDUNDANCE + *RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT

9-25030

ALSO IN CATEGORY 5

LOTTE PA

APPLYING HIGH-TEMPERATURE INSTRUMENTATION IN LIQUID-METAL EXPERIMENTS

14 PAGES, 22 FIGURES, REFERENCES, POWER REACTOR TECHNOLOGY, 9(3), PAGES 123-136 (JULY 1966)

BECAUSE LIQUID METALS ARE DIFFICULT TO HANDLE AND TEMPERATURES ARE HIGH, EXOTIC LOOPS AND HEATERS ARE REQUIRED, AS ARE UNUSUAL PRESSURE-MEASURING DEVICES. VOID-FRACTION MEASUREMENTS ARE MADE WITH GAMMA, ELECTROMAGNETIC, AND X-RAY METHODS AND CALORIMETERS. BEARING-FILM MEASUREMENTS, OF SPECIAL INTEREST FOR AEROSPACE APPLICATION, RELY HEAVILY ON EDDY-CURRENT METHODS, ALTHOUGH MAGNETIC INDUCTANCE UNDERLIES SOME INSTRUMENTS. UNIQUE EQUIPMENT IS BEING USED FOR LIQUID-LEVEL AND IMPURITY MEASUREMENTS AND FOR CAVITATION DAMAGE STUDIES.

*HEAT TRANSFER + *HIGH TEMPERATURE + *INSTRUMENTATION, GENERAL + *METAL, LIQUID + FLOW, TWO PHASE + INSTRUMENTATION, FLOW + INSTRUMENTATION, LIQUID LEVEL DETECTION + INSTRUMENTATION, PRESSURE + INSTRUMENTATION, TEMPERATURE + MERCURY + POTASSIUM + SODIUM + TEMPERATURE GRADIENT

9-25031

COHN CE

TWO ADVANCES IN REACTOR NEUTRON-NOISE ANALYSIS

3 PAGES, 2 FIGURES, POWER REACTOR TECHNOLOGY, 9(3), PAGES 142-144 (JULY 1966)

TWO RELATIVELY NEW DEVELOPMENTS WHICH PERMIT FASTER MEASUREMENTS OR LOWER DETECTOR EFFICIENCIES HAVE EXTENDED THE USEFULNESS OF NOISE ANALYSIS AND HOLD GREAT PROMISE FOR ROUTINE MEASUREMENTS ON POWER REACTORS. BECAUSE IT SUPPRESSES THE EFFECT OF THE UNWANTED BACKGROUND NOISE ORIGINATING IN THE DETECTOR ITSELF, THE TWO-DETECTOR CROSS-CORRELATION METHOD ALLOWS MEASUREMENT OF REACTOR NEUTRON NOISE WITH DETECTOR EFFICIENCIES A HUNDRED TIMES LOWER THAN THE 10(MINUS 4TH) EFFICIENCY NOTICEABLE WITH THE CONVENTIONAL SINGLE-DETECTOR METHOD.

*NOISE ANALYSIS + FLUX, INTEGRATED + NEUTRON + REACTOR CONTROL

9-25032

POPPER GF

MEASURING NEUTRON-FLUX DISTRIBUTION IN OPERATING REACTORS

10 PAGES, 7 FIGURES, 1 TABLE, REFERENCES, POWER REACTOR TECHNOLOGY, 9(1), PAGES 25-34 (DECEMBER 1965)

REACTOR ECONOMICS, SAFETY, OR EXPERIMENTAL CONTRL OFTEN PROVIDE THE INCENTIVE FOR ACCURATELY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25032 *CONTINUED*

AND CONTINUOUSLY MEASURING THE DISTRIBUTION OF NEUTRON FLUX WITHIN A REACTOR CORE. EXAMPLES OF ECONOMICS AND SAFETY FACTORS ARE GIVEN, AND SOME OF THE TECHNIQUES WITH WHICH TO MAKE NEUTRON-FLUX-DISTRIBUTION MEASUREMENTS ARE REVIEWED.

*FLUX, INTEGRATED + *IN CORE MEASUREMENT + *NEUTRON + CHAMBER, ION + ECONCMICS + INSTRUMENTATION, IN CORE + REACTOR POWER + REACTOR, POWER

9-25033

SAWOCHKA AG

MAGMETER CALIBRATION FOR LIQUID METAL

GENERAL ELECTRIC COMPANY

1 PAGE, 1 FIGURE, INSTRUMENTATION TECHNOLOGY, 14(4), PAGE 75 (APRIL 1968)

A SIMPLE SCHEME IS PRESENTED FOR CALIBRATING A MAGNETIC FLOWMETER FOR MOLTEN ALKALI METALS, SUCH AS POTASSIUM AND SODIUM.

*INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, FLOW + METAL, ALKALI + METAL, LIQUID + POTASSIUM + SODIUM

9-25075

ALSO IN CATEGORY 17

FROELICHER B

INTRODUCTION TO THE STUDY OF BOILING IN SWIMMING-POOL REACTORS. MEASUREMENT OF THE EFFICIENCY OF A C C 5 CHAMBER

COMMISSARIAT A L'ENERGIE ATOMIQUE, SACLAY (FRANCE). CENTRE D-ETUDES NUCLEAIRES

CEA-R-3326 +. 11 PAGES, 2 FIGURES, NOV. 1967, (IN FRENCH)

EFFICIENCY OF A CC5 IONIZATION CHAMBER HAS BEEN ROUGHLY EVALUATED BY INTEGRATING THE RELATIONSHIP (P EQUALS ϵ $(1 + \epsilon \Delta)$) OVER THE BANDWIDTH OF THE APPARATUS. THIS SHOWS THE INFLUENCE OF ϵ . (A MORE REALISTIC VALUE OF THE EFFICIENCY WILL BE DERIVED LATER, USING THE LOW-POWER TRANSFER FUNCTION OF THE REACTOR ULYSSE.) RESULT IS A GRAPH OF -DB VS FREQUENCY, WHICH IS 0 DB TO 100 HERTZ, FALLING SHARPLY TO -16 DB AT 950 HERTZ. VARIANCE OF THE SIGNAL IS CALCULATED AND MEASURED FOR DIFFERENT DISTANCES FROM THE CORE.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CHAMBER, ION + *MATHEMATICAL TREATMENT + *TRANSFER FUNCTION + COMPARISON, THEORY AND EXPERIENCE + FRANCE + INSTRUMENTATION, NUCLEAR + REACTOR, POOL TYPE + TEST, INSTRUMENT RESPONSE

9-25078

ALSO IN CATEGORY 13

HOLLADAY JH + KNOWLES DJ

DESCRIPTION OF PROCESS RADIATION MONITORING INSTRUMENTATION IN THE TRANSURANIUM PROCESSING PLANT, BUILDING 7920

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-TM-1774 +. 19 PAGES, FIGURES, TABLES, JAN. 25, 1968

RADIATION MONITORS WERE INSTALLED IN THE TRANSURANIUM PROCESSING PLANT, BUILDING 7920, TO PROVIDE CONTINUOUS SURVEILLANCE OF PROCESS EQUIPMENT AND AREAS. THESE INSTRUMENTS, INDICATING AT THE CENTRAL RADIATION MONITORING PANEL, ARE FOR PROCESS ANALYSIS AND CONTROL AND ARE SEPARATE FROM THE FACILITY RADIATION AND CONTAMINATION ALARM SYSTEMS (SYSTEMS FOR PROTECTION OF PERSONNEL WORKING WITHIN THE BUILDING). THE EQUIPMENT USED AND THE OVERALL OPERATION OF THE SYSTEMS ARE DESCRIBED.

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

*INSTRUMENTATION, RADIATION MONITORING + *MONITORING SYSTEM, RADIATION + *PLANT PROTECTIVE SYSTEM + MONITOR, RADIATION, AIR + MONITOR, RADIATION, GAS + MONITOR, RADIATION, LIQUID + MONITOR, RADIATION, STACK + ORNL + RADIOCHEMICAL PLANT SAFETY + TRANSURANIUM PROGRAM

9-25080

ALSO IN CATEGORIES 17 AND 6

FILIPCZAK N + FILIPCZAK W + FURET J + KAISER J

REPORT OF BLIND STARTUP EXPERIMENTS CARRIED OUT ON THE REACTOR CABRI BETWEEN JULY 4 AND 8, 1966

COMMISSARIAT A L'ENERGIE ATOMIQUE, SACLAY, FRANCE

CEA-R-3341 +. 24 PAGES, FIGURES, NOV. 1967, IN FRENCH

(IN FRENCH) TWELVE STARTUPS (WITH VARYING RATIOS OF GAMMA/NEUTRON INDUCED CURRENT IN THE COMPENSATED CHAMBERS) WERE RUN WITH VARYING REACTIVITY INSERTION RATES (BOTH LINEAR AND EXPONENTIAL) TO OBTAIN COMPARISONS WITH ANALOGUE STUDIES (1966/SER/1233 BY M.W. FILIPCZAK). OUTPUT IS A GRAPH FOR EACH STARTUP, SHOWING POWER, GAMMA, AND NEUTRON SIGNALS. ALTHOUGH THE NUMBER OF EXPERIMENTS WAS TOO LOW FOR A DEFINITE CONCLUSION, THE BLIND STARTUP METHOD DOES NOT APPEAR INCOMPATIBLE WITH SAFETY.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*MEASUREMENT, GENERAL + *REACTOR STARTUP, LOW SOURCE + *SOURCE, NEUTRON + *TEST, PROOF + ANALOG SIMULATION + CHAMBER, COMPENSATED + REACTOR TRANSIENT + REACTOR, RESEARCH

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25083
WENZINGER ED + SCHOLL RF + FORT RE
SOME ASPECTS OF REACTOR SAFETY SYSTEMS
BUREAU OF YARDS AND DOCKS, WASHINGTON, D. C. + FORT BELVOIR, VIRGINIA
12 PAGES, FIGURES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-13(1), PAGES 426-437 (FEBRUARY 1966)

THE IMPORTANCE OF SYSTEM ENGINEERING AND ESTABLISHING THE LEVELS OF SAFETY AND AVAILABILITY REQUIRED FOR REACTOR INSTALLATIONS ARE DISCUSSED. SAFETY SYSTEM LOGIC SCHEMES, OPERATOR CONFIDENCE IN THE EQUIPMENT, AND PROTECTION AGAINST THE EFFECTS OF CHANCE FAILURES IN SAFETY CIRCUITS ARE CONSIDERED. THE AUTHORS SUGGEST THAT EXISTING REACTOR SAFETY SYSTEMS SHOULD BE EXAMINED IN LIGHT OF THE PHILOSOPHICAL, LOGICAL AND CIRCUIT CONSIDERATIONS. POSSIBLE COMPONENT FAILURES SHOULD BE EVALUATED ON A SYSTEM EFFECTS BASIS TO DETERMINE THE NEED FOR THE AUTOMATIC ANNUNCIATION OF THESE FAILURES AND TO PROVIDE A MEASURE OF THE SYSTEMS CAPABILITY OF PROVIDING THE REQUIRED AUTOMATIC CORRECTIVE ACTIONS AND PROTECTION AGAINST UNNECESSARY PLANT SHUTDOWNS.

*REACTOR SAFETY SYSTEM + *SAFETY PRINCIPLES AND PHILOSOPHY + DESIGN CRITERIA + PLANT PROTECTIVE SYSTEM + PM 3A (PWR) + REACTOR, PWR

9-25087 ALSO IN CATEGORY 17
MARK H
BERKLEY TRIGA REPORTS WIDE VARIATION IN SAFETY CHANNEL READINGS
UNIVERSITY OF CALIFORNIA, BERKLEY, CALIF.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 16 (MAY 6, 1968), DOCKET 50-224

(LETTER, APRIL 18) REQUESTS A CHANGED TECH. SPEC. FOR ITS TRIGA MARK III TO CHANGE THE ALLOWABLE OVERPOWER MARGIN (WHICH DETERMINES THE SCRAM SETPOINT ON THE SAFETY CHANNEL) FROM 110% TO 130% OF FULL POWER. NEEDED IS THE WIDE VARIATION IN INDICATION AS A FUNCTION OF VARIOUS REACTOR OPERATING PARAMETERS AT 1 MW. THIS VARIATION (FOR A FIXED SCRAM SETTING) GENERATED OCCASIONAL PERIODS OF NONCOMPLIANCE WHEN THE MARGIN HAS EXCEEDED 10%, FOR WHICH THE UNIVERSITY HAS ALREADY BEEN CITED.

*INSTRUMENTATION, ABNORMAL INDICATION + *SETPOINT + INSPECTION AND COMPLIANCE + INSTRUMENTATION, POWER RANGE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (RR)

9-25101 ALSO IN CATEGORY 17
GUPPY WH + MASCHKE GC
NUCLEAR POWER PLANT OPERATOR TRAINING AND QUALIFICATION
COMMONWEALTH EDISON COMPANY, CHICAGO, ILL. + GENERAL ELECTRIC CO., SAN JOSE, CALIF.
20 PAGES, FIGURES, 1968

GE (TRAINING OF HANFORD OPERATORS - LESS THAN HIGH-SCHOOL EDUCATION) AND CON ED (EARLY DEVELOPMENT OF PLANT SYNCHRONIZATION SIMULATORS, STAFFING A PLANT WITH NEW HIRES) EXPERIENCE IN PAST 20 YEARS INDICATED TRAINING MUST USE ACTUAL EQUIPMENT, PROVIDE PLANT MANEUVERING, AND HAVE MUCH MAN-TO-MAN DISCUSSION. IN A 3-MONTH TRAINING COURSE, ABOUT EQUAL TIME IS SPENT IN CONTROL ROOM, STUDY AND QUIZ, VIDEO TAPE LECTURES, AND STUDYING DRESDEN SYSTEMS. 80 MALFUNCTIONS CAN BE SIMULATED.

AVAILABILITY - W. H. GUPPY, GENERAL STAFF ENGINEER, COMMONWEALTH EDISON COMPANY, CHICAGO, ILL.

*STAFFING, TRAINING, QUALIFICATION + ANALOG SIMULATION + OPERATING EXPERIENCE SUMMARY + REACTOR, POWER

9-25102
DEVELOPMENT OF A BORON CONCENTRATION METER. TECHNICAL PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1967
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-3690-3 + EURAEC-1827 +. 28 PAGES, JAN. 1968

THIS REPORT IS ONE OF A SERIES. THE OVERALL OBJECTIVE OF THE PROGRAM IS TO DEVELOP, DESIGN, TEST, AND EVALUATE THE PERFORMANCE OF A PROTOTYPE BORON CONCENTRATION METER. THE METER SHOULD BE SUITABLE FOR AUTOMATED USE IN DETERMINING BORON CONCENTRATIONS IN THE COOLANT OF A CLOSED-CYCLE WATER-MODERATED-AND-COOLED POWER REACTOR. THE DESIGN OBJECTIVES FOR THE BORON METER INCLUDE A PRECISION OF PLUS OR MINUS 0.3% OR 2 PPM (WHICHEVER IS GREATER) AND A RESPONSE TIME OF APPROXIMATELY ONE MINUTE. ONE METER UNDER INVESTIGATION IS BASED ON CONDUCTIVITY MEASUREMENTS OF A BORIC ACID SOLUTION WITH MANNITOL ADDED. ANOTHER IS BASED ON THE NEUTRON-ABSORPTION PRINCIPLE.

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

BORON + CHEMICAL SHIM + INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, SURVEILLANCE

9-25103
APPLICATIONS OF ULTRASONIC ENERGY. ULTRASONIC INSTRUMENTATION FOR NUCLEAR APPLICATIONS. BIMONTHLY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25103 *CONTINUED*
PROGRESS REPORT NO. 27, OCTOBER 1-NOVEMBER 30, 1967
AEROPROJECTS, INC., WEST CHESTER, PA.
NYO-3622-12 +. 9 PAGES, FIGURES, TABLES, REFERENCES, NOV. 30, 1967

THIS REPORT IS ONE OF A SERIES CONCERNED WITH THE APPLICATION OF ULTRASONIC TECHNIQUE 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, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, FLOW + INSTRUMENTATION, IN CORE + METAL, LIQUID + NUCLEATE BOILING + SODIUM

9-25104
GARRONI A + LUCIA A
OPTIMIZATION OF CONTROL SYSTEMS BY AN ANALOG METHOD
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA (ITALY). JOINT NUCLEAR RESEARCH CENTER
EUR-3735 +. 26 PAGES, REFERENCES, NOV. 7, 1967

DESCRIBES A METHOD FOR OPTIMIZING THE OPERATION OF A PLANT SUBJECT TO RANDOM DISTURBANCES WHOSE EFFECT CAN BE DECREASED BY MEANS OF SUITABLE NON-LINEARITIES INSERTED IN THE FEEDBACK CHAIN. THE SYSTEM IN QUESTION IS OPTIMIZED UNDER OPERATING CONDITIONS, IN THE STEADY STATE, BY MINIMIZING A FUNCTIONAL CONSISTING OF A LINEAR COMBINATION OF MEAN QUADRATIC VALUES AND MEAN MODULI OF A FEW SIGNIFICANT PARAMETERS. BY USING ANALOG TECHNIQUES TO SOLVE THE DYNAMIC EQUATIONS OF THE SYSTEM, THE FUNCTIONAL IS OBTAINED IN TERMS OF THE PARAMETERS OF THE NONLINEARITIES. A MINIMUM CONDITION CAN THUS BE READILY PINPOINTED. PARTICULAR REFERENCE IS MADE TO NUCLEAR REACTORS, THE ISPRA-1 REACTOR IN PARTICULAR.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*REACTOR CONTROL + ANALOG SIMULATION + CONTROL SYSTEM + THEORETICAL INVESTIGATION

9-25105
SLOCOMB HW
LIQUID METAL LEVEL MEASUREMENT (SODIUM) STATE-OF-THE-ART STUDY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF. LIQUID METAL ENGINEERING CENTER
NAA-SR-MEMO-12582 +. 34 PAGES, FIGURES, TABLES, REFERENCES, NOV. 15, 1967

SEVERAL FORMS OF LIQUID METAL LEVEL MEASURING DEVICES HAVE BEEN USED IN LIQUID METAL SYSTEMS. THE MOST COMMONLY USED TYPES TO DATE ARE THE POINT CONTACT, THE RESISTANCE TUBE, AND VARIOUS FORMS OF INDUCTIVE SENSORS. PRESSURE OPERATED DEVICES SUCH AS THE DIFFERENTIAL PRESSURE AND BUBBLER TECHNIQUES HAVE HAD SOME USE. OTHER TECHNIQUES USED OR PROPOSED INCLUDE THE SURFACE FLOAT, DISPLACEMENT FLOAT, ULTRASONIC, PULSE DELAY LINE, AND MICROWAVE CAVITY. THE MEASUREMENT TECHNIQUES AND THEIR CHARACTERISTICS, INCLUDING WETTING, ARE DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, LIQUID LEVEL DETECTION + SODIUM

9-25106
FRASER HJ + CHURCH VE
PORTABLE RATEMETER AEC TYPE 239. SERVICE MANUAL
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AEC/M-77 +. 23 PAGES, 4 FIGURES, AUGUST 1967

OPERATION AND MAINTENANCE DETAILS ARE GIVEN FOR A PORTABLE, TRANSISTORIZED, BATTERY-OPERATED INSTRUMENT FOR NUCLEAR RADIATION DETECTION AND COUNTING. THE INSTRUMENT COVERS 0-10,000 COUNTS PER SECOND IN SEVEN LINEAR RANGES. THE RATEMETER CAN BE USED AS A SINGLE-CHANNEL PULSE-HEIGHT ANALYSER BY VARYING AMPLIFIER GAIN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*INSTRUMENTATION, RADIATION MONITORING + *INSTRUMENTATION, SURVEILLANCE + COUNTER + DOSIMETRY, GENERAL + INSTRUMENTATION, PULSE

9-25111
QUINLAN FB
METHOD OF MAKING A DEVICE FOR MONITORING SHUT-DOWN NUCLEAR REACTORS
U.S. PATENT 3,359,621 +. 4 PAGES, 3 FIGURES, DEC. 26, 1967, PATENT (U.S.)

A METHOD OF PREPARING A SAFING WIRE FOR USE IN SAFEGUARDING A NUCLEAR REACTOR TO DETECT SURREPTITIOUS USE OF THE REACTOR IS DESCRIBED. STRANDS OF A RELATIVELY LOW MELTING METAL, STRANDS OF A METAL WHICH WILL BECOME RADIOACTIVE WHEN A NEUTRON CHAIN REACTION OCCURS, AND

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25111 *CONTINUED*

STRANDS OF A DIFFERENT METAL ARE PULLED THROUGH A TUBE, THE LAST-MENTIONED STRANDS BEING PERMITTED TO KINK WITHIN THE TUBE, AND THE TUBE IS ROTARY SWAGED.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D. C., (\$0.25 CENTS/COPY)

*IN CORE MEASUREMENT + *INSTRUMENTATION, SURVEILLANCE + INSPECTION AND COMPLIANCE + PATENT + REACTOR DECOMMISSIONING + SURVEILLANCE PROGRAM + UNITED STATES

9-25112

VAUTREY L

MECHANISM FOR EFFECTING THE POSITIONAL ADJUSTMENT OF NUCLEAR REACTOR CONTROL RODS
COMMISSARIAT A L-ENERGY ATOMIQUE

BRITISH PATENT 1,086,099 +. 5 PAGES, 6 FIGURES, OCT. 4, 1967, PATENT (BRITISH)

THE DESIGN IS GIVEN OF A MECHANISM FOR POSITIONING CONTROL RODS IN A LIQUID METAL COOLED FAST REACTOR. THE THREE OPERATORS OF THE MECHANISM ARE A VERTICAL OPERATING ROD ATTACHED TO THE CONTROL ROD GRAB, THE HORIZONTAL LEVER ARM CONNECTING THE FIRST MEMBER AND THE VERTICAL ARM PROJECTING OUTSIDE THE REACTOR VESSEL.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTROL ROD DRIVE + PATENT + REACTOR, FAST + REACTOR, LMC + UNITED KINGDOM

9-25113

CHALLENGER RS

IMPROVEMENTS IN OR RELATING TO THE CONTROL OF NUCLEAR REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY

BRITISH PATENT 1,085,230 +. 3 PAGES, 2 FIGURES, SEPT. 27, 1967, PATENT (BRITISH)

THE DESIGN OF A CONTROL SYSTEM OF A STEAM-GENERATING REACTOR IS GIVEN. CONTROL RODS ARE DESIGNED TO BE WITHDRAWN AT A CONTROLLED RATE AND THERE ARE MORE SHUT-OFF RODS THAN CONTROL RODS IN THE DESIGN.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTROL SYSTEM + *REACTOR CONTROL + CONTROL ROD DRIVE + CONTROL ROD INTERACTION + PATENT + UNITED KINGDOM

9-25114

COX RJ + FOWLER EP + HARRISON D + RATLON PL

IMPROVEMENTS IN OR RELATING TO ELECTRICAL COMPARISON CIRCUITS

UNITED KINGDOM ATOMIC ENERGY AUTHORITY

BRITISH PATENT 1,087,293 +. 4 PAGES, 4 FIGURES, OCT. 18, 1967, PATENT (BRITISH)

THE DESIGN OF A REACTOR CONTROL SYSTEM FOR NEUTRON-FLUX MEASUREMENTS IN THE REACTOR IS PRESENTED. THE NEUTRON-FLUX MONITOR, WHICH TRIGGERS AN UPPER- OR LOWER-LEVEL SHUTDOWN SYSTEM, IS BASED ON THE COMPARISON OF SIGNALS FROM AN IONIZATION CHAMBER AND A THERMOCOUPLE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTROL SYSTEM + *REACTOR CONTROL + CHAMBER, ION + ELECTRICAL CONDUCTION + FLUX, INTEGRATED + INSTRUMENTATION, TEMPERATURE + NEUTRON + PATENT + UNITED KINGDOM

9-25115

SHOCK ABSORBER FOR REACTOR SAFETY RODS

GESELLSCHAFT FÜR KERNFORSCHUNG MBH

BRITISH PATENT 1,088,916 +. 3 PAGES, 2 FIGURES, OCT. 25, 1967, PATENT (BRITISH)

THE DESIGN OF A SHOCK ABSORBER FOR SLOWING DOWN THE ENTRANCE MOVEMENT OF SAFETY RODS IN GAS-COOLED REACTORS BY COMPRESSING A VOLUME OF GAS IS PRESENTED. THE DESIGN CONSISTS OF A PISTON AND CYLINDER ARRANGEMENT WITH AT LEAST ONE GAS EXPANSION OPENING LOCATED AT A PREDETERMINED DECELERATION POINT IN THE CYLINDER ON REVERSAL POINT OF THE PISTON.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*SHOCK ABSORBER + CONTROL ROD + PATENT + REACTOR, GCR + UNITED KINGDOM

9-25116

CHALLENGER RS

NUCLEAR REACTOR CONTROL MECHANISMS

UNITED KINGDOM ATOMIC ENERGY AUTHORITY

BRITISH PATENT 1,088,123 +. 4 PAGES, 5 FIGURES, OCT. 25, 1967, PATENT (BRITISH)

A DESIGN FOR USING CONTROL ROD DRIVES FOR BOTH NORMAL REACTOR CONTROL OPERATIONS AND EMERGENCY SHUTDOWN OPERATIONS IS PRESENTED. THE MECHANISM DESCRIBED IS TO BE USED IN A PRESSURIZED

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25116 *CONTINUED*

WATER REACTOR HAVING A CORE COMPRISING A NUMBER OF SIMILAR FUEL ELEMENT ASSEMBLIES.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTROL ROD DRIVE + PATENT + REACTOR CONTROL + REACTOR, PWR + SHUTDOWN SYSTEM, SECONDARY + UNITED KINGDOM

9-25117

CONTROL SYSTEM FOR FAST REACTORS

HITACHI LTD.

BRITISH PATENT 1,081,214 +. 3 PAGES, 5 FIGURES, AUGUST 31, 1967, PATENT (BRITISH)

TO CONTROL REACTIVITY IN FAST REACTORS, PARTICULARLY THOSE EMPLOYING A U-238/PU-239 FUEL CYCLE, A SYSTEM WAS DEvised FOR PASSING LIQUID CONTROL MATERIAL THROUGH TUBES, LOCATED IN THE CORE OF THE REACTOR, WHICH CONTAIN AN AREA NEAR THE PERIPHERY OF THE CORE THROUGH WHICH THE CONTROL LIQUID DOES NOT PASS. THE VOID CREATED PREVENTS A POSITIVE COOLANT COEFFICIENT OF REACTIVITY AND ELIMINATES SUDDEN BOILING OF THE COOLANT IN THE CORE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C., 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTROL SYSTEM + PATENT + REACTIVITY COEFFICIENT + REACTOR CONTROL + REACTOR, FAST + UNITED KINGDOM + VOID COEFFICIENT

9-25118

CHALLENGER RS

NUCLEAR REACTOR CONTROL MECHANISM

SOCIETE ANGLO-BELGE VULCAIN, S.A.

BRITISH PATENT 1-080-831 +. 3 PAGES, 2 FIGURES, AUGUST 23, 1967, PATENT (BRITISH)

A FLUID-OPERATED PISTON AND CYLINDER CONTROL MECHANISM FOR A PRESSURIZED WATER MARINE PROPULSION REACTOR IS MOUNTED IN A CASING SECURED ABOVE THE REACTOR CORE AND SERVES TO RAISE A NEUTRON-ABSORBING MEMBER OUT OF THE CORE WHILE HAVING THE CAPABILITY OF ACCELERATING THE MOVEMENT OF THE MEMBER INTO THE CORE DURING ANY UNCONTROLLED INCIDENT IN THE REACTOR OPERATION.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*INSTRUMENTATION, CONTROL + PATENT + REACTOR CONTROL + REACTOR, MARITIME + REACTOR, PWR + UNITED KINGDOM

9-25119

MARTIN CJ

CONTROL MEANS FOR NUCLEAR REACTOR

UNITED KINGDOM ATOMIC ENERGY AUTHORITY

BRITISH PATENT 1,080,833 +. 3 PAGES, FIGURES, AUGUST 23, 1967

A SHUTDOWN CONTROL FOR A NUCLEAR REACTOR INCORPORATES A VESSEL OUTSIDE, AND WHOLLY OR PARTLY SURROUNDING THE CORE, FILLED WITH A LIQUID CONTAINING MATERIAL OF HIGH NEUTRON ABSORBING CROSS SECTION, SUCH AS H₂BO₃, AND VALVES AND TUBING TO DISCHARGE THE LIQUID FROM THE REACTOR VESSEL INTO THE NEUTRON ABSORBING LIQUID.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS/COPY)

*SHUTDOWN SYSTEM, SECONDARY + PATENT + POISON, SOLUBLE + REACTOR CONTROL + UNITED KINGDOM

9-25120

CONTROL OF NUCLEAR POWER REACTORS

ATOMIC ENERGY OF CANADA LIMITED

BRITISH PATENT 1,080,384 +. 5 PAGES, FIGURES, AUGUST 23, 1967

A CONTROL DEVICE FOR A POWER REACTOR COMPRISES A NUMBER OF VERTICAL CONTROL ELEMENTS CONSISTING OF AXIALLY-SPACED CHAMBERS FILLED WITH A NEUTRON-ABSORBING LIQUID OR GAS WHICH ARE INSERTED IN THE REACTOR CORE. THE NEUTRON-ABSORBING CAPABILITY IS VARIED, IN THE CASE OF A LIQUID, BY ADJUSTING THE VOLUME OF LIQUID IN THE CHAMBERS OR BY VARYING THE CONCENTRATION OF NEUTRON ABSORBENT. IF A GASEOUS NEUTRON-ABSORBENT IS USED, MEANS ARE PROVIDED FOR VARYING THE DENSITY OF THE GAS, AND THE NEUTRON-ABSORBING CAPABILITY, BY CHANGING THE PRESSURE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS/COPY)

*CONTROL ROD + PATENT + REACTOR CONTROL + REACTOR, POWER + UNITED KINGDOM

9-25121

ARRANGEMENT FOR NEUTRON ECONOMICAL LONG-DURATION CONTROL OF NUCLEAR POWER REACTOR

AFFA-LAVAL AKIEBOLAG

BRITISH PATENT 1,077,252 +. 5 PAGES, FIGURES, JULY 26, 1967

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25121 *CONTINUED*

A HETEROGENEOUS POWER REACTOR COMPRISES A NUMBER OF FUEL ELEMENTS WHICH MAY BE ROTATED, BY OUTSIDE OPERATING DEVICES, TO VARY THE SPACING BETWEEN THE ELEMENTS AND THUS ALTER THE QUANTITY OF MODERATOR FLUID BETWEEN THEM. BY CHANGING THE GEOMETRICAL PATTERN OF THE FUEL ASSEMBLY IN THIS MANNER COMPENSATION IS MADE FOR THE DECREASE IN FISSION ISOTOPES AND THE INCREASE IN STABLE ABSORBING FISSION PRODUCTS, DURING OPERATION OF THE REACTOR, AND A MORE EFFICIENT CONVERSION OF FUEL IS OBTAINED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS/COPY)

*FUEL ELEMENT CLUSTER + CONTROL ROD INTERACTION + ECONOMICS + PATENT + REACTOR, POWER + UNITED KINGDOM

9-25122

KIRTLEY WF + WRAY D
APPARATUS FOR EFFECTING EMERGENCY SHUT DOWN OF A NUCLEAR REACTOR
UNITED KINGDOM ATOMIC ENERGY AUTHORITY
BRITISH PATENT 1,084,361 +. 3 PAGES, 1 FIGURE, SEPT. 20, 1967

A DESIGN OF A PIPELINE EXTENDING THROUGH THE REACTOR CORE AND CONTAINING A GAS OF LOW NEUTRON ABSORBING CROSS SECTION IS PRESENTED. EQUIPMENT FOR INJECTING A STREAM OF LIQUID OF HIGH NEUTRON ABSORBING CROSS SECTION INTO ONE END OF THE PIPELINE TO DISPLACE THE GAS THROUGH THE OTHER END IS DESCRIBED.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

*REACTOR CONTROL + EMERGENCY SYSTEM + PATENT + SHUTDOWN SYSTEM, SECONDARY + UNITED KINGDOM

9-25123

TROEGER H
ELECTRIC PROTECTION SYSTEM FOR NUCLEAR REACTORS
SIEMENS SCHUCKERTWERKE, AKTIENGESELLSCHAFT
CANADIAN PATENT 760,043 +. 9 PAGES, 2 FIGURES, MAY 30, 1967

A SAFETY CIRCUIT FOR REACTOR SHUTDOWN IS DESCRIBED USING THREE SENSORS FOR EACH POTENTIALLY DANGEROUS CONDITION. EACH PROBE HAS THREE CONTACTS WITH EACH SHUT-OFF LINE DIVIDED INTO TWO PARALLEL BRANCHES AND HAVING A RELAY COIL IN SERIES WITH EACH BRANCH. THE CIRCUIT IS SUCH THAT THE REACTOR IS SHUT DOWN IF TWO OUT OF THREE OF THE RELAY COILS ARE UNENERGIZED.

AVAILABILITY - IT IS OUR UNDERSTANDING THAT FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$1.30 PER PAGE)

*REACTOR SAFETY SYSTEM + CANADA + INSTRUMENTATION, COINCIDENT + INSTRUMENTATION, PROTECTIVE + INSTRUMENTATION, REDUNDANT + INSTRUMENTATION, RELAY + PATENT + REDUNDANCE

9-25124

ALSO IN CATEGORY 5
HORNBAKER DR + RALL DL
HEAT FLUX MEASUREMENTS- A PRACTICAL GUIDE
HORNBAKER AND RALL, CONSULTING ENGINEERS
6 PAGES, FIGURES, REFERENCES, INSTRUMENTATION TECHNOLOGY, 15(2), PAGES 51-56 (FEBRUARY 1968)

HEAT-TRANSFER MEASUREMENTS ARE DEFINED, AND CHARACTERISTICS OF SLUG-TYPE, THIN-FOIL, THERMOPILE, AND THIN-FILM HEAT-FLUX SENSORS ARE DISCUSSED.

*INSTRUMENTATION, TEMPERATURE + HEAT TRANSFER + INSTRUMENTATION, COMPONENT + MEASUREMENT, TEMPERATURE

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-23214
NUCLEAR PLANT EMERGENCY POWER
4 PAGES, 4 FIGURES, 2 REFERENCES, POWER ENGINEERING 72(2), PAGES 62-65 (FEBRUARY 1968)

A FAST-ACTING EMERGENCY SYSTEM IS REQUIRED TO ENSURE PROMPT SUPPLY TO ENGINEERED SAFEGUARD SYSTEMS IN THE EVENT OF ANY FAILURE IN COOLANT SYSTEMS. HENCE, THE DIESEL ENGINE HAS BECOME THE PREFERRED PRIME-MOVER FOR NUCLEAR-PLANT EMERGENCY POWER. DESIGNS ARE PRESENTED FOR PWR AND BWR PLANTS.

*EMERGENCY POWER, ELECTRIC + ELECTRIC POWER, AUXILIARY

10-24478 ALSO IN CATEGORY 9
DESIGN OF CF + STINE LL
A PROBABILITY METHOD FOR DETERMINING THE RELIABILITY OF ELECTRIC POWER SYSTEMS
AMERICAN ELECTRIC POWER SERVICE CORP. + STANFORD UNIVERSITY
6 PAGES, 8 FIGURES, 9 REFERENCES, IEEE TRANS. ON RELIABILITY, R14(1), PAGE 30-35, (MARCH 1965)

RELIABILITY MEASURES HOW WELL A SYSTEM CAN BE EXPECTED TO PERFORM ITS INTENDED PURPOSE. IT IS EXPRESSED AS A PROBABILITY FUNCTION, WITH TIME AND ENVIRONMENT AS VARIABLES. THIS PAPER DISCUSSES THE MECHANICS OF COMPONENT FAILURE AND REPAIR AND SHOWS THAT POWER SYSTEM BEHAVIOR FOLLOWS A MARKOV PROCESS. THE RELIABILITY OF SIMPLE SYSTEM CONFIGURATIONS IS EVALUATED ANALYTICALLY BY SOLVING THE MARKOV EQUATIONS. THE RELIABILITY OF COMPLEX SYSTEMS IS MORE EASILY EVALUATED BY THE USE OF DIGITAL COMPUTER SIMULATION. THE SIMULATION METHOD IS DESCRIBED.

*ELECTRIC POWER, NORMAL + *RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + THEORETICAL INVESTIGATION

10-24817 ALSO IN CATEGORIES 17 AND 12
COE RN
REPORT ON SAN ONOFRE CABLE FIRE, MAR. 12, 1968
SOUTHERN CALIFORNIA EDISON COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 31-32 (APRIL 8, 1968), DOCKET 50-206

(LETTER, MAR. 21) AN OPERATOR WAS INVESTIGATING AN INTAKE-STRUCTURE LEVEL ALARM AND CALLED CONTROL ROOM AT 12/21 AM TO REPORT SMOKE AND A BLUE FLASH FROM NO. 2 480-V SWITCHGEAR ROOM. THE ROOM WAS SO FILLED WITH SMOKE THAT FAILURE COULD NOT BE DETERMINED. REACTOR SCRAMMED AT 12/34 AM. *** FOR A WHILE DURING COOLDOWN, BORIC ACID PUMP WAS INOPERABLE AND CHARGING PUMP HAD HIGH SUCTION PRESSURE. BOTH BORIC ACID TANK HEATERS WERE INOPERABLE. *** THREE CABLE TRAYS CONTAINING 750 CONDUCTORS WERE AFFECTED FOR A 15 FT LENGTH.

*ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + CONTAINMENT PENETRATION, ELECTRICAL + ELECTRIC POWER, SHUTDOWN + INDEPENDENCE + PUMP + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN SYSTEM, SECONDARY + TECHNICAL SPECIFICATIONS

10-24965 ALSO IN CATEGORY 18
RESPONSE TO QUESTION 14.7--MISSILE PROTECTION OF CONDUCTORS IN CONTAINMENT VESSEL
VIRGINIA ELECTRIC AND POWER COMPANY
1 PAGE, PAGE S14.7-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC. 8, 1967. DOCKET 50-280 AND 50-281.

HOW WILL ESSENTIAL CONDUCTORS WITHIN THE CONTAINMENT VESSEL BE PROTECTED AGAINST MISSILES.
*** (ANSWER) PHYSICAL SEPARATION OF REDUNDANT CIRCUITS AND MAJOR PORTION WILL BE RUN IN THE PROTECTED AREA BETWEEN THE CRANE WALL AND CONTAINMENT-VESSEL WALL BELOW CHARGING-FLOOR LEVEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ELECTRIC POWER, GENERAL + *INDEPENDENCE + *MISSILE GENERATION AND PROTECTION + *REDUNDANCE + ELECTRICAL CONDUCTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

10-25024
SWENDEL FM
BIG DIESELS FOR POWER PLANTS
STANLEY CONSULTANTS, INC., MUSCATINE, IOWA
3 PAGES, 3 FIGURES, POWER ENGINEERING, 72(3), PAGES 38-40 (MARCH 1968)

LARGE DIESEL ENGINES OFFER BEST ECONOMY IN THE MIDDLE LOAD-FACTOR RANGE. THEIR MANY OTHER ADVANTAGES INCLUDE QUICK START, EASY AUTOMATION, SHORT LEAD TIME, AND SUITABILITY FOR LOAD-CENTER INSTALLATION.

*GENERATOR, ENGINE + ELECTRIC POWER, AUXILIARY + EMERGENCY POWER, ELECTRIC

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25077

NAGEL TJ

RELIABILITY AND INTERCONNECTED POWER SYSTEM PLANNING

AMERICAN ELECTRIC POWER SERVICE CORPORATION

12 PAGES, PRESENTED AT THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23-25, 1968

FOUR FUNDAMENTAL INGREDIENTS MAKE FOR RELIABLY PLANNED SYSTEMS - (1) THE MOST IMPORTANT IS BALANCE IN THE SIZE AND ELECTRICAL CAPABILITY IN GENERATING UNITS, GENERATING PLANTS, TRANSMISSION LINES, TRANSMISSION CORRIDORS, AND SUBSTATIONS. (2) INCORPORATION OF SUFFICIENT RESERVE MARGINS. (3) PROVISION FOR INTERCONNECTION CAPACITY THAT IS COMMENSURATE WITH THE SIZE OF THE SYSTEM LOAD, GENERATING UNITS, AND POWER PLANTS. (4) SWITCHING ARRANGEMENTS WHICH PERMIT EFFECTIVE MAINTENANCE WITHOUT EXCESSIVE RISK TO UNNECESSARY OUTAGE.

*ELECTRIC POWER, NORMAL + *RELIABILITY, SYSTEM + DESIGN CRITERIA + ELECTRIC POWER, GENERAL

10-25079

CONCORDIA C

CONSIDERATIONS IN PLANNING FOR RELIABLE ELECTRIC SERVICE

GENERAL ELECTRIC CO., SCHENECTADY, N. Y.

28 PAGES, PRESENTED AT THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23-25, 1968

DISCUSSES RELIABILITY OF BULK POWER GENERATION-TRANSMISSION SYSTEMS. TO ENSURE RELIABILITY OF ELECTRIC POWER IT IS ESSENTIAL TO HAVE (1) STRONG TRANSMISSION AND ADEQUATE INTERCONNECTIONS, (2) ADHERENCE TO OPERATING LIMITATIONS, AND (3) RECOGNITION THAT IN SPITE OF ALL THAT CAN BE DONE THERE IS ALWAYS THE CHANCE THAT AN UNFORESEEN CONTINGENCY WILL CAUSE SYSTEM SEPARATION AND POSSIBLY GENERATOR DEFICIENCY. THE FIRST CONSIDERATION REQUIRES SYSTEM STUDIES TO DEMONSTRATE THAT NO SINGLE DISTURBANCE WILL CAUSE CASCADING TRIP-OUTS OF LINES OR GENERATORS, THE SECOND MAY BE FACILITATED BY AUTOMATIC MONITORING OF THE SYSTEM CONDITION, THE THIRD REQUIRES AUTOMATIC LOAD SHEDDING ON LOW FREQUENCY.

AVAILABILITY - MR. C. CONCORDIA, CONSULTING ENGINEER, ELECTRIC UTILITY ENGINEERING OPERATION, GENERAL ELECTRIC COMPANY, ONE RIVER ROAD, SCHENECTADY, NEW YORK

*ELECTRIC POWER, NORMAL + DESIGN CRITERIA + ELECTRIC POWER, GENERAL + PERFORMANCE LIMIT + RELIABILITY, SYSTEM

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-09120 ALSO IN CATEGORY 17
HADDAM NECK STEAM LINE ISOLATION VALVE FAILURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
2 PAGES, JANUARY 24, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ON JAN. 12, 1968, THE TURBINE STOP VALVES WERE TESTED AT REDUCED LOAD. ONE WOULD CLOSE ONLY PARTIALLY AND THE OTHER NOT AT ALL. THE PLANT WAS TRIPPED OFF LINE, AND MANUAL CLOSURE OF THE STEAM-LINE-ISOLATION VALVES INITIATED. TWO FAILED TO CLOSE BECAUSE INCOMPATIBILITY BETWEEN THE VALVE-STEM MATERIAL AND THE PACKING RESULTED IN CORROSION OF THE VALVE STEM AND SUBSEQUENT BINDING. ALL FOUR VALVES WERE REPACKED WITH MATERIAL SUGGESTED BY CRANE CO. VALVE MODIFICATION TO ALLOW ON-LINE TESTING MAY BE POSSIBLE.

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

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + HADDAM NECK (PWR) + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON LINE + TEST, PROOF

11-19794 ALSO IN CATEGORY 17
HAYES DW
PRTR CONTAINMENT VESSEL LEAK RATE TEST EXPERIENCE
BATTELLE-NORTHWEST LABORATORY
BNWL-504 +. 26 PAGES, 2 FIGURES, 3 TABLES, 8 REFERENCES, AUGUST 1967

THE LEAK RATE OF THE PLUTONIUM RECYCLE TEST REACTOR CONTAINMENT STRUCTURE WAS MEASURED, USING THE REFERENCE-VOLUME METHOD, DURING THE WEEK OF NOVEMBER 7, 1966. THE MEASUREMENT WAS MADE WITH THE CONTAINMENT SYSTEM IN AN AS-IS CONDITION AT A VESSEL PRESSURE OF 10 PSIG. THE ACCURACY OF THE RESULTS WAS VERIFIED BY SUPERIMPOSING A KNOWN LEAK RATE OF 0.88%/DAY ON THE EXISTING VESSEL LEAK RATE. THE MEASURED LEAK RATE INCREASED FROM 0.40% TO 1.19%/DAY, GIVING A 0.79% INCREASE, VERSUS AN EXPECTED 1.28% OR 0.88% INCREASE. THE FINAL VESSEL LEAKAGE RATE WAS 0.43 PLUS OR MINUS 0.026%/DAY, COMPARED WITH AN ALLOWABLE OPERATIONAL LEAK RATE OF 0.678%/DAY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT REFERENCE MEASURING SYSTEM + *PRTR (TR) + *TEST, LEAK RATE + CONTAINMENT INSTRUMENTATION + CONTAINMENT PENETRATION, GENERAL + CONTAINMENT SPRAY + CONTAINMENT, HIGH PRESSURE + STATISTICAL ANALYSIS + TEST, LEAK LOCATION

11-19833 ALSO IN CATEGORY 18
SUPPLEMENT NO. 9 TO APPLICATION FOR LICENSES TURKEY POINT I
FLORIDA POWER AND LIGHT COMPANY
28 PAGES, 8 FIGURES OF SUPPLEMENT 9 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT, NOV. 29, 1966, DOCKET 50-250 AND 50-251

ADDITIONAL INFORMATION CONCERNING CONTAINMENT STRUCTURAL DESIGN IS SUBMITTED FOR SUPPLEMENT 5 (QUESTION 6) AND SUPPLEMENT 8 (QUESTIONS 1, 6, 13, 18B, 18C, 19, 21, 22). NINE QUESTIONS ARE ANSWERED.

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

AEC QUESTION + CONTAINMENT DESIGN + REACTOR, PWR + REPORT, PSAR + TURKEY POINT 3 AND 4 (PWR)

11-20351 ALSO IN CATEGORY 18
APPENDIX A--CONTAINMENT VESSEL DESIGN CRITERIA
FLORIDA POWER AND LIGHT COMPANY
9 PAGES, PAGE A-1 THROUGH A-9 OF SUPPLEMENT 3 TO THE LICENSE APPLICATION AND PRELIMINARY SAFETY ANALYSIS REPORT. SEPTEMBER 1, 1966, DOCKET 50-250 AND 50-251

APPENDIX A DISCUSSES DESIGN CRITERIA FOR PRESTRESSED-CONCRETE CONTAINMENT VESSELS.

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

*CONCRETE, PRESTRESSED + *CONTAINMENT DESIGN + *DESIGN CRITERIA + AEC QUESTION + CONTAINMENT VESSEL LOADING + REACTOR, PWR + REPORT, PSAR + STRESS + TURKEY POINT 3 AND 4 (PWR)

11-21120
MOORE CV
THE DESIGN OF BARRICADES FOR HAZARDOUS PRESSURE SYSTEMS
KNOLLS ATOMIC POWER LABORATORY
17 PAGES, 8 FIGURES, 4 TABLES, REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5, (1) PAGES 81-97

GIVES PROCEDURES FOR THE RATIONAL DESIGN OF BARRICADES FOR HAZARDOUS PRESSURE SYSTEMS. METHODS ARE GIVEN FOR ESTIMATING THE INITIAL VELOCITIES OF MISSILES PRODUCED BY EXPLODING

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-21120 *CONTINUED*

PRESSURE VESSELS AND FOR DETERMINING THE PENETRATING EFFECTS OF THESE MISSILES ON MATERIALS NORMALLY USED FOR BARRICADE CONSTRUCTION. METHODS ARE ALSO GIVEN FOR ESTIMATING EFFECTIVE BLAST PRESSURES PRODUCED BY THE EXPLOSION OF PRESSURE VESSELS. CHARTS AND DIAGRAMS TO ASSIST IN PERFORMANCE OF THE CALCULATIONS ARE INCLUDED. SOME CHECKS OF THE DESIGN METHOD AGAINST EXPERIMENTAL DATA ARE PRESENTED. A SUBJECT NOT COVERED IN THIS PAPER IS THE ESTIMATION OF THE MASSES OF MISSILES THAT COULD BE FORMED BY THE FAILURE OF A GIVEN SYSTEM.

*CONCRETE + *CONTAINMENT PENETRATION, GENERAL + *CONTAINMENT, SHOCK GENERATION AND PROTECTION + *INTEGRITY + *MISSILE GENERATION AND PROTECTION + BRITTLE FRACTURE + EXCURSION, LARGE + EXPLOSION + FAILURE, GENERAL + IMPACT SHOCK + PRESSURE, INTERNAL + SHOCK ABSORBER + SHOCK WAVE

11-21861 ALSO IN CATEGORY 18

QUESTION I.14--DEFORMATION CRITERIA FOR CLASS I COMPONENTS

WISCONSIN MICHIGAN POWER COMPANY

7 PAGES, 4 FIGURES, 1 TABLE, 2 REFERENCES, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDE THE DEFORMATION CRITERIA OR YIELD LIMITS FOR ALL CLASS-I COMPONENTS THAT MUST SATISFY THE NO-LOSS-OF-FUNCTION REQUIREMENTS UNDER SEISMIC LOADING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT, GENERAL + *EARTHQUAKE ENGINEERING + AEC QUESTION + DESIGN CRITERIA + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

11-22916

MCCOY FE

EVALUATION OF THE MOLTEN SALT REACTOR EXPERIMENT HASTELLOY N SURVEILLANCE SPECIMENS, FIRST GROUP OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-1997 +. 57 PAGES, 35 FIGURES, 13 TABLES, REFERENCES, NOVEMBER 1967

GIVES TEST RESULTS ON THE EFFECT OF VARIOUS VARIABLES (TEMP., STRAIN RATE, PRESTRAIN, ETC.) ON THE TENSILE DUCTILITY OF IRRADIATED AND UNIRRADIATED HASTELLOY N. SPECIMENS ARE THE FIRST GROUP OF SURVEILLANCE SPECIMENS FROM THE MSRE AND HAD ACCUMULATED A THERMAL NEUTRON DOSE OF 1.3×10^{20} TH. HIGH-TEMPERATURE DUCTILITY WAS REDUCED, BUT REDUCTION WAS SIMILAR TO THAT WHEN IRRADIATED IN A HELIUM ATMOSPHERE IN THE ORR. LOW-TEMP. DUCTILITY IS REDUCED (POSSIBLY BY FORMATION OF INTERGRANULAR M_6C). NO CORROSION OBSERVED, BUT A 1-2 MIL CARBON-RICH LAYER WAS NOTED WHERE SPECIMENS TOUCHED GRAPHITE.

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

*IRRADIATION TESTING + *PRESSURE VESSEL + *SURVEILLANCE PROGRAM + ALLOY + COBALT + IN PILE LOOP + MSRE (RE) + REACTOR, MOLTEN SALT + STRESS STRAIN DATA

11-22937 ALSO IN CATEGORY 18

ZION 1 AND 2 PRELIMINARY SAFETY ANALYSIS REPORT, VOL. II

COMMONWEALTH EDISON COMPANY

400 PAGES, TABLES, FIGURES, REFERENCES, JUNE 15, 1967, DOCKET 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDOY

DESCRIBES ENGINEERED SAFEGUARDS, INSTRUMENTATION, ELECTRICAL, AND EMERGENCY SYSTEMS. THE SAFETY EVALUATION OF A LOSS-OF-COOLANT ACCIDENT (DOUBLE-ENDED RUPTURE) INDICATES THAT 2-HR SITE-BOUNDARY DOSES FROM CONTAINMENT LEAKAGE ACTIVITY ARE 0.81 TO THE THYROID AND LESS THAN 0.42 MILLIREM WHOLE-BODY. THE DOSE-REDUCTION FACTOR (EFFECTIVENESS IN LIMITING OFF-SITE EXPOSURE) FOR THE SAFETY-INJECTION SYSTEM IS 14.8, ISOLATION-VALVE SEAL WATER IS 120, AND THE CONTAINMENT SPRAY SYSTEM IS 31. APPENDIX B CONTAINS REPORT OF GEOLOGICAL AND SEISMOLOGICAL STUDIES.

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

*REPORT, PSAR + ACCIDENT, LOSS OF COOLANT + CONTAINMENT LEAKAGE CONTROL + CONTAINMENT PENETRATION, CLOSURE OF + ENGINEERED SAFETY FEATURE + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR DESCRIPTION + REACTOR, PWR + SAFETY ANALYSIS + SEISMOLOGY + SITING, GENERAL + ZION 1 AND 2 (PWR)

11-23142 ALSO IN CATEGORY 17

HADDAM NECK STEAM LINE ISOLATION VALVE FAILURE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

2 PAGES, JANUARY 24, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ON JAN. 12, 1968, THE TURBINE STOP VALVES WERE TESTED AT REDUCED LOAD. ONE WOULD ONLY PARTIALLY CLOSE AND THE OTHER NOT AT ALL. THE PLANT WAS TRIPPED OFF LINE, AND MANUAL CLOSURE OF THE STEAM-LINE-ISOLATION VALVES INITIATED. TWO FAILED TO CLOSE BECAUSE INCOMPATIBILITY BETWEEN THE VALVE-STEM MATERIAL AND THE PACKING MATERIAL RESULTED IN CORROSION OF THE VALVE STEM AND SUBSEQUENT BINDING. ALL FOUR VALVES WERE REPACKED WITH MATERIAL SUGGESTED BY CRANE CO. VALVE MODIFICATION TO ALLOW ON-LINE TESTING MAY BE POSSIBLE.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23142 *CONTINUED*
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + HADDAM NECK (PWR) + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON.LINE + TEST, PROOF

11-23200 ALSO IN CATEGORY 18
FOURTH SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
ROCHESTER GAS AND ELECTRIC CORPORATION
88 PAGES, FIGURES, TABLES, SEPTEMBER 1966, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

THIS SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT SUBMITTED BEFORE RECEIPT OF A PROVISIONAL CONSTRUCTION PERMIT CONTAINS FURTHER INFORMATION ON THE DESIGN STANDARDS AND CRITERIA FOR THE FACILITY, ESPECIALLY FOR THE CONTAINMENT SYSTEM. IT CONSTITUTES A PRELIMINARY RESPONSE TO THE COMMENTS MADE BY THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS IN ITS LETTER OF MARCH 18, 1966, TO THE COMMISSION. THE ORDER OF PRESENTATION OF INFORMATION IN THIS SUPPLEMENT IS THE SAME AS THE ORDER OF COMMENT IN THE ACRS LETTER.

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

*CONTAINMENT DESIGN + *CONTAINMENT, HIGH PRESSURE + *DESIGN CRITERIA + *GINNA (PWR) + *QUALITY CONTROL + CONCRETE, PRESTRESSED + *CONTAINMENT CONSTRUCTION + CONTAINMENT EQUIPMENT HATCH + CONTAINMENT INSTRUMENTATION + CONTAINMENT LINER + CONTAINMENT PENETRATION, GENERAL + EARTHQUAKE ENGINEERING + TEST, PROOF

11-23201 ALSO IN CATEGORY 18
PRIMARY CONTAINMENT DESIGN REPORT
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
150 PAGES, FIGURES, TABLES, SEPTEMBER 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

THIS REPORT DESCRIBES THE DESIGN BASIS, DESIGN EVALUATION, FABRICATING METHODS, INSPECTION, AND TESTING OF THE PRESENT SUPPRESSION CONTAINMENT FOR THE OYSTER CREEK NUCLEAR POWER PLANT. IT COVERS ALL AVAILABLE INFORMATION, INDEPENDENT CALCULATIONS PERTAINING TO SPECIFIC PORTIONS OF THE CONTAINMENT SYSTEM, AND ASSESSMENTS OF THE ADEQUACY OF CERTAIN FEATURES OF THE DESIGN SUCH AS PENETRATIONS, ISOLATION VALVES, AND MAIN STEAM LINES WITHIN CONTAINMENT.

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

*CONTAINMENT ANALYSIS + *CONTAINMENT DESIGN + *CONTAINMENT, PRESSURE SUPPRESSION + *DESIGN CRITERIA + *OYSTER CREEK 1 (BWR) + ACCIDENT ANALYSIS + CONTAINMENT CONSTRUCTION + CONTAINMENT EQUIPMENT HATCH + CONTAINMENT PENETRATION, ELECTRICAL + CONTAINMENT PENETRATION, PIPE + DESIGN STUDY + EARTHQUAKE ENGINEERING

11-23204 ALSO IN CATEGORY 18
APPENDIX M - SHIELD BUILDING VENT SYSTEM PERFORMANCE STUDY AND EVALUATION OF EFFECT OF OFFSITE DOSAGES
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
25 PAGES, FIGURES, TABLES, PAGE MI-1 THRU MI-25 OF AMENDMENT 3 TO LICENSE APPLICATION, APPENDIX M TO REVISED PRELIMINARY SAFETY ANALYSIS REPORT, JAN. 15, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PICNEER SERV.

SIGNALS FROM CONTAINMENT-VESSEL HIGH-PRESSURE INSTRUMENTS START THE SHIELD-BUILDING VENT SYSTEM TO MAINTAIN THE AIR ANNULUS BETWEEN CV AND SB AT 0.6 IN. H₂O NEG., AND EXHAUST AIR AT ABOUT 5000 CFM TO A STACK THROUGH FILTERS. CALCULATED DOSES WITH A FILTER EFFICIENCY OF 95% ARE 11.9 (2-HR EXCL. RADIUS) AND 1.2 REMS (30-DAY LOW-POP. ZONE) FOR THE INHALATION DOSE, WHILE THE IMMERSION DOSES ARE 2.3 AND LESS THAN 1 REM RESPECTIVELY.

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

AIRBORNE RELEASE + CONTAINMENT, MULTIPLE + CONTAINMENT, PRESSURE VENTING + DCSE + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

11-23527
GALLAGHER EV + ZAKER TA + WIEDERMANN AH
STUDIES OF REACTOR CONTAINMENT. IIT RESEARCH INSTITUTE BIMONTHLY PROGRESS REPORT, OCTOBER-NOVEMBER 1966
IIT RESEARCH INSTITUTE
IITRI-T6042-25 + IITRI-578P21-25 +. 27 PAGES, FIGURES, REFERENCES, NOVEMBER 30, 1966

THIS RESEARCH PROGRAM PERTAINS TO THE GENERATION, TRANSMISSION, AND ATTENUATION OF SHOCK WAVES IN CONTAINMENT STRUCTURES CAUSED BY REACTOR EXCURSIONS OR LOSS-OF-COOLANT ACCIDENTS. PHASE 1 (CRUSHABLE-SHIELD ANALYSIS AND DESIGN) AND PHASE 2 (SHOCK-IMPINGEMENT EXPERIMENTS ON CRUSHABLE SHIELDS) ARE COMPLETE. PHASE 3 (COOLANT-DECOMPRESSION EXPERIMENTS AND ANALYSIS) IS STILL IN PROGRESS. A COMPUTER PROGRAM, SWIMM, WAS WRITTEN TO SOLVE COMPLEX ONE-DIMENSIONAL STRESS-WAVE PROBLEMS.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*CONTAINMENT ANALYSIS + *CONTAINMENT, SHOCK GENERATION AND PROTECTION + COMPUTER PROGRAM + CSE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23589

ASSMANN H + STEINBERG E

STABILITY STUDIES ON THIN-WALLED FUEL ELEMENTS

SIEMENS-SCHUCKERTWERKE AG, ERLANGEN, GERMANY

6 PAGES, 12 FIGURES, 10 REFERENCES, ATOMPRAXIS, 13, PAGES 72-77 (FEBRUARY 1967) IN GERMAN

THE MECHANICAL BEHAVIOR OF UO₂ FILLED FUEL ELEMENTS WITH TIGHT-CONTACT THIN-WALLED CANS OF AUSTENITIC STAINLESS STEEL (STUDIED IN A SERIES OF OUT-OF-PILE TESTS) INCLUDED THE FORMATION OF RIDGES AND LOW-CYCLE STRETCH. LONGITUDINAL RIDGES ON THIN-WALLED CASINGS LEAD TO PREMATURE FRACTURE IN THE CASE OF THERMAL CYCLING, BUT THEIR FORMATION CAN BE PREVENTED BY TAKING SUITABLE MEASURES. LOW-CYCLE FATIGUE ON CASINGS WITHOUT RIDGES WAS INVESTIGATED AT CONSTANT EXTERNAL PRESSURE UNDER THERMAL CYCLING CONDITIONS CORRESPONDING TO THOSE EXPECTED IN THE REACTOR. THE NUMBER OF STRETCH CYCLES PRIOR TO FATIGUE FRACTURE DEPENDS ON THE TEMPERATURE INTERVAL OF THE THERMAL CYCLES AND IS REPRESENTED BY A MANSON-COFFIN-RELATION. (IN GERMAN.)

*CLAD + *INSTABILITY + *STEEL, STAINLESS + FAILURE, CLADDING + THERMAL MECHANICAL EFFECT

11-23590

DIAMANT ES

AXISYMMETRIC CREEP IN CYLINDRICAL SHELLS

TRW SYSTEMS, WASHINGTON, D. C.

7 PAGES, 8 FIGURES, 20 REFERENCES, AIAA JOURNAL, 5(10), PAGES 1870-1876 (OCTOBER 1967)

AN ANALYSIS WAS DEVELOPED TO PREDICT THE SHAPE OF THE CREEP END-SHORTENING HISTORY, THE LOCATION OF THE FAILING DEFORMATION, AND THE CREEP BUCKLING COLLAPSE OF CYLINDRICAL SHELLS LOADED AT HIGH TEMPERATURE IN COMPRESSION WITH OR WITHOUT INTERNAL PRESSURE. THE ANALYSIS IS BASED ON COMMONLY USED PRIMARY CREEP LAWS AND THE RESULTS INDICATE THE STRAIN AND TIME HARDENING SOLUTIONS BRACKET THE EXPERIMENTALLY OBSERVED TOTAL AXIAL DEFORMATION VS TIME BEHAVIOR OF THE SHELL DURING A SIGNIFICANT TIME INTERVAL OF ITS LIFE UNDER LOAD. IN THE EXAMPLES HERE, NEITHER OF THE TWO CREEP LAWS ACCURATELY PREDICT THE COLLAPSE TIME ALTHOUGH THE TIME HARDENING LAWS PREDICTIONS ARE, GENERALLY, MUCH CLOSER TO THE OBSERVED BUCKLING TIMES.

*BUCKLING + *CREEP + *CYLINDER + *SHELL + CREEP BEHAVIOR

11-23591

LU SY + CHANG LK

THERMAL BUCKLING OF CONICAL SHELLS

UNIVERSITY OF FLORIDA, GAINESVILLE, FLA.

6 PAGES, 6 FIGURES, 12 REFERENCES, AIAA JOURNAL, 5(10), PAGES 1877-1882 (OCTOBER 1967)

THE INSTABILITY OF TRUNCATED CONICAL SHELLS, DUE TO THERMAL LOADINGS, WAS STUDIED, USING THE GALERKIN METHOD TO INTEGRATE THE EQUILIBRIUM EQUATION. THE THERMAL STRESSES WHICH DEPEND ON THE BOUNDARY CONDITION AND THE TEMPERATURE DISTRIBUTION ARE FOUND BEFORE SOLVING THE BUCKLING PROBLEM. TWO CASES CONSIDERED ARE (1) THE TEMPERATURE VARIES ALONG THE GENERATOR AND THE CONICAL SHELL IS RESTRICTED COMPLETELY AT BOTH ENDS, AND (2) THE TEMPERATURE CHANGES IN TWO PRINCIPAL DIRECTIONS AND THE CONE IS CONSTRAINED ALONG THE PERIMETER, BUT FREE OF RESULTANT LONGITUDINAL FORCE AT BOUNDARIES. THE EDGES ARE SIMPLY-SUPPORTED. THE RELATION OF THE CRITICAL TEMPERATURE TO THE GEOMETRIC PARAMETERS WAS EVALUATED. THE RADIUS-THICKNESS RATIO HAS THE MOST SIGNIFICANT EFFECT ON THE VALUE OF CRITICAL TEMPERATURE.

*BUCKLING + *SHELL + *THERMAL MECHANICAL EFFECT + STRESS

11-23592

ALLENBACH A + BRADY K + KEMPNER J

LONG CYLINDRICAL SHELL UNDER LOADS APPLIED TO A REINFORCING RING

POLYTECHNIC INSTITUTE OF BROOKLYN, BROOKLYN, N. Y.

8 PAGES, 12 FIGURES, 8 REFERENCES, AIAA JOURNAL, 5(10), PAGES 1863-1870 (OCTOBER 1967)

STRESSES AND DISPLACEMENTS ARE DETERMINED IN AN INFINITE CIRCULAR CYLINDRICAL SHELL REINFORCED AT ITS MIDLENGTH BY A SINGLE FRAME. ACTING AT THE ENDS OF A DIAMETER OF THE RING ARE TWO SELF-EQUILIBRATING RADIAL FORCES AND MOMENTS. SOLUTIONS ARE OBTAINED USING THE DONNELL, THE LOVE-REISSNER, AND THE FLUGGE EQUATIONS. NUMERICAL RESULTS INDICATE THAT THE THREE SOLUTIONS ARE IN EXCELLENT AGREEMENT. STRESS DISTRIBUTIONS AND DISPLACEMENTS (PRESENTED ALONG THREE GENERATORS AND ALONG A CIRCUMFERENCE) INDICATE HIGH STRESSES IN THE NEIGHBORHOOD OF THE RING. THE VARIATION OF THE AXIAL BENDING STRESS IN THE SHELL WITH THE ECCENTRICITY BETWEEN THE SHELL MEDIAN SURFACE AND THE RING CENTERLINE IS STUDIED FOR THE CASE OF THE RADIAL FORCES. THE RESULTS INDICATE THAT FOR AN INNER RING THE AXIAL BENDING STRESS IS TENSILE AT THE INNER SURFACE OF THE SHELL, AND FOR AN OUTER RING THIS STRESS IS COMPRESSIVE. FOR THE CASE OF THE OUTER RING, THE MAXIMUM DEFLECTION OF THE SHELL DOES NOT OCCUR AT THE RING.

*CYLINDER + *SHELL + *STRESS ANALYSIS

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23593

GALLAGHER RH + GELLATLY RA + PADLOG J + MALLETT RH
A DISCRETE ELEMENT PROCEDURE FOR THIN-SHELL INSTABILITY ANALYSIS
BELL AEROSYSTEMS COMPANY, BUFFALO, N. Y.
8 PAGES, 14 FIGURES, 16 REFERENCES, AIAA JOURNAL, 5(1), PAGES 138-145 (JANUARY 1967)

THE CONCEPTS OF THE MATRIX DISPLACEMENT APPROACH TO DISCRETE ELEMENT STRUCTURAL ANALYSIS ARE EXTENDED TO PREDICT GENERAL INSTABILITY. INSTABILITY PHENOMENA ARE ACCOUNTED FOR BY CONSIDERING THE INFLUENCE OF ELEMENT MEMBRANE FORCES ON ELEMENT EFFECTIVE FLEXURE STIFFNESSES. PARTICULAR ATTENTION IS GIVEN TO THE PROBLEM OF DETERMINING MEMBRANE FORCE DISTRIBUTIONS THAT ACCOUNT FOR INTERELEMENT MEMBRANE-FLEXURE COUPLING. REPRESENTATIONS OF INSTABILITY EFFECTS ARE FORMULATED FOR SEVERAL LEVELS OF APPROXIMATION FOR AN ARBITRARY QUADRILATERAL PLATE ELEMENT. CRITICAL APPLIED-LOAD INTENSITIES ARE PREDICTED FOR PLATE, ARCH, AND SPHERICAL CAP STRUCTURES TO DEMONSTRATE CONVERGENCE CHARACTERISTICS AND TO PROVIDE COMPARISONS WITH TEST DATA AND CLASSICAL SOLUTIONS.

*INSTABILITY + *SHELL + MATHEMATICAL TREATMENT

11-23594

LIAW BD + LITTLE RW
THEORY OF BENDING MULTILAYER SANDWICH PLATES
BROWN ENGINEERING COMPANY, INC., HUNTSVILLE, ALA. + MICHIGAN STATE UNIVERSITY, EAST LANSING, MICH.
4 PAGES, 1 FIGURE, 9 REFERENCES, AIAA JOURNAL, 5(2), PAGES 301-304 (FEBRUARY 1967)

THE GOVERNING EQUATIONS FOR BENDING OF MULTILAYERED SANDWICH PLATES WERE DEVELOPED BY VARIATIONAL METHODS. THE PLATE IS CONSIDERED TO BE COMPOSED OF N MEMBRANES, HAVING DIFFERENT THICKNESSES AND POSSESSING DIFFERENT ISOTROPIC ELASTIC PROPERTIES, AND (N-1) ORTHOTROPIC CORES. THE VARIATION OF STRESSES ACROSS THE MEMBRANES IS NEGLECTED AS ARE THE FACE-PARALLEL STRESSES IN THE CORE. IT IS POSSIBLE TO IDENTIFY A NEUTRAL SURFACE IN SUCH A MANNER THAT THE EQUATION DEFINING DEFLECTION OF THE PLATE MAY BE OBTAINED IN A SIMILAR FORM AS THAT OBTAINED BY REISSNER AND CHENG. IT IS SHOWN THAT EXISTING SOLUTIONS FOR EITHER REISSNER'S EQUATION FOR A SINGLE SANDWICH WITH AN ORTHOTROPIC CORE MAY BE EXTENDED TO INCLUDE SIMILAR MULTILAYER SANDWICH PLATES BY REDEFINING THE PHYSICAL CONSTANTS OF THE PLATE.

*LAYER + *SLAB + *STRESS ANALYSIS

11-23595

VANDYKE P
TENSION SHELL AS A MEMBRANE
MARTIN COMPANY, BALTIMORE, MD.
3 PAGES, 1 TABLE, 3 FIGURES, 5 REFERENCES, AIAA JOURNAL, 4(12), PAGES 2239-2241 (DECEMBER 1966)

DISCUSSES USE OF MEMBRANE THEORY (BOTH LINEAR AND NONLINEAR) IN THE ANALYSIS OF TENSION SHELLS, AND PRESENTS AN ANALYSIS OF A SYMMETRICALLY LOADED, VARIABLE-THICKNESS TENSION SHELL USING NONLINEAR MEMBRANE THEORY. COMPARES RESULTS WITH LINEAR MEMBRANE THEORY.

*SHELL + *STRESS ANALYSIS + MATHEMATICAL STUDY + STRESS

11-23596

KRAUS H
THERMALLY INDUCED VIBRATIONS OF THIN NONSHALLOW SPHERICAL SHELLS
UNITED AIRCRAFT CORPORATION, EAST HARTFORD, CONN.
6 PAGES, 4 FIGURES, 12 REFERENCES, AIAA JOURNAL, 4(3), PAGES 500-505 (MARCH 1966)

RECENT STUDIES SHOWED THAT THE RETENTION OF THE INERTIA TERMS IN THERMAL STRESS ANALYSES OF RAPIDLY HEATED BEAMS AND PLATES LEADS TO SOLUTIONS THAT DISPLAY THERMALLY INDUCED VIBRATIONS. REPORT CONSIDERS THE RESPONSE OF A SIMPLY SUPPORTED NONSHALLOW SPHERICAL SHELL SEGMENT (OF INTEREST) WHOSE INSIDE SURFACE IS INSULATED TO A HEAT FLUX APPLIED SUDDENLY TO ITS OUTER SURFACE. THE PROBLEM IS SOLVED BY USE OF A MODAL EXPANSION PROCEDURE AND RESULTS ARE GIVEN FOR A RANGE OF THE PARAMETERS THAT ARE RELEVANT TO THE TRANSIENT BEHAVIOR OF THE SHELL. THE RESULTS INDICATE THAT THERMALLY INDUCED VIBRATIONS CAN INDEED OCCUR IN SPHERICAL SHELLS.

*SHELL + *SPHERE + *THERMAL MECHANICAL EFFECT + *VIBRATION + STRESS ANALYSIS + TEMPERATURE TRANSIENT

11-23597

DOW NF + ROSEN BW
STRUCTURAL EFFICIENCY OF ORTHOTROPIC CYLINDRICAL SHELLS SUBJECTED TO AXIAL COMPRESSION
GENERAL ELECTRIC COMPANY, KING OF PRUSSIA, PA.
5 PAGES, 6 FIGURES, 11 REFERENCES, AIAA JOURNAL, 4(3), PAGES 481-485 (MARCH 1966)

AN ANALYSIS WAS MADE TO PERMIT EVALUATION OF THE POTENTIAL OF ORTHOTROPIC MATERIALS, SUCH AS FIBROUS COMPOSITES, FOR LAUNCH-VEHICLE APPLICATIONS. CLASSICAL SMALL-DEFLECTION STABILITY ANALYSIS OF ANISOTROPIC CYLINDRICAL SHELLS WAS EXTENDED TO YIELD AN EXPRESSION DIRECTLY RELATING BUCKLING STRESS TO SHELL ELASTIC CONSTANTS. RESULTS INDICATED NEED FOR ADEQUATE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23597 *CONTINUED*

IN-PLANE SHEAR STIFFNESS FOR EFFICIENT SHELLS. THE ISOTROPIC CONFIGURATION OF FIBROUS COMPOSITES IS THE MOST EFFICIENT MATERIAL GEOMETRY FOR SUCH COMPOSITES.

*COMPOSITE MATERIAL + *CYLINDER + *SHELL + *STRESS ANALYSIS + STRESS

11-23700

MARTIN VC + MEAD KF + UPPARD JE

THE DRAG ON A CIRCULAR CYLINDER IN A SHOCK WAVE

UKAEA, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, GREAT BRITAIN

AWRE-O-34/67 +. 31 PAGES, 18 FIGURES, 10 REFERENCES, MAY 1967

GIVES DETAILS OF THE LOADING OF A RIGHT CIRCULAR CYLINDER BY A SHOCK WAVE, IN A SHOCK TUBE, USING 8- AND 19-PSI OVERPRESSURES. THE REYNOLDS NUMBERS ARE IN THE CRITICAL AND SUPERCRITICAL REGIONS, AND THE MACH NO. FOR THE 19-PSI CASE IS 0.56, WHERE COMPRESSIBILITY EFFECTS ARE IMPORTANT. DRAG COEFFICIENT FOR THE 19-PSI CASE COMPARES WELL WITH WIND-TUNNEL TESTS (M EQUALS 0.36). RESULTS IN THE 8-PSI CASE DO NOT COMPARE (0.97 VS 0.4). STRONG VORTEX SHEDDING AT THE CYLINDER IS FOUND TO OCCUR WITH A STROUHAL NO. OF 0.2.

AVAILABILITY - HEAD OF TECHNICAL SERVICES, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, ENGLAND

*CYLINDER + *SHOCK WAVE

11-23702

EVENSEN DA

NONLINEAR FLEXURAL VIBRATIONS OF THIN-WALLED CIRCULAR CYLINDERS

NASA, LANGLEY RESEARCH CENTER, LANGLEY STATION, HAMPTON, VA.

NASA-TN-D-4090 +. 29 PAGES, 6 FIGURES, 19 REFERENCES, AUGUST 1967

THE NONLINEAR FLEXURAL VIBRATIONS OF THIN-WALLED CIRCULAR CYLINDERS WERE ANALYZED BY ASSUMING TWO VIBRATION MODES AND APPLYING GALERKINS PROCEDURE, RESULTING IN TWO COUPLED NONLINEAR DIFFERENTIAL EQUATIONS FOR THE MODAL AMPLITUDES. THE APPLIED LOADING IS SO CHOSEN THAT ONLY ONE MODE RECEIVES EXTERNAL EXCITATION. APPROXIMATE SOLUTIONS FOR THE MODAL RESPONSE ARE OBTAINED BY THE METHOD OF AVERAGING. ONE SUCH SOLUTION INVOLVES THE RESPONSE OF ONLY THE DRIVEN MODE, A SUBSEQUENT STABILITY ANALYSIS SHOWS THAT THIS SINGLE-MODE RESPONSE IS UNSTABLE FOR CERTAIN COMBINATIONS OF AMPLITUDE AND FREQUENCY. IN THIS UNSTABLE REGION, IT IS NECESSARY TO CONSIDER THE COUPLED-MODE RESPONSE INVOLVING BOTH MODES, AND AN APPROXIMATE SOLUTION IS PRESENTED FOR THIS PROBLEM.

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

*CYLINDER + *SHELL + *VIBRATION ANALYSIS + DYNAMICS, NONLINEAR

11-23703

KNIGHTS CF

STRESS CORROSION OF IRRADIATED TYPE 316 STAINLESS STEEL. AN ADDENDUM TO AERE-R-5014

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)

AERE-M-1899 +. 8 PAGES, 3 FIGURES, 1 TABLE, 11 REFERENCES, JUNE 1967

THE INVESTIGATION OF THE EFFECT OF IRRADIATION WITH MIXED THERMAL AND FAST NEUTRONS ON THE SUSCEPTIBILITY OF TYPE-316 STAINLESS STEEL TO STRESS-CORROSION CRACKING IN MGCL2 SOLUTION HAS BEEN EXTENDED TO STRESSES BELOW 5,000 LB/IN². THERE IS A CRITICAL APPLIED STRESS BELOW WHICH THE TIME TO FAILURE IS VERY DEPENDENT ON STRESS. FAST NEUTRON DAMAGE (RATHER THAN SURFACE OXIDE FILM) APPEARS TO BE RESPONSIBLE FOR THE ENHANCED SUSCEPTIBILITY TO STRESS-CORROSION CRACKING. REPORT IS AN ADDENDUM TO AERE-R-5014, WHICH COVERS STRESSES ABOVE 5000 PSI. IT WAS FOUND THAT BETWEEN 5000 AND 20,000 PSI, TIME TO FRACTURE WAS INSENSITIVE TO STRESS (IN CONTRAST TO UNIRRADIATED SPECIMENS).

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

*CORROSION + *RADIATION DAMAGE + *STEEL, STAINLESS + *STRESS CORROSION + RADIATION EFFECT

11-23705

CINELLI G

DYNAMIC BEHAVIOR OF CIRCULAR PLATES AND BEAMS WITH INTERNAL AND EXTERNAL DAMPING

ARGONNE NATIONAL LAB.

ANL-7239 +. 30 PAGES, 3 FIGURES, 4 REFERENCES, JULY 1966

REPORT INDICATES AREAS WHERE THERE IS A NEED FOR MAKING STRUCTURAL DYNAMIC PROBLEMS AN INTEGRAL PART OF NUCLEAR REACTOR DESIGN AND DEVELOPS SOME NEW VERSIONS OF A MATHEMATICAL TECHNIQUE (FINITE INTEGRAL TRANSFORMS) USED IN SOLVING DYNAMIC PROBLEMS. PAPER CONSISTS OF 4 PARTS - (1) DYNAMIC RESPONSE OF A CIRCULAR PLATE, (2) CANTILEVERED BEAM, (3) BEAM AND PLATE COMBINED, AND (4) RESULTS AND CONCLUSIONS.

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

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23705 *CONTINUED*
COPY, \$0.65 MICROFICHE

*DAMPING + *STRESS ANALYSIS + MATHEMATICAL TREATMENT

11-23706 ALSO IN CATEGORY 12
VALENTIN RA + ROSENBERG GS + SCHOEERLE DF
TRANSIENT THERMAL STRESSES IN HEAT-GENERATING PLATES AND HOLLOW CYLINDERS CAUSED BY SUDDEN CHANGES IN ENVIRONMENTAL TEMPERATURE
ARGONNE NATIONAL LABORATORY
ANL-7294 +. 45 PAGES, 23 FIGURES, 11 REFERENCES, FEBRUARY 1967

THE TRANSIENT THERMAL STRESSES IN A FREE, HEAT-GENERATING FLAT PLATE OR CYLINDER, INSULATED AT ITS OUTER SURFACE AND COOLED ON ITS INNER SURFACE THROUGH A TEMPERATURE-INDEPENDENT BOUNDARY CONDUCTANCE, ARE ANALYZED TO DETERMINE THE EFFECT OF A SUDDEN CHANGE IN ENVIRONMENTAL TEMPERATURE COMBINED WITH INTERNAL HEAT GENERATION. THE FLAT-PLATE PROBLEM IS TREATED BY LAPLACE TRANSFORMS, AND THE CYLINDER PROBLEM, BY USING A RECENTLY DEVELOPED EXTENSION OF THE CLASSICAL HANKEL TRANSFORM. GRAPHICAL TEMPERATURE AND STRESS RESULTS ARE PRESENTED FOR A WIDE RANGE OF BIOT NUMBERS FOR A WIDE RANGE OF THE CYLINDER THICKNESS PARAMETER. ***STUDY WAS PROMPTED BY INTEREST IN EFFECT OF SUDDEN INTRODUCTION OF COLD COOLANT (CORE SPRAY, ETC.) ON STRUCTURAL COMPONENTS.

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

*CYLINDER + *EMERGENCY COOLING CONSIDERATIONS + *HEAT GENERATION, INTERNAL + *STRESS ANALYSIS + *TEMPERATURE TRANSIENT + *THERMAL MECHANICAL EFFECT + CORE COMPONENTS + CORE REFLOODING SYSTEM + CORE SPRAY + MATHEMATICAL TREATMENT + STRUCTURAL INTEGRITY

11-23707
PANKASKIE PJ
CRACK PROPAGATION CHARACTERISTICS OF ZR-2.5 WT% NB ALLOY TUBING
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-560 +. 33 PAGES, 9 FIGURES, 2 TABLES, 5 REFERENCES, OCTOBER 1967

MATERIAL IS BEING CONSIDERED FOR USE IN PRESSURE TUBES. CRACK-PROPAGATION BEHAVIOR WAS NOT SIGNIFICANTLY ALTERED BY COLD WORKING OR HEAT TREATMENTS FROM ROOM TEMPERATURE TO 300 C. WHEN HYDRIDED TO 250 TO 300 PPM HYDROGEN, THE FRACTURE STRENGTH IS GENERALLY REDUCED, AND ITS CRACK-PROPAGATING BEHAVIOR LESS PREDICTABLE. FATIGUE TESTING OF TUBES BY CYCLIC INTERNAL PRESSURIZATION WAS CONTINUED TO CATASTROPHIC FAILURE.

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

*FAULT + *TUBING + *ZIRCALOY + HYDRIDE + REACTOR, PRESSURE TUBE

11-23708
MCGOWAN EJ + SNOW AL
PROCEDURE FOR THE FATIGUE EVALUATION OF DEFECTIVE PIPE BUTT WELDS
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-560 +. 33 PAGES, FIGURES, TABLES, MAY 1967

PRESENTS AN EVALUATION PROCEDURE FOR DETERMINING THE ACCEPTABILITY OF A WELD JOINT CONTAINING DEFECTS AND SUBJECTED TO CYCLIC LOADINGS, INCLUDING A METHOD FOR CLASSIFYING DIFFERENT TYPES OF DEFECTS. DELTA CONCEPT OF NOTCHED FATIGUE DAMAGE IS USED TO ASSIGN FATIGUE-STRENGTH REDUCTION FACTORS TO THE DIFFERENT TYPES OF DEFECTS. (APPENDIX GIVES FILL-IN FORMS FOR PROCEDURE.)

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

EXAMINATION + QUALITY CONTROL + STRESS ANALYSIS + WELDS

11-23709
LEE WT
BIAXIAL STRESS-RUPTURE PROPERTIES OF AUSTENITIC STAINLESS STEELS IN ZIRCONIUM-GETTERED SODIUM ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NAA-SR-12353 +. 40 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1, 1967

GIVES RESULTS OF TESTS ON TYPE-304 AND -316 STAINLESS TUBING AS PART OF THE FAST-BREEDER DEVELOPMENT PROGRAM. ZIRCONIUM FOIL (USED FOR OXYGEN GETTERING) DECARBURIZED THE STAINLESS STEEL, REDUCING THE STRESS RUPTURE STRENGTH AND RUPTURE LIFE OF THE TUBING. IN ADDITION, RECOVERY PROCESSES IN THE COLD-WORKED TYPE-304 STEEL PROBABLY HAD SOME EFFECT. FORMATION OF SIGMA PHASE WAS ALSO DETECTED (PROBABLY DUE TO DECARBURIZATION).

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

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23709 *CONTINUED*

*CLAD + *STEEL, STAINLESS + CARBON + COOLANT PURIFICATION SYSTEM + FAILURE, CLADDING + R AND D PROGRAM + STRESS + ZIRCONIUM

11-23710

MAXWELL RL + HOLLAND RW

EXPERIMENTAL STRESS ANALYSIS OF THE ATTACHMENT REGION OF HEMISPHERICAL SHELLS WITH RADIALY ATTACHED NOZZLES. PART 2. RADIAL NOZZLE 7.975 O.D. - 7.125 I.D. 10.00 IN. PENETRATION UNIVERSITY OF TENNESSEE, KNOXVILLE, TENN.

MM-1158 +. 290 PAGES, TABLES, FIGURES, APRIL, 1967

290-PAGE REPORT OF WHICH 284 CONTAIN DATA AND FIGURES FROM TESTS SUBCONTRACTED BY UNION CARBIDE. TEST MODEL IS BRIEFLY DESCRIBED.

AVAILABILITY - UNIVERSITY OF TENNESSEE, DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING, KNOXVILLE, TENNESSEE

*NOZZLE + *PRESSURE VESSEL + *STRESS ANALYSIS

11-23711

JONES JP + WHITTIER JS

DYNAMICS OF A TWO-LAYERED TIMOSHENKO-TYPE CYLINDRICAL SHELL INCLUDING THE EFFECTS OF SHEAR DEFORMATION OF THE INTERLAYER BOND

AEROSPACE CORPORATION, AERODYNAMICS AND PROPULSION RESEARCH LAB., EL SEGUNDO, CALIF.

SSD-TR-67-119 + TR-1001(2240-30)-7 +. 33 PAGES, 6 FIGURES, 1 TABLE, 3 REFERENCES, JUNE 1967

DERIVES EQUATIONS OF MOTION FOR A CYLINDRICAL SHELL WHOSE TWO LAYERS ARE CONNECTED BY A THIN, DEFORMABLE BOND. EFFECTS OF SHEAR DEFORMATION AND ROTATORY INERTIA ARE ACCOUNTED FOR IN EACH LAYER ASSUMING A THIN, INERTIALESS, INTERLAYER BOND THAT DEFORMS ONLY IN SHEAR. A NONDIMENSIONAL BOND-STIFFNESS PARAMETER IS INTRODUCED, AND THE EFFECT OF BOND STIFFNESS ON THE DYNAMIC BEHAVIOR OF THE SHELL IS INVESTIGATED FOR THE CASE OF AXIAL WAVE PROPAGATION IN AN INFINITELY LONG SHELL. THE BOND-STIFFNESS PARAMETER HAS A PROFOUND INFLUENCE ON SOME OF THE WAVE PROPAGATION FREQUENCIES. FOR THE LIMITING CASES OF VERY STIFF OR VERY SOFT BONDS, SIMPLIFIED THEORETICAL APPROACHES GIVE ADEQUATE ACCURACY. HOWEVER, IT APPEARS NECESSARY TO USE THE THEORY IN FULL FOR BONDS OF INTERMEDIATE THICKNESS.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VA.

CYLINDER + DEFORMATION + LAYER + SHELL + STRESS ANALYSIS + VIBRATION ANALYSIS

11-23712

RICARDO OG

AN EXPERIMENTAL INVESTIGATION OF THE RADIAL DISPLACEMENTS OF A THIN-WALLED CYLINDER

CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA, CALIFORNIA

NASA-CR-934 +. 45 PAGES, 15 FIGURES, 6 TABLES, 5 REFERENCES, NOV. 1967

RESULTS OF A SERIES OF EXPERIMENTS TO DETERMINE THE BEHAVIOR OF THE WALL OF A CIRCULAR CYLINDER LOADED IN AXIAL COMPRESSION. ONE CASE CONSIDERED WAS WHEN THE WALL WAS SUBJECTED TO AN INITIAL DISPLACEMENT BY A POINT RADIAL LOAD, A SECOND MEASURED WALL DISPLACEMENTS WITH NO SIDE LOADS OR INITIAL DISPLACEMENTS, AND THE THIRD CONSIDERED THE CHANGE IN AN INITIAL PERMANENT DEFORMATION IN THE THIN WALL OF THE CYLINDER. RESULTS INDICATE THAT UNDER AXIAL LOADS, THE BUCKLING LOAD FOR THE CYLINDER IS 65 TO 75% OF THE CLASSICAL VALUE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, \$9.00 COPY, \$0.05 MICROFILM

*CYLINDER + *SHELL + *STRESS ANALYSIS + BUCKLING + PRESSURE, INTERNAL

11-23713

COSTELLO GA

CREEP BUCKLING OF THIN CIRCULAR RINGS

DEPT. OF THEORETICAL AND APPLIED MECHANICS, UNIV. OF ILLINOIS, URBANA, ILL.

2 PAGES, 3 FIGURES, 16 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(4), PAGE 512 AND 513, (FEB. 9, 1967)

PRESENTS A METHOD FOR DETERMINING THE CREEP BUCKLING LOAD, ASSUMING UNIFORM STRESS ACROSS THE CROSS SECTION. TANGENT MODULUS THEORY IS USED IN CONJUNCTION WITH THE ISOCHRONOUS STRESS-STRAIN DIAGRAM TO DETERMINE THE CREEP BUCKLING LOAD.

*BUCKLING + *CREEP + MATHEMATICAL TREATMENT + STRESS ANALYSIS

11-23723

ALSO IN CATEGORIES 9 AND 5

PARRY DL

NONDESTRUCTIVE FLAW DETECTION IN NUCLEAR POWER INSTALLATIONS

PHILLIPS PETROLEUM COMPANY

CONF-671011 +. 20 PAGES, 22 FIGURES, PAGES 107-126 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23723 *CONTINUED*

AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

INVESTIGATIONS AND FEASIBILITY STUDIES INVOLVING THE APPLICATION OF THE ACOUSTIC-ANALYSIS PHENOMENA FOR FLAW DETECTION, FLAW DEFINITIONS, AND INCIPIENT-FAILURE PREDICTION HAVE LED TO THE USE OF AN IN-PLANT ANALYSIS SYSTEM. THIS SYSTEM HAS SHOWN CAPABILITY FOR DETECTING AND LOCATING FLAWS IN THE COMPLEX REACTOR PRESSURE VESSEL AND PRIMARY LOOP PIPING OF OPERATIVE NUCLEAR POWER INSTALLATIONS. DUE TO FLUID-FLOW NOISE INTERFERENCE, IT IS LIMITED AT THIS TIME TO APPLICATIONS IN THE HYDROSTATIC TEST MADE.

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

*FLAW + *TEST, NONDESTRUCTIVE + *TESTING + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, PRESSURE + MEASUREMENT, NOISE + PIPING + PRESSURE VESSEL + TEST, PRESSURE VESSEL

11-23743

RODABAUGH EC + WITT FJ + CLOUD RL

STRESSES AT NOZZLES IN SPHERICAL SHELLS LOADED WITH PRESSURE, MOMENT OR THRUST. PHASE REPORT NO. 2
BATTELLE MEMORIAL INST., COLUMBUS, OHIO + OAK RIDGE NATIONAL LABORATORY + BETTIS ATOMIC POWER LABORATORY,
PITTSBURGH, PA.

TID-23343 +. 224 PAGES, JULY 15, 1966

GIVES VARIOUS THEORETICAL METHODS (9) FOR STRESS ANALYSIS OF NOZZLES SUBJECTED TO EXTERNAL FORCES. COMPARES RESULTS OF THESE VARIOUS THEORIES, SUMMARIZES THE RESULTS AND EXPERIMENTAL DATA, AND DISCUSSES RESULTS IN RELATION TO PRESENT CODES AND PRACTICES.

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

*NOZZLE + *SHELL + *SPHERE + *STRESS ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + PRESSURE VESSEL + STRESS

11-23744

RODABAUGH EC + ATTERBURY TJ

FLEXIBILITY OF NOZZLES IN SPHERICAL SHELLS. PHASE REPORT NO. 3

BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO

TID-23344 +. 32 PAGES, REFERENCES, JUNE 28, 1966

ANALYZES THE EFFECT OF THERMAL EXPANSION, WEIGHT, SHOCK, VIBRATION, ETC., ON PIPING SYSTEM BY NUMERICAL (COMPUTER) METHODS. DISCUSSES THE SIGNIFICANCE OF FLEXIBILITY IN NOZZLES AND THE EFFECT ON PIPING DESIGN OF TAKING THIS FLEXIBILITY INTO ACCOUNT (REDUCES THE DEGREE OF CONSERVATISM).

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

*NOZZLE + *PIPING + *STRESS + PRESSURE VESSEL + SAFETY MARGIN + STRESS ANALYSIS + SUPPORT STRUCTURE

11-23745

ALSO IN CATEGORY 17

GIBSON SP + EVANS W + WATSON RD

CHLORIDE STRESS CORROSION CRACKING IN THREADED 300 SERIES STAINLESS STEEL COMPONENTS

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO). CHALK RIVER NUCLEAR LABS.

AECL-2878 + CONF-670522-3 +. 16 PAGES, 8 FIGURES, 1 TABLE, 3 REFERENCES, MAY 1967, PRESENTED AT
INTERNATIONAL CONFERENCE ON WORLD REVIEW OF NUCLEAR REACTORS AND RADIOISOTOPES, MONTREAL, CANADA

DESCRIBES TWO COSTLY FAILURES DUE TO USE OF CHLORO-FLUORO ORGANICS AS LUBRICANTS ON INTERNALLY THREADED COMPONENTS OF 300-SERIES STAINLESS STEEL. A TYPE-316 STRAINER PLUG FAILED AFTER ONLY 100 HR AT 500 F AND 1000 PSIG. THREADS COULD BE BROKEN OFF BY HAND. A SPIRALLY WOUND GASKET AT THE PLUG SHOWED CRACKING. PLUG BODY WAS ALSO CRACKED. SIMILAR PLUGS TESTED UNDER THE SAME CONDITIONS ALSO SHOWED CRACKING. PLUGS TESTED WITH LOW-CHLORINE LUBRICANTS SHOWED NO CRACKING. SCREWED BONNETS OF SAME VALUES FAILED ALSO.

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

*CHLORIDE + *CORROSION + *LUBRICATION + *STEEL, STAINLESS + *STRESS CORROSION + CANADA + FAULT + IN PILE LOOP + MAIN COOLING SYSTEM + OPERATING EXPERIENCE + REPORT, OPERATIONS ANALYSIS + VALVE

11-23756

MISERENTINO R + VOSTEEN LF

VIBRATION TESTS OF PRESSURIZED THIN-WALLED CYLINDRICAL SHELLS

NASA, LANGLEY RESEARCH CENTER, LANGLEY, STATION, HAMPTON, VIRGINIA

NASA-TN-D-3066 +. 47 PAGES, 15 FIGURES, 3 TABLES, 7 REFERENCES, OCTOBER, 1965

THE BREATHING-VIBRATION MODES OF SEVEN UNSTIFFENED CYLINDERS HAVING RADIUS-TO-THICKNESS RATIOS RANGING FROM 324 TO 1622 HAVE BEEN DETERMINED. SIX CYLINDERS WERE MADE OF STAINLESS STEEL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23756 *CONTINUED*

AND ONE OF ALUMINUM. THEIR NOMINAL LENGTH-TO-RADIUS RATIO WAS 6. EXPERIMENTAL RESULTS ARE PRESENTED TO SHOW THE VARIATIONS OF RESONANT FREQUENCY AND MODE SHAPE WITH INTERNAL PRESSURE.

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

*ALUMINUM + *CYLINDER + *STEEL, STAINLESS + *VIBRATION + *VIBRATION ANALYSIS + PRESSURE, INTERNAL + STRESS ANALYSIS

11-23757

PETERSON JP + ANDERSON JK

STRUCTURAL BEHAVIOR AND BUCKLING STRENGTH OF HONEYCOMB SANDWICH CYLINDERS SUBJECTED TO BENDING NASA, LANGLEY RESEARCH CENTER, LANGLEY STATION, HAMPTON, VA.

NASA-TN-D-2926 +. 27 PAGES, 9 FIGURES, 18 REFERENCES, AUGUST 1965

DISCUSSES RESULTS OF BUCKLING TESTS ON THREE HONEYCOMB SANDWICH CYLINDERS LOADED IN BENDING. IN ADDITION, ANALYTICAL STUDIES ARE MADE ON (1) THE INFLUENCE OF THE CORE AND BONDING MATERIAL IN ENHANCING THE STIFFNESS OF COMPOSITE SANDWICH PLATES LIKE THOSE OF THE WALLS OF THE TEST CYLINDERS AND ON (2) PLASTIC BUCKLING OF SANDWICH CYLINDERS IN COMPRESSION. RESULTS OF THE TWO STUDIES ARE COMPARED WITH OBSERVED BEHAVIOR OF THE TEST CYLINDERS.

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

*BUCKLING + *CYLINDER + *LAYER + STRESS ANALYSIS + STRUCTURAL INTEGRITY

11-23758

SHAO TS

NUMERICAL SOLUTION OF PLANE VISCOUS SHOCK REFLECTIONS. REPORT NO. 190

ILLINOIS UNIVERSITY, URBANA

TID-23058 +. 71 PAGES, FIGURES, 19 REFERENCES, SEPTEMBER 30, 1965

PRESENTS A NUMERICAL METHOD FOR SOLVING TWO-DIMENSIONAL, VISCOUS FLUID FLOW PROBLEMS, WITH EMPHASIS ON THE FORMULATION AND SOLUTION OF WEAK SHOCK REFLECTIONS. THE BASIC EQUATIONS USED ARE THE TIME-DEPENDENT NAVIER-STOKES EQUATIONS WITHOUT HEAT CONDUCTION. A VERSION OF THE SHOCK-REFLECTION THEORY DIVIDING FLOW INTO VARIOUS REGIONS IS DISCUSSED. A BEHAVIOR SIMILAR TO EXPERIMENTAL RESULTS IS DISPLAYED BY THE NUMERICAL RESULTS OF THIS THEORY, ALTHOUGH THEY DO NOT QUITE AGREE WITH THE EXPERIMENTAL DATA. TO SHOW THAT THE NAVIER-STOKES DESCRIPTION OF THE FLUID FLOW IS AN ADEQUATE MODEL FOR THE WEAK-SHOCK-REFLECTION PROBLEMS, EQUATIONS OF MOTION ARE NUMERICALLY INTEGRATED BY A DIFFERENCE SCHEME TO OBTAIN ASYMPTOTICALLY STATIONARY SOLUTION.

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

*SHOCK WAVE + COMPUTER PROGRAM + FLOW, GENERAL + MATHEMATICAL TREATMENT

11-23759

BOLOTIN VV

THE DYNAMIC THERMOELASTIC PROBLEM OF PLATES AND SHELLS IN THE PRESENCE OF RADIATION

SC-T-67-0928 +. 9 PAGES, 3 REFERENCES, TRANSLATED FROM TR. KONF. TEOR. PLAST. OBOLOCHEK, KAZAN, PAGES 27-32 (1960)

(TRANSLATED FROM RUSSIAN.) DISCUSSES THE DEFORMATION OF PLATES AND SHELLS SUBJECTED TO INTERIOR HEATING BY RADIATION. PROBLEM IS SOLVED BY SUCCESSIVE CONSIDERATION OF THE HEAT CONDUCTION AND THERMOELASTIC EQUATIONS.

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

*DEFORMATION + *RADIATION EFFECT + *SHELL + MATHEMATICAL TREATMENT + THERMAL CONSIDERATION

11-23760

HOFFMAN TL

PERFORMANCE OF TYPES 304, 316, AND 348 STAINLESS STEEL IN NAK AT HIGH TEMPERATURES

IDAHO NUCLEAR CORP., IDAHO FALLS

IN-1089 +. 11 PAGES, 3 FIGURES, 1 TABLE, 3 REFERENCES, MAY 1967

A SERVICE-TEST EXAMINATION ON A WELDED ASSEMBLY OF TYPES 304, 316, AND 348 STAINLESS IN 1000 F NAK (PEAK TEMPERATURE, 1400 F) FOR ABOUT 14,200 HR SHOWED NO GENERAL CORROSION DAMAGE. APPRECIABLE CARBIDE PRECIPITATION AT GRAIN BOUNDARIES, AND SIGMA PHASE, WERE OBSERVED IN TYPES 304 AND 348, BUT ONLY CARBIDE PRECIPITATION APPEARED IN TYPE 316. CONCLUSIONS IS THAT THE THREE ARE EQUALLY SUITABLE FROM A CORROSION STANDPOINT.

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

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23760 *CONTINUED*
*CORROSION + *NAK + *STEEL, STAINLESS + WELDS

11-23761
MORGAN JG
CREEP--A COMPUTER CODE TO INVESTIGATE CREEP BOWING OF PROCESS TUBES
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-11328 +. 40 PAGES, REFERENCES, APRIL 23, 1965

CREEP IS A CODE WHICH CALCULATES THE DEFLECTION, BENDING MOMENT, AND STRESSES OF PROCESS TUBES, WHICH ARE SUBJECT TO CREEP BOWING, DESIGNED FOR USE IN THE 1000-MW SGR AND 200-MW PROTOTYPE REACTORS. PRINTED OUTPUT AND CRT OUTPUT OF THE RESULTS ARE GIVEN FOR EACH CASE ON THE CODE.

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

*COMPUTER PROGRAM + *CREEP + *STRESS + PRESSURE, INTERNAL + TUBING

11-23763
ZASLAWSKY M
THE EFFECT OF BIAXIAL STRESS ON THE CREEP PROPERTIES OF POLYMETHYL METHACRYLATE
LAWRENCE RADIATION LABORATORY, LIVERMORE
UCRL-73041 + CONF-671001-1 +. 35 PAGES, REFERENCES, FROM SOCIETY OF EXPERIMENTAL STRESS ANALYSIS,
CHICAGO, ILL., MAY 26, 1967

GIVES RESULTS OF CREEP TESTS IN THIN-WALLED TUBES OF POLYMETHYL METHACRYLATE AT 116 F AND 50% R.H., WITH A CONSTANT STRESS STATE DUE TO RADIAL LOADING. ADDITIONAL TESTS INVOLVED A CONSTANT STRESS STATE FOR A PERIOD OF TIME T1 FOLLOWED BY A NEW STRESS STATE FOR TIME T2.

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

CREEP + STRESS ANALYSIS + TUBING

11-23764
CORNELL DC
SAFE-AXISYM--A COMPUTER PROGRAM FOR THE DESIGN OF COMPOSITE BODIES OF REVOLUTION INPUT INSTRUCTIONS
GENERAL ATOMIC, DIVISION OF GENERAL DYNAMICS, SAN DIEGO, CALIF.
GA-6697 +. 37 PAGES, OCTOBER 15, 1965

THIS REPORT DESCRIBES THE INPUT PROCEDURE OF A COMPUTER PROGRAM FOR THE ANALYSIS OF MULTIMATERIAL AXISYMMETRIC COMPOSITE STRUCTURES. THE PROGRAM USES THE FINITE-ELEMENT METHOD IN THE ANALYSIS OF AXISYMMETRIC ELASTIC SOLIDS. THE PROGRAM IS WRITTEN IN THE FORTRAN-IV LANGUAGE, COMPILED FOR THE IBM 7044 COMPUTER, AND ORIENTED FOR THE ANALYSIS OF HETEROGENEOUS STRUCTURES SUCH AS REINFORCED AND/OR PRESTRESSED CONCRETE. THE BASIC ASSUMPTION OF AXISYMMETRY IS REQUIRED FOR EACH STRUCTURAL COMPONENT. LIMITATIONS ARE LISTED.

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

*COMPUTER PROGRAM + *CONCRETE + *CONCRETE, PRESTRESSED + *STRESS ANALYSIS

11-23765
RUNG R + SALERNO VL + MAHONEY JB
EFFECTIVE ELASTIC COEFFICIENTS FOR A SPHERICAL SHELL PERFORATED BY MANY RADIAL HOLES REPORT NO. 112-A
APPLIED TECHNOLOGY ASSOCIATES, INC., RAMSEY, N. J.
TID-23886 +. 56 PAGES, FIGURES, MAY 1967

EXPLICIT FORMULAE WERE DEVELOPED FOR CALCULATING THE EIGHT EFFECTIVE STIFFNESSES OF A SPHERICAL SHELL PERFORATED BY MANY RADIAL HOLES IN REGULAR TRIANGULAR OR RADIALY ORTHOGONAL PATTERNS. THE GOVERNING PARTIAL DIFFERENTIAL EQUATIONS FOR THE UNSYMMETRICALLY LOADED SPHERICAL SHELL ARE GIVEN, AND RECOMMENDATIONS FOR REFINEMENT OF THE ANALYSIS OF THE BENDING CASE ARE MADE.

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

ELASTICITY + MATHEMATICAL TREATMENT + NOZZLE + SHELL + STRESS ANALYSIS

11-23766
FLAGELLA PN
HIGH TEMPERATURE CREEP-RUPTURE BEHAVIOR OF UNALLOYED TUNGSTEN
GENERAL ELECTRIC COMPANY, CINCINNATI, OHIO
GEMP-543 + CONF-670935-2 +. 24 PAGES, FROM 3RD INTERNATIONAL SYMPOSIUM, HIGH TEMPERATURE TECHNOLOGY,

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23766 *CONTINUED*
PACIFIC GROVE, CALIF., AUGUST 31, 1967

COVERS THE EFFECT OF FABRICATION PROCESSING ON THE HIGH-TEMPERATURE-STRENGTH STRESS RUPTURE, CREEP, AND DUCTILITY. DESCRIBES TEST SPECIMEN, PROCEDURES, AND RESULTS.

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

*CREEP BEHAVIOR + *TUNGSTEN + CREEP + PROPERTY, PHYSICAL + STRESS

11-23767
CORIOU H + GRALL L + MAHIEU C + PELRAS M
SENSITIVITY OF AUSTENITIC ALLOYS WITH A HIGH NICKEL CONTENT TO STRESS CORROSION AND INTERGRANULAR ATTACK
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY
QRNL-TR-1627 +. 21 PAGES, JUNE, 1965

INTERGRANULAR STRESS CORROSION WAS FOUND IN INCONEL 600 ALLOY IN PURE WATER AT 350 C. IT WAS DEMONSTRATED THAT THE AUSTENITIC IRON-CHROME-NICKEL ALLOYS WITH A HIGH NICKEL CONTENT ARE FREQUENTLY SENSITIVE TO INTERGRANULAR ATTACK. THIS EFFECT MAY APPEAR IN WATER AT 350 C, IN STEAM AT 600 AND 650 C, AND IN NITRIC ACID IN THE PRESENCE OF HEXAVALENT CHROMIUM. CONCLUDED THAT A HIGH NICKEL CONTENT IN AUSTENITIC FE-CR-NI ALLOYS CAN MODIFY THE INTRINSIC PROPERTIES OF GRAIN BOUNDARIES, THUS PERMITTING THEIR ATTACK IN A CERTAIN NUMBER OF MEDIA.

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

*ALLOY + *NICKEL + *STRESS CORROSION + CHROMIUM + IRON + PROPERTY, PHYSICAL

11-23768
HUU-FANH T
VALIDITY OF THE METHODS OF CALCULATION OF PLATES PERFORATED WITH NUMEROUS HOLES
ECOLE NATIONALE SUPERIEURE DE MECANIQUE, NANTES, FRANCE
WAPD-TRANS-55 +. 40 PAGES, TRANSLATED FROM THE 1966 ANNALS

DESCRIBES THE TWO PRINCIPAL METHODS AND THE SETS OF COEFFICIENTS PROPOSED BY VARIOUS AUTHORS, AND COMPARES THE RESULTS FROM THESE ANALYSES WITH EXPERIMENT. THE METHOD OF BONDING AND DEFLECTION COEFFICIENTS IS SIMPLE BUT NONRIGOROUS AND GIVES AN IMPRECISE ANALYSIS. METHOD OF EQUIVALENT ELASTIC CONSTANTS IS MORE RATIONAL, BUT THE HORVAY AND MALKIN ELASTIC CONSTANTS DO NOT GIVE GOOD RESULTS. WITH THE GONNELL CONSTANTS, STAINS AND DEFLECTIONS MAY BE CALCULATED TO WITHIN PLUS OR MINUS 5%.

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

*COMPARISON, THEORY AND EXPERIENCE + *HEAT EXCHANGER + *STEAM GENERATOR + *STRESS ANALYSIS + MATHEMATICAL TREATMENT

11-23769
DUFFEY TA
LARGE DEFLECTION DYNAMIC RESPONSE OF CLAMPED CIRCULAR PLATES SUBJECTED TO EXPLOSIVE LOADING
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-RR-67-532 +. 122 PAGES, AUGUST 1967

CLAMPED CIRCULAR PLATES WERE IMPULSIVELY LOADED WITH SHEET EXPLOSIVE, AND THE RESULTING LARGE-DEFLECTION DYNAMIC RESPONSE WAS MONITORED BY HIGH-SPEED STREAK AND FRAMING CAMERAS AND BY DYNAMIC STRAIN MEASUREMENTS. BOTH 6061-T6 ALUMINUM (ELASTIC-PLASTIC, STRAIN HARDENING) AND 1022 STEEL (ELASTIC-PLASTIC, STRAIN HARDENING, AND STRAIN-RATE SENSITIVE) PLATES WERE TESTED. A SIMPLE RIGID-PLASTIC ANALYSIS, WHICH PREDICTS FINAL DEFLECTION OF THE PLATE, IS INCLUDED.

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

*EXPLOSION + *STRUCTURAL ANALYSIS, DYNAMIC + ALUMINUM + DEFORMATION + STEEL

11-23770
BORISENKO VI
A METHOD OF INVESTIGATING THE STABILITY OF A CYLINDRICAL SHELL UNDER LONGITUDINAL IMPACT
QRNL-TR-1559 +. 7 PAGES, TRANSLATED FROM DOPOV. AKAD. NAUK UKR. RSR, NO. 7, PAGES 875-878 (1966)

(TRANSLATED FROM RUSSIAN.) PRESENTS A METHOD OF ANALYSIS FOR STUDYING THE STABILITY OF A CYLINDRICAL SHELL UNDER LONGITUDINAL IMPACT APPLIED TO THE EDGE OF THE SHELL.

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

*CYLINDER + *IMPACT SHOCK + *INSTABILITY + STRESS ANALYSIS

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23771
SHOCK AND VIBRATION BIBLIOGRAPHY (DATA ANALYSIS AND APPLICATION)
DEFENSE DOCUMENTATION CENTER
AD-421,845 +. 44 PAGES, NOVEMBER 1963

BIBLIOGRAPHY INCLUDES THE FOLLOWING AREAS - (1) COMPUTERS, (2) EQUIPMENT, (3) DATA MEASUREMENT, (4) SHOCK AND VIBRATION DATA, (5) STATISTICAL ANALYSIS, (6) SYSTEMS ANALYSIS, AND (7) TESTING. REPORTS LISTED ARE BY EITHER DOD CONTRACTORS OR MILITARY AGENCIES.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

BIBLIOGRAPHY + SHOCK WAVE + VIBRATION + VIBRATION ANALYSIS

11-23772
TAKAHASHI SK + GATES WE + BENUSKA KL
RESISTANCE OF TUBULAR STRUCTURES TO DYNAMIC LOADING
NAVAL CIVIL ENGINEERING LAB., PORT HUENEME, CALIF.
AD-636914 + R-463 +. 208 PAGES, JULY 1966

STATIC AND DYNAMIC EXPERIMENTAL INVESTIGATIONS WERE CONDUCTED TO VALIDATE THE NFEC COMPUTER PROGRAM USED TO PREDICT THE BEHAVIOR OF MICROWAVE TOWERS SUBJECTED TO BLAST LOADING. FIVE SMALL-SCALE TOWERS WERE MADE OF COMPOSITE SHEET STEEL AND MICROCONCRETE. TESTS CONDUCTED WERE STATIC AND DYNAMIC TESTS ON STEEL AND CONCRETE SPECIMENS, STATIC TESTS ON A SIMPLY SUPPORTED TUBULAR BEAM AND ON A CANTILEVER MODEL, AND DYNAMIC TESTS ON THREE MODEL TOWERS - FREE-VIBRATION TESTS, BASE-ACCELERATION SHOCK-PULSE TESTS ON A VIBRATION MACHINE, AND AIR-BLAST TESTS IN A 6-FOOT SHOCK TUBE. THE FAILURE MODE FOR THE STATICALLY LOADED BEAM AND CANTILEVER TOWER WAS OF THE SAME TYPE AS FOR THE DYNAMICALLY LOADED CANTILEVER TOWER - A SEMICIRCULAR BULGE OCCURRED IN THE INSIDE AND OUTSIDE STEEL CYLINDERS AT THE LOCATION OF MAXIMUM MOMENT IN THE COMPRESSION ZONE. MODELS TESTED IN THE SHOCK TUBE FAILED AT PEAK OVERPRESSURES OF 44.4 PSI.

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

*COMPUTER PROGRAM + *MODEL TESTING + EXPLOSION + PRESSURE, EXTERNAL + SHOCK WAVE + STRESS ANALYSIS

11-23773
WITT FJ + GWALTNEY RC + MAXWELL RL + HOLLAND RW
COMPARISON OF THEORETICAL AND EXPERIMENTAL RESULTS FROM SPHERICAL SHELLS WITH A SINGLE RADially ATTACHED NOZZLE
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN. + UNIVERSITY OF TENNESSEE, KNOXVILLE, TENN.
ORNL-P-2472 + CONF-661102-5 +. 22 PAGES, 1965, PRESENTED AT AMERICAN SOCIETY OF MECHANICAL ENGINEERS, WINTER ANNUAL CONFERENCE, NEW YORK

A SERIES OF STEEL MODELS HAVING SINGLE NOZZLES RADially AND NONRADially ATTACHED TO A SPHERICAL SHELL IS BEING EXAMINED BY MEANS OF STRAIN GAGES. PARAMETERS BEING STUDIED ARE NOZZLE DIMENSIONS, LENGTH OF INTERNAL NOZZLE PROTRUSIONS, AND ANGLES OF ATTACHMENT. THE LOADS ARE INTERNAL PRESSURE, AXIAL THRUST, AND MOMENT LOADINGS ON THE NOZZLE. THIS PAPER PRESENTS EXPERIMENTAL AND THEORETICAL RESULTS FROM SIX OF THE CONFIGURATIONS HAVING RADially ATTACHED NOZZLES FOR WHICH THE SPHERE DIMENSIONS ARE EQUAL AND THE OUTSIDE DIAMETER OF THE ATTACHED NOZZLE IS CONSTANT. IN SOME INSTANCES THE NOZZLE PROTRUDES THROUGH THE VESSEL.

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

*COMPARISON, THEORY AND EXPERIENCE + NOZZLE + SHELL + SPHERE + STRESS ANALYSIS

11-23774
DIAMANT ES + GREENBAUM GA + RUBIN CP
CREEP OF AXISYMMETRIC SHELLS
TRW SYSTEMS, REDONDO BEACH, CALIF.
CONF-660629-1 +. 23 PAGES, 1965, FROM 5TH NATIONAL CONGRESS OF APPLIED MECHANICS MEETING, MINNEAPOLIS.

REPORTS THE RESULTS OF AN ANALYTICAL PROCEDURE DEVELOPED TO INVESTIGATE THE EFFECTS OF CREEP IN AXISYMMETRIC PRESSURIZED SHELLS WITH HEAD CLOSURES. THE ANALYSIS MAKES POSSIBLE THE EVALUATION OF THE EFFECTS OF CHANGES IN THE CLOSURE GEOMETRY ON THE CREEP OF THE SHELL. IT CONSIDERS ALSO THE EFFECTS OF VARIABLE WALL THICKNESS, PRESSURE HISTORY, AND VARIATIONS IN ASSUMED CREEP LAWS. RESULTS OF COMPUTER CALCULATIONS FOR THIN-SHELL PRESSURE VESSELS WITH VARIOUS GEOMETRY AND LOAD SPECIFICATIONS ARE GIVEN.

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

CREEP + CREEP BEHAVIOR + MATHEMATICAL TREATMENT + SHELL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23775
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY, QUARTERLY PROGRESS REPORT NO. 10, JULY - SEPTEMBER 1967
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA
GEAP-5554 +. 133 PAGES, TABLES, FIGURES, AUGUST 1967

FOUR ASPECTS OF THE STRUCTURAL PERFORMANCE OF REACTOR PRIMARY PIPING SYSTEMS ARE BEING STUDIED. THESE ASPECTS ARE (1) RELIABILITY, (2) STRESS ANALYSIS, (3) FRACTURE MECHANICS, AND (4) FATIGUE.

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

*BRITTLE FRACTURE + *FAILURE, FATIGUE + *FAILURE, PIPE + *PIPING + *RELIABILITY ANALYSIS + ACCIDENT, LOSS OF COOLANT + BIBLIOGRAPHY + COMPUTER PROGRAM + CONTAINMENT RESEARCH AND DEVELOPMENT + ELASTICITY + METAL + STRESS + STRESS ANALYSIS

11-23780
ROY RB + SOLLY B
HIGH TEMPERATURE TENSILE PROPERTIES OF UNIRRADIATED AND NEUTRON IRRADIATED 20CR-35NI AUSTENITIC STEEL
AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN
AE-260 + N67-22957 +. 25 PAGES, FIGURES, TABLES, DECEMBER 1966

THE TENSILE ELONGATION AND FRACTURE MODE (TRANSGRANULAR) OF UNIRRADIATED SPECIMENS TESTED AT ROOM TEMPERATURE AND 650 C ARE ALMOST IDENTICAL. AT 750 AND 820 C, THE ELONGATION IS CONSIDERABLY LESS AND NONUNIFORM. THE FRACTURE MODE IS INTERGRANULAR, AND MICROSCOPIC EVIDENCE SUGGESTS THAT FRACTURE IS CAUSED BY FORMATION AND LINKUP OF GRAIN-BOUNDARY CAVITIES. YS AND UTS DECREASE MONOTONICALLY WITH TEMPERATURE. IRRADIATED SPECIMENS SHOW A FURTHER DECREASE IN DUCTILITY AND AN INCREASE IN THE TENDENCY TO GRAIN-BOUNDARY CRACKING. PROLONGED ANNEALING OF IRRADIATED AND UNIRRADIATED SPECIMENS AT 650 C APPEARS TO HAVE NO SIGNIFICANT EFFECT ON TENSILE PROPERTIES.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*RADIATION DAMAGE + *RADIATION EFFECT + *STEEL + PROPERTY, PHYSICAL + TENSILE PROPERTY

11-23781
QUARTERLY REPORT NO. 9 (ON MECHANICAL PROPERTIES OF STEELS), APRIL 1, 1967 - JUNE 30, 1967
CHANTIERS DE L ATLANTIQUE SAINT-NAZAIRE, FRANCE
EURAE-1889 + EUR-3383 +. 3 PAGES, JULY 7, 1967

ONE OF A SERIES OF PROGRESS REPORTS ON MECHANICAL PROPERTIES OF STEEL, A JOINT US-EURATOM R AND D PROGRAM.

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

*PROPERTY, PHYSICAL + *R AND D PROGRAM + *STEEL + FABRICATION + HEAT TREATMENT

11-23782
COX TB
THE RELATIONSHIP OF NITROGEN CONTENT OF AUSTENITIC STAINLESS STEELS TO STRESS CORROSION. QUARTERLY REPORT NO. 12, APRIL 1-JUNE 31, 1967
VIRGINIA POLYTECHNIC INST., BLACKSBURG. DEPT. OF METALS AND CERAMIC ENGINEERING
EURAE-1902 +. 14 PAGES, REFERENCE, JUNE 1967

ONE OF A SERIES OF REPORTS ON THE SAME SUBJECT. THE OBJECTIVE OF THIS RESEARCH PROJECT IS TO DETERMINE THE RELATIONSHIP BETWEEN NITROGEN CONTENT OF CERTAIN COMMERCIAL AUSTENITIC STAINLESS STEELS AND THEIR SUSCEPTIBILITY TO STRESS CORROSION. PREVIOUS WORK HAS INDICATED THAT THE PRESENCE OF NITROGEN INCREASES THE SUSCEPTIBILITY. OTHER WORK HAS SHOWN THAT NITROGEN IN SUFFICIENT AMOUNTS TO PRODUCE NITRIDES RESULTS IN MAJOR INTERNAL FRICTION PEAKS AT TEMPERATURES BELOW 200 C.

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

*NITROGEN + *STEEL, STAINLESS + *STRESS CORROSION + R AND D PROGRAM

11-23783
FINDLEY WN + LAI JS
A MODIFIED SUPERPOSITION PRINCIPLE APPLIED TO CREEP OF NON-LINEAR VISCOELASTIC MATERIAL UNDER ABRUPT CHANGES IN STATE OF COMBINED STRESS
LAWRENCE RADIATION LAB., LIVERMORE
UCRL-13210 + EMRL-27 +. 48 PAGES, JANUARY 1966

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23783 *CONTINUED*

A MODIFIED SUPERPOSITION PRINCIPLE WAS USED TO DESCRIBE CREEP IN THE NONLINEAR RANGE UNDER COMBINED STRESSES WHICH CHANGE ABRUPTLY FROM TIME TO TIME. THE STRESS FUNCTION $F(I,J)$ EMPLOYED IS DERIVED FROM THREE INTEGRALS OF THE MULTI-INTEGRAL THEORY FOR CONSTANT STRESS. SEVERAL MEANS OF TREATING THE NONLINEARITY IN STRESS WHEN THE STRESS CHANGES ARE INVESTIGATED. THE MOST SATISFACTORY OF THESE CONSIDERS THAT AFTER A CHANGE IN STRESS, THE CREEP MAY BE DESCRIBED AS THE SUM OF THE RECOVERY RESULTING FROM REMOVAL OF THE FIRST STRESS AND THE CREEP FROM APPLICATION OF FINAL STRESS, THE RECOVERY BEING COMPUTED ON THE BASIS OF SUPERPOSITION.

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

*CREEP + ANALYTICAL MODEL + MATERIAL + MATHEMATICAL TREATMENT + STRESS

11-23784

BORESI AP + WANT IC

STRAIN ENERGY EXPRESSION FOR LARGE DEFORMATIONS OF ISOTROPIC ELASTIC SHELLS SUBJECTED TO ARBITRARY TEMPERATURE DISTRIBUTION

UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS + UNIVERSITY OF CINCINNATI, CINCINNATI, OHIO

22 PAGES, 3 FIGURES, 1 TABLE, 6 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(4), PAGES 443-464 (JULY 1967)

A GENERAL STRAIN-ENERGY EXPRESSION FOR LARGE DEFLECTIONS OF THIN ISOTROPIC ELASTIC SHELLS WAS DERIVED, INCLUDING THE EFFECTS OF HEATING. WITH THIS EXPRESSION, THE THERMAL BUCKLING AND POSTBUCKLING BEHAVIOR OF HEATED SHELLS MAY BE TREATED. THE RESULTS ARE SPECIALIZED FOR CIRCULAR CYLINDRICAL SHELLS, FOR SPHERICAL SHELLS, AND FOR RIGHT-CIRCULAR CONICAL SHELLS. IMPORTANT APPLICATIONS OF THE THEORY OCCUR WITH HIGH-SPEED AIRCRAFT AND ROCKET STRUCTURES AND WITH NUCLEAR REACTOR STRUCTURES.

*DEFORMATION + *ELASTICITY + *SHELL + *TEMPERATURE GRADIENT + STRESS

11-23785

MURRC RP + FREUDENTHAL AM

CREEP BEHAVIOR OF AN ALUMINUM ALLOY UNDER TRANSIENT TEMPERATURES

COLUMBIA UNIVERSITY, NEW YORK

21 PAGES, 38 FIGURES, 3 TABLES, 13 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(4), PAGES 405-425 (JULY 1967)

CREEP OF 2024-0 ALUMINUM ALLOY WAS STUDIED UNDER ISOTHERMAL CONDITIONS (STRESSES BETWEEN 9000 AND 12000 PSI, TEMP. BETWEEN 423 AND 463 K) AND FOR SEVERAL LINEAR HEATING/COOLING RATES (WITH 10,000-PSI STRESSES). USING A TIME-DEPENDENT VISCOSITY COEFFICIENT HAVING A NONLINEAR STRESS DEPENDENCE FOR A MAXWELL MATERIAL POSSESSING LINEARLY ELASTIC COMPRESSIBILITY, EXPLICIT SOLUTIONS FOR THE STRESSES IN A HOLLOW SPHERE RESULTING FROM A STEP OF INTERNAL PRESSURE AND STEPS OF TEMPERATURE AT ITS BOUNDARIES (AT T EQUALS 0) ARE PRESENTED. NUMERICALLY COMPUTED VALUES ARE COMPARED WITH VALUES OBTAINED FOR THE SAME SPHERE IN WHICH, HOWEVER, THE VISCOSITY COEFFICIENT IS EXPRESSED BY CONVENTIONAL ACTIVATION ENERGY THEORY.

*CREEP + ANALYTICAL MODEL + CREEP BEHAVIOR + CREEP PROPERTY + MATHEMATICAL TREATMENT

11-23786

SHAW WA + WITT FJ + YAHR GT

IRRADIATION-INDUCED STRESSES IN SOLID SEMI-INFINITE AND SHORT GRAPHITE CYLINDERS SUBJECTED TO AN AXISYMMETRIC AXIAL FLUX GRADIENT

OAK RIDGE NATIONAL LABORATORY

14 PAGES, 5 FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 5(4), PAGES 391-404 (JULY 1967)

ANALYZES A SOLID SEMI-INFINITE OR SHORT GRAPHITE CYLINDER SUBJECTED TO A FAST NEUTRON IRRADIATION FLUX WHICH DECAYS EXPONENTIALLY ALONG THE AXIS OF THE CYLINDER. THE IRRADIATION SHRINKAGE COEFFICIENTS MAY DIFFER IN THE AXIAL AND IN-PLANE DIRECTIONS. A MODIFIED LOVE STRESS FUNCTION IS USED IN CONJUNCTION WITH THE BODY-FORCE ANALOGY TO OBTAIN A SOLUTION WELL AWAY FROM THE ENDS OF THE CYLINDER. COMPLETE SOLUTION IS BY SUPERPOSITION.

*GRAPHITE + *RADIATION DAMAGE + *STRESS ANALYSIS + DEFORMATION + EXPANSION + STRESS

11-23787

NORTH EL

PAPA--STRUCTURAL ANALYSIS OF PLATES AND SHELLS USING TRAPEZOIDAL AND TRIANGULAR PLATE ELEMENTS

GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

GEAP-5471 +. 48 PAGES, TABLES, FIGURES, MARCH 1967

PAPA IS A COMPUTER PROGRAM GIVING EXCELLANT AGREEMENT WITH CLASSICAL SOLUTIONS IN MOST CASES. ANALYSIS IS BASED ON PLATE-PANEL ELEMENT, USING INTERSECTING BEAMS CONNECTED AT THEIR CENTER POINT. POISSONS RATIO IS THEN INCORPORATED INTO THE ANALYSIS.

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

*COMPUTER PROGRAM + *SHELL + *SLAB + *STRESS ANALYSIS + ANALYTICAL MODEL + MATHEMATICAL TREATMENT +

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23787 *CONTINUED*
STRUCTURAL INTEGRITY

11-23789
CONTE F
THE PRESTRESSED CONCRETE VESSELS OF THE G2, G3 REACTORS
COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN, FRANCE
ORNL-TR-1282 +. 15 PAGES, OCTOBER 16, 1963

THESE BREEDER REACTORS ARE CO₂-COOLED, GRAPHITE-MODERATED, METALLIC-NATURAL-URANIUM FUELED, MAGNESIUM-ZIRCALOY-CLAD. REACTOR VESSEL IS 3 METERS THICK (BIOLOGICAL SHIELDING) 20 METERS IN DIAMETER, AND 33.65 LONG. ENDS OF CYLINDER ARE HEMISPHERES (CONCAVE TO THE EXTENSION). CYLINDER RESTS ON TWO BEAMS, WHICH RUN THE LENGTH OF THE STRUCTURE, SUPPORTED BY A LARGE SUNKEN APRON.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD ST. CHICAGO, ILLINOIS

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + FRANCE + REACTOR DESCRIPTION + REACTOR, BREEDER + REACTOR, GCR + REACTOR, GRAPHITE MODERATED

11-23790
WARRURTON GB
VIBRATION OF THIN CYLINDRICAL SHELLS
UNIVERSITY OF NOTTINGHAM
9 PAGES, 2 FIGURES, 3 TABLES, JOURNAL OF MECHANICAL ENGINEERING, 7(4), PAGES 399-407 (DECEMBER 1965)

GIVES A GENERAL SOLUTION, STARTING FROM FLUGGES THREE EQUATIONS OF MOTION FOR A UNIFORM THIN CYLINDRICAL SHELL, FROM WHICH THE DEPENDENCE OF NATURAL FREQUENCIES ON SHELL DIMENSIONS AND MODE NUMBER CAN BE INVESTIGATED FOR ANY END CONDITIONS. THIS SOLUTION REQUIRES THE ASSUMPTION OF A NATURAL FREQUENCY AND THE DETERMINATION OF THE CORRESPONDING SHELL LENGTH FOR THE PRESCRIBED END CONDITIONS. NUMERICAL RESULTS ARE GIVEN FOR SHELLS WITH CLAMPED ENDS AND FOR SHELLS WITH FREE ENDS. THE VARIATION OF FREQUENCY FACTOR AND OF MODE SHAPE WITH DIMENSIONAL AND MODE PARAMETERS IS SHOWN AND THE ACCURACY OF APPROXIMATE THEORIES ASSESSED.

*CYLINDER + *SHELL + *VIBRATION ANALYSIS + MATHEMATICAL TREATMENT + VIBRATION

11-23791
CEMAL-HERBE MC + WING RD + LADERMAN AJ + UPPENHEIM AK
RESPONSE OF A CYLINDRICAL SHELL TO INTERNAL BLAST LOADING
UNIVERSITY OF WITWATERSTRAND, SOUTH AFRICA + CITY AND GUILDS COLLEGE, LONDON + UNIVERSITY OF CALIFORNIA
8 PAGES, 7 FIGURES, 11 REFERENCES, JOURNAL OF MECHANICAL ENGINEERING SCIENCE, 8(1), PAGES 91-98 (MARCH 1960)

CONCERNS STRESSES INDUCED IN A THIN-WALLED CYLINDER THAT IS EXPOSED TO INTERNAL BLAST LOADING ORIGINATING FROM A DETONATION WAVE. THE MATHEMATICAL FORM OF THE PRESSURE-TIME PROFILE OF THE BLAST WAVE WAS FORMULATED ON THE BASIS OF EXPERIMENTAL DATA. THE STRESS RESPONSE OF THE CYLINDRICAL SHELL TO THIS LOADING WAS THEN PREDICTED USING A SIMPLIFIED DYNAMIC MODEL FOR THE VIBRATING SYSTEM. THE THEORY WAS CHECKED EXPERIMENTALLY BY MEANS OF SURFACE STRAIN MEASUREMENTS MADE ON A 2-FT DIAMETER, 20-FT LONG STAINLESS STEEL VESSEL SUBJECTED TO THE IMPACT LOADING OF A DETONATION WAVE PROPAGATING IN A HYDROGEN-OXYGEN MIXTURE WHICH FILLED THE VESSEL INITIALLY AT PRESSURES OF 100 TO 200 MM HG.

COMPARISON, THEORY AND EXPERIENCE + CYLINDER + MATHEMATICAL TREATMENT + SHELL + SHOCK WAVE + STRESS ANALYSIS + VIBRATION ANALYSIS

11-23792
MARCAL PV + TURNER CE
LIMITED LIFE OF SHELLS OF REVOLUTION SUBJECTED TO SEVERE LOCAL BENDING
IMPERIAL COLLEGE, LONDON, ENGLAND
16 PAGES, 19 FIGURES, 6 TABLES, 22 REFERENCES, JOURNAL OF MECHANICAL ENGINEERING SCIENCE, 7(4), PAGES 408-423 (DECEMBER 1965).

DATA FROM TESTS PERFORMED ON AXIALLY LOADED EXPANSION BELLOWS IN ORDER TO OBTAIN THE RELATIONSHIP BETWEEN MAXIMUM STRAIN, LOAD, AND DEFLECTION IN THE PLASTIC REGION, AND A NUMERICAL METHOD, WERE FOUND TO BE IN REASONABLE AGREEMENT. THE STRAINS MEASURED AT COLLAPSE DID NOT EXCEED THREE AND A HALF TIMES THE STRAIN AT FIRST YIELD, WHILE THE STRAINS AFTER COLLAPSE WERE GREATER. THE BELLOWS WERE FINALLY TESTED TO FAILURE IN THE LOW-CYCLE REGIME. THE RESULTS AGREED WITH FATIGUE TESTS ON THE PARENT MATERIAL. A SIMPLE MODEL BASED THE BENDING OF A BEAM IS PROPOSED FOR PREDICTING THE STRAINS AND IS USED TO CLASSIFY THE TYPES OF LOADING WHICH LEAD TO DIFFERENT MODES OF FAILURE IN THE PLASTIC REGION. THE PROPOSED DESIGN PROCEDURES ARE THEN USED IN CASE STUDIES OF THE LIMITED-LIFE DESIGN OF BELLOWS AND PIPE ENDS, AND COMPARISON MADE WITH THE OBSERVED FATIGUE LIVES.

*EXPANSION + *FAILURE, FATIGUE + *PIPING + COMPARISON, THEORY AND EXPERIENCE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23793

EXECUTIVE ORDER ON NUCLEAR REACTOR CONTAINERS OF PRESTRESSED CONCRETE
ORNL-TR-1466 +. 13 PAGES, 1966, TRANSLATED FROM ARRETTE SUR LES CAISSONS DE REACTEURS NUCLEAIRES EN BETON
PRECONTRAINTE

THE ORDER IS DIVIDED INTO ARTICLES IN WHICH REGULATIONS ARE ESTABLISHED CONCERNING
ADMINISTRATIVE PROCEDURES, DESIGN AND PLANNING OF PRESTRESSED CONTAINERS, MATERIALS AND
FITTINGS USED, CALCULATION METHODS, TESTS OF MOCKUPS AND SCALE MODELS, CONSTRUCTION METHODS,
AND FINAL TESTING.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *REGULATION, GENERAL + FRANCE

11-23794

HUANG NC
NONLINEAR CREEP BUCKLING OF SOME SIMPLE STRUCTURES
UNIVERSITY OF CALIFORNIA AT SAN DIEGO, LA JOLLA, CALIF.
7 PAGES, 7 FIGURES, 12 REFERENCES, JOURNAL OF APPLIED MECHANICS 34(3), PAGES 651-58 (SEPTEMBER 1967)

STUDIED THE CREEP-BUCKLING BEHAVIOR OF SHALLOW MISES TRUSSES AND TWO-HINGED SINUSOIDAL LOW
ARCHES WITH SANDWICH CROSS SECTION. THE MATERIAL PROPERTIES ARE ASSUMED TO BE NONLINEAR
VISCOELASTIC AND OBEYING THE POWER CREEP LAW. THE PURPOSE WAS TO FIND THE CRITICAL TIMES,
CRITICAL DEFLECTIONS, AND POSTBUCKLING DEFLECTIONS OF THESE STRUCTURES. FOR MISES TRUSSES,
SNAP-THROUGH MAY BE INDUCED BY DIRECT COMPRESSION OR LATERAL BUCKLING OF THE MEMBERS.
ANALYTICAL SOLUTIONS ARE OBTAINED. IN THE ARCH PROBLEM, BOTH SYMMETRICAL AND ANTISYMMETRICAL
BUCKLINGS ARE CONSIDERED. COLLOCATION METHOD IS USED IN THE ANALYSIS, AND NUMERICAL
SOLUTIONS ARE OBTAINED.

*BUCKLING + *CREEP + *DYNAMICS, NONLINEAR + STRUCTURAL ANALYSIS, DYNAMIC

11-23795

LIEBERMAN P
STUDIES OF REACTOR CONTAINMENT. VOLUME III. SELECTION OF EQUATIONS-OF-STATE FOR BLAST SHIELD DESIGN.
FINAL REPORT
IIT RESEARCH INSTITUTE
IITRI-578P21-19 +. 150 PAGES, FIGURES, FEBRUARY 1967

CONTAINS GRAPHICAL, ANALYTICAL, AND COMPUTER SOLUTIONS TO THE IMPACT PROBLEM IN THE FIVE TYPES
OF EQUATION OF STATE FOR THE ONE-, TWO-, AND FOUR-LAYER BLAST SHIELDS. IT IS ASSUMED THAT
THE BLAST SHIELDS ARE EXPOSED TO A SQUARE-WAVE PRESSURE-TIME HISTORY AT THE IMPINGEMENT
SURFACE AND SUPPORTED BY A RIGID WALL. THE RESULTS SHOW THE EFFECT OF IMPEDANCE MISMATCH
BETWEEN THE TWO LAYERS AND THE EFFECT OF THE HUGONIOT ELASTIC LIMIT WITHIN EACH LAYER. THE
ONE- AND TWO-LAYER ARRANGEMENTS OF THE SAME DISPERSIVE MATERIAL AND THE TWO- AND FOUR-LAYER
ARRANGEMENTS ARE COMPARED FOR BLAST-SHIELD EFFECTIVENESS.

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

COMPUTER PROGRAM + CONTAINMENT ANALYSIS + CONTAINMENT, SHOCK GENERATION AND PROTECTION +
EQUATION, GENERAL + REACTOR, PWR

11-23796

SALMON MA
STUDIES OF REACTOR CONTAINMENT STRUCTURES. FINAL REPORT
IIT RESEARCH INSTITUTE, CHICAGO
IITRI-578P22-15 +. 113 PAGES, REFERENCES, JUNE 1966

IIT RESEARCH INSTITUTE HAS MADE STUDIES FOR THE AEC ON STRUCTURAL PROBLEMS RELATING TO REACTOR
CONTAINMENT. THIS IS THE FINAL SUMMARY REPORT ON THE PROGRAM. THE WORK ON THE PROGRAM
INCLUDED THE FOLLOWING FOUR TASKS - (1) ANALYSIS OF THE RESPONSE OF CONTAINMENT VESSELS, (2)
THE EFFECT OF OPENINGS ON THE STRENGTH OF CONTAINMENT VESSELS, (3) EXPERIMENTAL INVESTIGATION
OF THE STRENGTH OF CYLINDERS AND FLAT PLATES, AND (4) PREPARATION OF MATERIAL FOR REACTOR
HANDBOOK. TASKS 1 AND 4 WERE COMPLETED IN 1964. THIS REPORT COVERS TASKS 2 AND 3.

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

*CONTAINMENT ANALYSIS + *NOZZLE + R AND D PROGRAM

11-23797

LIEBERMAN P
STUDIES OF REACTOR CONTAINMENT. VOLUME II. DETERMINATION OF THE EQUATION-OF-STATE OF POROUS SOLIDS.
TASK TWO FINAL REPORT
IIT RESEARCH INSTITUTE
IITRI-578P21-22 +. 100 PAGES, FIGURES, OCTOBER 1967

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23797 *CONTINUED*

THE PURPOSE OF THIS WORK WAS TO PROVIDE INFORMATION FOR CHOOSING MATERIALS AND DESIGNING BLAST SHIELDS IN CONNECTION WITH REACTOR CONTAINMENT. THE STRESS VOLUME RELATIONS IN SHOCK LOADING, INSENTROPIC UNLOADING, AND SHOCK RELOADING FOR CELCTEX, STYROFOAM, REDWOOD, SUGAR PINE, FOAMGLASS, AND BALSA WERE OBTAINED AT NORMAL STRESSES OF 300 TO 17,000 PSI. WALL-FRICTION EFFECTS AND MALVERN-TYPE STRAIN-RATE SENSITIVITY EFFECTS ARE CONSIDERED. A HELIUM-AIR SHOCK TUBE IS DESIGNED TO GIVE CONTROLLED BLAST WAVEFORMS FOR IMPINGEMENT AGAINST A POROUS SOLID CONTAINED IN A SPECIAL SPECIMEN HOLDER.

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

*CONTAINMENT ANALYSIS + *CONTAINMENT, SHOCK GENERATION AND PROTECTION + COMPUTER PROGRAM + COMPUTER PROGRAM + CONTAINMENT ANALYSIS + CSE + EQUATION, GENERAL + POROUS MEDIA + REACTOR, PWR + SOLID

11-23798

YOUNG CW

CONTAINMENT CAPSULE IMPACT SAFETY STUDY-SPECIAL REPORT ON END CAP INVESTIGATION

SANCIA LABORATORY, ALBUQUERQUE, NEW MEXICO

SC-RR-64-530 +. 30 PAGES, 38 FIGURES, AUGUST 1964

A PROGRAM OF END-CAP TESTING. THE END-CAP ORIGINALLY USED WITH TEST SAMPLES HAD BEEN DESIGNED TO SURVIVE IMPACT AND YET NOT ACT AS AN ENERGY ABSORBER FOR THE TUBE OF THE TEST ITEM. HOWEVER, WHEN PHASE-I TESTING WAS BEGUN WITH THIS END-CAP EMPLOYED, THE FIRST FEW SERIES-1 IMPACT TESTS PRODUCED SHEAR FAILURES IN THE TEST ITEM END-CAPS. NO EXPERIMENTAL OR ANALYTICAL DATA WERE AVAILABLE TO SERVE AS GUIDELINES IN THE DESIGN OF AN END-CAP FOR THIS PARTICULAR USE. ALL EXISTING INFORMATION PERTAINED TO END-CAP DESIGNS INTENDED TO SERVE AS EFFECTIVE ENERGY ABSORBERS. DATA ON THE IMPACT OF SOLID PROJECTILES WERE OF NO VALUE IN THIS APPLICATION, SINCE THE FAILURE MECHANISM WAS NOT SIMILAR.

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

*STRESS ANALYSIS + *TESTING + IMPACT SHOCK + SHOCK ABSORBER + STRUCTURAL INTEGRITY

11-23799

HWANG C

SOME EXPERIMENTS ON THE VIBRATION OF A HEMISPHERICAL SHELL

NORTHROP CORPORATION, HAWTHORNE, CALIF.

8 PAGES, 10 FIGURES, 29 REFERENCES, JOURNAL OF APPLIED MECHANICS 33(4), PAGES 817-24 (DECEMBER 1966)

DESCRIBES EXPERIMENTS ON THE VIBRATION OF A THIN HEMISPHERICAL SHELL HAVING A FREE EDGE AND CONSTANT THICKNESS. THE RESULTS ARE COMPARED WITH THE ANALYTICAL DATA OBTAINED THROUGH VARIOUS METHODS ORIGINATED BY RAYLEIGH, LOVE-FEDERHOFER-NAGHDI, AND MUSHTARI-VLASOV. FOR THE AXISYMMETRICAL CASE, THE TEST RESULTS COMPARE FAVORABLY WITH THE LOVE-NAGHDI METHOD. FOR THE ASYMMETRICAL CASES IT IS FOUND THAT THE LATTER METHOD FAILS TO PREDICT THE MOST SIGNIFICANT MODES IN THE LOW-FREQUENCY REGION, WHILE RAYLEIGH(S) INEXTENSIONAL THEORY YIELDS FAVORABLE FREQUENCY DATA. THIS MAY BE DUE TO A CHARACTERISTIC INHERENT IN THE LINEAR SHELL THEORY, OR TO DIFFICULTIES IN NUMERICAL COMPUTATION. ALSO NOTED IS A TYPICAL MODAL SHAPE WHERE THE DEFORMATION PATTERN IS CONCENTRATION IN THE FREE-EDGE REGION. THE PHENOMENON, WHICH JUSTIFIES THE USE OF THE DYNAMIC-EDGE-EFFECT SOLUTIONS, IS EXPLAINED ANALYTICALLY.

*COMPARISON, THEORY AND EXPERIENCE + *SHELL + *SPHERE + *VIBRATION + MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + VIBRATION ANALYSIS

11-23800

THEORETICAL AND EXPERIMENTAL STUDIES OF A NEW PRESTRESS PROCEEDING

COMPAGNIE D INGENIEURS ET TECHNICIENS D ETUDES, PARIS

EUR-3264.F +. 56 PAGES, 1967 (IN FRENCH)

A NEW PRESTRESS PROCEDURE, CALLED GLOBAL PRESTRESSING, APPLICABLE TO NUCLEAR REACTOR CAISSONS IS PRESENTED. THE RESULTS OF THE FIRST RESEARCHES CARRIED OUT BY CITE ARE GIVEN. THE STUDIES UNDERTAKEN BY CITE, TO ELABORATE ON A PRELIMINARY PROJECT FOR THE USING OF THE PROCEDURE FOR A REACTOR CAISSON OF THE SAME TYPE AS THAT UNDER STUDY (THE EDF INCA REACTOR), ARE DESCRIBED. THE STUDIES WERE CARRIED OUT IN TWO STAGES - (1) A GENERAL METHOD OF CALCULATION WORKED OUT BY USING THE THEORY OF PLATES AND SHELLS (TIMOSHENKO), (2) CALCULATION OF THE INTERNAL STRESSES AND STRAINS BY USING A TWO-DIMENSIONAL METHOD OF THERMOELASTICITY.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM WISCONSIN 54669

*CONCRETE, PRESTRESSED + CONTAINMENT CONSTRUCTION + FRANCE + STRESS ANALYSIS

11-23802

BOSSIN AD

HYDROGEN EMBRITTLEMENT IN IRRADIATED STEELS

ARGONNE NATIONAL LABORATORY

ANL-7266 +. 73 PAGES, 41 FIGURES, TABLES, 35 REFERENCES, FEBRUARY 1967

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23802 *CONTINUED*

REPORTS RESULTS OF EXPERIMENTS TO DETERMINE IF IRRADIATED PRESSURE-VESSEL STEELS COULD BECOME SUSCEPTIBLE TO HYDROGEN EMBRITTLEMENT, AND IF IRRADIATION OF ULTRAHIGH-STRENGTH STEELS REMOVES THE SUSCEPTIBILITY TO HYDROGEN FAILURE. DISCUSSES HYDROGEN EMBRITTLEMENT AND RADIATION EMBRITTLEMENT. ***HIGH HYDROGEN CONTENTS DID NOT CAUSE HYDROGEN EMBRITTLEMENT OF IRRADIATED 212-B STEEL.

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

*BRITTLE FRACTURE + *HYDROGEN + *PRESSURE VESSEL + *RADIATION DAMAGE + *RADIATION EFFECT

11-23858 ALSO IN CATEGORY 5

GALLI RB + LORD BG

CALCULATION OF MAXIMUM EQUILIBRIUM PRESSURE AND TEMPERATURE INSIDE THE CONTAINMENT OF A PRESSURIZED WATER REACTOR FOLLOWING RUPTURE OF THE PRIMARY COOLANT CIRCUIT

SUISELECTRA, BASEL, SWITZERLAND

8 PAGES, 3 FIGURES, 1 TABLE, NUCLEAR ENGINEERING AND DESIGN 4(4), PAGE 331 THRU 338, (AUGUST 20, 1966)

REVIEWS SIMPLE METHODS FOR CALCULATING THE INITIAL MAXIMUM EQUILIBRIUM PRESSURE AND TEMPERATURE INSIDE THE CONTAINMENT. THE FLASHING TO STEAM OF THE PRIMARY COOLANT THROUGH THE RUPTURE IS CONSIDERED AS A CONSTANT INTERNAL ENERGY EXPANSION PROCESS. USING THE PARAMETERS OF A TYPICAL 700-MWE PWR, THE EQUILIBRIUM PRESSURE AND TEMPERATURE ARE CALCULATED AS A FUNCTION OF THE CONTAINMENT VOLUME.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *MATHEMATICAL TREATMENT + *PRESSURE, INTERNAL + *TEMPERATURE TRANSIENT + PRESSURE PULSE + REACTOR, PWR

11-23859

TARANDI T

A PROGRAM FOR COMPUTATION OF THICK PRESSURE VESSELS BASED ON DYNAMIC RELAXATION

AB ATOMENERGI, STOCKHOLM, SWEDEN

2 PAGES, 2 FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 4(3), PAGE 329 AND 330, (OCT. 1966)

DESCRIBES A COMPUTER PROGRAM (FORTRAN IV) AND ITS DEVELOPMENT IN SWEDEN FOR ANALYZING CONCRETE PRESSURE VESSELS, BASED ON OTTERS METHOD. PRESENT PROGRAM IS APPLICABLE TO CYLINDERS WITH PLANE HEADS WITH A LARGE CENTRAL HOLE IN THE HEAD. EXAMPLE GIVEN IS A 6-METER-I.D., 14.4-M O.D. 29-M-HIGH VESSEL WITH 4.5-M HEADS FOR A 200-MWE BWR. CALCULATED SURFACE STRESSES ARE GIVEN. THE RADIAL AND HOOP STRESSES IN THE EQUATORIAL PLANE ARE WITHIN 1% OF THE THEORETICAL VALUES.

*COMPUTER PROGRAM + *CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *STRESS ANALYSIS + ANALYTICAL MODEL + MATHEMATICAL TREATMENT + STRUCTURAL ANALYSIS, DYNAMIC + SWEDEN

11-23864

VANDYKE P

STRESSES IN A CYLINDRICAL SHELL WITH A RIGID INCLUSION

MARTIN COMPANY, BALTIMORE, MD.

13 PAGES, 10 FIGURES, 5 TABLES, 2 REFERENCES, AIAA JOURNAL 5(1), PAGE 125-137, (JANUARY 1967)

MEMBRANE AND BENDING STRESSES ARE FOUND AT THE EDGE OF A RIGID CIRCULAR INCLUSION IN A SHALLOW CYLINDRICAL SHELL LOADED UNDER AXIAL TENSION AND INTERNAL PRESSURE. LINEAR EQUATIONS FOR A THIN, SHALLOW CYLINDRICAL SHELL DESCRIBING THE BEHAVIOR OF THE SHELL ARE SOLVED IN DIFFERENT MANNERS FOR TWO RANGES OF A CHARACTERISTIC CURVATURE PARAMETER. A PERTURBATION PROCEDURE (VALID FOR SMALL VALUES OF THE CURVATURE PARAMETER) IS USED TO RELATE STRESSES AND DEFORMATIONS AT THE EDGE OF A CIRCULAR BOUNDARY IN THE SHELL, THE RIGID INCLUSION PROBLEM IS THEN SOLVED USING THESE INFLUENCE COEFFICIENTS. A NUMERICAL PROCEDURE IS USED FOR INTERMEDIATE VALUES OF THE CURVATURE PARAMETER TO OBTAIN INFLUENCE COEFFICIENTS, WHICH ARE THEN USED TO OBTAIN THE STRESSES AT THE RIGID INCLUSION.

*CYLINDER + *SHELL + *STRESS ANALYSIS + MATHEMATICAL TREATMENT

11-23866

FRIEDRICH CM

AN ELASTIC STRESS ANALYSIS FOR THICK SHELLS OF REVOLUTION

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PENNSYLVANIA

9 PAGES, 10 FIGURES, 1 TABLE, 3 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 6(4) PAGE 367 THRU 375, (SEPT. 18, 1967)

PRESENTS A METHOD OF STRESS ANALYSIS FOR THE THICK SHELL OF REVOLUTION LOADED AXISYMMETRICALLY BY TEMPERATURE, PRESSURE, AND DISTRIBUTED FORCES, BASED ON THE PRINCIPLE OF VIRTUAL WORK, AND PROGRAMMED FOR DIGITAL COMPUTERS. COMPARISONS ARE MADE OF COMPUTED RESULTS WITH THIN-SHELL THEORY AND WITH EXPERIMENTAL DATA.

*ELASTICITY + *SHELL + *STRESS ANALYSIS + MATHEMATICAL TREATMENT

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23867 ALSO IN CATEGORY 17
GRONWALL B + LJUNGBERG L + HUBNER W + STUART W
INTERCRYSTALLINE STRESS CORROSION CRACKING OF INCONEL 600 INSPECTION TUBES IN THE AGESTA REACTOR
AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN
8 PAGES, 7 FIGURES, 2 TABLES, 13 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 6(4) PAGE 383 THRU 390, (SEPT. 2, 1967)

IN 1964, INTERCRYSTALLINE STRESS-CORROSION CRACKING WAS OBSERVED IN THREE INSPECTION TUBES IN THE REACTOR VESSEL. THE CRACKS DEVELOPED ON THE OUTSIDE SURFACE WHICH WAS EXPOSED TO 217 C LIGHT WATER CONTAINING 1-4 PPM LiOH OR KOH AND ONLY SMALL AMOUNTS OF OXYGEN AND CHLORIDE, WHICH MAY HAVE ENRICHED IN CREVICES AT WHICH MOST OF THE CRACKING OCCURRED. OTHER FACTORS ARE TENSILE STRESSES OF THE ORDER OF THE 0.2% OFFSET Y.S., BUILT UP DURING SHOP WELDING, AND A RELATIVELY HIGH CARBON CONTENT (0.08%), CAUSING HEAVY PRECIPITATION OF CARBIDES. THE OBSERVATIONS AGREE WITH PREVIOUSLY PUBLISHED OBSERVATIONS. THE FAILURES ENCOUNTERED SHOW THAT INCONEL 600 UNDER CERTAIN CONDITIONS MAY BE SUSCEPTIBLE TO CRACKING IN ALKALINE HIGH-TEMPERATURE WATER. ALTHOUGH ATTEMPTS TO REPRODUCE THE FAILURE IN THE LAB HAVE NOT YET YIELDED CRACKS, IT REMAINS TO BE SHOWN WHETHER A SATISFACTORY PERFORMANCE OF INCONEL 600 CAN BE OBTAINED FOR LONG OPERATING PERIODS (SEE NSIC ABSTRACT 11962).

*FAULT + *INCONEL + *OPERATING EXPERIENCE + *STRESS CORROSION + AGESTA (PWR) + COOLANT CHEMISTRY + REACTOR, PWR + SWEDEN + TUBING

11-23885
RIPLING EJ + CROSLY P
DEVELOPMENT OF TEST PROCEDURES-FRACTURE TOUGHNESS OF REACTOR PRESSURE VESSEL STEELS. AUGUST 1, 1965-OCTOBER 31, 1965
MATERIALS RESEARCH LAB., INC., RICHTON PARK, ILL.
COO-1477-1 +. 14 PAGES, NOVEMBER 30, 1965

CONCERNS A RESEARCH PROGRAM TO DEVELOP A DOUBLE-CANTILEVER-BEAM TESTING PROCEDURE FOR MEASURING FRACTURE TOUGHNESS OF MILD STEEL. DISCUSSES PROBLEMS AND WORK ON USE OF TESTS ON EPOXY AND ALUMINUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*FRACTURE TOUGHNESS + *PRESSURE VESSEL + *STEEL + *TESTING + FAULT + R AND D PROGRAM + TENSILE PROPERTY

11-23886
FERRILL DA + DINUZZO LJ + OBERDICK KH
TEMPERING BEHAVIOR OF TWO PRESSURE-VESSEL STEELS
KNOLLS ATOMIC POWER LAB., SCHENECTADY, N. Y.
KAPL-3092 +. 15 PAGES, FIGURES, TABLES, FEB. 15, 1965

TWO PRESSURE-VESSEL STEELS (MIL-S-871 CLASS 2, AND MIL-S-22494 COMP. A) WERE TESTED TO DETERMINE THE VARIATION IN HARDNESS AS A FUNCTION OF TEMPERING TEMPERATURE AND TIME. THE DATA WILL AID IN PREDICTING CHANGES IN THE HARDNESS OF THESE STEELS AND THEIR WELD HEAT-AFFECTED ZONES DURING TEMPERING AND STRESS-RELIEF TREATMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*HEAT TREATMENT + *PRESSURE VESSEL + *STEEL + FABRICATION

11-23887
STUDIES OF STEEL CORROSION IN HIGH TEMPERATURE WATER AND STEAM. QUARTERLY REPORT NO. 18, JANUARY 1-FEBRUARY 28, 1967
SOCIETE D-ETUDES, DE RECHERCHES ET D-APPLICATIONS POUR L-INDUSTRIE, BRUSSELS (BELGIUM)
EURAE-1850 + EUR-3361 +. 102 PAGES, FIGURES, TABLES, REFERENCES, MAY 25, 1967

(AN AEC-EURATOM JOINT R AND D PROGRAM.) THE STUDY OF AUSTENITIC STAINLESS STEEL WITH HIGH RECRYSTALLIZATION TEMPERATURES WAS CONTINUED TO PERMIT USE (ABOVE 500 C) OF THE CORROSION-BEHAVIOR IMPROVEMENT PRODUCED BY SURFACE MACHINING. WITH REGARD TO AISI 304 STAINLESS STEEL, THE HYDROGEN-DIFFUSION METHOD CONFIRMED THAT WORK-HARDENING SEVERAL TENS OF MICRONS DEEP IS REQUIRED TO ENSURE GOOD LONG-TERM BEHAVIOR IN SUPERHEATED STEAM AT 500 C. DISCUSSES TESTING AND HEAT TREATMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CORROSION + *STEEL, STAINLESS + HEAT TREATMENT + R AND D PROGRAM + STEAM + STRESS CORROSION

11-23888
WARZEE M + SONNEN C + CREMER J + BERGE PH

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23888 *CONTINUED*
CORROSION OF STAINLESS STEEL AND HIGH NICKEL CONTENT ALLOYS IN HIGH-TEMPERATURE SUPERHEATED STEAM.
SPECIAL REPORT NO. 8
SOCIETE D-ETUDES, DE RECHERCHES ET D-APPLICATIONS POUR L-INDUSTRIE, BRUSSELS (BELGIUM)
EURAE-1895 + EUR-3387 +. 74 PAGES, FIGURES, TABLES, REFERENCES, JULY 6, 1967

A SERIES OF FE-NI-CR ALLOYS WERE SUBJECTED TO STATIC CORROSION TESTS IN HIGH-TEMPERATURE STEAM. MICROSCOPIC EXAMINATION OF VARIOUS OXIDIZED STEELS SUGGEST THAT A HIGH CARBON CONTENT AND THE ABSENCE OF STABILIZING ELEMENTS MIGHT BE FAVORABLE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CORROSION + *NICKEL + *STEAM + *STEEL, STAINLESS + STEEL + STRESS CORROSION

11-23889
CHAUDRON G
CORROSION OF STAINLESS STEEL, QUARTERLY REPORT NO. 17, JANUARY 1-MARCH 31, 1967
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE, PARIS (FRANCE)
EURAE-1918 + EUR-3400 +. 21 PAGES, TABLES, MARCH 1967

(AN AEC-EURATOM JOINT R AND D PROGRAM.) REPORT CONCERNS (1) INFLUENCE OF INGREDIENTS ON STAINLESS-STEEL BEHAVIOR IN HIGH-TEMP. STEAM AND (2) ELECTROCHEMICAL BEHAVIOR IN BOILING MGCL2. INFLUENCE OF SMALL AMOUNTS OF CARBON IS OF CHIEF CONCERN.

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

*CORROSION + *STEAM + *STEEL, STAINLESS + ALLOY + COOLANT CHEMISTRY + STRESS CORROSION

11-23890
TROZERA TA + FLYNN PW
A RESEARCH PROGRAM ON THE EFFECT OF SUBSTRUCTURE ON THE IRRADIATION STABILITY OF ASTM A302 GRADE B STEEL.
QUARTERLY PROGRESS REPORT NO. 5, JULY 14, 1966
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF. GENERAL ATOMIC DIVISION
EURAE-1696 + GA-7282 +. 8 PAGES, JULY 9, 1966

ELECTRON MICROSCOPY OF COLD-WORKED AND HEAT-TREATED A302-B STEEL REVEALED A DISLOCATION NETWORK ABOUT 1/25 OF THE AS-RECEIVED GRAIN SIZE. TEST MATERIAL WAS COLD-WORKED AND HEAT-TREATED. THE FIRST IRRADIATION CAPSULE IS IN FINAL STAGES OF ASSEMBLY.

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

FABRICATION + HEAT TREATMENT + IRRADIATION TESTING + R AND D PROGRAM + RADIATION DAMAGE +
RADIATION EFFECT + STEEL

11-23091
NERATOOM NV
METHODS FOR THE FABRICATION OF PRESSURE VESSELS. QUARTERLY REPORT NO. 11, OCTOBER 1-DECEMBER 31, 1964
THE HAGUE (NETHERLANDS)
EURAE-1208 +. 69 PAGES, JANUARY 1, 1965

DETAILED SUMMARIES ARE GIVEN FOR THE PREPARATION, WELDING, AND THE NONDESTRUCTIVE AND DESTRUCTIVE EXAMINATION OF THE 4TH AND 5TH WELDED SEAMS, BOTH WELDED IN ACCORDANCE WITH THE METHOD UNDER POWDER COVER WITH SINGLE WELDING HEAD.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

FABRICATION + PRESSURE VESSEL + R AND D PROGRAM + TESTING + WELDING + WELDS

11-23892
A STUDY ON PLASTIC FATIGUE EMBRITTLEMENT IN REACTOR VESSEL STEELS. QUARTERLY REPORT NO. 4, OCTOBER 1 -
DECEMBER 31, 1964
CENTRE NATIONAL DE RECHERCHES METALLURGIQUES, LIEGE (BELGIUM)
EURAE-1276 +. 40 PAGES, JANUARY 1965

REPORTS TESTS ON PLASTIC FATIGUE DAMAGE IN ALTERNATE BIAXIAL BENDING. PLOTTED ENDURANCE CURVES FOR TWO STEELS AT AMBIENT TEMPERATURE, AND FOR THREE AT 300 C. THE EFFECT OF THE AGING PERIOD AT 300 C WAS PARTIALLY STUDIED. IMPACT TESTS CARRIED OUT ON FLAT TEST PIECES DAMAGED BY ALTERNATE BENDING PLASTIC FATIGUE AT 300 C SHOWED THAT THE EMBRITTLEMENT RESULTING FROM INFLICTED DAMAGE WAS NOT CONSIDERABLY GREATER THAN THAT OBSERVED AFTER FATIGUE AT AMBIENT TEMPERATURE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23892 *CONTINUED*

*FAILURE, FATIGUE + BRITTLE FRACTURE + PLASTICITY + PRESSURE VESSEL + R AND D PROGRAM + STEEL + TESTING + THERMAL MECHANICAL EFFECT

11-23893

STUDY OF EMBRITTLEMENT BY PLASTIC FATIGUE OF STEELS FOR REACTOR VESSELS. QUARTERLY REPORT NO. 5, JANUARY 1 - MARCH 31, 1965

CENTRE NATIONAL DE RECHERCHES METALLURGIQUES, LIEGE (BELGIUM)

EURAEC-1349 + EUR-2324 +. 47 PAGES, APRIL 1965

STUDIED THE EMBRITTLEMENT BY PLASTIC FATIGUE OF THE THREE STEELS (SIDE BEND TEST AFTER FATIGUE BY ALTERNATING BENDING, AND IMPACT STRENGTH TESTS ON CHARPY V TEST-PIECES TAKEN FROM THE SAMPLES PREVIOUSLY SUBMITTED TO MONOAXIAL PLASTIC FATIGUE UNDER TENSION AND COMPRESSION). THE TESTS SHOWED THE PRONOUNCED INFLUENCE OF A SMALL NUMBER OF FATIGUE CYCLES. THE MAXIMAL VALUES OF THE SHIFT OF THE SIDE BEND TEST TRANSITION CURVE REGISTERED UP TO NOW, HAVE BEEN ABOUT 30 C.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FATIGUE + BRITTLE FRACTURE + PRESSURE VESSEL + R AND D PROGRAM + STEEL + TESTING

11-23894

DUNCAN RN

STAINLESS STEEL FAILURE INVESTIGATION PROGRAM. QUARTERLY REPORT NO. 6, JULY 1-OCTOBER 31, 1966

GENERAL ELECTRIC CO., PLEASANTON, CALIF. NUCLEAR TECHNOLOGY DEPT.

GEAP-5281 + EURAEC-1631 +. 58 PAGES, REFERENCES, DECEMBER 1966

RESEARCH PROGRAM CONSISTS OF INVESTIGATIONS OF THE EFFECT ON STAINLESS-STEEL CLADDING CRACKING, OF MATERIAL COMPOSITION, COOLANT ENVIRONMENT, IRRADIATION DAMAGE, AND OPERATING STRESSES. REPORT LISTS QUARTERLY AND TOPICAL REPORTS IN THE PROGRAM. REPORT INCLUDES (1) EXAMINATION OF VBWR FUEL CLAD, (2) METALLOGRAPHY OF YANKEE TYPE-348 STAINLESS-STEEL SURVEILLANCE SPECIMENS, AND (3) COMPARISON OF VBWR (TYPE 304) AND YANKEE SPECIMENS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

CLAD + COOLANT CHEMISTRY + CORROSION + FAILURE, CLADDING + FAULT + METAL + PROPERTY, PHYSICAL + RADIATION DAMAGE + STRESS + SURFACE FILM DEPOSIT + SURVEILLANCE PROGRAM

11-23895

SIEGFRIED W + ZIMMERING S

RESEARCH TO DETERMINE THE LONG-TERM MECHANICAL PROPERTIES OF METALS SUBJECTED TO MECHANICAL STRESS AT ELEVATED TEMPERATURES AND NEUTRON IRRADIATION. QUARTERLY REPORT NO. 14, APRIL 1-JUNE 30, 1966

BATTELLE MEMORIAL INST., GENEVA (SWITZERLAND)

EURAEC-1714 + EUR-2895 +. 8 PAGES, SEPT. 1966

STUDIED RELATIONSHIP BETWEEN THE SHAPE OF TIME-TO-RUPTURE CURVES AND THE VARIOUS CLASSES OF MECHANISM TAKING PLACE DURING THE RUPTURE PROCESS. TIME-TO-RUPTURE TESTS ON PURE IRON ARE CONTINUING. CONSIDERING APPLICATION OF THE EXPONENTIAL FUNCTION OF REAL ORDER TO THE EXTRAPOLATION OF TIME-TO-RUPTURE TESTS. APPLICATION OF VARIOUS METHODS OF INVESTIGATION TO TIME-TO-RUPTURE TESTS UNDER NEUTRON IRRADIATION.

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

CREEP + PROPERTY, PHYSICAL + R AND D PROGRAM + RADIATION EFFECT + STRESS + TENSILE PROPERTY

11-23896

STEELE LE + SERPAN CZ + HAWTHORNE JR

IRRADIATION EFFECTS ON REACTOR STRUCTURAL MATERIALS. QUARTERLY PROGRESS REPORT, AUGUST 1-OCTOBER 31, 1965

NAVAL RESEARCH LAB., WASHINGTON, D.C.

NRL-MEMO-1663 +. 28 PAGES, REFERENCES, NOVEMBER 15, 1965

THE RESEARCH PROGRAM OF THE NRL METALLURGY DIVISION, REACTOR MATERIALS BRANCH, IS DEVOTED TO THE DETERMINATION OF THE EFFECTS OF NUCLEAR RADIATION UPON THE PROPERTIES OF STRUCTURAL MATERIALS. SUBJECTS INCLUDE - (1) STATUS OF REACTOR RADIATION DAMAGE SURVEILLANCE PROGRAMS IN SEVERAL POWER REACTORS (YANKEE, PIQUA, OMRE, SM-1A, MH-1A), (2) THE EFFECT OF NEUTRON SPECTRA ON PROPERTIES OF STEELS EXPOSED IN LIGHT-WATER, HEAVY-WATER, AND GRAPHITE-MODERATED REACTORS, (3) THE ALLEVIATION OF NEUTRON EMBRITTLEMENT OF A350-LF1 STEEL BY THERMAL ANNEALING TREATMENT, AND (4) THROUGH-THICKNESS CHARPY V-NOTCH DUCTILITY CHARACTERISTICS OF A 4-IN. A302-B PLATE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

BRITTLE FRACTURE + PRESSURE VESSEL + R AND D PROGRAM + RADIATION DAMAGE + RADIATION EFFECT + STEEL + SUPPORT STRUCTURE + SURVEILLANCE PROGRAM + TESTING

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23919
NORRIS EB
TENSILE AND IMPACT PROPERTIES OF LACBWR REACTOR VESSEL PLATE AND CONTROL MATERIAL
SOUTHWEST RESEARCH INST., SAN ANTONIO, TEX.
SWRI-1228-7-35 +. 15 PAGES, FIGURES, TABLES, AUG. 12, 1966

REPORT COVERS THE TESTING OF UNIRRADIATED SAMPLES (CHARPY V-NOTCH AND TENSILE). SIMILAR SPECIMENS ARE TO BE USED IN THE LACBWR SURVEILLANCE PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*BRITTLE FRACTURE + *IMPACT PROPERTY + *PRESSURE VESSEL + *STEEL + *TENSILE PROPERTY +
IRRADIATION TESTING + LACROSSE (BWR) + REACTOR, BWR + TESTING

11-23920
SLOT T
EXPERIMENTAL DEVELOPMENTS IN LOW-CYCLE FATIGUE RESEARCH ON PRESSURE VESSEL STEELS AT ELEVATED TEMPERATURES
GENERAL ELECTRIC CO., CINCINNATI, OHIO. NUCLEAR MATERIALS AND PROPULSION OPERATION
CONF-660647-1 + GE-TM-66-6-11 +. 26 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

REPORTS ON DEVELOPMENT OF EXPERIMENTAL PROCEDURES FOR UNIAXIAL FATIGUE TESTING AT ELEVATED TEMPERATURES UP TO 1000 C. PERFORMANCE OF SERVO-CONTROLLED, HYDRAULIC TESTING MACHINES AND ASSOCIATED HEATING AND STRAIN-MEASURING EQUIPMENT IS DISCUSSED. TYPICAL LOW-CYCLE-FATIGUE TEST RESULTS ARE PRESENTED FOR AISI 304 STAINLESS STEEL IN THE RANGE FROM ROOM TEMPERATURE TO 800 C.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*FAILURE, FATIGUE + *TESTING + BRITTLE FRACTURE + STEEL, STAINLESS

11-23922 ALSO IN CATEGORY 17
REPORT ON PRESSURE TESTING OF REACTOR CONTAINMENT FOR CONNECTICUT YANKEE ATOMIC POWER PLANT, CONNECTICUT
YANKEE ATOMIC POWER CO., HADDAM, CONNECTICUT
STONE + WEBSTER ENGINEERING CORP., BOSTON, MASS.
28 PAGES, 10 FIGURES, 4 TABLES, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PRESENTS RESULTS OF THE MEASUREMENTS AND OBSERVATIONS MADE ON THE REINFORCED-CONCRETE REACTOR CONTAINMENT TO CONFIRM ITS INTEGRITY UNDER A MAXIMUM PRESSURE 15% IN EXCESS OF 40 PSI GAGE, THE DESIGN PRESSURE UNDER INCIDENT CONDITIONS. NO EXCESSIVE DEFORMATION OR CRACKING OCCURRED, AND ALL SUCH MOVEMENTS WHICH DID OCCUR RETURNED ALL AREAS TO THEIR ORIGINAL CRACKED POSITION WITHOUT LEAVING ANY SIGNIFICANT PERMANENT DEFORMATION WHEN THE PRESSURE DROPPED. THUS, THE TESTS DEMONSTRATED THAT EACH OF THE CRITERIA ESTABLISHED PRIOR TO THE PERFORMANCE OF THE TEST HAD BEEN SATISFACTORILY MET.

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

*CONCRETE + *CONTAINMENT, HIGH PRESSURE + *INSPECTION AND COMPLIANCE + *TEST, PROOF + HADDAM NECK (PWR) +
REACTOR, PWR + TEST, LEAK LOCATION

11-23928
CHANANI GR
STRENGTH AND DUCTILITY OF METASTABLE AUSTENITIC STEELS AS A FUNCTION OF COMPOSITION AND TEST TEMPERATURES
CALIFORNIA UNIV., BERKELEY. LAWRENCE RADIATION LAB.
UCRL-17805 +. 74 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 1967

PRESENTS RESULTS OF A STUDY OF THE COMBINED AND INDIVIDUAL EFFECTS OF COMPOSITION, TEST TEMPERATURE, AND TEMPERATURE OF DEFORMATION ON THE TENSILE PROPERTIES AND STRAIN-HARDENING CHARACTERISTICS. RESULTS INDICATE UNUSUAL COMBINATIONS OF STRENGTH AND DUCTILITY FOR THE STEELS IN A CERTAIN CARBON RANGE AFTER SUITABLE THERMOMECHANICAL PROCESSING. STRENGTH AND DUCTILITY WERE RETAINED IN THE TEMPERATURE RANGE OF -196 TO 100 C. AT 200 C, THE MATERIAL EXHIBITED LOWER DUCTILITY. THE IMPROVED DUCTILITY FOR THE STEELS TESTED (200,000 TO 300,000 PSI Y.S.), COMPARED WITH CONVENTIONAL HIGH STRENGTH STEELS, IS ATTRIBUTED TO THE MARTENSITIC TRANSFORMATION OCCURRING DURING TESTING, WHICH IS THOUGHT TO INHIBIT INCIPIENT NECKING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*PROPERTY, PHYSICAL + *STEEL + *TENSILE PROPERTY + *TESTING + BRITTLE FRACTURE + STRESS STRAIN DATA

11-23929
DE MIRAMON B
QUANTITATIVE INVESTIGATION OF STRAIN INDUCED STRENGTHENING IN STEEL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-23929 *CONTINUED*
CALIF. UNIV., BERKELEY. LAWRENCE RADIATION LAB.
UCRL-17849 +. 48 PAGES, FIGURES, REFERENCES, SEPT. 1967

DISCUSSES THE EFFECT OF STRAIN INDUCED AUSTENITE-TO-MARTENSITE TRANSFORMATION ON THE MECHANICAL PROPERTIES (ESPECIALLY DUCTILITY) OF A NEW CLASS OF HIGH NITROGEN STEELS HAVING YIELD STRENGTHS ABOVE 200,000 PSI WITH 20 TO 40% ELONGATION. THIS TRANSFORMATION WAS DETECTED BY A MAGNETIC METHOD, ASSUMING THAT THE SATURATION INDUCTION WAS PROPORTIONAL TO THE AMOUNT OF MAGNETIC PHASE (MARTENSITE). TESTS DURING PULLING SHOWED THAT MARTENSITE FORMS IMMEDIATELY AFTER THE YIELD POINT IN A REGION OF THE SPECIMEN WHICH IS PLASTICALLY DEFORMED. SOME STATIC MEASUREMENTS TRANSFORMATION SEEMS TO OCCUR ONLY IN THE PLASTIC REGION WHICH TRAVERSES THE SPECIMEN. TESTS SHOWED THAT THE SERRATIONS OBSERVED IN SOME TENSILE CURVES CAN BE CORRELATED WITH DISCONTINUITIES IN THE MARTENSITE TRANSFORMATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*PROPERTY, PHYSICAL + *STEEL + *TENSILE PROPERTY + BRITTLE FRACTURE + STRESS STRAIN DATA + TESTING

11-23932
LAMIRAL G + COURBON J
THE PRESTRESSED CONCRETE VESSELS OF REACTORS
ORNL-TR-386 +. 53 PAGES, 1964, TRANSLATED FROM ENERGIE NUCL., NCS 5 AND 6 (1964)

BRIEF DESCRIPTION OF THE EDF-3 AND -4 PCRVs, FOLLOWED BY DISCUSSION OF DESIGN METHODS AND CALCULATIONS (STRESSES, ETC.). ALSO DISCUSSED IS THE THERMAL INSULATION (PUMICE CONCRETE).

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + CONCRETE + CONTAINMENT DESIGN + FRANCE + THERMAL INSULATION + THERMAL SHIELD

11-24046 ALSO IN CATEGORY 17
MORRIS PA
SUPPLEMENT 1 TO HADDAM NECK CHANGE 4
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
LETTER TO S. R. KNAPP, CONNECTICUT YANKEE ATOMIC POWER CO., HARTFORD, CONNECTICUT, 2 PAGES, FEB. 12, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS A CLOSURE TIME OF 10 SEC FOR MAIN-STEAM-LINE ISOLATION VALVE UP TO FIRST 2800 EFPH, AT WHICH TIME THE MODERATOR COEFFICIENT IS ONLY SLIGHTLY NEGATIVE. THIS IS AN EXTENSION FROM 1800 EFPH, TO ALLOW COMPLETION OF THE CHANGE-5 REVIEW.

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

*CONTAINMENT PENETRATION, CLOSURE OF + *RESPONSE TIME + *VALVE + ACCIDENT, COLD COOLANT + HADDAM NECK (PWR) + MODERATOR COEFFICIENT + REACTOR, PWR + TECHNICAL SPECIFICATIONS + TESTING

11-24048 ALSO IN CATEGORY 17
HAUTER RL
BIG ROCK POINT LEAK RATE TEST RESULTS
CONSUMERS POWER CO.
LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 1 PAGE, FEBRUARY 14, 1968, DOCKET NO. 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

1968 TEST WILL BE DURING JUNE-JULY OUTAGE. PAST RESULTS WERE - (1/61) 0.036 %/DAY AT 27 PSIG, (6/62) 0.021 %/DAY AT 10 PSIG, (4/64) 0.037 + - 0.034 AT 10 PSIG, (4/66) 0.077 + - 0.025 AT 10 PSIG. ALLOWABLE LEAK RATE IS 0.5 AT 2.7, AND 0.121 AT 10 PSIG.

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

*REPORT, OPERATIONS SUMMARY + *TEST, LEAK RATE + BIG ROCK POINT (BWR) + CONTAINMENT, HIGH PRESSURE + REACTOR, BWR

11-24057 ALSO IN CATEGORY 18
PROBABILITY AND CONSEQUENCES OF AIRCRAFT STRIKING THREE MILE ISLAND REACTOR
METROPOLITAN EDISON CO., READING, PA.
29 PAGES, 7 FIGURES, 5 TABLES, THREE MILE ISLAND AMENDMENT 8 (PSAR SUPPLEMENT 5), FEB. 23, 1968, DOCKET NO. 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

SECTION A (10 PG) USES 1954-65 CAR AIR-CRASH STATISTICS AND OLMSTED AIRPORT TRAFFIC AND PATTERNS TO CONCLUDE THAT THERE IS ONE CHANCE IN A MILLION PER YEAR THAT AN AIRPLANE WOULD HIT THE STATION. SECTION B (3 PG) DISCUSSES STUDIES MADE OF IMPACT ON VARIOUS BUILDINGS. APPENDIXES A AND B (6 PG) OUTLINE THE STRUCTURAL ANALYSIS METHODS USED. CONTAINMENT WILL WITHSTAND A HIT WITHOUT COLLAPSE. OTHER BUILDINGS ARE BEING EVALUATED.

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

*AIRCRAFT + *MISSILE GENERATION AND PROTECTION + *PROBABILITY + ACCIDENT, CONSEQUENCES + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + THREE MILE ISLAND (PWR)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-24146
DRESNER L
WEAK, PLANE BLAST WAVES
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1703 +. 23 PAGES, 4 FIGURES, 5 REFERENCES, DEC. 1, 1966

REPORT COVERS PROPAGATION OF WEAK PLANE BLAST WAVES IN A HOMOGENEOUS ATMOSPHERE AND IN AN ISOTHERMAL ATMOSPHERE UNDER GRAVITY. (1) (IN THE DOWN DIRECTION) - OVERPRESSURE IS FOUND TO VARY INVERSELY WITH THE SQUARE ROOT OF DISTANCE TRAVELED IN THE FIRST CASE. IF GRAVITY IS IGNORED IN THE SECOND CASE, THE OVERPRESSURE DECREASES TO A CONSTANT VALUE. WITH GRAVITY, THE OVERPRESSURE REACHES A MINIMUM, THEN STEADILY INCREASES. (2) (IN THE UP DIRECTION) - OVERPRESSURE IS SAME IN AS IN DOWN DIRECTION FOR HOMOGENEOUS CASE, AND THE OVERPRESSURE IN THE OTHER TWO CASES FALLS OFF MUCH FASTER THAN IN THE HOMOGENEOUS CASE.

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

EXPLOSION + MATHEMATICAL TREATMENT + PRESSURE, INTERNAL + SHOCK WAVE

11-24147
DRESNER L
STRONG, PLANE SHOCK WAVES IN AN INHOMOGENEOUS ATMOSPHERE
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1702 +. 19 PAGES, 3 FIGURES, 4 REFERENCES, DEC. 1, 1966

REPORT COVERS PROPAGATION OF EXPLOSION-PRODUCED SHOCK WAVES IN AN INHOMOGENEOUS ATMOSPHERE, AND GIVES A MATHEMATICAL DESCRIPTION OF THE PHENOMENON. SYSTEMS OF CONCERN IS AN ATMOSPHERE MORE DENSE BELOW THE BLAST THAN ABOVE. ANALYSIS APPLIES AT TIMES SO SHORT THAT CONDITIONS AT ONE SHOCK FRONT INFLUENCE WHAT IS HAPPENING AT THE OTHER FRONT. GIVES CURVES OF OVERPRESSURE VS DISTANCE TRAVELED FOR THE TWO DIFFERENT MEDIA AND FOR A HOMOGENEOUS ATMOSPHERE, AND OF DISTANCE TRAVELED BY THE UPPER SHOCK VS DISTANCE TRAVELED BY THE LOWER SHOCK.

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

*SHOCK WAVE + EXPLOSION + MATHEMATICAL TREATMENT + PRESSURE, INTERNAL

11-24156 ALSO IN CATEGORY 18
BERGSTROM RN + CHITTENDEN WA + MCCLINTOCK DC
SODIUM-COOLED FAST REACTORS
SARGENT + LUNDY
3 PAGES, 1 FIGURE, POWER ENGINEERING, 71(10), PAGE 56-58, (OCT. 1967)

QUITE GENERAL DISCUSSION OF STRUCTURAL PROBLEMS OF THE BUILDING, WHICH, WHILE NOT BASICALLY DIFFERENT FROM WATER REACTORS, ARE COMPLEX AND HARDER TO ANALYZE.

*BUILDING + REACTOR, LMC + STRESS ANALYSIS

11-24204 ALSO IN CATEGORY 17
DIENHART AV
WELDMENT CRACKING OF MONTICELLO CONTAINMENT LINER
NORTHERN STATES POWER COMPANY
1 PAGE, MARCH 6, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 23 (MARCH 18, 1968) DOCKET 50-262

(MARCH 6) TRANSMITS CHICAGO BRIDGE AND IRON REPORT (FEB. 2) ABOUT VISUAL DISCOVERY OF CRACKING WHERE AN INSERT PLATE WAS WELDED TO THE DRY-WELL SHELL OF THE CONTAINMENT VESSEL.

CONTAINMENT LINER + CONTAINMENT, PRESSURE SUPPRESSION + INCIDENT, EQUIPMENT + MONTICELLO (BWR) + REACTOR, BWR + WELDING

11-24509 ALSO IN CATEGORIES 18 AND 12
COOPER CONTAINMENT ATMOSPHERIC CONTROL SYSTEM
CONSUMERS PUBLIC POWER DISTRICT
2 PAGES, 1 FIGURE, PAGES VI-6-1 AND VI-6-2 OF VOLUME I OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

(SECTION VI-6) - LIQUID NITROGEN WILL BE CONVERTED TO THE GASEOUS FORM AND BE FORCED INTO THE SUPPRESSION CHAMBER DURING CONTINUOUS OPERATION. IT WILL BE FORCED INTO THE DRY WELL THROUGH THE VACUUM BREAKERS AND MIXED BY THE VENTILATION FANS. ANALYSIS OF METAL-WATER REACTION FOLLOWING A LOSS-OF-COOLANT ACCIDENT SHOWS THAT THE RESULTANT HYDROGEN WOULD BE ONLY 1.8% IN AIR, BELOW THE FLAMMABILITY LIMIT OF 5%. (SECTION V.2.3.4) - THE MAKEUP OF THE CONTAINMENT INERT ATMOSPHERE IS MONITORED AS A FURTHER INDICATION THAT ALL PENETRATIONS ARE SEALED DURING OPERATION.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-24509 *CONTINUED*

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

*CONTAINMENT ATMOSPHERE, INERT + *CONTAINMENT, CONTINUOUS MONITORING SYSTEM + ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + COOPER (BWR) + HYDROGEN + REACTOR, BWR + REPORT, PSAR

11-24535 ALSO IN CATEGORY 18

AMENDMENT NUMBER 15 TO HADDAM NECK LICENSE APPLICATION

CONNECTICUT YANKEE ATOMIC POWER PLANT, HADDAM, CONNECTICUT

9 PAGES, MARCH 23, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

FOUR QUESTIONS ARE ANSWERED CONCERNING CONTAINMENT-LINER SHEAR TESTS, STRUCTURAL ACCEPTANCE CRITERIA FOR CONTAINMENT, EMERGENCY POWER SUPPLY, AND FREQUENCY OF INSTRUMENT TESTS AND CALIBRATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEC QUESTION + HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR

11-24596

FONDRIEST FF + SNYDER MJ

HEAT-RESISTANT CONCRETE FOR PRESTRESSED-CONCRETE-PRESSURE-VESSEL (PCPV) REACTORS. QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1966

BATTELLE MEMORIAL INST., COLUMBUS, OHIO

BMI-X-10187 + EURAEC-1808 +. 8 PAGES, JAN. 1967

SEVERAL CONCRETE-MIX DESIGNS WERE EVALUATED AND FINAL SELECTIONS WERE MADE OF THOSE TO BE USED DURING THE FIRST PHASE OF THE PROGRAM. THE CHEMICAL PROPERTIES OF THE AGGREGATES AND CEMENT WERE ALSO DETERMINED. NUMEROUS SPECIMENS WERE MADE TO EVALUATE THE MOISTURE CONTENT OF THE CONCRETE UNDER VARIOUS CONDITIONS OF TEMPERATURE AND HUMIDITY. TRIAL SPECIMENS FOR EVALUATING THE PROCEDURES TO BE USED IN THE MOISTURE MIGRATION STUDIES WERE MADE AND THE FINAL PROCEDURES ARE BEING FORMULATED. SEVERAL MOISTURE-SEAL COATINGS WERE EVALUATED AND A FINAL SELECTION WILL SOON BE MADE. THE DESIGN AND SELECTION OF OTHER TEST EQUIPMENT IS IN PROGRESS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *THERMAL EXPERIMENT + CREEP BEHAVIOR + ELASTICITY + PRESSURE VESSEL

11-24597

FONDRIEST FF + SNYDER MJ

HEAT-RESISTANT CONCRETE FOR PRESTRESSED-CONCRETE-PRESSURE-VESSEL (PCPV) REACTORS. QUARTERLY PROGRESS REPORT, JANUARY-MARCH 1967

BATTELLE MEMORIAL INST., COLUMBUS, OHIO

BMI-X-10194 + EURAEC-1848 +. 19 PAGES, APRIL 1967

A TRIAL MOISTURE-MIGRATION RUN WAS MADE TO EVALUATE THE TEST EQUIPMENT AND PROCEDURES TO BE USED IN LATER EXPERIMENTS. SUBSEQUENTLY A SERIES OF RECORD MOISTURE-MIGRATION SPECIMENS WERE MADE AND THE EXPERIMENTS COMMENCED. PREVIOUSLY MADE CYLINDRICAL SPECIMENS CONTAINING TWO THERMOCOUPLES AND A SET OF RESISTIVITY ELECTRODES WERE EXPOSED TO UNIFORM TEMPERATURES OF 150, 250, AND 500 F TO DETERMINE THE HEATING AND MOISTURE-LOSS RATES. SPECIMENS OF BOTH CONCRETE MIXES WERE SUBJECTED TO THESE TEMPERATURES FOR 7 DAYS. THE SPECIMENS WERE THEN BROKEN AND SAMPLES OF THE BINDER MATRIX WERE ANALYZED FOR FREE AND COMBINED WATER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *THERMAL EXPERIMENT + CREEP BEHAVIOR + ELASTICITY + PRESSURE VESSEL

11-24598

LANKARD DR + FONDRIEST FF + SNYDER MJ

HEAT-RESISTANT CONCRETE FOR PRESTRESSED-CONCRETE-PRESSURE-VESSEL (PCPV) REACTORS. QUARTERLY PROGRESS REPORT, JULY-SEPTEMBER 1967

BATTELLE MEMORIAL INST., COLUMBUS, OHIO

BMI-X-10215 + EURAEC-1939 +. 12 PAGES, OCTOBER 1967

EXPERIMENTS ARE UNDER WAY TO PROVIDE INFORMATION CONCERNING THE EFFECTS OF EXPOSURE TO TEMPERATURES UP TO 500 F ON THE CHEMISTRY AND LOAD-BEARING BEHAVIOR OF LIMESTONE AND GRAVEL CONCRETE. WORK WAS BEGUN TO STUDY THE EFFECTIVENESS OF MODIFYING ADDITIVES IN OVERCOMING SUSPECTED DEFICIENCIES IN THE CONVENTIONAL CONCRETE MIXES SUBJECTED TO THE ELEVATED TEMPERATURES. A LITERATURE SURVEY IS IN PROGRESS CONCERNING THE EFFECTS OF HEAT EXPOSURE ON THE PROPERTIES AND COMPOSITION OF ELEMENT AND CONCRETE.

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

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-24598 *CONTINUED*
*CONCRETE, PRESTRESSED + *CREEP BEHAVIOR + *THERMAL EXPERIMENT + ELASTICITY + PRESSURE VESSEL

11-24599 ALSO IN CATEGORY 17
HAACK K
LEAKAGE MEASUREMENTS OF THE DR 3 CONTAINMENT DURING REACTOR OPERATION TO MEET A DEMAND OF MAXIMUM 0.1 PERCENT LEAKAGE PER 48 HOURS
DANISH ATOMIC ENERGY COMMISSION, RISØE. RESEARCH ESTABLISHMENT
RISØ-137 +. 17 PAGES, 3 FIGURES, 4 REFERENCES, DEC. 1966

THE RATIO BETWEEN THE ABSOLUTE TEMPERATURE T AND THE PARTIAL PRESSURE P OF THE ATMOSPHERIC AIR IN THE HALL IS TAKEN AS A REPRESENTATIVE OF THE NUMBER OF AIR MOLES PRESENT. A PLOT VERSUS TIME GIVES THE LEAK RATE. THE TEMPERATURE IS MEASURED BY MEANS OF AN IRON WIRE THROUGH THE HALL. THE PRESSURE IS DETERMINED BY PROJECTING THE MERCURY SURFACE OF A PRECISION MANOMETER ONTO A SCREEN. THE ARRANGEMENTS AND THE EQUIPMENT ARE DESCRIBED AND THE UNCERTAINTIES OF THE RESULTS DISCUSSED. THE EXPERIENCES FROM SIX YEARLY TESTS HAVE LED TO A METHOD WHICH IS CONSIDERED TO BE MORE CONVENIENT THAN THAT USED PREVIOUSLY, AND YET SUFFICIENTLY ACCURATE TO CONTROL THE TIGHTNESS OF THE DR 3 REACTOR BUILDING AT LESS THAN 0.1% PER 48 HR AT ABOUT 6.5 PSIG.

AVAILABILITY - JUL. GJELLERUP, 87, SOELVGÅDE, COPENHAGEN K, DENMARK

*CONTAINMENT ABSOLUTE MEASURING SYSTEM + *ERROR ANALYSIS + *TEST, LEAK RATE + CONTAINMENT INSTRUMENTATION + CONTAINMENT, HIGH PRESSURE + DENMARK + TEMPERATURE COEFFICIENT

11-24600 ALSO IN CATEGORY 5
GALLAGHER EV
PROGRESS REPORT FOR AUGUST - SEPTEMBER 1967. STUDIES OF REACTOR CONTAINMENT
IIT RESEARCH INSTITUTE
IITRI-578P21-32 +. 11 PAGES, 4 FIGURES, 2 REFERENCES, SEPT. 1967

THE MAIN ACTIVITIES PERFORMED DURING THIS BIMONTHLY PROGRESS REPORT INCLUDED - (A) TRANSIENT BLOWDOWN TESTS CONDUCTED IN THE TWELVE-FOOT-LONG DRIVER SECTION WATER SHOCK TUBE. (B) DESIGN AND FABRICATION OF A FORCE SENSOR ROD FOR THE FLOW-OBSTRUCTION MODEL. (C) STUDY OF THE NEED AND FEASIBILITY FOR HEATING RODS OF THE FLOW-OBSTRUCTION MODEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BLOWDOWN + *MODEL TESTING + CONTAINMENT RESEARCH AND DEVELOPMENT + FLOW ORIFICE + SHOCK WAVE + WATER, GENERAL

11-24601 ALSO IN CATEGORY 1
AEC PROPOSES CRITERIA FOR PRESSURE VESSELS, INVITES COMMENTS
14 PAGES, 2 TABLES, REACTOR AND FUEL-PROCESSING TECHNOLOGY, 10(4), PAGE 289-302, (SEPT. 1967)

THE USAEC ISSUED ON AUG. 23, 1967, A SET OF 34 CRITERIA FOR THE DESIGN, MATERIAL, FABRICATION, INSPECTION, AND TESTING OF SUCH VESSELS ENTITLED TENTATIVE REGULATORY SUPPLEMENTARY CRITERIA FOR ASME CODE-CONSTRUCTED NUCLEAR PRESSURE VESSELS. THE NEW CRITERIA SUPPLEMENT THE RULES OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE, SECTION III, RULES FOR CONSTRUCTION OF NUCLEAR VESSELS, 1965 EDITION, AND ITS ADDENDA. EACH CRITERION IS REFERENCED TO THE APPROPRIATE ASME CODE PARAGRAPH, AND EXPLANATIONS GIVE THE REASONS FOR EACH CRITERION.

*CODES AND STANDARDS + *PRESSURE VESSEL + COMPUTER PROGRAM + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + FRACTURE TOUGHNESS + INSPECTION AND COMPLIANCE + MATERIAL + NDT DATA + QUALITY CONTROL + REACTOR, WATER + REGULATION, AEC + STEEL + TEST, PROOF + WELDING

11-24602 ALSO IN CATEGORY 18
SPENCER A
FEASIBILITY DESIGN OF PRESTRESSED CONCRETE PRESSURE VESSELS FOR HIGH-PRESSURE GAS COOLED REACTORS
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/TM-390 +. 74 PAGES, FIGURES, REFERENCES, MAY 1967

THE DESIGN POLICY OF PRESTRESSED CONCRETE PRESSURE VESSELS IS EXAMINED, WITH PARTICULAR REFERENCE TO THE DESIGN FOR A 200-MWE HTGR REACTOR. EQUATIONS FOR PRELIMINARY DESIGN AND COSTING OF SUCH VESSELS ARE DERIVED, AND THEIR USE FOR OPTIMIZATION IS DEMONSTRATED. CONSIDERABLE DESIGN INVESTIGATION IN SUPPORT OF THE METHODS USED IS PRESENTED AS APPENDICES TO THE REPORT.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CONCRETE, PRESTRESSED + *DESIGN STUDY + *ECONOMICS + *PRESSURE VESSEL + DESIGN CRITERIA + REACTOR, HTGR

11-24603

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-24603 *CONTINUED*
A KRUPP-DEVELOPED PRESTRESSED CONCRETE PRESSURE VESSEL
1 PAGE, POWER 112(1), PAGE 96, (JAN. 1968)

A KRUPP-DEVELOPED PRESTRESSED CONCRETE PRESSURE VESSEL IS SAID TO BE ADAPTABLE TO WATER-COOLED REACTORS AND POSSIBLY TO FAST BREEDERS. IT IS BUILT ON THE SPOT, CONSISTS OF FOUR LAYERS, EACH FULFILLING A DIFFERENT FUNCTION - (1) RADIATION PROTECTION AND THERMAL SHIELDING, (2) MORE HEAT INSULATION, (3) A DEMINERALIZED WATER LAYER UNDER PRESSURE TO COMPLETE THE COOLING, AND (4) A THICK, COLD-CONCRETE WALL. THE FIRST TWO LAYERS ARE EMBEDDED IN THIN STEEL SHEETS FOR GAS- AND WATER-PROOFING.

*CONCRETE, PRESTRESSED + *FABRICATION + *PRESSURE VESSEL + STEEL LINER + THERMAL INSULATION

11-24604
RESEARCH ON THE DESIGN OF EXPLOSION PROOF CONTAINMENT STRUCTURES
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
ANL-TRANS-555 +. JAERI-MEMO-1096 +. 223 PAGES, DEC. 1964

FOUR STEEL-REINFORCED CONCRETE STRUCTURES WERE TESTED BY EXPLODING DYNAMITE AT CENTER OF EACH. THE BLASTING PRESSURE WAS MEASURED. BASED ON THE EXPERIMENTAL RESULTS, THE SEALING EFFECT OF THE BLASTING PRESSURE AND IMPULSE, AND THE FUTURE PLAN FOR CONSTRUCTION OF EXPLOSION PROOF CONTAINMENT STRUCTURES WERE DISCUSSED. VALUABLE DATA FOR DESIGN OF EXPLOSION PROOF CONTAINMENT WAS OBTAINED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE + *CONTAINMENT, SHOCK GENERATION AND PROTECTION + *DESIGN CRITERIA +
CONTAINMENT RESEARCH AND DEVELOPMENT + CONTAINMENT, HIGH PRESSURE + EXPLOSIVE, CONVENTIONAL

11-24636 ALSO IN CATEGORY 18
KOMAROVSKII AN
DESIGN OF NUCLEAR PLANTS
ATOMIZDAT, MOSCOW
AEC-TR-6722 + IPST-CAT.-1875 +. 482 PAGES, FIGURES, TABLES, REFERENCES, TRANSLATION OF STROITEL-STVO YACERNYKH USTANOVOK, ATOMIZDAT, MOSCOW, 1965

TITLE SHOULD BE - CIVIL ENGINEERING, SHIELDING AND BUILDINGS - BECAUSE THIS IS A SURVEY/DESCRIPTION FOR USSR CIVIL-ENGINEERING COLLEGES. WELL ILLUSTRATED WITH NON-USSR REACTORS. LITTLE ATTENTION PAID TO SHIELDING CALCULATIONS. NOTHING SAID OF REACTOR PHYSICS OR HEAT TRANSFER. SECTIONS INCLUDE (1, 20 PG) SPECIAL ASPECTS OF CONCRETE AS BIOLOGICAL SHIELDING. (3, 181 PG) GENERAL DESIGN OF CONCRETE SHIELDS, THERMAL SHIELD, BUILDINGS, FUEL-STORAGE POOLS, PAINTS. (4, 45 PG) CONTAINMENT ASPECTS OF BUILDINGS AND SPECIAL STEEL HOUSINGS, INCLUDING STRESSES FROM HIGH-PRESSURE FLASHING WATER. (5, 46 PG) SPECIAL FEATURES IN SHIELD AND CONTAINMENT CONSTRUCTION. (APPENDIXES, 80 PG) COST AND MATERIAL DATA, SPECIAL CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT CONSTRUCTION + BIBLIOGRAPHY + BUILDING + CONCRETE + CONCRETE, PRESTRESSED +
CONTAINMENT DESIGN + CONTAINMENT PAINT + REACTOR, POWER + REVIEW + SHIELDING + THERMAL SHIELD + USSR

11-24807 ALSO IN CATEGORY 18
POINT BEACH UNIT 2. SUPPLEMENT 2
WISCONSIN ELECTRIC POWER COMPANY
40 PAGES, FIGURES, TABLES, FEBRUARY 24, 1968, DOCKET 50-301, TYPE--PWR, MFG.--WEST, AE--BECHTEL

RESPONDS TO DRL LETTER OF JAN. 19, 1968, REQUESTING MORE INFORMATION ON THE CONTAINMENT AND PRIMARY-SYSTEM STRUCTURE, DYNAMIC ANALYSIS OF CONTAINMENT, LINER ANCHORAGE, AND CONTAINMENT-LOADING COMBINATION.

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

*AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

11-24921 ALSO IN CATEGORY 18
RESPONSE TO QUESTION 11.1--CRITERIA FOR CONTAINMENT PIPING PENETRATION
VIRGINIA ELECTRIC AND POWER COMPANY
2 PAGES, PAGE S11.1-1 THRU -2 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DECEMBER 8, 1967. DOCKET 50-280 AND 50-281.

WE BELIEVE THAT THESE CRITERIA DISCUSS EXTENT TO WHICH CRITERIA FOR CONTAINMENT PIPING PENETRATION WILL BE MET. DESCRIBE ANY MODIFICATION TO VALVE ARRANGEMENTS REQUIRED TO MEET THESE CRITERIA. ***(ANSWER) CRITERIA LISTED WILL BE MET EXCEPT FOR DEEP-WELL RECIRCULATION-SPRAY-PUMP SUCTION AND DISCHARGE LINES, WHICH ARE BELOW GRADE, ABOUT THE CONTAINMENT, AND ARE DESIGNED TO BE EXTENSIONS OF CONTAINMENT.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-24921 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT PENETRATION, PIPE + *DESIGN CRITERIA + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

11-24922 ALSO IN CATEGORY 18

RESPONSE TO QUESTION 12.1-1--VACUUM LOAD ON CONTAINMENT DURING OPERATION

VIRGINIA ELECTRIC AND POWER COMPANY

3 PAGES, PAGE S12.1.1 (1)-1 THRU S12-1.1 (2)-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2
(SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

IMPLICATIONS OF A VACUUM LOAD OF 10 (PLUS OR MINUS 0.5) CONTAINMENT DURING THE NORMAL
OPERATION ARE NOT CLEAR. IN THE EVENT OF VACUUM CONTROL FAILURE, WHAT IS THE POTENTIAL
ADDITIONAL VACUUM ON THE CONTAINMENT DUE TO BAROMETRIC PRESSURE INCREASE AND/OR CONTAINMENT
COOLDOWN. IN THE EVENT OF A DESIGN-BASIS ACCIDENT, WHAT IS THE MAXIMUM POTENTIAL VACUUM THAT
COULD BE ESTABLISHED WITHIN THE CONTAINMENT. ***(ANSWER) BAROMETRIC EFFECT LESS THAN 1 PSI,
COOLDOWN LESS THAN 1.5. FOR DESIGN-BASIS ACCIDENT, MAXIMUM VACUUM WOULD BE THAT OF INITIAL
OPERATING CONDITION OF ABOUT 10 PSIA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT VESSEL LOADING + *CONTAINMENT, LOW PRESSURE + *CONTROL, GENERAL + *PRESSURE, SUBATMOSPHERIC +
ACCIDENT, LOSS OF COOLANT + DESIGN CRITERIA + FAILURE, EQUIPMENT + REACTOR, PWR + REPORT, PSAR +
SURRY 1 AND 2 (PWR)

11-25041 ALSO IN CATEGORY 18

MORRIS PA

MORE INFORMATION NEEDED FOR DRL REVIEW OF OYSTER CREEK VESSEL REPAIR

DIVISION OF REACTOR LICENSING, AEC

LETTER TO J. E. LOGAN, JERSEY CENTRAL POWER AND LIGHT COMPANY, 1 PAGE, APRIL 15, 1968, DOCKET 20-219,
TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

AS DISCUSSED ON APRIL 8, 1968, AFTER PRELIMINARY REVIEW OF AMENDMENTS 35 AND 36 ON THE REPAIRS
TO STUB TUBES OF VESSEL, WE WILL REQUIRE COMPLETE TECHNICAL JUSTIFICATION FOR YOUR
CONCLUSIONS, INCLUDING (1) ANALYSIS TO DEFINE CONSEQUENCES OF FAILURE OF AFFECTED COMPONENTS,
(2) ANALYSIS OF CAUSES OF KNOWN DEFECTS, (3) ANALYSES WHICH SUPPORT CONCLUSION THAT REPAIRS
WILL BE ACCEPTABLE FOR PLANT LIFETIME, (4) VERIFICATION THAT INTEGRITY OF REPAIRS CAN BE
ACHIEVED.

*MAINTENANCE AND REPAIR + *PRESSURE VESSEL + *WELDING + AEC QUESTION + OPERATING LICENSE PROCESS +
OYSTER CREEK 1 (BWR) + REACTOR, BWR

11-25044 ALSO IN CATEGORY 18

REACTOR CONTAINMENT LINER SHEAR TEST

CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.

3 PAGES, 1 FIGURE, PAGE 4-1 THROUGH 4-3 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967,
DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

DESCRIBES TESTS RUN TO EVALUATE SHEARING CHARACTERISTICS BETWEEN LINER AND THE STUDS ANCHORING
IT TO CONCRETE. RESULTS INDICATED ADEQUACY TO TRANSFER SHEAR FROM CONCRETE TO PLATE. FOR
SHEAR TRANSFERRED BY BOND, A FAILURE SAFETY MARGIN OF 60 WAS DEMONSTRATED, WITH A MARGIN OF
9.5 DEMONSTRATED FOR STUD LOADING. MAXIMUM SHEAR STRESS IN LINER PLATE AT SHELL-MAT JUNCTION
IS 9,400 PSI. GUARANTEED YIELD STRENGTH IS 32,000 PSI.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT LINER + *INTEGRITY + *TEST, PROOF + CONTAINMENT VESSEL LOADING + HADDAM NECK (PWR) +
REACTOR, PWR + REPORT, SAR + STRESS

11-25059 ALSO IN CATEGORY 17

MINNICK LE

PROPOSED REDUCTION IN DIAMETER OF ONE REACTOR VESSEL STUD

YANKEE ATOMIC ELECTRIC COMPANY

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(18), PAGE 16 (APRIL 29, 1968)

(LETTER, APRIL 17) DURING DISASSEMBLY OF THE VESSEL HEAD FOR REFUELING, ONE OF THE 52 STUDS
GALLED THE THREADED PORTION IN BOTH THE STUD AND VESSEL FLANGE. REMOVAL NECESSITATED HIGH
TORQUES, WHICH DAMAGED THE THREAD BEYOND REPAIR WITH A THREAD CHASER. THE 5.25-IN.-DIAM STUD
WILL BE REPLACED WITH A 4.75-IN.-DIAM STUD. THE SA-193-B16 VESSEL FLANGE WILL BE BORED OUT
FOR AN A 320-L43 MATERIAL SLEEVE (YIELD POINT 121,000 PSI INSTEAD OF 85,000) TO RETAIN THE
EFFECTIVENESS OF THE STUD. ITS ELONGATION IS BEING CALCULATED.

*DAMAGE + *PRESSURE VESSEL + *REFUELING + FRICTION + OPERATING EXPERIENCE + REACTOR, PWR + STRESS +
TECHNICAL DEMONSTRATIONS + YANKEE (PWR)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25062 ALSO IN CATEGORY 17

CORUM JM + SMITH JE

PCRV MODEL STUDY PROGRAM

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-4200 +. 19 PAGES, FIGURES, PAGES 191-209 OF SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING SEPTEMBER 29, 1967. GAS-COOLED REACTOR PROGRAM, FEBRUARY 1968

(PG. 191-209) DESCRIBES PNEUMATIC AND HYDRAULIC TESTS ON FOUR MODELS (CONCRETE PROTOTYPE, TWO MORTAR OR MICRO-CONCRETE, AND EPOXY) AND COMPARES MEASURED STRAINS WITH FINITE-ELEMENT PREDICTIONS FOR VARIOUS AREAS OF MORTAR MODEL NO. 1. BOTH AXISYMMETRIC AND PLANE ANALYSES WERE MADE.

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

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + COMPARISON, THEORY AND EXPERIENCE +
CONTAINMENT RESEARCH AND DEVELOPMENT + PRESSURE, INTERNAL + STRESS ANALYSIS

11-25086 ALSO IN CATEGORIES 7 AND 1

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR JANUARY-FEBRUARY 1968

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-TM-2164 +. 144 PAGES, TABLES, FIGURES, REFERENCES, MARCH 26, 1968

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 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 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
\$3.00 COPY, \$0.65 MICROFICHE

*CHEMICAL KINETICS + *CONTAINMENT, GENERAL + *CSE + *FISSION PRODUCT TRANSPORT +
*FISSION PRODUCT, AIRBORNE + *IMPACT PROPERTY + *IN PILE EXPERIMENT + *LOFT (S-RR) + *NOZZLE +
*CUT OF PILE LOOPS AND EXPERIMENTS + *STEEL + CONTAINMENT SPRAY + FISSION PRODUCT RELEASE, GENERAL +
FISSION PRODUCT RETENTION + PRESSURE VESSEL + REACTOR, HTGR

11-25152

ALFILLE L + BRIDLA J + DUFRESNE J + OHLMER E

COMBUSTIBLE ELEMENT FOR NUCLEAR REACTORS WITH PRESSURE TUBES

COMMUNAUTE EUROPEENNE DE L-ENERGIE ATOMIQUE

CANADIAN PATENT 758-198 +. 14 PAGES, 3 FIGURES, MAY 2, 1967, PATENT (FOREIGN)

FUEL BUNDLES CONSISTING OF PARALLEL FISSIONABLE RODS PLACED END TO END IN A FUEL CHANNEL ARE DESCRIBED. THE PRESSURE TUBES CONTAINING THE BUNDLES HAVE A THICK INSULATED WALL SO THE EXTERIOR WALL TRANSFERS LITTLE FISSION HEAT TO THE HEAVY-WATER MODERATOR. INDIVIDUAL BUNDLES ARE JOINED TO EACH OTHER MECHANICALLY SO THAT THE ALIGNMENT FACILITATES COOLANT FLOW OVER THE FUEL ELEMENTS.

AVAILABILITY - IT IS OUR UNDERSTANDING THAT FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U.S. PATENT OFFICE, DEPT. OF COMMERCE, WASH., D. C., (\$0.30 CENTS/PAGE)

*FUEL ELEMENT + *REACTOR, HWR + *REACTOR, PRESSURE TUBE + CANADA + EURATOM

11-25153 ALSO IN CATEGORY 18

AUBERT G + HASSIG JM + PEUCHMAUR A + ROCHE R + VRILLON B

SUPPORT STRUCTURE FOR THE PRESSURE TUBES IN A NUCLEAR REACTOR CALANDRIA TANK

COMMISSARIAT A L-ENERGIE ATOMIQUE

BRITISH PATENT 1-081-650 +. 4 PAGES, 2 FIGURES, AUGUST 31, 1967, PATENT (BRITISH)

AN ASSEMBLY OF CLOSED-BOX ELEMENTS, EACH DESIGNED TO SUPPORT AT LEAST ONE PRESSURE-TUBE EXTENSION, COMPRISES A SUPPORT STRUCTURE IN A GAS-COOLED, HEAVY-WATER-MODERATED REACTOR. PRESTRESSING CABLES, FASTENED TO TOP AND BOTTOM END BEAMS, PASS THROUGH THE ASSEMBLY, GIVING IT RIGIDITY.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND, (\$0.49 CENTS/COPY)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25153 *CONTINUED*

*REACTOR, GCR + *REACTOR, HWR + *REACTOR, PRESSURE TUBE + *SUPPORT STRUCTURE + FUEL ELEMENT + PATENT + UNITED KINGDOM

11-25154 ALSO IN CATEGORY 12

COSTES D

SAFETY SYSTEM FOR PRESSURE TUBE REACTORS

COMMISSARIAT A L'ENERGIE ATOMIQUE

BRITISH PATENT 1-086-349 +. 4 PAGES, 1 FIGURE, OCT. 11, 1967, PATENT (BRITISH)

THE PRIMARY-COOLING-CIRCUIT COMPONENTS AND AN OPEN-ENDED DISCHARGE DUCT FOR CONNECTING THE CONTAINMENT VESSEL TO THE ATMOSPHERE HAVE A VOLUME AT LEAST EQUAL TO THAT OF THE GAS RELEASED IN EVENT OF AN ACCIDENT WHEN THE GAS IS AT ATMOSPHERIC PRESSURE. ON A RUPTURE OF THE PRIMARY CIRCUIT, THE GAS WILL EXPAND WITHIN THE OPEN CHAMBER BUT WILL THEN BE DRAWN THRU FILTERS AND DISCHARGED UP A STACK BEFORE LEAVING THE OPEN-ENDED CHAMBER. THUS, THE CONTAINMENT VESSEL MAY BE DESIGNED FOR ATMOSPHERIC PRESSURES.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C., 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTAINMENT, LOW PRESSURE + *CONTAINMENT, PRESSURE VENTING + *REACTOR, PRESSURE TUBE + FRANCE + PATENT + REACTOR, GCR + UNITED KINGDOM

11-25159 ALSO IN CATEGORY 17

ABSORPTION OF CORROSION HYDROGEN BY A302B STEEL AT 70 F TO 500 F

WESTINGHOUSE ELECTRIC CORP., ATOMIC POWER DIV., PITTSBURGH, PA.

WCAP-7099 +. 37 PAGES, 7 FIGURES, 2 TABLES, 8 REFERENCES, DEC. 1, 1967, DOCKET 50-29

DEBRIS IN REACTOR VESSEL ERODED STAINLESS-STEEL CLADDING, EXPOSING ABOUT 2 SQ. IN. A302B BASE METAL TO COOLANT. STEEL SPECIMENS, EXPOSED IN TESTS TO BOTH AERATED AND DEAERATED BORIC ACID SOLUTIONS, CORRODED A MAXIMUM OF ABOUT 2450 MG/SQ. DM/MONTH IN 140 F AERATED BORIC ACID AND ABOUT 10 TO 30 MG/SQ. DM/MONTH IN LOW-TEMPERATURE DEAERATED BORIC ACID. MAXIMUM HYDROGEN IN STEEL FROM CORROSION WAS LESS THAN 2 PPM AND DID NOT INCREASE WITH TIME OR TOTAL CORROSION. HYDROGEN SOAK STEP IN PLANT HEATUP PROCEDURE THEREFORE NOT JUSTIFIED AND WILL BE ELIMINATED.

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

*CORROSION + *HYDROGEN + *STEEL + CHEMICAL REACTION + CLAD + EMBRITTLEMENT + HYDRIDE + POISON, SOLUBLE + PRESSURE VESSEL + PROCEDURES AND MANUALS + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + YANKEE (PWR)

CATEGORY 12
PLANT SAFETY FEATURES

12-22578 ALSO IN CATEGORIES 9 AND 17
YANKEE REVIEW OF EMERGENCY CORE COOLING
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
2 PAGES, JANUARY 12, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ONE PHASE OF THE RE-EVALUATION OF A YANKEE PRIMARY-COOLANT-SYSTEM RUPTURE, BEGUN IN 1967, RESULTED IN THE INTENTION TO (1,2) INSTALL A SECOND LOW-PRESSURE INSTRUMENT SO THAT EITHER WILL INITIATE SAFETY INJECTION, (3) DYE-PENETRANT INSPECT THE 12-IN.-LONG PIPE BETWEEN COOLANT LOOP AND SAFETY-INJECTION ISOLATION VALVE, (4) INSTALL A NEW CHECK VALVE IN THE 2-IN. CHARGING LINE. ***OTHER MODIFICATIONS ARE BEING CONSIDERED AND WILL BE SUBMITTED IN MARCH 1968.

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

*CORE REFLOODING SYSTEM + *MODIFICATION, SYSTEM OR EQUIPMENT + EXAMINATION + INSTRUMENTATION, PRESSURE + PIPING + PLANT PROTECTIVE SYSTEM + REACTOR, PWR + REDUNDANCE + VALVE + YANKEE (PWR)

12-23292 ALSO IN CATEGORIES 17 AND 9
DRESDEN 1 PLANS TO INSTALL CONTROL ROD DRIVE THIMBLE SUPPORTS
COMMONWEALTH EDISON COMPANY
13 PAGES, TABLES, FIGURES, JANUARY 18, 1968, DOCKET 50-10, TYPE--BWR, MFG.--G.E., AE--BECHTEL

PROPOSED SUPPORTS ARE ANCHORED BY BOLTS WELDED TO THE THIMBLE GUIDE PLATE IN THE SPACES BETWEEN THIMBLES. THE SUPPORTS ARE SHAPED LIKE THE SPACE BETWEEN FOUR ADJACENT THIMBLES (I.E., LIKE A FOUR-POINTED STAR). EACH HOLDS PART OF FOUR THIMBLES, AND FOUR SUPPORTS HOLD A THIMBLE. EACH MUST BE TURNED 45 DEG TO REMOVE THE THIMBLE. A SETSCREW IN THE POINTS OF THE SUPPORT MAKE CONTACT WITH THE THIMBLES. DESIGN BASIS IS TO KEEP THIMBLE FROM MOVING MORE THAN 1/8 IN. IN CASE OF THIMBLE FAILURE.

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

*CONTROL ROD DRIVE + *SUPPORT STRUCTURE + ACCIDENT, CONTROL ROD EJECTION + DRESDEN 1 (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR

12-23706 ALSO IN CATEGORY 11
VALENTIN RA + ROSENBERG GS + SCHOEERLE OF
TRANSIENT THERMAL STRESSES IN HEAT-GENERATING PLATES AND HOLLOW CYLINDERS CAUSED BY SUDDEN CHANGES IN ENVIRONMENTAL TEMPERATURE
ARGONNE NATIONAL LABORATORY
ANL-7294 +. 45 PAGES, 23 FIGURES, 11 REFERENCES, FEBRUARY 1967

THE TRANSIENT THERMAL STRESSES IN A FREE, HEAT-GENERATING FLAT PLATE OR CYLINDER, INSULATED AT ITS OUTER SURFACE AND COOLED ON ITS INNER SURFACE THROUGH A TEMPERATURE-INDEPENDENT BOUNDARY CONDUCTANCE, ARE ANALYZED TO DETERMINE THE EFFECT OF A SUDDEN CHANGE IN ENVIRONMENTAL TEMPERATURE COMBINED WITH INTERNAL HEAT GENERATION. THE FLAT-PLATE PROBLEM IS TREATED BY LAPLACE TRANSFORMS, AND THE CYLINDER PROBLEM, BY USING A RECENTLY DEVELOPED EXTENSION OF THE CLASSICAL HANKEL TRANSFORM. GRAPHICAL TEMPERATURE AND STRESS RESULTS ARE PRESENTED FOR A WIDE RANGE OF BIOT NUMBERS FOR A WIDE RANGE OF THE CYLINDER THICKNESS PARAMETER. ***STUDY WAS PROMPTED BY INTEREST IN EFFECT OF SUDDEN INTRODUCTION OF COLD COOLANT (CORE SPRAY, ETC.) ON STRUCTURAL COMPONENTS.

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

*CYLINDER + *EMERGENCY COOLING CONSIDERATIONS + *HEAT GENERATION, INTERNAL + *STRESS ANALYSIS + *TEMPERATURE TRANSIENT + *THERMAL MECHANICAL EFFECT + CORE COMPONENTS + CORE REFLOODING SYSTEM + CORE SPRAY + MATHEMATICAL TREATMENT + STRUCTURAL INTEGRITY

12-23726 ALSO IN CATEGORY 9
KLOSE AH + MILLER DR
DETECTION OF LEAKS IN INACCESSIBLE AREAS OF THE BOILING-WATER-REACTOR NUCLEAR POWER PLANT
GENERAL ELECTRIC COMPANY
CONF-671011 +. 10 PAGES, 5 FIGURES, PAGES 228-37 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

DISCUSSES THE DETECTION OF LEAKS FROM THE NUCLEAR STEAM-SUPPLY SYSTEM INSIDE THE DRY WELL OF A PRESSURE-SUPPRESSION CONTAINMENT FOR A LARGE BOILING-WATER REACTOR. INSTRUMENTATION IN USE BY THE GENERAL ELECTRIC CO. IS SHOWN TO GIVE LEAK DETECTABILITY OF BELOW 5 GPM OF CONDENSATE, USING INSTRUMENTS SUCH AS FLOWMETERS, TEMPERATURE SENSORS, AND PRESSURE SENSORS. IF FUTURE APPLICATIONS WARRANT, SENSITIVITY DOWN TO ABOUT 1 GPM IS POSSIBLE WITH ADDITIONAL INSTRUMENTS TO MONITOR COOLING-COIL-CONDENSATE FLOW AND DEW-POINT TEMPERATURE.

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

*CONTAINMENT, CONTINUOUS MONITORING SYSTEM + *LEAK RATE + CONTAINMENT LEAKAGE CONTROL +

CATEGORY 12
PLANT SAFETY FEATURES

12-23726 *CONTINUED*
INSTRUMENTATION, COOLANT QUALITY + INSTRUMENTATION, PROCESS + LEAK + REACTOR COOLANT + REACTOR, BWR + STEAM

12-23727 ALSO IN CATEGORY 9

BALDERSTON HL

INCIPIENT FAILURE DETECTION--A SYSTEM CONCEPT

THE BOEING COMPANY

CONF-671011 +. 9 PAGES, REFERENCES, PAGES 247-55 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

THE DETECTION OF INCIPIENT FAILURE OF A PART, COMPONENT, SUBSYSTEM, OR SYSTEM IS RELATED TO THE DETECTION OF LATENT DEFECTS WHICH ALREADY EXIST IN A DEVICE, DEVELOP CURING OPERATION OF THE DEVICE, OR APPEAR AS A RESULT OF OPERATIONAL ENVIRONMENT OR HUMAN ERROR. PRESENT KNOWLEDGE AND NEW RESEARCH CAN BE COMBINED TO DEVELOP AN INCIPIENT-FAILURE-DETECTION SUBSYSTEM WITH BROAD APPLICABILITY. THE APPLICATION OF THESE TECHNIQUES WILL REQUIRE INSTRUMENTATION, DATA COLLECTION, AND DATA ANALYSIS.

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

*SAFETY PRINCIPLES AND PHILOSOPHY + *SYSTEM DESCRIPTION + FAILURE, COMPONENT + FAILURE, GENERAL + INSTRUMENTATION, COMPONENT + NOISE + TEST, PROOF + TESTING + VIBRATION

12-23728 ALSO IN CATEGORY 9

WEICHBRODT B

MECHANICAL SIGNATURE ANALYSIS--A NEW TOOL FOR PRODUCT ASSURANCE AND EARLY FAULT DETECTION

GENERAL ELECTRIC COMPANY

CONF-671011 +. 26 PAGES, 20 FIGURES, 1 TABLE, 4 REFERENCES, PAGES 314-39 OF INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS, CONFERENCE PROCEEDINGS, GATLINBURG, TENN., OCTOBER 30--NOVEMBER 1, 1967

MECHANICAL SIGNATURE ANALYSIS IS DEFINED BY EXAMPLES, AND ITS GENERAL SCOPE IS DISCUSSED, IN PARTICULAR ITS POTENTIAL FOR INCREASING THE RELIABILITY, MAINTAINABILITY, AND QUALITY ASSURANCE OF A VARIETY OF EQUIPMENT. TO ACHIEVE HIGH AND PREDICTABLE RELIABILITY FOR A SYSTEM, IT IS NOT SUFFICIENT JUST TO BUILD IT FROM HIGH-QUALITY COMPONENTS. IT IS ESSENTIAL THAT EFFECTIVE METHODS BE AVAILABLE FOR CHECKOUT OF A COMPLETELY ASSEMBLED PRODUCT FROM THE OUTSIDE, BEFORE IT IS FINALLY ACCEPTED. ALSO, IT CALLS FOR METHODS WHICH CAN DETECT AN INTERNAL MALFUNCTION EARLY, DURING ACTUAL OPERATION, SO THAT PREVENTIVE MAINTENANCE CAN BE SCHEDULED BEFORE CRITICAL FAILURE OCCURS.

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

*QUALITY CONTROL + *RELIABILITY ANALYSIS + COMPONENTS, MISCELLANEOUS + EXAMINATION + INTEGRITY

12-23907 ALSO IN CATEGORIES 9 AND 17

MAXWELL WA

A SURVEY OF LEAK DETECTION METHODS FOR THE ON-LINE MONITORING OF BWR AND PWR PRIMARY LOOPS

SOUTHERN NUCLEAR ENGINEERING, INC., DUNEDIN, FLA.

SNE-36 +. 43 PAGES, 10 REFERENCES, OCTOBER 1967

LITERATURE SEARCH REVEALED LITTLE, EXCEPT IN OIL REFINING. DISCUSSES EXPERIENCE WITH THREE MAIN METHODS - (1) RADIOACTIVITY MONITORING OF CONTAINMENT AIR (POWER REACTORS WITH CLEAN FUEL AND COOLANT AFTER A REFUELING MIGHT HAVE A DEAD-TIME), (2) HUMIDITY MONITORING (NEEDS A FLOATING SETPOINT FOR NORMAL CONDITION), (3) SOUND (DEPENDS ON OPERATORS AUDIOSENSITIVITY AND BACKGROUND NOISE). OTHER LEAKS HAVE BEEN DETECTED BY MATERIAL BALANCE, INSPECTION, ETC. HUMIDITY MONITORING LOOKS BEST. ACOUSTIC-EMISSION DETECTORS WILL BE APPLIED TO ELK RIVER AND PM 1A.

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

*INSTRUMENTATION, SURVEILLANCE + *LEAK + *MAIN COOLING SYSTEM + CONTAINMENT INSTRUMENTATION + FAILURE, PIPE + HUMIDITY + MONITOR, RADIATION, AIR + REACTOR, BWR + REACTOR, PWR

12-23918 ALSO IN CATEGORY 18

PRAIRIE ISLAND 1 AND 2 CONTAINMENT AIR COOLING AND SHIELD BUILDING RECIRCULATION SYSTEMS

NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA

37 PAGES, 6 FIGURES, PAGES 14.3.3-1 THRU 14.3.3-9, SECTION 6.6 AND APPENDIX M OF PRAIRIE ISLAND NUCLEAR GENERATING PLANT FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 4, 18 DECEMBER 1967, DOCKETS 50-282/306, TYPE--PWR, MFG.--WEST., AE--PIONEER SERV.

(PSAR REVISED - 12/15/67) THE CONTAINMENT-AIR COOLING SYSTEM CONSISTS OF FOUR FIN-FAN COOLER UNITS. IN EVENT OF DUCT COLLAPSE, GRAVITY (WEIGHTED) VALVES WILL OPEN TO ALLOW UNITS TO REMAIN IN OPERATION. FANS ARE CENTRIFUGAL DIRECT-DRIVE TYPES ENCLOSED TO WITHSTAND THE TEMP. AND PRESS. OF A LOSS-OF-COOLANT ACCIDENT (LOCA). MOTOR WILL BE CAPABLE OF AT LEAST 48 HR OF

CATEGORY 12
PLANT SAFETY FEATURES

12-23918 *CONTINUED*

OPERATION WITH FAN WORKING IN AN AIR-WATER MIXTURE. DUCTS WILL BE DESIGNED TO ACCOMMODATE DIFFERENTIAL PRESS. DEVELOPED DURING LOCA OR WILL BE EQUIPPED WITH PRESSURE-RELIEVING VALVES. ***SHIELD-BUILDING RECIRCULATION SYSTEM TAKES SUCTION FROM REGION AROUND CONTAINMENT SHELL AND FILTERS THE AIR. PART IS RELEASED TO THE VENT, WHILE THE REMAINDER IS RECIRCULATED TO THE SHIELD BUILDING. APPENDIX M - SHIELD-BUILDING VENT-SYSTEM PERFORMANCE STUDY AND EVALUATION OF EFFECT ON OFF-SITE DOSES (SUBMITTED 1/15/68).

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

*CONTAINMENT AIR COOLING + *CONTAINMENT, PRESSURE VENTING + *VENTILATION SYSTEM + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + SYSTEM OPERABILITY IN ACCIDENT

12-24190
REITER R

APPARATUS AND METHODS FOR PROTECTION AGAINST RADON AND ITS DECAY PRODUCTS IN MINE ATMOSPHERES
9 PAGES, NUKLEONIK 9, PAGES 359-67 (MAY 1967) IN GERMAN

THE REQUIREMENTS PLACED ON MEASUREMENT TECHNOLOGY IN THE DETERMINATION OF RN LEVELS IN MINES ARE OUTLINED. THE DEVICE DEVELOPED FOR THE DETERMINATION OF THE RN LEVEL IS BASED ON THE AEROSOL FILTER METHOD. THE PRINCIPLE OF THIS DEVICE IS OUTLINED AND ITS CONSTRUCTION DESCRIBED. AN EXAMPLE IS GIVEN OF ITS OPERATION. METHODS FOR DECREASING THE RN CONCENTRATION IN MINES ARE GIVEN.

*MONITOR, RADIATION, SAMPLING + *RADIATION SAFETY AND CONTROL + *RADIOLYTIC GAS + AEROSOL + AEROSOL, RADIOACTIVE + AIR + EQUIPMENT, GENERAL + FILTER + RADON + SAMPLING

12-24191 ALSO IN CATEGORY 15

MIWA H + YAMAMOTO Y
NEW LABORATORY AIR SAMPLER WITH LOW OPERATIONAL NOISE
KODE IND. CORP., JAPAN
3 PAGES, HOKEN BUTSURI 1(2), PAGES 46-8 (DEC. 1966) IN JAPANESE

A LABORATORY AIR SAMPLER, HAVING HIGH MOBILITY AND REDUCED OPERATIONAL NOISE, WAS DEVELOPED. IT IS USED TO COLLECT THE AIRBORNE PARTICLES IN SUCH AREAS THAT ARE LOCATED AWAY FROM STATIONARY MONITORS OR ARE CONTAMINATED ACCIDENTALLY BY RADIOACTIVITY. PRIMARY CONSIDERATIONS IN THE DESIGN OF THE INSTRUMENT WERE REDUCED EXTERNAL SIZE, WEIGHT, AND OPERATIONAL NOISE. FILTER PAPER AND ACTIVE CARBON CARTRIDGE FILTERS FOR THE FILTRATION OF IODINE CAN BE INSTALLED IN A FILTER BOX AT THE TOP OF THE INSTRUMENT AND EASILY REPLACED.

*RADIOCHEMICAL PLANT SAFETY + *SAMPLING + AEROSOL + AEROSOL, RADIOACTIVE + AIR + CARBON + EQUIPMENT, GENERAL + FILTER + IODINE + PARTICULATE

12-24193

ZLATANOV S + LEKOV D
ULTRASONIC DECONTAMINATION
3 PAGES, VOENNO MED. DELO, NO. 4, PAGES 53-5 (1966) IN BULGARIAN

A STUDY OF ULTRASONIC DECONTAMINATION OF RADIOACTIVITY IS DESCRIBED. A UG-1 ULTRASONIC GENERATOR WITH THE FOLLOWING CHARACTERISTICS WAS USED - FREQUENCY (22 KC), OUTPUT POWER (500 W), TRANSDUCER, MAGNETOSTRICTIVE. NICKEL PLATES WERE CONTAMINATED WITH A POLLUTION OF SR-89CI FOR A PERIOD OF 24 HR. THE PLATES WERE THEN PLACED IN TWO SEPARATE DECONTAMINATION BATHS MAINTAINED AT A TEMPERATURE OF 40 C, IMMERSSED IN A WATER SOLUTION CONTAINING 5% SINPRO, A BULGARIAN SURFACE CLEANSING AGENT- AND IMMERSSED IN PURE TAP WATER. THE ULTRASONIC VIBRATOR WAS IMMERSSED IN WATER, THE TWO BATHS WERE PLACED ON TOP OF IT AND KEPT THERE FROM 15 MIN TO 2 HR.

*DECONTAMINATION + EQUIPMENT, GENERAL + RADIOCHEMICAL PLANT SAFETY

12-24194

ATYUNIN N + VOEN Z
DECONTAMINATING APPARATUS
2 PAGES, VOEN. ZNANIYA 5, PAGES 26-7 (1966) IN RUSSIAN

A SELF-CONTAINED CAR-BORNE APPARATUS WAS BUILT FOR DEGASSING, DISINFECTING, AND DEACTIVATING AREAS CONTAMINATED WITH AGENTS OF MASS ATTACK. IT IS INTENDED FOR DISTRIBUTING SPECIAL PREPARATIONS WARMED TO 60 TO 80 C AND PROPELLED BY A STREAM OF WATER UNDER 4 TO 5 ATM OF PRESSURE. A GAS-LIQUID APPARATUS MOUNTED ON A STANDARD CAR, WOULD ADAPT ITSELF WELL TO SUCH OPERATIONS. IT WEIGHS ABOUT 14 TO 16 KG, USES SOME 1.5 LITERS OF LIQUID PER SQ METER, AND 3 TO 4 MINUTES ARE NEEDED FOR MOUNTING OR DISMOUNTING. THE LIST, DIMENSIONS, AND FUNCTIONS OF SEPARATE PARTS ARE INCLUDED, AND THE OPERATION IS EXPLAINED IN SOME DETAIL.

*DECONTAMINATION + *DECONTAMINATION SPRAY + EQUIPMENT, GENERAL + RADIOCHEMICAL PLANT SAFETY

CATEGORY 12
PLANT SAFETY FEATURES

12-24195
MISSONI G
AIR-CONTAMINATION CONTROL UNIT FOR THE ISTITUTO SUPERIORE DI SANITA
19 PAGES, ANN. IST. SUPER. SANITA 1, PAGES 387-405 (1965) IN ITALIAN

THE AIR FILTRATION UNIT OF THE PHYSICS LABORATORY OF THE ISTITUTO SUPERIORE DI SANITA FOR
TAKING AIR SAMPLES IS DESCRIBED. SOME DATA CONCERNING AIR-BORNE RADIOACTIVITY IN THE PERIOD
SEPTEMBER 1961 TO OCTOBER 1963 ARE REPORTED.

*ITALY + *SAMPLING + AIR + EQUIPMENT, GENERAL + FILTER + RADIOCHEMICAL PLANT SAFETY

12-24225 ALSO IN CATEGORY 5
GRAFTIEAUX J
THE REACTOR PHENIX. CARTRIDGE RUPTURE DETECTION
COMMISSARIAT A L-ENERGIE ATOMIQUE, SACLAY (FRANCE), CENTRE D-ETUDES NUCLEAIRES
CEA-R-3339 +. 13 PAGES, NOV. 1967, (IN FRENCH)

THIS REPORT DEFINES THE ROLE OF CARTRIDGE-RUPTURE DETECTION IN THE REACTOR. IT GIVES THE
POSSIBLE METHODS, THEIR PROBABLE PERFORMANCES, THEIR ADVANTAGES AND DISADVANTAGES. THE FINAL
FORM OF THE INSTALLATION WILL BE DETERMINED MAINLY BY THE DEGREE OF SAFETY REQUIRED, BY THE
TECHNICAL POSSIBILITIES OF THE REACTOR DESIGN, AND BY THE OPERATIONAL FLEXIBILITY WANTED.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, CLADDING + FAILURE, FUEL ELEMENT + FRANCE

12-24286
BOUTOT P + SCHIFFER P
DECONTAMINATION TESTS ON TRITIUM-CONTAMINATED MATERIALS
COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN, FRANCE
CEA-R-3312 +. 18 PAGES, DECEMBER 1967, IN FRENCH

THESE TESTS ARE DESIGNED TO TRY OUT VARIOUS PROCESSES LIABLE TO BE APPLIED TO THE
DECONTAMINATION OF A MATERIAL CONTAMINATED WITH TRITIUM. THE SAMPLES ARE THIN
STAINLESS-STEEL SLABS CONTAMINATED IN THE LABORATORY WITH ELEMENTS EXTRACTED FROM INDUSTRIAL
INSTALLATIONS. THE MEASUREMENT OF THE INITIAL AND RESIDUAL ACTIVITIES IS CARRIED OUT USING
AN OPEN-WINDOW BERTHOLD COUNTER. THE BEST RESULTS ARE OBTAINED BY PASSING A CURRENT OF
PREHEATED (300 C) AIR CONTAINING WATER VAPOUR. THIS PROCESS MAKES IT POSSIBLE TO REACH A
DECONTAMINATION FACTOR OF 99.5 % IN 4 HR. IN A VACUUM, THE OPERATION HAS TO BE PROLONGED TO
100 HR TO OBTAIN A DECONTAMINATION FACTOR OF 99.2%. WET-CHEMICAL OR ELECTROLYTIC TREATMENTS
ARE EFFICIENT, BUT THEIR USE IS LIMITED BY CORROSION RISKS. A STUDY OF THE REAPPEARANCE OF
THE CONTAMINATION MADE IT POSSIBLE TO OBSERVE THAT THIS PHENOMENON OCCURS WHATEVER THE
PROCESS USED.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*DECONTAMINATION + TEST, BENCH + TRITIUM

12-24368 ALSO IN CATEGORY 4
RATZ GA + BRICKNER KG
EFFECT OF LIQUID SODIUM ON WELDED AISI TYPE-304 STAINLESS-STEEL PIPE
APPLIED RESEARCH LAB., UNITED STATES STEEL CORPORATION, MONROEVILLE, PA.
5 PAGES, 1 FIGURE, 3 TABLES, 14 REFERENCES, NUCLEAR APPLICATIONS 4(3), PAGE 154-158, (MARCH 1968)

AN INVESTIGATION OF A SAMPLE OF WELDED AISI TYPE-304 STAINLESS-STEEL PIPE EXPOSED TO LIQUID
SODIUM AT 572 TO 1472 F FOR ABOUT 7800 H AND AN UNEXPOSED SAMPLE OF PIPE FROM THE SAME HEAT
OF TYPE-304 STEEL SHOWED THAT, EXCEPT FOR NITROGEN, NO MARKED CHANGE IN COMPOSITION OF THE
PIPE OCCURRED. NITROGEN WAS ABSORBED AT THE SURFACES OF THE PIPE, A GREATER AMOUNT BEING
ABSORBED AT THE INSIDE SURFACE THAT HAD BEEN EXPOSED TO THE LIQUID SODIUM, THAN AT THE
OUTSIDE SURFACE THAT HAD BEEN EXPOSED TO AIR. UNDER THE CONDITIONS STUDIED, THE STEEL DID
NOT UNDERGO ANY MARKED DELETERIOUS CHANGE IN MECHANICAL PROPERTIES. HOWEVER, THE ABSORPTION
OF NITROGEN DID DECREASE THE DUCTILITY OF THE SURFACE THAT HAD BEEN IN CONTACT WITH THE
LIQUID SODIUM. THUS, WHEN TYPE-304 STEEL IS USED FOR LIQUID-SODIUM SERVICE, PRECAUTIONS
SHOULD BE TAKEN TO KEEP THE SODIUM AS FREE AS POSSIBLE FROM NITROGEN-CONTAINING CONTAMINANTS.

*METAL, LIQUID + *OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM + *STEEL, STAINLESS + CORROSION +
METAL, ALKALI + NITRIDE + PROPERTY, PHYSICAL

12-24373 ALSO IN CATEGORY 4
FREEDE WJ + NEWCOMB L + KENNEDY RS
STATIC AND SLIDING CONTACT BEHAVIOR OF MATERIALS IN SODIUM ENVIRONMENTS AT ELEVATED TEMPERATURES
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-12,446 +. 64 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 29, 1967

CATEGORY 12
PLANT SAFETY FEATURES

12-24373 *CONTINUED*

TESTS ARE IN PROGRESS TO DETERMINE STATIC AND SLIDING CONTACT BEHAVIOR CHARACTERISTICS OF SELECTED CANDIDATE MATERIAL COMBINATIONS IN LIQUID AND VAPOR SODIUM ENVIRONMENTS WITH INERT COVER GAS AT ELEVATED TEMPERATURES. MOST STATIC CONTACT TESTS SHOWED THAT SELF-WELDING OF MATERIALS IN SODIUM TENDED TO PROGRESS WITH TIME. COMPOSITION AND HOT HARDNESS OF SPECIMENS AFFECTED RESULTS MORE THAN DID VARIATIONS IN SODIUM. SLIDING CONTACT TESTS INDICATED THAT METALS SHOULD BE HEAT-TREATED TO THEIR MAXIMUM PRACTICAL HARDNESS. MATERIAL COMBINATIONS OF HARD VS HARD TENDED TO BE MORE WEAR-RESISTANT THAN HARD VS SOFT. MATERIAL BUILDUP INSTEAD OF WEAR ON SLIDING CONTACT SURFACES WAS OBSERVED IN A NUMBER OF TESTS. SUBSTANTIAL DIFFERENCES IN WEAR BEHAVIOR WERE OBSERVED IN MATERIALS OF DIFFERENT COMPOSITIONS WITH SOMEWHAT SIMILAR HOT HARDNESS CHARACTERISTICS.

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

*PROPERTY, PHYSICAL + *REACTOR, LMCR + *SODIUM + *WELDING + ALLOY + FAILURE, GENERAL + REACTOR, BREEDER + REACTOR, FAST + TITANIUM

12-24471 ALSO IN CATEGORY 13

BROWN CL + LAWRENCE LA

FFTF CRITICALITY SAFETY SYSTEM 72 - UNDERWATER EXAMINATION FACILITY FEASIBILITY OF USING A SOLUBLE POISON FOR CRITICALITY CONTROL

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-594 +. 15 PAGES, 7 REFERENCES, SEPT. 1967

STUDY TO DETERMINE AMOUNT OF SOLUBLE SODIUM BORATE REQUIRED TO ENSURE CRITICALITY SAFETY. MINIMUM CONCENTRATION CALCULATED - 3 G B/LITER (0.59 G B-10/LITER). TWO METHODS RECOMMENDED TO ENSURE THAT BORON IS PRESENT ABOVE REQUIRED MINIMUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *FFTF (TR) + *RADIOCHEMICAL PLANT SAFETY + BORON + FUEL STORAGE + HANFORD SITE + POISON, SOLUBLE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + WATER TREATMENT

12-24509 ALSO IN CATEGORIES 18 AND 11

COOPER CONTAINMENT ATMOSPHERIC CONTROL SYSTEM

CONSUMERS PUBLIC POWER DISTRICT

2 PAGES, 1 FIGURE, PAGES VI-6-1 AND VI-6-2 OF VOLUME I OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

(SECTION VI-6) - LIQUID NITROGEN WILL BE CONVERTED TO THE GASEOUS FORM AND BE FORCED INTO THE SUPPRESSION CHAMBER DURING CONTINUOUS OPERATION. IT WILL BE FORCED INTO THE DRY WELL THROUGH THE VACUUM BREAKERS AND MIXED BY THE VENTILATION FANS. ANALYSIS OF METAL-WATER REACTION FOLLOWING A LOSS-OF-COOLANT ACCIDENT SHOWS THAT THE RESULTANT HYDROGEN WOULD BE ONLY 1.8% IN AIR, BELOW THE FLAMMABILITY LIMIT OF 5%. (SECTION V.2.3.4) - THE MAKEUP OF THE CONTAINMENT INERT ATMOSPHERE IS MONITORED AS A FURTHER INDICATION THAT ALL PENETRATIONS ARE SEALED DURING OPERATION.

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

*CONTAINMENT ATMOSPHERE, INERT + *CONTAINMENT, CONTINUOUS MONITORING SYSTEM + ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + COOPER (BWR) + HYDROGEN + REACTOR, BWR + REPORT, PSAR

12-24512 ALSO IN CATEGORIES 18 AND 5

COOPER PSAR APPENDIX E - REACTOR CORE SPRAY COOLING TEST PROGRAM

CONSUMERS PUBLIC POWER DISTRICT

7 PAGES, 15 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

(2, SPRAY DISTRIBUTION) - MOCKUP TESTS SHOWED THAT SOME WATER SPLASHED OFF. A FLOW-DEFICIENT REGION WITHIN A FUEL ELEMENT BETWEEN CENTER AND OUTSIDE CAN BE IMPROVED FROM 35% TO 40% OF AVERAGE FLOW. (3, COOLING EFFECTIVENESS) - A 36-ROD TEST SECTION SHOWED NEGLIGIBLE EFFECTS OF FLOW FROM 1.8 - 2.8 GPM, NOR VENTING TOP OR BOTTOM, AS RADIANT HEAT TRANSFER IS IMPORTANT. (4, FLOODING EFFECTIVENESS) - WATER ONLY 2/3 HEIGHT OF CORE HELD TYPES OF RODS TO A MAX. OF 975 F. (6, BLOWDOWN HEAT TRANSFER) - SUMMARIZES GE-APED TESTS DONE THE SUMMER OF 1965. BOILING HEAT TRANSFER COEFFICIENTS CONTINUE UNTIL THE WATER FILM IS DRIED OUT, WHICH DEPENDS ON POWER DENSITY.

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

*CORE SPRAY + *SYSTEM CAPABILITY + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + COOPER (BWR) + HEAT FLUX, DRYOUT + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, RADIANT + MODEL TESTING + REACTOR, BWR + REPORT, PSAR

12-24606

CATEGORY 12
PLANT SAFETY FEATURES

12-24606 *CONTINUED*

GRIFFITH WL + KELLER RM + KRAUS KA

HYPERFILTRATION STUDIES. XIII. PARAMETRIC STUDY OF HYPERFILTRATION IN TUBULAR SYSTEMS WITH HIGH PERMEABILITY MEMBRANES

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

Y-EB-22(ADD.1) +. 37 PAGES, TABLES, FIGURES, 1967

A PARAMETRIC STUDY OF HYPERFILTRATION WAS CARRIED OUT WHICH EMPHASIZES HIGH-FLUX MEMBRANES. RELATIVE COSTS HAVE BEEN COMPUTED AT OPTIMUM FLOW CONDITIONS BY USE OF A FORTRAN COMPUTER PROGRAM (HYPFIL) WHICH DEALS WITH A SINGLE-STAGE HYPERFILTRATION SYSTEM WITH TUBULAR MEMBRANES UNDER TURBULENT FLOW CONDITIONS. HIGH PERMEABILITY MEMBRANES CAN LEAD TO LOW COST WATER, EVEN IF SALT REJECTION OF THE MEMBRANE IS RELATIVELY MODEST, PROVIDED THE INTRINSIC REJECTION OF THE MEMBRANE IS WELL ABOVE THE MINIMUM THEORETICALLY REQUIRED. HIGH-TEMPERATURE OPERATION MAY LEAD TO SUBSTANTIALLY LOWER HYPERFILTRATION TREATMENT COSTS. USE OF OPERATING PRESSURES BELOW OPTIMUM PRESSURES (OFTEN REQUIRED BY MEMBRANE CHARACTERISTICS) CAUSES A COST PENALTY. ONE ADVANTAGE OF HIGH-FLUX MEMBRANES IS THAT THEY COULD PERMIT MATCHING OF MEMBRANE CHARACTERISTICS TO OPTIMUM PRESSURE OPERATION.

AVAILABILITY - W. L. GRIFFITH, OAK RIDGE NATIONAL LABORATORY, P. O. BOX Y, OAK RIDGE, TENN.

*DESALINATION + *ECONOMIC STUDY + DECONTAMINATION + FILTER, MEMBRANE + ION EXCHANGE + WATER POLLUTION + WATER TREATMENT

12-24607

DRYBURGH PM

A GLOVE-BOX AND DRYING SYSTEM FOR THE MANIPULATION OF MOISTURE SENSITIVE MATERIALS

UNIVERSITY OF GLASGOW

3 PAGES, 4 FIGURES, REFERENCES, J. SCI. INSTRUM., 44, PAGES 658-660 (AUG. 1967)

A SYSTEM IS DESCRIBED FOR THE PROVISION OF A WORKING ATMOSPHERE IN A COMMERCIAL GLOVE-BOX. AIR IS PUMPED OUT OF THE BOX, CHILLED, PASSED THROUGH A COLUMN OF COOLED MOLECULAR SIEVE, AND RETURNED TO THE BOX. THE AIRLOCK OF THE BOX CAN BE TREATED SEPARATELY, ALLOWING THE REMOVAL AND INTRODUCTION OF EQUIPMENT WHILE MAINTAINING DRY CONDITIONS IN THE MAIN COMPARTMENT. A DEVICE FOR THE MEASUREMENT OF FROST-POINT IS DESCRIBED, BY MEANS OF WHICH IT HAS BEEN SHOWN THAT THE FROST-POINT OF THE AIR IN THE BOX IS LESS THAN 90C, CORRESPONDING TO A MOISTURE CONTENT OF ABOUT 0.1 P.P.M.

*GLOVE BOX + EQUIPMENT DESIGN + MOLECULAR SIEVE + RADIOCHEMICAL PLANT SAFETY

12-24622 ALSO IN CATEGORY 18

KEWAUNEE PSAR AMENDMENT 1 - REVISED PAGES

WISCONSIN PUBLIC SERVICE CORPORATION

500 PAGES, TABLES, FIGURES, JANUARY 2, 1968, DOCKET 50-305, TYPE--PWR, MFG.--WEST., AE--PIONEER SERV.

AMENDMENT 1 CONSISTS OF REVISED AND NEW PAGES TO THE PSAR, AND A NEW VOL. III. CHAPTERS 5 AND 6 (CONTAINMENT AND ENGINEERING SAFEGUARDS) ARE COMPLETELY REVISED. CHANGES ARE MOSTLY DUE TO ELIMINATION OF EXTERNAL CONTAINMENT SPRAY.

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

CONTAINMENT SPRAY + KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR

12-24624 ALSO IN CATEGORY 17

MAINE YANKEE PSAR -- VOLUME I

MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE

750 PAGES, TABLES, FIGURES, REFERENCES, SEPTEMBER 27, 1967, DOCKET 50-309, TYPE--PWR, MFG.--C.E., AE--STONE + WEBSTER

VOL. 1 CONTAINS PART A (LICENSE APPLICATION INCLUDING DECISIONS ON STOCK-ISSUE PROCEEDINGS) AND PART B (PSAR CHAPTERS (1) GENERAL, (2) SITE, (3) REACTOR, (4) COOLANT SYSTEM, (5) CONTAINMENT, AND (6) ENGINEERED SAFEGUARDS). *** 2440-MWT/827-MWE PWR LOCATED 10 MILES FROM THE ATLANTIC AND 30 MILES NE OF PORTLAND. POWER DOPPLER EFFECT IS 1.6%. CLAIMED AS ENGINEERED SAFETY FEATURES ARE THE SAFETY-INJECTION SYSTEM (HIGH PRESS., LOW PRESS., AND 3 SAFETY-INJECTION TANKS) AND THE CONTAINMENT SPRAY SYSTEM. CONTAINMENT LEAKAGE IS CONTINUOUSLY MONITORED, USING THE ABSOLUTE METHOD.

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

BAILEY POINT (PWR) + CONTAINMENT, CONTINUOUS MONITORING SYSTEM + ENGINEERED SAFETY FEATURE + REACTOR, PWR + REPORT, PSAR

12-24787

CABIN FOR THE HANDLING OF RADIOACTIVE MATERIALS

SIEMENS-SCHUCKERTWERKE AKTIENGESELLSCHAFT

BRITISH PATENT 1,051,217 +. 5 PAGES, 7 FIGURES, DECEMBER 14, 1966

CATEGORY 12
PLANT SAFETY FEATURES

12-24787 *CONTINUED*

A CABIN USED IN HANDLING RADIOACTIVE MATERIALS IS DESCRIBED. WALLS OF THE CABIN SHIELD A WORKER FROM RADIOACTIVITY. MEANS FOR MOVING THE CABIN OVER A HORIZONTAL SURFACE IS PROVIDED. A FAN AND BLOWER SYSTEM IS ALSO PROVIDED WHICH ALLOWS THE CABIN TO MOVE, LIKE A HOVER CRAFT. AIR CONDITIONING AND PRESSURIZATION MEANS ARE PROVIDED. AIR-TIGHT GLOVES OR EXTERNALLY MOUNTED MANIPULATORS WHICH CAN BE ACTUATED MECHANICALLY, ELECTRICALLY, OR HYDRAULICALLY FROM INSIDE THE CABIN ALLOW THE OCCUPANT OF THE CABIN TO HANDLE RADIOACTIVE MATERIALS LOCATED OUTSIDE THE CABIN. THE CABINS ARE REMOVED THROUGH A DECONTAMINATION AREA TO ENSURE THE PROTECTION OF THE OCCUPANTS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS PER COPY)

*PATENT + *RADIATION SAFETY AND CONTROL + *REMOTE MANIPULATING AND VIEWING + EQUIPMENT DESIGN + MAINTENANCE, REMOTE + RADIOCHEMICAL PLANT SAFETY + SHIELDING + UNITED KINGDOM

12-24788

D-ARCY, J

HOT LABORATORIES

42 PAGES, FIGURES, TABLES, BRITISH NUCLEAR FORUM, 1966

THIS BOOK EXPLAINS IN GENERAL TERMS ONE OF THE BRANCHES OF THE NUCLEAR INDUSTRY IN THE U.K. CONTAINS CHAPTERS ON PHILOSOPHY OF HOT-LABORATORY DESIGN, SHIELDING, GLOVE BOXES, REMOTE HANDLING, VIEWING, MONITORING, VENTILATION, DECONTAMINATION, WASTE HANDLING, AND IN-CELL EQUIPMENT.

AVAILABILITY - BRITISH NUCLEAR FORUM, 21 TOTHILL STREET LONDON SW1, LONDON, ENGLAND

*HOT CELL + *UNITED KINGDOM + DECONTAMINATION + DESIGN CRITERIA + FILTER SYSTEM + GLOVE BOX + HOT LABORATORY + MONITOR, RADIATION, GENERAL + MONITOR, RADIATION, GENERAL PRACTICE + REMOTE MANIPULATING AND VIEWING + SHIELDING + VENTILATION SYSTEM + WASTE HANDLING

12-24789

BLYTHE HJ

PROCEEDINGS OF THE FIRST INTERNATIONAL SYMPOSIUM ON THE DECONTAMINATION OF NUCLEAR INSTALLATIONS ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL

437 PAGES, TABLES, FIGURES, HELD AT THE ATOMIC ENERGY RESEARCH ESTABLISHMENT HARWELL, ENGLAND, 4-6 MAY, 1966, CAMBRIDGE AT THE UNIVERSITY PRESS 1967

COLLECTION OF PAPERS ON GENERAL SUBJECT OF DECONTAMINATION, COVERING THE FOLLOWING GENERAL TOPICS - DECONTAMINATION AGENTS, SURFACES, REACTORS, DESIGN AND PLANNING, DECONTAMINATION CENTERS, MISCELLANEOUS DECONTAMINATION PROBLEMS, AND HEALTH-PHYSICS ASPECTS. INDIVIDUAL PAPERS COVER SUCH TOPICS AS PRINCIPLES OF DECONTAMINATION REACTIONS, DEVELOPMENT AND TESTING, COATINGS, OPERATING EXPERIENCE, AND ASSOCIATED HEALTH-PHYSICS PROBLEMS.

AVAILABILITY - SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS, 32 EAST 57TH ST. NEW YORK, N. Y. 10022

*DECONTAMINATION + *HARWELL + COATING, SURFACE + UNITED KINGDOM

12-24803

ALSO IN CATEGORY 13

PROTECTIVE COATING GUIDE - ENGINEERED FOR THE NUCLEAR ENERGY FIELD - CARBOLINE COMPANY, ST. LOUIS, MO.

63144

CARBOLINE COMPANY, ST. LOUIS, MISSOURI 63144

50 PAGES, TABLES, FIGURES, 1967

INDUSTRY PUBLICATION ON PROTECTIVE COATINGS FOR USE IN NUCLEAR FIELD. RECOMMENDS SYSTEMS FOR SEVERE EXPOSURES IN AREAS OF POSSIBLE RADIOACTIVE CONTAMINATION. CHEMICAL AND PHYSICAL CHARACTERISTICS GIVEN FOR IRRADIATION RESISTANCE, DECONTAMINATION PROPERTIES, DEMINERALIZED-WATER RESISTANCE, ABRASION RESISTANCE, IMPACT RESISTANCE. RECOMMENDED POINTS OF APPLICATION GIVEN FOR COMPANY PRODUCTS.

AVAILABILITY - CARBOLINE COMPANY, 32 HANLEY INDUSTRIAL COURT, ST. LOUIS, MO.

*FUEL STORAGE + *RADIOCHEMICAL PLANT SAFETY + COATING + COATING, SURFACE + CONTAINMENT PAINT + DECONTAMINATION + EQUIPMENT, GENERAL + SURFACE CONTAMINATION

12-24816

ALSO IN CATEGORY 17

MEHANN RO

NS SAVANNAH EMERGENCY COOLING SYSTEM FAILURE

FIRST ATOMIC SHIP TRANSPORT

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 29-30 (APRIL 8, 1968)

(LETTER, MAR. 15) ON MAR. 18 IN GENOA, DURING FLUSHING OF SALT-WATER DECAY-HEAT-REMOVAL CIRCUIT AFTER A SUCCESSFUL ROUTINE TEST, SALT-WATER INLET VALVE DK-IV DID NOT OPEN. REACTOR WAS SHUT DOWN, AND A FIRE HOSE WAS CONNECTED TO A FLUSHING VALVE. *** THE VALVE BONNET WAS REMOVED, SHOWING THAT THE STEM HAD CORRODED AWAY, ALLOWING DISK TO DROP AND CLOSING VALVE. VALVE REASSEMBLED WITHOUT DISK, TO BE FIXED IN N. Y. CITY. THIS VALVE WILL BE INCLUDED IN THE ANNUAL SEA-VALVE INSPECTION.

CATEGORY 12
PLANT SAFETY FEATURES

12-24816 *CONTINUED*

*FAILURE, EQUIPMENT + *SHUTDOWN COOLING SYSTEM + *VALVE + INCIDENT, EQUIPMENT + NS SAVANNAH (PWR) + REACTOR, MARITIME + REACTOR, PWR + TEST, SYSTEM OPERABILITY

12-24817 ALSO IN CATEGORIES 17 AND 10

COE RN

REPCRT ON SAN ONOFRE CABLE FIRE, MAR. 12, 1968

SOUTHERN CALIFORNIA EDISON COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 31-32 (APRIL 8, 1968), DOCKET 50-206

(LETTER, MAR. 21) AN OPERATOR WAS INVESTIGATING AN INTAKE-STRUCTURE LEVEL ALARM AND CALLED CONTROL ROOM AT 12/21 AM TO REPORT SMOKE AND A BLUE FLASH FROM NO. 2 480-V SWITCHGEAR ROOM. THE ROOM WAS SO FILLED WITH SMOKE THAT FAILURE COULD NOT BE DETERMINED. REACTOR SCRAMMED AT 12/34 AM. *** FOR A WHILE DURING COOLDOWN, BORIC ACID PUMP WAS INOPERABLE AND CHARGING PUMP HAD HIGH SUCTION PRESSURE. BOTH BORIC ACID TANK HEATERS WERE INOPERABLE. *** THREE CABLE TRAYS CONTAINING 750 CONDUCTORS WERE AFFECTED FOR A 15 FT LENGTH.

*ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + CONTAINMENT PENETRATION, ELECTRICAL + ELECTRIC POWER, SHUTDOWN + INDEPENDENCE + PUMP + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN SYSTEM, SECONDARY + TECHNICAL SPECIFICATIONS

12-25071 ALSO IN CATEGORY 13

VOGEL GJ + CARLS EL + MURPHY WA

LIFTING AN OBJECT CONTAINED IN A BAG

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

U.S. PATENT 3,358,857 +. 4 PAGES, SEPT. 19, 1967, PATENT (U.S.)

A SYSTEM FOR REMOVING CONTAMINATED MATERIAL FROM A GLOVE BOX WITH TWO HOOKS, EACH HAVING A BASE MEMBER IS DESCRIBED. ONE BASE MEMBER IS INTERNAL AND ONE IS EXTERNAL TO A BAG, WHICH IS SEALED TO A PORT IN THE GLOVE BOX, AND THE TWO BASE MEMBERS ARE CLAMPED TOGETHER BY MEANS EXTERNAL TO THE BAG. CONTAMINATED MATERIAL IS ATTACHED TO A HOOK ON THE BAG AND RAISED THROUGH THE PORT. THEN THE BAG IS SEALED AND SEVERED BETWEEN THE PORT AND THE CONTAMINATED MATERIAL.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.25 CENTS/COPY)

*GLOVE BOX + *RADIATION SAFETY AND CONTROL + *RADIOCHEMICAL PLANT SAFETY + CONTAINMENT AIR LOCK + CONTAINMENT EQUIPMENT HATCH + EQUIPMENT DESIGN + EQUIPMENT, GENERAL + PATENT

12-25072 ALSO IN CATEGORY 13

BASSO-BERT J + PESENTI P + REMOVILLE J

DETACHABLE AIR-TIGHT LOCK FOR HANDLING CELLS FOR DANGEROUS OPERATIONS

EUROPEAN ATOMIC ENERGY COMMUNITY

BRITISH PATENT 1,083,510 +. 3 PAGES, 1 FIGURE, SEPT. 13, 1967, PATENT (BRITISH)

A DETACHABLE AIR-TIGHT LOCK FOR ACCESS DOORS TO CELLS WHICH ARE USED FOR DANGEROUS MATERIALS IS DESCRIBED. THE LOCK CONSISTS OF A TENT WHICH IS FITTED OVER A DOOR AND DOORWAY INTO A CELL TO PROVIDE AN AIRLOCK OPEN AT TWO FACES AT RIGHT ANGLES. MEANS ARE PROVIDED FOR MAKING AIR-TIGHT JOINTS AROUND THE OPEN FACES TO THE DOORWAY AND THE FLOOR IN FRONT OF THE DOORWAY. THE TENT MAY BE MADE OF A PLASTIC MATERIAL SUCH AS POLYVINYL CHLORIDE AND MAY BE FIXED TO THE GROUND IN FRONT OF THE CELL DOOR ON TWO RAILS FOR A SECOND GAMMA PROTECTION DOOR.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTAINMENT AIR LOCK + *HOT CELL + *RADIATION SAFETY AND CONTROL + *RADIOCHEMICAL PLANT SAFETY + CONTAINMENT EQUIPMENT HATCH + EQUIPMENT DESIGN + EQUIPMENT, GENERAL + EURATOM + PATENT + UNITED KINGDOM

12-25074 ALSO IN CATEGORIES 18 AND 13

MERKER LG + BURNHAM JB + DEONIGI DE

COMPARATIVE COSTS OF OXIDE FUEL ELEMENTS. VOLUME 2. PROCESS FACILITY DESCRIPTION AND COST ESTIMATES BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-273(VOL.2) +. 77 PAGES, 4 FIGURES, 6 TABLES, 5 REFERENCES, DEC. 1966

CONCEPTUAL DESIGN STUDY OF FABRICATING 1-TON/DAY QUANTITIES OF REACTOR FUELS ENRICHED WITH UO₂ AND PUO₂, USING VIBRATORY COMPACTION AND PELLETING PROCESSES. ASSUMPTIONS WERE BASED ON PRESENT AND PROJECTED PROCESSES. GIVES PLANT DESCRIPTIONS, ESTIMATED COSTS FOR BUILDINGS, EQUIPMENT, SHIELDING CONCEPTUAL LAYOUTS, AND PROCESS FLOW SHEETS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *ECONOMIC STUDY + *FUEL ELEMENT + *FUEL, PELLET TYPE + *VIBRATORY COMPACTION + FABRICATION + FABRICATION FACILITY + GLOVE BOX + HANFORD SITE + PLUTONIUM DIOXIDE + RADIOCHEMICAL PLANT SAFETY + URANIUM DIOXIDE

CATEGORY 12
PLANT SAFETY FEATURES

12-25130 ALSO IN CATEGORY 13
CHULOS LE
SODIUM REMOVAL AND CLEANING OF REUSABLE HARDWARE
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-637 +. 12 PAGES, FIGURES, DEC. 1967

GIVES METHODS FOR CLEANING SODIUM-CONTAMINATED ARTICLES FOR REUSE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + *RADIOCHEMICAL PROCESSING + SODIUM

12-25131 ALSO IN CATEGORY 13
EGAWA H
STUDIES ON THE TREATMENT OF RADIOACTIVE WASTE WITH ION EXCHANGERS DERIVED FROM SAWDUST. I. PREPARATION OF
CATION EXCHANGERS AND REMOVAL OF RADIOACTIVE SR.
KUMAMOTO UNIV., JAPAN
5 PAGES, KUMAMOTO DAIGAKU KOGAKUBU KENKYU HOKOKU, 16, PAGE 18-22, (FEB. 1967), (IN JAPANESE)

TWO TYPES OF CATION EXCHANGER, CELL-P AND CELL-S, WERE PREPARED BY ESTERIFYING SAWDUST WITH
H₃PO₄ AND H₂SO₄, RESPECTIVELY, AND THEIR SEPARATION ABILITIES WERE INVESTIGATED FOR
RADIOACTIVE SR-89. THE PREPARATION OF CELL-P ARE GIVEN. AT PH 2 TO 4, 99.8 AND 99.3%
SEPARATIONS WERE OBTAINED FOR THE H-TYPE AND NA-TYPE EXCHANGERS, RESPECTIVELY. FOR THE
CELL-S-H TYPE EXCHANGER, THE SEPARATION ABILITY TENDED TO DECREASE RAPIDLY AT SALT
CONCENTRATIONS HIGHER THAN 200 MG/L, BUT FOR THE CELL-S-NA TYPE THE EFFICIENCY WAS MORE THAN
99.6% AT A SALT CONCENTRATION OF 1000 MG/L. OTHER TYPES OF EXCHANGERS ALSO SHOWED HIGHER
THAN 98% SEPARATION AT THE SALT CONCENTRATION OF 1000 MG/L.

*EXPERIMENT, GENERAL + *WASTE TREATMENT, EQUIPMENT + ION EXCHANGE + STRONTIUM

12-25132 ALSO IN CATEGORY 13
KODOYA S + MURAMATSU T
RADIOACTIVE EFFLUENT TREATMENT PLANT
EBARA MFG. CO., LTD., TOKYO
7 PAGES, EHARA JIHO, 15(59), PAGE 24-30, (SEPT. 1966), (IN JAPANESE)

A DESCRIPTION IS GIVEN OF THE ACTIVE EFFLUENT TREATMENT PLANT INSTALLED AT THE TOKAI ATOMIC
POWER STATION, INCLUDING ITS DESIGN AND CONSTRUCTION AND THE PROBLEMS INVOLVED. IN THE
DESIGN, A STUDY WAS MADE AS TO WHETHER THE PROCESS WOULD USE ADSORBENTS OR ION EXCHANGERS.

*REACTOR, POWER + *WASTE TREATMENT, EQUIPMENT + EVAPORATION + ION EXCHANGE + JAPAN

12-25154 ALSO IN CATEGORY 11
COSTES D
SAFETY SYSTEM FOR PRESSURE TUBE REACTORS
COMMISSARIAT A L-ENERGIE ATOMIQUE
BRITISH PATENT 1-086-349 +. 4 PAGES, 1 FIGURE, OCT. 11, 1967, PATENT (BRITISH)

THE PRIMARY-COOLING-CIRCUIT COMPONENTS AND AN OPEN-ENDED DISCHARGE DUCT FOR CONNECTING THE
CONTAINMENT VESSEL TO THE ATMOSPHERE HAVE A VOLUME AT LEAST EQUAL TO THAT OF THE GAS RELEASED
IN EVENT OF AN ACCIDENT WHEN THE GAS IS AT ATMOSPHERIC PRESSURE. ON A RUPTURE OF THE PRIMARY
CIRCUIT, THE GAS WILL EXPAND WITHIN THE OPEN CHAMBER BUT WILL THEN BE DRAWN THRU FILTERS AND
DISCHARGED UP A STACK BEFORE LEAVING THE OPEN-ENDED CHAMBER. THUS, THE CONTAINMENT VESSEL
MAY BE DESIGNED FOR ATMOSPHERIC PRESSURES.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C., 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTAINMENT, LOW PRESSURE + *CONTAINMENT, PRESSURE VENTING + *REACTOR, PRESSURE TUBE + FRANCE + PATENT +
REACTOR, GCR + UNITED KINGDOM

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-23221 ALSO IN CATEGORY 1
IBRAGIMOV SH + SYSCHIKOV LA
PROCEDURE FOR WORKING WITH RADIOACTIVE MATERIALS
3 PAGES, 3 FIGURES, 2 REFERENCES, INDUSTRIAL LABORATORY 30(2), PAGES 321-323 (1964)

PREPARATION OF SAMPLES OF IRRADIATED METALS (GRINDING, POLISHING AND ETCHING). MICROSTRUCTURAL INVESTIGATION, AND DETERMINATION OF THE MICROHARDNESS ARE CARRIED OUT BY REMOTE CONTROL IN TWO SPECIAL HOT CELLS. THE IRRADIATED SAMPLES ARE FED TO THE CELL BY A CONVEYER AND INSTALLED IN A SPECIAL CASING BY THE MANIPULATORS. COVERED WITH LOW-MELTING ALLOY OR SULFUR AND THEN GROUND AND POLISHED IN THE SPECIAL MACHINE. AFTER THE SECTIONS HAVE BEEN POLISHED, THEY ARE SUBJECTED TO ANODIC AND CHEMICAL ETCHING OR ELECTROPOLISHING AND THEN EXAMINED IN THE MMD-1 AT MAGNIFICATIONS OF 100 AND 200. THE FINISHED MICROSECTION IS TRANSFERRED BY TROLLEY TO THE METALLOGRAPHIC INVESTIGATION CHAMBER WHICH CONTAINS THE METALLOGRAPHIC MICROSCOPE AND DEVICE FOR MICROHARDNESS DETERMINATIONS. THE CONTROL SYSTEM OF THESE INSTRUMENTS IS LOCATED ON THE FRONT WALL OF THE CELL.

*HOT CELL + *RADIOCHEMICAL PLANT SAFETY + *TRANSPORTATION AND HANDLING + *USSR

13-23290 ALSO IN CATEGORIES 14 AND 15
COWSER KE + TADMOR J + JACOBS DG + BOEGLY WJ
EVALUATION OF ENVIRONMENTAL HAZARDS FROM RELEASE OF KR-85 AND H-3 IN AN EXPANDING NUCLEAR FUEL REPROCESSING INDUSTRY
HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 943, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PRESENT STUDIES ARE CONCERNED WITH ESTIMATES OF THE DOSE EQUIVALENTS TO MAN THAT MAY RESULT FROM THE COMPLETE RELEASE OF KR-85 AND H-3 DURING REPROCESSING OF SPENT REACTOR FUEL. BASED ON ESTIMATES OF THE FREE-WORLD NUCLEAR POWER GROWTH, THE WORLDWIDE DISTRIBUTION OF THESE RADIONUCLIDES IN YEAR 2000 MAY RESULT IN A TOTAL BODY DOSE RATE OF 1.8 MREM/YR FROM KR-85 AND A BODY TISSUE DOSE RATE OF 0.0021 MREM/YR FROM H-3. RISK TO THE WORLD'S POPULATION IS EVALUATED IN TERMS OF POTENTIAL EFFECT.

*DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *ENVIRONMENTAL CONDITION +
*WASTE DISPOSAL, GAS + FUEL REPROCESSING + KRYPTON + ORNL + RELEASE RATE + TRITIUM + WASTE TREATMENT, GAS

13-23729
BORDERSEN K + LARSON I
PILOT-PLANT VITRIFICATION OF SIMULATED RADIOACTIVE WASTE WITH HEAT PRODUCED BY SENDING ALTERNATING CURRENT THROUGH THE GLASS
DANISH ATOMIC ENERGY COMMISSION, RISØ
RISØ-150 +. 47 PAGES, REFERENCES, MAY 1967

DISCUSSES TWO PILOT PLANT PROCEDURES - DISCONTINUOUS METHOD OF MELTING IN A STAINLESS-STEEL CYLINDER USED FOR PERMANENT STORAGE, AND CONTINUOUS METHOD OF MELTING IN PERMANENT CERAMIC CHAMBER. REMOVAL IS CONTINUOUS BY OVERFLOW, WHICH IS COLLECTED IN STEEL CYLINDERS FOR DISPOSAL. CORROSION OF STAINLESS STEEL NO PROBLEM. CORROSION OF CERAMIC MATERIAL SERIOUS FOR LONG-TERM USE, ACCORDING TO PRESENT KNOWLEDGE. DESIGN FEATURES AND FUTURE DEVELOPMENTS ARE REVIEWED.

AVAILABILITY - MICROCARD EDITIONS, INC., ACCOUNTING AND SHIPPING DEPT., WEST SALEM, WISCONSIN 54669

*DENMARK + *RADIOCHEMICAL PLANT SAFETY + *WASTE TREATMENT, FIXATION + GLASS + RADIOCHEMICAL PROCESSING +
WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, LIQUID + WASTE HANDLING + WASTE TREATMENT, LIQUID

13-23752 ALSO IN CATEGORY 3
GUTMAN T
A SURFACE DENSITY EVALUATION OF CRITICAL ARRAY DATA
WESTINGHOUSE ELECTRIC CORP.
5 PAGES, 5 FIGURES, 12 REFERENCES, NUCLEAR APPLICATION 4(2) PAGE 121-125, (FEBRUARY 1968)

CORRELATIONS OF DATA CHARACTERIZING ARRAYS OF SUBCRITICAL UNITS THAT INTERACT TO RENDER WHOLE ARRAYS CRITICAL SHOW THAT THE RESULTING THICKNESS OF FISSILE MATERIAL SOLUTION CONTAINED IN AN ARRAY, WHEN SMEARED OVER THE BASE AREA OF THAT ARRAY, CAN BE COMPARED TO THE THICKNESS OF A SINGLE HOMOGENEOUS UNIT HAVING A COMPOSITION AND SHAPE SIMILAR TO THAT OF THE ARRAY. THE CORRELATIONS RESULTED IN CURVES THAT CAN BE USED TO PREDICT CRITICAL ARRAYS OF SOLUTIONS OR TO DETERMINE SAFE SPACING USING APPROPRIATE SAFETY FACTORS. ALTHOUGH THE SAME RELATIONSHIP BETWEEN ARRAY-SMEARED THICKNESS AND SINGLE-UNIT THICKNESS DOES NOT APPEAR TO APPLY TO METAL SYSTEMS, A USEFUL CURVE THAT GUIDES THE DETERMINATION OF CRITERIA FOR ADEQUATE SPACING IS DEVELOPED.

CRITICALITY EXPERIMENT + CRITICALITY SAFETY + FUEL STORAGE

13-24218 ALSO IN CATEGORY 3

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-24218 *CONTINUED*

MULOT P

THE HANDLING OF THE FUELS FOR RAPSODIE AND THE EFFECTS OF THE PRESENCE OF SODIUM
CEA, PARIS

7 PAGES, FIGURES, IND. AT., 11(5-6), PAGES 77-83 (1967) IN FRENCH

THE GENERAL ASPECTS OF THE HANDLING AND MAINTENANCE OF FUEL AND IRRADIATED ELEMENTS WITH THE
REACTOR RAPSODIE AND THE MAIN DIFFICULTIES ENCOUNTERED WITH THE EQUIPMENT USED FOR HANDLING
OF FUEL ASSEMBLIES IN THE PRESENCE OF NA ARE DISCUSSED.

FRANCE + FUEL HANDLING + REACTOR, FAST + SODIUM

13-24468

SERVAIS F

THE REPROCESSING OF IRRADIATED FUELS GAMMA AND NEUTRONS PROTECTION CALCULATIONS

SOCIETE BELGE POUR L'INDUSTRIE NUCLEAIRE, BRUSSELS

EURAC-1938 + EUR-3761 +. 27 PAGES, REFERENCES, OCTOBER 1967

STUDY OF CRITICALITY CALCULATIONS FOR CALCULATING RADIATION EMITTED BY REPROCESSING VESSELS
ASSUMED FILLED WITH PLUTONIUM FLUORIDE OR OXIDE AND TO DETERMINE BIOLOGICAL-SHIELDING
REQUIREMENTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *FUEL REPROCESSING + *RADIOCHEMICAL PROCESSING + *SHIELDING + PLUTONIUM +
PLUTONIUM OXIDE + RADIATION PROTECTION, CHEMICAL

13-24469

REPROCESSING OF IRRADIATED FUELS. QUARTERLY REPORT NO. 29, APRIL 1 - JUNE 30, 1967

CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE, MOL, BELGIUM

EURAC-1934 + EUR-3758 +. 86 PAGES, REFERENCES, JUNE 30, 1967

PROGRESS REPORT OF BASIC RESEARCH OF MIXED URANIUM AND PLUTONIUM OXIDES (CERAMIC FUELS) WITH
CLF3 AND CLF. ALSO, CHEMICAL DECANNING, REACTIONS ON UO2 PELLETS WITH CLF3 GAS, SEPARATION
AND PURIFICATION OF VOLATILE FLUORIDES, HOT-TECHNOLOGY STUDIES FOR PREPARATION OF SPECIMENS,
PLUTONIUM LABORATORY, AND SEMI-PILOT PLANT WORK.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*EURANIUM + *FUEL REPROCESSING + *RADIOCHEMICAL PROCESSING + EXPERIMENT, GENERAL + PLUTONIUM OXIDE +
URANIUM OXIDE + VOLATILITY PROCESS

13-24470

WEBSTER DS + JENNINGS AS + KISHBAUGH AA + BETHMANN HK

PERFORMANCE OF CENTRIFUGAL MIXER-SETTLER IN THE REPROCESSING OF NUCLEAR FUEL

SAVANNAH RIVER LABORATORY, AIKEN, S. C. + SAVANNAH RIVER PLANT

DP-MS-67-71 + CONF-671103-4 +. 19 PAGES, 8 REFERENCES, FROM 60TH ANNUAL MEETING OF THE AMERICAN INSTITUTE
OF CHEMICAL ENGINEERS, NEW YORK, OCT. 16, 1967

PAPER DISCUSSES DESIGN OF EQUIPMENT, TESTS, AND PERFORMANCE. ADVANTAGES CITED INCLUDE REDUCED
EXPOSURE OF SOLVENT TO RADIOLYTIC DEGRADATION, INCREASED NUCLEAR SAFETY, EASIER FLUSHING,
GREATER OPERATING FLEXIBILITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + EQUIPMENT DESIGN +
FISSION PRODUCT, SEPARATION FROM WASTE + RADIATION DAMAGE + SAVANNAH RIVER PLANT +
SOLVENT EXTRACTION PROCESS

13-24471

ALSO IN CATEGORY 12

BROWN CL + LAWRENCE LA

FFTF CRITICALITY SAFETY SYSTEM 72 - UNDERWATER EXAMINATION FACILITY FEASIBILITY OF USING A SOLUBLE POISON
FOR CRITICALITY CONTROL

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-594 +. 15 PAGES, 7 REFERENCES, SEPT. 1967

STUDY TO DETERMINE AMOUNT OF SOLUBLE SODIUM BORATE REQUIRED TO ENSURE CRITICALITY SAFETY.
MINIMUM CONCENTRATION CALCULATED - 3 G B/LITER (0.59 G B-10/LITER). TWO METHODS RECOMMENDED
TO ENSURE THAT BORON IS PRESENT ABOVE REQUIRED MINIMUM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY SAFETY + *FFTF (TR) + *RADIOCHEMICAL PLANT SAFETY + BORON + FUEL STORAGE + HANFORD SITE +
POISON, SOLUBLE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + WATER TREATMENT

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-24631 ALSO IN CATEGORY 17

PEGORS J

CORRESPONDENCE ON NFS AUGUST 1966 ACCIDENT

NUCLEAR FUEL SERVICE, HOPKINS, MINN.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 34-35 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO AEC JAN. 31, 1968.) REQUESTS INFORMATION ON AUGUST 29, 1966, ACCIDENT (REPORTED TO BE A RESULT OF SEVERAL ENGINEERING AND DESIGN ERRORS), CORRECTIVE MEASURES FOR FUTURE PLANTS, AND MEASURES TO PROTECT PEOPLE DOWNSTREAM OF THIS PLANT. (COMPLIANCE REPLY, MARCH 16) ON AUGUST 29, A TRUCK ROLLED DOWN HILL AND SEVERED STEAM, WATER, AND AIR LINES WITHOUT INJURY OR RELEASE. ON AUGUST 30, 75 GAL OF CONDENSATE WAS TRANSFERRED TO AN UNSHIELDED CELL BECAUSE OF OPERATOR ERROR, WITHOUT EXPOSURE OR RELEASE. MODIFICATIONS WERE MADE TO THE SYSTEM. ***10 CFR 50 PROVIDES FOR AEC DESIGN REVIEW. AEC INSPECTIONS ARE MADE DURING OPERATION.

*INCIDENT, HUMAN ERROR + *RADIATION, PUBLIC EDUCATION/ACCEPTANCE + FUEL REPROCESSING + INSPECTION AND COMPLIANCE + NFS + SAFETY REVIEW

13-24632 ALSO IN CATEGORIES 17 AND 7

AEC-NFS CORRESPONDENCE ON NFS FILTER SYSTEM PROBLEMS

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 33-34 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO COMPLIANCE, MARCH 22.) DISSOLVER OPERATIONS SUSPENDED AS DISSOLVER OFF-GAS FILTER FAILURES AND REPLACEMENTS ALLOWED MONTHLY RELEASE OF PARTICLES TO REACH 115%. (REPORT TO COMPLIANCE, MARCH 24) FILTER FAILURES DUE TO RADIATION WEAKENING ORGANIC BINDER OR GASKETS. (MARCH 26 TWX FROM COMPLIANCE) CONDITIONAL AUTHORIZATION TO RESUME OPERATIONS. (APRIL 2 LETTER FROM COMPLIANCE) LISTS 5 QUESTIONS TO BE ANSWERED IN REPORT - (1) CONSEQUENCES OF A PUFF RELEASE OF 100% OF MATERIAL IN FILTER. (2) MAXIMUM AMOUNT POSSIBLE ON FILTERS. (3) RADIATION-DAMAGE EFFECTS. (4) POSSIBILITY OF CHEMICAL AGENTS TRANSPORTED TO THE FILTER. (5) DO RADIATION/CHEMICAL AFFECTS AGGRAVATE EACH OTHERS EFFECTS.

*AIRBORNE RELEASE + *FILTER, DAMAGED + AEC QUESTION + EFFLUENT + FUEL REPROCESSING + HAZARDS ANALYSIS + INSPECTION AND COMPLIANCE + NFS + RADIATION DAMAGE + STACK

13-24633 ALSO IN CATEGORIES 17 AND 14

LUMB RF

CRITICISM OF RCSI BULLETIN 2 ON NFS SR-90 EFFLUENT

WESTERN N.Y. NUCLEAR RESEARCH CENTER, INC.

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 10-12 (APRIL 15, 1968)

(LETTER TO GEORGE BERG, ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION, DATED FEB. 28.) CRITICIZES RELEASE OF CONCLUSIONS TO THE PRESS, APPARENTLY WITHOUT ADEQUATE PROFESSIONAL REVIEW, AS BEING IRRESPONSIBLE BY TENDING TO MISLEAD PUBLIC RATHER THAN INFORM. HIS CONCLUSION IS THAT THE REPORT REFLECTS INCORRECTLY ANALYZED DATA, CONTAINS ERRORS OF FACT, AND ARRIVES AT INCORRECT CONCLUSIONS. (DISCUSSION FOLLOWS). CLOSING COMMENT POINTS OUT TRESPASSING IN OBTAINING SAMPLES, VIOLATION OF LAWS IN POSSESSING AND HANDLING RADIOACTIVITY WITHOUT LICENSE, AND NEED TO CHECK SAMPLERS HOME FOR CONTAMINATION. AUTHOR REGRETS NEWSPAPERS WILL PRINT THIS LETTER ON BACK PAGES.

DILUTION + EFFLUENT + FUEL REPROCESSING + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + WASTE DISPOSAL, LIQUID

13-24635 ALSO IN CATEGORIES 17 AND 14

COMPLIANCE INVESTIGATION OF ALLEGED NFS EXCESSIVE DISCHARGE OF SR-90 IN LIQUID EFFLUENT

U.S. ATOMIC ENERGY COMMISSION

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 3-5 (APRIL 15, 1968)

PUBLIC RELEASE OF A REPORT BY ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION CHARGING NFS CAUSED A FEB. 27-29, 1968, INVESTIGATION. ON DEC. 16, 1967, AN RCSI AGENT SAMPLED BUTTERMILK CREEK AND THE NFS LAGOON DISCHARGE PIPE AFTER ENTERING A GAP IN THE FENCE. THE AEC-NYOO HEALTH AND SAFETY LABORATORY FIRST SAID THE SAMPLES CONTAINED 3.6 AND 0.28 MICROCURIE/LITER, AND THESE WERE QUOTED IN FEB. 25 NEWSPAPERS. A RECHECK BY HASL GAVE ONLY 0.0869 AND 0.004. NFS LOGS INDICATE A CONTROLLED RELEASE THAT DATE, BUT WITH ADEQUATE DILUTION FACTOR (4000). ORIGINAL RCSI BULLETIN USED OLD LIMIT OF 100, WHILE NEWEST LIMIT IS 0.3 MICROCURIE/LITER. INVESTIGATION SHOWED LIMITS BEING MET.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + *WASTE DISPOSAL, LIQUID + DILUTION + EFFLUENT + FUEL REPROCESSING + INSPECTION AND COMPLIANCE + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS

13-24762 ALSO IN CATEGORY 3

BUCCI P

PU IN NUCLEAR REACTORS. V. SAFETY PROBLEMS IN THE HANDLING AND PROCESSING OF PU

WILLIAM H. JOHNSON LAB., INC.

8 PAGES, ING. NUCL., 7(3-4-5-6), PAGE 31-38, (MAY-DEC. 1966), (IN ITALIAN)

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-24762 *CONTINUED*

THE TOXICITY OF PU AND THE MAXIMUM PERMISSIBLE CONCENTRATION OF ITS ISOTOPES IN AIR ARE DISCUSSED. THE METHOD ADOPTED FOR HANDLING AND PROCESSING OF PU IS PRINCIPALLY GLOVE BOXES. THE CIRCUMSTANCES UNDER WHICH THESE MAY BE USED ARE DISCUSSED. ADDITIONAL PRECAUTIONS TO BE TAKEN IN THE HANDLING OF PU ARE TABULATED.

GLOVE BOX + ITALY + PLUTONIUM + SAFETY PRINCIPLES AND PHILOSOPHY

13-24786

BLAKE CA

SOLVENT STABILITY IN NUCLEAR FUEL PROCESSING. EVALUATION OF THE LITERATURE, CALCULATION OF RADIATION DOSE, AND EFFECTS OF IODINE AND PLUTONIUM
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-4212 +. 35 PAGES, 4 TABLES, 36 REFERENCES, MARCH 1968

SECTION OF REPORT REVIEWS BEHAVIOR OF IODINE IN THE PROCESSING OF SHORT-COOLED FUELS BY SOLVENT EXTRACTION (PG. 23 THRU 26). REFERENCES GIVEN TO PAST SHORT-COOLED FUEL PROCESSING.

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

*IODINE + *RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + DISSOLUTION + FUEL REPROCESSING +
IODIDE + ORNL + PLUTONIUM + SOLVENT EXTRACTION PROCESS + THORIUM + UNITED KINGDOM + URANIUM

13-24803

ALSO IN CATEGORY 12

PROTECTIVE COATING GUIDE - ENGINEERED FOR THE NUCLEAR ENERGY FIELD - CARBOLINE COMPANY, ST. LOUIS, MO.
63144

CARBOLINE COMPANY, ST. LOUIS, MISSOURI 63144
50 PAGES, TABLES, FIGURES, 1967

INDUSTRY PUBLICATION ON PROTECTIVE COATINGS FOR USE IN NUCLEAR FIELD. RECOMMENDS SYSTEMS FOR SEVERE EXPOSURES IN AREAS OF POSSIBLE RADIOACTIVE CONTAMINATION. CHEMICAL AND PHYSICAL CHARACTERISTICS GIVEN FOR IRRADIATION RESISTANCE, DECONTAMINATION PROPERTIES, DEMINERALIZED-WATER RESISTANCE, ABRASION RESISTANCE, IMPACT RESISTANCE. RECOMMENDED POINTS OF APPLICATION GIVEN FOR COMPANY PRODUCTS.

AVAILABILITY - CARBOLINE COMPANY, 32 HANLEY INDUSTRIAL COURT, ST. LOUIS, MO.

*FUEL STORAGE + *RADIOCHEMICAL PLANT SAFETY + COATING + COATING, SURFACE + CONTAINMENT PAINT +
DECONTAMINATION + EQUIPMENT, GENERAL + SURFACE CONTAMINATION

13-25071

ALSO IN CATEGORY 12

VOGEL GJ + CARLS EL + MURPHY WA

LIFTING AN OBJECT CONTAINED IN A BAG

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

U.S. PATENT 3,358,857 +. 4 PAGES, SEPT. 19, 1967, PATENT (U.S.)

A SYSTEM FOR REMOVING CONTAMINATED MATERIAL FROM A GLOVE BOX WITH TWO HOOKS, EACH HAVING A BASE MEMBER IS DESCRIBED. ONE BASE MEMBER IS INTERNAL AND ONE IS EXTERNAL TO A BAG, WHICH IS SEALED TO A PORT IN THE GLOVE BOX, AND THE TWO BASE MEMBERS ARE CLAMPED TOGETHER BY MEANS EXTERNAL TO THE BAG. CONTAMINATED MATERIAL IS ATTACHED TO A HOOK ON THE BAG AND RAISED THROUGH THE PORT. THEN THE BAG IS SEALED AND SEVERED BETWEEN THE PORT AND THE CONTAMINATED MATERIAL.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.25 CENTS/COPY)

*GLOVE BOX + *RADIATION SAFETY AND CONTROL + *RADIOCHEMICAL PLANT SAFETY + CONTAINMENT AIR LOCK +
CONTAINMENT EQUIPMENT HATCH + EQUIPMENT DESIGN + EQUIPMENT, GENERAL + PATENT

13-25072

ALSO IN CATEGORY 12

BASSO-BERT J + PESENTI P + REMOVILLE J

DETACHABLE AIR-TIGHT LOCK FOR HANDLING CELLS FOR DANGEROUS OPERATIONS

EUROPEAN ATOMIC ENERGY COMMUNITY

BRITISH PATENT 1,083,510 +. 3 PAGES, 1 FIGURE, SEPT. 13, 1967, PATENT (BRITISH)

A DETACHABLE AIR-TIGHT LOCK FOR ACCESS DOORS TO CELLS WHICH ARE USED FOR DANGEROUS MATERIALS IS DESCRIBED. THE LOCK CONSISTS OF A TENT WHICH IS FITTED OVER A DOOR AND DOORWAY INTO A CELL TO PROVIDE AN AIRLOCK OPEN AT TWO FACES AT RIGHT ANGLES. MEANS ARE PROVIDED FOR MAKING AIR-TIGHT JOINTS AROUND THE OPEN FACES TO THE DOORWAY AND THE FLOOR IN FRONT OF THE DOORWAY. THE TENT MAY BE MADE OF A PLASTIC MATERIAL SUCH AS POLYVINYL CHLORIDE AND MAY BE FIXED TO THE GROUND IN FRONT OF THE CELL DOOR ON TWO RAILS FOR A SECOND GAMMA PROTECTION DOOR.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (\$0.49 CENTS/COPY)

*CONTAINMENT AIR LOCK + *HOT CELL + *RADIATION SAFETY AND CONTROL + *RADIOCHEMICAL PLANT SAFETY +
CONTAINMENT EQUIPMENT HATCH + EQUIPMENT DESIGN + EQUIPMENT, GENERAL + EURATOM + PATENT + UNITED KINGDOM

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25074 ALSO IN CATEGORIES 12 AND 18
MERKER LG + BURNHAM JB + DEONIGI DE
COMPARATIVE COSTS OF OXIDE FUEL ELEMENTS. VOLUME 2. PROCESS FACILITY DESCRIPTION AND COST ESTIMATES
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-273(VOL.2) +. 77 PAGES, 4 FIGURES, 6 TABLES, 5 REFERENCES, DEC. 1966

CONCEPTUAL DESIGN STUDY OF FABRICATING 1-TON/DAY QUANTITIES OF REACTOR FUELS ENRICHED WITH UG2
AND PUO2, USING VIBRATORY COMPACTION AND PELLETING PROCESSES. ASSUMPTIONS WERE BASED ON
PRESENT AND PROJECTED PROCESSES. GIVES PLANT DESCRIPTIONS, ESTIMATED COSTS FOR BUILDINGS,
EQUIPMENT, SHIELDING CONCEPTUAL LAYOUTS, AND PROCESS FLOW SHEETS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *ECONOMIC STUDY + *FUEL ELEMENT + *FUEL, PELLET TYPE + *VIBRATORY COMPACTION +
FABRICATION + FABRICATION FACILITY + GLOVE BOX + HANFORD SITE + PLUTONIUM DIOXIDE +
RADIOCHEMICAL PLANT SAFETY + URANIUM DIOXIDE

13-25078 ALSO IN CATEGORY 9
HOLLADAY JH + KNOWLES DJ
DESCRIPTION OF PROCESS RADIATION MONITORING INSTRUMENTATION IN THE TRANSURANIUM PROCESSING PLANT, BUILDING
7920
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-1774 +. 19 PAGES, FIGURES, TABLES, JAN. 25, 1968

RADIATION MONITORS WERE INSTALLED IN THE TRANSURANIUM PROCESSING PLANT, BUILDING 7920, TO
PROVIDE CONTINUOUS SURVEILLANCE OF PROCESS EQUIPMENT AND AREAS. THESE INSTRUMENTS,
INDICATING AT THE CENTRAL RADIATION MONITORING PANEL, ARE FOR PROCESS ANALYSIS AND CONTROL
AND ARE SEPARATE FROM THE FACILITY RADIATION AND CONTAMINATION ALARM SYSTEMS (SYSTEMS FOR
PROTECTION OF PERSONNEL WORKING WITHIN THE BUILDING). THE EQUIPMENT USED AND THE OVERALL
OPERATION OF THE SYSTEMS ARE DESCRIBED.

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

*INSTRUMENTATION, RADIATION MONITORING + *MONITORING SYSTEM, RADIATION + *PLANT PROTECTIVE SYSTEM +
MONITOR, RADIATION, AIR + MONITOR, RADIATION, GAS + MONITOR, RADIATION, LIQUID +
MONITOR, RADIATION, STACK + ORNL + RADIOCHEMICAL PLANT SAFETY + TRANSURANIUM PROGRAM

13-25130 ALSO IN CATEGORY 12
CHULGS LE
SODIUM REMOVAL AND CLEANING OF REUSABLE HARDWARE
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-637 +. 12 PAGES, FIGURES, DEC. 1967

GIVES METHODS FOR CLEANING SODIUM-CONTAMINATED ARTICLES FOR REUSE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DECONTAMINATION + *RADIOCHEMICAL PROCESSING + SODIUM

13-25131 ALSO IN CATEGORY 12
EGAWA H
STUDIES ON THE TREATMENT OF RADIOACTIVE WASTE WITH ION EXCHANGERS DERIVED FROM SAWDUST. I. PREPARATION OF
CATION EXCHANGERS AND REMOVAL OF RADIOACTIVE SR.
KUMAMOTO UNIV., JAPAN
5 PAGES, KUMAMOTO DAIGAKU KOGAKUBU KENKYU HOKOKU, 16, PAGE 18-22, (FEB. 1967), (IN JAPANESE)

TWO TYPES OF CATION EXCHANGER, CELL-P AND CELL-S, WERE PREPARED BY ESTERIFYING SAWDUST WITH
H3PO4 AND H2SO4, RESPECTIVELY, AND THEIR SEPARATION ABILITIES WERE INVESTIGATED FOR
RADIOACTIVE SR-89. THE PREPARATION OF CELL-P ARE GIVEN. AT PH 2 TO 4, 99.8 AND 99.3%
SEPARATIONS WERE OBTAINED FOR THE H-TYPE AND NA-TYPE EXCHANGERS, RESPECTIVELY. FOR THE
CELL-S-H TYPE EXCHANGER, THE SEPARATION ABILITY TENDED TO DECREASE RAPIDLY AT SALT
CONCENTRATIONS HIGHER THAN 200 MG/L, BUT FOR THE CELL-S-NA TYPE THE EFFICIENCY WAS MORE THAN
99.6% AT A SALT CONCENTRATION OF 1000 MG/L. OTHER TYPES OF EXCHANGERS ALSO SHOWED HIGHER
THAN 98% SEPARATION AT THE SALT CONCENTRATION OF 1000 MG/L.

*EXPERIMENT, GENERAL + *WASTE TREATMENT, EQUIPMENT + ION EXCHANGE + STRONTIUM

13-25132 ALSO IN CATEGORY 12
KODOYA S + MURAMATSU T
RADIOACTIVE EFFLUENT TREATMENT PLANT
EBARA MFG. CO., LTD., TOKYO

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25132 *CONTINUED*
7 PAGES, EHARA JIHO, 15(59), PAGE 24-30, (SEPT. 1966), (IN JAPANESE)

A DESCRIPTION IS GIVEN OF THE ACTIVE EFFLUENT TREATMENT PLANT INSTALLED AT THE TOKAI ATOMIC POWER STATION, INCLUDING ITS DESIGN AND CONSTRUCTION AND THE PROBLEMS INVOLVED. IN THE DESIGN, A STUDY WAS MADE AS TO WHETHER THE PROCESS WOULD USE ADSORBENTS OR ION EXCHANGERS.

*REACTOR, POWER + *WASTE TREATMENT, EQUIPMENT + EVAPORATION + ION EXCHANGE + JAPAN

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-09100 ALSO IN CATEGORY 16

MAMURO T

PHYSICO-CHEMICAL PROPERTIES OF FALLOUT PARTICLES IN RELATION TO BURST CONDITIONS

RADIATION CENTER OF OSAKA PREFECTURE, SHINKECHO 704, SAKAI-SHI, OSAKA (JAPAN)

6 PAGES, 3 FIGURES, 2 TABLES, 18 REFERENCES, ATOMPRAXIS 14(1), PAGE 24 THRU 28, (JAN. 1968)

PHYSICO-CHEMICAL PROPERTIES OF HIGHLY RADIOACTIVE FALLOUT PARTICLES COLLECTED IN JAPAN SHORTLY AFTER SOVIET OR CHINESE NUCLEAR EXPLOSIONS ARE DESCRIBED AND DISCUSSED BRIEFLY IN RELATION TO BURST CONDITIONS. CONSIDERABLE DIFFERENCES ARE FOUND BETWEEN FALLOUT PARTICLES FROM AIR BURSTS AND THOSE FROM SURFACE BURSTS (SHAPE, COLOR, MATRIX MATERIAL, SPECIFIC ACTIVITY, RELATION BETWEEN THE INITIAL ATOM NUMBER OF THE RADIONUCLIDE AND THE PARTICLE VOLUME, RADIONUCLIDE FRACTIONATION, AND U AND PU CONTENT).

*AEROSOL, RADIOACTIVE + *NUCLEAR EXPLOSION DEBRIS + *RADIOCHEMICAL ANALYSIS + FALLOUT + JAPAN

14-21183

A STUDY OF FISSION PRODUCT LEVELS AND METABOLISM IN FOOD PRODUCING ANIMALS AS DETERMINED BY WHOLE BODY COUNTING. PROGRESS REPORT, AUGUST 16, 1966--AUGUST 15, 1967

ILLINOIS UNIVERSITY, URBANA

COO-1339-16 +. 18 PAGES, AUGUST 15, 1967

THE INVESTIGATION INCLUDES KINETIC STUDIES OF CALCIUM METABOLISM IN GOATS, THE RETENTION OF SR IN PIGS AS A FUNCTION OF AGE, DIETARY CA, P LEVELS AND BREED, AND OF CS-137 METABOLISM IN CATTLE, SHEEP, AND SWINE.

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *RADIOBIOLOGY + CALCIUM + CESIUM + STRONTIUM

14-21934

HEALTH PHYSICS DIVISION ANNUAL PROGRESS REPORT FOR PERIOD ENDING JULY 31, 1967. PART II. RADIATION ECOLOGY.

OAK RIDGE NATIONAL LAB., TENN.

CRNL-4168 +. 56 PAGES, 33 FIGURES, 18 TABLES, 78 REFERENCES, PAGE 63-118, OCTOBER 1967

RESEARCH IS REPORTED ON THESE SUBJECTS - (CHAP. 9) RESPONSES OF ANIMAL POPULATION TO IONIZING RADIATION, (10) RESPONSE OF PLANTS TO IONIZING RADIATION, (11) RADIONUCLIDE CYCLING IN TERRESTRIAL ECOSYSTEMS, (12) RADIONUCLIDE CYCLING IN AQUATIC ECOSYSTEMS, (13) WATERSHED AQUATIC HABIT INTERACTIONS, (14) THEORETICAL AND SYSTEMS ECOLOGY, (15) FOREST MANAGEMENT.

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

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *BIOLOGICAL CONCENTRATION, GENERAL + *DOSE + *ENERGY SOURCE + *GEOLOGICAL CONSIDERATION, GEOCHEMICAL + *RADIATION DAMAGE + *RADIOBIOLOGY + *WATER, GENERAL + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + CESIUM + CESIUM + COBALT + DOSE MEASUREMENT, EXTERNAL + DOSE MEASUREMENT, INTERNAL + ECOLOGICAL CONSIDERATION + ENERGY LEVEL + ORNL + POTASSIUM + RADIOISOTOPE + RUTHENIUM + SODIUM + TUNGSTEN

14-21955 ALSO IN CATEGORY 15

THE ENVIRONMENT SHOULD BE USED FOR WASTE DISPOSAL AS MUCH AS HEALTH CONSIDERATIONS WILL ALLOW
1 PAGE, CHEM. AND ENGRG, NEWS 44(34), PAGE 11, (AUGUST 22, 1966)

SPOKESMAN FOR THE MANUFACTURING CHEMISTS ASSOCIATION MADE THE STATEMENT TO THE HOUSE SUBCOMMITTEE ON SCIENCE, RESEARCH, AND DEVELOPMENT. THE STATEMENT WAS NOT FAVORABLY RECEIVED. RADIOACTIVE WASTE WAS NOT MENTIONED.

*ENVIRONMENTAL CONDITION + *WASTE DISPOSAL, GENERAL

14-21956 ALSO IN CATEGORY 15

HARRISON GE + RUNDO J

ASSESSMENT OF BODY CONTENT OF RADIOACTIVE STRONTIUM FOLLOWING CONTAMINATION IN ADULT MEN GREAT BRITAIN. MEDICAL RESEARCH COUNCIL + UKAEA, BERKS (HARWELL)

2 PAGES, 1 FIGURE, 2 TABLES, 6 REFERENCES, NATURE 211(5050), PAGE 774-775, (AUGUST 13, 1966)

ASSESSMENT OF THE BODY CONTENT OF HUMANS AFTER AN ACCIDENT INVOLVING RADIOACTIVE SR IS OF VITAL CONCERN. SIMPLE MATHEMATICAL RELATIONSHIPS HAVE BEEN DEVELOPED BETWEEN URINARY EXCRETION AND INJECTED OR INGESTED STRONTIUM. DATA ARE PRESENTED SHOWING THE VALIDITY OF THE RELATIONSHIPS.

*ACCIDENT, GENERAL + *ACCIDENT, NONNUCLEAR + *RADIOBIOLOGY + BIOMEDICAL + HARWELL + INGESTION + STRONTIUM + UNITED KINGDOM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23207 ALSO IN CATEGORY 15

THOMPSON RC

PROPERTIES OF RADIONUCLIDES IN TISSUES. A NEW LOOK AT SOME OLD PROBLEMS

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-SA-1252 + CONF-670521-6 +. 7 PAGES, MAY 8, 1967, FROM SYMPOSIUM ON DIAGNOSIS AND TREATMENT OF DEPOSITED RADIONUCLIDES, RICHLAND, WASHINGTON

THIS PAPER POINTS OUT A NUMBER OF RECENT DEVELOPMENTS IN THE FIELD OF RADIONUCLIDES IN TISSUES AND GIVES SOME SENSE OF THE DIRECTION IN WHICH WE ARE MOVING. OUR PAPER CONSIDERS NOT JUST ONE SINGLE RADIONUCLIDE BUT COMPARES THE BEHAVIOR OF A GROUP OF CHEMICALLY SIMILAR ACTINIDES. ANOTHER PAPER CLARIFIES SOME OF THE COMPLEXITIES OF PLUTONIUM METABOLISM AND ALSO A CONSIDERATION OF THE EFFECT OF DIFFERENT SIZED POLYMER PARTICLES. SIMILARLY, ANOTHER PAPER HELPS CLARIFY THE MECHANISM OF DISTRIBUTION OF PARTICULATE PLUTONIUM BY PHAGOCYTIC PROCESS. A FINAL PAPER DISCUSSES SOME OF THE COMPLICATIONS INTRODUCED BY PREGNANCY. SOME OBSERVATIONS ARE PRINTED OUT RELATIVE TO TREATMENT OF RATS AND SWINE WITH STRONTIUM.

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *BIOLOGICAL CONCENTRATION, MAN + *INHALATION + *RADIONUCLIDE, INDUCED + PARTICLE SIZE DISTRIBUTION + PARTICULATE + PLUTONIUM + STRONTIUM

14-23210 ALSO IN CATEGORY 15

DUNHAM CL

MEDICAL IMPLICATIONS OF RADIOACTIVE FALLOUT

ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

5 PAGES, 3 FIGURES, 3 TABLES, REFERENCES, TRIANGLE, SANDOX J. MED. SCI., 7, PAGES 44-48 (1965)

THE LEVELS OF FALLOUT RADIONUCLIDES IN THE BIOSPHERE, EXPOSURE OF THE POPULATION, AND AN ESTIMATION OF POSSIBLE EFFECTS AND THE RISK INVOLVED ARE REVIEWED. UP TO THE END OF 1962, ATOMIC WEAPONS, WITH 511 MT OF TNT EXPLOSIVE EQUIVALENT, DETONATED IN THE AIR OR ON THE SURFACE OF THE EARTH, RELEASED TO THE ENVIRONMENT ABOUT 20 MILLION CI OF SR-90. IT WAS SUGGESTED THAT A SINGLE DOSE OF ONE RAD TO EACH INDIVIDUAL IN AN ENTIRE POPULATION WAS NOT GOING TO INCREASE THE INCIDENCE OF LEUKEMIA BY MORE THAN ONE OR TWO CASES PER MILLION PER YR IN THE FOLLOWING 15 YR PERIOD. EXPOSURES TO FALLOUT FROM NUCLEAR WEAPONS TESTS WERE, FOR THE MOST PART, AT PEAK DOSE RATES OF LESS THAN 1 RAD PER DAY. NOTABLE EXCEPTIONS WERE THE RONGELAP ISLANDERS, THE CREW OF A JAPANESE FISHING BOAT, WHO RECEIVED RELATIVELY HIGH DOSES. THERE WERE ALSO A FEW PERSONS LIVING IN THE VICINITY OF THE NEVADA TEST SITE WHO RECEIVED A FEW RADS EXPOSURE IN ONE DAY. COMPARED TO THE ESTIMATED EFFECTS OF NATURAL ENVIRONMENTAL RADIOACTIVITY, THE ADDED RISKS FROM FALLOUT WERE CONSIDERED TO BE SMALL.

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *POPULATION EXPOSURE + *RADIOACTIVITY RELEASE + DOSE + NUCLEAR DETONATION + PERSONNEL EXPOSURE, RADIATION

14-23216

MILES ME + MANGENO JJ

DISPOSAL OF RADIOACTIVE WASTES FROM U.S. NAVAL NUCLEAR-POWERED SHIPS AND THEIR SUPPORT FACILITIES, 1966

DEPARTMENT OF THE NAVY, U. S. DEPT. OF HEALTH

3 PAGES, 2 TABLES, 1 REFERENCE, RADIOLOGICAL HEALTH DATA AND REPORTS 8(12), PAGES 695-701 (DECEMBER 1967)

SUMMARIZES DATA ON DISPOSAL OF RADIOACTIVE WASTES FROM U.S. NAVAL NUCLEAR POWERED SHIPS AND SUPPORT FACILITIES, AND ON ENVIRONMENTAL MONITORING. THE TOTAL LONG-LIVED RADIOACTIVITY IN LIQUID WASTE DISCHARGES WAS 0.39 CURIE IN ALL HARBORS IN 1966, COMPARED WITH 5.38 CURIES DURING 1965.

*WASTE DISPOSAL, LIQUID + ESTUARY + OCEAN AND SEA + WASTE DISPOSAL, RIVER

14-23218 ALSO IN CATEGORY 15

RADIOLOGICAL HEALTH DATA AND REPORTS

U.S. DEPARTMENT OF HEALTH

37 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(12), PAGES 703-739 (DECEMBER 1967)

THE EXPOSURE TO MAN FROM ENVIRONMENTAL RADIATION SOURCES CENTERS PRIMARILY IN THE DIET. DATA FROM SELECTED NATIONAL, INTERNATIONAL, AND STATE MILK- AND FOOD-SURVEILLANCE ACTIVITIES ARE PRESENTED. SIMILAR DATA ON WATER-SAMPLING ACTIVITIES ARE REPORTED. ANOTHER SECTION OF THE REPORT DEALS WITH RADIOACTIVITY IN AIRBORNE PARTICLES AND PRECIPITATION. OTHER DATA INCLUDED ARE THOSE OBTAINED FROM HUMAN-BONE SAMPLING, BOVINE-THYROID SAMPLING, ALASKAN SURVEILLANCE, AND ENVIRONMENTAL MONITORING IN THE VICINITY OF NUCLEAR FACILITIES.

*BIOLOGICAL CONCENTRATION, MAN + *BIOLOGICAL CONCENTRATION, MILK + *MONITOR, RADIATION, ENVIRONMENTAL + *SURFACE WATER, DISPOSAL MEDIA + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23246 ALSO IN CATEGORY 15

HOLLAND WD + VOLCHOK HL

THE DETERMINATION OF SIZES OF SNAP-9A ABLATION PARTICLES COLLECTED AT HIGH ALTITUDES

TRACERLAB DIVISION OF LABORATORY FOR ELECTRONICS, RICHMOND, CALIFORNIA + UNITED STATES ATOMIC ENERGY COMMISSION, HEALTH AND SAFETY LAB., NEW YORK

2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 926 AND 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

HIGH-ALTITUDE SAMPLES KNOWN TO CONTAIN PU-238 FROM THE SNAP-9A SATELLITE FAILURE OF APRIL 1964 WERE INVESTIGATED TO DETERMINE THE SIZE AND COMPOSITION OF THESE ABLATION PARTICLES. TO ASSIST LOCATION OF THE PARTICLES FOR ELECTRON MICROSCOPY, A NEW RADIOAUTOGRAPHIC METHOD, THE HOLLOW-STAR TECHNIQUE, WAS DEVELOPED. USING THIS TECHNIQUE, AN ABLATION PARTICLE WITH AN EQUIVALENT 238PUO2 DIAMETER OF 0.2 MICRON WAS FOUND.

*PARTICLE, RADIOACTIVE + *SPACECRAFT + AIRBORNE RELEASE + PLUTONIUM + REACTOR, SPACE + SNAP 9 (SR)

14-23247 ALSO IN CATEGORY 15

HOLLEY WL + MCKELVEY JW + EVERETT RJ

METHODS OF ASSESSING THE LUNG DOSE FROM INHALED 238PUO2

AEROSPACE NUCLEAR SAFETY DEPT., SANDIA CORPORATION, ALBUQUERQUE, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PLUTONIUM-238 DIOXIDE IS A PRIME FUEL FOR SPACE ELECTRIC POWER, HAVING BEEN USED IN THE SNAP 9A SYSTEM, AND IS THE CANDIDATE FUEL FOR SNAP 19 AND SNAP 27. THE FUEL IS MADE IN THE FORM OF MICROSPHERES DESIGNED TO ELIMINATE INHALATION HAZARDS. THIS STUDY IS CONCERNED WITH THE METHODS OF ASSESSING LUNG DOSES FROM INHALED PU-238 DIOXIDE. AN AVERAGE TISSUE DOSE RATE CALCULATION IS MADE FOR ALPHA, GAMMA, AND NEUTRON RADIATION USING THE PROPOSED MODEL. THE PRESENT ICRP SMEARED-DOSE CONCEPT IS ALSO SHOWN AND SOME COMPARISONS MADE BETWEEN THE TWO METHODS.

*DOSE CALCULATION, INTERNAL + *PLUTONIUM OXIDE + ALPHA EMITTER + GAMMA + INHALATION + NEUTRON + PLUTONIUM + REACTOR, SPACE + SNAP, GENERAL (SR)

14-23248 ALSO IN CATEGORY 16

VAN DER HOVEN I

ATMOSPHERIC TRANSPORT AND DIFFUSION AT COASTAL NUCLEAR SITES

AIR RESOURCES, LAB., INSTITUTE FOR ATMOSPHERIC SCIENCES, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION, SILVER SPRING, MARYLAND

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A COMPARISON IS MADE BETWEEN OVERWATER AND OVERLAND ATMOSPHERIC DIFFUSION RATES AS A FUNCTION OF THE DIFFERENCE BETWEEN LAND AND WATER TEMPERATURES. THE TRANSITION FROM OVERWATER TO OVERLAND TRANSPORT IS DESCRIBED ON A PHYSICAL BASIS AND DIFFUSION MODELS ARE SUGGESTED TO ACCOUNT FOR THE DIFFUSION RATES WITHIN THIS TRANSITION ZONE. COASTLINE ATMOSPHERIC TRAJECTORIES ARE DISCUSSED IN TERMS OF LOCAL EFFECTS AND LARGE-SCALE PRESSURE GRADIENT EFFECTS AND WITH REGARD TO THE EFFECT OF TEMPORAL CHANGES IN EFFLUENT TRAJECTORIES UPON DIFFUSION AVERAGED OVER A PERIOD OF HOURS OR DAYS.

*ATMOSPHERIC DIFFUSION + *METEOROLOGY + ATMOSPHERIC DIFFUSION, CLIMATOLOGY

14-23250 ALSO IN CATEGORY 15

PENNA-FRANCA E + COSTA-RIBEIRO C + NASCIMENTO WA + LOBAO N + FISZMAN M + TRINDADE HA + DOS SANTOS PL

NATURAL RADIONUCLIDES IN THE DIET OF INHABITANTS OF BRAZILIAN HIGH BACKGROUND AREAS

INSTITUTO DE BIOFISICA, U.F.R.J., AVENIDA PASTEUR 458, RIO DE JANEIRO, BRAZIL

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TWO TYPES OF HIGH-BACKGROUND REGIONS WERE INVESTIGATED IN BRAZIL - THE MONAZITE SAND REGION ALONG THE ATLANTIC COAST AND THE ZONE OF VOLCANIC INTRUSIVES IN THE MIDDLE WEST. A BROAD RESEARCH PROGRAM HAS BEEN UNDER WAY TO MAP FOOD-PRODUCING AREAS INSIDE THE RADIOACTIVE ANOMALIES, TO DETERMINE THE AVERAGE RADIOACTIVITY IN STAPLE FOODS, TO ESTIMATE ANNUAL INTAKES AND BODY BURDENS OF HEAVY RADIONUCLIDES, AND TO DETERMINE THE FREQUENCY OF SOMATIC CHROMOSOMAL ABERRATIONS OF LOCAL PEOPLE. THE RESULTS OF THIS PROGRAM ARE REPORTED IN THIS PAPER, WITH THE EXCEPTION OF THE LAST ITEM.

*BIOLOGICAL CONCENTRATION, FOOD + *RADIOISOTOPE + ALPHA EMITTER + BRAZIL + DIETARY HABIT + THORIUM + URANIUM

14-23251

LUBENAU JO + DAVIS JS + McDONALD DJ + GERUSKY TM

X-RAY DIFFRACTION AND OTHER ANALYTICAL X-RAY HAZARDS. A CONTINUING PROBLEM

PENNSYLVANIA DEPARTMENT OF HEALTH, HARRISBURG, PENNSYLVANIA

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23251 *CONTINUED*

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 928, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

SINCE 1956, TEN CASES OF ACCIDENTAL EXPOSURES TO X-RAY DIFFRACTION AND OTHER ANALYTICAL X-RAY EQUIPMENT RADIATIONS HAVE BEEN REPORTED TO THE DEPARTMENT. THE USERS OF THIS TYPE OF EQUIPMENT COMPRISE 1.5% OF THE 9300 USERS OF RADIATION IN THE STATE BUT SINCE 1956 HAVE CONTRIBUTED ALL THE KNOWN CASES OF RADIATION INJURY REQUIRING MEDICAL ATTENTION WHICH WERE NOT ASSOCIATED WITH OTHER MAJOR HAZARDS (E.G., EXPLOSIONS OF RADIOCHEMICALS).

*ANALYTICAL TECHNIQUE, GENERAL + *X-RAY

14-23252

ALSO IN CATEGORY 15

MOYER RA

SAVANNAH RIVER LABORATORY EXPERIENCE WITH TRANSPUTONIUM ELEMENTS

SAVANNAH RIVER LAB., E. I. DU PONT DE NEMOURS + CO., AIKEN, SOUTH CAROLINA

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 928, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE SAVANNAH RIVER LABORATORY IS INVOLVED IN RESEARCH AND DEVELOPMENT WORK WITH CM-244, CF-252, AND OTHER HIGH-SPECIFIC-ACTIVITY ALPHA-EMITTING ISOTOPES. THIS WORK INCREASES CONTAMINATION PROBLEMS AND PRESENTS NEUTRON AND X-RAY EXPOSURE PROBLEMS NOT PREVIOUSLY ENCOUNTERED. CONTAINMENT IS BEING ACHIEVED THROUGH DESIGN AND STRICT PROCEDURES. PERSONNEL EXPOSURE IS BEING CONTROLLED AND EVALUATED BY USING THERMOLUMINESCENT DOSIMETERS TO SUPPLEMENT BETA-GAMMA AND NTA FILM BADGES. BECAUSE OF THE INCREASED RADIATION, THE QUANTITY OF WORKING MATERIAL IS LIMITED, AND LOCAL SHIELDING IS USED.

*ALPHA EMITTER + CALIFORNIUM + CONTAMINATION + CURIUM + NEUTRON + PLUTONIUM + SAVANNAH RIVER PLANT + X-RAY

14-23253

ALSO IN CATEGORY 15

STUART BO

INHALATION OF PROMETHIUM OXIDE BY BEAGLE DOGS

BATTELLE-NORTHWEST LAB., RICHLAND, WASHINGTON

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TEN BEAGLES WERE GIVEN SINGLE EXPOSURES TO AEROSOLS OF 147-PM203 (CMD = 0.06 MICRON) WHICH HAD BEEN NEUTRON-ACTIVATED TO INCORPORATE A GAMMA-EMITTING TRACER, 148-MPM. WHOLE-BODY RETENTION HALF-TIMES OF 420 TO 850 DAYS WERE OBSERVED. OF THE INITIALLY DEPOSITED PROMETHIUM OXIDE, 40-80% WAS EXCRETED DURING THE FIRST WEEK AFTER EXPOSURE, MOSTLY IN THE FECES. INITIAL ALVEOLAR DEPOSITION OF 0.12 TO 2.2 MCI OF THE BETA EMITTER 147-PM REDUCED LYMPHOCYTE COUNTS TO 80 TO 50% OF PREEXPOSURE LEVELS AT 1 YR AFTER EXPOSURE. NEUTROPHIL COUNTS WERE REDUCED TO 60% OF CONTROL AND PREEXPOSURE LEVELS. ERYTHROCYTE LEVELS SHOWED NO CHANGE.

*INHALATION + *RADIOBIOLOGY + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + PROMETHIUM

14-23254

ALSO IN CATEGORY 15

WILLARD OH

INHALATION AND RETENTION OF PU-238 MICROSPHERES IN BEAGLE DOGS

BATTELLE-NORTHWEST LAB., RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

BEAGLES WERE EITHER EXPOSED TO AEROSOLS OR GIVEN SINGLE PARTICLES BY PULMONARY INTUBATION TO DETERMINE WHETHER LARGE PU-238 MICROSPHERES CAN BE INHALED AND RETAINED IN THE LUNG. WHOLE-BODY SCANNING WAS USED TO FOLLOW THE COURSE OF THE PARTICLES. DOGS EXPOSED TO 50-MICRON-DIAM 238-PUO2 PARTICLES IN AIR INHALED MEASURABLE QUANTITIES OF PU-238, BUT NEARLY ALL OF THAT DEPOSITED ENTERED THE GASTROINTESTINAL TRACT WITHIN A FEW HOURS AND WAS EVENTUALLY EXCRETED IN THE FECES. A FEW PARTICLES WERE FOUND IN SECTIONS OF LUNG REMOVED AFTER EXPOSURES.

*AEROSOL + *INHALATION + *RADIOBIOLOGY + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + PLUTONIUM

14-23255

ALSO IN CATEGORY 15

THOMAS RL

DEPOSITION AND PRELIMINARY TRANSLOCATION OF INHALED PARTICULATES IN SMALL LABORATORY ANIMALS

LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, FISSION PRODUCTS INHALATION LABORATORIES, ALBUQUERQUE, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

SEVERAL HUNDRED MICE, RATS, AND GUINEA PIGS WERE EXPOSED TO AEROSOLS CONTAMINATED WITH CS-137 FOR STUDY OF INITIAL WHOLE-BODY DEPOSITION. IN RATS AND GUINEA PIGS, INITIAL DEPOSITION INCREASED WITH LARGER PARTICLES. WITHIN APPROXIMATELY THE SAME PARTICLE SIZE RANGE, HOWEVER, MICE SHOWED DECREASED DEPOSITION WITH LARGER PARTICLES. THIS AND OTHER OBSERVED DIFFERENCES, WITHIN AND BETWEEN SPECIES, MAY BE EXPLAINED ON THE BASIS OF RESPIRATORY PATTERN, ANIMAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23255 *CONTINUED*

WEIGHT, AND GROSS BODY STRUCTURE. ANIMALS WERE SACRIFICED AT THE EARLIEST FEASIBLE TIME, ABOUT 15 MIN POSTEXPOSURE. INITIAL TISSUE DISTRIBUTION VARIED WITH SIZE AND SOLUBILITY OF INHALED PARTICLES.

*INHALATION + *RADIOBIOLOGY + AEROSOL + BIOLOGICAL CONCENTRATION, ANIMAL + CESIUM

14-23262 ALSO IN CATEGORY 15

HONSTEAD JF

A PROGRAM FOR EVALUATING ENVIRONMENTAL RADIATION DOSE TO CHILDREN

BATTELLE-NORTHWEST LAB., RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 931, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE POPULATION LIVING ADJACENT TO THE HANFORD PROJECT IS EXPOSED TO LOW LEVELS OF RADIATION AS A RESULT OF RADIOACTIVE MATERIALS RELEASED TO THE COLUMBIA RIVER IN REACTOR COOLING WATER. PART OF THE DOSE THESE PEOPLE RECEIVE IS THE RESULT OF INTERNAL DEPOSITION OF RADIONUCLIDES OBTAINED FROM LOCALLY PRODUCED FOODSTUFFS. TO IDENTIFY THE CRITICAL GROUPS IN THE LOCAL POPULATION AND EVALUATE THE DOSE THEY RECEIVE, WE ARE STUDYING THE DIETARY HABITS OF PEOPLE VISITING HANFORDS WHOLE-BODY COUNTERS. TO INCLUDE CHILDREN IN THIS STUDY A SPECIAL PROGRAM WAS INITIATED IN COOPERATION WITH RICHLAND PUBLIC SCHOOLS. THE METHOD USED TO OBTAIN DIETARY AND WHOLE-BODY COUNTING DATA FROM SCHOOL CHILDREN IS DESCRIBED AND THE DIETARY DISTRIBUTIONS OBTAINED FROM CHILDREN IN SEVERAL ELEMENTARY SCHOOLS ARE PRESENTED. PROBLEMS FACED IN CALIBRATING THE SHADOW-SHIELD WHOLE-BODY COUNTER FOR CHILDREN AND THE RESULTS OF CALIBRATION MEASUREMENTS WITH SUGAR PHANTOMS ARE DISCUSSED.

*BIOLOGICAL CONCENTRATION, MAN + *DOSE CALCULATION, INTERNAL + *MONITORING PROGRAM, ENVIRONMENTAL + *REACTOR COOLANT + *RIVER, COLUMBIA + BATTELLE NORTHWEST + COUNTER, WHOLE BODY + WATER, DRINKING + WATER, IRRIGATION

14-23267

BOGEN DC

RAPID DETERMINATION OF STRONTIUM-90 IN URINE

U.S. ATOMIC ENERGY COMMISSION, HEALTH AND SAFETY LABORATORY, NEW YORK, NEW YORK

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 933, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D.C., JUNE 18-22, 1967

THE APPLICATION OF REVERSE-PHASE PARTITION CHROMATOGRAPHY WAS USED FOR THE RAPID DETERMINATION OF SR-90 IN URINE. AN ALIQUOT OF THE SAMPLE IS ADJUSTED TO PH 1 WITH HNO₃, AND YTTRIUM CARRIER IS ADDED AND PASSED THROUGH A COLUMN CONTAINING AN INERT SUPPORT OF GLASS MICROBEADS COATED WITH DI(2-ETHYLHEXYL) PHOSPHORIC ACID. THE Y-90 DAUGHTER OF SR-90 IS SELECTIVELY ADSORBED, AND CONTAMINATING ELEMENTS ARE REMOVED BY WASHING THE COLUMN WITH PH-1 HNO₃. THE YTTRIUM IS ELUTED FROM THE COLUMN WITH 6 M HNO₃, EVAPORATED, PRECIPITATED AS AN OXALATE, AND MOUNTED FOR RADIO-ASSAY. THE RECOVERY OF YTTRIUM IS GREATER THAN 80%, AND DECONTAMINATION FACTORS ARE GREATER THAN 10,000 FOR COMMON FISSION PRODUCTS. THE RADIOCHEMICAL PURITY IS DETERMINED BY DECAY MEASUREMENTS.

*ANALYTICAL TECHNIQUE, URINE + CHROMATOGRAPHY + STRONTIUM + USAEC

14-23269

HOY JE

TRITIUM MEASUREMENT BY GAS-SOLID CHROMATOGRAPHY

SAVANNAH RIVER LAB., E. I. DU PONT DE NEMOURS AND CO., AIKEN, S. C.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 933, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A GAS-SOLID CHROMATOGRAPHIC METHOD WAS DEVELOPED TO MEASURE VERY LOW CONCENTRATIONS OF ENVIRONMENTAL TRITIUM. THE METHOD IS MORE SENSITIVE THAN LIQUID-SCINTILLATION COUNTING TECHNIQUES AND FASTER AND SIMPLER THAN EITHER ELECTROLYTIC OR THERMAL DIFFUSION METHODS. THE PALLADIUM-FILLED CHROMATOGRAPH OPERATES AT ROOM TEMPERATURE AND HAS A CAPACITY OF 50-ML WATER (70 L. H₂ GAS). THE TIME REQUIRED FOR ANALYSIS OF A SAMPLE INCLUDING HYDROGEN GENERATION AND COUNTING IN A PROPORTIONAL COUNTER IS ABOUT 4 HR. THE LOWER LIMIT OF SENSITIVITY (50 ML SAMPLE AND A 30-MIN COUNT) IS LESS THAN 10 TRITIUM ATOMS PER 10-18 HYDROGEN ATOMS.

*ANALYTICAL TECHNIQUE, GAS + CHROMATOGRAPHY + HYDROGEN + SAVANNAH RIVER PLANT + TRITIUM

14-23270

SANDERSON CG

DETERMINATION OF TH-228, RA-226 IN FOOD, SOIL AND BIOLOGICAL ASH BY COINCIDENT MULTIDIMENSIONAL GAMMA-RAY SPECTROMETRY

U.S. ATOMIC ENERGY COMMISSION, HEALTH AND SAFETY LAB., NEW YORK, NEW YORK

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 934, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

CONVENTIONAL GAMMA-RAY SPECTROMETRY, WHICH ELIMINATES THE INHERENT PROBLEMS ENCOUNTERED IN RADIOCHEMICAL ANALYSIS, DOES NOT PROVIDE THE SENSITIVITY REQUIRED FOR THE EXTREMELY LOW LEVELS OF ACTIVITY PRESENT IN FOOD, SOILS AND BIOLOGICAL MATERIALS. BY USING A MULTIDIMENSIONAL COINCIDENT GAMMA-RAY SPECTROMETRY SYSTEM DESIGNED AT THE HEALTH AND SAFETY

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23270 *CONTINUED*

LABORATORY, EXTREMELY SENSITIVE ANALYSES CAN BE PERFORMED UPON NUCLIDES SUCH AS TH-228 AND RA-226 WHICH EMIT COINCIDENT GAMMA-RAYS. THESE NUCLIDES CAN BE DETERMINED AT CONCENTRATIONS ABOUT 10 TIMES LOWER THAN BY CONVENTIONAL GAMMA-RAY SPECTROMETRY.

*ANALYTICAL TECHNIQUE, FOOD + *ANALYTICAL TECHNIQUE, SOLID + *SPECTROMETRY, GAMMA + GAMMA + RADIUM + THORIUM + USAEC

14-23276 ALSO IN CATEGORY 15

SMITH VH + RAGAN HA + BEAMER JL

ABSORPTION OF PU-238 FROM CERAMIC, PLUTONIUM OXIDE PARTICLES FED TO SWINE

BIOLOGY DEPARTMENT, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

HANFORD MINIATURE SWINE WERE GIVEN, BY LAVAGE, SINGLE DOSES OF SEVERAL THOUSAND SUBMILLIMETER PARTICLES OF REFRACTORY PLUTONIUM-238 OXIDE TO MEASURE THE MAXIMUM PLUTONIUM ABSORPTION TO BE EXPECTED IF THIS TYPE OF FUEL WERE INGESTED. THE FRACTION OF THE FED DOSE RECOVERED FROM TISSUES AND URINE WAS LESS THAN 10(-6TH). ABSORPTION FROM THE GASTROINTESTINAL TRACT, THEREFORE, PRESENTS LITTLE HAZARD. PASSAGE TIME VARIED TO OVER 14 DAYS, AND TWO ANIMALS HAD PARTICLES RETAINED AT THE ILEOCECAL JUNCTION.

*ADSORPTION + *INGESTION + *PLUTONIUM + BATTELLE NORTHWEST + PLUTONIUM OXIDE + RADIOBIOLOGY

14-23277 ALSO IN CATEGORY 15

LLOYD RD + MAYS CW + TAYLOR GN + ATHERTON DR + SHABESTARI LR

RETENTION OF INJECTED AM-241 IN BEAGLES

RADIOBIOLOGY DIVISION, DEPT. OF ANATOMY, UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

FOURTEEN ADULT BEAGLES WERE EACH GIVEN A SINGLE INTRAVENOUS INJECTION OF 0.02 TO 35.9 MICROCURIES AM-241 IN A CITRIC-ACID SODIUM-CITRATE BUFFER SOLUTION AT PH 3.5. BY 1 DAY POSTINJECTION, ABOUT 40% AND 50% OF THE INJECTED AM-241 WERE DEPOSITED IN THE SKELETON AND LIVER, RESPECTIVELY. THIS PATTERN OF RETENTION PERSISTED TO BURDEN TIMES OF MORE THAN 6 MONTHS. EXCRETA COLLECTIONS MADE ON FOUR ANIMALS DURING THE FIRST 3 WEEKS AFTER INJECTION SHOWED THAT SEVEN-EIGHTHS OF THE EXCRETION WAS URINARY. NEARLY THREE-QUARTERS OF THE TOTAL AM-241 EXCRETED IN THIS PERIOD WAS PRODUCED DURING THE FIRST DAY.

*RADIOBIOLOGY + AMERICIUM + BIOLOGICAL CONCENTRATION, ANIMAL

14-23278 ALSO IN CATEGORY 15

BRODSKY A + SCHUBERT J + YANIV S + LAMSON K + WALD N + WECHSLER R + GUMERMAN L + CALDWELL R

DEPOSITION AND RETENTION OF IR-192 IN THE LUNG AFTER AN INHALATION INCIDENT

UNIVERSITY OF PITTSBURGH, GRADUATE SCHOOL OF PUBLIC HEALTH, PITTSBURGH, PA.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TWO PERSONS WHO SIMULTANEOUSLY INHALED INSOLUBLE SUBMICRON PARTICLES OF IR-192 HAVE BEEN EXAMINED AT 9 FT FROM A 5 X 4-IN. SCINTILLATION DETECTOR. MEASUREMENTS SHOWED THAT THEIR LUNGS RETAINED 6% AND 13% RESPECTIVELY, OF THE DEPOSITED MATERIAL AT 24 HR AFTER THE INCIDENT. AFTER 1 DAY THE LUNG BURDEN IN EACH SUBJECT WAS FOUND WITH A PICKER MAGNASCANNER TO BE DISTRIBUTED THROUGHOUT BOTH LUNGS. THE DECREASE IN TOTAL BODY RETENTION OF IR-192 AFTER 1 DAY WAS ACCOUNTED FOR BY THE QUANTITY FOUND IN THE FIRST DAYS FECAL SAMPLE. BETWEEN DAYS 4 & 6 POSTACCIDENT, THE REMAINING LUNG BURDEN DECREASED AT ABOUT 6.6% PER DAY FOR THE SUBJECT WHO HAD RETAINED 6% OF THE DEPOSITED MATERIAL, AND ABOUT 2.5% PER DAY FOR THE ONE WHO RETAINED 13%. FURTHER DATA ON REDISTRIBUTION AND RETENTION PATTERNS WILL BE REPORTED.

*INHALATION + IRIIDIUM + RADIOBIOLOGY

14-23282 ALSO IN CATEGORY 15

HOLTZMAN RB + LUCAS HF

EXCRETION OF PB-210 AND RA-226 BY RADIUM-DIAL PAINTERS

RADIOLOGICAL PHYSICS DIVISION, ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 940, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE EXCRETION OF ENDOGENOUS PB-210 AND ITS PRECURSOR, RA-226, WERE DETERMINED IN ELEVEN HUMAN SUBJECTS 30-40 YR AFTER EXPOSURE TO RA-226. THE TOTAL BODY BURDENS OF RA-226 IN THESE SUBJECTS WERE SUFFICIENTLY HIGH, 0.1 TO 2.4 MICROCURIE, TO PRODUCE MUCH HIGHER CONCENTRATIONS OF BOTH THE RA-226 AND PB-210 IN THE EXCRETA THAN ARE FOUND FOR NORMAL EXPOSED HUMANS. THE MEASUREMENTS WERE CORRECTED FOR THE DIETARY CONTENT OF THESE NUCLIDES AND FOR THE PB-210 GROWN FROM RA-226 DURING STORAGE OF THE SAMPLES.

*RADIATION DAMAGE + ANL + BIOLOGICAL CONCENTRATION, MAN + LEAD + RADIATION INJURY, TREATMENT OF + RADIOBIOLOGY + RADIUM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23287
CANTER LW + GLOYNA EF
TRANSPORT OF CR-51 IN AQUEOUS SYSTEMS
ENGINEERING LABORATORIES, THE UNIVERSITY OF TEXAS, AUSTIN, TEXAS
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 942, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

MECHANISMS FOR TRANSPORT OF CHROMIUM IN AQUEOUS SYSTEMS (AQUEOUS AND A MODEL RIVER OR FLUME) ARE DESCRIBED.

*FISSION PRODUCT TRANSPORT + *WASTE DISPOSAL, RIVER + OXIDATION + REDUCTION + RIVER, GENERAL + SORPTION

14-23288 ALSO IN CATEGORY 15
THOMPSON JC
COMPARISON OF I-121 INTAKE FROM MILK AND NON-MILK FOODS
DEPARTMENT OF PHYSICAL BIOLOGY, NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 942, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

ALTHOUGH MILK IS CONSIDERED THE PRIMARY I-131 CONTRIBUTOR, HIGH I-131 INTAKES ARE GENERALLY LOCATED IN AREAS WHERE NON-MILK FOODS COULD ALSO MAKE A SIGNIFICANT CONTRIBUTION. SPECIAL POPULATION GROUPS SUCH AS FARM FAMILIES AND OTHER NON-URBAN FAMILIES FIT THESE CONDITIONS. FOOD INTAKES ARE HIGHER AMONG THESE GROUPS, AND THE HOME GROWN CHARACTER OF THE PRODUCTS MINIMIZE THE MARKETING TIME DELAYS NORMALLY EXPECTED TO SIGNIFICANTLY REDUCE I-131 LEVELS. NORMAL HOME PREPARATION TECHNIQUES ACCOUNT FOR CONSIDERABLE I-131 REMOVAL, BUT DATA INDICATE IT IS NOT 100%. NON-MILK FOODS COULD CONTRIBUTE FROM 10 TO 50% OF TOTAL I-131 INTAKE WHEN THESE FACTORS ARE CONSIDERED.

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + IODINE

14-23289 ALSO IN CATEGORY 15
FRENCH RL
ON THE BURIED-SOURCE MODEL FOR COMPUTING FALLOUT GROUND ROUGHNESS EFFECTS
RADIATION RESEARCH ASSOCIATES, INC., FORT WORTH, TEXAS
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 943, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

MOST CALCULATIONS OF THE GAMMA RADIATION ENVIRONMENT PRODUCED BY FALLOUT ASSUME THAT THE RADIOACTIVE MATERIAL IS UNIFORMLY DEPOSITED ON A SMOOTH GROUND SURFACE. A RECENT STUDY OF POSSIBLE MATHEMATICAL MODELS FOR INCLUDING THE EFFECTS OF GROUND ROUGHNESS ON THE GAMMA-RAY ENERGY AND ANGLE DISTRIBUTIONS IN AIR ABOVE FALLOUT PLACED EMPHASIS ON THE BURIED-SOURCE MODEL. THIS MODEL IS BASED ON THE ASSUMPTION THAT THE FALLOUT IS COVERED BY A UNIFORM LAYER OF SOIL WHOSE THICKNESS CORRESPONDS TO THE DEGREE OF GROUND ROUGHNESS.

*FALLOUT + COMPUTER PROGRAM + GAMMA

14-23290 ALSO IN CATEGORIES 15 AND 13
COWSER KE + TADMOR J + JACOBS DG + BOEGLY WJ
EVALUATION OF ENVIRONMENTAL HAZARDS FROM RELEASE OF KR-85 AND H-3 IN AN EXPANDING NUCLEAR FUEL REPROCESSING INDUSTRY
HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 943, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PRESENT STUDIES ARE CONCERNED WITH ESTIMATES OF THE DOSE EQUIVALENTS TO MAN THAT MAY RESULT FROM THE COMPLETE RELEASE OF KR-85 AND H-3 DURING REPROCESSING OF SPENT REACTOR FUEL. BASED ON ESTIMATES OF THE FREE-WORLD NUCLEAR POWER GROWTH, THE WORLDWIDE DISTRIBUTION OF THESE RADIONUCLIDES IN YEAR 2000 MAY RESULT IN A TOTAL BODY DOSE RATE OF 1.8 MREM/YR FROM KR-85 AND A BODY TISSUE DOSE RATE OF 0.0021 MREM/YR FROM H-3. RISK TO THE WORLD'S POPULATION IS EVALUATED IN TERMS OF POTENTIAL EFFECT.

*DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *ENVIRONMENTAL CONDITION +
*WASTE DISPOSAL, GAS + FUEL REPROCESSING + KRYPTON + ORNL + RELEASE RATE + TRITIUM + WASTE TREATMENT, GAS

14-23291
KLECHKOVSKIY AV
MIGRATION OF RADIONUCLIDES IN THE BIOSPHERE
ALL-UNION ACADEMY OF AGRICULTURAL SCIENCES IMENI LENIN
JPRS-37574 + TI-66-34002 +. 6 PAGES, VESTN. AKAD. NAUK SSSR 35(5) PAGES 124-29 (MAY 1966)

REVIEWS RUSSIAN WORK ON THE MOVEMENT OF RADIONUCLIDES IN THE BIOSPHERE, INCLUDING NATURAL RADIOACTIVE ELEMENTS AND FISSION PRODUCTS.

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

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23291 *CONTINUED*
COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, GENERAL + *FISSION PRODUCT TRANSPORT + CESIUM + RADIATION IN PERSPECTIVE +
RADIOBIOLOGY + STRONTIUM + USSR

14-23293 ALSO IN CATEGORY 15

RABB D
PLOWSHARE PROGRAM. VOL. II, NO. 2, OCTOBER 1, 1965-JULY 15, 1966
LAWRENCE RADIATION LAB., UNIV. OF CALIFORNIA, LIVERMORE, CALIF.
UCRL-50008-66-1 +. 29 PAGES, JUNE 2, 1965

HAZARDS OF NUCLEAR EXCAVATIONS ARISE FROM RADIATION, AIR BLAST, DUST, AND SEISMIC SHOCK. IT CAN BE INFERRED THAT 1% OR MORE OF THE MATERIAL TEMPORARILY AIRBORNE WILL REMAIN FOR A TIME AS DUST, I.E., PARTICLES SMALLER THAN A FEW HUNDRED MICRONS (A FEW TENTHS OF MILLIMETERS). APPLIED TO AN EXCAVATION AS LARGE AS THE TRANSISTHMIAN CANAL (OVER 300 EXPLOSIVES AVERAGING ABOUT 300 KT EACH), APPROXIMATELY 115 MT OF DUST MAY BE AIRBORNE AT ONE TIME OR ANOTHER AS A RESULT OF THE DETONATIONS.

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

*FALLOUT + *PLOWSHARE PROGRAM + HAZARDS ANALYSIS + NUCLEAR DETONATION

14-23294 ALSO IN CATEGORY 15

HANZEL N
MODEL STUDIES ON THE PENETRATION OF FALLOUT IN VARIOUS SOILS
BATTELLE-INSTITUTE, FRANKFURT AM MAIN
15 PAGES, 6 FIGURES, 5 TABLES, REFERENCES, ZEITS FUR GEOPHYSIK 33, PAGES 33-47 (JANUARY 1967) IN GERMAN

USUALLY, HUMUS LOAMY SOIL AND SILTY CLAY SHOWED THE STRONGEST RETENTION FOR THE FISSION PRODUCTS INVESTIGATED, WHEREAS SANDY SOILS SHOWED THE LEAST RETENTION. IT IS EMPHASIZED THAT RESULTS OF SUCH MOCKUP EXPERIMENTS CAN BE EXTRAPOLATED TO FIELD CONDITIONS ONLY WITH RESERVATIONS. IN AGREEMENT WITH LITERATURE DATA, HOWEVER, THE STUDIES DID NOT INDICATE THAT IN THE FIELD THE DOSE RATE ABOVE A CONTAMINATED SOIL WILL DECREASE, DUE TO DISPLACEMENT OF FALLOUT TO DEPTHS OF THE SOIL, WITHIN A SHORT TIME.

*FALLOUT + *NUCLEAR DETONATION + PARTICLE, RADIOACTIVE + EXPERIMENT, GENERAL + *MODEL TESTING

14-23295

SMITH KF + THOMPSON JB
RADIATION MONITOR WITH BACKGROUND COMPENSATION
US ATOMIC ENERGY COMMISSION
U.S. PATENT 3,344,277 +. 4 PAGES, 5 FIGURES, SEPTEMBER 26, 1967

DESCRIBES A DEVICE FOR DETECTING THE RADIATION CONTAMINATION OF A SAMPLE IN THE PRESENCE OF A WIDELY VARYING BACKGROUND RADIATION. THE DEVICE CONSISTS OF A GM TUBE, A LINEAR COUNT RATE CIRCUIT AND A NONLINEAR COUNT RATE CIRCUIT PRODUCING A SIGNAL PROPORTIONAL TO THE SQUARE ROOT OF THE OUTPUT OF THE GM TUBE, RESPECTIVELY, A FILTER CIRCUIT FOR FILTERING OUT THE STEADY-STATE VALUE OF THE LINEAR COUNT RATE CIRCUIT, AND AN ALARM CIRCUIT DIFFERENTIALLY COMBINING THE OUTPUT OF THE FILTER CIRCUIT AND THE NONLINEAR COUNT RATE CIRCUIT, WHEREBY THE ALARM CIRCUIT IS ONLY ACTIVATED IN RESPONSE TO ABRUPT CHANGES IN THE SENSED RADIATION LEVEL.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (25 CENTS PER COPY)

CONTAMINATION + COUNTER + MONITOR, RADIATION, BACKGROUND + PATENT + RADIATION SAFETY AND CONTROL + UNITED STATES

14-23296 ALSO IN CATEGORY 15

D YACHENKO LN
THE DISTRIBUTION OF EFFECTIVE RADIATION THROUGHOUT THE USSR
TT-65-62040 +. 18 PAGES, FIGURES, REFERENCES, TRANSLATED FROM TRUDY GALAVNOY GEOFIZICHESKOY OBSERVATORII IMENI A.I. VOYEKOVA NO. 152, PAGES 126-141, 1964

PRESENTS CHARTS OF YEARLY AND MONTHLY DISTRIBUTION OF EFFECTIVE RADIATION THROUGHOUT THE SOVIET UNION BASED ON MEASUREMENT DATA. AN ANALYSIS AND COMPARISON WITH ANALOGOUS CHARTS, COMPOSED FROM CALCULATION DATA, ARE PERFORMED.

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

MEASUREMENT, GENERAL + RADIATION UNIT + USSR

14-23297 ALSO IN CATEGORY 15

BARRACLOUGH JT + TEASDALE WE + ROBERTSON JD + JENSEN RG

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23297 *CONTINUED*
HYDROLOGY OF THE NATIONAL REACTOR TESTING STATION, IDAHO, 1966
GEOLOGICAL SURVEY, IDAHO FALLS, IDAHO
IDG-22049 +. 95 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1967

THIS ANNUAL REPORT DESCRIBES STUDIES BY THE U.S. GEOLOGICAL SURVEY, SPONSORED BY THE USAEC, TO DETERMINE THE HYDROLOGIC EFFECTS OF DISPOSAL OF RADIOACTIVE WASTE TO THE GROUND AT THE NATIONAL REACTOR TESTING STATION. THE PROJECT HAS INVOLVED THE COLLECTION AND ANALYSES OF GROUND- AND SURFACE-WATER SAMPLES FOR RADIOMETRIC AND CHEMICAL CHANGES. RESULTS HAVE BEEN EVALUATED AND MAPPED. GROUND-WATER LEVELS HAVE ALSO BEEN MAPPED OVER THE STATION. THE NET GROUND-WATER CONSUMPTION AFTER PUMPAGE WAS WASTE INJECTION HAS BEEN DETERMINED. TWO BILLION GALLONS OF WATER WERE PUMPED DURING 1966, OF WHICH 40% WAS METERED AND RETURNED TO THE SNAKE PLAIN AQUIFER.

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

CESIUM + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + IODINE + NIOMIUM + NRTS + STRONTIUM + TRITIUM + WASTE DISPOSAL, GENERAL + WATER, GENERAL + ZIRCONIUM

14-23393 ALSO IN CATEGORY 17
HAUTER RL
BIG ROCK POINT OPERATIONS REPORT MAY 1 THROUGH OCT. 31, 1966
CONSUMERS POWER CO., JACKSON, MICHIGAN
TID-23638 +. 16 PAGES, DECEMBER 20, 1966, DOCKET 50-155

A SERIES OF FEEDWATER-HEATER TUBE FAILURES AND FUEL FAILURES RESULTED IN OPERATION AT 35 MWE (WITH THE HP HEATER BYPASSED) TO STAY BELOW STACK-DISCHARGE LIMITS. ON AUG. 8, LOAD REJECTION TOGETHER WITH IMPROPERLY BRAZED PILOT VALVES CAUSED TURBINE BYPASS VALVES TO OPEN WHILE MAIN STEAM VALVE WAS CLOSING, BLOWING THE LP-TURBINE RUPTURE DISK. A COMBINATION OF FLUX TILTING AND DRY SIPPING LOCATED 11 LEAKY FUEL BUNDLES, WITH FOUR INCOLOY-800-CLAD BUNDLES HAVING LONG LONGITUDINAL SPLITS CONTRIBUTING TO MOST OF THE OFF-GAS.

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

*FAILURE, FUEL ELEMENT + *PERFORMANCE LIMIT + *SOURCE, CONTINUOUS + BIG ROCK POINT (BWR) + CONTAINMENT PENETRATION, CLOSURE OF + FAILURE, CLADDING + FAILURE, EQUIPMENT + FAILURE, TUBING + INCIDENT, EQUIPMENT + INCOLOY + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + OFF GAS + REACTOR POWER + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

14-23583 ALSO IN CATEGORY 15
BINFORD FT + BARISH J + KAM K
ESTIMATION OF RADIATION DOSES FOLLOWING A REACTOR ACCIDENT
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4086 +. 41 PAGES, 4 FIGURES, 2 TABLES, 5 REFERENCES, FEBRUARY 1968

BASED UPON THE GAUSSIAN PLUMF FORMULA, A MODEL WAS DEVELOPED WHICH PERMITS CALCULATION OF THE DOWNWIND RADIATION DOSES TO BE EXPECTED FOLLOWING A REACTOR ACCIDENT. ALTHOUGH THE CALCULATION IS CONCERNED ONLY WITH THE THYROID DOSE DUE TO IODINES, AND THE WHOLE-BODY DOSE DUE TO IODINES AND NOBLE GASES, IT CAN EASILY BE ADAPTED TO HANDLE OTHER RADIOISOTOPES. A FORTRAN-IV COMPUTER PROGRAM PLUME WAS WRITTEN FOR SOLVING THE EQUATIONS.

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

*ACCIDENT, HYPOTHETICAL + *COMPUTER PROGRAM + *COUNTER, WHOLE BODY + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + IODINE

14-23584 ALSO IN CATEGORY 15
RADIATION PROTECTION IN EDUCATIONAL INSTITUTIONS
NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS, WASHINGTON, D. C.
NCRP-32 +. 63 PAGES, TABLES, JULY 1, 1966

THIS REPORT SEEKS TO PROVIDE INFORMATION ON THE HAZARDS INVOLVED IN THE USE OF RADIATION-PRODUCING EQUIPMENT OR RADIOACTIVE MATERIALS IN SCIENCE DEMONSTRATIONS AND EXPERIMENTS, AND ON THE MEANS OF PROTECTION TO OFFSET THE RISKS.

AVAILABILITY - NCRP PUBLICATIONS, WASHINGTON, D. C. \$0.75

*INSTRUMENTATION, GENERAL + *MAXIMUM PERMISSIBLE DOSE (MPD) + *NCRP + *RADIATION SAFETY AND CONTROL + BIOLOGICAL CONCENTRATION, MAN + CONTAINMENT RESEARCH AND DEVELOPMENT + MONITOR, RADIATION, PERSONNEL + MONITORING PROGRAM, ENVIRONMENTAL

14-23585 ALSO IN CATEGORY 15
FERRIS BG
ENVIRONMENTAL HEALTH AND SAFETY AT HARVARD
HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23585 *CONTINUED*

4 PAGES, HARVARD PUBLIC HEALTH ALUMNI BULL., 23, PAGES 6-9 (JULY 1966)

RADIATION PROTECTION SERVICES AT HARVARD UNIVERSITY ARE DESCRIBED AS WELL AS SOME PROBLEMS OF MONITORING. THE RADIATION PROTECTION SERVICE ROUTINELY SURVEYS 120 LABORATORIES FOR RADIOACTIVE CONTAMINATION AND REVIEWS ISOTOPE HANDLING, AND WASTE DISPOSAL PROCEDURES. OVER 1400 PERSONS ARE PROVIDED WITH FILM BADGES WHICH ARE PROCESSED AT LEAST MONTHLY TO DETERMINE WHETHER ANY SIGNIFICANT RADIATION EXPOSURES HAVE BEEN ACCUMULATED. FORMAL SHORT TRAINING PROGRAMS ARE GIVEN IN THE SAFE USE OF RADIOISOTOPES FOR ALL TECHNICIANS ENGAGED IN RADIOISOTOPE WORK, AND MORE INTENSIVE STUDY PROGRAMS ON RADIATION PROTECTION METHODS ARE REQUIRED FOR ALL INVESTIGATORS WHO SUPERVISE THE USE OF RADIOISOTOPES. MONITORING OF THE ENVIRONMENT AROUND VARIOUS SOURCES OF HIGH ENERGY RADIATION, SUCH AS THE CYCLOTRON AND THE ACCELERATOR, IS ALSO MENTIONED.

*ENVIRONMENTAL CONDITION + *HIGH RADIATION + *RADIATION PROTECTION, ORGANIZATION + *SAFETY REVIEW + ACCELERATOR + CONTAMINATION + RADIOISOTOPE

14-23586 ALSO IN CATEGORY 15

TEPPER LB

HEALTH PROTECTION IN THE NUCLEAR ENERGY INDUSTRY

UNIVERSITY OF CINCINNATI

4 PAGES, FIGURES, HARVARD PUBLIC HEALTH ALUMNI BULL., 23, PAGES 10-13 (JULY 1966)

VARIOUS ASPECTS OF SURVEILLANCE OF RADIATION HAZARDS IN NUCLEAR INSTALLATIONS ARE REVIEWED. OF ALL THE POTENTIALLY HAZARDOUS ENVIRONMENTAL FACTORS THAT HAVE BEEN MOST INTENSIVELY AND SYSTEMATICALLY STUDIED, RADIATION IS FOREMOST. IN SPITE OF HIGH LEVELS OF RADIOACTIVITY ASSOCIATED WITH INDUSTRIAL OPERATIONS, OVEREXPOSURE IS UNUSUAL AND DETECTABLE RADIATION INJURY HAS BEEN EXTREMELY RARE. OCCUPATIONAL HAZARDS DUE TO F, BE, AND HG IN THE NUCLEAR ENERGY INDUSTRY ARE ALSO CONSIDERED.

*DESIGN CRITERIA + *HAZARDS ANALYSIS + *RADIATION DAMAGE + *SITE CRITERIA, EARTHQUAKE + *SURVEILLANCE PROGRAM + ENVIRONMENTAL CONDITION + REACTOR POWER

14-23587 ALSO IN CATEGORY 15

JULIAN EC

GROSS RADIOACTIVITY OF THE SOLIDS IN SELECTED SURFACE WATERS OF THE UNITED STATES, 1961-1965

DEPARTMENT OF INTERIOR

12 PAGES, 4 FIGURES, 6 TABLES, 6 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 9(1), PAGE 1-12, (JANUARY 1968)

GROSS RADIOACTIVITY HAS BEEN EXPRESSED IN PCI/LITER OF WATER, BUT, TO UNDERSTAND THE MOVEMENT OF RADIOLOGICAL CONTAMINATION IN THE ABSENCE OF FLOW DATA, THE CONSIDERATION OF RADIOACTIVITY IN THE SUSPENDED AND DISSOLVED SOLIDS IN PCI/G IS QUITE USEFUL. THE GROSS RADIOACTIVITY OF THE SOLIDS IN SOME SURFACE WATERS OF THE U.S. IS PRESENTED AND INTERPRETED IN THIS REPORT WITH THE DATA FROM STATIONS OF THE WATER POLLUTION SURVEILLANCE SYSTEM FOR THE YEARS 1961 THROUGH 1965. RADIOACTIVITY LEVELS IN SURFACE WATERS AS MODIFIED BY SEASONAL RUNOFF PATTERNS ARE REPORTED. THE RADIOACTIVITY OF SOLIDS COLLECTED BELOW TWO PRODUCTION-REACTOR FACILITIES WAS MEASURED, AND A TREND IS INDICATED.

*RADIOLOGY + *SURFACE WATER, SUSPENDED MATERIAL + *SURVEILLANCE PROGRAM + *UNITED STATES + FALLOUT + RADIOCHEMICAL ANALYSIS + SURVEY, RADIATION, ENVIRONMENTAL

14-23739 ALSO IN CATEGORY 15

KREBS JS

THE RESPONSE OF MAMMALIAN SKIN TO IRRADIATION WITH PARTICLES OF REACTOR DEBRIS

NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO

USNRL-TR-67-118 +. 63 PAGES, 7 FIGURES, 6 TABLES, 33 REFERENCES, SEPTEMBER 15, 1967

A SURVEY OF THE RELEVANT INFORMATION IN THE BIOLOGICAL AND MEDICAL LITERATURE SHOWS THAT SERIOUS RADIATION-INDUCED ACUTE LESIONS OF THE SKIN ARE CAUSED PRIMARILY BY THE DESTRUCTION OF THE GERMINAL LAYER CELLS OF THE EPITHELIUM. THE FALLOUT FROM DESTRUCTION OF A NUCLEAR REACTOR IS EXPECTED TO BE IN THE FORM OF FRAGMENTS AND PARTICLES OF VARIOUS SIZES. FOR SEPARATE PARTICLES LIKELY TO ADHERE TO SKIN, APPROXIMATE DOSE CALCULATIONS SHOW THAT ONLY THE BETA-EMITTING ISOTOPES OF HIGHER ENERGY MAXIMA (1.5 MEV OR GREATER) WILL BE ABLE TO PRODUCE A RADIATION FIELD LARGE ENOUGH TO BE CONSIDERED HAZARDOUS. IF THE PARTICLES FALL ON THE SKIN IN CLUSTERS, OR IF THEY ARE CRUSHED AND SPREAD OVER THE SKIN AS A FILM OF POWDER, THE HAZARD WILL BE MUCH INCREASED, AND THE CONTRIBUTION OF LOWER BETA ENERGIES TO THE HAZARD WILL BE SIGNIFICANTLY INCREASED. SPECIFIC RECOMMENDATIONS WERE MADE FOR APPLICATION OF THE FINDINGS TO THE EVALUATION AND AVOIDANCE OF BIOLOGICAL HAZARD, AND FOR FURTHER STUDY OF THE PROBLEM.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*BIOLOGICAL CONCENTRATION, MAN + *DOSE + *RADIONUCLIDE, INDUCED + *REACTOR POWER + FALLOUT + HAZARDS ANALYSIS + ISOTOPIC FRACTIONATION

14-23741 ALSO IN CATEGORY 15

LINDELL

RADIATION HAZARDS IN WORK WITH ISOTOPES

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23741 *CONTINUED*

NRC-TT-1264 +. 19 PAGES, TRANSLATED FROM LAKARTIDNINGEN 62(42), PAGES 3447-57 (1965)

IN WORK WITH RADIOACTIVE MATERIAL, THE ELEMENTARY PROCESS IS ALWAYS TRANSMITTED BY THE RADIANT ENERGY FROM THE DISINTEGRATING ATOM TO THE TISSUES OF THE BODY. THIS PROCESS IS DESCRIBED WITH THE AID OF PHYSICAL DATA SUCH AS THE RADIATION GEOMETRY, THE NUMBER OF PARTICLES HURLED OUT PER UNIT OF TIME, THE PARTICLE ENERGY, AND THE RATE OF DISINTEGRATION OF THE MATERIAL.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD ST., CHICAGO, ILLINOIS 60616

*DOSE + *HAZARDS ANALYSIS + *RADIATION DAMAGE + BIOLOGICAL CONCENTRATION, MAN + RADIOACTIVITY RELEASE

14-23742 ALSO IN CATEGORY 15

DISPOSAL OF RADIOACTIVE WASTE-USSR

JPRS-42565 + TT-67-33193 +. 109 PAGES, JUNE 2, 1967, TRANSLATION OF EIGHT PAPERS PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY AGENCY SYMPOSIUM ON DISPOSAL OF RADIOACTIVE WASTE IN THE GROUND, VIENNA, MAY 29-JUNE 2, 1967

EIGHT PAPERS DEALING WITH DISPOSAL OF RADIOACTIVE WASTES OF LOW ACTIVITY LEVEL IN CLAY SOILS SORPTION AND MIGRATION OF RADIOISOTOPES IN SOILS AND ROCKS, CONDITIONS FOR BURIAL OF RADIOACTIVE CEMENT IN SOILS, PROBLEMS OF HEAT GENERATION IN UNDERGROUND STORAGE OF SOLID RADIOACTIVE WASTES, EXPEDIENCE OF MELTING CALCINATED RADIOACTIVE WASTES IN THE GROUND, SCIENTIFIC PREMISES FOR THE USAGE OF DEEP FORMATIONS FOR STORAGE OF LIQUID RADIOACTIVE WASTES, RESULTS OF OPERATION OF PILOT-SCALE INSTALLATION FOR DISPOSAL OF LIQUID RADIOACTIVE WASTES IN DEEP FORMATIONS OF EARTH'S CRUST, AND THE CENTRAL STORAGE AREA FOR RADIOACTIVE WASTES IN THE CZECHOSLOVAKIAN SSR.

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

*CALCINATION + *CZECHOSLOVAKIA + *HEAT GENERATION, INTERNAL + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GENERAL + STORAGE CONTAINER

14-23747 ALSO IN CATEGORY 15

BARBOUR RA

THE PHILOSOPHY AND PRACTICE OF LIQUID RADIOACTIVE WASTE TREATMENT AT THE NATIONAL NUCLEAR RESEARCH CENTRE, PELINDABA

ATOMIC ENERGY BOARD, PELINDABA, PRETORIA (SOUTH AFRICA)

PEL-143 +. 18 PAGES, 2 FIGURES, REFERENCES, JANUARY 1967

A SPECTRUM OF NEW PROBLEMS ASSOCIATED WITH THE ATOMIC AGE (NUCLEARPOWER PROGRAMMER, USE OF RADIOISOTOPES IN MEDICINE AND IN INDUSTRY, AND THE GROWTH OF NUCLEAR RESEARCH AT UNIVERSITIES, HOSPITALS, ETC.) HAS DAWNED IN SOUTH AFRICA. THE TREATMENT OF RADIOACTIVE EFFLUENT IS ONE OF THE PROBLEMS. THE NATURE AND SOURCE OF RADIOACTIVE EFFLUENT AND THE POLICY CONCERNING TREATMENT AND ULTIMATE DISPOSAL ARE DISCUSSED.

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

*RADIATION SAFETY AND CONTROL + *SOUTH AFRICA + *WASTE DISPOSAL, LIQUID + *WASTE DISPOSAL, SOLID + DECONTAMINATION + WASTE TREATMENT, GENERAL

14-23748 ALSO IN CATEGORY 15

TERRILL JG + HARWARD ED + LEGGETT IP

TOXICOLOGY. ENVIRONMENTAL ASPECTS OF NUCLEAR AND CONVENTIONAL POWER PLANTS

U.S. PUBLIC HEALTH SERVICE

8 PAGES, 5 TABLES, 24 REFERENCES, INDUSTRIAL MEDICINE AND SURGERY 36(6), PAGE 412-419, (JUNE 1967)

POWER PLANTS THAT BURN FOSSIL FUELS RELEASE NATURAL RADIOACTIVITY IN THE FORM OF RADIUM AND THE OTHER DAUGHTER PRODUCTS OF URANIUM AND THORIUM, AS WELL AS OTHER POLLUTANTS, TO THE ATMOSPHERE. A NUCLEAR POWER PLANT DOES NOT PRODUCE AIR POLLUTANTS THAT ARE PRODUCTS OF COMBUSTION OF FOSSIL FUEL, BUT CONTROLLED AMOUNTS OF RADIOACTIVE POLLUTANTS ARE RELEASED TO THE ENVIRONMENT DURING NORMAL OPERATION. THE AMOUNT OF AIR REQUIRED TO BRING STACK EFFLUENT CONCENTRATIONS DOWN TO THE CHOSEN CONCENTRATION LIMITS WAS CALCULATED. BETTER DATA IS BEING SOUGHT FOR COMPARING THE HEALTH FACTORS RELATED TO THE DISCHARGES FROM POWER PLANTS.

*ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *REACTOR POWER + DILUTION + DISPERSION + IODINE + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + REACTOR, BWR + REACTOR, PWR + URANIUM

14-23897 ALSO IN CATEGORY 15

EBERHARDT LL + NAKATANI RE

MODELING THE BEHAVIOR OF RADIONUCLIDES IN SOME NATURAL SYSTEMS

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1258 + CONF-670503-7 +. 20 PAGES, MAY 12, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON RADIOECOLOGY, ANN ARBOR, MICH.

MODEL UPTAKE AND RETENTION OF RADIONUCLIDE BY INDIVIDUALS AND POPULATIONS WITH RESPECT TO THE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23897 *CONTINUED*

FOOD CHAINS IS OF CONCERN IN THIS PAPER. MOSTLY IGNORED ARE THE AUXILIARY INFLUENCES OF TEMPERATURE, NUTRIENT LIMITATIONS, MINERAL DEFICIENCIES, OXYGEN CONCENTRATION, AND OTHER LIMITING FACTORS THAT MAY PROHIBIT SUCCESS OR PERMIT CONCENTRATION ON MAJOR FEATURES AND PRINCIPAL COMPONENTS OF VARIABILITY.

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *ECOLOGICAL CONSIDERATION + *RADIATION SAFETY AND CONTROL + FALLOUT + RAINOUT

14-23898 ALSO IN CATEGORY 15

WATSON DG + CUSHING CE + COUTANT CC + TEMPLETON WL
EFFECT OF HANFORD REACTOR SHUTDOWN ON COLUMBIA RIVER BIOTA
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-SA-1248 + CONF-670503-2 +. 21 PAGES, MAY 3, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON RADIOECOLOGY, ANN ARBOR, MICH.

CLOSURE OF THE HANFORD REACTORS FOR AN EXTENDED PERIOD CAUSED A RAPID AND EXTENSIVE DECLINE IN CONCENTRATION OF RADIONUCLIDES IN THE COLUMBIA RIVER BIOTA. CR-51 AND P-32 DECREASED TWO TO THREE ORDERS OF MAGNITUDE IN THE LOWER TROPHIC LEVELS, DECLINE IN CONCENTRATIONS OF ZN-65, MN-54, AND FE-59 WAS MUCH LESS SUGGESTING A CYCLING OF THESE NUCLIDES FROM THE SEDIMENTS TO THE WATER DURING SHUTDOWN. IN FISH, P-32 WAS LOST RAPIDLY, ZN-65 SLOWLY. NEAR EQUILIBRIUM CONCENTRATIONS OF RADIONUCLIDES IN MOST RIVER ORGANISMS WERE APPROACHED WITHIN TWO WEEKS TO ONE MONTH AFTER THE RESUMPTION OF REACTOR OPERATION.

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

*BIOTA + *CESIUM + *ECOLOGICAL CONSIDERATION + *HANFORD (PR) + *RIVER, COLUMBIA + AQUATIC ORGANISMS + CHROMIUM + IRON + MANGANESE + PHOSPHORUS + REACTOR POWER + REACTOR, PRODUCTION + ZINC

14-23899 ALSO IN CATEGORY 15

RICKARD WH
CS-137 IN CASCADE MOUNTAIN VEGETATION, 1966
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-SA-1212 + CONF-670503-3 +. 13 PAGES, APRIL 12, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON RADIOECOLOGY, ANN ARBOR, MICHIGAN

THE ACCUMULATED LEAF LITTER COLLECTED FROM TREE STANDS REPRESENTATIVE OF THE CONIFEROUS FORESTS EAST AND WEST OF THE CASCADE MOUNTAINS OF WASHINGTON STATE WAS ANALYZED FOR CS-137 BY GAMMA-RAY SPECTROMETRIC TECHNIQUES IN 1966. THE DATA INDICATE THAT BIOLOGIC PROCESSES AS WELL AS METEOROLOGIC PROCESSES ARE INVOLVED IN THE LONG-TERM ACCUMULATION OF CS-137 IN FOREST FLOOR LITTER AND THAT A MOBILIZATION OF CS-137 FROM BOG SUBSTRATES IS BEING ACCOMPLISHED BY BOG SEDGES.

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

*BIOLOGICAL CONCENTRATION, VEGETATION + *CESIUM + *FALLOUT + *RAINOUT + ECOLOGICAL CONSIDERATION

14-23924 ALSO IN CATEGORY 15

PETERSON WK + ANDERSON GC
NET ZOOPLANKTON DATA FROM THE NORTHEAST PACIFIC OCEAN. COLUMBIA RIVER EFFLUENT AREA, 1961, 1962.
TECHNICAL REPORT NO. 160
WASHINGTON UNIV., SEATTLE. DEPT. OF OCEANOGRAPHY
RLO-1725-82 +. 231 PAGES, FIGURES, REFERENCES, NOVEMBER 1966

PRESENTS TABULATIONS OF NET ZOOPLANKTON DATA FROM 434 QUANTITATIVE SAMPLES COLLECTED DURING 1961 AND 1962 ON THE RESEARCH VESSEL BROWN BEAR OFF THE WASHINGTON AND OREGON COASTS. THE SAMPLES WERE COLLECTED IN KEY AREAS IN AND AROUND THE COLUMBIA RIVER EFFLUENT TO PROVIDE A DESCRIPTION OF SEASONAL VARIATIONS OF DISTRIBUTION AND ABUNDANCE OF PLANKTON ASSOCIATED WITH CHANGES IN THE DISCHARGE OF RIVER WATER. IDENTIFICATION AND ENUMERATION OF COPEPODS WAS STRESSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *EFFLUENT + *RIVER, COLUMBIA + *SAMPLING + METEOROLOGY

14-23925 ALSO IN CATEGORY 15

DUXBURY AC + MORSE BA + MCGARY N
THE COLUMBIA RIVER EFFLUENT AND ITS DISTRIBUTION AT SEA, 1961-1963. TECHNICAL REPORT NO. 156
WASHINGTON UNIV., SEATTLE. DEPT OF OCEANOGRAPHY
RLO-1725-62 +. 119 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

SURVEYS OFF THE WASHINGTON-OREGON COAST BY THE DEPARTMENT OF OCEANOGRAPHY, UNIVERSITY OF

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-23925 *CONTINUED*

WASHINGTON, FROM 1961 THROUGH 1963 HAVE PROVIDED SALINITY DATA FOR DESCRIBING THE COLUMBIA RIVER EFFLUENT IN THE NORTHEAST PACIFIC OCEAN. THE DATA ALSO HAVE PROVIDED INSIGHT INTO THE INTERACTIONS BETWEEN THE OBSERVED DISTRIBUTIONS AND THE METEOROLOGICAL SYSTEMS. EACH SALINITY DISTRIBUTION IS CATEGORIZED INTO ONE OF FOUR DISTINCT SEASONAL PATTERNS, MAINLY INFLUENCED BY RIVER DISCHARGE AND WINDS. THE SALINITY DISTRIBUTIONS DELINEATE THE EXTENT OF THE INFLUENCE OF THE COLUMBIA RIVER EFFLUENT IN THE NORTHEAST PACIFIC OCEAN BOTH HORIZONTALLY WITH DISTANCE AND VERTICALLY WITH DEPTH. ALSO SHOWN AND DISCUSSED ARE THE MEAN WIND PATTERNS FOR THE AREA DURING THIS TIME PERIOD, THEIR INFLUENCE ON THE RIVER OUTFLOW AND THEIR ROLE IN THE TRANSPORT OF THE DILUTE SURFACE WATERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DISPERSION + *EFFLUENT + *RIVER, COLUMBIA + *WIND STATISTICS + DILUTION + METEOROLOGY +
TRANSPORT PROPERTY + WATER POLLUTION

14-24143 ALSO IN CATEGORY 15

RARRICK HL

REVIEW OF SANDIA SYMPOSIUM ON INSTRUMENTATION, EXPERIENCE, AND PROBLEMS IN HEALTH PHYSICS TRITIUM CONTROL
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-DC-67-2191 + CONF-671018-1 +. 7 PAGES, SEPT. 1967, PRESENTED AT MEETING OF THE AMERICAN PUBLIC HEALTH
ASSOCIATION, MIAMI, FLA.

TRITIUM IS NOT A RADIATION HAZARD UNLESS TAKEN INTO THE BODY, WHICH IS MOST EASILY DONE IN THE FORM OF TRITIUM WATER OR TRITIUM WATER VAPOR. ESSENTIALLY ALL TRITIUM WATER VAPOR INHALED IS RETAINED, AND AN EQUAL AMOUNT MAY BE ABSORBED THROUGH THE UNPROTECTED SKIN. THE DOSE MAY BE MEASURED IN THE URINE AND MAY BE REDUCED BY FLUID INTAKE. THE PROBLEM WITH DETECTING TRITIUM IS THAT THE RADIATION EMITTED IS SO WEAK THAT IT WILL NOT PENETRATE THE WALLS OF NORMAL DETECTION EQUIPMENT.

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

*INSTRUMENTATION, RADIATION MONITORING + *TRITIUM + CHALK RIVER + DOSE MEASUREMENT, INTERNAL + ENERGY LEVEL

14-24144 ALSO IN CATEGORY 15

FAIRHALL AW

HYDROSPHERE-ATMOSPHERE RADIOCHEMICAL MEASUREMENTS. PROGRESS REPORT, APRIL 1, 1966-APRIL 1, 1967
WASHINGTON UNIV., SEATTLE. DEPT. OF CHEMISTRY
RLC-1776-3 +. 32 PAGES, 16 REFERENCES, MAY 1, 1967

REPORTS WORK WHICH WAS DONE DURING THE PAST YEAR, CONTINUING THAT WHICH WAS REPORTED IN LAST YEARS PROGRESS REPORT. IT INVOLVES TWO PRINCIPAL SUB-DIVISIONS - A NUMERICAL ANALYSIS USING A STRATOSPHERIC MIXING MODEL WHICH INCORPORATES MEAN MERIDIONAL MOTION AND EDDY DIFFUSION PROCESSES TO EXPLAIN THE OBSERVED DISTRIBUTION IN TIME AND SPACE OF THE 1958 INJECTION OF W-185 INTO THE EQUATORIAL STRATOSPHERE, AND A MODEL OF TROPOSPHERIC MIXING AND EXCHANGE OF CO2 WITH THE SEA IN ORDER TO ACCOUNT FOR THE OBSERVED DISTRIBUTION IN TIME AND SPACE OF THE C-14 INJECTED INTO THE ATMOSPHERE BY THE 1961-1962 TEST SERIES.

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

*ATMOSPHERIC DIFFUSION + *FALLOUT + *MODEL TESTING + CARBON + OCEAN AND SEA + RADIOCHEMICAL ANALYSIS +
STRATOSPHERE + TROPOSPHERE + TUNGSTEN

14-24160

SCHEJBALOVA L

FIXATION OF RADIOACTIVE WASTES IN CONCRETE

INST. FOR NUCLEAR RESEARCH, CZECHOSLOVAK ACADEMY OF SCIENCES, REZ, NOVOTNY, JAROSLAV
6 PAGES, JAD. ENERG., 13, PAGE 87 THRU 92, (MARCH 1967), (IN CZECH)

FIXATION OF RADIOACTIVE WASTE CONCENTRATES AND SLURRIES IN VARIOUS TYPES OF CONCRETE WAS ANALYZED. THE INFLUENCE OF THE CHEMICAL COMPOSITION OF THE CONCENTRATES AND SLURRIES ON THE MECHANICAL PROPERTIES OF THE HARDENED CEMENT AND ON WASHING OUT OF THE RADIOACTIVE SUBSTANCES WAS ANALYZED. THE BEST RESULTS WERE OBTAINED WITH PORTLAND CONCRETE 350. AGING OF THE HARDENED CEMENT CAUSED A DECREASE IN THE ELUTION OF THE RADIOACTIVE SUBSTANCES.

*CONCRETE + *WASTE DISPOSAL, LIQUID + *WASTE TREATMENT, FIXATION + RADIATION SAFETY AND CONTROL

14-24161

KOCH A + KLOTZ D + MOSER H

THE USE OF RADIOACTIVE ISOTOPES IN HYDROLOGY. VI. THE INFLUENCE OF THE FILTER TUBE ON THE DETERMINATION OF FILTRATION VELOCITY BY THE POINT DILUTION METHOD
INSTITUT FUER RADIOHYDROMETRIE DER GESELLSCHAFT FUR STRAHLENFORSCHUNG MBH, MUNICH
10 PAGES, ATOMKERNENERGIE, 12, PAGE 361 THRU 370, (1967), (IN GERMAN)

FOR MEASURING THE FILTRATION VELOCITY OF AN UNDISTURBED GROUND-WATER FLOW, THE DISTORTION OF

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24161 *CONTINUED*

THE FLOW FIELD BY THE FILTER GAUGE MUST BE KNOWN, AND SPECIAL ALLOWANCE MUST BE MADE FOR THE INFLUENCE OF THE FILTER TUBE. IT HAS BEEN MANIFESTED THAT THE FILTER TUBE PERFORATION ALONE IS NOT SUITABLE FOR DESCRIBING THIS INFLUENCE. THE DISTORTION OF THE FLOW FIELD BY THE FILTER GAUGE CAN BE CALCULATED ACCORDING TO KNOWN THEORETICAL EXPRESSIONS.

*FILTRATION + *HYDROLOGICAL CONSIDERATION, GENERAL + *RADIOISOTOPE + DILUTION + FILTER

14-24162

SACHSE G + ROSENBERGER H
SOLIDIFICATION OF RADIOACTIVE CONCENTRATES IN GLASSES OR CERAMICS. PART 1. SURVEY OF THE PAPERS PUBLISHED TILL 1965
AENTRALINSTITUT FUER KERNFORSCHUNG, ROSSENDORF, GER. INSTITUT FUER ANGEWANDTE MINERALOGIE, DRESDEN
6 PAGES, KERNENERGIE, 10, PAGE 205 THRU 210, (JULY 1967), (IN GERMAN)

RESEARCH IN THE FIELD OF SAFE STORAGE OF HIGH-LEVEL RADIOACTIVE CONCENTRATES BY MELTING INTO GLASSES OR CERAMIC MATERIALS IS DESCRIBED. THE ACCESSIBLE REPORT LITERATURE AS WELL AS THE RESULTS OF THE CONFERENCE ON THE TREATMENT AND STORAGE OF HIGH-LEVEL RADIOACTIVE WASTES (VIENNA, 1963) AND THE 3RD CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY (GENEVA, 1964) WERE TAKEN INTO CONSIDERATION. SUBJECTS COVERED INCLUDE NATURALLY OCCURRING MINERAL RAW MATERIALS, INVESTIGATIONS ON GLASS SYSTEMS, TECHNOLOGICAL STUDIES, PROBLEMS OF THE STORAGE OF VITRIFIED HIGH-LEVEL RADIOACTIVE MATERIALS, AND COST OF THE PROCESSES.

*CERAMICS + *GLASS + *WASTE TREATMENT, FIXATION + RADIATION SAFETY AND CONTROL

14-24163

ALSO IN CATEGORY 15

DAVIC L
DEPTH DOSES DUE TO FISSION NEUTRON SPECTRUM IN A TISSUE-EQUIVALENT MATERIAL
INST. OF NUCLEAR RESEARCH, CZECHOSLOVAKIAN ACADEMY OF SCIENCES, PRAGUE
5 PAGES, JAD. ENERG., 13, PAGE 241 THRU 245, (JULY 1967), (IN CZECH)

ACCURATE KNOWLEDGE OF FLUX-DOSE RELATION IS NEEDED IN NEUTRON MONITORING FOR RADIOLOGICAL PROTECTION. FLUX-DOSE CONVERSION FACTORS FOR THE DEPTHS OF 0, 5, 10, 20, AND 30 CM IN AN INFINITE SLAB OF TISSUE-EQUIVALENT MATERIAL ARE GIVEN AND THEIR DEPENDENCE ON NEUTRON ENERGY OVER THE RANGE OF 0.1 KEV TO 10 MEV IS DETERMINED. IN ADDITION, AVERAGE VALUES OF THESE CONVERSION FACTORS FOR FISSION NEUTRON SPECTRUM AS A FUNCTION OF ITS THRESHOLD ENERGY ARE CALCULATED AND INTERCOMPARISONS OF SEVERAL ACTIVATION INTEGRATORS AS TO THEIR EFFICIENCY OF MEASURING FAST NEUTRON TISSUE-DOSES ARE DISCUSSED.

*DOSE MEASUREMENT, INTERNAL + *MONITORING PROGRAM, ENVIRONMENTAL + *NEUTRON + RADIOLOGICAL ASSISTANCE

14-24164

ALSO IN CATEGORY 15

SANTHOLZER V + STRANSKY P + KNAIFL J
RATIOS OF RADIONUCLIDES OF STRONTIUM IN FALLOUT AFTER THE THIRD NUCLEAR TEST IN CHINA
CHARLES UNIV., HRADEC KRALOVE, CZECHOSLOVAKIA
2 PAGES, JAD. ENERG., 13, PAGE 184 AND 185, (MAY 1967), (IN CZECH)

FRESH FISSION PRODUCTS WERE DEMONSTRATED BY RADIOCHEMICAL SEPARATION OF STRONTIUM FROM ATMOSPHERIC FALLOUT. THE RATIO OF SR-89/SR-90 ACTIVITIES WAS 2.44 70 DAYS AFTER THE NUCLEAR TEST. THE THEORETICALLY EXPECTED VALUE OF THIS RATIO IS 24 TO 36, ACCORDING TO THE TYPE OF FISSION. KURODA ET AL. FOUND THE VALUE OF THIS RATIO TO BE ABOUT 1 TWO MONTHS AFTER THE SECOND CHINESE TEST, WHICH AGREES WITH OUR RESULT. THE GREAT DIFFERENCE FROM THE THEORETICAL VALUE IS DUE TO FRACTIONATION PHENOMENA, METEOROLOGICAL INFLUENCE, AND ROTATION OF THE RADIOACTIVE CLOUD AROUND THE EARTH. FRESH FALLOUT WAS ALSO PROVED BY MEASUREMENTS OF THE ABSORPTION OF BETA RAYS OF THE SEPARATED MIXTURE OF SR-89 PLUS SR-90. IN FRESH FALLOUT THE SR-89 PREDOMINATES AND THE HALF-VALUE LAYER WAS ABOUT 110 MG/SQ. CM, WHILE FOR SR-90 IT IS 170 MG/SQ. CM.

*CHINA + *FALLOUT + *STRONTIUM + METEOROLOGY + RADIOCHEMICAL ANALYSIS

14-24231

ALSO IN CATEGORY 15

SEIDLER H + HAERTIG M
THE SR-90 ACTIVITY OF MILK IN 1964
INSTITUT FUER ERNAHRUNG, POTSDAM-REHBRUECKE, GER.
3 PAGES, NAHRUNG, 9, PAGE 701-703, (1965), (IN GERMAN)

THE SR-90 ACTIVITY IN LOCAL MILK SAMPLES AND IN FALLOUT SAMPLES WAS MEASURED AND COMPARED FOR CALENDAR YR 1964. COMPARED TO THE PREVIOUS YR, THE SR-90 ACTIVITY WAS SLIGHTLY HIGHER IN 1964, BUT THE 1964 WEEKLY VALUES ALMOST ALL WERE AT THE LEVEL OF MONTHLY AVERAGE, WHEREAS IN JULY AND AUGUST, 1963, SINGLE MAX. VALUES REACHED AS HIGH AS 60 PCI SR-90/G CA.

*BIOLOGICAL CONCENTRATION, MILK + *GERMANY + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM + FALLOUT + RAINOUT + TESTING

14-24233

ALSO IN CATEGORY 15

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24233 *CONTINUED*

BELYAEV VI + KOLESNIKOV AG + NELEPO BA
REGULARITIES OF THE RADIOACTIVE CONTAMINATION SPREADING IN THE OCEAN
MARINE HYDROPHYSICAL INST., KHARKOV
9 PAGES, IZV. AKAD. NAUK SSSR, FIZ. ATMOS. OKEANA, 3, PAGE 1092-1100, (OCT. 1967), (IN RUSSIAN)

THE RESULTS OBTAINED IN THE MARINE HYDROPHYSICAL INSTITUTE OF THE UKRAINIAN ACADEMY OF SCIENCES IN THE STUDY OF SPREADING OF RADIOACTIVITY FROM NUCLEAR TESTS IN SEAS AND OCEANS WERE ANALYZED. THE PHYSICAL MECHANISM OF RADIOACTIVE PENETRATION FROM THE ATMOSPHERE INTO THE OCEAN DEPTHS IS DISCUSSED. INVESTIGATIONS REVEALED A FAR GREATER RATE OF PENETRATION OF RADIOACTIVITY THAN HAS BEEN CONSIDERED BEFORE. ESTIMATING THE WATERS AGE BY DECAY OF RADIOACTIVE ELEMENTS WHILE NEGLECTING EXCHANGE IN THE OCEAN IS SHOWN TO BE INADEQUATE.

*CONTAMINATION + *OCEAN AND SEA + *TESTING + ATMOSPHERIC POLLUTION + NUCLEAR EXPLOSION DEBRIS + POPULATION EXPOSURE + USSR

14-24234 ALSO IN CATEGORY 15

BLUME W
THE CONTAMINATION OF OUR ENVIRONMENT DUE TO NUCLEAR TESTS
8 PAGES, RADIOBIOL. RADIOTHER., 8, PAGE 187-194, (1967), (IN GERMAN)

ENVIRONMENTAL CONTAMINATION RESULTING FROM NUCLEAR TESTS WAS DETERMINED BY THE NATIONAL CENTRAL BOARD OF RADIATION PROTECTION. A REVIEW OF THE MECHANISMS OF SPREADING AND DEPOSITION OF FISSION PRODUCTS IN THE ATMOSPHERE IS PRESENTED. RADIOACTIVITY OF THE ATMOSPHERE NEAR THE GROUND FOLLOWING NUCLEAR TESTS IN 1962 WAS DETERMINED FROM MEASUREMENTS OF TOTAL BETA ACTIVITY OF THE AIR AND FALLOUT. STRONTIUM-90 MEASUREMENTS OF SOILS, PLANTS, AND FOODSTUFFS ARE GIVEN.

*BETA EMITTER + *CONTAMINATION + *NCRP + *NUCLEAR DETONATION + *STRONTIUM + DEPOSITION + ENVIRONMENTAL CONDITION + FALLOUT

14-24235 ALSO IN CATEGORY 15

HAKEN JW
RADIOACTIVE CONTAMINATION OF FOOD IN 1964
KEURINGSDIENST VAN WAREN, AMSTERDAM
9 PAGES, VOEDING, 26, PAGE 525-5338 (SEPT. 15, 1965), (IN DUTCH)

EXTENSIVE DATA ARE GIVEN FOR THE SR-90 AND CS-137 CONTENT OF RAINWATER AND FOOD IN THE NETHERLANDS. RESULTS OF SEMI-CONTINUOUS SURVEY OF MILK, BREAD, AND MEAT, AND 80 ANALYSES OF VEGETABLES AND VARIOUS FOOD ITEMS ARE INCLUDED.

*CESIUM + *CONTAMINATION + *ENVIRONMENTAL CONDITION + *NETHERLANDS + *NUCLEAR DETONATION + *STRONTIUM + CALCIUM + FALLOUT + RAINOUT

14-24236 ALSO IN CATEGORY 15

RQSFNKRA7 H
SKIN INJURIES IN ATOMIC EXPLOSIONS
HAUKLINIK DER BEZIRKSKRANKENHAUSES, POTSDAM, GER.
4 PAGES, Z. AERZTL. FORTBILD, 59, PAGE 1067-1070, (OCT. 1, 1965), (IN GERMAN)

VARIOUS TYPES OF PRIMARY, SECONDARY, AND LATE SKIN INJURIES THAT HAVE RESULTED FROM IRRADIATION EMITTED FROM ATOMIC EXPLOSIONS ARE BRIEFLY REVIEWED. A TABULATION OF THE COMPARATIVE SYMPTOMS OF IRRADIATION, WITH INDICATIONS OF THEIR CHRONOLOGICAL INCIDENCE AND DURATION, IS PRESENTED ALONG WITH SOME OF THE TREATMENTS.

*EXPLOSION + *RADIATION DAMAGE + *RADIATION INJURY, TREATMENT OF + DOSE + HAZARDS ANALYSIS + INCIDENT, EXPOSURE

14-24244 ALSO IN CATEGORY 15

BITTEL R
DISCUSSION OF FACTORS PROMOTING THE RADIOACTIVE CONTAMINATION OF CULTIVATED CROPS
CENTRE D-ETUDES NUCLEAIRES, FONTENAY-AUX-ROSES, FRANCE
22 PAGES, ANN. AGRON., HORS-SER., 16, PAGE 265-286, (1965), (IN FRENCH)

PLANTS TAKE-UP FROM THE BIOSPHERE RADIOACTIVE ELEMENTS ORIGINATING FROM RADIOACTIVE FALL-OUT AND IRRIGATION WATER. THE MECHANISMS OF ABSORPTION ARE THE SAME AS THOSE OPERATING FOR STABLE ELEMENTS IN MINERAL NUTRITION. SIMILARLY TO THE UPTAKE OF ELEMENTS FROM THE SOIL BY WAY OF ROOTS OR BY THE AERIAL ORGANS, PLANTS MAY BECOME CONTAMINATED INDIRECTLY FROM THE SOIL BY WAY OF THEIR ROOTS OR DIRECTLY BY ABSORBING RADIOACTIVE ELEMENTS DEPOSITED ON THEIR LEAVES, FLOWERS AND FRUITS. THERE IS A TREND TOWARDS AN EQUILIBRIUM BETWEEN RADIOACTIVE ADDITIONS AND LOSS IN RADIOACTIVITY BY LEACHING TO THE SUBSOIL AND UPTAKE BY ROOTS. WHEN THE RADIOACTIVITY OF THE SOIL REACHES THE LIMIT VALUE R, PLANTS ASSUME AN R VALUE THAT IS PROPORTIONAL TO R. EQUILIBRIUM IS RAPIDLY REACHED WITH RADIOACTIVE ELEMENTS OF SMALL AND MEDIUM HALF-LIFE, BUT IS REACHED VERY MUCH SLOWER WITH THE LONG-LIVED ISOTOPES SUCH AS CAESIUM-137 AND STRONTIUM-90.

*BIOLOGICAL CONCENTRATION, VEGETATION + *CONTAMINATION + *ECOLOGICAL CONSIDERATION + *FALLOUT + *RAINOUT + CESIUM + NUCLEAR DETONATION + STRONTIUM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24247 ALSO IN CATEGORY 15

BELOVA RS + LUNKINA ZP

THE RADIUM AND URANIUM CONTENT IN FOOD STUFFS AND THE ACCUMULATION OF THESE ELEMENTS IN THE HUMAN TEETH
4 PAGES, GIG. SANIT., 6, PAGE 48-51, (JUNE 1967), IN RUSSIAN

RESULTS ARE REPORTED FROM AN INVESTIGATION OF THE RADIUM AND URANIUM CONTENT IN FOOD PRODUCTS, WATER, AND IN THE TEETH OF THE POPULATION IN TWO DISTRICTS. IT WAS SHOWN THAT RADIUM AND URANIUM MIGRATE ALONG THE BIOLOGICAL ROUTE FROM WATER AND PLANTS TO THE ANIMAL BODY AND FROM THE LATTER TO MAN, ACCUMULATING IN THE BONE. THE DAILY AMOUNT OF RADIUM AND URANIUM ENTERING THE BODY IN THE DISTRICTS INVESTIGATED DEPENDS MAINLY ON THEIR CONTENT IN THE WATER, BUT IN THE CONTROL DISTRICT DEPENDS ON THEIR CONTENT IN FOOD.

*BIOLOGICAL CONCENTRATION, MAN + *RADIUM + *URANIUM + ECOLOGICAL CONSIDERATION + POPULATION EXPOSURE

14-24250 ALSO IN CATEGORY 15

RADIUM-226 AND RADON-222. CONCENTRATION IN ATLANTIC AND PACIFIC OCEANS

COLUMBIA UNIVERSITY

4 PAGES, 3 FIGURES, 3 TABLES, REFERENCES, SCIENCE 158(3806), PAGE 1307 THRU 1310, (DEC. 8, 1967)

MEASUREMENTS OF RADON-222 IN SEAWATER SUGGEST THE FOLLOWING - THE RADIUM-226 CONTENT OF SURFACE WATER IN BOTH THE ATLANTIC AND PACIFIC OCEANS IS UNIFORMLY CLOSE TO ABOUT 4×10^{-14} GRAM PER LITER. THE DEEP PACIFIC HAS A CONCENTRATION OF RADIUM-226 FOUR TIMES HIGHER AND THE DEEP ATLANTIC A CONCENTRATION TWICE AS HIGH AS THAT OF THE SURFACE. THESE DISTRIBUTION PROFILES CAN BE EXPLAINED BY THE SAME PARTICLE-SETTLING RATE FOR RADIUM-226 FROM SURFACE TO DEPTH FOR THE TWO OCEANS AND BY A THREEFOLD LONGER RESIDENCE TIME OF WATER IN THE DEEP PACIFIC THAN IN THE DEEP ATLANTIC.

*DIFFUSION + *OCEAN AND SEA + *RADIUM + *RADON + HYDROLOGICAL CONSIDERATION, GENERAL + PARTICULATE + TRANSPORT PROPERTY

14-24251 ALSO IN CATEGORY 15

SNARELY DR + BRILL WA

COMPARISON OF ENVIRONMENTAL RADIOACTIVITY LEVELS AFTER FOREIGN NUCLEAR WEAPONS TESTS OF MAY 9, 1966, AND DECEMBER 27, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

9 PAGES, 8 FIGURES, 11 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 63-71 (FEBRUARY 1968)

THE ENVIRONMENTAL RADIOACTIVITY LEVELS AFTER THE FOREIGN WEAPONS TESTS OF MAY 9, 1966 AND DECEMBER 27, 1966 ARE COMPARED, AND THE INFLUENCE OF DAIRY PRACTICES AND WEATHER CONDITIONS ON LEVELS OF IODINE-131 IN MILK ARE DISCUSSED.

*FALLOUT + *IODINE + *NUCLEAR DETONATION + *RAINOUT + ATMOSPHERIC DIFFUSION + BARIUM + BIOLOGICAL CONCENTRATION, VEGETATION + ENVIRONMENTAL CONDITION + RADIOLOGY + TESTING + USAEC

14-24252 ALSO IN CATEGORY 15

SECTION I. MILK AND FOOD

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

20 PAGES, TABLES, FIGURES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 85-104 (FEBRUARY 1968)

DATA FROM SELECTED NATIONAL, INTERNATIONAL, AND STATE MILK AND FOOD SURVEILLANCE ACTIVITIES ARE PRESENTED. AN EFFORT HAS BEEN MADE TO PRESENT A CROSS-SECTION OF ROUTINE SAMPLING PROGRAMS WHICH MAY BE CONSIDERED OF A CONTINUING NATURE. ROUTINE MILK SAMPLING HAS BEEN DEFINED AS ONE OR MORE SAMPLES COLLECTED PER MONTH.

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *SAMPLING + *SURVEILLANCE PROGRAM + CESIUM + DIETARY HABIT + FEDERAL RADIATION COUNCIL + IODINE + STRONTIUM

14-24253 ALSO IN CATEGORY 15

SECTION II. WATER

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE

7 PAGES, 2 TABLES, 2 FIGURES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 105-111 (FEBRUARY 1968)

THE PUBLIC HEALTH SERVICE, THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, AND OTHER FEDERAL, STATE, AND LOCAL AGENCIES OPERATE EXTENSIVE WATER-QUALITY SAMPLING AND ANALYSIS PROGRAMS FOR SURFACE, GROUND, AND TREATED WATER. MOST OF THESE PROGRAMS INCLUDE DETERMINATIONS OF GROSS BETA AND GROSS ALPHA RADIOACTIVITY AND SPECIFIC RADIONUCLIDES. MUCH OF THEIR EFFORTS IS HEREIN TABULATED.

*SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + *UNITED STATES + FEDERAL RADIATION COUNCIL + RADIOLOGY

CATEGORY 14
RADIOISOTOPE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24254 ALSO IN CATEGORY 15
SECTION III. AIR AND DEPOSITION
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
8 PAGES, 5 FIGURES, 3 TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 112-119
(FEBRUARY 1968)

CONTINUOUS SURVEILLANCE OF RADIOACTIVITY IN AIR AND PRECIPITATION PROVIDES ONE OF THE EARLIEST INDICATIONS OF CHANGES IN ENVIRONMENTAL FISSION-PRODUCT RADIOACTIVITY. TO DATE, THIS SURVEILLANCE HAS BEEN CONFINED CHIEFLY TO GROSS BETA PARTICLE ANALYSIS. ALTHOUGH SUCH DATA ARE INSUFFICIENT TO ASSESS TOTAL HUMAN RADIATION EXPOSURE FROM FALLOUT, THEY CAN BE USED TO DETERMINE WHEN TO MODIFY MONITORING IN OTHER PHASES OF THE ENVIRONMENT. SURVEILLANCE DATA FROM A NUMBER OF PROGRAMS ARE PUBLISHED MONTHLY AND SUMMARIZED PERIODICALLY TO SHOW CURRENT AND LONG-RANGE TRENDS OF ATMOSPHERIC RADIOACTIVITY IN THE WESTERN HEMISPHERE.

*FALLOUT + *GROSS BETA + *MONITOR, RADIATION, AIR + *RAINOUT + *SURVEILLANCE PROGRAM +
ATMOSPHERIC POLLUTION + DEPOSITION + PARTICULATE + PLUTONIUM

14-24285 ALSO IN CATEGORY 15
REPORT OF ACTIVITY, DECEMBER 1966
SERVICE CENTRAL DE PROTECTION CONTRE LES RAYONNEMENTS, IONISANTS, PARIS, FRANCE
SCPRI(RM)-XII-1966 +. 14 PAGES, IN FRENCH

PROGRESS REPORT OF THE CENTRAL SERVICE FOR THE PROTECTION AGAINST IONIZING RADIATION OF THE FRENCH MINISTRY OF PUBLIC HEALTH. TOPICS INCLUDE SUMMARIES OF RESEARCH PROGRAMS AND SUMMARIES OF ENVIRONMENTAL RADIOACTIVITY IN FRANCE.

*FRANCE + *RADIATION PROTECTION, ORGANIZATION + *SURVEY, RADIATION, ENVIRONMENTAL + AIR + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL + CERIUM + CESIUM + ECOLOGICAL CONSIDERATION + GROSS BETA + GROSS GAMMA + MANGANESE + PERSONNEL EXPOSURE, RADIATION + POPULATION EXPOSURE + RAINOUT + STRONTIUM + SURFACE WATER, NUCLIDE OCCURRENCE + WATER, DRINKING

14-24320
GOODE JH + FLANARY JR
FIXATION OF INTERMEDIATE-LEVEL RADIOACTIVE WASTE CONCENTRATES IN ASPHALT HOT-CELL EVALUATION
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-4059 +. 32 PAGES, FIGURES, JANUARY 1968

HOT-CELL TESTS WERE MADE TO DETERMINE THE EFFECTS OF INTERNAL IRRADIATION ON THE LEACHING RATES OF SODIUM AND FISSION PRODUCTS FROM ASPHALT-WASTE PRODUCTS CONTAINING 60 WT % SOLIDS AND AS MUCH AS 52 CURIES OF AGED MIXED FISSION PRODUCTS PER GALLON OF ASPHALT PRODUCT. THESE PRODUCTS WERE PREPARED BY INCORPORATING THREE TYPICAL VARIETIES OF INTERMEDIATE-LEVEL RADIOACTIVE LIQUID WASTES - ORNL WASTE EVAPORATOR CONCENTRATE (ILW), SIMULATED ALUMINUM CLADDING SOLUTION (ACS), AND NEUTRALIZED SAVANNAH RIVER PLANT PUREX SECOND-PLUTONIUM-CYCLE WASTE FROM HANFORD, INTO TYPE RS-2 EMULSIFIED ASPHALT. BOTH WATER AND WATER CONTAINING 100 PPM OF NaCl WERE USED TO LEACH SAMPLES OF THESE PRODUCTS. NO SIGNIFICANT DIFFERENCE WAS NOTED BETWEEN THE RATES OBTAINED FOR EACH LEACHANT.

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

*HOT CELL + *WASTE DISPOSAL, LIQUID + *WASTE TREATMENT, FIXATION + BETA EMITTER + GAMMA EMITTER + PLUTONIUM + RUTHENIUM + WASTE TREATMENT, ECONOMICS

14-24321 ALSO IN CATEGORY 15
OSLOOND JH
RADIOACTIVE WASTE DISPOSAL DATA FOR THE NATIONAL REACTOR TESTING STATION, IDAHO
IDAHO OPERATIONS OFFICE (AEC), IDAHO FALLS, IDAHO
IDO-12040(SUPPL.2) +. 19 PAGES, NOVEMBER 1967

THE INFORMATION IN THIS REPORT INCLUDES THE QUANTITIES, TYPE, AND DISPOSITION OF RADIOACTIVE WASTE ASSOCIATED WITH REACTOR OPERATIONS OR RESEARCH PROJECTS DURING CALENDAR YEAR 1966. THE WASTES ARE IDENTIFIED ACCORDING TO PHYSICAL FORM, NUCLIDE CONTENT, AND THE FACILITY OR AREA ORIGINATING THE WASTE. PREVIOUSLY PUBLISHED REPORTS, IDO-12040, AND IDO-12040, SUPPLEMENT NO. 1, CONTAIN RADIOACTIVE-WASTE DISPOSAL DATA FOR THE YEARS 1955 THROUGH 1965.

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

*NRTS + *WASTE DISPOSAL, GENERAL + *WASTE SOURCE AND TYPE + *WASTE TREATMENT, GENERAL +
ATMOSPHERIC POLLUTION + CALCINATION + ENVIRONMENTAL CONDITION + RADIATION SAFETY AND CONTROL

14-24323
KATOH J + MISAKA T

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24323 *CONTINUED*
CONTROL OF LIQUID RADIOACTIVE WASTES IN JPDR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
9 PAGES, HOKEN BUTSURI, 1(2), PAGES 55-63 (DEC. 1966) IN JAPANESE

REVIEWS THE CONTROL OR REGULATION OF LIQUID RADIOACTIVE WASTE AND THE EXPERIMENTAL RESULTS OF THE JPDR FOR THE PAST THREE YEARS.

*RADIATION SAFETY AND CONTROL + *REACTOR POWER + *WASTE TREATMENT, LIQUID + FILTER + JAPAN + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + OCEAN AND SEA

14-24325
LOMENICK TF
ACCELERATED DEFORMATION OF ROCK SALT AT ELEVATED TEMPERATURE AND PRESSURE AND ITS IMPLICATIONS FOR HIGH LEVEL RADIOACTIVE WASTE DISPOSAL
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-2102 +. 119 PAGES, FIGURES, MARCH, 1968

WITH THE STORAGE OF HIGH-LEVEL RADIOACTIVE WASTE IN SALT STRUCTURES, UNIQUE MINE STABILITY PROBLEMS WILL OCCUR AS A RESULT OF THE ELEVATED TEMPERATURES. TO PREDICT FLOW IN ROCK SALT, SCALE MODELS OF SALT PILLARS AND THEIR SURROUNDING ROOMS WERE MADE FROM CORES TAKEN IN THE CAREY SALT MINE, LYONS, KANSAS. TESTS WERE RUN AT TEMPERATURES OF 22.5, 60, 100, AND 200 C FOR AXIAL LOADS OF 2,000, 4,000, 6,000, 8,000, AND 10,000 PSI AT EACH TEMPERATURE. THE TESTS SHOWED THAT MARKED INCREASES OCCUR IN THE RATES OF DEFORMATION OF SALT PILLARS AT HIGH LOADS AND ESPECIALLY AT ELEVATED TEMPERATURES. FOR ALL COMBINATIONS OF AXIAL LOADS AND TEMPERATURES, IT WAS OBSERVED THAT THERE IS INITIALLY A HIGH RATE OF DEFORMATION THAT DIMINISHES WITH TIME.

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

*DEFORMATION + *EXPERIMENT, GENERAL + *GEOLOGICAL CONSIDERATION, GENERAL + *PLASTICITY + *WASTE DISPOSAL, SALT + *WASTE DISPOSAL, SOLID + CREEP BEHAVIOR + STRESS + SUPPORT STRUCTURE

14-24326
MORRE J
ALIMENTARY HYGIENE AND IONIZING RADIATIONS
SERVICE VETERINAIRE DE LA SEINE, PARIS
22 PAGES, REV. HYD. MED. SOC., 13, PAGES 257-78 (1965) IN FRENCH

THE CONTAMINATION OF FOODS BY RADIOACTIVE FALLOUT IS DISCUSSED AND THE PRINCIPAL METHODS USED TO MEASURE THE MOST DANGEROUS CONTAMINANTS SR-90 AND CS-137 ARE DESCRIBED. THE USE OF IONIZING RADIATION FOR THE PASTEURIZATION AND STERILIZATION OF FOODS IS DISCUSSED IN SOME DETAIL. THE GENERAL TECHNIQUES ARE GIVEN. THE SUCCESSES AND FAILURES IN THE PRESERVATION OF FRUITS, CEREALS, POTATOES, FISH, SEA FOOD, EGGS, AND MILK ARE OUTLINED.

*BIOLOGICAL CONCENTRATION, FOOD + *CESIUM + *CONTAMINATION + *FALLOUT + *STRONTIUM

14-24345
HARDY EP + RIVERA J
FALLOUT PROGRAM. QUARTERLY SUMMARY REPORT, SEPTEMBER 1-DECEMBER 1, 1967
NEW YORK OPERATIONS OFFICE, AEC
HASL-184 +. 414 PAGES, TABLES, FIGURES, JANUARY 1, 1968

PRESENTS CURRENT DATA FROM THE HASL FALLOUT PROGRAM, ISOTOPES INC., NATIONAL RADIATION LABORATORY IN NEW ZEALAND, THE DIVISION OF BIOLOGICAL AND MEDICAL RESEARCH AT ARGONNE NATIONAL LABORATORY, EURATOM JOINT NUCLEAR RESEARCH CENTRE, THE DIVISION OF BIOLOGY AND MEDICINE, USAEC, AND THE AIR RESOURCES LABORATORIES, ESSA. 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 - PU-238 FALLOUT FROM SNAP-9A, SIGNIFICANCE OF CS-137 LEVELS IN MAN, SEASONAL STRATOSPHERIC DISTRIBUTION OF CD-109, PU-238, AND SR-90, STRATOSPHERIC RADIOACTIVITY IN NOVEMBER 1967, AND THE HASL QUALITY-CONTROL PROGRAM. 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, MILK + *FALLOUT + *RADIATION SAFETY AND CONTROL + *STRATOSPHERE + BIBLIOGRAPHY + CADMIUM + CESIUM + DIETARY HABIT + ENVIRONMENTAL CONDITION + PLUTONIUM + STRONTIUM

14-24354 ALSO IN CATEGORY 15
COFFIN DO
SGME (SECOND) THOUGHTS ON TRITIUM CONTAMINATION
LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO
LA-DC-7996 + CONF 660621-6 +. 12 PAGES, 1966

EMPHASIZES THAT PLASTIC BAGS SHOULD NOT BE USED WHEN DEALING WITH TRITIUM LEAKAGE OR

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24354 *CONTINUED*

CONTAMINATION. IN A FEW HOURS A PLASTIC BAG CAN RAISE THE PERSONNEL EXPOSURE RATE FROM A CONTAMINATED OBJECT A THOUSANDFOLD.

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

*TRANSPORTATION AND HANDLING + *TRITIUM + CONTAMINATION + LEAK RATE

14-24355 ALSO IN CATEGORY 15

NEVILL AD + JACOBSON AP + MCDERMOTT KA
EFFECTS OF HUMAN EXPOSURE TO IONIZING RADIATION. A BIBLIOGRAPHY
MICHIGAN UNIVERSITY, ANN ARBOR, MICH
NP-17232 +. 70 PAGES, MARCH 1968

THIS BIBLIOGRAPHY IS AN ATTEMPT TO EXTRACT FROM THE LITERATURE THE UNPLANNED EFFECTS OF RADIATION ON HUMANS. IT DOES NOT INCLUDE RADIOTHERAPY, LEUKEMOGENESIS, OR THEORETICAL SPECULATIONS ON GENETIC EFFECTS. HOWEVER, HIROSHIMA AND NEGASAKI REFERENCES HAVE BEEN INCLUDED, SINCE IT WAS FELT THAT THIS IS AN IMPORTANT ASPECT OF HUMAN EXPOSURE. THE CITATIONS ARE GROUPED CHRONOLOGICALLY WITHIN THE FOLLOWING CATEGORIES - NUCLEAR ACCIDENTS, OTHER ACCIDENTS, OCCUPATIONAL, DIAL PAINTERS, THOROTRAST, MINERS, MARSHALL AND RONGELAP ISLANDERS, HIROSHIMA AND NAGASAKI. THE BIBLIOGRAPHY COVERS THE YEARS 1896 TO MID-1967. IT INCLUDES ABOUT 900 REFERENCES, 250 OF WHICH ARE ON HIROSHIMA AND NAGASAKI. WE BELIEVE THAT IT REPRESENTS A FAIRLY COMPREHENSIVE SEARCH OF THE LITERATURE.

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

*BIBLIOGRAPHY + *FALLOUT + *INGESTION + *NUCLEAR ATTACK + *NUCLEAR INCIDENT DOSIMETER + *RADIUM + *X-RAY + NUCLEAR EXPLOSION DEBRIS + REACTOR POWER + THORIUM

14-24356 ALSO IN CATEGORY 15

PRESTON A + JEFFERIES DF + DUTTON JW
THE CONCENTRATIONS OF CAESIUM-137 AND STRONTIUM-90 IN THE FLESH OF BROWN TROUT TAKEN FROM RIVERS AND LAKES IN THE BRITISH ISLES BETWEEN 1961 AND 1966 - THE VARIABLES DETERMINING THE CONCENTRATIONS AND THEIR USE IN RADIOLOGICAL ASSESSMENTS
FISHERIES RADIOBIOLOGICAL LABORATORY, SUFFOLK, ENGLAND
22 PAGES, 10 FIGURES, 4 TABLES, REFERENCES, WATER RESEARCH, 1, PAGES 475-496 (1967)

CONCENTRATIONS OF CS-137 AND SR-90 IN THE FLESH OF BROWN TROUT ARE REPORTED FROM TWO COMPLEMENTARY STUDIES - A DETAILED STUDY OVER A SIX YEAR PERIOD OF LAKE TRAWSFYNYDD (MERIONETH, NORTH WALES), COMPARING QUANTITIES OF RADIOACTIVE FALLOUT DEPOSITED AND WATER AND FLESH CONCENTRATIONS FOR BOTH RADIONUCLIDES, AND GENERAL SURVEYS OF WATERS THROUGHOUT THE BRITISH ISLES. FROM THE BRITISH ISLES SURVEYS CAESIUM-137 CONCENTRATIONS ARE RELATED TO POTASSIUM CONCENTRATIONS IN THE WATER AND STRONTIUM-90 CONCENTRATIONS TO CALCIUM CONCENTRATIONS IN THE WATER. IT IS DEMONSTRATED THAT CONCENTRATIONS OF CAESIUM-137 IN BROWN TROUT FLESH FROM SOME SCOTTISH WATERS WERE PROBABLY AS HIGH AS ANY RECORDED FROM ARCTIC ECOSYSTEMS. CONCENTRATIONS OF BOTH CONTAMINANTS IN TROUT FLESH CAN BE EXPRESSED AS FUNCTIONS OF WATER CONDUCTIVITY IN CALCIUM BICARBONATE SURFACE WATERS FROM BRITAIN, AND IT IS SUGGESTED THAT THIS MAY BE A USEFUL GENERAL APPROACH TO RADIOLOGICAL ASSESSMENTS INVOLVING FISH FROM MANY SUCH SURFACE WATERS. THE RADIOLOGICAL IMPLICATIONS OF THE PRINCIPAL CONCLUSIONS ARE DISCUSSED AND SIMPLE RISK DIAGRAMS ARE PRODUCED AS A GUIDE TO THE ASSESSMENT OF DIFFERENT SITUATIONS.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *CESIUM + *RADIOLOGICAL ASSISTANCE + *STRONTIUM + *UNITED KINGDOM + ECOLOGICAL CONSIDERATION + SAMPLING

14-24357

GARISON G
THE PROBLEM OF RADIOACTIVE WASTE STORAGE IN THE COMMUNITY
5 PAGES, EURATOM BULL., 6, PAGES 84-8 (SEPT. 1967)

WASTE DISPOSAL PROBLEMS IN THE NUCLEAR INDUSTRY ARE DISCUSSED, WHILE A LARGE PART OF THE LOW- AND MEDIUM-ACTIVITY EFFLUENTS ARE DISCHARGED INTO THE SURROUNDING AIR OR WATER, THE RESIDUES LEFT AFTER THEIR DECONTAMINATION, SOLID WASTE AND CONTAMINATED OBJECTS ARE INCONVENIENTLY BULKY ALTHOUGH GENERALLY OF LOW RADIOACTIVITY. IN MOST CASES THEY ARE STORED IN SPECIAL AREAS AT THE PRODUCTION CENTERS. THE RAPID, EXTENSIVE DEVELOPMENT OF NUCLEAR POWER WILL RESULT IN A GROWING OUTPUT OF WASTE WHOSE SPECIFIC RADIOACTIVITY WILL BEAR NO RELATION TO THAT OF TODAY'S WASTE. ALTHOUGH SATISFACTORY INDUSTRIAL SOLUTIONS HAVE BEEN FOUND FOR THE PROCESSING AND PACKAGING OF LOW-ACTIVITY RESIDUES, THE DIFFICULTIES INVOLVED WITH HIGHLY RADIOACTIVE WASTE ARE BEING WIDELY DISCUSSED AND THE SOLUTIONS RECOMMENDED FOLLOW SEVERAL LINES OF THOUGHT.

*REACTOR POWER + *WASTE STORAGE + *WASTE TREATMENT, GENERAL + ECONOMICS + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + MONITOR, RADIATION, GENERAL + POPULATION EXPOSURE + SEISMOLOGY + SOIL + WASTE SOURCE AND TYPE

14-24358

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24358 *CONTINUED*
CERRAI E + SCHREIBER B + TRIULZI C
VERTICAL DISTRIBUTION OF SR-90, CE-144, PM-147, AND EU-155 IN COASTAL MARINE SEDIMENTS
LABORATORI CISE, MILAN
7 PAGES, 3 TABLES, REFERENCES, ENERG. NUCL. (MILAN), 14, PAGES 586-92 (OCT. 1967)

EU-155 IN COASTAL SEDIMENT SAMPLES OF THE LIGURIAN SEA IS REPORTED. TEN SUBSEQUENT 2-CM-THICK FRACTIONS WERE ANALYZED BEGINNING FROM THE TOP OF THE CORES. SUCH FRACTIONS DERIVE FROM THE BLENDING OF THE CORRESPONDING 7-CORE FRACTIONS COLLECTED AT 50-M DEPTH. THE CHEMICAL AND RADIOCHEMICAL PROCEDURES USED ARE DESCRIBED FOR THE SEPARATION OF STRONTIUM AND RARE EARTHS, BOTH CONTAINED IN AN ACID EXTRACT. PARTICULAR CARE WAS TAKEN DURING PROCESSING AND MEASUREMENTS, OWING TO THE SMALL ACTIVITIES INVOLVED. RADIOACTIVITY DEPOSITED ON THE BOTTOM RESULTS TO BE, IN PICOCURIES/SQ. CM, 0.298 FOR SR-90, 10.9 FOR CE-144, 15.99 FOR PM-147, AND 1.81 FOR EU-155.

*CERIUM + *EUROPIUM + *OCEAN AND SEA + *PROMETHIUM + *SEDIMENT + *STRONTIUM + CHEMICAL ANALYSIS + RADIOCHEMICAL ANALYSIS

14-24360
HAJEK BF
ADSORPTION, MIGRATION, AND DISPERSION OF STRONTIUM AND CESIUM IN AN N-AREA SOIL
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-CC-208 +. 20 PAGES, REFERENCES, JULY 7, 1965

PRESENTS EXPERIMENTAL AND MATHEMATICALLY DERIVED RESULTS.

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

*ADSORPTION + *CESIUM + *DISPERSION + *HAZARDS ANALYSIS + *STRONTIUM + *WASTE DISPOSAL, LIQUID + ENVIRONMENTAL CONDITION + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + R AND D PROGRAM + SOIL, RADIONUCLIDE MOVEMENT THROUGH

14-24371 ALSO IN CATEGORY 7
MCKNIGHT ME + NORGON RW
A STUDY OF THE EXCHANGE CHARACTERISTICS OF MONTMORILLONITE CLAY FOR FISSION PRODUCT CATIONS FOR USE IN THE GENERATION OF INSOLUBLE AEROSOLS
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, N. MEXICO
LF-37 +. 12 PAGES, 4 FIGURES, 12 REFERENCES, OCTOBER 1967

THE EXCHANGE OF CESIUM, CERIUM, STRONTIUM, AND YTTRIUM WITH EXCHANGEABLE IONS IN MONTMORILLONITE CLAY IN AQUEOUS SUSPENSION HAS BEEN STUDIED. THE PERCENT OF THE INITIAL ION CONCENTRATION EXCHANGED INTO THE CLAY HAS BEEN DETERMINED AS A FUNCTION OF THE INITIAL CONCENTRATION. THIS DATA IS USEFUL IN THE PREPARATION OF CLAY HAVING A HIGH SPECIFIC ACTIVITY. IT WAS FOUND THAT CLAY CAN BE PREPARED WHICH HAS A SPECIFIC ACTIVITY OF 2 MCI PER MG FOR CS-137 AND 6 MCI PER MG FOR Y-91 AND CE-144.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEROSOL + *FISSION PRODUCT TRANSPORT + *WASTE HANDLING + ACTIVITY BUILDUP + CERIUM + CESIUM + RADIOCHEMICAL PROCESSING + STRONTIUM + YTTRIUM

14-24375
SMITH DB + PARSONS TV + WEARN PL
FURTHER INVESTIGATION OF SILT MOVEMENT IN THE EBB CHANNEL, FIRTH OF FORTH, USING RADIOACTIVE TRACERS
UKAEA, WATGATE RESEARCH LABORATORY
AERE-R-5523 +. 6 PAGES, FIGURES, TABLES, JULY, 1967

A PREVIOUS INVESTIGATION INTO SPOIL MOVEMENT IN THE EBB CHANNEL SPILL GROUND, FIRTH OF FORTH, HAD SHOWN THAT SHORT-TERM MOVEMENT WAS PRINCIPALLY DOWNSTREAM ON TO AN AREA OF MUD BANKS. THE PRESENT INVESTIGATION USED SCANDIUM-46 AS THE RADIOACTIVE TRACER AND THIS ENABLED SPOIL MOVEMENT TO BE FOLLOWED FOR NEARLY 4 MONTHS. THE PRINCIPAL MOVEMENT WAS DOWNSTREAM ALONG THE LINE OF THE EBB CHANNEL, WHICH CONFIRMS THE RESULTS OF THE PREVIOUS INVESTIGATION. DEPOSITION AT SLACK LOW WATER ONLY PRODUCED A VERY LIMITED UPSTREAM MOVEMENT. AFTER ONE MONTH TRACES OF MATERIAL REACHED THE SOUTHERN EDGE OF THE MAIN CHANNEL. HYDROGRAPHIC SURVEYS WILL BE UNDERTAKEN TO INVESTIGATE THE QUESTION OF LONG-TERM SPOIL CONSOLIDATION.

AVAILABILITY - HER MAJESTY'S STATIONERY OFFICE, LONDON, ENGLAND

*DEPOSITION + *SCANDIUM + *TRACER, RADIOACTIVE + *TRANSPORT PROPERTY + *UNITED KINGDOM + COUNTER + ESTUARY + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION

14-24376 ALSO IN CATEGORY 15
ANDERSEN BV + NELSON IC
PLUTONIUM AIR CONCENTRATIONS AND PARTICLE SIZE RELATIONSHIPS IN HANFORD FACILITIES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-495 +. 44 PAGES, FIGURES, TABLES, DECEMBER 1967

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24376 *CONTINUED*

MEASUREMENT RESULTS ARE PRESENTED FROM A STUDY OF A VARIETY OF POTENTIAL EMPLOYEE EXPOSURE SITUATIONS IN THREE MAJOR PLUTONIUM-HANDLING FACILITIES. THE TYPICAL AEROSOL SHOWED AN ACTIVITY MEDIAN DIAMETER (AMD) OF ABOUT 0.2 MICRON WITH A GEOMETRIC STANDARD DEVIATION OF 1.4 FOR 60% OF THE PLUTONIUM-239, WITH 40% EXHIBITING AN AMD OF 2.4 MICRON WITH A GEOMETRIC STANDARD DEVIATION OF 1.3. THE MEASURED PLUTONIUM-239 AEROSOL PARAMETERS WERE THEN UTILIZED IN THE STUDY OF RELATIONSHIPS OF CHRONIC INHALATION WITH CURRENT RESPIRATORY TRACT MODELS FOR DEPOSITION AND RETENTION OF PLUTONIUM AEROSOLS. PULMONARY BURDENS OF PLUTONIUM-239 FOR CHRONIC EXPOSURE WERE CALCULATED TO BE IN THE PICOCURIE TO NANOCURIE RANGE.

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

*MONITOR, RADIATION, PERSONNEL + *PARTICLE SIZE + *PARTICLE SIZE DISTRIBUTION + *PARTICLE, RADIOACTIVE +
*PLUTONIUM + AEROSOL, RADIOACTIVE + AIR + CONCENTRATION, AREA + DEPOSITION + DOSIMETRY, GENERAL +
ENVIRONMENTAL CONCITION + HAZARDS ANALYSIS + INHALATION

14-24377 ALSO IN CATEGORIES 15 AND 19

RUSSELL BG

PLUTONIUM ABSTRACTS. VOLUME 7, NUMBER 11

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-644 +. 85 PAGES, NOVEMBER 30, 1967

PLUTONIUM ABSTRACTS IS A CURRENT-AWARENESS SERVICE TO THE ATOMIC ENERGY COMMISSION AND ITS RESEARCH AND DEVELOPMENT CONTRACTORS FOR NEW DEVELOPMENTS IN ALL AREAS OF PLUTONIUM TECHNOLOGY. THIS ISSUE COVERS THE FOLLOWING - BIOLOGY AND MEDICINE, CHEMISTRY, HEALTH AND SAFETY, METALLURGY, MISCELLANEOUS, PHYSICS, AND REACTOR TECHNOLOGY.

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

*BIBLIOGRAPHY + *PLUTONIUM

14-24406 ALSO IN CATEGORY 15

ESSIG TH

EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD JANUARY-JUNE 1967

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-665 +. 23 PAGES, FIGURES, REFERENCES, JANUARY, 1968

RESULTS OF THE ENVIRONMENTAL SURVEILLANCE PROGRAM (CONDUCTED FOR THE HANFORD PLANT BY BATTELLE-NORTHWEST ENVIRONMENTAL STUDIES SECTION) ARE SUMMARIZED FOR THE FIRST HALF OF 1967. TO SHOW TRENDS IN RADIOLOGICAL CONDITIONS, DATA COLLECTED FOR THIS REPORTING PERIOD WERE ADDED TO GRAPHS SHOWING THE RESULTS OF MEASUREMENTS FROM PREVIOUS YEARS.

AVAILABILITY -- CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICRONEGATIVE

*BIOLOGICAL CONCENTRATION, GENERAL + *DIETARY HABIT + *ENVIRONMENTAL CONDITION + *NUCLEAR DETONATION +
DOSE + FALLOUT + INSTRUMENTATION, SURVEILLANCE + RADIOCHEMICAL ANALYSIS + RIVER, COLUMBIA

14-24425 ALSO IN CATEGORY 15

BASIS HEALTH PHYSICS

DEFENSE ATOMIC SUPPORT AGENCY, ALBUQUERQUE, N. MEX.

NP-16391 +. 109 PAGES, DECEMBER 1, 1967

HEALTH PHYSICS IS DEDICATED TO THE PROTECTION OF MAN AND HIS ENVIRONMENT FROM UNWARRANTED RADIATION EXPOSURE. THE ARTICLE, BASIC HEALTH PHYSICS, BREAKS DOWN THE SUBJECT MATTER INTO THE FOLLOWING CATEGORIES - RADIATION UNITS AND THEIR BIOLOGICAL EFFECTS, TOLERANCES, HAZARDS, DETECTION AND MEASUREMENT, RADIATION MATHEMATICS, AND PROTECTIVE EQUIPMENT.

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

*BIOLOGICAL CONCENTRATION, MAN + *RADIATION DAMAGE + *RADIATION EFFECT + AIRBORNE RELEASE + CONTAMINATION +
DOSE + HAZARDS ANALYSIS + HYDROGEN + INGESTION + INHALATION + MATHEMATICAL TREATMENT + PLUTONIUM +
RADIATION UNIT + SURFACE CONTAMINATION + TRITIUM + URANIUM + X-RAY

14-24439 ALSO IN CATEGORY 15

MOORE C + ESSIG TH

EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1965. APPENDICES

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LABS.

BNWL-316(APP.) +. 146 PAGES, TABLES, SEPT. 1966

THIS SUPPLEMENTAL REPORT IS A COMPILATION OF RESULTS OBTAINED FROM RADIOCHEMICAL ANALYSES OF ENVIRONMENTAL SAMPLES AND FROM RADIOLOGICAL MEASUREMENTS MADE IN THE HANFORD ENVIRONS DURING 1965. THE RADIOLOGICAL SIGNIFICANCE OF THE DATA IS DISCUSSED IN THE PARENT REPORT (BNWL-316).

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

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24439 *CONTINUED*
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DATA PROCESSING + *RADIOCHEMICAL ANALYSIS + *SAMPLING + *WASTE DISPOSAL, TERRESTRIAL +
BATTELLE NORTHWEST + FALLOUT + RADIOLOGY + RIVER, COLUMBIA + WATER POLLUTION

14-24479 ALSO IN CATEGORY 15
EVANS FC
SECOND NATIONAL SYMPOSIUM ON RADIOECOLOGY
UNIVERSITY OF MICHIGAN
6 PAGES, 1 TABLE, NUCLEAR SAFETY 9(2), PAGE 138-143, (MARCH 1968)

THE SECOND NATIONAL SYMPOSIUM ON RADIOECOLOGY PROVIDED AN OPPORTUNITY FOR INTERDISCIPLINARY COMMUNICATION AMONG A BROAD SPECTRUM OF SCIENTISTS CONCERNED NOT ONLY WITH THE PROBLEMS OF ENVIRONMENTAL CONTAMINATION FROM RADIOISOTOPES AND THE CONSEQUENT HAZARDS TO HUMAN AND OTHER LIFE, BUT ALSO WITH THE USE OF RADIOACTIVE TRACERS AS TOOLS TO ASCERTAIN THE PRECISE PATHWAYS AND RATES OF CIRCULATION OF MATERIALS IN NATURE.

*ACTIVITY BUILDUP + *ECOLOGICAL CONSIDERATION + *ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE +
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOTA + CONTAMINATION + EXPLOSION + FALLOUT +
RADIATION SAFETY AND CONTROL + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, HYDRAULIC FRACTURING +
WASTE DISPOSAL, SALT

14-24480 ALSO IN CATEGORY 15
TERRILL JG + WEAVER CL + HARWARD ED + SMITH DR
ENVIRONMENTAL SURVEILLANCE OF NUCLEAR FACILITIES
LIONEL ELECTRIC LABS, INC.
7 PAGES, 1 TABLE, 12 REFERENCES, NUCLEAR SAFETY 9(2), PAGE 143-149, (MARCH 1968)

ENVIRONMENTAL SURVEILLANCE PROGRAMS IN THE ENVIRONS OF NUCLEAR PLANTS ARE CONDUCTED BY LOCAL, STATE, AND FEDERAL AGENCIES EXTERNAL TO THE FACILITY SITE PERIMETER OR FENCED AREA. BASIC TO THE ESTABLISHMENT OF THESE PROGRAMS IS REVIEW BY THE HEALTH AGENCY OF THE PLANT SITE, THE RADIOACTIVE-WASTE DISCHARGE SYSTEM, THE SPECIFIC RADIONUCLIDES AND ANTICIPATED NORMAL DISCHARGES, AND THE PUBLIC-HEALTH IMPLICATIONS OF THE PRESENCE OF THESE RADIONUCLIDES. THESE ENVIRONMENTAL SURVEILLANCE PROGRAMS CAN BE DIRECTED AT THE MOST SENSITIVE OR CRITICAL VECTORS TO OBTAIN THE DATA NEEDED TO MAKE ESTIMATES OF POPULATION EXPOSURE. PREOPERATIONAL SURVEYS ARE DESIGNED TO OBTAIN BASELINE DATA, PROVIDE TRAINING AND EXPERIENCE FOR PERSONNEL, AND AS A MECHANISM FOR GATHERING DATA FOR PURPOSES OF PUBLIC INFORMATION.

*ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM +
ACCIDENT ANALYSIS + AIR + BIOTA + DOSE + HAZARDS ANALYSIS + SAMPLING + SEDIMENT + SURFACE WATER, GENERAL +
WASTE DISPOSAL, GENERAL

14-24481 ALSO IN CATEGORY 15
LARSON OW + SMALE RF
RADIATION MEASUREMENTS OF THE EFFLUENT FROM THE PHOEBUS 1B REACTOR
LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO
LA-3787 +. 25 PAGES, 18 FIGURES, 7 TABLES, SEPT. 1967

EFFLUENT CLOUD COMPOSITION AND AIR RADIOACTIVITY CONCENTRATION, AS DETERMINED BY ANALYSIS OF SAMPLES COLLECTED DOWNWIND DURING THE PHOEBUS-1B FULL-POWER TEST, ARE PRESENTED. DOSE DUE TO CLOUD PASSAGE AS DETERMINED FROM AIR SAMPLES IS COMPARED WITH THAT DETERMINED BY OTHER MEASUREMENTS. SAMPLING PROCEDURES AND EQUIPMENT ARE ALSO DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, THERMOLUMINESCENCE + *EFFLUENT + *REACTOR POWER + *SAMPLING +
ATMOSPHERIC DIFFUSION EXPERIMENT + DOSE + MONITOR, RADIATION, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL

14-24482 ALSO IN CATEGORY 15
BUNCH OF
CONTROLLED ENVIRONMENTAL RADIOIODINE TESTS. PROGRESS REPORT NO. 3
IDAHO OPERATIONS OFFICE (AEC), IDAHO FALLS. HEALTH AND SAFETY DIV.
IDO-12063 +. 77 PAGES, 48 FIGURES, 18 TABLES, 7 REFERENCES, JANUARY 1968

THE EMERGENCE OF NUCLEAR REACTORS AS COMPETITIVE ALTERNATES FOR THE PRODUCTION OF ELECTRICITY HAS GIVEN NEW IMPETUS TO THE SOLUTION OF QUESTIONS REGARDING THE BEHAVIOR OF RADIOACTIVE MATERIALS IN THE ENVIRONMENT. THE CONTROLLED ENVIRONMENTAL RADIOIODINE TESTS (CERT) PROGRAM CONSISTS OF FIELD RELEASES OF VARIOUS CHEMICAL SPECIES OF RADIOIODINE OVER DIFFERENT TYPES OF VEGETATION AND DURING VARIOUS METEOROLOGICAL CONDITIONS. DATA COLLECTED FROM THESE RELEASES ARE BEING USED TO DERIVE EMPIRICAL MODELS THAT DESCRIBE THE MOVEMENT OF IODINE THROUGH THE AIR-VEGETATION-COW-MILK-HUMAN CHAIN. THIS THIRD PROGRESS REPORT CONTAINS INFORMATION GATHERED DURING 1966 AS WELL AS A COMPILATION OF DATA RELATING TO AND INCLUDING THE DEPOSITION OF I-2 AND CH-3-I OVER A WIDE RANGE OF METEOROLOGICAL CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24482 *CONTINUED*

*CERT + *IODINE + *MONITOR, RADIATION, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, VEGETATION + DEPOSITION + METEOROLOGY + TRANSPORT PROPERTY

14-24483 ALSO IN CATEGORY 15

PEARCE DW + COMPTON MR
PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME II. PHYSICAL SCIENCES. PART 2. RADIOLOGICAL SCIENCES
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-481-2 +. 203 PAGES, FIGURES, TABLES, REFERENCES, DEC. 1967

THE INFORMATION IS PRESENTED UNDER TWO SUBHEADS - (1) RADIOLOGICAL CHEMISTRY AND (2) RADIOLOGICAL PHYSICS, WITH A BROAD COVERING OF SUBJECT MATTER FOR EACH. RADIONUCLIDES AND THEIR BEHAVIOR, MEASUREMENT, SPECTROMETRY, SAMPLING, CONCENTRATION IN ORGANISMS AND SEDIMENTS, AND WHOLE-BODY COUNTING ARE ADEQUATELY DISCUSSED. ALSO, INSTRUMENTS FOR MEASURING NEUTRON DOSE IS WELL COVERED IN THE ARTICLE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

ALASKA + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BRAZIL + CHINA + COSMIC RADIATION + COUNTER, WHOLE BODY + DEPOSITION + ENVIRONMENTAL CONDITION + FALLOUT + IODINE + KRYPTON + NEUTRON + POPULATION EXPOSURE + RADIOLOGICAL ASSISTANCE + RADIONUCLIDE, INDUCED + RIVER, COLUMBIA + SAMPLING + SEDIMENT + SODIUM + SPECTROMETRY, GAMMA + SURFACE WATER, GENERAL + TRACER, RADIOACTIVE

14-24521 ALSO IN CATEGORY 15

SHURE K
ADDITIONAL STUDY OF MODELS FOR RADIATION DAMAGE EXPOSURE
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-471(ADD.1) +. 12 PAGES, TABLES, NOVEMBER 1967

IT HAS BEEN SHOWN IN THIS STUDY AND IN THE CITED REFERENCES THAT A STEP-FUNCTION DAMAGE MODEL WITH A THRESHOLD OF THE ORDER OF 0.4-0.5 MEV AND A VACANCY PRODUCTION DAMAGE MODEL PROVIDE COMPARABLE CORRELATIONS OF IRRADIATION DATA OF MILD STEELS WITH NEUTRON EXPOSURE. IN THE APPLICATION OF THESE CORRELATIONS, PREDICTED CHANGES OF TRANSITION TEMPERATURE OF A302B STEEL ARE SIMILAR. THERE IS INSUFFICIENT INFORMATION WITH REGARD TO THE CORRELATIONS TO PROVIDE A BASIS FOR SELECTING ONE DAMAGE MODEL OVER THE OTHER. ADDITIONAL EXPERIMENTAL INFORMATION HAS BEEN CITED WHICH SUPPORTS THE EXISTENCE OF A SATURATION EFFECT OF DAMAGE WITH EXPOSURE.

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

*NEUTRON + *RADIATION DAMAGE + *RADIATION EFFECT + *RADIATION MODEL

14-24522 ALSO IN CATEGORY 15

SCHROEDER MC + CROCKER MC + BLANK MR
STUDY OF THE POSSIBLE CONTAMINATION OF GROUND WATER FROM RADIOACTIVE PACKAGES IMPACTING ON LAND. ANNUAL REPORT, JULY 14, 1966 - JULY 13, 1967
TEXAS AGRICULTURAL AND MECHANICAL UNIV., COLLEGE STATION, TEXAS
SC-CR-67-2708 +. 82 PAGES, FIGURES, TABLES, JULY, 1967

THE PURPOSE OF THIS PROJECT IS TO PROVIDE DATA FOR THE EVALUATION OF POSSIBLE RADIOLOGICAL HAZARDS FROM ACCIDENTAL CONTAMINATION OF SUBSURFACE WATER FROM A SNAP (SYSTEMS FOR NUCLEAR AUXILIARY POWER) DEVICE. THIS REPORT PRESENTS THE PROGRESS OF THIS RESEARCH PROJECT FROM JULY 14, 1966, TO JULY 13, 1967. UNTIL FURTHER WORK IS DONE, THE CONCLUSIONS PRESENTED MUST BE CONSIDERED TENTATIVE AND IN PART SPECULATIVE. THEREFORE, THE CONCLUSIONS MAY BE MODIFIED OR WITHDRAWN AFTER FURTHER STUDY.

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

*CONTAMINATION + *GROUND WATER, NUCLIDE OCCURRENCE + *SOIL + *TRANSPORT PROPERTY + ADSORPTION + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + STRONTIUM + WASTE DISPOSAL, LIQUID

14-24611 ALSO IN CATEGORY 15

ABSTRACTS FROM PAPERS PRESENTED AT THE JOINT ANNUAL MEETING OF THE ROCKY MOUNTAIN SECTION OF THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION AND THE RIO GRANDE CHAPTER OF THE HEALTH PHYSICS SOCIETY HELD AT SANDIA LABORATORY, ALBUQUERQUE, NEW MEXICO, SEPTEMBER 29 AND 30, 1967
SANDIA CORP. ALBUQUERQUE, N. MEX
SC-M-67-2959 + CONF-670937 +. 12 PAGES, DECEMBER 1967

ABSTRACTS FROM PAPERS OF MEETING COVERED SUBJECTS INVOLVED WITH INDUSTRIAL HYGIENE, BIOLOGICAL SCIENCES, AND INDUSTRIAL HYGIENE AND HEALTH PHYSICS.

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

14-24611 *CONTINUED*

AEROSOL + AIR + CHROMATOGRAPHY + COMPUTER PROGRAM + FILTER + HAZARDS ANALYSIS + INHALATION + IRRADIATION TESTING + LASER + LEAD + PARTICLE, RADIOACTIVE + PLUTONIUM + RADIOBIOLOGY + RADON + SAMPLING + URANIUM

14-24612 ALSO IN CATEGORY 15

SMOCOVITIS D + YOUNG ME + BATHO HF

APPARENT ABSORPTION OF THE GAMMA RAYS OF RADIUM IN WATER

BRITISH COLUMBIA CANCER INST., VANCOUVER

7 PAGES, 5 FIGURES, 2 TABLES, REFERENCES, BRIT. J. RADIOL, 40, PAGES 771-777 (OCT. 1967)

VALUES OF THE RATIO OF THE EXPOSURE IN A LARGE WATER PHANTOM TO THE EXPOSURE IN AIR AS A FUNCTION OF DISTANCE FROM A RADIUM SOURCE HAVE BEEN REMEASURED SINCE THERE ARE APPRECIABLE DISCREPANCIES BETWEEN PREVIOUSLY REPORTED VALUES. ALL MEASUREMENTS REPORTED IN THIS PAPER WERE MADE WITH SMALL AIR-FILLED CAVITY IONIZATION CHAMBERS. THE CHAMBER WALL WAS AT LEAST 0.6 CM OF PLEXIGLAS IN ALL CASES TO GUARANTEE FULL ELECTRONIC BUILDUP AND AT LEAST 0.3 CM ADDITIONAL PLEXIGLAS WAS USED EITHER IN THE CHAMBER WALL OR IN SLEEVES SURROUNDING THE RADIUM SOURCES TO ABSORB COMPLETELY PHOTOELECTRONS ORIGINATING IN THE PLATINUM SURROUNDING THE RADIUM.

*CHAMBER, ION + *RADIUM + CANADA + GAMMA EMITTER

14-24621 ALSO IN CATEGORY 15

FRANCIS CW + CHESTERS G

RADIOACTIVE INGROWTH OF PO-210 IN TOBACCO PLANTS

UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN

3 PAGES, 1 FIGURE, 2 TABLES, REFERENCES, J. AGR. FOOD CHEM., 15, PAGES 704-706 (JULY-AUG. 1967)

PO-210 IS AN ALPHA-EMITTING RADIOELEMENT FOUND IN TOBACCO AND THOUGHT TO BE A POSSIBLE INITIATOR OF BRONCHIAL CANCER IN CIGARETTE SMOKERS. AN INVESTIGATION WAS INITIATED TO EVALUATE THE EXTENT OF 210PB82 INGROWTH IN TOBACCO AND TO DETERMINE THE POSSIBLE EXISTENCE OF AN EQUILIBRIUM BETWEEN 210PB82 AND 210PO84.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *POLONIUM + *RADIATION SAFETY AND CONTROL + DEPOSITION + FALLOUT

14-24633 ALSO IN CATEGORIES 17 AND 13

LUME RF

CRITICISM OF RCSI BULLETIN 2 ON NFS SR-90 EFFLUENT

WESTERN N.Y. NUCLEAR RESEARCH CENTER, INC.

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 10-12 (APRIL 15, 1968)

(LETTER TO GEORGE BERG, ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION, DATED FEB. 28.) CRITICIZES RELEASE OF CONCLUSIONS TO THE PRESS, APPARENTLY WITHOUT ADEQUATE PROFESSIONAL REVIEW, AS BEING IRRESPONSIBLE BY TENDING TO MISLEAD PUBLIC RATHER THAN INFORM. HIS CONCLUSION IS THAT THE REPORT REFLECTS INCORRECTLY ANALYZED DATA, CONTAINS ERRORS OF FACT, AND ARRIVES AT INCORRECT CONCLUSIONS. (DISCUSSION FOLLOWS). CLOSING COMMENT POINTS OUT TRESPASSING IN OBTAINING SAMPLES, VIOLATION OF LAWS IN POSSESSING AND HANDLING RADIOACTIVITY WITHOUT LICENSE, AND NEED TO CHECK SAMPLERS HOME FOR CONTAMINATION. AUTHOR REGRETS NEWSPAPERS WILL PRINT THIS LETTER ON BACK PAGES.

DILUTION + EFFLUENT + FUEL REPROCESSING + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + WASTE DISPOSAL, LIQUID

14-24635 ALSO IN CATEGORIES 17 AND 13

COMPLIANCE INVESTIGATION OF ALLEGED NFS EXCESSIVE DISCHARGE OF SR-90 IN LIQUID EFFLUENT

U.S. ATOMIC ENERGY COMMISSION

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 3-5 (APRIL 15, 1968)

PUBLIC RELEASE OF A REPORT BY ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION CHARGING NFS CAUSED A FEB. 27-29, 1968, INVESTIGATION. ON DEC. 16, 1967, AN RCSI AGENT SAMPLED BUTTERMILK CREEK AND THE NFS LAGOON DISCHARGE PIPE AFTER ENTERING A GAP IN THE FENCE. THE AEC-NYOO HEALTH AND SAFETY LABORATORY FIRST SAID THE SAMPLES CONTAINED 3.6 AND 0.28 MICROCURIE/LITER, AND THESE WERE QUOTED IN FEB. 25 NEWSPAPERS. A RECHECK BY HASL GAVE ONLY 0.0865 AND 0.004. NFS LOGS INDICATE A CONTROLLED RELEASE THAT DATE, BUT WITH ADEQUATE DILUTION FACTOR (4000). ORIGINAL RCSI BULLETIN USED OLD LIMIT OF 100, WHILE NEWEST LIMIT IS 0.3 MICROCURIE/LITER. INVESTIGATION SHOWED LIMITS BEING MET.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + *WASTE DISPOSAL, LIQUID + DILUTION + EFFLUENT + FUEL REPROCESSING + INSPECTION AND COMPLIANCE + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS

14-24650 ALSO IN CATEGORY 15

MCCLELLAN RO + RUPPRECHT FC

ANNUAL REPORT, 1966-1967, FISSION PRODUCT INHALATION PROGRAM

LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, N. M.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24650 *CONTINUED*
LF-38 +. 168 PAGES, TABLES, FIGURES, REFERENCES, NOVEMBER 1967

THE PRIME OBJECTIVE OF THIS STUDY IS TO IMPROVE KNOWLEDGE OF THE BIOLOGICAL CONSEQUENCES OF INHALING FISSION-PRODUCT RADIONUCLIDES, SINGLY AND IN MIXTURES, SO THAT VARIOUS LEVELS OF EXPOSURE MAY BE RELATED TO EFFECT. THE MAJOR STIMULUS FOR DEVELOPMENT AND CONTINUATION OF THE PROGRAM STEMS FROM THREE USES OF NUCLEAR ENERGY THAT MAY RESULT IN POTENTIAL ACCIDENT SITUATION WITH DISPERSION OF RADIOACTIVE AEROSOLS - POWER REACTORS, SPACE NUCLEAR SYSTEMS, AND NUCLEAR PROPULSION SYSTEMS.

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

*AEROSOL + *BIOLOGICAL CONCENTRATION, MAN + *INHALATION + *NUCLEAR ROCKET + *REACTOR POWER + *SPACECRAFT + *CERIUM + *CESIUM + DOSE + DOSIMETRY, GENERAL + FISSION PRODUCT RELEASE, GENERAL + *MONITORING PROGRAM, ENVIRONMENTAL + R AND D PROGRAM + STRONTIUM + USAEC + YTTRIUM

14-24731 ALSO IN CATEGORY 15
RADIOISOTOPES AND IONIZING RADIATIONS IN ENTOMOLOGY. VOL. III. (1964-1965). BIBLIOGRAPHICAL SERIES NO. 24
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA (AUSTRIA)
STI/PUB-21/24 +. 454 PAGES, TABLES, 1967

THIS BIBLIOGRAPHY IS THE THIRD VOLUME OF A SERIES AND CONTAINS OVER 1000 REFERENCES TO THE LITERATURE FOR THE TWO-YEAR PERIOD 1964-1965. THE FIRST TWO VOLUMES, BIBLIOGRAPHICAL SERIES NOS. 9 AND 15, COVER THE 11- AND 3-YEAR PERIODS 1950-1960 AND 1961-1963. THE BIBLIOGRAPHY IS FULLY ANNOTATED AND ABSTRACTS HAVE BEEN INCLUDED WHENEVER POSSIBLE. TABLES GIVE A SYSTEMATIC LIST OF INSECTS AND RELATED ARTHROPODS, STERILIZATION DATA, LETHAL RADIATION EFFECTS, AND RADIOISOTOPE TRACER STUDIES ON INSECTICIDES. AN AUTHOR INDEX, A DETAILED SUBJECT INDEX, AND AN INSECTICIDE INDEX ARE PROVIDED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N. Y. 10016, \$9.50 COPY

*BIBLIOGRAPHY + *ECOLOGICAL CONSIDERATION + *RADIATION EFFECT + *RADIOISOTOPE + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + IAEA + SURVEY, GENERAL + TRACER, RADIOACTIVE

14-24735 ALSO IN CATEGORY 15
AARKROG A + LIPPERT J
ENVIRONMENTAL RADIOACTIVITY IN DENMARK IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØ. RESEARCH ESTABLISHMENT
RISO-154 +. 100 PAGES, FIGURES, TABLES, 21 REFERENCES, JUNE 1967

THE PRESENT REPORT DEALS WITH THE MEASUREMENT OF FALLOUT RADIOACTIVITY IN DENMARK IN 1966. SR-90 AND CS-137 WERE DETERMINED IN SAMPLES FROM ALL OVER THE COUNTRY OF PRECIPITATION, SOIL, GROUND WATER, SEA WATER, GRASS, DRIED MILK, FRESH MILK, GRAIN, BREAD, POTATOES, VEGETABLES, FRUIT, TOTAL DIET, DRINKING WATER, HUMAN BONE, ETC.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DENMARK + *FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + PRECIPITATION

14-24736 ALSO IN CATEGORY 15
MATTERN FC + DROST R + STRACKEE L
SR-90 AND CS-137 IN THE HUMAN DIET IN THE NETHERLANDS DURING 1966
RIJKS INSTITUUT VOOR DE VOLKSGEZONDHEID, BILTHOVEN (NETHERLANDS). LABORATORIUM VOOR STRALINGSONDERZOEK
RA-30 +. 30 PAGES, SEPT. 1967

RESULTS OF MEASUREMENTS OF SR-90 AND CS-137 IN A NUMBER OF FOODSTUFFS ARE REPORTED, AND A SHORT DESCRIPTION OF THE SAMPLING PROCEDURE IS GIVEN. THE YEARLY MEAN OF THE DAILY DIETARY INTAKE OF SR-90 AND CS-137 IN THE NETHERLANDS IS ESTIMATED AS 20 AND 92 PCI/DAY. THE COMPUTATION OF THE ESTIMATED VALUES FROM THE NATIONAL FOOD BALANCE SHEET IS DESCRIBED IN SOME DETAIL.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DIETARY HABIT + *NETHERLANDS + *STRONTIUM + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + SAMPLING

14-24738 ALSO IN CATEGORY 15
AARKROG A + LIPPERT J
ENVIRONMENTAL RADIOACTIVITY IN THE FAROES IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØ, RESEARCH ESTABLISHMENT
MEASUREMENTS OF FALLOUT RADIOACTIVITY IN THE FAROES IN 1966 ARE PRESENTED. SR-90 (AND CS-137 IN MOST INSTANCES) WAS DETERMINED IN REGULARLY COLLECTED SAMPLES OF PRECIPITATION, MILK, POTATOES, SHEEP, FISH, AND DRINKING WATER. IN ADDITION, ANALYSES OF SPOT SAMPLES OF GRASS, SOIL, SEA WATER, SEA PLANTS, BIRDS,

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24738 *CONTINUED*
VEGETABLES, BREAD, CHEESE, EGGS, AND HUMAN BONE WERE CARRIED OUT. ESTIMATES OF THE MEAN CONTENTS OF SR-90 AND CS-137 IN THE HUMAN DIET IN THE FAROE ISLANDS IN 1966 ARE GIVEN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *ENVIRONMENTAL CONDITION + *FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM +
BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, ANIMAL +
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD +
BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + DENMARK + DIETARY HABIT + OCEAN AND SEA +
SOIL

14-24739 ALSO IN CATEGORY 15
AARKROG A + LIPPERT J
ENVIRONMENTAL RADIOACTIVITY IN GREENLAND IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØ, RESEARCH ESTABLISHMENT
RISO-156 +. 21 PAGES, FIGURES, TABLES, 4 REFERENCES, JULY 1967

MEASUREMENTS OF FALLOUT RADIOACTIVITY IN GREENLAND IN 1966 ARE REPORTED. SR-90 (AND CS-137 IN MOST INSTANCES) WAS DETERMINED IN SAMPLES OF PRECIPITATION, SOIL, SEA WATER, VEGETATION, ANIMALS, AND DRINKING WATER. ESTIMATES OF THE MEAN CONTENTS OF SR-90 AND CS-137 IN THE HUMAN DIET IN GREENLAND IN 1966 ARE GIVEN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DENMARK + *ENVIRONMENTAL CONDITION + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM +
BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT + FALLOUT +
OCEAN AND SEA + PRECIPITATION + SAMPLING + SOIL + WATER, DRINKING

14-24742 ALSO IN CATEGORY 15
DATA. SECTION I. MILK AND FOOD
42 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(3), PAGE 153-194, (MARCH 1968)

RADIOLOGICAL HEALTH DATA AND REPORTS SUBMITS DATA FROM SURVEILLANCE PROGRAMS DEALING WITH MILK AND FOOD, FOR PARTS OF 1967, GROSS RADIOACTIVITY IN SURFACE WATERS OF THE UNITED STATES, SEPT. 1967, RADIOACTIVITY IN AIRBORNE PARTICLES AND PRECIPITATION, ENVIRONMENTAL LEVELS OF RADIOACTIVITY AT USAEC INSTALLATIONS FOR FIRST HALF OF 1967.

*FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *POPULATION EXPOSURE + *PRECIPITATION +
*SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + AIRBORNE RELEASE +
BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT +
FEDERAL RADIATION COUNCIL + PARTICLE, RADIOACTIVE + RAINOUT + SAMPLING + WATER POLLUTION

14-24746 ALSO IN CATEGORY 15
VAN AS D + BASSON JK
FALLOUT OVER SOUTH AFRICA FROM NUCLEAR WEAPONS TESTED BY FRANCE IN 1966
ATOMIC ENERGY BOARD, PELINDABA, SOUTH AFRICA
3 PAGES, 2 FIGURES, 1 TABLE, 10 REFERENCES, HEALTH PHYSICS 14(4), PAGES 307-9 (APRIL 1968)

MEASUREMENTS ON AIRBORNE AND DEPOSITED FALLOUT OVER SOUTH AFRICA, RESULTING FROM THE FRENCH NUCLEAR DETONATIONS DURING 1966 IN THE SOUTH PACIFIC, ARE REPORTED WITH TRANSIT TIME AND AGE ANALYSES.

*FALLOUT + *FRANCE + *MONITOR, RADIATION, ENVIRONMENTAL + *SOUTH AFRICA + AIRBORNE RELEASE + BARIUM +
NUCLEAR DETONATION + RADIATION SAFETY AND CONTROL

14-24747 ALSO IN CATEGORY 15
FRENCH RL
ON THE BURIED-SOURCE MODEL FOR COMPUTING FALLOUT GROUND ROUGHNESS EFFECTS
RADIATION RESEARCH ASSOCIATES, INC., FORT WORTH, TEXAS
8 PAGES, 6 FIGURES, 1 TABLE, 16 REFERENCES, HEALTH PHYSICS 14(4), PAGES 331-38 (APRIL 1968)

MOST CALCULATIONS OF THE GAMMA RADIATION ENVIRONMENT PRODUCED BY FALLOUT ASSUME THAT THE RADIOACTIVE MATERIAL IS UNIFORMLY DEPOSITED ON A SMOOTH GROUND SURFACE. A RECENT STUDY OF POSSIBLE MATHEMATICAL MODELS FOR INCLUDING THE EFFECTS OF GROUND ROUGHNESS ON THE GAMMA-RAY ENERGY AND ANGLE DISTRIBUTIONS IN AIR ABOVE FALLOUT PLACED EMPHASIS ON THE BURIED-SOURCE MODEL. THIS MODEL IS BASED ON THE ASSUMPTION THAT THE FALLOUT IS COVERED BY A UNIFORM LAYER OF SOIL WHOSE THICKNESS CORRESPONDS TO THE DEGREE OF GROUND ROUGHNESS.

*DOSE CALCULATION, EXTERNAL + *MATHEMATICAL STUDY + *MONITOR, RADIATION, ENVIRONMENTAL + *RADIATION MODEL +
SOURCE, RADIATION + TESTING

14-24749 ALSO IN CATEGORY 15
CHENG HS + HAMAGUCHI H

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-24749. *CONTINUED*
STUDIES ON THE ADSORPTION OF RADIOISOTOPES ON MARINE SEDIMENTS
TSING HUA UNIVERSITY, HSINCHU, TAIWAN, CHINA + TOKYO KYOIKU UNIVERSITY, TOKYO
11 PAGES, 8 FIGURES, 2 TABLES, 19 REFERENCES, HEALTH PHYSICS 14(4), PAGES 353-63 (APRIL 1968)

THE DISTRIBUTION COEFFICIENTS OF CESIUM IN DEMINERALIZED WATER AND SEA WATER WERE PROPORTIONAL TO THE RATIO OF EITHER EXCHANGEABLE POTASSIUM TO TOTAL POTASSIUM OR EXCHANGEABLE MAGNESIUM TO TOTAL MAGNESIUM OF THE MARINE SEDIMENTS. THE DEGREE OF THE DESORPTION WAS, ON THE CONTRARY, INVERSELY PROPORTIONAL TO THESE RATIOS.

*ADSORPTION + *FISSION PRODUCT RETENTION + *RADIOISOTOPE + *SEDIMENT + CESIUM + MAGNESIUM + POTASSIUM + WASTE TREATMENT, FIXATION

14-24750 ALSO IN CATEGORY 15
WILSON DW + WARD GM
TRANSFER OF FALLOUT MN-54 FROM FEED TO MILK
COLORADO STATE UNIV., FORT COLLINS
2 PAGES, 1 FIGURE, 6 REFERENCES, J. DAIRY SCI., 50, PAGE 592 AND 593, (APR. 1967)

MN-54 WAS REGULARLY OBSERVED SINCE MAY, 1963, IN FALLOUT-CONTAMINATED DAIRY FEEDS, AND IN RAINFALL AND SURFACE AIR. THE RATE OF SECRETION OF MN-54 INTO MILK IS EXTREMELY LOW, DUE TO POOR ABSORPTION FROM THE GUT. MN-54 WAS NOT FOUND IN MUSCLE TISSUE OF DAIRY CATTLE, BUT WAS IN THE LIVER OF SEVERAL SLAUGHTERED COWS. IT WAS NOT OBSERVED IN THE URINE OF THE COWS. ALTHOUGH MN-54 IN THE LIVER OF COWS INDICATED THAT SOME OF IT WAS ABSORBED, ITS POORER ABSORPTION COMPARED TO CS-137 PRECLUDED APPRECIABLE SECRETION OF FALLOUT MN-54 INTO MILK. THUS MN-54 IN FALLOUT DOES NOT CONTRIBUTE SIGNIFICANTLY TO THE GAMMA-RADIATION HAZARD TO THE CONSUMER.

*BIOLOGICAL CONCENTRATION, MILK + *CESIUM + *MANGANESE + BIOLOGICAL CONCENTRATION, ANIMAL FEED + FALLOUT + GAMMA EMITTER + NEUTRON + RAINOUT

14-25005
PEARCE DW + COMPTON MR
PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME II. PHYSICAL SCIENCES. PART 3. EARTH SCIENCES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-481-3 +. 104 PAGES, FIGURES, TABLES, JAN. 1968

THIS REPORT, VOL II, PART 3, EARTH SCIENCES, COVERS THE GEOLOGY AND HYDROLOGY, MINERAL CHEMISTRY AND PARTICLES AND AEROSOLS BY STAFF MEMBERS OF EARTH SCIENCES SECTION, ENVIRONMENTAL AND RADIOLOGICAL SCIENCES, AT THE PACIFIC NORTHWEST LABORATORY.

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

*AEROSOL + *COMPUTER PROGRAM + *DISPERSION + *GEOLOGICAL CONSIDERATION, GENERAL + *HYDROLOGICAL CONSIDERATION, GENERAL + *PARTICULATE + BATTELLE NORTHWEST + BIOMEDICAL + CESIUM + DIFFUSION COEFFICIENT + EARTHQUAKE + PLUTONIUM + RIVER, COLUMBIA + SEISMOLOGY + SOIL + STRONTIUM + WATER POLLUTION

14-25007
HILD W + LOPEX-MENCHERO
THE TREATMENT OF EUROCHEMIC MEDIUM LEVEL WASTE BY THE NEUTRALISATION SELF-SOLIDIFICATION PROCESS (N.S.S.P)
EUROPEAN COMPANY FOR THE CHEMICAL PROCESSING OF IRRADIATED FUELS, MOL, BELGIUM
NP-17234 + CONF-671128-1 + ETR-219 +. 31 PAGES, TABLES, FIGURES, NOV. 1967, FROM 37TH INTERNATIONAL CONGRESS OF INDUSTRIAL CHEMISTRY, MADRID, SPAIN

EMPHASIZES THE PARTICULAR MEDIUM LEVEL WASTE (MLW) SITUATION. RESEARCH AND DEVELOPMENT WORK PERFORMED AT EUROCHEMIC ON THE MLW PROBLEM, LEADING TO THE NEUTRALIZATION SELF-SOLIDIFICATION PROCESS, IS BRIEFLY SUMMARIZED. A DESCRIPTION OF THE EUROCHEMIC PATENTED MLW SOLIDIFICATION PROCESS IS GIVEN.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES, US AND OVERSEAS

*FUEL ELEMENT + *REACTOR POWER + *WASTE TREATMENT, LIQUID + BELGIUM + CHEMICAL REACTION + R AND D PROGRAM + SPAIN + WASTE MANAGEMENT + WASTE SOURCE AND TYPE + WASTE TREATMENT, SOLID

14-25051 ALSO IN CATEGORY 16
CAMBRAY RS + FISHER EM + BROOKS WL + PEIRSON DH
RADIOACTIVE FALLOUT IN AIR AND RAIN. RESULTS TO THE MIDDLE OF 1967
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND
AERE-R-5575 +. 49 PAGES, TABLES, FIGURES, NOV. 1967

SAMPLES OF ATMOSPHERIC DUST AND RAINWATER HAVE BEEN COLLECTED FROM THE UNITED KINGDOM AND ELSEWHERE. RESULTS ARE PRESENTED OF THE ANALYSES OF THESE SAMPLES FOR VARIOUS FISSION PRODUCTS AND CERTAIN OTHER RADIONUCLIDES.

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

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25051 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *PRECIPITATION + *SAMPLING + AEROSOL, RADIOACTIVE + NUCLEAR EXPLOSION DEBRIS +
RADIOCHEMICAL ANALYSIS

14-25052 ALSO IN CATEGORY 15
DEJONGHE P
REVIEW OF RADIOACTIVE WASTE MANAGEMENT IN WESTERN EUROPE
CEN, MOL, BELGIUM
12 PAGES, 5 FIGURES, 23 REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 169-180 (1967)

SINCE THE ESTABLISHMENT IN WESTERN EUROPE OF A RESPECTABLE NUMBER OF NUCLEAR FACILITIES, A LARGE EFFORT HAS BEEN DEVOTED TO DEVELOPING SPECIFIC METHODS FOR THE PURIFICATION AND CONDITIONING OF RADIOACTIVE WASTES. AT THE SAME TIME, METHODS FOR TREATING CONVENTIONAL WASTES HAVE BEEN ADOPTED BECAUSE OF THEIR APPLICATION IN RADIOACTIVE WASTE MANAGEMENT. THE AREAS OF DEVELOPMENT INCLUDE ALSO HANDLING OF SOLID COMBUSTIBLE AND NONCOMBUSTIBLE WASTES, PURIFICATION OF GASES, TREATMENT OF LIQUID EFFLUENTS AND CONDITIONING OF CONCENTRATES RESULTING FROM THE TREATMENT OF VARIOUS RADIOACTIVE WASTES. THE DIFFERENT TYPES AND STEPS OF TREATMENT ARE REVIEWED, WITH PARTICULAR ATTENTION TO POSSIBLE FUTURE DEVELOPMENTS.

*RADIATION SAFETY AND CONTROL + *WASTE MANAGEMENT + ECONOMICS + EFFLUENT + FOAM + INCINERATION +
PRECIPITATION + RADIATION PROTECTION, CHEMICAL + WASTE DISPOSAL, OCEAN

14-25054 ALSO IN CATEGORY 15
PARKER FL
RECENT DEVELOPMENTS IN AND FUTURE PLANS FOR RADIOACTIVE WASTE MANAGEMENT IN THE UNITED STATES OF AMERICA
VANDERBILT UNIVERSITY, NASHVILLE, TENN.
29 PAGES, FIGURES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 93-121 (1967)

THE FUNDAMENTAL POLICY AND MAIN DIRECTION OF RADIOACTIVE-WASTE MANAGEMENT IN THE UNITED STATES OF AMERICA IS NOW EVIDENT. POLICY IS TO KEEP TOTAL RADIATION HAZARDS AT OR BELOW THEIR PRESENT LEVELS ALTHOUGH THE AMOUNT OF NUCLEAR POWER GENERATION WILL INCREASE EXPONENTIALLY. THIS LEVEL WILL BE MAINTAINED THROUGH INCREASED EMPHASIS ON CONCENTRATING, SOLIDIFYING AND CONTAINING BOTH HIGH- AND LOW-LEVEL WASTES AND BY DISCHARGING TO THE ENVIRONMENT A NONHAZARDOUS, ECONOMICALLY IRREDUCIBLE MINIMUM OF RADIOACTIVE MATERIAL.

BIOLOGICAL CONCENTRATION, MAN + CALCINATION + DECONTAMINATION + HAZARDS ANALYSIS + PARTICULATE +
R AND D PROGRAM + RADIATION SAFETY AND CONTROL + REACTOR POWER + UNITED STATES +
WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, SALT +
WASTE DISPOSAL, TERRESTRIAL + WASTE MANAGEMENT + WASTE TREATMENT, ECONOMICS + WASTE TREATMENT, FIXATION

14-25055 ALSO IN CATEGORY 15
PARKER FL
RADIOACTIVE WASTES FROM FISSION REACTORS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
2 PAGES, REFERENCES, SCIENCE, 159(3810), PAGES 83-84 (JAN. 5, 1968)

CALCULATION OF THE AMOUNT OF TRITIUM RELEASED FROM A HYPOTHETICAL FUSION REACTOR SHOWS THAT IT IS 20,000 TIMES THE AMOUNT RELEASED BY GENERATION OF AN EQUIVALENT AMOUNT OF ELECTRICITY BY A FISSION REACTOR. RELEASE OF THE TRITIUM GENERATED BY A POWER ECONOMY, IF THE NUCLEAR POWER WERE ALL FUSION, WOULD RESULT IN UNACCEPTABLE WORLDWIDE DCSAGES BY THE YEAR 2000.

*FISSION PRODUCT RELEASE, GENERAL + *TRITIUM + NEUTRON + REACTOR, POWER

14-25056 ALSO IN CATEGORY 15
MALASEK E
TREATMENT OF RADIOACTIVE WASTES IN BULGARIA, CZECHOSLOVAKIA, THE GERMAN DEMOCRATIC REPUBLIC, HUNGARY, POLAND AND ROMANIA
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
17 PAGES, TABLES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 151-167 (1967)

RESEARCH WORK ON DECONTAMINATION AND TREATMENT OF RADIOACTIVE WASTE IS DIRECTED TOWARDS IMPROVING EXISTING METHODS OF DECONTAMINATION, TREATMENT AND STORAGE, AND ALSO TOWARDS THE DISCOVERY AND USE OF PROGRESSIVE TECHNOLOGICAL PROCESSES AND NEW MATERIALS GIVING A NUMBER OF ADVANTAGES OVER THOSE USED AT PRESENT. THE PURPOSE OF THE INVESTIGATIONS IS TO INCREASE THE EFFICIENCY OF DECONTAMINATION, TO CONCENTRATE THE RADIOACTIVITY IN THE SOLID PHASE, TO REDUCE THE VOLUME OF WASTE, AND TO LOWER THE COST OF ITS TREATMENT AND STORAGE.

BULGARIA + CZECHOSLOVAKIA + DECONTAMINATION + GERMANY + HUNGARY + POLAND + R AND D PROGRAM +
RADIATION SAFETY AND CONTROL + RADIOISOTOPE + RADIOLOGICAL ASSISTANCE + REACTOR POWER + RUMANIA +
WASTE TREATMENT, FIXATION + WASTE TREATMENT, GENERAL

14-25057 ALSO IN CATEGORY 15
KOLYCHEV BS + SEDOV VM

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25057 *CONTINUED*

THE PRESENT STATE AND PROSPECTS OF DEVELOPMENT IN RADIOACTIVE WASTE MANAGEMENT IN THE USSR
STATE COMMITTEE FOR UTILIZATION OF ATOMIC ENERGY, MOSCOW
28 PAGES, FIGURES, TABLES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4) PAGES 123 TO 150 (1967)

THE DEVELOPMENT OF COMMERCIAL ATOMIC ENERGY, THE USE OF RADIOISOTOPES IN SCIENCE, INDUSTRY AND MEDICINE, THE USE OF ATOMIC ENERGY IN MANY TYPES OF HUMAN ACTIVITIES, IN PARTICULAR, FOR SEA-WATER DESALINATION, DEPEND CONSIDERABLY ON THE RATIONAL AND ECONOMICAL SOLUTION OF THE RADIOACTIVE WASTE TREATMENT AND DISPOSAL PROBLEM. THE SIGNIFICANCE OF THIS PROBLEM IS APPRECIATED IN THE USSR, WHERE GREAT ATTENTION IS THEREFORE PAID TO THE ELABORATION OF NEW PROCESSING METHODS AND THE IMPROVEMENT OF EXISTING METHODS. RESEARCH AND DEVELOPMENT ARE BEING CARRIED OUT TO IMPROVE THE LIQUID WASTE DECONTAMINATION, REDUCE THE SOLID AND LIQUID WASTE VOLUMES, ACHIEVE THEIR SAFE BURIAL, DECREASE THE OPERATING COSTS AND CREATE NEW MATERIALS AND APPARATUS FOR RADIOACTIVE WASTE PROCESSING.

*RADIATION SAFETY AND CONTROL + *USSR + *WASTE MANAGEMENT + *WASTE TREATMENT, GENERAL + CESIUM + CONTAMINATION + DECONTAMINATION + GEOLOGICAL CONSIDERATION, GENERAL + R AND D PROGRAM + STRONTIUM

14-25092 ALSO IN CATEGORY 15

FARRIS GC

FACTORS INFLUENCING THE ACCUMULATION OF SR-90, STABLE STRONTIUM, AND CALCIUM IN MULE DEER
COLORADO STATE UNIV., FORT COLLINS, COLORADO
COO-1156-26 +. 189 PAGES, AUGUST 1967

CONCENTRATIONS OF SR-90, STABLE STRONTIUM AND CALCIUM WERE MEASURED IN MULE DEER BONE AND IN EIGHT FORAGE SPECIES WHICH WERE SAMPLED OVER A FIVE YEAR PERIOD FROM THE CACHE LA POUDE DRAINAGE IN NORTH CENTRAL COLORADO. VEGETATION WAS COLLECTED FROM SAMPLING POINTS WITHIN EACH OF THE MAJOR PLANT COMMUNITIES UTILIZED BY DEER.

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *BIOLOGICAL CONCENTRATION, VEGETATION + *CALCIUM +
*ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *STRONTIUM + BIOMEDICAL + CONTAMINATION +
COUNTER + DIETARY HABIT + FALLOUT + MATHEMATICAL TREATMENT + RADIOCHEMICAL ANALYSIS + YTTRIUM

14-25095 ALSO IN CATEGORY 15

SPAANDER P

RADIOACTIVE CONTAMINATION OF DRINKING WATER
5 PAGES, VIERDE MACHT, 15, PAGE 54-58, (APRIL 1966) (IN DUTCH)

THE CONTAMINATION OF DRINKING WATER OCCURRING AS A RESULT OF ATOMIC BOMB EXPLOSIONS IS CONSIDERED. THE PRINCIPLES USED IN THE CALCULATION OF THE MAXIMUM PERMISSIBLE CONCENTRATIONS IN WATER ARE OUTLINED, AND THE PERMISSIBLE DOSE FOR INTERNAL RADIATION IS GIVEN. THE RADIATION DOSE OF THE POPULATION CONSIDERED IN ITS ENTIRETY IS CALCULATED. THE MAXIMUM PERMISSIBLE CONCENTRATION AFTER AN ATOMIC BOMB EXPLOSION IS TABULATED FOR I-131, CS-137, SR-89, AND SR-90.

*CONTAMINATION + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *WATER, GENERAL + DOSE CALCULATION, INTERNAL +
FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + NUCLEAR DETONATION +
POPULATION EXPOSURE

14-25100 ALSO IN CATEGORY 15

KOSAKA T + TAKIZAWA Y

EFFECTS OF THIRD COMMUNIST CHINESE NUCLEAR TEST. I. FALLOUT OF STRONG RADIOACTIVE PARTICLES DETECTED IN
NIIGATA
NIIGATA UNIV., JAPAN
3 PAGES, NIIGATA IGAKKAI ZASSHI, 80, PAGES 456-458 (AUG. 1966) IN JAPANESE

COMMUNIST CHINA CARRIED OUT ITS THIRD NUCLEAR TEST IN MAY 1966 IN THE AIR OVER THE WESTERN PART OF MAINLAND CHINA. THE FALL OF HIGHLY RADIOACTIVE PARTICLES DUE TO THIS TEST WAS DETECTED AND THE STATE OF THEIR FALLING AND THE NATURE OF THE PARTICLES WERE INVESTIGATED. THE FALLING OF HIGHLY RADIOACTIVE PARTICLES APPEARED RAPIDLY AFTER THE TEST COMPARED WITH THE PREVIOUS ONE, AND THE FALLOUT WAS LARGE IN AMOUNT AND OF A SINGLE PASSAGE. THE INTENSITY OF RADIOACTIVITY OF INDIVIDUAL PARTICLES ALSO TENDED TO BE HIGH.

*ATMOSPHERIC DIFFUSION, GLOBAL + *CHINA + *FALLOUT + *NUCLEAR DETONATION + ATMOSPHERIC POLLUTION + JAPAN +
PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + PARTICLE, RADIOACTIVE

14-25125

GRUNE WN + ATLAS HS + RUIZ EM

FINAL REPORT COVERING THE PERIOD JUNE 20, 1966 TO JUNE 10, 1967, EVALUATION OF FALLOUT CONTAMINATION FROM
SURFACE RUNOFF
MERRIMACK COLLEGE, DIVISION OF ENGINEERING, NORTH ANDOVER, MASSACHUSETTS
78 PAGES, 25 FIGURES, 6 TABLES, 28 REFERENCES, JUNE 10, 1967

THIS REPORT PRESENTS THE INITIAL STAGES IN AN INVESTIGATION OF FACTORS AFFECTING THE TRANSPORT OF BIOLOGICALLY IMPORTANT RADIONUCLIDES INTO A RESERVOIR BY SURFACE RUNOFF. THE PHENOMENA OF

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25125 *CONTINUED*

OVERLAND FLOW, INFILTRATION, FALLOUT DEPOSITION AND ACTIVITY TRANSPORT HAVE BEEN ANALYZED SEPARATELY AND INDIVIDUAL FORMULATIONS FOR EACH HAVE BEEN DERIVED. THESE ARE INCLUDED IN THE REPORT ALONG WITH COMPUTER SOLUTIONS OF THE FIRST THREE. A GENERAL SKETCH OF THE PROJECTED OVERALL MODEL IS CONTAINED IN THE INTRODUCTION WITH A DISCUSSION OF THE AREAS REMAINING TO BE INVESTIGATED.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, WASHINGTON, D. C.

*DEPOSITION + *FALLOUT + *HYDROLOGICAL CONSIDERATION, GENERAL + *INFILTRATION + *TRANSPORT PROPERTY + CONTAMINATION + RADIATION MODEL + RADIATION SAFETY AND CONTROL + RADIOACTIVITY RELEASE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + SURFACE WATER, NUCLIDE OCCURRENCE + WATER POLLUTION

14-25151

ALSO IN CATEGORY 7

CONNORS DR + LITKE HJ + RAMPOLLA DS

IDENTIFICATION OF IMPORTANT FISSION PRODUCT NUCLIDES FOR RADIOLOGICAL DOSE CALCULATIONS FOLLOWING A U-235-FUELED REACTOR ACCIDENT

BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.

WAPD-TM-599 +. 123 PAGES, 4 FIGURES, TABLES, 25 REFERENCES, FEB. 1967

A SET OF FISSION-PRODUCT DATA IS COMPILED FOR ALL KNOWN NUCLIDES BELIEVED TO BE IMPORTANT TO THE RADIOACTIVITY OF A URANIUM-FUELED REACTOR FOLLOWING POWER OPERATION. DATA ARE PRESENTED FOR 326 NUCLIDES AND METASTABLE STATES AND ARE RESOLVED INTO A SET OF 175 LINEAR CHAINS FOR COMPUTATION OF THE INVENTORY OF RADIOACTIVE PRODUCTS. BASED UPON THESE DATA, A CALCULATION IS PRESENTED OF THE ACTIVITY CONTAINED IN A HYPOTHETICAL REACTOR CORE FOLLOWING EXTENDED POWER OPERATION. THE TOTAL DOSE DELIVERED DOWNWIND IN THE EVENT OF THE RELEASE OF PORTIONS OF THIS INVENTORY TO THE ATMOSPHERE FOLLOWING A REACTOR ACCIDENT IS CALCULATED FOR VARIOUS INTERNAL AND EXTERNAL ORGANS OF A MAN LOCATED AT VARIOUS DISTANCES DOWNWIND FROM THE POINT OF RELEASE. THE FRACTION OF THE DOSE TO EACH ORGAN THAT ARISES FROM EACH NUCLIDE OR METASTABLE STATE IS DETERMINED FOR TWO CHARACTERISTIC DOWNWIND LOCATIONS. A SELECTION IS MADE OF THE MOST IMPORTANT NUCLIDES AND CHAINS TO BE USED IN SIMILAR TYPES OF DOWNWIND DOSE CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AIRBORNE RELEASE + *DEPOSITION + *ISOTOPIC GENERATOR + *RADIATION SAFETY AND CONTROL + *RADIOISOTOPE + *RADIONUCLIDE, INDUCED + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT TRANSPORT + FUEL BURNUP + ISOTOPIC FRACTIONATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-21955 ALSO IN CATEGORY 14
THE ENVIRONMENT SHOULD BE USED FOR WASTE DISPOSAL AS MUCH AS HEALTH CONSIDERATIONS WILL ALLOW
1 PAGE, CHEM. AND ENGRG, NEWS 44(34), PAGE 11, (AUGUST 22, 1966)

SPOKESMAN FOR THE MANUFACTURING CHEMISTS ASSOCIATION MADE THE STATEMENT TO THE HOUSE
SUBCOMMITTEE ON SCIENCE, RESEARCH, AND DEVELOPMENT. THE STATEMENT WAS NOT FAVORABLY
RECEIVED. RADIOACTIVE WASTE WAS NOT MENTIONED.

*ENVIRONMENTAL CONDITION + *WASTE DISPOSAL, GENERAL

15-21956 ALSO IN CATEGORY 14
HARRISON GE + RUNDON J
ASSESSMENT OF BODY CONTENT OF RADIOACTIVE STRONTIUM FOLLOWING CONTAMINATION IN ADULT MEN
GREAT BRITAIN. MEDICAL RESEARCH COUNCIL + UKAEA, BERKS (HARWELL)
2 PAGES, 1 FIGURE, 2 TABLES, 6 REFERENCES, NATURE 211(5050), PAGE 774-775, (AUGUST 13, 1966)

ASSESSMENT OF THE BODY CONTENT OF HUMANS AFTER AN ACCIDENT INVOLVING RADIOACTIVE SR IS OF
VITAL CONCERN. SIMPLE MATHEMATICAL RELATIONSHIPS HAVE BEEN DEVELOPED BETWEEN URINARY
EXCRETION AND INJECTED OR INGESTED STRONTIUM. DATA ARE PRESENTED SHOWING THE VALIDITY OF THE
RELATIONSHIPS.

*ACCIDENT, GENERAL + *ACCIDENT, NONNUCLEAR + *RADIOBIOLOGY + BIOMEDICAL + HARWELL + INGESTION + STRONTIUM +
UNITED KINGDOM

15-22814
DE ROBIEN E
THE HANDLING OF INFORMATION ON RADIATION PROTECTION
7 PAGES, 3 FIGURES, 7 REFERENCES, ENERG NUCLEAIRE 9(5), PAGES 323-329 (SEPT. 1967), IN FRENCH

THE PROBLEMS OF PROTECTION ENCOUNTERED SINCE THE DISCOVERY OF X-RAYS ARE THE SAME TODAY.
HOWEVER, THE MEANS OF HANDLING THEM WERE IMPROVED. AS THE NUMBER OF MEN TO PROTECT IS
HIGHER, IT IS IMPORTANT TO GIVE THE ALERT AUTOMATICALLY IN CASE OF CONTAMINATION, AND TO
CENTRALIZE THE ELECTRONIC DEVICES OR, IF THIS IS NOT POSSIBLE, TO HAVE ALARMS IN EACH
BUILDING. KEEPING WITHIN THE STANDARDS IS ONLY POSSIBLE BY MEASURING THE TOTAL DOSE WHICH IS
INCONVENIENT BECAUSE NO ALARM IS GIVEN IN CASE OF OVER DOSAGE, WHEREAS MEASURING THE TOTAL
DOSE GIVEN OFF BY CONVENTIONAL APPARATUS IS AN EXPENSIVE ELECTRONIC OPERATION.
TRANSISTORIZATION ALREADY LEADS TO MORE RELIABLE RESULTS AND A COMPLETE ELECTRONIC SYSTEM
OUGHT TO PROVIDE EVEN BETTER RESULTS IN THIS FIELD.

*RADIATION PROTECTION, ORGANIZATION + *RADIATION SAFETY AND CONTROL + FRANCE + X-RAY

15-23206
JUSKIEWICZ A + SKILLERN CP
CONTROL OF BERYLLIUM DURING IMPACT TESTS
SANDIA CORP., ALBUQUERQUE, NEW MEXICO
SC-TM-67-827 +. 13 PAGES, 4 FIGURES, 1 TABLE, NOVEMBER 1967

BERYLLIUM WAS SHATTERED IN AN AIR GUN DURING AN EXPERIMENT. TO CONTROL THE BERYLLIUM
PARTICLES THAT RESULTED, A SPECIAL CONTAINMENT VESSEL WITH A HIGHLY EFFICIENT FILTERED
EXHAUST WAS BUILT. UTILIZING THIS CONTAINMENT VESSEL, THE RELEASE OF BERYLLIUM PARTICULATES
WAS MINIMIZED. A HIGH-EFFICIENCY FILTER WAS ALSO PLACED ON THE ROOM EXHAUST. IT PREVENTED
RELEASES OF BERYLLIUM ABOVE AEC ACCEPTABLE LIMITS TO THE OUTSIDE ATMOSPHERE.

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

*BERYLLIUM + *FILTER + *IMPACT SHOCK + *SAFETY ANALYSIS + EXPERIMENT, GENERAL + PARTICULATE + SAMPLING

15-23207 ALSO IN CATEGORY 14
THOMPSON RC
PROPERTIES OF RADIONUCLIDES IN TISSUES. A NEW LOOK AT SOME OLD PROBLEMS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-1252 + CONF-670521-6 +. 7 PAGES, MAY 8, 1967, FROM SYMPOSIUM ON DIAGNOSIS AND TREATMENT OF
DEPOSITED RADIONUCLIDES, RICHLAND, WASHINGTON

THIS PAPER POINTS OUT A NUMBER OF RECENT DEVELOPMENTS IN THE FIELD OF RADIONUCLIDES IN TISSUES
AND GIVES SOME SENSE OF THE DIRECTION IN WHICH WE ARE MOVING. OUR PAPER CONSIDERS NOT JUST
ONE SINGLE RADIONUCLIDE BUT COMPARES THE BEHAVIOR OF A GROUP OF CHEMICALLY SIMILAR ACTINIDES.
ANOTHER PAPER CLARIFIES SOME OF THE COMPLEXITIES OF PLUTONIUM METABOLISM AND ALSO A
CONSIDERATION OF THE EFFECT OF DIFFERENT SIZED POLYMER PARTICLES. SIMILARLY, ANOTHER PAPER
HELPS CLARIFY THE MECHANISM OF DISTRIBUTION OF PARTICULATE PLUTONIUM BY PHAGOCYTIC PROCESS.
A FINAL PAPER DISCUSSES SOME OF THE COMPLICATIONS INTRODUCED BY PREGNANCY. SOME OBSERVATIONS
ARE PRINTED OUT RELATIVE TO TREATMENT OF RATS AND SWINE WITH STRONTIUM.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23207 *CONTINUED*

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *BIOLOGICAL CONCENTRATION, MAN + *INHALATION + *RADIOISOTOPE, INDUCED +
PARTICLE SIZE DISTRIBUTION + PARTICULATE + PLUTONIUM + STRONTIUM

15-23209

BISTLINE RW + TYREE WH

A COMPARISON OF LOW-ENERGY PHOTON DETECTORS FOR PLUTONIUM AND AMERICIUM WOUND COUNTING
DOW CHEMICAL COMPANY, GOLDEN, COLO.

REP-1068 +. 5 PAGES, 5 FIGURES, 17 REFERENCES, DECEMBER 18, 1967

A LITHIUM-DRIFTED SILICON, Si(Li), DETECTOR SYSTEM WAS USED TO PREDICT THE NUCLIDE CONTENT AND APPARENT DEPTH OF PLUTONIUM AND AMERICIUM EMBEDDED IN AN ACTUAL WOUND. DATA COMPARING THE L X-RAY ENERGY RESOLUTION CAPABILITY OF A GAS PROPORTIONAL AND Si(Li) DETECTOR FOR A PLUTONIUM SOURCE WERE OBTAINED. A Si(Li) DETECTOR SYSTEM WAS USED WITH AN AMERICIUM SOURCE TO OBTAIN L X-RAY AND LOW-ENERGY GAMMA RAY ABSORPTION DATA WITH UNTEMPERED MASONITE ABSORBERS. THE RATIOS OF PHOTON ABSORPTION OBTAINED FROM THE Si(Li) DETECTOR SYSTEM ALLOWED APPARENT DEPTH DETERMINATIONS TO BE MADE.

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

*AMERICIUM + *COUNTER + *PLUTONIUM + *SPECTROMETRY, GAMMA + *X-RAY + GAMMA EMITTER + LITHIUM + SILICON

15-23210

ALSO IN CATEGORY 14

UNHAM CL

MEDICAL IMPLICATIONS OF RADIOACTIVE FALLOUT

ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

5 PAGES, 3 FIGURES, 3 TABLES, REFERENCES, TRIANGLE, SANDOX J. MED. SCI., 7, PAGES 44-48 (1965)

THE LEVELS OF FALLOUT RADIOISOTOPES IN THE BIOSPHERE, EXPOSURE OF THE POPULATION, AND AN ESTIMATION OF POSSIBLE EFFECTS AND THE RISK INVOLVED ARE REVIEWED. UP TO THE END OF 1962, ATOMIC WEAPONS, WITH 511 MT OF TNT EXPLOSIVE EQUIVALENT, DETONATED IN THE AIR OR ON THE SURFACE OF THE EARTH, RELEASED TO THE ENVIRONMENT ABOUT 20 MILLION CI OF SR-90. IT WAS SUGGESTED THAT A SINGLE DOSE OF ONE RAD TO EACH INDIVIDUAL IN AN ENTIRE POPULATION WAS NOT GOING TO INCREASE THE INCIDENCE OF LEUKEMIA BY MORE THAN ONE OR TWO CASES PER MILLION PER YR IN THE FOLLOWING 15 YR PERIOD. EXPOSURES TO FALLOUT FROM NUCLEAR WEAPONS TESTS WERE, FOR THE MOST PART, AT PEAK DOSE RATES OF LESS THAN 1 RAD PER DAY. NOTABLE EXCEPTIONS WERE THE RONGELAP ISLANDERS, THE CREW OF A JAPANESE FISHING BOAT, WHO RECEIVED RELATIVELY HIGH DOSES. THERE WERE ALSO A FEW PERSONS LIVING IN THE VICINITY OF THE NEVADA TEST SITE WHO RECEIVED A FEW RADS EXPOSURE IN ONE DAY. COMPARED TO THE ESTIMATED EFFECTS OF NATURAL ENVIRONMENTAL RADIOACTIVITY, THE ADDED RISKS FROM FALLOUT WERE CONSIDERED TO BE SMALL.

*BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *POPULATION EXPOSURE + *RADIOACTIVITY RELEASE + DOSE +
NUCLEAR DETONATION + PERSONNEL EXPOSURE, RADIATION

15-23215

STEWART HF + MODINE NF + MURPHY EG + ROLOFSON JW

X-RAY PATTERNS AND INTENSITIES FROM HIGH VOLTAGE SHUNT REGULATOR TUBES FOR COLOR TELEVISION RECEIVERS
NATIONAL CENTER FOR RADIOLOGICAL HEALTH

12 PAGES, 15 FIGURES, 2 TABLES, 10 REFERENCES, RAD. HEALTH DATA AND REPORTS 8(12), PAGES 675-86 (DECEMBER 1967)

RECENTLY, X-RAY EMISSION FROM SOME COLOR TELEVISION RECEIVERS GREATER THAN THE NCRP RECOMMENDED MAXIMUM CAME TO THE ATTENTION OF THE PUBLIC HEALTH SERVICE. THE RADIATION CAME FROM A HIGH-VOLTAGE SHUNT-REGULATOR TUBE. THIS DISCOVERY PROMPTED A GENERAL INVESTIGATION BY THE PUBLIC HEALTH SERVICE OF RADIATION EMISSION FROM REGULATOR TUBES USED IN COLOR TELEVISION RECEIVERS. THIS REPORT DESCRIBES THE CONSTRUCTION OF HIGH-VOLTAGE SHUNT-REGULATOR TUBES, LABORATORY TEST METHODS, AND THE MEASURED X-RAY DISTRIBUTIONS IN DIRECTION, QUALITY, AND INTENSITY FROM 327 SHUNT-REGULATOR TUBES.

*MEASUREMENT, GENERAL + *RADIATION SAFETY AND CONTROL + *X-RAY + DESIGN STUDY + NCRP +
POPULATION EXPOSURE + TEST, LEAK LOCATION + TEST, LEAK RATE

15-23217

RECHEN HJ + LEE TR + SCHNEIDER RH + BRISCOE OG

MEASUREMENTS OF X-RAY EXPOSURE FROM A HOME COLOR TELEVISION RECEIVER

NATIONAL CENTER FOR RADIOLOGICAL HEALTH

11 PAGES, 3 FIGURES, 5 TABLES, 3 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(12), PAGES 687-697 (DECEMBER 1967)

A DETAILED EXAMINATION OF X-RAY LEAKAGE WAS MADE FOR TWO PROTOTYPES OF THE KC CHASSIS MANUFACTURED BY GENERAL ELECTRIC COMPANY FOR HOME COLOR TELEVISION RECEIVERS. TYPICAL OPERATING CONDITIONS RELEVANT TO X-RAY PRODUCTION FROM THE HIGH VOLTAGE SHUNT REGULATOR TUBE AND THE CATHODE-RAY TUBE ARE PRESENTED. A SELECTED 6EF4 TUBE, UNDER OPERATING CONDITIONS CHOSEN TO PRODUCE MAXIMUM X-RAY EMISSION, PRODUCES AN EXPOSURE RATE OF 83 R/HOUR IMMEDIATELY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23217 *CONTINUED*

AT THE FLOOR LEVEL UNDER A CONSOLE RECEIVER, AND A CALCULATED MAXIMUM EXPOSURE RATE OF 800 R/HOUR BELOW THE RECEIVER.

DESIGN STUDY + MEASUREMENT, GENERAL + NCRP + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL + TEST, LEAK LOCATION + TEST, LEAK RATE + X-RAY

15-23218 ALSO IN CATEGORY 14

RADIOLOGICAL HEALTH DATA AND REPORTS

U.S. DEPARTMENT OF HEALTH

37 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 8(12), PAGES 703-739 (DECEMBER 1967)

THE EXPOSURE TO MAN FROM ENVIRONMENTAL RADIATION SOURCES CENTERS PRIMARILY IN THE DIET. DATA FROM SELECTED NATIONAL, INTERNATIONAL, AND STATE MILK- AND FOOD-SURVEILLANCE ACTIVITIES ARE PRESENTED. SIMILAR DATA ON WATER-SAMPLING ACTIVITIES ARE REPORTED. ANOTHER SECTION OF THE REPORT DEALS WITH RADIOACTIVITY IN AIRBORNE PARTICLES AND PRECIPITATION. OTHER DATA INCLUDED ARE THOSE OBTAINED FROM HUMAN-BONE SAMPLING, BOVINE-THYROID SAMPLING, ALASKAN SURVEILLANCE, AND ENVIRONMENTAL MONITORING IN THE VICINITY OF NUCLEAR FACILITIES.

*BIOLOGICAL CONCENTRATION, MAN + *BIOLOGICAL CONCENTRATION, MILK + *MONITOR, RADIATION, ENVIRONMENTAL + *SURFACE WATER, DISPOSAL MEDIA + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL

15-23241

JONES AR

THE APPLICATION OF SOLID STATE AMPLIFYING RADIATION DETECTORS IN HEALTH PHYSICS

ATOMIC ENERGY OF CANADA LTD., RADIATION DOSIMETRY BRANCH, CRNL, CHALK RIVER, ONTARIO, CANADA

2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 925 AND 926, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY WASHINGTON, D. C., JUNE 18-22, 1967

TO ASSESS AMPLIFYING RADIATION DETECTORS FOR USE IN HEALTH PHYSICS, MEASUREMENTS WERE MADE ON SAMPLES FROM THE GENERAL ELECTRIC CO. THE PROPERTIES MEASURED WERE - SIGNAL/NOISE RATIO, AS A FUNCTION OF APPLIED VOLTAGE, GAMMA RAY SENSITIVITY DEPENDENCE ON ENERGY, APPLIED VOLTAGE AND TEMPERATURE. THE PAPER SUMMARIZES THESE MEASUREMENTS. THE RESULTS SHOW THAT THE DETECTORS ARE SUITED TO MEASURING EXPOSURES, OR DOSES, AND THEIR RATES OVER A WIDE RANGE OF ENERGIES (0.03-1.25 MEV) AND OVER A WIDE RANGE OF EXPOSURE RATES (BACKGROUND UP TO APPROXIMATELY 1000 R/HR). THE DETECTION OF TRITIUM AND PLUTONIUM IN WOUNDS IS ALSO DISCUSSED.

*INSTRUMENTATION, RADIATION MONITORING + CANADA + CHALK RIVER + INSTRUMENTATION, AMPLIFIER + SOLID STATE DEVICE

15-23242

HANKINS DE

A MODIFIED-SPHERE NEUTRON DETECTOR

DOW CHEMICAL COMPANY

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 926, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A 9-IN. CADMIUM-LOADED SPHERE WAS MADE, USING THE CALCULATED CADMIUM LOCATION AND THICKNESS. THE RESPONSE CURVE TO FAST AND THERMAL NEUTRONS WAS COMPARED TO THE CALCULATED VALUE. THE 9-IN. CADMIUM-LOADED SPHERE HAD A RESPONSE SIMILAR TO THAT OF THE 10-IN. REM-RESPONDING SPHERE.

*DOSE CALCULATION, EXTERNAL + *MONITOR, RADIATION, GENERAL + CADMIUM + COMPUTER PROGRAM + COMPUTER, DIGITAL + LASL + NEUTRON + NEUTRON

15-23243

EHRICH M + PLACIOUS RC

RESPONSE OF THERMOLUMINESCENT FOILS TO ELECTRONS

NATIONAL BUREAU OF STANDARDS, WASHINGTON, D. C.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 926, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

REPORTS THE THERMOLUMINESCENCE RESPONSE OF THIN SAMPLES OF CAF₂/MN IN TEFLON AND OF OTHER THERMOLUMINESCENT MATERIALS TO MONOENERGETIC ELECTRONS OF ENERGIES BETWEEN ABOUT 0.025 AND 0.5 MEV. RESULTS SHOWN OF THE THERMOLUMINESCENCE RESPONSE AS A FUNCTION OF ELECTRON ENERGY, FLUX, FLUX DENSITY, AND SAMPLE THICKNESS.

*DOSIMETRY, THERMOLUMINESCENCE + BETA EMITTER + NBS

15-23244

BLANC D + MATHIEU J + DELARD R + FRANCOIS H + SOUDAIN G

DOSIMETRY OF PHOTONS OF ENERGY RANGING FROM 25 KEV TO 10 MEV. REALIZATION OF IONIZATION CHAMBERS FILLED WITH A LIQUID DETECTOR EQUIVALENT TO BIOLOGICAL TISSUE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23244 *CONTINUED*

CENTRE DE PHYSIQUE ATOMIQUE ET NUCLEAIRE, UNIVERSITE DE TOULOUSE + COMMISSARIAT A L-ENERGIE ATOMIQUE, FRANCE

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 526, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

AN IONIZATION CHAMBER OF SMALL DIMENSIONS, OF WHICH THE EXTERNAL ELECTRODE IS A BERYLLIUM CYLINDER ENCASED IN PLASTIC MATERIAL, IS FILLED WITH A DIELECTRIC LIQUID MIXTURE WHICH IS THE EQUIVALENT OF SOFT STANDARD BIOLOGICAL TISSUE. THIS CHAMBER HAS BEEN CALIBRATED FOR PHOTONS OF ENERGIES RANGING FROM 25 KEV TO 10 MEV, IN RELATION TO A BALDWIN CHAMBER (STANDARDIZED ITSELF WITH IRON SULPHATE) IN THE SAME CONDITIONS OF ELECTRONIC EQUILIBRIUM. THE RESPONSE OF THE CHAMBER FOR THE SAME DOSE RATE ABSORBED BY THE SOFT TISSUE IS CONSTAND.

*DOSIMETRY, GENERAL + FRANCE + GAMMA

15-23245

BAKER RP + RICHARDS D

RELIABLE AND VERSATILE INSTRUMENTATION FOR DETECTION OF TRITIUM HAZARD DESIGNED FOR MILITARY APPLICATION SANDIA CORPORATION, DIVISION 2441, ALBUQUERQUE, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 926, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A NEW SET OF INSTRUMENTS HAS BEEN DEVELOPED BECAUSE EXPERIENCE IN TRITIUM MONITORING OVER THE PAST DECADE HAS LED TO CHANGES IN INSTRUMENT APPLICATION AND INDICATED SHORTCOMINGS IN PRESENT SYSTEMS. THE BASIC ELEMENT IN THE NEW INSTRUMENTATION IS A SMALL ION CHAMBER INSTRUMENT UTILIZING A DYNAMIC CAPACITOR INPUT-SOLID STATE ELECTROMETER. THIS BASIC MONITOR IS AUGMENTED BY INDICATING, RECORDING, AND ALARM INSTRUMENTS. AN ADAPTER ENABLES THE BASIC MONITOR TO BE UTILIZED FOR TRITIUM URINALYSIS. THE ENTIRE SET OF INSTRUMENTS HAS BEEN TESTED FOR RELIABILITY AND ACCURACY IN MILITARY ENVIRONMENTAL CONDITIONS.

*MONITOR, RADIATION, GAS + *MONITOR, RADIATION, LIQUID + MILITARY CONSIDERATION + TRITIUM

15-23246

ALSO IN CATEGORY 14

HOLLAND WD + VOLCHOK HL

THE DETERMINATION OF SIZES OF SNAP-9A ABLATION PARTICLES COLLECTED AT HIGH ALTITUDES TRACERLAB DIVISION OF LABORATORY FOR ELECTRONICS, RICHMOND, CALIFORNIA + UNITED STATES ATOMIC ENERGY COMMISSION, HEALTH AND SAFETY LAB., NEW YORK

2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 926 AND 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

HIGH-ALTITUDE SAMPLES KNOWN TO CONTAIN PU-238 FROM THE SNAP-9A SATELLITE FAILURE OF APRIL 1964 WERE INVESTIGATED TO DETERMINE THE SIZE AND COMPOSITION OF THESE ABLATION PARTICLES. TO ASSIST LOCATION OF THE PARTICLES FOR ELECTRON MICROSCOPY, A NEW RADIOAUTOGRAPHIC METHOD, THE HOLLOW-STAR TECHNIQUE, WAS DEVELOPED. USING THIS TECHNIQUE, AN ABLATION PARTICLE WITH AN EQUIVALENT 238PUO2 DIAMETER OF 0.2 MICRON WAS FOUND.

*PARTICLE, RADIOACTIVE + *SPACECRAFT + AIRBORNE RELEASE + PLUTONIUM + REACTOR, SPACE + SNAP 9 (SR)

15-23247

ALSO IN CATEGORY 14

HOLLEY WL + MCKELVEY JW + EVERETT RJ

METHODS OF ASSESSING THE LUNG DOSE FROM INHALED 238PUO2 AEROSPACE NUCLEAR SAFETY DEPT., SANDIA CORPORATION, ALBUQUERQUE, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PLUTONIUM-238 DIOXIDE IS A PRIME FUEL FOR SPACE ELECTRIC POWER, HAVING BEEN USED IN THE SNAP 9A SYSTEM, AND IS THE CANDIDATE FUEL FOR SNAP 19 AND SNAP 27. THE FUEL IS MADE IN THE FORM OF MICROSPHERES DESIGNED TO ELIMINATE INHALE HAZARDS. THIS STUDY IS CONCERNED WITH THE METHODS OF ASSESSING LUNG DOSES FROM INHALED PU-238 DIOXIDE. AN AVERAGE TISSUE DOSE RATE CALCULATION IS MADE FOR ALPHA, GAMMA, AND NEUTRON RADIATION USING THE PROPOSED MODEL. THE PRESENT ICRP SMEARED-DOSE CONCEPT IS ALSO SHOWN AND SOME COMPARISONS MADE BETWEEN THE TWO METHODS.

*DOSE CALCULATION, INTERNAL + *PLUTONIUM OXIDE + ALPHA EMITTER + GAMMA + INHALATION + NEUTRON + PLUTONIUM + REACTOR, SPACE + SNAP, GENERAL (SR)

15-23249

RONEY RL + BROWN ML

PRELIMINARY ESTIMATES OF GONAD AND GENETIC DOSE TO THE U.S. POPULATION FROM MEDICAL DIAGNOSTIC ROENTGENOLOGY

NATIONAL CENTER FOR RADIOLOGICAL HEALTH, ROCKVILLE, MARYLAND

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

ESTIMATES ARE PRESENTED OF AVERAGE GONAD DOSE FOR SELECTED MEDICAL DIAGNOSTIC ROENTGENOLOGIC EXAMINATIONS AND OF THE RESULTANT GENETICALLY SIGNIFICANT DOSE TO THE U.S. POPULATION. THESE ESTIMATES ARE BASED ON THE 1964 PUBLIC HEALTH SERVICE X-RAY EXPOSURE STUDY AND ON EMPIRICAL AND THEORETICAL MODELS DEVELOPED TO ESTIMATE GONAD DOSE FROM DIAGNOSTIC X RAYS. THE MODELS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23249- *CONTINUED*

USED TO ESTIMATE EXPOSURE AND THE RESULTANT DOSE DUE TO RADIOGRAPHIC AND FLUOROSCOPIC EXAMINATIONS ARE DISCUSSED.

*DOSE CALCULATION, EXTERNAL + *RADIOLOGY + RADIATION INJURY, TREATMENT OF + X-RAY

15-23250 ALSO IN CATEGORY 14

PENNA-FRANCA E + COSTA-RIBEIRO C + NASCIMENTO WA + LOBAO N + FISZMAN M + TRINDADE HA + DOS SANTOS PL
NATURAL RADIONUCLIDES IN THE DIET OF INHABITANTS OF BRAZILIAN HIGH BACKGROUND AREAS
INSTITUTO DE BIOFISICA, U.F.R.J., AVENIDA PASTEUR 458, RIO DE JANEIRO, BRAZIL
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 927, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TWO TYPES OF HIGH-BACKGROUND REGIONS WERE INVESTIGATED IN BRAZIL - THE MONAZITE SAND REGION
ALONG THE ATLANTIC COAST AND THE ZONE OF VOLCANIC INTRUSIVES IN THE MIDDLE WEST. A BROAD
RESEARCH PROGRAM HAS BEEN UNDER WAY TO MAP FOOD-PRODUCING AREAS INSIDE THE RADIOACTIVE
ANOMALIES, TO DETERMINE THE AVERAGE RADIOACTIVITY IN STAPLE FOODS, TO ESTIMATE ANNUAL INTAKES
AND BODY BURDENS OF HEAVY RADIONUCLIDES, AND TO DETERMINE THE FREQUENCY OF SOMATIC
CHROMOSOMAL ABERRATIONS OF LOCAL PEOPLE. THE RESULTS OF THIS PROGRAM ARE REPORTED IN THIS
PAPER, WITH THE EXCEPTION OF THE LAST ITEM.

*BIOLOGICAL CONCENTRATION, FOOD + *RADIOISOTOPE + ALPHA EMITTER + BRAZIL + DIETARY HABIT + THORIUM + URANIUM

15-23252 ALSO IN CATEGORY 14

MOYER RA
SAVANNAH RIVER LABORATORY EXPERIENCE WITH TRANSPLUTONIUM ELEMENTS
SAVANNAH RIVER LAB., E. I. DU PONT DE NEMOURS + CO., AIKEN, SOUTH CAROLINA
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 928, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE SAVANNAH RIVER LABORATORY IS INVOLVED IN RESEARCH AND DEVELOPMENT WORK WITH CM-244,
CF-252, AND OTHER HIGH-SPECIFIC-ACTIVITY ALPHA-EMITTING ISOTOPES. THIS WORK INCREASES
CONTAMINATION PROBLEMS AND PRESENTS NEUTRON AND X-RAY EXPOSURE PROBLEMS NOT PREVIOUSLY
ENCOUNTERED. CONTAINMENT IS BEING ACHIEVED THROUGH DESIGN AND STRICT PROCEDURES. PERSONNEL
EXPOSURE IS BEING CONTROLLED AND EVALUATED BY USING THERMOLUMINESCENT DOSIMETERS TO
SUPPLEMENT BETA-GAMMA AND NTA FILM BADGES. BECAUSE OF THE INCREASED RADIATION, THE QUANTITY
OF WORKING MATERIAL IS LIMITED, AND LOCAL SHIELDING IS USED.

*ALPHA EMITTER + CALIFORNIUM + CONTAMINATION + CURIUM + NEUTRON + PLUTONIUM + SAVANNAH RIVER PLANT + X-RAY

15-23253 ALSO IN CATEGORY 14

STUART EO
INHALATION OF PROMETHIUM OXIDE BY BEAGLE DOGS
BATTELLE-NORTHWEST LAB., RICHLAND, WASHINGTON
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TEN BEAGLES WERE GIVEN SINGLE EXPOSURES TO AEROSOLS OF 147-PM203 (CMD = 0.06 MICRON) WHICH HAD
BEEN NEUTRON-ACTIVATED TO INCORPORATE A GAMMA-EMITTING TRACER, 148-MPM. WHOLE-BODY RETENTION
HALF-TIMES OF 420 TO 850 DAYS WERE OBSERVED. OF THE INITIALLY DEPOSITED PROMETHIUM OXIDE,
40-80% WAS EXCRETED DURING THE FIRST WEEK AFTER EXPOSURE, MOSTLY IN THE FECES. INITIAL
ALVEOLAR DEPOSITION OF 0.12 TO 2.2 MCI OF THE BETA EMITTER 147-PM REDUCED LYMPHOCYTE COUNTS
TO 80 TO 50% OF PREEXPOSURE LEVELS AT 1 YR AFTER EXPOSURE. NEUTROPHIL COUNTS WERE REDUCED TO
60% OF CONTROL AND PREEXPOSURE LEVELS. ERYTHROCYTE LEVELS SHOWED NO CHANGE.

*INHALATION + *RADIOBIOLOGY + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + PROMETHIUM

15-23254 ALSO IN CATEGORY 14

WILLARD CH
INHALATION AND RETENTION OF PU-238 MICROSPHERES IN BEAGLE DOGS
BATTELLE-NORTHWEST LAB., RICHLAND, WASH.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

BEAGLES WERE EITHER EXPOSED TO AEROSOLS OR GIVEN SINGLE PARTICLES BY PULMONARY INTUBATION TO
DETERMINE WHETHER LARGE PU-238 MICROSPHERES CAN BE INHALED AND RETAINED IN THE LUNG.
WHOLE-BODY SCANNING WAS USED TO FOLLOW THE COURSE OF THE PARTICLES. DOGS EXPOSED TO
50-MICRON-DIAM 238-PUO2 PARTICLES IN AIR INHALED MEASURABLE QUANTITIES OF PU-238, BUT NEARLY
ALL OF THAT DEPOSITED ENTERED THE GASTROINTESTINAL TRACT WITHIN A FEW HOURS AND WAS
EVENTUALLY EXCRETED IN THE FECES. A FEW PARTICLES WERE FOUND IN SECTIONS OF LUNG REMOVED
AFTER EXPOSURES.

*AEROSOL + *INHALATION + *RADIOBIOLOGY + BATTELLE NORTHWEST + BIOLOGICAL CONCENTRATION, ANIMAL + BIOMEDICAL + PLUTONIUM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23255 ALSO IN CATEGORY 14

THOMAS RL

DEPOSITION AND PRELIMINARY TRANSLOCATION OF INHALED PARTICULATES IN SMALL LABORATORY ANIMALS
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, FISSION PRODUCTS INHALATION LABORATORIES,
ALBUQUERQUE, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

SEVERAL HUNDRED MICE, RATS, AND GUINEA PIGS WERE EXPOSED TO AEROSOLS CONTAMINATED WITH CS-137
FOR STUDY OF INITIAL WHOLE-BODY DEPOSITION. IN RATS AND GUINEA PIGS, INITIAL DEPOSITION
INCREASED WITH LARGER PARTICLES. WITHIN APPROXIMATELY THE SAME PARTICLE SIZE RANGE, HOWEVER,
MICE SHOWED DECREASED DEPOSITION WITH LARGER PARTICLES. THIS AND OTHER OBSERVED DIFFERENCES,
WITHIN AND BETWEEN SPECIES, MAY BE EXPLAINED ON THE BASIS OF RESPIRATORY PATTERN, ANIMAL
WEIGHT, AND GROSS BODY STRUCTURE. ANIMALS WERE SACRIFICED AT THE EARLIEST FEASIBLE TIME,
ABOUT 15 MIN POSTEXPOSURE. INITIAL TISSUE DISTRIBUTION VARIED WITH SIZE AND SOLUBILITY OF
INHALED PARTICLES.

*INHALATION + *RADIOBIOLOGY + AEROSOL + BIOLOGICAL CONCENTRATION, ANIMAL + CESIUM

15-23256

UPTON AC

RADIATION CARCINOGENESIS

OAK RIDGE NATIONAL LAB., TENN.

2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 929 AND 930, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL
MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE RISK OF CANCER, LONG RECOGNIZED TO BE INCREASED BY EXPOSURE TO LARGE AMOUNTS OF IONIZING
RADIATION, HAS RECENTLY BEEN FOUND TO BE ASSOCIATED WITH LOWER LEVELS OF EXPOSURE AND TO
INVOLVE A GREATER VARIETY OF GROWTHS THAN HITHERTO SUSPECTED. THE RELATION BETWEEN RISK AND
RADIATION DOSE CANNOT, HOWEVER, BE SPECIFIED PRECISELY FOR ANY FORM OF CANCER. MOREOVER, THE
INDUCTION OF CANCER SEEMS TO DEPEND ON THE CONDITIONS OF IRRADIATION, THE AGE OF THE
POPULATION IRRADIATED, AND THE TYPE OF GROWTH IN QUESTION. THE EXPERIMENTAL DATA ALSO IMPLY
THAT THE EVOLUTION OF MALIGNANCY IS A MULTISTEP PROCESS WHICH MAY BE INFLUENCED BY
IRRADIATION AT VARIOUS STAGES AND THAT THE EFFECTS OF RADIATION MAY BE ENHANCED, ARRESTED, OR
REVERSED THROUGH THE ACTION OF OTHER PHYSICAL, CHEMICAL, AND BIOLOGICAL AGENTS.

*RADIATION DAMAGE + BIOMEDICAL + ORNL + RADIOBIOLOGY

15-23257

RUSSELL WL

RECENT FINDINGS IN MAMMALIAN RADIATION GENETICS

BIOLOGY DIVISION, OAK RIDGE NATIONAL LAB., TENN.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 930, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

CONCEPTIONS IN THE FIRST FEW WEEKS AFTER IRRADIATION YIELDED A HIGH MUTATION FREQUENCY. LATER
CONCEPTIONS GAVE NO MUTATIONS IN LARGE NUMBERS OF OFFSPRING SCORED. CURRENT EXPERIMENTS WITH
X RAYS ARE SHOWING THE SAME EFFECT. THUS, THE PHENOMENON APPEARS TO BE A GENERAL ONE, WITH
IMPORTANT IMPLICATIONS. CURRENT EXPERIMENTS WITH HIGH DOSE-RATE IRRADIATION GIVEN IN SMALL
SINGLE DOSES OR IN SMALL DOSE FRACTIONS AT APPROPRIATE TIME INTERVALS ARE YIELDING FEWER
MUTATIONS THAN WOULD HAVE BEEN EXPECTED ON THE BASIS OF A STRAIGHT-LINE RELATION WITH THE
MUTATION FREQUENCY FROM LARGE SINGLE DOSES AT THE SAME DOSE RATE.

*RADIOBIOLOGY + ORNL + RADIATION DAMAGE

15-23258

SWINTH KL

DEPENDENCE OF PLUTONIUM X-RAY COUNTING ON ISOTOPIC COMPOSITION

INSTRUMENTATION SECTION, APPLIED PHYSICS AND ELECTRONICS DEPARTMENT, BATTELLE-NORTHWEST, RICHLAND,
WASHINGTON

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 330, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PLUTONIUM MATERIAL IS OFTEN ASSAYED BY COUNTING THE LOW-ENERGY PHOTONS EMITTED (17-KEV X RAYS,
60-KEV AM-241 GAMMA) BY THE PLUTONIUM. SINCE THE SPECIFIC ACTIVITY AND YIELD OF X RAYS
VARIES AMONG THE PLUTONIUM ISOTOPES AND AM-241, AND PLUTONIUM SAMPLES DIFFER IN ISOTOPIC
COMPOSITION, IT IS DIFFICULT TO INFER THE AMOUNT OF PLUTONIUM PRESENT OR THE ALPHA PARTICLE
ACTIVITY (DOSE RATE) FROM PHOTON COUNTING. CALCULATIONS WERE UNDERTAKEN TO EXPLORE THE
CHANGES IN X-RAY AND GAMMA-RAY ACTIVITY OF PLUTONIUM WITH ISOTOPIC COMPOSITION AND TIME. FOR
A SOURCE CONTAINING 90% PU-239 BY WEIGHT, THE X-RAY ACTIVITY DUE TO THE PU-239 IS 55% OF THE
TOTAL AND THIS FALLS TO 27% AFTER DECAYING FOR 5 YR. CHANGES WITH TIME ARE FOUND TO BE DUE
PRIMARILY TO THE BUILDUP OF AM-241.

*PLUTONIUM + ALPHA EMITTER + AMERICIUM + BATTELLE NORTHWEST + GAMMA + MAXIMUM PERMISSIBLE BODY BURDEN +
X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23259

BUKOVITZ AG + SAYEG JA + SPRITZER AA + BRODSKY A
EVALUATION OF THE SELF-SHIELDING CHARACTERISTICS OF THE HUMAN THORAX FOR BIOASSAY OF PU-239, AM-241 AND OTHER LOW-ENERGY X-RAY AND GAMMA EMITTERS
GRADUATE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF PITTSBURGH, PENNSYLVANIA
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 930, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

DOSIMETRY EVALUATIONS OF INHALED RADIOACTIVE ISOTOPES BY MEANS OF EXTERNAL COUNTING METHODS ARE DIFFICULT DUE TO THE SELF-SHIELDING CHARACTERISTICS OF THE HUMAN THORAX. DUPLICATION OF THE HETEROGENEOUS COMPOSITION OF THE THORAX IS A DIFFICULT TASK AND THE USE OF NON-BIOLOGICAL PHANTOMS IS QUESTIONABLE, ESPECIALLY WITH LOW ENERGY X- OR GAMMA-RAYS WHERE COMPOSITION IS EXTREMELY IMPORTANT. A STUDY OF THE SELF-SHIELDING CHARACTERISTICS OF THE HUMAN THORAX WAS UNDERTAKEN FOR LOW-ENERGY GAMMA EMITTERS, INCLUDING PU-239, AM-241, I-125, AND THE X-RAYS OF AU-198, USING A HUMAN CADAVER AS THE PHANTOM.

*COUNTER, WHOLE BODY + AMERICIUM + GAMMA + IODINE + PLUTONIUM + RADIOBIOLOGY + SHIELDING + X-RAY

15-23260

PALMER HE + LANGFORD JC
A SENSITIVE, ROTATIONAL METHOD, MULTICRYSTAL WHOLE BODY COUNTER
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 930 AND 931, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THIS COUNTER CONSISTS OF A CIRCULAR ARRAY OF SIX 4-IN. X 9-3/8-IN. NAI(TI) DETECTORS THROUGH WHICH A PERSON IS TRANSPORTED IN A HOLDER WHICH SLOWLY ROTATES BACK AND FORTH THROUGH ONE-SIXTH OF A REVOLUTION AS THE PERSON PASSES THROUGH THE ARRAY. THIS PRODUCES THE EFFECT OF A UNIFORM CYLINDRICAL GEOMETRY OVER THE ENTIRE LENGTH OF THE PERSON. THE DETECTORS ARE CLOSE TO THE PERSON WHICH PROVIDES EXCELLENT SENSITIVITY FOR THE COUNTER. BY INTRODUCING A SLIGHT COLLIMATION TO THE DETECTORS, THE COUNTER CAN BE MOVED BEYOND THE VIEW OF THE PERSON AT EACH END OF THE SCAN SO THAT EACH SECTION OF THE BODY IS COUNTED WITH EXACTLY THE SAME GEOMETRY. EXCEPT FOR ABSORPTION EFFECTS, THE COUNTER IS INDEPENDENT OF THE ISOTOPE DISTRIBUTION IN THE BODY. THE ABSORPTION EFFECTS ARE SOMEWHAT COMPENSATING AND METHODS OF CORRECTING THE REMAINING EFFECTS WILL BE PRESENTED.

*COUNTER, WHOLE BODY + ACTIVATION + BATTELLE NORTHWEST + BIOMEDICAL + NEUTRON + RADIOBIOLOGY

15-23261

EVANS AG
NEW DOSE ESTIMATES FROM CHRONIC TRITIUM EXPOSURES
SAVANNAH RIVER LAB., E. I. DU PONT DE NEMOURS AND CO., AIKEN, S. C.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 931, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

WORLD-WIDE POPULATIONS ARE CHRONICALLY EXPOSED TO TRITIUM FROM NUCLEAR WEAPONS TESTS AND RELEASES FROM NUCLEAR FACILITIES. ESTIMATES OF THE RADIATION DOSE FROM ASSIMILATION OF TRITIUM OXIDE, THE COMMON FORM OF ENVIRONMENTAL TRITIUM, ARE BASED ON THE ASSUMPTION THAT TRITIUM REMAINS IN BODY WATER UNTIL EXCRETED. ANALYSES OF DEER TISSUES, HOWEVER, INDICATE THAT CHRONIC EXPOSURE TO TRITIUM CAUSES SIGNIFICANT LABELING OF ORGANIC MOLECULES. THE DEGREE OF LABELING WAS DETERMINED FROM TRITIUM ASSAYS OF SEVEN TISSUES (HEART, LIVER, KIDNEYS, SPLEEN, BRAIN, MUSCLE AND FAT) FROM FIFTY-TWO DEER HARVESTED ON THE SAVANNAH RIVER PLANT SITE. IN MOST TISSUES, THE TRITIUM-HYDROGEN RATIOS IN BODY WATER AND IN THE WATER OF COMBUSTION OF DRIED TISSUES WERE THE SAME. THIS INCORPORATION OF TRITIUM IN THE ORGANIC COMPONENT OF DEER TISSUES RESULTS IN DOSES UP TO 1.5 TIMES HIGHER THAN ESTIMATED IF ONLY THE TRITIUM IN BODY WATER IS CONSIDERED.

*DOSE CALCULATION, INTERNAL + *TRITIUM + BIOLOGICAL CONCENTRATION, ANIMAL + SAVANNAH RIVER PLANT

15-23262

ALSO IN CATEGORY 14

HONSTEAD JF
A PROGRAM FOR EVALUATING ENVIRONMENTAL RADIATION DOSE TO CHILDREN
BATTELLE-NORTHWEST LAB., RICHLAND, WASH.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 931, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE POPULATION LIVING ADJACENT TO THE HANFORD PROJECT IS EXPOSED TO LOW LEVELS OF RADIATION AS A RESULT OF RADIOACTIVE MATERIALS RELEASED TO THE COLUMBIA RIVER IN REACTOR COOLING WATER. PART OF THE DOSE THESE PEOPLE RECEIVE IS THE RESULT OF INTERNAL DEPOSITION OF RADIONUCLIDES OBTAINED FROM LOCALLY PRODUCED FOODSTUFFS. TO IDENTIFY THE CRITICAL GROUPS IN THE LOCAL POPULATION AND EVALUATE THE DOSE THEY RECEIVE, WE ARE STUDYING THE DIETARY HABITS OF PEOPLE VISITING HANFORDS WHOLE-BODY COUNTERS. TO INCLUDE CHILDREN IN THIS STUDY A SPECIAL PROGRAM WAS INITIATED IN COOPERATION WITH RICHLAND PUBLIC SCHOOLS. THE METHOD USED TO OBTAIN DIETARY AND WHOLE-BODY COUNTING DATA FROM SCHOOL CHILDREN IS DESCRIBED AND THE DIETARY DISTRIBUTIONS OBTAINED FROM CHILDREN IN SEVERAL ELEMENTARY SCHOOLS ARE PRESENTED. PROBLEMS FACED IN CALIBRATING THE SHADOW-SHIELD WHOLE-BODY COUNTER FOR CHILDREN AND THE RESULTS OF CALIBRATION MEASUREMENTS WITH SUGAR PHANTOMS ARE DISCUSSED.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23262 *CONTINUED*

*BIOLOGICAL CONCENTRATION, MAN + *DOSE CALCULATION, INTERNAL + *MONITORING PROGRAM, ENVIRONMENTAL + *REACTOR COOLANT + *RIVER, COLUMBIA + BATTELLE NORTHWEST + COUNTER, WHOLE BODY + WATER, DRINKING + WATER, IRRIGATION

15-23263

MCCASLIN JB + STEPHENS LD

HIGH-SENSITIVITY NEUTRON AND PROTON FLUX DETECTOR WITH A PRACTICAL THRESHOLD NEAR 600 MEV, HG (SPALLATION) TB-149

UNIVERSITY OF CALIFORNIA, LAWRENCE RADIATION LAB., BERKELEY, CALIFORNIA

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 932, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE DETECTOR DESCRIBED FOR THE MEASUREMENT OF VERY-HIGH-ENERGY PARTICLES MAKES USE OF THE SPALLATION OF HG TO TB-149, AN ALPHA EMITTER WITH A 4.12 HR HALF-LIFE. THIS REACTION HAS A THRESHOLD BETWEEN 500 AND 600 MEV AND EXTENDS THE USE OF THRESHOLD DETECTORS INTO ANOTHER ENERGY DECAD. ADDED CONFIDENCE IN THE SHAPE AND EXTENT OF ACCELERATOR RADIATION SPECTRA DETERMINATIONS IS GIVEN BY THE USE OF THIS DETECTOR WHEN USED WITH PREVIOUSLY REPORTED METHODS.

*DOSIMETRY, GENERAL + ACCELERATOR + LRL + NEUTRON

15-23264

KERR GD + JOHNSON DR

COMPARISON OF RADIATION DOSIMETERS AT THE HEALTH PHYSICS RESEARCH REACTOR OAK RIDGE NATIONAL LAB., TENN.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 932, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A HURST PROPORTIONAL COUNTER (H), A PHIL MINIATURE G-M COUNTER (P), AND A ROSSI IGNITION CHAMBER (R) WERE USED TO MEASURE FIRST COLLISION DOSE RATES FROM FAST NEUTRONS, GAMMA RAYS AND NEUTRONS PLUS GAMMA RAYS, RESPECTIVELY. ALSO EMPLOYED WERE A BONNER DETECTOR FOR MAXIMUM NEUTRON DOSE EQUIVALENT (DE) RATE MEASUREMENTS AND A BF3 DETECTOR FOR THERMAL NEUTRON FLUX MEASUREMENTS. FOR PURPOSE OF COMPARISON, MAXIMUM DE RATES WERE OBTAINED FROM MEASUREMENTS MADE WITH THE HURST DOSIMETER BY MULTIPLICATION WITH A QUALITY FACTOR (8.3 FOR HPDR DIRECT FIELD, 10 FOR OTHER FIELDS) AND 1.5 FOR THE RATIO OF MAXIMUM TO FIRST COLLISION DE FOR FAST NEUTRONS. THERMAL NEUTRON FLUX MEASUREMENTS WERE CONVERTED TO MAXIMUM DE RATES BY THE CONVERSION FACTOR.

*DOSIMETRY, GENERAL + *INSTRUMENTATION CALIBRATION + DOSE MEASUREMENT, EXTERNAL + GAMMA + HPDR (FBR) + NEUTRON + ORNL + REACTOR, FAST BURST

15-23265

ANDERSON LL

MONOENERGETIC NEUTRONS OF INTERMEDIATE ENERGY. CALIBRATION FACILITY DESIGN ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 932, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A RESONANCE-SCATTERING FACILITY WAS DESIGNED FOR USE AT THE ARGONNE CP-5 REACTOR IN THE CALIBRATION OF RADIATION-SAFETY NEUTRON INSTRUMENTS AT INTERMEDIATE ENERGIES, FOR WHICH MONOENERGETIC SOURCES ARE NOT NOW AVAILABLE. THE SOURCE WILL CONSIST OF NEUTRONS SCATTERED ISOTROPICALLY, AT THE ENERGY OF A PRIMARY RESONANCE, BY A THIN FOIL PLACED IN A VERTICAL BEAM FROM THE REACTOR. UNWANTED SCATTERING AT OTHER ENERGIES WILL BE MINIMIZED BY A DIFFERENCE METHOD EMPLOYING A BEAM FILTER OF THE SAME MATERIAL AS THE TARGET. TARGET NUCLIDES HAVE BEEN IDENTIFIED WHICH WOULD PROVIDE FROM THREE TO FIVE DISCRETE SOURCE ENERGIES PER LOGARITHMIC DECADE THROUGHOUT THE INTERMEDIATE ENERGY REGION.

*INSTRUMENTATION CALIBRATION + ANL + NEUTRON + SOURCE, NEUTRON

15-23266

CROSS WG + TOMMASINO L

DETECTION OF LOW DOSES OF FAST NEUTRONS WITH FISSION TRACK DETECTORS

CHALK RIVER NUCLEAR LABORATORIES, CHALK RIVER, ONTARIO, CANADA

2 PAGES, ABSTRACT IN HEALTH PHYSICS 13, PAGE 932 AND 933, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

WHEN ETCHED TRACKS OF FISSION FRAGMENTS IN DIETETRICS ARE COUNTED UNDER A MICROSCOPE, THE DETECTING AREA THAT CAN BE VIEWED IN A FEW MINUTES (WITHOUT AUTOMATIC SCANNING) IS LIMITED TO A FRACTION OF A SQ. CM. DAMAGE TRACKS, IN MYLAR FILM 4 MICRONS THICK, ARE ETCHED TO GIVE HOLES ABOUT 1 MICRON IN DIAMETER. A SOLUTION OF DYE, FORCED THROUGH THE HOLES ONTO A MILLIPORE FILTER, PRODUCES EASILY VISIBLE SPOTS. OVER 60% OF THE FRAGMENTS ESCAPING FROM A FISSION FOIL ARE DETECTED. WITHOUT FISSION, THE BACKGROUND IS LESS THAN 1 TRACK/SQ. CM.

CANADA + CHALK RIVER + DOSIMETRY, GENERAL + NEUTRON

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23268

EUTLER FE

RAPID BIOASSAY METHODS FOR PLUTONIUM, NEPTUNIUM AND URANIUM

SAVANNAH RIVER LAB., E. I. DU PONT DE NEMOURS & CO., AIKEN, S. C.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 933, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

VERY SENSITIVE, RAPID METHODS WERE DEVELOPED TO DETERMINE PLUTONIUM, NEPTUNIUM, AND ENRICHED URANIUM IN URINE. IN THESE METHODS, THE ACTINIDES ARE EXTRACTED FROM OXIDIZED URINE WITH THE LIQUID ION EXCHANGER TRI-ISOOCTYLAMINE (TIOA), FOLLOWED BY BACK-EXTRACTING, AND THEN COUNTING ON LOW-BACKGROUND SOLID-STATE COUNTERS. THE PROCEDURES YIELD SOLID-FREE MOUNTS CONTAINING MORE THAN 95% OF THE ACTINIDES, WITH NO OTHER RADIOACTIVE CONTAMINANTS. LENGTHY ELECTRODEPOSITION IS ELIMINATED. THE MOUNTS ARE ASSAYED WITH COUNTERS HAVING 30% EFFICIENCY AND BACKGROUNDS LESS THAN 5 COUNTS/DAY.

*ANALYTICAL TECHNIQUE, URINE + ION EXCHANGE + NEPTUNIUM + PLUTONIUM + SAVANNAH RIVER PLANT + SOLVENT EXTRACTION PROCESS + URANIUM

15-23271

ROESCH WC

A CORRECTION FOR RADIATION NON-EQUILIBRIUM

PACIFIC NORTHWEST LAB., BATTELLE MEMORIAL INSTITUTE, RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 934, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

RADIATION EQUILIBRIUM IS THE TERM USED TO DESCRIBE RADIATION FIELDS THAT RESULT WHEN SOURCES OF CHARGED PARTICLES ARE UNIFORMLY DISTRIBUTED THROUGHOUT LARGE ENOUGH UNIFORM MEDIA. X- AND GAMMA-RAYS AND NEUTRONS PRODUCE SECONDARY CHARGED PARTICLES WITH A DENSITY PROPORTIONAL TO THE KERMA. BEAMS OF PHOTONS OR NEUTRONS ENTERING AN ABSORBER DO NOT PRODUCE UNIFORM KERMA DISTRIBUTIONS, BECAUSE OF ATTENUATION OF THE PRIMARY BEAM. HENCE, THEY DO NOT PRODUCE RADIATION EQUILIBRIUM. THIS PAPER REPORTS CALCULATIONS OF THE EXTENT OF THE DEPARTURE FROM EQUILIBRIUM BY GIVING THE RATIO OF THE ACTUAL ABSORBED DOSE PRODUCED TO THE KERMA.

*DOSE + BATTELLE NORTHWEST + COMPUTER, DIGITAL + DOSE CALCULATION, EXTERNAL + GAMMA + NEUTRON + X-RAY

15-23272

WRIGHT H + TURNER JE + NEUFELD J + SNYDER WS

CALCULATION OF RADIATION DOSE FROM HIGH-ENERGY NUCLEONS

HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 934, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

MONTE CARLO CALCULATIONS HAVE BEEN MADE OF DOSE IN A TISSUE SLAB IRRADIATED BY NORMALLY AND ISOTROPICALLY INCIDENT PROTONS AND NEUTRONS WITHIN THE ENERGY RANGE 0.4 TO 2.0 GEV. THESE CALCULATIONS HAVE BEEN SIMPLIFIED GREATLY BY ASSUMING THAT CASCADE NUCLEONS AND PIONS ARE EMITTED ONLY IN THE DIRECTION OF THE NUCLEON WHICH INITIATES THE CASCADE. THE AVERAGE NUMBER AND ENERGY DISTRIBUTION OF PROTONS, NEUTRONS, AND PIONS EMITTED IN THE CASCADE PROCESS AND EXCITATION ENERGY OF THE RESIDUAL NUCLEUS ARE BASED LARGELY ON INFORMATION GIVEN BY METROPOLIS ET AL.

*DOSE CALCULATION, EXTERNAL + MONTE CARLO + NEUTRON + ORNL

15-23273

FACEY RA

DOSE AND PHOTON-ENERGY MEASUREMENTS FOR BONE MARROW IN A HUMAN PHANTOM BY THERMOLUMINESCENCE

DEFENSE CHEMICAL, BIOLOGICAL AND RADIATION LABORATORIES, OTTAWA, CANADA

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 934, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PUBLISHED CURVES OF DOSE TO BONE MARROW VS ENERGY IN HUMAN PHANTOMS BY CHEMICAL DOSIMETRY AND BY THERMOLUMINESCENCE DOSIMETRY ARE OF DIFFERENT SHAPE. A DISTINCT HUMP OCCURS AT 60-200 KEV IN THE SECOND CURVE. THE AUTHOR HAS CONFIRMED THE HUMP BUT THE QUESTION REMAINS WHETHER IT IS REAL OR IS PRODUCED ARTIFICIALLY BY RADIATION DEGRADATION. THE DEGRADATION WAS FOUND TO CONSIST OF TWO COMPONENTS, A SOFTENING OF THE PRIMARY RADIATION IN THE SOFT TISSUE, FOLLOWED BY A HARDENING IN THE BONES. THE TOTAL EFFECT WAS FOUND TO BE INSUFFICIENT TO CREATE AN ARTIFICIAL HUMP.

*DOSE MEASUREMENT, EXTERNAL + CANADA + DOSIMETRY, GENERAL + DOSIMETRY, THERMOLUMINESCENCE

15-23274

OLSON OG

A TECHNIQUE FOR QUANTIFYING IN-VIVO RADIOACTIVITY BY DIRECT CALCULATIONS FROM GAMMA SPECTRA

U.S. ATOMIC ENERGY COMMISSION, HEALTH AND SAFETY DIVISION, IDAHO FALLS, IDAHO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 935, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF

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ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23274 *CONTINUED*
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A PROCEDURE IS DESCRIBED BY WHICH THE QUANTITY OF IN-VIVO RADIOACTIVITY CAN BE EVALUATED ENTIRELY FROM THEORETICAL CALCULATIONS, ELIMINATING THE NEED FOR OBTAINING RADIOACTIVE STANDARDS NECESSARY IN THE USUAL EMPIRICAL METHODS OF CALIBRATION. KNOWING THE GEOMETRICAL SOURCE-TO-DETECTOR CONFIGURATION AND THE MASS ABSORPTION COEFFICIENT FOR NA1, THE NUMBER OF GAMMA-RAYS EMITTED FROM A SOURCE THAT ARE TOTALLY ABSORBED IN A KNOWN VOLUME OF CRYSTAL CAN BE CALCULATED. GAMMA-RAYS WHICH ARE PARTIALLY ABSORBED BY THE DETECTOR ARE CORRECTED FOR BY APPLYING THE APPROPRIATE FACTOR FROM A PEAK-TO-TOTAL RATIO PLOT WHICH HAS BEEN PREPARED. ABSORPTION OF THE GAMMA-RAYS IN MUSCLE AND BONE CAN BE PREDICTED BY USING THE MASS ABSORPTION COEFFICIENTS PROVIDED IN THE PAPER. THUS, THE GAMMA-RAYS FOUND IN THE PHOTOPEAK OF THE GAMMA SPECTRUM CAN BE MEASURED AND USED TO DETERMINE THE NUMBER OF GAMMAS EMITTED BY THE SOURCE.

*COUNTER, WHOLE BODY + *DOSE CALCULATION, EXTERNAL + GAMMA + IDAHC FALLS + INSTRUMENTATION CALIBRATION

15-23275
HOLLISTER H + TURNER JE
ON THE RELATIONSHIP OF RBE TO LET
DIVISION OF BIOLOGY AND MEDICINE, U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D.C. + HEALTH PHYSICS
DIVISION, OAK RIDGE NATIONAL LAB., TENN.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 937, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A METHOD IS GIVEN FOR THE REPRESENTATION AND ANALYSIS FOR STRUCTURE OF CELL-INACTIVATION CROSS-SECTION DATA. TWO SPECIFIC BIOLOGICAL EQUIVALENCE RELATIONS AND TWO CORRESPONDING MODELS ARE STATED. THESE RELATIONS ARE ANALYZED IN TERMS OF THEIR THEORETICAL RELATIONSHIP TO CELL SURVIVAL INTERPRETED FROM INACTIVATION CROSS-SECTION DATA AND COMPARED WITH AN EXAMPLE OF SUCH DATA FOR IRRADIATION WITH HEAVY IONS. CONSISTENT INTERPRETATIONS ARE GIVEN WITH RESPECT TO THE FOLLOWING - (I) THE RELATIONSHIP OF LET TO THE STATISTICAL FLUCTUATIONS OF PRIMARY QUANTUM TRANSITIONS, (II) THE DEPENDENCE, OF INACTIVATION CROSS-SECTIONS UPON VELOCITY AND CHARGE, AND (III) THE RELATIONSHIP OF TOTAL RADIATION ACTION VOLUME TO THE CRITICAL VOLUME FOR LET EFFECTS.

*RADIATION DAMAGE + DOSIMETRY, GENERAL + ORNL + RADIOBIOLOGY + USAEC

15-23276 ALSO IN CATEGORY 14
SMITH VH + RAGAN HA + BEAMER JL
ABSORPTION OF PU-238 FROM CERAMIC, PLUTONIUM OXIDE PARTICLES FED TO SWINE
BIOLOGY DEPARTMENT, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

HANFORD MINIATURE SWINE WERE GIVEN, BY LAVAGE, SINGLE DOSES OF SEVERAL THOUSAND SUBMILLIMETER PARTICLES OF REFRACTORY PLUTONIUM-238 OXIDE TO MEASURE THE MAXIMUM PLUTONIUM ABSORPTION TO BE EXPECTED IF THIS TYPE OF FUEL WERE INGESTED. THE FRACTION OF THE FED DOSE RECOVERED FROM TISSUES AND URINE WAS LESS THAN 10(-6TH). ABSORPTION FROM THE GASTROINTESTINAL TRACT, THEREFORE, PRESENTS LITTLE HAZARD. PASSAGE TIME VARIED TO OVER 14 DAYS, AND TWO ANIMALS HAD PARTICLES RETAINED AT THE ILEOCECAL JUNCTION.

*ADSORPTION + *INGESTION + *PLUTONIUM + BATTELLE NORTHWEST + PLUTONIUM OXIDE + RADIOBIOLOGY

15-23277 ALSO IN CATEGORY 14
LLOYD RD + MAYS CW + TAYLOR GN + ATHERTON DR + SHABESTARI LR
RETENTION OF INJECTED AM-241 IN BEAGLES
RADIOBIOLOGY DIVISION, DEPT. OF ANATOMY, UNIVERSITY OF UTAH, SALT LAKE CITY, UTAH
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

FOURTEEN ADULT BEAGLES WERE EACH GIVEN A SINGLE INTRAVENOUS INJECTION OF 0.02 TO 35.9 MICROCURIES AM-241 IN A CITRIC-ACID SODIUM-CITRATE BUFFER SOLUTION AT PH 3.5. BY 1 DAY POSTINJECTION, ABOUT 40% AND 50% OF THE INJECTED AM-241 WERE DEPOSITED IN THE SKELETON AND LIVER, RESPECTIVELY. THIS PATTERN OF RETENTION PERSISTED TO BURDEN TIMES OF MORE THAN 6 MONTHS. EXCRETA COLLECTIONS MADE ON FOUR ANIMALS DURING THE FIRST 3 WEEKS AFTER INJECTION SHOWED THAT SEVEN-EIGHTHS OF THE EXCRETION WAS URINARY. NEARLY THREE-QUARTERS OF THE TOTAL AM-241 EXCRETED IN THIS PERIOD WAS PRODUCED DURING THE FIRST DAY.

*RADIOBIOLOGY + AMERICIUM + BIOLOGICAL CONCENTRATION, ANIMAL

15-23278 ALSO IN CATEGORY 14
BRODSKY A + SCHUBERT J + YANIV S + LAMSON K + WALD N + WECHSLER R + GUMERMAN L + CALDWELL R
DEPOSITION AND RETENTION OF IR-192 IN THE LUNG AFTER AN INHALATION INCIDENT
UNIVERSITY OF PITTSBURGH, GRADUATE SCHOOL OF PUBLIC HEALTH, PITTSBURGH, PA.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

TWO PERSONS WHO SIMULTANEOUSLY INHALED INSOLUBLE SUBMICRON PARTICLES OF IR-192 HAVE BEEN EXAMINED AT 8 FT FROM A 5 X 4-IN. SCINTILLATION DETECTOR. MEASUREMENTS SHOWED THAT THEIR

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ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23278 *CONTINUED*

LUNGS RETAINED 6% AND 13% RESPECTIVELY, OF THE DEPOSITED MATERIAL AT 24 HR AFTER THE INCIDENT. AFTER 1 DAY THE LUNG BURDEN IN EACH SUBJECT WAS FOUND WITH A PICKER MAGNASCANNER TO BE DISTRIBUTED THROUGHOUT BOTH LUNGS. THE DECREASE IN TOTAL BODY RETENTION OF IR-192 AFTER 1 DAY WAS ACCOUNTED FOR BY THE QUANTITY FOUND IN THE FIRST DAYS FECAL SAMPLE. BETWEEN DAYS 4-6 POSTACCIDENT, THE REMAINING LUNG BURDEN DECREASED AT ABOUT 6.6% PER DAY FOR THE SUBJECT WHO HAD RETAINED 6% OF THE DEPOSITED MATERIAL, AND ABOUT 2.5% PER DAY FOR THE ONE WHO RETAINED 13%. FURTHER DATA ON REDISTRIBUTION AND RETENTION PATTERNS WILL BE REPORTED.

*INHALATION + IRIIDIUM + RADIOBIOLOGY

15-23279

WONG KS

RADIATION HAZARD ASSOCIATED WITH HIGH-POWER KLYSTRON IN INDUSTRY
DIVISION OF INDUSTRIAL SAFETY, SAN FRANCISCO, CALIFORNIA

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 938, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

HIGH-POWER KLYSTRON PRODUCES X-RAYS INCIDENTAL TO ITS OPERATION BUT, BECAUSE OF THIS RESULT, PRESENTS RADIATION HAZARD ASPECTS WHICH ARE OF REAL CONCERN. BECAUSE OF THE HIGH VOLTAGE AND CURRENT NEEDED TO OPERATE KLYSTRON, THE X-RAY HAZARD IS EQUIVALENT TO AN X-RAY MACHINE. MANUFACTURERS AND STATE HEALTH AGENCIES GENERALLY ARE WELL AWARE OF THIS X-RAY HAZARD AS THE KLYSTRON UNDERGOES RESEARCH, DEVELOPMENT, MANUFACTURING, AND TESTING. PRESENTS AN EFFECTIVE RADIATION-CONTROL PROGRAM.

X-RAY

15-23280

UNRUH CM + LARSON HV + BETTLE TM

ESTABLISHMENT OF FILM DOSIMETER PERFORMANCE CRITERIA

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 939, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE CURRENT LEVEL OF PERFORMANCE OF 13 PRIVATE, 15 AEC, AND 9 MILITARY PROCESSORS WAS EVALUATED AS A BASIS FOR ESTABLISHMENT OF THE CRITERIA. THE TEST EXPOSURES INCLUDED X- AND GAMMA-RAYS (0.05 TO 600 REM), THERMAL AND FAST NEUTRONS (0.05 TO 0.8 REM), BETA-RAYS (0.1 TO 0.5 REM), AND SEVERAL MIXTURES OF RADIATION COMMONLY ENCOUNTERED IN INDUSTRIAL WORK. A STATISTICAL MODEL AND PROGRAM WERE DEVELOPED TO YIELD THE MOST VALID MEASUREMENT OF PERFORMANCE WITH A MINIMUM OF EXPOSURES. THE PRACTICAL LIMITATIONS, CURRENT PRACTICES, AND TESTIMONY OF EXPERTS ARE ALSO MAJOR FACTORS USED IN ESTABLISHING THE PERFORMANCE CRITERIA.

*DOSIMETRY, PHOTOGRAPHIC + BATTELLE NORTHWEST + BETA EMITTER + GAMMA + NEUTRON + X-RAY

15-23281

DISTENFELD C + COLVETT D + LAMPLUGH J

THE ALTERNATING GRADIENT SYNCHROTRON EXPERIMENTAL FLOOR MONITORING SYSTEM

BROOKHAVEN NATIONAL LAB., UPTON, L.I., NEW YORK

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 939, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE EXPERIMENTAL FLOOR AND UNSHIELDED BEAM-PATH MONITORING SYSTEM CONSISTS OF A NUMBER OF MUTUALLY INDEPENDENT, FULLY AUTOMATIC, INTEGRATING RADIATION MONITORS. THE BASIC DEVICES ARE INTERCHANGEABLE WHILE THE BEAM PATH MONITORS USE TWIN DETECTORS ORIENTED HORIZONTALLY ON EACH SIDE OF THE SAFE BEAM PATHS AND THE AREA MONITORS EMPLOY A SINGLE DETECTOR. BOTH TYPES UTILIZE A POLYETHYLENE-LINED ETHYLENE-GAS-FILLED INTEGRATING PULSE-DISCHARGE IONIZATION CHAMBER. THE ESSENTIAL DETECTOR SIGNAL CONSISTS OF A SELF-TRIGGERED RESET PULSE THAT OCCURS AFTER COLLECTION OF ABOUT 0.6 MRAD. THIS PULSE IS AMPLIFIED, STRETCHED, AND MADE TO GATE A TIMER. TIME BETWEEN PULSES IS INVERSELY PROPORTIONAL TO DOSE RATE SO THAT A DIGITAL TIMES IS USED TO DISPLAY A NUMBER THAT IS RELATED TO DOSE RATE.

*ACCELERATOR + BNL + MONITORING SYSTEM, RADIATION

15-23282

ALSO IN CATEGORY 14

HOLTZMAN RB + LUCAS HF

EXCRETION OF PB-210 AND RA-226 BY RADIUM-DIAL PAINTERS

RADIOLOGICAL PHYSICS DIVISION, ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 940, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE EXCRETION OF ENDOGENOUS PB-210 AND ITS PRECURSOR, RA-226, WERE DETERMINED IN ELEVEN HUMAN SUBJECTS 30-40 YR AFTER EXPOSURE TO RA-226. THE TOTAL BODY BURDENS OF RA-226 IN THESE SUBJECTS WERE SUFFICIENTLY HIGH, 0.1 TO 2.4 MICROCURIE, TO PRODUCE MUCH HIGHER CONCENTRATIONS OF BOTH THE RA-226 AND PB-210 IN THE EXCRETA THAN ARE FOUND FOR NORMAL EXPOSED HUMANS. THE MEASUREMENTS WERE CORRECTED FOR THE DIETARY CONTENT OF THESE NUCLIDES AND FOR THE PB-210 GROWN FROM RA-226 DURING STORAGE OF THE SAMPLES.

*RADIATION DAMAGE + ANL + BIOLOGICAL CONCENTRATION, MAN + LEAD + RADIATION INJURY, TREATMENT OF +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23282 *CONTINUED*
RADIOBIOLOGY + RADIUM

15-23283

MOSS WD. + CAMPBELL EE + SCHULTE HF

A STUDY OF THE DAY-TO-DAY VARIATION ASSOCIATED WITH HUMAN PLUTONIUM URINARY EXCRETION

INDUSTRIAL HYGIENE GROUP, HEALTH DIVISION, LOS ALAMOS SCIENTIFIC LAB., LOS ALAMOS, NEW MEXICO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 940, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

ONE OF THE MOST SERIOUS VARIABLES LIMITING THE ACCURACY OF ESTIMATES OF INTERNAL DOSAGE FROM URINE ASSAY RESULTS IS THE DAY-TO-DAY VARIATION IN EXCRETION RATES FOR THE MEASURED MATERIAL. URINE SAMPLES WERE COLLECTED FOR SEVERAL SUCCESSIVE DAYS FROM EMPLOYEES KNOWN TO EXCRETE DETECTABLE QUANTITIES OF PLUTONIUM. VARIATION IN PLUTONIUM EXCRETION RATE WAS STUDIED IN RELATION TO SPECIFIC GRAVITY, VOLUME RATE OF EXCRETION, AND PERCENTAGE RECOVERY, USING PU-236 AS A TRACER.

*RADIOBIOLOGY + LASL + PLUTONIUM

15-23284

GOTCHY RL + SCHIAGER KJ + DAHL AH

EXPERIMENTAL BIUASSAY PROGRAM FOR URANIUM MINERS

DEPARTMENT OF RADIOLOGY AND RADIATION BIOLOGY, COLORADO STATE UNIVERSITY, FORT COLLINS, COLORADO

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 940, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

THE INCREASED FREQUENCY OF FATAL LUNG CANCER AMONG URANIUM MINERS IS BELIEVED TO BE CAUSED, AT LEAST PARTIALLY, BY CHRONIC EXPOSURES TO THE SHORT-LIVED DAUGHTERS OF RADON. SINCE THE FATALITIES ASSOCIATED WITH THESE EXPOSURES ACCOUNT FOR NEARLY ALL THE EXPOSURE DEATHS IN THE NUCLEAR INDUSTRY, A RELIABLE METHOD OF EVALUATING THE CHRONIC EXPOSURES TO MINERS IS CONSIDERED URGENT. AN ATTEMPT IS BEING MADE TO CORRELATE INTEGRATED EXPOSURES WITH THE LONG-LIVED RADON DAUGHTER ACTIVITY (RAD-E-F) IN BIOLOGICAL SAMPLES FROM WORKING URANIUM MINERS. SAMPLES OF URINE, FECES, BLOOD, AND HAIR ARE BEING COLLECTED AT REGULAR INTERVALS, WET-ASHED, AND ELECTRODEPOSITED ONTO NICKEL DISKS.

*RADIATION DAMAGE + BIOMEDICAL + MINING + RADON + URANIUM

15-23285

PALMER HE + WOGMAN NA + COOPER JA

THE DETERMINATION OF THE DEPTH AND AMOUNT OF PU-239 IN WOUNDS WITH SI(LI) DETECTORS

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 940, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A METHOD WAS DEVELOPED FOR DEFINING THE AVERAGE DEPTH OF PU-239 IN WOUNDS BY X-RAY SPECTROMETRY, USING A LITHIUM-DRIFTED SILICON DETECTOR. THE USE OF THIS METHOD ON ACTUAL WOUND CASES IS DESCRIBED.

*MONITOR, RADIATION, PERSONNEL + *RADIATION DAMAGE + BATTELLE NORTHWEST + BIOMEDICAL + PLUTONIUM + RADIOBIOLOGY

15-23286

ALSO IN CATEGORY 1

MOELLER UW

ADMINISTRATIVE PRACTICES IN RADIATION PROTECTION

HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MASS.

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 941, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A PRESSING NEED IN THE FIELD OF HEALTH PHYSICS IS GUIDANCE FOR ADMINISTRATIVE AND SUPERVISORY PERSONNEL IN MEDICAL AND INDUSTRIAL GROUPS UNDERTAKING WORK INVOLVING RADIATION EXPOSURE. SUBCOMMITTEE N2-6 OF THE NUCLEAR STANDARDS BOARD, AMERICAN STANDARDS ASSOCIATION (NOW THE UNITED STATES OF AMERICA STANDARDS INSTITUTE) HAS BEEN STUDYING THIS PROBLEM AND DEVELOPING A PROPOSED GUIDE ON ADMINISTRATIVE PRACTICES IN RADIATION PROTECTION. FOR GIVEN TYPES, QUANTITIES AND LEVELS OF RADIATION, THE GUIDE OUTLINES CONTROL PROCEDURES CONSIDERED ESSENTIAL. SUCH PROCEDURES INCLUDE MEDICAL EXAMINATIONS, PERSONNEL DOSIMETRY, WORK-AREA EVALUATIONS, AND ENVIRONMENTAL SURVEILLANCE.

MONITORING PROGRAM, ENVIRONMENTAL + RADIATION INJURY, TREATMENT OF + RADIATION PROTECTION, ORGANIZATION + RADIATION SAFETY AND CONTROL

15-23288

ALSO IN CATEGORY 14

THOMPSON JC

COMPARISON OF I-121 INTAKE FROM MILK AND NON-MILK FOODS

DEPARTMENT OF PHYSICAL BIOLOGY, NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY, ITHACA, NEW YORK

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 942, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23286 *CONTINUED*
THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

ALTHOUGH MILK IS CONSIDERED THE PRIMARY I-131 CONTRIBUTOR, HIGH I-131 INTAKES ARE GENERALLY LOCATED IN AREAS WHERE NON-MILK FOODS COULD ALSO MAKE A SIGNIFICANT CONTRIBUTION. SPECIAL POPULATION GROUPS SUCH AS FARM FAMILIES AND OTHER NON-URBAN FAMILIES FIT THESE CONDITIONS. FOOD INTAKES ARE HIGHER AMONG THESE GROUPS, AND THE HOME GROWN CHARACTER OF THE PRODUCTS MINIMIZE THE MARKETING TIME DELAYS NORMALLY EXPECTED TO SIGNIFICANTLY REDUCE I-131 LEVELS. NORMAL HOME PREPARATION TECHNIQUES ACCOUNT FOR CONSIDERABLE I-131 REMOVAL, BUT DATA INDICATE IT IS NOT 100%. NON-MILK FOODS COULD CONTRIBUTE FROM 10 TO 50% OF TOTAL I-131 INTAKE WHEN THESE FACTORS ARE CONSIDERED.

*FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + IODINE

15-23289 ALSO IN CATEGORY 14
FRENCH RL
ON THE BURIED-SOURCE MODEL FOR COMPUTING FALLOUT GROUND ROUGHNESS EFFECTS
RADIATION RESEARCH ASSOCIATES, INC., FORT WORTH, TEXAS
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 943, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

MOST CALCULATIONS OF THE GAMMA RADIATION ENVIRONMENT PRODUCED BY FALLOUT ASSUME THAT THE RADIOACTIVE MATERIAL IS UNIFORMLY DEPOSITED ON A SMOOTH GROUND SURFACE. A RECENT STUDY OF POSSIBLE MATHEMATICAL MODELS FOR INCLUDING THE EFFECTS OF GROUND ROUGHNESS ON THE GAMMA-RAY ENERGY AND ANGLE DISTRIBUTIONS IN AIR ABOVE FALLOUT PLACED EMPHASIS ON THE BURIED-SOURCE MODEL. THIS MODEL IS BASED ON THE ASSUMPTION THAT THE FALLOUT IS COVERED BY A UNIFORM LAYER OF SOIL WHOSE THICKNESS CORRESPONDS TO THE DEGREE OF GROUND ROUGHNESS.

*FALLOUT + COMPUTER PROGRAM + GAMMA

15-23290 ALSO IN CATEGORIES 14 AND 13
COWSER KE + TADMOR J + JACOBS DG + BOEGLY WJ
EVALUATION OF ENVIRONMENTAL HAZARDS FROM RELEASE OF KR-85 AND H-3 IN AN EXPANDING NUCLEAR FUEL REPROCESSING INDUSTRY
HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., TENN.
1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 943, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

PRESENT STUDIES ARE CONCERNED WITH ESTIMATES OF THE DOSE EQUIVALENTS TO MAN THAT MAY RESULT FROM THE COMPLETE RELEASE OF KR-85 AND H-3 DURING REPROCESSING OF SPENT REACTOR FUEL. BASED ON ESTIMATES OF THE FREE-WORLD NUCLEAR POWER GROWTH, THE WORLDWIDE DISTRIBUTION OF THESE RADIONUCLIDES IN YEAR 2000 MAY RESULT IN A TOTAL BODY DOSE RATE OF 1.8 MREM/YR FROM KR-85 AND A BODY TISSUE DOSE RATE OF 0.0021 MREM/YR FROM H-3. RISK TO THE WORLD'S POPULATION IS EVALUATED IN TERMS OF POTENTIAL EFFECT.

*DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *ENVIRONMENTAL CONDITION +
*WASTE DISPOSAL, GAS + FUEL REPROCESSING + KRYPTON + ORNL + RELEASE RATE + TRITIUM + WASTE TREATMENT, GAS

15-23293 ALSO IN CATEGORY 14
RABB D
PLOWSHARE PROGRAM. VOL. II, NO. 2, OCTOBER 1, 1965-JULY 15, 1966
LAWRENCE RADIATION LAB., UNIV. OF CALIFORNIA, LIVERMORE, CALIF.
UCRL-50008-66-1 +. 29 PAGES, JUNE 2, 1965

HAZARDS OF NUCLEAR EXCAVATIONS ARISE FROM RADIATION, AIR BLAST, DUST, AND SEISMIC SHOCK. IT CAN BE INFERRED THAT 1% OR MORE OF THE MATERIAL TEMPORARILY AIRBORNE WILL REMAIN FOR A TIME AS DUST, I.E., PARTICLES SMALLER THAN A FEW HUNDRED MICRONS (A FEW TENTHS OF MILLIMETERS). APPLIED TO AN EXCAVATION AS LARGE AS THE TRANSISTHMIAN CANAL (OVER 300 EXPLOSIVES AVERAGING ABOUT 300 KT EACH), APPROXIMATELY 115 MT OF DUST MAY BE AIRBORNE AT ONE TIME OR ANOTHER AS A RESULT OF THE DETONATIONS.

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

*FALLOUT + *PLOWSHARE PROGRAM + HAZARDS ANALYSIS + NUCLEAR DETONATION

15-23294 ALSO IN CATEGORY 14
HANZEL N
MODEL STUDIES ON THE PENETRATION OF FALLOUT IN VARIOUS SOILS
BATTELLE-INSTITUTE, FRANKFURT AM MAIN
15 PAGES, 6 FIGURES, 5 TABLES, REFERENCES, ZEITS FUR GEOPHYSIK 33, PAGES 33-47 (JANUARY 1967) IN GERMAN

USUALLY, HUMUS LOAMY SOIL AND SILTY CLAY SHOWED THE STRONGEST RETENTION FOR THE FISSION PRODUCTS INVESTIGATED, WHEREAS SANDY SOILS SHOWED THE LEAST RETENTION. IT IS EMPHASIZED THAT RESULTS OF SUCH MOCKUP EXPERIMENTS CAN BE EXTRAPOLATED TO FIELD CONDITIONS ONLY WITH RESERVATIONS. IN AGREEMENT WITH LITERATURE DATA, HOWEVER, THE STUDIES DID NOT INDICATE THAT IN THE FIELD THE DOSE RATE ABOVE A CONTAMINATED SOIL WILL DECREASE, DUE TO DISPLACEMENT OF FALLOUT TO DEPTHS OF THE SOIL, WITHIN A SHORT TIME.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23294 *CONTINUED*

*FALLOUT + *NUCLEAR DETONATION + PARTICLE, RADIOACTIVE + EXPERIMENT, GENERAL + *MODEL TESTING

15-23296 ALSO IN CATEGORY 14

D YACHENKO LN

THE DISTRIBUTION OF EFFECTIVE RADIATION THROUGHOUT THE USSR

TT-65-62040 +. 18 PAGES, FIGURES, REFERENCES, TRANSLATED FROM TRUDY GALAVNOY GEOFIZICHESKOY OBSERVATORII IMENI A.I. VOYEKOVA NO. 152, PAGES 126-141, 1964

PRESENTS CHARTS OF YEARLY AND MONTHLY DISTRIBUTION OF EFFECTIVE RADIATION THROUGHOUT THE SOVIET UNION BASED ON MEASUREMENT DATA. AN ANALYSIS AND COMPARISON WITH ANALOGOUS CHARTS, COMPOSED FROM CALCULATION DATA, ARE PERFORMED.

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

MEASUREMENT, GENERAL + RADIATION UNIT + USSR

15-23297 ALSO IN CATEGORY 14

BARRACLOUGH JT + TEASDALE WE + ROBERTSON JB + JENSEN RG

HYDROLOGY OF THE NATIONAL REACTOR TESTING STATION, IDAHO, 1966

GEOLOGICAL SURVEY, IDAHO FALLS, IDAHO

IDO-22049 +. 95 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1967

THIS ANNUAL REPORT DESCRIBES STUDIES BY THE U.S. GEOLOGICAL SURVEY, SPONSORED BY THE USAEC, TO DETERMINE THE HYDROLOGIC EFFECTS OF DISPOSAL OF RADIOACTIVE WASTE TO THE GROUND AT THE NATIONAL REACTOR TESTING STATION. THE PROJECT HAS INVOLVED THE COLLECTION AND ANALYSES OF GROUND- AND SURFACE-WATER SAMPLES FOR RADIOMETRIC AND CHEMICAL CHANGES. RESULTS HAVE BEEN EVALUATED AND MAPPED. GROUND-WATER LEVELS HAVE ALSO BEEN MAPPED OVER THE STATION. THE NET GROUND-WATER CONSUMPTION AFTER PUMPAGE WAS WASTE INJECTION HAS BEEN DETERMINED. TWO BILLION GALLONS OF WATER WERE PUMPED DURING 1966, OF WHICH 40% WAS METERED AND RETURNED TO THE SNAKE PLAIN AQUIFER.

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

CESIUM + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + IODINE + NIOBIUM + NRTS + STRONTIUM + TRITIUM + WASTE DISPOSAL, GENERAL + WATER, GENERAL + ZIRCONIUM

15-23298

SHEEN EM + CROUCH GD

AUTOMATIC CONVEYOR TYPE LAUNDRY ALPHA-BETA-GAMMA CONTAMINATION MONITOR

BATTELLE NORTHWEST

BNWL-540 +. 25 PAGES, 7 FIGURES, 1 TABLE, NOVEMBER 1967

AN AUTOMATIC RADIATION MONITORING SYSTEM WAS DEVELOPED BY THE PACIFIC NORTHWEST LABORATORY FOR THE FEDERAL SUPPORT SERVICES OF INTERNATIONAL TELEPHONE AND TELEGRAPH TO SCAN LAUNDERED PROTECTIVE CLOTHING AND AUTOMATICALLY REJECT CONTAMINATED GARMENTS. THIS SYSTEM EMPLOYS TWO STAINLESS-STEEL WIRE-BELT CONVEYORS THAT TRANSPORT THE WEARING APPAREL AT A BELT SPEED OF 160 IN./MIN BETWEEN TWO LARGE ALPHA-BETA-GAMMA SCINTILLATION DETECTORS THAT SIMULTANEOUSLY MONITOR UPPER AND LOWER SURFACES OF EACH ITEM OF APPAREL FOR ALPHA-BETA-GAMMA CONTAMINATION. THE INSTRUMENT RELIABLY SORTS ITEMS FOR FURTHER DECONTAMINATION IF THEY ARE CONTAMINATED TO A LEVEL GREATER THAN THE EQUIVALENT OF 25,000 DIS/MIN (11 NCI) OF RA DEF OR 1000 DIS/MIN (0.45 NCI) OF 5-MEV ALPHA EMITTERS DISTRIBUTED OVER 100 SQ. CM.

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

*ALPHA EMITTER + *BETA EMITTER + *CONTAMINATION + *GAMMA EMITTER + *MONITOR, RADIATION, GENERAL + BATTELLE NORTHWEST + INSTRUMENTATION, CONTROL + R AND D PROGRAM

15-23299

GEORGESCU II

IDENTIFICATION AND RADIOCHEMICAL SEPARATION OF THE RU-106 RADIONUCLIDE IN CERTAIN ALGAE OF THE BLACK SEA, RUMANIAN COAST

INSTITUT POLYTECHNIQUE, BUCHAREST

6 PAGES, 3 FIGURES, 2 TABLES, 16 REFERENCES, REV. ROUM, PHYS 12(2), PAGES 171-76 (1967) IN FRENCH

RUTHENIUM-106 AND RHODIUM-106 WERE ISOLATED BY RADIOCHEMICAL METHODS FROM ASHES OF SOME ALGAE COLLECTED IN JUNE 1965 IN THE BLACK SEA ALONG THE RUMANIAN COAST. THE RU-106 WAS IDENTIFIED BY ABSORPTION IN AL OF THE BETA RADIATIONS EMITTED BY RH-106 AND BY THE ANALYSIS OF THE GAMMA SPECTRUM USING A PULSE ANALYZER WITH 400 CHANNELS AND A NAI(TL) CRYSTAL. THE ACTIVITIES OF RU-106-RH-106 HAVE THE FOLLOWING VALUES - 2.8 PLUS OR MINUS 7 PCI/G ASH OF CYSTOSEIRA BARBATA, AND 1.6 PLUS OR MINUS 0.4 PCI/G ASH OF LAURENCIA CORONOPUS.

*BIOLOGICAL CONCENTRATION, ALGAE + *RADIOCHEMICAL PREPROCESSING + *RUTHENIUM + RHODIUM + RUMANIA

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23583 ALSO IN CATEGORY 14
BINFORD FT + BARISH J + KAM K
ESTIMATION OF RADIATION DOSES FOLLOWING A REACTOR ACCIDENT
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4086 +. 41 PAGES, 4 FIGURES, 2 TABLES, 5 REFERENCES, FEBRUARY 1968

BASED UPON THE GAUSSIAN PLUME FORMULA, A MODEL WAS DEVELOPED WHICH PERMITS CALCULATION OF THE DOWNWIND RADIATION DOSES TO BE EXPECTED FOLLOWING A REACTOR ACCIDENT. ALTHOUGH THE CALCULATION IS CONCERNED ONLY WITH THE THYROID DOSE DUE TO IODINES, AND THE WHOLE-BODY DOSE DUE TO IODINES AND NOBLE GASES, IT CAN EASILY BE ADAPTED TO HANDLE OTHER RADIOISOTOPES. A FORTRAN-IV COMPUTER PROGRAM PLUME WAS WRITTEN FOR SOLVING THE EQUATIONS.

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

*ACCIDENT, HYPOTHETICAL + *COMPUTER PROGRAM + *COUNTER, WHOLE BODY + *DOSE CALCULATION, EXTERNAL +
*DOSE CALCULATION, INTERNAL + IODINE

15-23584 ALSO IN CATEGORY 14
RADIATION PROTECTION IN EDUCATIONAL INSTITUTIONS
NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS, WASHINGTON, D. C.
NCRP-32 +. 63 PAGES, TABLES, JULY 1, 1966

THIS REPORT SEEKS TO PROVIDE INFORMATION ON THE HAZARDS INVOLVED IN THE USE OF RADIATION-PRODUCING EQUIPMENT OR RADIOACTIVE MATERIALS IN SCIENCE DEMONSTRATIONS AND EXPERIMENTS, AND ON THE MEANS OF PROTECTION TO OFFSET THE RISKS.

AVAILABILITY - NCRP PUBLICATIONS, WASHINGTON, D. C. \$0.75

*INSTRUMENTATION, GENERAL + *MAXIMUM PERMISSIBLE DOSE (MPD) + *NCRP + *RADIATION SAFETY AND CONTROL +
BIOLOGICAL CONCENTRATION, MAN + CONTAINMENT RESEARCH AND DEVELOPMENT + MONITOR, RADIATION, PERSONNEL +
MONITORING PROGRAM, ENVIRONMENTAL

15-23585 ALSO IN CATEGORY 14
FERRIS BG
ENVIRONMENTAL HEALTH AND SAFETY AT HARVARD
HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON
4 PAGES, HARVARD PUBLIC HEALTH ALUMNI BULL., 23, PAGES 6-9 (JULY 1966)

RADIATION PROTECTION SERVICES AT HARVARD UNIVERSITY ARE DESCRIBED AS WELL AS SOME PROBLEMS OF MONITORING. THE RADIATION PROTECTION SERVICE ROUTINELY SURVEYS 120 LABORATORIES FOR RADIOACTIVE CONTAMINATION AND REVIEWS ISOTOPE HANDLING, AND WASTE DISPOSAL PROCEDURES. OVER 1400 PERSONS ARE PROVIDED WITH FILM BADGES WHICH ARE PROCESSED AT LEAST MONTHLY TO DETERMINE WHETHER ANY SIGNIFICANT RADIATION EXPOSURES HAVE BEEN ACCUMULATED. FORMAL SHORT TRAINING PROGRAMS ARE GIVEN IN THE SAFE USE OF RADIOISOTOPES FOR ALL TECHNICIANS ENGAGED IN RADIOISOTOPE WORK, AND MORE INTENSIVE STUDY PROGRAMS ON RADIATION PROTECTION METHODS ARE REQUIRED FOR ALL INVESTIGATORS WHO SUPERVISE THE USE OF RADIOISOTOPES. MONITORING OF THE ENVIRONMENT AROUND VARIOUS SOURCES OF HIGH ENERGY RADIATION, SUCH AS THE CYCLOTRON AND THE ACCELERATOR, IS ALSO MENTIONED.

*ENVIRONMENTAL CONDITION + *HIGH RADIATION + *RADIATION PROTECTION, ORGANIZATION + *SAFETY REVIEW +
ACCELERATOR + CONTAMINATION + RADIOISOTOPE

15-23586 ALSO IN CATEGORY 14
TEPPER LB
HEALTH PROTECTION IN THE NUCLEAR ENERGY INDUSTRY
UNIVERSITY OF CINCINNATI
4 PAGES, FIGURES, HARVARD PUBLIC HEALTH ALUMNI BULL., 23, PAGES 10-13 (JULY 1966)

VARIOUS ASPECTS OF SURVEILLANCE OF RADIATION HAZARDS IN NUCLEAR INSTALLATIONS ARE REVIEWED. OF ALL THE POTENTIALLY HAZARDOUS ENVIRONMENTAL FACTORS THAT HAVE BEEN MOST INTENSIVELY AND SYSTEMATICALLY STUDIED, RADIATION IS FOREMOST. IN SPITE OF HIGH LEVELS OF RADIOACTIVITY ASSOCIATED WITH INDUSTRIAL OPERATIONS, OVEREXPOSURE IS UNUSUAL AND DETECTABLE RADIATION INJURY HAS BEEN EXTREMELY RARE. OCCUPATIONAL HAZARDS DUE TO F, BE, AND HG IN THE NUCLEAR ENERGY INDUSTRY ARE ALSO CONSIDERED.

*DESIGN CRITERIA + *HAZARDS ANALYSIS + *RADIATION DAMAGE + *SITE CRITERIA, EARTHQUAKE +
*SURVEILLANCE PROGRAM + ENVIRONMENTAL CONDITION + REACTOR POWER

15-23587 ALSO IN CATEGORY 14
JULIAN EC
GROSS RADIOACTIVITY OF THE SOLIDS IN SELECTED SURFACE WATERS OF THE UNITED STATES, 1961-1965
DEPARTMENT OF INTERIOR
12 PAGES, 4 FIGURES, 6 TABLES, 6 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS 9(1), PAGE 1-12,

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23587 *CONTINUED*
(JANUARY 1968)

GROSS RADIOACTIVITY HAS BEEN EXPRESSED IN PCI/LITER OF WATER, BUT, TO UNDERSTAND THE MOVEMENT OF RADIOLOGICAL CONTAMINATION IN THE ABSENCE OF FLOW DATA, THE CONSIDERATION OF RADIOACTIVITY IN THE SUSPENDED AND DISSOLVED SOLIDS IN PCI/G IS QUITE USEFUL. THE GROSS RADIOACTIVITY OF THE SOLIDS IN SOME SURFACE WATERS OF THE U.S. IS PRESENTED AND INTERPRETED IN THIS REPORT WITH THE DATA FROM STATIONS OF THE WATER POLLUTION SURVEILLANCE SYSTEM FOR THE YEARS 1961 THROUGH 1965. RADIOACTIVITY LEVELS IN SURFACE WATERS AS MODIFIED BY SEASONAL RUNOFF PATTERNS ARE REPORTED. THE RADIOACTIVITY OF SOLIDS COLLECTED BELOW TWO PRODUCTION-REACTOR FACILITIES WAS MEASURED, AND A TREND IS INDICATED.

*RADIOLOGY + *SURFACE WATER, SUSPENDED MATERIAL + *SURVEILLANCE PROGRAM + *UNITED STATES + FALLOUT +
RADIOCHEMICAL ANALYSIS + SURVEY, RADIATION, ENVIRONMENTAL

15-23739 ALSO IN CATEGORY 14

KREBS, JS

THE RESPONSE OF MAMMALIAN SKIN TO IRRADIATION WITH PARTICLES OF REACTOR DEBRIS

NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO

USNRL-TR-67-118 +. 63 PAGES, 7 FIGURES, 6 TABLES, 33 REFERENCES, SEPTEMBER 15, 1967

A SURVEY OF THE RELEVANT INFORMATION IN THE BIOLOGICAL AND MEDICAL LITERATURE SHOWS THAT SERIOUS RADIATION-INDUCED ACUTE LESIONS OF THE SKIN ARE CAUSED PRIMARILY BY THE DESTRUCTION OF THE GERMINAL LAYER CELLS OF THE EPITHELIUM. THE FALLOUT FROM DESTRUCTION OF A NUCLEAR REACTOR IS EXPECTED TO BE IN THE FORM OF FRAGMENTS AND PARTICLES OF VARIOUS SIZES. FOR SEPARATE PARTICLES LIKELY TO ADHERE TO SKIN, APPROXIMATE DOSE CALCULATIONS SHOW THAT ONLY THE BETA-EMITTING ISOTOPES OF HIGHER ENERGY MAXIMA (1.5 MEV OR GREATER) WILL BE ABLE TO PRODUCE A RADIATION FIELD LARGE ENOUGH TO BE CONSIDERED HAZARDOUS. IF THE PARTICLES FALL ON THE SKIN IN CLUSTERS, OR IF THEY ARE CRUSHED AND SPREAD OVER THE SKIN AS A FILM OF POWDER, THE HAZARD WILL BE MUCH INCREASED, AND THE CONTRIBUTION OF LOWER BETA ENERGIES TO THE HAZARD WILL BE SIGNIFICANTLY INCREASED. SPECIFIC RECOMMENDATIONS WERE MADE FOR APPLICATION OF THE FINDINGS TO THE EVALUATION AND AVOIDANCE OF BIOLOGICAL HAZARD, AND FOR FURTHER STUDY OF THE PROBLEM.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA

*BIOLOGICAL CONCENTRATION, MAN + *DOSE + *RADIONUCLIDE, INDUCED + *REACTOR POWER + FALLOUT +
HAZARDS ANALYSIS + ISOTOPIC FRACTIONATION

15-23741 ALSO IN CATEGORY 14

LINDELL

RADIATION HAZARDS IN WORK WITH ISOTOPES

NRC-TT-1264 +. 19 PAGES, TRANSLATED FROM LAKARTIDNINGEN 62(42), PAGES 3447-57 (1965)

IN WORK WITH RADIOACTIVE MATERIAL, THE ELEMENTARY PROCESS IS ALWAYS TRANSMITTED BY THE RADIANT ENERGY FROM THE DISINTEGRATING ATOM TO THE TISSUES OF THE BODY. THIS PROCESS IS DESCRIBED WITH THE AID OF PHYSICAL DATA SUCH AS THE RADIATION GEOMETRY, THE NUMBER OF PARTICLES HURLED OUT PER UNIT OF TIME, THE PARTICLE ENERGY, AND THE RATE OF DISINTEGRATION OF THE MATERIAL.

AVAILABILITY - JOHN CRERAR LIBRARY, 35 WEST 33RD ST., CHICAGO, ILLINOIS 60616

*DOSE + *HAZARDS ANALYSIS + *RADIATION DAMAGE + BIOLOGICAL CONCENTRATION, MAN + RADIOACTIVITY RELEASE

15-23742 ALSO IN CATEGORY 14

DISPOSAL OF RADIOACTIVE WASTE-USSR

JPRS-42565 + TT-67-33193 +. 109 PAGES, JUNE 2, 1967, TRANSLATION OF EIGHT PAPERS PRESENTED AT THE

INTERNATIONAL ATOMIC ENERGY AGENCY SYMPOSIUM ON DISPOSAL OF RADIOACTIVE WASTE IN THE GROUND, VIENNA, MAY 29--JUNE 2, 1967

EIGHT PAPERS DEALING WITH DISPOSAL OF RADIOACTIVE WASTES OF LOW ACTIVITY LEVEL IN CLAY SOILS
SORPTION AND MIGRATION OF RADIOISOTOPES IN SOILS AND ROCKS, CONDITIONS FOR BURIAL OF
RADIOACTIVE CEMENT IN SOILS, PROBLEMS OF HEAT GENERATION IN UNDERGROUND STORAGE OF SOLID
RADIOACTIVE WASTES, EXPEDIENCE OF MELTING CALCINATED RADIOACTIVE WASTES IN THE GROUND,
SCIENTIFIC PREMISES FOR THE USAGE OF DEEP FORMATIONS FOR STORAGE OF LIQUID RADIOACTIVE
WASTES, RESULTS OF OPERATION OF PILOT-SCALE INSTALLATION FOR DISPOSAL OF LIQUID RADIOACTIVE
WASTES IN DEEP FORMATIONS OF EARTH'S CRUST, AND THE CENTRAL STORAGE AREA FOR RADIOACTIVE
WASTES IN THE CZECHOSLOVAKIAN SSR.

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

*CALCINATION + *CZECHOSLOVAKIA + *HEAT GENERATION, INTERNAL + *SOIL, RADIONUCLIDE MOVEMENT THROUGH +
*WASTE DISPOSAL, GENERAL + STORAGE CONTAINER

15-23746

ENDRES GW + GLASS WA + HAVERFIELD AJ

PROPORTIONAL COUNTER FOR SPACE AND HIGH ALTITUDE DOSIMETRY APPLICATIONS

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1364 + CONF-671026-2 +. 10 PAGES, REFERENCES, OCTOBER 9, 1967, PRESENTED AT 14TH NUCLEAR SCIENCE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23746 *CONTINUED*
SYMPOSIUM, LOS ANGELES, CALIFORNIA

DISCUSSES A METHOD FOR MEASURING ABSORBED DOSE DUE TO NEUTRON RADIATION. THE TECHNIQUE OF MEASURING DOSE DIRECTLY WITHOUT A DETERMINATION OF FLUX AND SPECTRUM IS DISCUSSED.

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

*COUNTER + *DOSIMETRY, GENERAL + *GAMMA + *NEUTRON + *SPACECRAFT + BATTELLE NORTHWEST +
INSTRUMENTATION, RADIATION MONITORING

15-23747 ALSO IN CATEGORY 14

BARBOUR RA
THE PHILOSOPHY AND PRACTICE OF LIQUID RADIOACTIVE WASTE TREATMENT AT THE NATIONAL NUCLEAR RESEARCH CENTRE,
PELINDABA
ATOMIC ENERGY BOARD, PELINDABA, PRETORIA (SOUTH AFRICA)
PEL-143 +. 18 PAGES, 2 FIGURES, REFERENCES, JANUARY 1967

A SPECTRUM OF NEW PROBLEMS ASSOCIATED WITH THE ATOMIC AGE (NUCLEARPOWER PROGRAMMER, USE OF RADIOISOTOPES IN MEDICINE AND IN INDUSTRY, AND THE GROWTH OF NUCLEAR RESEARCH AT UNIVERSITIES, HOSPITALS, ETC.) HAS DAWNED IN SOUTH AFRICA. THE TREATMENT OF RADIOACTIVE EFFLUENT IS ONE OF THE PROBLEMS. THE NATURE AND SOURCE OF RADIOACTIVE EFFLUENT AND THE POLICY CONCERNING TREATMENT AND ULTIMATE DISPOSAL ARE DISCUSSED.

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

*RADIATION SAFETY AND CONTROL + *SOUTH AFRICA + *WASTE DISPOSAL, LIQUID + *WASTE DISPOSAL, SOLID +
DECONTAMINATION + WASTE TREATMENT, GENERAL

15-23748 ALSO IN CATEGORY 14

TERRILL JG + HARWARD ED + LEGGETT IP
TOXICOLOGY. ENVIRONMENTAL ASPECTS OF NUCLEAR AND CONVENTIONAL POWER PLANTS
U.S. PUBLIC HEALTH SERVICE
8 PAGES, 5 TABLES, 24 REFERENCES, INDUSTRIAL MEDICINE AND SURGERY 36(6), PAGE 412-419, (JUNE 1967)

POWER PLANTS THAT BURN FOSSIL FUELS RELEASE NATURAL RADIOACTIVITY IN THE FORM OF RADIUM AND THE OTHER DAUGHTER PRODUCTS OF URANIUM AND THORIUM, AS WELL AS OTHER POLLUTANTS, TO THE ATMOSPHERE. A NUCLEAR POWER PLANT DOES NOT PRODUCE AIR POLLUTANTS THAT ARE PRODUCTS OF COMBUSTION OF FOSSIL FUEL, BUT CONTROLLED AMOUNTS OF RADIOACTIVE POLLUTANTS ARE RELEASED TO THE ENVIRONMENT DURING NORMAL OPERATION. THE AMOUNT OF AIR REQUIRED TO BRING STACK EFFLUENT CONCENTRATIONS DOWN TO THE CHOSEN CONCENTRATION LIMITS WAS CALCULATED. BETTER DATA IS BEING SOUGHT FOR COMPARING THE HEALTH FACTORS RELATED TO THE DISCHARGES FROM POWER PLANTS.

*ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *REACTOR POWER +
DILUTION + DISPERSION + IODINE + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + REACTOR, BWR + REACTOR, PWR +
URANIUM

15-23884 ALSO IN CATEGORY 1

CLARK T
DOSE PREDICTIONS AND BIOLOGICAL CONSEQUENCES FOLLOWING BURNUP OF A SR-90TIO-3 SOURCE IN SPACE
SANDIA LABORATORIES
SC-CR-67-2792 +. 21 PAGES, 2 FIGURES, 4 TABLES, REFERENCES, AUGUST 1967

THIS STUDY IS CONCERNED WITH THE RADIOLOGICAL HAZARD TO THE GENERAL POPULATION FROM THE POSSIBLE RELEASE OF SR-90 FUEL. RISK ESTIMATES ARE BASED ON THE INDUCTION OF LEUKEMIA AND BONE CANCER IN MAN.

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

*AEROSPACE SAFETY + *AIRBORNE RELEASE + *STRONTIUM + BIOMEDICAL + DOSE + DOSE CALCULATION, EXTERNAL +
DOSE CALCULATION, INTERNAL + FEDERAL RADIATION COUNCIL + INGESTION + REACTOR, SPACE + SNAP, GENERAL (SR) +
SOIL

15-23897 ALSO IN CATEGORY 14

EBERHARDT LL + NAKATANI RE
MODELING THE BEHAVIOR OF RADIONUCLIDES IN SOME NATURAL SYSTEMS
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-SA-1258 + CONF-670503-7 +. 20 PAGES, MAY 12, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON
RADIOECOLOGY, ANN ARBOR, MICH.

MODEL UPTAKE AND RETENTION OF RADIONUCLIDE BY INDIVIDUALS AND POPULATIONS WITH RESPECT TO THE FOOD CHAINS IS OF CONCERN IN THIS PAPER. MOSTLY IGNORED ARE THE AUXILIARY INFLUENCES OF TEMPERATURE, NUTRIENT LIMITATIONS, MINERAL DEFICIENCIES, OXYGEN CONCENTRATION, AND OTHER LIMITING FACTORS THAT MAY PROHIBIT SUCCESS OR PERMIT CONCENTRATION ON MAJOR FEATURES AND PRINCIPAL COMPONENTS OF VARIABILITY.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23897 *CONTINUED*

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *ECOLOGICAL CONSIDERATION + *RADIATION SAFETY AND CONTROL + FALLOUT +
RAINOUT

15-23898 ALSO IN CATEGORY 14

WATSON DC + CUSHING CE + COUTANT CC + TEMPLETON WL

EFFECT OF HANFORD REACTOR SHUTDOWN ON COLUMBIA RIVER BIOTA

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1248 + CONF-670503-2 +. 21 PAGES, MAY 3, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON
RADIOECOLOGY, ANN ARBOR, MICH.

CLOSURE OF THE HANFORD REACTORS FOR AN EXTENDED PERIOD CAUSED A RAPID AND EXTENSIVE DECLINE IN
CONCENTRATION OF RADIONUCLIDES IN THE COLUMBIA RIVER BIOTA. CR-51 AND P-32 DECREASED TWO TO
THREE ORDERS OF MAGNITUDE IN THE LOWER TROPHIC LEVELS, DECLINE IN CONCENTRATIONS OF ZN-65,
MN-54, AND FE-59 WAS MUCH LESS SUGGESTING A CYCLING OF THESE NUCLIDES FROM THE SEDIMENTS TO
THE WATER DURING SHUTDOWN. IN FISH, P-32 WAS LOST RAPIDLY, ZN-65 SLOWLY. NEAR EQUILIBRIUM
CONCENTRATIONS OF RADIONUCLIDES IN MOST RIVER ORGANISMS WERE APPROACHED WITHIN TWO WEEKS TO
ONE MONTH AFTER THE RESUMPTION OF REACTOR OPERATION.

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

*BIOTA + *CESIUM + *ECOLOGICAL CONSIDERATION + *HANFORD (PR) + *RIVER, COLUMBIA + AQUATIC ORGANISMS +
CHROMIUM + IRON + MANGANESE + PHOSPHORUS + REACTOR POWER + REACTOR, PRODUCTION + ZINC

15-23899 ALSO IN CATEGORY 14

RICKARD WH

CS-137 IN CASCADE MOUNTAIN VEGETATION, 1966

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-SA-1212 + CONF-670503-3 +. 13 PAGES, APRIL 12, 1967, PRESENTED AT 2ND NATIONAL SYMPOSIUM ON
RADIOECOLOGY, ANN ARBOR, MICHIGAN

THE ACCUMULATED LEAF LITTER COLLECTED FROM TREE STANDS REPRESENTATIVE OF THE CONIFEROUS
FORESTS EAST AND WEST OF THE CASCADE MOUNTAINS OF WASHINGTON STATE WAS ANALYZED FOR CS-137 BY
GAMMA-RAY SPECTROMETRIC TECHNIQUES IN 1966. THE DATA INDICATE THAT BIOLOGIC PROCESSES AS
WELL AS METEOROLOGIC PROCESSES ARE INVOLVED IN THE LONG-TERM ACCUMULATION OF CS-137 IN FOREST
FLOOR LITTER AND THAT A MOBILIZATION OF CS-137 FROM BOG SUBSTRATES IS BEING ACCOMPLISHED BY
BOG SEDGES.

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

*BIOLOGICAL CONCENTRATION, VEGETATION + *CESIUM + *FALLOUT + *RAINOUT + ECOLOGICAL CONSIDERATION

15-23924 ALSO IN CATEGORY 14

PETERSON WK + ANDERSON GC

NET ZOOPLANKTON DATA FROM THE NORTHEAST PACIFIC OCEAN. COLUMBIA RIVER EFFLUENT AREA, 1961, 1962.

TECHNICAL REPORT NO. 160

WASHINGTON UNIV., SEATTLE. DEPT. OF OCEANOGRAPHY

RLO-1725-82 +. 231 PAGES, FIGURES, REFERENCES, NOVEMBER 1966

PRESENTS TABULATIONS OF NET ZOOPLANKTON DATA FROM 434 QUANTITATIVE SAMPLES COLLECTED DURING
1961 AND 1962 ON THE RESEARCH VESSEL BROWN BEAR OFF THE WASHINGTON AND OREGON COASTS. THE
SAMPLES WERE COLLECTED IN KEY AREAS IN AND AROUND THE COLUMBIA RIVER EFFLUENT TO PROVIDE A
DESCRIPTION OF SEASONAL VARIATIONS OF DISTRIBUTION AND ABUNDANCE OF PLANKTON ASSOCIATED WITH
CHANGES IN THE DISCHARGE OF RIVER WATER. IDENTIFICATION AND ENUMERATION OF COPEPODS WAS
STRESSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *EFFLUENT + *RIVER, COLUMBIA + *SAMPLING + METEOROLOGY

15-23925 ALSO IN CATEGORY 14

DUXBURY AC + MORSE BA + MCGARY N

THE COLUMBIA RIVER EFFLUENT AND ITS DISTRIBUTION AT SEA, 1961-1963. TECHNICAL REPORT NO. 156

WASHINGTON UNIV., SEATTLE. DEPT. OF OCEANOGRAPHY

RLO-1725-62 +. 119 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

SURVEYS OFF THE WASHINGTON-OREGON COAST BY THE DEPARTMENT OF OCEANOGRAPHY, UNIVERSITY OF
WASHINGTON, FROM 1961 THROUGH 1963 HAVE PROVIDED SALINITY DATA FOR DESCRIBING THE COLUMBIA
RIVER EFFLUENT IN THE NORTHEAST PACIFIC OCEAN. THE DATA ALSO HAVE PROVIDED INSIGHT INTO THE
INTERACTIONS BETWEEN THE OBSERVED DISTRIBUTIONS AND THE METEOROLOGICAL SYSTEMS. EACH
SALINITY DISTRIBUTION IS CATEGORIZED INTO ONE OF FOUR DISTINCT SEASONAL PATTERNS, MAINLY
INFLUENCED BY RIVER DISCHARGE AND WINDS. THE SALINITY DISTRIBUTIONS DELINEATE THE EXTENT OF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-23925 *CONTINUED*

THE INFLUENCE OF THE COLUMBIA RIVER EFFLUENT IN THE NORTHEAST PACIFIC OCEAN BOTH HORIZONTALLY WITH DISTANCE AND VERTICALLY WITH DEPTH. ALSO SHOWN AND DISCUSSED ARE THE MEAN WIND PATTERNS FOR THE AREA DURING THIS TIME PERIOD, THEIR INFLUENCE ON THE RIVER OUTFLOW AND THEIR ROLE IN THE TRANSPORT OF THE DILUTE SURFACE WATERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DISPERSION + *EFFLUENT + *RIVER, COLUMBIA + *WIND STATISTICS + DILUTION + METEOROLOGY + TRANSPORT PROPERTY + WATER POLLUTION

15-24124 ALSO IN CATEGORY 1

LYARSKII PP + TERMAN AV
SANITARY LAWS OF THE COUNTRIES PARTICIPATING IN THE COUNCIL OF ECONOMIC COOPERATION IN THE FIELD OF RADIATION HYGIENE
6 PAGES, GIG. SANIT., 4, PAGES 81-86 (APRIL 1967) IN RUSSIAN

A BRIEF REVIEW IS GIVEN OF THE HISTORY OF THE HEALTH LAWS IN THE FIELD OF RADIATION HYGIENE. THE MAXIMUM PERMISSIBLE DOSES OF EXTERNAL AND INTERNAL RADIATION OF THE WHOLE BODY AND OF THE VITAL ORGANS ARE TABULATED. VARIOUS TYPES OF RADIATION ARE ANALYZED AND THEIR EFFECTS CORRELATED. THE MAXIMUM PERMISSIBLE LEVELS OF CLOTHING CONTAMINATION ARE ALSO TABULATED FOR ALPHA AND BETA EMITTING ISOTOPES.

*CONTAMINATION + *LAW + *MAXIMUM PERMISSIBLE DOSE (MPD) + *RADIATION PROTECTION, ORGANIZATION

15-24125 ALSO IN CATEGORY 1

KREMPIEN J
REGULATIONS FOR PROTECTION AGAINST INJURIES CAUSED BY IONIZING RADIATIONS IN SCHOOLS. (2ND REGULATION ON RADIATION PROTECTION)
4 PAGES, ROENTGENPRAXIS, 18, PAGES 257-60 (NOVEMBER 1965) IN GERMAN

THE AUTHOR BRIEFLY SUMMARIZES AND DISCUSSES REGULATIONS PUT INTO EFFECT IN 1964 FOR PROTECTION AGAINST IRRADIATION FROM DEVICES AND EQUIPMENT USED IN UNIVERSITIES AND MEDICAL SCHOOLS. THESE INCLUDE DEFINITION OF THE SCOPE AND APPLICATION OF THE REGULATIONS, USE, INSTALLATION, REMOVAL, AND TRANSFER OF RADIOACTIVE MATERIALS, OPERATION OF X-RAY EQUIPMENT, AND NEUTRON SOURCES, APPROVAL OF CONSTRUCTION OF INSTALLATIONS THAT CONTAIN RADIOACTIVE MATERIALS, NEUTRON SOURCES, AND X-RAY EQUIPMENT, PROTECTIVE MEASURES FOR INSTALLATION, USE, AND OPERATION OF MEASUREMENT EQUIPMENT, NEUTRON SOURCES, AND X-RAY DEVICES, RESPONSIBILITIES FOR RADIATION PROTECTION, AND PROCEDURES FOR APPLICATION OF THE REGULATIONS.

*RADIATION SAFETY AND CONTROL + *REGULATION, GENERAL + GERMANY + PERSONNEL EXPOSURE, RADIATION + SOURCE, NEUTRON + X-RAY

15-24127 ALSO IN CATEGORY 1

MULLETT GW
PROTECTION FROM IONIZING RADIATIONS - A REVIEW OF THE REGULATIONS
ROYAL HOSPITAL, WOLVERHAMPTON, ENGLAND
8 PAGES, ANN. OCCUP. HYG., 10, PAGES 269-76 (JULY 1967)

FIVE YEARS EXPERIENCE OF THE RELEVANT LEGISLATION HAS SHOWN THAT WHILE MUCH OF THE RADIATION PROTECTION IN INDUSTRY IS ADEQUATELY PROVIDED WITHOUT UNDUE DISRUPTION OF THE INDUSTRIAL PROCESS, DIFFICULTIES DO ARISE WHICH CAUSE CONCERN. SOME OF THE REQUIREMENTS OF THE REGULATIONS ARE OVERSTRINGENT, CAUSING UNNECESSARY INTERFERENCE WITH INDUSTRY. THE APPROPRIATE PARTS OF THE REGULATIONS SHOULD BE REVISED TO ALLOW GREATER FLEXIBILITY WITHOUT CAUSING ANY SIGNIFICANT INCREASE IN THE RADIATION HAZARD.

*RADIATION PROTECTION, ORGANIZATION + *REGULATION, GENERAL + *REVIEW + UNITED KINGDOM + X-RAY

15-24136

RUGH R
DAMAGE TO CELLS BY IONIZING RADIATIONS
COLUMBIA UNIVERSITY
6 PAGES, 5 FIGURES, 9 REFERENCES, ATOMPRAXIS 14(1), PAGE 13-18, (1968)

IONIZING RADIATIONS HAVE THEIR EFFECTS AT SUBMICROSCOPIC LEVELS AND ARE PHYSICO-CHEMICAL IN NATURE, BUT THE EFFECTS ARE USUALLY MANIFESTED AT THE CELLULAR LEVEL. SUCH EFFECTS MAY BE LETHAL, DEPENDING UPON THE PARTICULAR RADIOSENSITIVITY OF A CELL OR MAY BE SUBLETHAL AND DAMAGE THE CELL SHORT OF LETHALITY. IN ALL CASES THE EFFECTS ARE DUE TO THE ABSORPTION OF IONIZING RADIATIONS. THE VARIOUS LEVELS OF SUBLETHAL EFFECTS MAY OFTEN BE PROPAGATED AND MAY GIVE RISE TO ANOMALIES OR EVEN TO MALIGNANCIES. IONIZING RADIATIONS ARE KNOWN TO BE CARCINOGENIC. AT MINIMAL LEVELS OF EFFECT THE CELLS MAY NEVER EXHIBIT OVERT DAMAGE OR ALTER THEIR SURROUNDING MEDIA. THERE IS A LATENT PERIOD IN CELL EFFECTS WHICH MAY VARY FROM MINUTES TO MANY YEARS. THIS MAY BE RELATED IN PART TO THE PROLIFERATION RATE OF THE CELLS INVOLVED. THOSE MENTAL DISORDERS WHICH HAVE A GENETIC BASIS COULD WELL ORIGINATE FROM DAMAGE TO INDIVIDUAL CELLS OF THE EMBRYO OR FETUS, OR EVEN TO THE GERM CELLS.

*ALPHA EMITTER + *BETA EMITTER + *GAMMA EMITTER + *NEUTRON + *RADIATION DAMAGE + *RADIOLOGY + *X-RAY +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24136 *CONTINUED*
BIOLOGICAL CONCENTRATION, MAN

15-24143 ALSO IN CATEGORY 14
RARRICK HL

REVIEW OF SANDIA SYMPOSIUM ON INSTRUMENTATION, EXPERIENCE, AND PROBLEMS IN HEALTH PHYSICS TRITIUM CONTROL
SANDIA CORP., ALBUQUERQUE, N. MEX.
SC-DC-67-2191 + CONF-671018-1 +. 7 PAGES, SEPT. 1967, PRESENTED AT MEETING OF THE AMERICAN PUBLIC HEALTH
ASSOCIATION, MIAMI, FLA.

TRITIUM IS NOT A RADIATION HAZARD UNLESS TAKEN INTO THE BODY, WHICH IS MOST EASILY DONE IN THE
FORM OF TRITIUM WATER OR TRITIUM WATER VAPOR. ESSENTIALLY ALL TRITIUM WATER VAPOR INHALED IS
RETAINED, AND AN EQUAL AMOUNT MAY BE ABSORBED THROUGH THE UNPROTECTED SKIN. THE DOSE MAY BE
MEASURED IN THE URINE AND MAY BE REDUCED BY FLUID INTAKE. THE PROBLEM WITH DETECTING TRITIUM
IS THAT THE RADIATION EMITTED IS SO WEAK THAT IT WILL NOT PENETRATE THE WALLS OF NORMAL
DETECTION EQUIPMENT.

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

*INSTRUMENTATION, RADIATION MONITORING + *TRITIUM + CHALK RIVER + DOSE MEASUREMENT, INTERNAL + ENERGY LEVEL

15-24144 ALSO IN CATEGORY 14
FAIRHALL AW

HYDROSPHERE-ATMOSPHERE RADIOCHEMICAL MEASUREMENTS. PROGRESS REPORT, APRIL 1, 1966-APRIL 1, 1967
WASHINGTON UNIV., SEATTLE. DEPT. OF CHEMISTRY
RLO-1776-3 +. 32 PAGES, 16 REFERENCES, MAY 1, 1967

REPORTS WORK WHICH WAS DONE DURING THE PAST YEAR, CONTINUING THAT WHICH WAS REPORTED IN LAST
YEARS PROGRESS REPORT. IT INVOLVES TWO PRINCIPAL SUB-DIVISIONS - A NUMERICAL ANALYSIS USING
A STRATOSPHERIC MIXING MODEL WHICH INCORPORATES MEAN MERIDIONAL MOTION AND EDDY DIFFUSION
PROCESSES TO EXPLAIN THE OBSERVED DISTRIBUTION IN TIME AND SPACE OF THE 1958 INJECTION OF
W-185 INTO THE EQUATORIAL STRATOSPHERE, AND A MODEL OF TROPOSPHERIC MIXING AND EXCHANGE OF
CO₂ WITH THE SEA IN ORDER TO ACCOUNT FOR THE OBSERVED DISTRIBUTION IN TIME AND SPACE OF THE
C-14 INJECTED INTO THE ATMOSPHERE BY THE 1961-1962 TEST SERIES.

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

*ATMOSPHERIC DIFFUSION + *FALLOUT + *MODEL TESTING + CARBON + OCEAN AND SEA + RADIOCHEMICAL ANALYSIS +
STRATOSPHERE + TROPOSPHERE + TUNGSTEN

15-24145

NGVIKOVA LV + PAVLOVA TG + STENIN DC + USKOV IA
DOSIMETRIC SUBSTANTIATION OF GAMMA-THERAPY WITH A LATTICE
5 PAGES, 4 FIGURES, 1 TABLE, MED. RADIOL., 12, PAGE 14 THRU 18, (JAN. 1967), (IN RUSSIAN)

BY MEANS OF PHOTOMETRIC AND CHEMICAL MODES OF DOSIMETRY, THE DISTRIBUTION OF IONIZING
RADIATION IN A TISSUE-EQUIVALENT MEDIUM DURING GAMMA-IRRADIATION WITH A 40 PERCENT LATTICE
AND WITHOUT IT WAS INVESTIGATED. THE INVESTIGATORS SHOWED THAT THE EMPLOYMENT OF A LEAD
LATTICE IN GAMMA-THERAPY MADE IT POSSIBLE TO OBTAIN IN THE FOCUS OF AFFECTION UNDER OPEN
AREAS OF THE LATTICE A DOSE THREE TIMES GREATER THAN IN IRRADIATION WITHOUT THE LATTER IN
SIMILAR INTEGRAL ABSORBED DOSES.

*DOSIMETRY, PHOTOGRAPHIC + *GAMMA EMITTER + *IRRADIATION TESTING + *RADIOLOGY + *X-RAY + DOSE +
DOSIMETRY, GENERAL

15-24163 ALSO IN CATEGORY 14

DAVID L
DEPTH DOSES DUE TO FISSION NEUTRON SPECTRUM IN A TISSUE-EQUIVALENT MATERIAL
INST. OF NUCLEAR RESEARCH, CZECHOSLOVAKIAN ACADEMY OF SCIENCES, PRAGUE
5 PAGES, JAD. ENERG., 13, PAGE 241 THRU 245, (JULY 1967), (IN CZECH)

ACCURATE KNOWLEDGE OF FLUX-DOSE RELATION IS NEEDED IN NEUTRON MONITORING FOR RADIOLOGICAL
PROTECTION. FLUX-DOSE CONVERSION FACTORS FOR THE DEPTHS OF 0, 5, 10, 20, AND 30 CM IN AN
INFINITE SLAB OF TISSUE-EQUIVALENT MATERIAL ARE GIVEN AND THEIR DEPENDENCE ON NEUTRON ENERGY
OVER THE RANGE OF 0.1 KEV TO 10 MEV IS DETERMINED. IN ADDITION, AVERAGE VALUES OF THESE
CONVERSION FACTORS FOR FISSION NEUTRON SPECTRUM AS A FUNCTION OF ITS THRESHOLD ENERGY ARE
CALCULATED AND INTERCOMPARISONS OF SEVERAL ACTIVATION INTEGRATORS AS TO THEIR EFFICIENCY OF
MEASURING FAST NEUTRON TISSUE-DOSES ARE DISCUSSED.

*DOSE MEASUREMENT, INTERNAL + *MONITORING PROGRAM, ENVIRONMENTAL + *NEUTRON + RADIOLOGICAL ASSISTANCE

15-24164 ALSO IN CATEGORY 14
SANTHOLZER V + STRANSKY P + KNAIFL J

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24164 *CONTINUED*

RATIOS OF RADIONUCLIDES OF STRONTIUM IN FALLOUT AFTER THE THIRD NUCLEAR TEST IN CHINA
CHARLES UNIV., HRADEC KRALOVE, CZECHOSLOVAKIA
2 PAGES, JAD. ENERG., 13, PAGE 184 AND 185, (MAY 1967), (IN CZECH)

FRESH FISSION PRODUCTS WERE DEMONSTRATED BY RADIOCHEMICAL SEPARATION OF STRONTIUM FROM ATMOSPHERIC FALLOUT. THE RATIO OF SR-89/SR-90 ACTIVITIES WAS 2.44 70 DAYS AFTER THE NUCLEAR TEST. THE THEORETICALLY EXPECTED VALUE OF THIS RATIO IS 24 TO 36, ACCORDING TO THE TYPE OF FISSION. KURODA ET AL. FOUND THE VALUE OF THIS RATIO TO BE ABOUT 1 TWO MONTHS AFTER THE SECOND CHINESE TEST, WHICH AGREES WITH OUR RESULT. THE GREAT DIFFERENCE FROM THE THEORETICAL VALUE IS DUE TO FRACTIONATION PHENOMENA, METEOROLOGICAL INFLUENCE, AND ROTATION OF THE RADIOACTIVE CLOUD AROUND THE EARTH. FRESH FALLOUT WAS ALSO PROVED BY MEASUREMENTS OF THE ABSORPTION OF BETA RAYS OF THE SEPARATED MIXTURE OF SR-89 PLUS SR-90. IN FRESH FALLOUT THE SR-89 PREDOMINATES AND THE HALF-VALUE LAYER WAS ABOUT 110 MG/SQ. CM, WHILE FOR SR-90 IT IS 170 MG/SQ. CM.

*CHINA + *FALLOUT + *STRONTIUM + METEOROLOGY + RADIOCHEMICAL ANALYSIS

15-24191 ALSO IN CATEGORY 12

MIWA H + YAMAMOTO Y
NEW LABORATORY AIR SAMPLER WITH LOW OPERATIONAL NOISE
KOBE IND. CORP., JAPAN
3 PAGES, HOKEN BUTSURI 1(2), PAGES 46-8 (DEC. 1966) IN JAPANESE

A LABORATORY AIR SAMPLER, HAVING HIGH MOBILITY AND REDUCED OPERATIONAL NOISE, WAS DEVELOPED. IT IS USED TO COLLECT THE AIRBORNE PARTICLES IN SUCH AREAS THAT ARE LOCATED AWAY FROM STATIONARY MONITORS OR ARE CONTAMINATED ACCIDENTALLY BY RADIOACTIVITY. PRIMARY CONSIDERATIONS IN THE DESIGN OF THE INSTRUMENT WERE REDUCED EXTERNAL SIZE, WEIGHT, AND OPERATIONAL NOISE. FILTER PAPER AND ACTIVE CARBON CARTRIDGE FILTERS FOR THE FILTRATION OF IODINE CAN BE INSTALLED IN A FILTER BOX AT THE TOP OF THE INSTRUMENT AND EASILY REPLACED.

*RADIOCHEMICAL PLANT SAFETY + *SAMPLING + AEROSOL + AEROSOL, RADIOACTIVE + AIR + CARBON + EQUIPMENT, GENERAL + FILTER + IODINE + PARTICULATE

15-24208 ALSO IN CATEGORY 17

BEATTIE WC
PROPOSED CHANGE TO ALLOW CONTAINMENT ENTRY DURING FULL POWER OPERATION
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
2 PAGES, MARCH 5, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 20-21 (MARCH 18, 1968) DOCKET 50-3

(LETTER, MARCH 5) THE RADIATION SURVEY (LETTER DATED JUNE 25, 1965) INDICATED QUALIFIED PERSONNEL CAN ENTER CONTAINMENT AND REMAIN WITHIN 10 CFR 20 EXPOSURE LIMITS. SECTION 4.2-1 WOULD BE REVISED TO ALLOW ROUTINE ENTRY FOR TWO TWO-MAN TEAMS TO ENTER CONTAINMENT AT POWER LEVELS UP TO 100% FOR INSPECTION AND MINOR WORK.

INDIAN POINT 1 (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + TECHNICAL SPECIFICATIONS

15-24231 ALSO IN CATEGORY 14

SEIDLER H + HAERTIG M
THE SR-90 ACTIVITY OF MILK IN 1964
INSTITUT FUER ERNAERUNG, POTSDAM-REHBRUECKE, GER.
3 PAGES, NAHRUNG, 9, PAGE 701-703, (1965), (IN GERMAN)

THE SR-90 ACTIVITY IN LOCAL MILK SAMPLES AND IN FALLOUT SAMPLES WAS MEASURED AND COMPARED FOR CALENDAR YR 1964. COMPARED TO THE PREVIOUS YR, THE SR-90 ACTIVITY WAS SLIGHTLY HIGHER IN 1964, BUT THE 1964 WEEKLY VALUES ALMOST ALL WERE AT THE LEVEL OF MONTHLY AVERAGE, WHEREAS IN JULY AND AUGUST, 1963, SINGLE MAX. VALUES REACHED AS HIGH AS 60 PCI SR-90/G CA.

*BIOLOGICAL CONCENTRATION, MILK + *GERMANY + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM + FALLOUT + RAINOUT + TESTING

15-24232

MOROZOV VI + PETRUSEV SS + FEDOROVSKII YP
A GAMMA-RADIOMETER FOR THE CONTINUOUS RECORDING OF LOW-LEVEL CONTAMINATION OF SEAWATER
2 PAGES, AT. ENERG. (USSR), 23, PAGE 163 AND 164, (1967), (IN RUSSIAN)

DETERMINATION OF LOW CONCENTRATIONS OF CS-137, SR-90 + Y-90, RU-106 + RH-106, ZR-95 + NB-95, ZN-65, CO-60, AND MN-54 IN SEAWATER REQUIRES HIGHLY-SENSITIVE INSTRUMENTS. THE SENSITIVITY IS LIMITED BY THE BACKGROUND DUE TO COSMIC RADIATION AND THE K-40 CONTENT OF THE WATER. AN INSTRUMENT WAS DEVELOPED, COMPENSATING FOR THE GAMMA RADIATION OF K-40. ITS OPERATION WAS BASED ON THE CONTINUOUS RECORDING OF THE GAMMA QUANTA BY MEANS OF A TWO-CHANNEL DISCRIMINATOR, WORKING IN THE KEV-60 TO 1.6-MEV, AND 1.4 TO 1.6-MEV RANGES, WITH SUBSEQUENT COMPENSATION OF THE K-40 BACKGROUND.

*GAMMA + *GEOLOGICAL CONSIDERATION, GENERAL + *INSTRUMENTATION, RADIATION MONITORING + *USSR + COSMIC RADIATION

CATEGORY 15
/ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24233 ALSO IN CATEGORY 14
BELYAEV VI + KOLESNIKOV AG + NELEPO BA
REGULARITIES OF THE RADIOACTIVE CONTAMINATION SPREADING IN THE OCEAN
MARINE HYDROPHYSICAL INST., KHARKOV
9 PAGES, IZV. AKAD. NAUK SSSR, FIZ. ATMOS. OKEANA, 3, PAGE 1092-1100, (OCT. 1967), (IN RUSSIAN)

THE RESULTS OBTAINED IN THE MARINE HYDROPHYSICAL INSTITUTE OF THE UKRAINIAN ACADEMY OF SCIENCES IN THE STUDY OF SPREADING OF RADIOACTIVITY FROM NUCLEAR TESTS IN SEAS AND OCEANS WERE ANALYZED. THE PHYSICAL MECHANISM OF RADIOACTIVE PENETRATION FROM THE ATMOSPHERE INTO THE OCEAN DEPTHS IS DISCUSSED. INVESTIGATIONS REVEALED A FAR GREATER RATE OF PENETRATION OF RADIOACTIVITY THAN HAS BEEN CONSIDERED BEFORE. ESTIMATING THE WATERS AGE BY DECAY OF RADIOACTIVE ELEMENTS WHILE NEGLECTING EXCHANGE IN THE OCEAN IS SHOWN TO BE INADEQUATE.

*CONTAMINATION + *OCEAN AND SEA + *TESTING + ATMOSPHERIC POLLUTION + NUCLEAR EXPLOSION DEBRIS + POPULATION EXPOSURE + USSR

15-24234 ALSO IN CATEGORY 14
BLUME W
THE CONTAMINATION OF OUR ENVIRONMENT DUE TO NUCLEAR TESTS
8 PAGES, RADIOBIOL. RADIOTHER., 8, PAGE 187-194, (1967), (IN GERMAN)

ENVIRONMENTAL CONTAMINATION RESULTING FROM NUCLEAR TESTS WAS DETERMINED BY THE NATIONAL CENTRAL BOARD OF RADIATION PROTECTION. A REVIEW OF THE MECHANISMS OF SPREADING AND DEPOSITION OF FISSION PRODUCTS IN THE ATMOSPHERE IS PRESENTED. RADIOACTIVITY OF THE ATMOSPHERE NEAR THE GROUND FOLLOWING NUCLEAR TESTS IN 1962 WAS DETERMINED FROM MEASUREMENTS OF TOTAL BETA ACTIVITY OF THE AIR AND FALLOUT. STRONTIUM-90 MEASUREMENTS OF SOILS, PLANTS, AND FOODSTUFFS ARE GIVEN.

*BETA EMITTER + *CONTAMINATION + *NCRP + *NUCLEAR DETONATION + *STRONTIUM + DEPOSITION + ENVIRONMENTAL CONDITION + FALLOUT

15-24235 ALSO IN CATEGORY 14
HAKEN JW
RADIOACTIVE CONTAMINATION OF FOOD IN 1964
KEURINGSDIENST VAN WAREN, AMSTERDAM
9 PAGES, VOEDING, 26, PAGE 525-5338 (SEPT. 15, 1965), (IN DUTCH)

EXTENSIVE DATA ARE GIVEN FOR THE SR-90 AND CS-137 CONTENT OF RAINWATER AND FOOD IN THE NETHERLANDS. RESULTS OF SEMI-CONTINUOUS SURVEY OF MILK, BREAD, AND MEAT, AND 80 ANALYSES OF VEGETABLES AND VARIOUS FOOD ITEMS ARE INCLUDED.

*CESIUM + *CONTAMINATION + *ENVIRONMENTAL CONDITION + *NETHERLANDS + *NUCLEAR DETONATION + *STRONTIUM + CALCIUM + FALLOUT + RAINOUT

15-24236 ALSO IN CATEGORY 14
ROSENKRANZ H
SKIN INJURIES IN ATOMIC EXPLOSIONS
HAUTKLINIK DER BEZIRKSKRANKENHAUSEN, POTSDAM, GER.
4 PAGES, Z. AERZTL. FORTBILD, 59, PAGE 1067-1070, (OCT. 1, 1965), (IN GERMAN)

VARIOUS TYPES OF PRIMARY, SECONDARY, AND LATE SKIN INJURIES THAT HAVE RESULTED FROM IRRADIATION EMITTED FROM ATOMIC EXPLOSIONS ARE BRIEFLY REVIEWED. A TABULATION OF THE COMPARATIVE SYMPTOMS OF IRRADIATION, WITH INDICATIONS OF THEIR CHRONOLOGICAL INCIDENCE AND DURATION, IS PRESENTED ALONG WITH SOME OF THE TREATMENTS.

*EXPLOSION + *RADIATION DAMAGE + *RADIATION INJURY, TREATMENT OF + DOSE + HAZARDS ANALYSIS + INCIDENT, EXPOSURE

15-24243 ALSO IN CATEGORY 17
KAJEK V
RADIATION ACCIDENTS IN PEACE TIME. PROBLEMS OF DOSIMETRY AND MEDICAL SERVICES. PART I. REVIEW OF ACCIDENTS IN NUCLEAR INDUSTRY IN THE YEARS 1945-1964
SLOVAK NATIONAL UPRISING MILITARY HOSPITAL, RUZOMBEREK, CZECHOSLOVAKIA
4 PAGES, VOJ. ZDRAVOT. LISTY, 36, PAGE 80-83, (APRIL 1967), IN CZECH

VARIOUS ACCIDENTS WHICH HAPPENED IN NUCLEAR INDUSTRY IN THE USSR IN 1953 ARE DESCRIBED. TWO MEN WHO RECEIVED DOSES OF 300 AND 450 R RECOVERED FULLY IN 18 MONTHS. A CZECHOSLOVAK ACCIDENT WHICH HAPPENED IN 1960 IS DISCUSSED. A BOY CARRIED A 150-MC COBALT RADIATION SOURCE FOR 45 MINUTES BUT WAS NOT HURT. IN ANOTHER CZECHOSLOVAK ACCIDENT IN 1963, 13 MEN WERE MOVING A CONTAINER WITH 2000 C OF CO-60 WHEN THE CONTAINER WAS DAMAGED. THE HIGHEST EXPOSURE RATE WAS 17.5 R AND NO SERIOUS DAMAGE WAS CAUSED.

*INCIDENT, GENERAL + CZECHOSLOVAKIA + PERSONNEL EXPOSURE, RADIATION + SOURCE, RADIATION + USSR

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24244 ALSO IN CATEGORY 14

BITTEL R

DISCUSSION OF FACTORS PROMOTING THE RADIOACTIVE CONTAMINATION OF CULTIVATED CROPS

CENTRE D-ETUDES NUCLEAIRES, FONTENAY-AUX-ROSES, FRANCE

22 PAGES, ANN. AGRON., HORS-SER., 16, PAGE 265-286, (1965), (IN FRENCH)

PLANTS TAKE-UP FROM THE BIOSPHERE RADIOACTIVE ELEMENTS ORIGINATING FROM RADIOACTIVE FALL-OUT AND IRRIGATION WATER. THE MECHANISMS OF ABSORPTION ARE THE SAME AS THOSE OPERATING FOR STABLE ELEMENTS IN MINERAL NUTRITION. SIMILARLY TO THE UPTAKE OF ELEMENTS FROM THE SOIL BY WAY OF ROOTS OR BY THE AERIAL ORGANS, PLANTS MAY BECOME CONTAMINATED INDIRECTLY FROM THE SOIL BY WAY OF THEIR ROOTS OR DIRECTLY BY ABSORBING RADIOACTIVE ELEMENTS DEPOSITED ON THEIR LEAVES, FLOWERS AND FRUITS. THERE IS A TREND TOWARDS AN EQUILIBRIUM BETWEEN RADIOACTIVE ADDITIONS AND LOSS IN RADIOACTIVITY BY LEACHING TO THE SUBSOIL AND UPTAKE BY ROOTS. WHEN THE RADIOACTIVITY OF THE SOIL REACHES THE LIMIT VALUE R, PLANTS ASSUME AN R VALUE THAT IS PROPORTIONAL TO R. EQUILIBRIUM IS RAPIDLY REACHED WITH RADIOACTIVE ELEMENTS OF SMALL AND MEDIUM HALF-LIFE, BUT IS REACHED VERY MUCH SLOWER WITH THE LONG-LIVED ISOTOPES SUCH AS CAESIUM-137 AND STRONTIUM-90.

*BIOLOGICAL CONCENTRATION, VEGETATION + *CONTAMINATION + *ECOLOGICAL CONSIDERATION + *FALLOUT + *RAINOUT + CESIUM + NUCLEAR DETONATION + STRONTIUM

15-24245

MIKHAYLOV M + PETKOV T

NEW METHOD FOR THE QUANTITATIVE DETERMINATION OF RADIOACTIVE CONTAMINATION OF SURFACES

4 PAGES, RENTGENOL. RADIOL, 5, PAGE 266-269, (1966), IN BULGARIAN

A PROCEDURE FOR THE QUANTITATIVE DETERMINATION OF RADIOACTIVE CONTAMINATION OF SURFACES HAS BEEN DEVELOPED WHICH IS BASED ON THE METHOD OF FILM DECONTAMINATION. BY USING A POLYVINYL ALCOHOL FILM, 96% OF THE RADIOACTIVE IMPURITIES CONTAMINATING A SURFACE WERE REMOVED.

*CONTAMINATION + *COUNTER + *EVAPORATION + *MONITOR, RADIATION, SURFACE + BULGARIA + DECONTAMINATION

15-24247 ALSO IN CATEGORY 14

BELOVA RS + LUNKINA ZP

THE RADIUM AND URANIUM CONTENT IN FOOD STUFFS AND THE ACCUMULATION OF THESE ELEMENTS IN THE HUMAN TEETH

4 PAGES, GIG. SANIT., 6, PAGE 48-51, (JUNE 1967), IN RUSSIAN

RESULTS ARE REPORTED FROM AN INVESTIGATION OF THE RADIUM AND URANIUM CONTENT IN FOOD PRODUCTS, WATER, AND IN THE TEETH OF THE POPULATION IN TWO DISTRICTS. IT WAS SHOWN THAT RADIUM AND URANIUM MIGRATE ALONG THE BIOLOGICAL ROUTE FROM WATER AND PLANTS TO THE ANIMAL BODY AND FROM THE LATTER TO MAN, ACCUMULATING IN THE BONE. THE DAILY AMOUNT OF RADIUM AND URANIUM ENTERING THE BODY IN THE DISTRICTS INVESTIGATED DEPENDED MAINLY ON THEIR CONTENT IN THE WATER, BUT IN THE CONTROL DISTRICT DEPENDED ON THEIR CONTENT IN FOOD.

*BIOLOGICAL CONCENTRATION, MAN + *RADIUM + *URANIUM + ECOLOGICAL CONSIDERATION + POPULATION EXPOSURE

15-24248

MEDWEDEFF FM

ARE DENTAL X-RAYS DANGEROUS

1 PAGE, SCIENCE 158(3807), PAGE 1397, (DEC. 15, 1967)

PRESENTS THE PROS AND CONS RELATIVE TO THE HAZARDS OF RADIATION DUE TO DENTAL X-RAYS. RICHARDS, THROUGH STATISTICAL ANALYSIS, PRESENTS A CASE FOR THE DENTAL PROFESSION, BASED ON THE LIFE EXPECTANCY OF DENTISTS AS AGAINST THE LIFE EXPECTANCY OF THE GENERAL POPULATION. MEDWEDEFF ATTEMPTS TO SHOW THAT THE ARGUMENTS OF RICHARDS ARE INVALID BECAUSE RADIATION SELDOM REACHES THE BLOOD-FORMING ORGANS OF DENTISTS. STATISTICALLY, RICHARDS FIGURES ARE NOT GOOD. BESIDES, DENTISTS HAVE USED X-RAYS FOR ONLY ABOUT 20 YEARS.

HAZARDS ANALYSIS + PERSONNEL EXPOSURE, RADIATION + POPULATION EXPOSURE + STATISTICAL ANALYSIS + X-RAY

15-24250 ALSO IN CATEGORY 14

RADIUM-226 AND RADON-222. CONCENTRATION IN ATLANTIC AND PACIFIC OCEANS

COLUMBIA UNIVERSITY

4 PAGES, 3 FIGURES, 3 TABLES, REFERENCES, SCIENCE 158(3806), PAGE 1307 THRU 1310, (DEC. 8, 1967)

MEASUREMENTS OF RADON-222 IN SEAWATER SUGGEST THE FOLLOWING - THE RADIUM-226 CONTENT OF SURFACE WATER IN BOTH THE ATLANTIC AND PACIFIC OCEANS IS UNIFORMLY CLOSE TO ABOUT 4×10^{-14} GRAM PER LITER. THE DEEP PACIFIC HAS A CONCENTRATION OF RADIUM-226 FOUR TIMES HIGHER AND THE DEEP ATLANTIC A CONCENTRATION TWICE AS HIGH AS THAT OF THE SURFACE. THESE DISTRIBUTION PROFILES CAN BE EXPLAINED BY THE SAME PARTICLE-SETTLING RATE FOR RADIUM-226 FROM SURFACE TO DEPTH FOR THE TWO OCEANS AND BY A THREEFOLD LONGER RESIDENCE TIME OF WATER IN THE DEEP PACIFIC THAN IN THE DEEP ATLANTIC.

*DIFFUSION + *OCEAN AND SEA + *RADIUM + *RADON + HYDROLOGICAL CONSIDERATION, GENERAL + PARTICULATE +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24250 *CONTINUED*
TRANSPORT PROPERTY

15-24251 ALSO IN CATEGORY 14
SNAVELY DR + BRILL WA
COMPARISON OF ENVIRONMENTAL RADIOACTIVITY LEVELS AFTER FOREIGN NUCLEAR WEAPONS TESTS OF MAY 9, 1966, AND
DECEMBER 27, 1966
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
9 PAGES, 8 FIGURES, 11 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 63-71 (FEBRUARY 1968)

THE ENVIRONMENTAL RADIOACTIVITY LEVELS AFTER THE FOREIGN WEAPONS TESTS OF MAY 9, 1966 AND
DECEMBER 27, 1966 ARE COMPARED, AND THE INFLUENCE OF DAIRY PRACTICES AND WEATHER CONDITIONS
ON LEVELS OF IODINE-131 IN MILK ARE DISCUSSED.

*FALLOUT + *IODINE + *NUCLEAR DETONATION + *RAINOUT + ATMOSPHERIC DIFFUSION + BARIUM +
BIOLOGICAL CONCENTRATION, VEGETATION + ENVIRONMENTAL CONDITION + RADIOLOGY + TESTING + USAEC

15-24252 ALSO IN CATEGORY 14
SECTION I. MILK AND FOOD
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
20 PAGES, TABLES, FIGURES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 85-104 (FEBRUARY 1968)

DATA FROM SELECTED NATIONAL, INTERNATIONAL, AND STATE MILK AND FOOD SURVEILLANCE ACTIVITIES
ARE PRESENTED. AN EFFORT HAS BEEN MADE TO PRESENT A CROSS-SECTION OF ROUTINE SAMPLING
PROGRAMS WHICH MAY BE CONSIDERED OF A CONTINUING NATURE. ROUTINE MILK SAMPLING HAS BEEN
DEFINED AS ONE OR MORE SAMPLES COLLECTED PER MONTH.

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *SAMPLING + *SURVEILLANCE PROGRAM +
CESIUM + DIETARY HABIT + FEDERAL RADIATION COUNCIL + IODINE + STRONTIUM

15-24253 ALSO IN CATEGORY 14
SECTION II. WATER
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
7 PAGES, 2 TABLES, 2 FIGURES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 105-111
(FEBRUARY 1968)

THE PUBLIC HEALTH SERVICE, THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, AND OTHER
FEDERAL, STATE, AND LOCAL AGENCIES OPERATE EXTENSIVE WATER-QUALITY SAMPLING AND ANALYSIS
PROGRAMS FOR SURFACE, GROUND, AND TREATED WATER. MOST OF THESE PROGRAMS INCLUDE
DETERMINATIONS OF GROSS BETA AND GROSS ALPHA RADIOACTIVITY AND SPECIFIC RADIONUCLIDES. MUCH
OF THEIR EFFORTS IS HEREIN TABULATED.

*SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + *UNITED STATES + FEDERAL RADIATION COUNCIL +
RADIOLOGY

15-24254 ALSO IN CATEGORY 14
SECTION III. AIR AND DEPOSITION
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
8 PAGES, 5 FIGURES, 3 TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(2), PAGES 112-119
(FEBRUARY 1968)

CONTINUOUS SURVEILLANCE OF RADIOACTIVITY IN AIR AND PRECIPITATION PROVIDES ONE OF THE EARLIEST
INDICATIONS OF CHANGES IN ENVIRONMENTAL FISSION-PRODUCT RADIOACTIVITY. TO DATE, THIS
SURVEILLANCE HAS BEEN CONFINED CHIEFLY TO GROSS BETA PARTICLE ANALYSIS. ALTHOUGH SUCH DATA
ARE INSUFFICIENT TO ASSESS TOTAL HUMAN RADIATION EXPOSURE FROM FALLOUT, THEY CAN BE USED TO
DETERMINE WHEN TO MODIFY MONITORING IN OTHER PHASES OF THE ENVIRONMENT. SURVEILLANCE DATA
FROM A NUMBER OF PROGRAMS ARE PUBLISHED MONTHLY AND SUMMARIZED PERIODICALLY TO SHOW CURRENT
AND LONG-RANGE TRENDS OF ATMOSPHERIC RADIOACTIVITY IN THE WESTERN HEMISPHERE.

*FALLOUT + *GROSS BETA + *MONITOR, RADIATION, AIR + *RAINOUT + *SURVEILLANCE PROGRAM +
ATMOSPHERIC POLLUTION + DEPOSITION + PARTICULATE + PLUTONIUM

15-24285 ALSO IN CATEGORY 14
REPORT OF ACTIVITY, DECEMBER 1966
SERVICE CENTRAL DE PROTECTION CONTRE LES RAYONNEMENTS, IONISANTS, PARIS, FRANCE
SCPRI(RM)-XII-1966 +. 14 PAGES, IN FRENCH

PROGRESS REPORT OF THE CENTRAL SERVICE FOR THE PROTECTION AGAINST IONIZING RADIATION OF THE
FRENCH MINISTRY OF PUBLIC HEALTH., TOPICS INCLUDE SUMMARIES OF RESEARCH PROGRAMS AND
SUMMARIES OF ENVIRONMENTAL RADIOACTIVITY IN FRANCE.

*FRANCE + *RADIATION PROTECTION, ORGANIZATION + *SURVEY, RADIATION, ENVIRONMENTAL + AIR +
BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, GENERAL +
CERIUM + CESIUM + ECOLOGICAL CONSIDERATION + GROSS BETA + GROSS GAMMA + MANGANESE +
PERSONNEL EXPOSURE, RADIATION + POPULATION EXPOSURE + RAINOUT + STRONTIUM +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24285 *CONTINUED*
SURFACE WATER, NUCLIDE OCCURRENCE + WATER, DRINKING

15-24321 ALSO IN CATEGORY 14
OSLOOND JH
RADIOACTIVE WASTE DISPOSAL DATA FOR THE NATIONAL REACTOR TESTING STATION, IDAHO
IDAHO OPERATIONS OFFICE (AEC), IDAHO FALLS, IDAHO
IDO-12040(SUPPL.2) +. 19 PAGES, NOVEMBER 1967

THE INFORMATION IN THIS REPORT INCLUDES THE QUANTITIES, TYPE, AND DISPOSITION OF RADIOACTIVE WASTE ASSOCIATED WITH REACTOR OPERATIONS OR RESEARCH PROJECTS DURING CALENDAR YEAR 1966. THE WASTES ARE IDENTIFIED ACCORDING TO PHYSICAL FORM, NUCLIDE CONTENT, AND THE FACILITY OR AREA ORIGINATING THE WASTE. PREVIOUSLY PUBLISHED REPORTS, IDO-12040, AND IDO-12040, SUPPLEMENT NO. 1, CONTAIN RADIOACTIVE-WASTE DISPOSAL DATA FOR THE YEARS 1955 THROUGH 1965.

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

*NRTS + *WASTE DISPOSAL, GENERAL + *WASTE SOURCE AND TYPE + *WASTE TREATMENT, GENERAL +
ATMOSPHERIC POLLUTION + CALCINATION + ENVIRONMENTAL CONDITION + RADIATION SAFETY AND CONTROL

15-24322
SADERS SM + KNIGHT FD
PROBABILISTIC METHODS OF APPRAISING COVERAGE OF BIOASSAY SAMPLING PROGRAMS
SAVANNAH RIVER LABORATORY, AIKEN, S. C.
DP-MS-66-55 + CONF-661018-2 +. 18 PAGES, SEPTEMBER 28, 1966, PRESENTED AT THE TWELFTH ANNUAL BIOASSAY AND ANALYTICAL CHEMISTRY MEETING IN GATLINBURG, TENNESSEE, OCTOBER, 1966

DERIVATIONS AND EXAMPLES PROVIDE METHODS FOR EXPRESSING THE COVERAGE AFFORDED BY ANY BIOASSAY SAMPLE-COLLECTION PROGRAM. THE PROBABILISTIC METHOD IS NOT RESTRICTED TO PLUTONIUM BUT HAS GENERAL APPLICABILITY TO ALL SAMPLING PROCEDURES. CHANGES IN THE INTERVAL BETWEEN URINALYSES OR THE FRACTION OF THE GROUP SAMPLED CAN BE RELATED TO THE WORK LOAD OF THE LABORATORY AND, WITH SOME KNOWLEDGE OF THE METABOLISM OF THE RADIONUCLIDE, TO THE PROBABILITY OF DETECTING AN ASSIMILATION. SAMPLE COLLECTION PROGRAMS CAN NOW BE COMPARED, APPRAISED, OR TAILOR-MADE TO MEET DESIRED SPECIFICATION OF ECONOMY OF OPERATION, PROBABILITY OF DETECTION, AND LEVEL OF ASSIMILATION.

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

*ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *SAMPLING + *STATISTICAL ANALYSIS +
IRRADIATION TESTING + MATHEMATICAL STUDY + SURVEILLANCE PROGRAM

15-24327
BUSCH M
STUDIES ON RADIUM DOSIMETRY (CALCULATION OF DOSE DISTRIBUTION)
UNIV., FREIBURG I.B.
18 PAGES, STRAHLENTHERAPIE, 133, PAGES 567-84 (AUG. 1967) IN GERMA

AFTER REVIEWING THE PRESENT DOSE CALCULATION METHODS FOR RADIUM, A CALCULATION METHOD COULD BE DEVELOPED WHICH IS MAINLY BASED ON AN ENVELOPE-INTEGRAL AND ON AN ABSORPTION-FUNCTION OF THE RADIUM GAMMA-RADIATION IN PLATINUM WHICH HAS BEEN ADAPTED TO PRACTICAL CONDITIONS. THE CALCULATIONS WERE COMPARED WITH SEVERAL OTHER DOSE DISTRIBUTIONS MEASURED BY HINE AND FRIEDMAN, AND A GOOD AGREEMENT WAS FOUND. THE CALCULATION METHOD WAS MAINLY DEVELOPED FOR ADAPTING RADIUM TO A GENERAL DOSAGE SYSTEM FOR INTERSTITIAL GAMMA THERAPY.

*DOSIMETRY, GENERAL + *PLATINUM + *RADIUM + DOSE CALCULATION, INTERNAL + GAMMA + GERMANY

15-24344
BECKER K
FILM DOSIMETRY. A THING OF THE PAST
NUCLEAR RESEARCH CENTER, JUELICH, GERMANY
6 PAGES, 6 FIGURES, EURATOM BULL., 6, PAGES 78-83 (SEPT. 1967)

ALTHOUGH FILM DOSIMETERS ARE NOW BEING USED ON A LARGER SCALE THAN EVER BEFORE, THEIR DAYS ARE VERY PROBABLY NUMBERED, SINCE NO BASIC IMPROVEMENTS ARE TO BE EXPECTED. EVEN NOW FILM DOSIMETRY AT ADVANCED NUCLEAR RESEARCH CENTRES IS BEGINNING TO BE OUSTED BY SUPERIOR SOLID-STATE DOSIMETRIC TECHNIQUES, WHICH HAVE BEEN THOROUGHLY STUDIED OVER THE LAST FEW YEARS AND, IN SOME CASES, SUBSTANTIALLY IMPROVED. HOWEVER, THE INCREASED ACCURACY OF THE LATEST DOSIMETERS SHOULD NOT BLIND ONE TO THE FACT THAT PERSONNEL DOSIMETRY ENTAILS NUMEROUS BASIC POSSIBILITIES OF ERROR.

*DOSIMETRY, GENERAL + *PERSONNEL PROTECTIVE DEVICE + *SOLID STATE DEVICE

15-24353

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24353 *CONTINUED*
JONES AR
SCALER FOR HEALTH PHYSICS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO
AECL-2796 +. 9 PAGES, DECEMBER 1967

DESCRIBES THE DESIGN AND PERFORMANCE OF A SCALER FOR USE WITH HEALTH INSTRUMENTS. IT IS SMALL, LIGHT, AND RUGGED AND OPERATES FROM LINE POWER OR INTERNAL RECHARGEABLE BATTERIES FOR AT LEAST EIGHT HOURS. IT HAS SIX DIGITS DISPLAYED ON A REGISTER, AND FOUR ON METERS. PULSES OF EITHER POLARITY ARE COUNTED WITH A DEAD-TIME OF ABOUT 0.5 MICROSEC. THE REGISTER LIMITS COUNTING RATES TO 400,000 PPS. THE SCALER CAN COUNT PULSES DIRECTLY FROM A GM COUNTER OR PHOTOMULTIPLIER TUBE. AN APPENDIX GIVES OPERATING INSTRUCTIONS AND LISTS SOME INSTRUMENTS THAT WILL DRIVE THE SCALER.

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

*CHALK RIVER + *COUNTER + *INSTRUMENTATION, SURVEILLANCE + DOSE + MONITOR, RADIATION, ENVIRONMENTAL +
MONITOR, RADIATION, PERSONNEL

15-24354 ALSO IN CATEGORY 14
COFFIN DO
SOME (SECOND) THOUGHTS ON TRITIUM CONTAMINATION
LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO
LA-DC-7996 + CONF 660621-6 +. 12 PAGES, 1966

EMPHASIZES THAT PLASTIC BAGS SHOULD NOT BE USED WHEN DEALING WITH TRITIUM LEAKAGE OR CONTAMINATION. IN A FEW HOURS A PLASTIC BAG CAN RAISE THE PERSONNEL EXPOSURE RATE FROM A CONTAMINATED OBJECT A THOUSANDFOLD.

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

*TRANSPORTATION AND HANDLING + *TRITIUM + CONTAMINATION + LEAK RATE

15-24355 ALSO IN CATEGORY 14
NEVILL AD + JACOBSON AP + MCDERMOTT KA
EFFECTS OF HUMAN EXPOSURE TO IONIZING RADIATION. A BIBLIOGRAPHY
MICHIGAN UNIVERSITY, ANN ARBOR, MICH
NP-17232 +. 70 PAGES, MARCH 1968

THIS BIBLIOGRAPHY IS AN ATTEMPT TO EXTRACT FROM THE LITERATURE THE UNPLANNED EFFECTS OF RADIATION ON HUMANS. IT DOES NOT INCLUDE RADIOTHERAPY, LEUKEMOGENESIS, OR THEORETICAL SPECULATIONS ON GENETIC EFFECTS. HOWEVER, HIROSHIMA AND NAGASAKI REFERENCES HAVE BEEN INCLUDED, SINCE IT WAS FELT THAT THIS IS AN IMPORTANT ASPECT OF HUMAN EXPOSURE. THE CITATIONS ARE GROUPED CHRONOLOGICALLY WITHIN THE FOLLOWING CATEGORIES - NUCLEAR ACCIDENTS, OTHER ACCIDENTS, OCCUPATIONAL, DIAL PAINTERS, THOROTRAST, MINERS, MARSHALL AND KONGELAP ISLANDERS, HIROSHIMA AND NAGASAKI. THE BIBLIOGRAPHY COVERS THE YEARS 1896 TO MID-1967. IT INCLUDES ABOUT 900 REFERENCES, 250 OF WHICH ARE ON HIROSHIMA AND NAGASAKI. WE BELIEVE THAT IT REPRESENTS A FAIRLY COMPREHENSIVE SEARCH OF THE LITERATURE.

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

*BIBLIOGRAPHY + *FALLOUT + *INGESTION + *NUCLEAR ATTACK + *NUCLEAR INCIDENT DOSIMETER + *RADIUM + *X-RAY +
NUCLEAR EXPLOSION DEBRIS + REACTOR POWER + THORIUM

15-24356 ALSO IN CATEGORY 14
PRESTON A + JEFFERIES DF + DUTTON JW
THE CONCENTRATIONS OF CAESIUM-137 AND STRONTIUM-90 IN THE FLESH OF BROWN TROUT TAKEN FROM RIVERS AND LAKES IN THE BRITISH ISLES BETWEEN 1961 AND 1966 - THE VARIABLES DETERMINING THE CONCENTRATIONS AND THEIR USE IN RADIOLOGICAL ASSESSMENTS
FISHERIES RADIOBIOLOGICAL LABORATORY, SUFFOLK, ENGLAND
22 PAGES, 10 FIGURES, 4 TABLES, REFERENCES, WATER RESEARCH, 1, PAGES 475-496 (1967)

CONCENTRATIONS OF CS-137 AND SR-90 IN THE FLESH OF BROWN TROUT ARE REPORTED FROM TWO COMPLEMENTARY STUDIES - A DETAILED STUDY OVER A SIX YEAR PERIOD OF LAKE TRAFSFRYNOD (MERIONETH, NORTH WALES), COMPARING QUANTITIES OF RADIOACTIVE FALLOUT DEPOSITED AND WATER AND FLESH CONCENTRATIONS FOR BOTH RADIONUCLIDES, AND GENERAL SURVEYS OF WATERS THROUGHOUT THE BRITISH ISLES. FROM THE BRITISH ISLES SURVEYS CAESIUM-137 CONCENTRATIONS ARE RELATED TO POTASSIUM CONCENTRATIONS IN THE WATER AND STRONTIUM-90 CONCENTRATIONS TO CALCIUM CONCENTRATIONS IN THE WATER. IT IS DEMONSTRATED THAT CONCENTRATIONS OF CAESIUM-137 IN BROWN TROUT FLESH FROM SOME SCOTTISH WATERS WERE PROBABLY AS HIGH AS ANY RECORDED FROM ARCTIC ECOSYSTEMS. CONCENTRATIONS OF BOTH CONTAMINANTS IN TROUT FLESH CAN BE EXPRESSED AS FUNCTIONS OF WATER CONDUCTIVITY IN CALCIUM BICARBONATE SURFACE WATERS FROM BRITAIN, AND IT IS SUGGESTED THAT THIS MAY BE A USEFUL GENERAL APPROACH TO RADIOLOGICAL ASSESSMENTS INVOLVING FISH FROM MANY SUCH SURFACE WATERS. THE RADIOLOGICAL IMPLICATIONS OF THE PRINCIPAL CONCLUSIONS ARE DISCUSSED AND SIMPLE RISK DIAGRAMS ARE PRODUCED AS A GUIDE TO THE ASSESSMENT OF DIFFERENT SITUATIONS.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *CAESIUM + *RADIOLOGICAL ASSISTANCE + *STRONTIUM +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24356 *CONTINUED*
*UNITED KINGDOM + ECOLOGICAL CONSIDERATION + SAMPLING

15-24359
WILSON WE
SOLID STATE LUMINESCENCE DOSIMETRY. STATE OF THE ART.
BATTELLE-NORTHWEST LAB., RICHLAND, WASHINGTON
BNWL-SA-1543 + CONF-671121-1 +. 24 PAGES, DECEMBER 13, 1967, FROM CONFERENCE ON INTERDISCIPLINARY
DISCUSSION OF SOLID STATE DOSIMETRY, SEATTLE, WASH.

PRESENTS THE STATE OF THE ART FROM TWO VIEW POINTS. - ONE, FOR PRACTICAL PERSONNEL DOSIMETRY, AND SECOND, WITHOUT THE LIMITATIONS IMPOSED BY MEASUREMENT METHODS. IN THE FIRST CASE, ONE IS LIMITED BY SECONDARY THINGS, E.G., INSTRUMENTATION. IN THE SECOND, THIS RESTRICTION IS REMOVED. SOME BASIC CONSIDERATIONS APPLYING TO THERMOLUMINESCENCE AND RADIOPHOTOLUMINESCENCE ARE FIRST REVIEWED VERY BRIEFLY. THE USE OF THESE MATERIALS AS DOSIMETERS IS DISCUSSED. THE VARIOUS MATERIALS CURRENTLY USED, THEIR EMISSION SPECTRA, GLOW CURVES, ENERGY RESPONSE, AND THE STATE OF THE ART IN THE APPLICATION OF THESE DEVICES TO MEASURING LOW-LEVEL AND HIGH-LEVEL DOSES ARE PRESENTED.

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

*BIBLIOGRAPHY + *DOSIMETRY, GENERAL + *MONITOR, RADIATION, PERSONNEL + DOSIMETRY, PHOTOGRAPHIC + DOSIMETRY, RADIOPHOTOLUMINESCENCE + DOSIMETRY, THERMOLUMINESCENCE

15-24376 ALSO IN CATEGORY 14
ANDERSEN BV + NELSON IC
PLUTONIUM AIR CONCENTRATIONS AND PARTICLE SIZE RELATIONSHIPS IN HANFORD FACILITIES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-495 +. 44 PAGES, FIGURES, TABLES, DECEMBER 1967

MEASUREMENT RESULTS ARE PRESENTED FROM A STUDY OF A VARIETY OF POTENTIAL EMPLOYEE EXPOSURE SITUATIONS IN THREE MAJOR PLUTONIUM-HANDLING FACILITIES. THE TYPICAL AEROSOL SHOWED AN ACTIVITY MEDIAN DIAMETER (AMD) OF ABOUT 0.2 MICRON WITH A GEOMETRIC STANDARD DEVIATION OF 1.4 FOR 60% OF THE PLUTONIUM-239, WITH 40% EXHIBITING AN AMD OF 2.4 MICRON WITH A GEOMETRIC STANDARD DEVIATION OF 1.3. THE MEASURED PLUTONIUM-239 AEROSOL PARAMETERS WERE THEN UTILIZED IN THE STUDY OF RELATIONSHIPS OF CHRONIC INHALATION WITH CURRENT RESPIRATORY TRACT MODELS FOR DEPOSITION AND RETENTION OF PLUTONIUM AEROSOLS. PULMONARY BURDENS OF PLUTONIUM-239 FOR CHRONIC EXPOSURE WERE CALCULATED TO BE IN THE PICOCURIE TO NANOCURIE RANGE.

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

*MONITOR, RADIATION, PERSONNEL + *PARTICLE SIZE + *PARTICLE SIZE DISTRIBUTION + *PARTICLE, RADIOACTIVE + *PLUTONIUM + AEROSOL, RADIOACTIVE + AIR + CONCENTRATION, AREA + DEPOSITION + DOSIMETRY, GENERAL + ENVIRONMENTAL CONDITION + HAZARDS ANALYSIS + INHALATION

15-24377 ALSO IN CATEGORIES 14 AND 19
RUSSELL BG
PLUTONIUM ABSTRACTS. VOLUME 7, NUMBER 11
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-644 +. 85 PAGES, NOVEMBER 30, 1967

PLUTONIUM ABSTRACTS IS A CURRENT-AWARENESS SERVICE TO THE ATOMIC ENERGY COMMISSION AND ITS RESEARCH AND DEVELOPMENT CONTRACTORS FOR NEW DEVELOPMENTS IN ALL AREAS OF PLUTONIUM TECHNOLOGY. THIS ISSUE COVERS THE FOLLOWING - BIOLOGY AND MEDICINE, CHEMISTRY, HEALTH AND SAFETY, METALLURGY, MISCELLANEOUS, PHYSICS, AND REACTOR TECHNOLOGY.

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

*BIBLIOGRAPHY + *PLUTONIUM

15-24406 ALSO IN CATEGORY 14
ESSIG TH
EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD JANUARY-JUNE 1967
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-665 +. 23 PAGES, FIGURES, REFERENCES, JANUARY, 1968

RESULTS OF THE ENVIRONMENTAL SURVEILLANCE PROGRAM (CONDUCTED FOR THE HANFORD PLANT BY BATTELLE-NORTHWEST ENVIRONMENTAL STUDIES SECTION) ARE SUMMARIZED FOR THE FIRST HALF OF 1967. TO SHOW TRENDS IN RADIOLOGICAL CONDITIONS, DATA COLLECTED FOR THIS REPORTING PERIOD WERE ADDED TO GRAPHS SHOWING THE RESULTS OF MEASUREMENTS FROM PREVIOUS YEARS.

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

*BIOLOGICAL CONCENTRATION, GENERAL + *DIETARY HABIT + *ENVIRONMENTAL CONDITION + *NUCLEAR DETONATION +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24406 *CONTINUED*
DOSE + FALLOUT + INSTRUMENTATION, SURVEILLANCE + RADIOCHEMICAL ANALYSIS + RIVER, COLUMBIA

15-24425 ALSO IN CATEGORY 14
BASIS HEALTH PHYSICS
DEFENSE ATOMIC SUPPORT AGENCY, ALBUQUERQUE, N. MEX.
NP-16391 +. 109 PAGES, DECEMBER 1, 1967

HEALTH PHYSICS IS DEDICATED TO THE PROTECTION OF MAN AND HIS ENVIRONMENT FROM UNWARRANTED RADIATION EXPOSURE. THE ARTICLE, BASIC HEALTH PHYSICS, BREAKS DOWN THE SUBJECT MATTER INTO THE FOLLOWING CATEGORIES - RADIATION UNITS AND THEIR BIOLOGICAL EFFECTS, TOLERANCES, HAZARDS, DETECTION AND MEASUREMENT, RADIATION MATHEMATICS, AND PROTECTIVE EQUIPMENT.

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

*BIOLOGICAL CONCENTRATION, MAN + *RADIATION DAMAGE + *RADIATION EFFECT + AIRBORNE RELEASE + CONTAMINATION + DOSE + HAZARDS ANALYSIS + HYDROGEN + INGESTION + INHALATION + MATHEMATICAL TREATMENT + PLUTONIUM + RADIATION UNIT + SURFACE CONTAMINATION + TRITIUM + URANIUM + X-RAY

15-24439 ALSO IN CATEGORY 14
MOORE C + ESSIG TH
EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1965. APPENDICES
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LABS.
BNWL-316(APP.) +. 146 PAGES, TABLES, SEPT. 1966

THIS SUPPLEMENTAL REPORT IS A COMPILATION OF RESULTS OBTAINED FROM RADIOCHEMICAL ANALYSES OF ENVIRONMENTAL SAMPLES AND FROM RADIOLOGICAL MEASUREMENTS MADE IN THE HANFORD ENVIRONS DURING 1965. THE RADIOLOGICAL SIGNIFICANCE OF THE DATA IS DISCUSSED IN THE PARENT REPORT (BNWL-316).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DATA PROCESSING + *RADIOCHEMICAL ANALYSIS + *SAMPLING + *WASTE DISPOSAL, TERRESTRIAL + BATTELLE NORTHWEST + FALLOUT + RADIOLOGY + RIVER, COLUMBIA + WATER POLLUTION

15-24479 ALSO IN CATEGORY 14
EVANS FC
SECOND NATIONAL SYMPOSIUM ON RADIOECOLOGY
UNIVERSITY OF MICHIGAN
6 PAGES, 1 TABLE, NUCLEAR SAFETY 9(2), PAGE 138-143, (MARCH 1968)

THE SECOND NATIONAL SYMPOSIUM ON RADIOECOLOGY PROVIDED AN OPPORTUNITY FOR INTERDISCIPLINARY COMMUNICATION AMONG A BROAD SPECTRUM OF SCIENTISTS CONCERNED NOT ONLY WITH THE PROBLEMS OF ENVIRONMENTAL CONTAMINATION FROM RADIOISOTOPES AND THE CONSEQUENT HAZARDS TO HUMAN AND OTHER LIFE, BUT ALSO WITH THE USE OF RADIOACTIVE TRACERS AS TOOLS TO ASCERTAIN THE PRECISE PATHWAYS AND RATES OF CIRCULATION OF MATERIALS IN NATURE.

*ACTIVITY BUILDUP + *ECOLOGICAL CONSIDERATION + *ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOTA + CONTAMINATION + EXPLOSION + FALLOUT + RADIATION SAFETY AND CONTROL + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, SALT

15-24480 ALSO IN CATEGORY 14
TERRILL JG + WEAVER CL + HARWARD ED + SMITH DR
ENVIRONMENTAL SURVEILLANCE OF NUCLEAR FACILITIES
LIONEL ELECTRIC LABS, INC.
7 PAGES, 1 TABLE, 12 REFERENCES, NUCLEAR SAFETY 9(2), PAGE 143-149, (MARCH 1968)

ENVIRONMENTAL SURVEILLANCE PROGRAMS IN THE ENVIRONS OF NUCLEAR PLANTS ARE CONDUCTED BY LOCAL, STATE, AND FEDERAL AGENCIES EXTERNAL TO THE FACILITY SITE PERIMETER OR FENCED AREA. BASIC TO THE ESTABLISHMENT OF THESE PROGRAMS IS REVIEW BY THE HEALTH AGENCY OF THE PLANT SITE, THE RADIOACTIVE-WASTE DISCHARGE SYSTEM, THE SPECIFIC RADIONUCLIDES AND ANTICIPATED NORMAL DISCHARGES, AND THE PUBLIC-HEALTH IMPLICATIONS OF THE PRESENCE OF THESE RADIONUCLIDES. THESE ENVIRONMENTAL SURVEILLANCE PROGRAMS CAN BE DIRECTED AT THE MOST SENSITIVE OR CRITICAL VECTORS TO OBTAIN THE DATA NEEDED TO MAKE ESTIMATES OF POPULATION EXPOSURE. PREOPERATIONAL SURVEYS ARE DESIGNED TO OBTAIN BASELINE DATA, PROVIDE TRAINING AND EXPERIENCE FOR PERSONNEL, AND AS A MECHANISM FOR GATHERING DATA FOR PURPOSES OF PUBLIC INFORMATION.

*ENVIRONMENTAL CONDITION + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM + ACCIDENT ANALYSIS + AIR + BIOTA + DOSE + HAZARDS ANALYSIS + SAMPLING + SEDIMENT + SURFACE WATER, GENERAL + WASTE DISPOSAL, GENERAL

15-24481 ALSO IN CATEGORY 14
LARSON OW + SMALE RF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24481 *CONTINUED*
RADIATION MEASUREMENTS OF THE EFFLUENT FROM THE PHOEBUS 18 REACTOR
LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO
LA-3787 +. 25 PAGES, 18 FIGURES, 7 TABLES, SEPT. 1967

EFFLUENT CLOUD COMPOSITION AND AIR RADIOACTIVITY CONCENTRATION, AS DETERMINED BY ANALYSIS OF
SAMPLES COLLECTED DOWNWIND DURING THE PHOEBUS-18 FULL-POWER TEST, ARE PRESENTED. DOSE DUE TO
CLOUD PASSAGE AS DETERMINED FROM AIR SAMPLES IS COMPARED WITH THAT DETERMINED BY OTHER
MEASUREMENTS. SAMPLING PROCEDURES AND EQUIPMENT ARE ALSO DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, THERMOLUMINESCENCE + *EFFLUENT + *REACTOR POWER + *SAMPLING +
ATMOSPHERIC DIFFUSION EXPERIMENT + DOSE + MONITOR, RADIATION, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL

15-24482 ALSO IN CATEGORY 14
BUNCH OF
CONTROLLED ENVIRONMENTAL RADIOIODINE TESTS. PROGRESS REPORT NO. 3
IDAHO OPERATIONS OFFICE (AEC), IDAHO FALLS. HEALTH AND SAFETY DIV.
IDO-12063 +. 77 PAGES, 48 FIGURES, 18 TABLES, 7 REFERENCES, JANUARY 1968

THE EMERGENCE OF NUCLEAR REACTORS AS COMPETITIVE ALTERNATES FOR THE PRODUCTION OF ELECTRICITY
HAS GIVEN NEW IMPETUS TO THE SOLUTION OF QUESTIONS REGARDING THE BEHAVIOR OF RADIOACTIVE
MATERIALS IN THE ENVIRONMENT. THE CONTROLLED ENVIRONMENTAL RADIOIODINE TESTS (CERT) PROGRAM
CONSISTS OF FIELD RELEASES OF VARIOUS CHEMICAL SPECIES OF RADIOIODINE OVER DIFFERENT TYPES OF
VEGETATION AND DURING VARIOUS METEOROLOGICAL CONDITIONS. DATA COLLECTED FROM THESE RELEASES
ARE BEING USED TO DERIVE EMPIRICAL MODELS THAT DESCRIBE THE MOVEMENT OF IODINE THROUGH THE
AIR-VEGETATION-COW-MILK-HUMAN CHAIN. THIS THIRD PROGRESS REPORT CONTAINS INFORMATION
GATHERED DURING 1966 AS WELL AS A COMPILATION OF DATA RELATING TO AND INCLUDING THE
DEPOSITION OF I-2 AND CH-3-I OVER A WIDE RANGE OF METEOROLOGICAL CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CERT + *IODINE + *MONITOR, RADIATION, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, FOOD +
BIOLOGICAL CONCENTRATION, GENERAL + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, VEGETATION +
DEPOSITION + METEOROLOGY + TRANSPORT PROPERTY

15-24483 ALSO IN CATEGORY 14
PEARCE DW + COMPTON MR
PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME
II. PHYSICAL SCIENCES. PART 2. RADIOLOGICAL SCIENCES
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-481-2 +. 203 PAGES, FIGURES, TABLES, REFERENCES, DEC. 1967

THE INFORMATION IS PRESENTED UNDER TWO SUBHEADS - (1) RADIOLOGICAL CHEMISTRY AND (2)
RADIOLOGICAL PHYSICS, WITH A BROAD COVERING OF SUBJECT MATTER FOR EACH. RADIONUCLIDES AND
THEIR BEHAVIOR, MEASUREMENT, SPECTROMETRY, SAMPLING, CONCENTRATION IN ORGANISMS AND
SEDIMENTS, AND WHOLE-BODY COUNTING ARE ADEQUATELY DISCUSSED. ALSO, INSTRUMENTS FOR MEASURING
NEUTRON DOSE IS WELL COVERED IN THE ARTICLE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

ALASKA + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BRAZIL + CHINA + COSMIC RADIATION +
COUNTER, WHOLE BODY + DEPOSITION + ENVIRONMENTAL CONDITION + FALLOUT + IODINE + KRYPTON + NEUTRON +
POPULATION EXPOSURE + RADIOLOGICAL ASSISTANCE + RADIONUCLIDE, INDUCED + RIVER, COLUMBIA + SAMPLING +
SEDIMENT + SODIUM + SPECTROMETRY, GAMMA + SURFACE WATER, GENERAL + TRACER, RADIOACTIVE

15-24484
DOSE-EFFECT MODIFYING FACTORS IN RADIATION PROTECTION. (REPORT OF SUBCOMMITTEE M-4)
BROOKHAVEN NATIONAL LABORATORY, UPTON, N.Y.
BNL-50073 +. 34 PAGES, 8 FIGURES, 11 TABLES, 96 REFERENCES, AUGUST 1967

TO CHARACTERIZE THE ENTIRE CUMULATIVE EXPOSURE STATUS OF A PERSON BY A SINGLE NUMBER, IT IS
NECESSARY TO EXTEND THE PRESENT METHODS FOR SUMMING EXPOSURES SO THAT THE INCREMENTED
DOSE-EQUIVALENT VALUES CAN BE SUMMED FOR ALL TYPES OF EXTERNAL AND INTERNAL IRRADIATION. TO
DO THIS, A NEW SYSTEM WAS DEvised FOR EVALUATING, SUMMING, AND RECORDING OCCUPATIONAL
EXPOSURES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151,
\$3.00 COPY, \$0.65 MICROFICHE

*DOSE CALCULATION, INTERNAL + *RADIATION SAFETY AND CONTROL + DOSE MEASUREMENT, INTERNAL +
ENVIRONMENTAL CONDITION + HAZARDS ANALYSIS + MAXIMUM PERMISSIBLE DOSE (MPD) +
MONITOR, RADIATION, ENVIRONMENTAL + RADIUM

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24521 ALSO IN CATEGORY 14
SHURE K
ADDITIONAL STUDY OF MODELS FOR RADIATION DAMAGE EXPOSURE
BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-471(ADD.1) +. 12 PAGES, TABLES, NOVEMBER 1967

IT HAS BEEN SHOWN IN THIS STUDY AND IN THE CITED REFERENCES THAT A STEP-FUNCTION DAMAGE MODEL WITH A THRESHOLD OF THE ORDER OF 0.4-0.5 MEV AND A VACANCY PRODUCTION DAMAGE MODEL PROVIDE COMPARABLE CORRELATIONS OF IRRADIATION DATA OF MILD STEELS WITH NEUTRON EXPOSURE. IN THE APPLICATION OF THESE CORRELATIONS, PREDICTED CHANGES OF TRANSITION TEMPERATURE OF A302B STEEL ARE SIMILAR. THERE IS INSUFFICIENT INFORMATION WITH REGARD TO THE CORRELATIONS TO PROVIDE A BASIS FOR SELECTING ONE DAMAGE MODEL OVER THE OTHER. ADDITIONAL EXPERIMENTAL INFORMATION HAS BEEN CITED WHICH SUPPORTS THE EXISTENCE OF A SATURATION EFFECT OF DAMAGE WITH EXPOSURE.

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

*NEUTRON + *RADIATION DAMAGE + *RADIATION EFFECT + *RADIATION MODEL

15-24522 ALSO IN CATEGORY 14
SCHROEDER MC + CROCKER MC + BLANK HR
STUDY OF THE POSSIBLE CONTAMINATION OF GROUND WATER FROM RADIOACTIVE PACKAGES IMPACTING ON LAND. ANNUAL REPORT, JULY 14, 1966 - JULY 13, 1967
TEXAS AGRICULTURAL AND MECHANICAL UNIV., COLLEGE STATION, TEXAS
SC-CR-67-2708 +. 82 PAGES, FIGURES, TABLES, JULY, 1967

THE PURPOSE OF THIS PROJECT IS TO PROVIDE DATA FOR THE EVALUATION OF POSSIBLE RADIOLOGICAL HAZARDS FROM ACCIDENTAL CONTAMINATION OF SUBSURFACE WATER FROM A SNAP (SYSTEMS FOR NUCLEAR AUXILIARY POWER) DEVICE. THIS REPORT PRESENTS THE PROGRESS OF THIS RESEARCH PROJECT FROM JULY 14, 1966, TO JULY 13, 1967. UNTIL FURTHER WORK IS DONE, THE CONCLUSIONS PRESENTED MUST BE CONSIDERED TENTATIVE AND IN PART SPECULATIVE. THEREFORE, THE CONCLUSIONS MAY BE MODIFIED OR WITHDRAWN AFTER FURTHER STUDY.

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

*CONTAMINATION + *GROUND WATER, NUCLIDE OCCURRENCE + *SOIL + *TRANSPORT PROPERTY + ADSORPTION + GEOLOGICAL CONSIDERATION, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + STRONTIUM + WASTE DISPOSAL, LIQUID

15-24589 ALSO IN CATEGORY 9
PETRUCK KH
ASYSTEM FOR READING THERMOLUMINESCENT RADIATION DOSIMETERS USING A HEATED INERT GAS
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
UCRL-50007-67-2 +. 7 PAGES, PAGE 1 THROUGH 7 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 8 FIGURES, 1 TABLE, AUGUST 1967

HEATING THERMOLUMINESCENT DOSIMETERS TO READ OUT TEMPERATURE, USING NITROGEN GAS AS THE HEATING MEDIUM, OFFERS MANY ADVANTAGES FOR PRECISE DOSIMETRY. THE PRINCIPAL ADVANTAGES OF THIS SYSTEM ARE - (1) THE RAPID READOUT RATE OF 100 OR MORE DOSIMETERS PER HOUR, (2) GOOD THERMAL CONTACT REGARDLESS OF SHAPE VARIATIONS IN THE DOSIMETERS, AND (3) REDUCED NONRADIATION-INDUCED THERMOLUMINESCENCE BY HEATING IN AN INERT GAS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, THERMOLUMINESCENCE + EQUIPMENT DESIGN + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, PERSONNEL

15-24590 ALSO IN CATEGORY 9
CATE JL + PREVO CT
DESIGN AND CALIBRATION OF A FLGW COUNTER FOR KR-85 IN NATURAL GAS
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
UCRL-50007-67-2 +. 3 PAGES, PAGE 7 THROUGH 9 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 2 FIGURES, AUGUST 1967

DESCRIBES THE DESIGN AND CALIBRATION OF A DETECTOR FOR MONITORING THE QUANTITY OF KR-85 IN THE NATURAL GAS PRODUCED BY THE GASBUGGY PROJECT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, RADIATION MONITORING + *KRYPTON + COUNTER + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, FLOW + FLOWSHARE PROGRAM, GASBUGGY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24592 ALSO IN CATEGORY 9
COHEN JJ + TAYLOR RD
DEVELOPMENT OF A LIGHTWEIGHT PORTABLE HI-VOL AIR SAMPLER
LAWRENCE RADIATION LAB., UNIV. OF CALIF., LIVERMORE
UCRL-50007-67-2 +. 2 PAGES, PAGE 19 AND 20 OF HAZARDS CONTROL PROGRESS REPORT NO. 28, 3 FIGURES, AUGUST 1967

DEVELOPED A CONVENIENT, LIGHTWEIGHT, PORTABLE AIR SAMPLER FOR USE IN AREAS WITHOUT ELECTRIC POWER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, AIR SAMPLING + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, AIR

15-24595 ALSO IN CATEGORY 9
BISTINE RW + TYREE WH
COMPARISON OF LOW-ENERGY PHOTON DETECTORS FOR PLUTONIUM AND AMERICIUM WOUND COUNTING
DOW CHEMICAL CO., GOLDEN, COLO. ROCKY FLATS DIV.
RFP-1068 +. 5 PAGES, 5 FIGURES, 17 REFERENCES, DEC. 18, 1967

A LITHIUM-DRIFTED SILICON, Si(Li), DETECTOR SYSTEM WAS USED TO PREDICT THE NUCLIDE CONTENT AND APPARENT DEPTH OF PLUTONIUM AND AMERICIUM EMBEDDED IN AN ACTUAL WOUND. DATA COMPARING THE L X-RAY ENERGY RESOLUTION CAPABILITY OF A GAS PROPORTIONAL AND Si(Li) DETECTOR FOR A PLUTONIUM SOURCE WERE OBTAINED. A Si(Li) DETECTOR SYSTEM WAS USED WITH AN AMERICIUM SOURCE TO OBTAIN L X-RAY AND LOW-ENERGY GAMMA RAY ABSORPTION DATA WITH UNTEMPERED MASONITE ABSORBERS. THE RATIOS OF PHOTON ABSORPTION FROM THE Si(Li) DETECTOR SYSTEM ALLOWED APPARENT DEPTH DETERMINATIONS TO BE MADE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, RADIATION MONITORING + *MONITOR, RADIATION, PERSONNEL + AMERICIUM + COUNTER + INSTRUMENTATION, SURVEILLANCE + PLUTONIUM

15-24608
SEHMEI GA
VALIDITY OF AIR SAMPLES AS AFFECTED BY ANISOKINETIC SAMPLING AND DEPOSITION WITHIN THE SAMPLING LINE
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-SA-1045 + CONF-670704-2 +. 15 PAGES, APRIL 24, 1967

THREE SOURCES OF ERROR IN SAMPLING AIRBORNE PARTICLES WERE INVESTIGATED EXPERIMENTALLY. PARTICLE SIZES FROM 1 TO 29 MICRON DIAMETER PRODUCED BY A SPINNING DISC AEROSOL GENERATOR WERE USED. THE THREE SOURCES OF ERROR STUDIED WERE ANISOKINETIC SAMPLING, DEPOSITION WITHIN A CURVED SAMPLING PROBE, AND DEPOSITION WITHIN A SAMPLE DELIVERY LINE. ANISOKINETIC SAMPLING ERROR WAS DETERMINED FOR SAMPLING RATES CORRESPONDING TO 0.3 TO 10 TIMES ISOKINETIC FLOW FOR AIR VELOCITIES OF 2.5 TO 30 MPH. FLOW RATES AND PARTICLE SIZES ARE SHOWN WHICH RESULT IN A LARGE FRACTION OF PARTICLE DEPOSITION WITHIN A 0.4 IN. ID CURVED SAMPLING PROBE. THE AXIAL FLUX PROFILE OF PARTICLES WAS MEASURED TO HELP UNDERSTAND THE DEPOSITION DATA. IN MANY INSTANCES, THE AXIAL FLUX PROFILE OF PARTICLES WITHIN A 2.8 IN. ID TUBE WAS NEARLY THE INVERSE OF THE VELOCITY PROFILE.

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

*AIRBORNE RELEASE + *NUCLEAR INCIDENT DOSIMETER + *SAMPLING + AEROSOL + AIR + DEPOSITION + MONITOR, RADIATION, ENVIRONMENTAL + OPERATION

15-24609
SCHWIETERT WE
FIXED RADIATION MONITORING SYSTEM
DOUGLAS UNITED NUCLEAR, INC., RICHLAND, WASH.
DUN-SA-49 +. 64 PAGES, APRIL 1967

THE FIXED RADIATION MONITOR SYSTEM CONSISTS OF 16 TO 20 INDEPENDENT ZONE-RADIATION-MONITOR UNITS. EACH UNIT CONSISTS OF AN IONIZATION CHAMBER, A LOG RADIATION MONITOR (LRM), AND ALARMS FOR THE ZONE. TWO ADJUSTABLE SWITCHING CIRCUITS ARE INCLUDED IN THE LRM TO FACILITATE SETTING OF AN INTERMEDIATE LEVEL TRIP AND A HIGH LEVEL TRIP TO ACTIVATE INTERMEDIATE ALARM (AMBER BEACON) AND HIGH-LEVEL ALARM (HORN) IN THE MONITORED ZONE. THE LRM CONVERTS AN INPUT CURRENT FROM AN IONIZATION CHAMBER TO A D.C. VOLTAGE. THIS VOLTAGE IS USED TO DRIVE A PANEL METER, TWO EXTERNAL RECORDERS IN THE CONTROL ROOM, AND THE TWO RADIATION-LEVEL-TRIP UNITS.

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

*INSTRUMENTATION, LOGARITHMIC + *MONITORING PROGRAM, ENVIRONMENTAL + GAMMA EMITTER + HIGH RADIATION + MONITORING SYSTEM, RADIATION + RADIATION SAFETY AND CONTROL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24610 ALSO IN CATEGORY 17
SULLIVAN LO
600 R DOSE TO 3 ACCELERATOR TECHNICIANS
THE WALL STREET JOURNAL, MARCH 4, 1968

ON OCT. 4, THREE TECHNICIANS TURNED OFF THE GULF RESEARCH VAN DE GRAAF ACCELERATOR AT HARMARVILLE, PA., AND REPAIRED A TARGET-COOLING HOSE. APPARENTLY THE INTERLOCKS FAILED, AND DOSES OF 600, 300, AND 110 R WERE RECEIVED. AT FIRST THEY THOUGHT THEY HAD FLU, DESPITE NAUSEA AND VOMITING, BUT FILM BADGES SHOWED DOSES. BONE-MARROW TRANSPLANTS FROM A TWIN BROTHER WERE NECESSARY FOR ONE MAN. INFECTION WAS MINIMIZED AT THE WESTERN PENNSYLVANIA HOSPITAL BY A REVERSE ISOLATION SYSTEM. *** NATIONAL CENTER ON RADIOLOGICAL HEALTH SAYS THERE HAVE BEEN 12 KNOWN ACCIDENTS SINCE 1944 IN THE 600 ACCELERATORS NOW IN USE IN THE U.S.

*ACCELERATOR + *PERSONNEL EXPOSURE, RADIATION + DOSE + FAILURE, EQUIPMENT + INCIDENT, EQUIPMENT + PERSONNEL PROTECTIVE DEVICE + RADIATION INJURY, TREATMENT OF + X-RAY

15-24611 ALSO IN CATEGORY 14
ABSTRACTS FROM PAPERS PRESENTED AT THE JOINT ANNUAL MEETING OF THE ROCKY MOUNTAIN SECTION OF THE AMERICAN INDUSTRIAL HYGIENE ASSOCIATION AND THE RIO GRANDE CHAPTER OF THE HEALTH PHYSICS SOCIETY HELD AT SANDIA LABORATORY, ALBUQUERQUE, NEW MEXICO, SEPTEMBER 29 AND 30, 1967
SANDIA CORP. ALBUQUERQUE, N. MEX
SC-M-67-2959 + CONF-670937 +. 12 PAGES, DECEMBER 1967

ABSTRACTS FROM PAPERS OF MEETING COVERED SUBJECTS INVOLVED WITH INDUSTRIAL HYGIENE, BIOLOGICAL SCIENCES, AND INDUSTRIAL HYGIENE AND HEALTH PHYSICS.

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

AEROSOL + AIR + CHROMATOGRAPHY + COMPUTER PROGRAM + FILTER + HAZARDS ANALYSIS + INHALATION + IRRADIATION TESTING + LASER + LEAD + PARTICLE, RADIOACTIVE + PLUTONIUM + RADIOBIOLOGY + RADON + SAMPLING + URANIUM

15-24612 ALSO IN CATEGORY 14
SMOCOVITIS D + YOUNG ME + BATHO HF
APPARENT ABSORPTION OF THE GAMMA RAYS OF RADIUM IN WATER
BRITISH COLUMBIA CANCER INST., VANCOUVER
7 PAGES, 5 FIGURES, 2 TABLES, REFERENCES, BRIT. J. RADIOL, 40, PAGES 771-777 (OCT. 1967)

VALUES OF THE RATIO OF THE EXPOSURE IN A LARGE WATER PHANTOM TO THE EXPOSURE IN AIR AS A FUNCTION OF DISTANCE FROM A RADIUM SOURCE HAVE BEEN REMEASURED SINCE THERE ARE APPRECIABLE DISCREPANCIES BETWEEN PREVIOUSLY REPORTED VALUES. ALL MEASUREMENTS REPORTED IN THIS PAPER WERE MADE WITH SMALL AIR-FILLED CAVITY IONIZATION CHAMBERS. THE CHAMBER WALL WAS AT LEAST 0.6 CM OF PLEXIGLAS IN ALL CASES TO GUARANTEE FULL ELECTRONIC BUILDUP AND AT LEAST 0.3 CM ADDITIONAL PLEXIGLAS WAS USED EITHER IN THE CHAMBER WALL OR IN SLEEVES SURROUNDING THE RADIUM SOURCES TO ABSORB COMPLETELY PHOTOELECTRONS ORIGINATING IN THE PLATINUM SURROUNDING THE RADIUM.

*CHAMBER, ION + *RADIUM + CANADA + GAMMA EMITTER

15-24621 ALSO IN CATEGORY 14
FRANCIS CW + CHESTERS G
RADIOACTIVE INGROWTH OF PO-210 IN TOBACCO PLANTS
UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN
3 PAGES, 1 FIGURE, 2 TABLES, REFERENCES, J. AGR. FOOD CHEM., 15, PAGES 704-706 (JULY-AUG. 1967)

PO-210 IS AN ALPHA-EMITTING RADIOELEMENT FOUND IN TOBACCO AND THOUGHT TO BE A POSSIBLE INITIATOR OF BRONCHIAL CANCER IN CIGARETTE SMOKERS. AN INVESTIGATION WAS INITIATED TO EVALUATE THE EXTENT OF 210PB82 INGROWTH IN TOBACCO AND TO DETERMINE THE POSSIBLE EXISTENCE OF AN EQUILIBRIUM BETWEEN 210PB82 AND 210PO84.

*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *POLONIUM + *RADIATION SAFETY AND CONTROL + DEPOSITION + FALLOUT

15-24648 ALSO IN CATEGORY 17
LACROSSE BOILING WATER REACTOR ENVIRONMENTAL RADIATION SURVEY PROGRAM SEMI-ANNUAL REPORT, APRIL 1, 1966-SEPTEMBER 30, 1966
DAIRYLAND POWER COOPERATIVE, CENOA, WIS.
TID-23701 +. 29 PAGES, 1966

NO UNUSUAL TRENDS IN AIR, PRECIPITATION, RIVER WATER, GROUND WATER, RIVER SILT, SOIL VEGETATION, MILK, OR FISH WERE FOUND AT SITE OR MORE DISTANT REFERENCE AREAS. GIVES LOCATION OF SAMPLES, ANALYTICAL TECHNIQUE, SENSITIVITIES, AND VALUES MEASURED. CHINESE AND FRENCH NUCLEAR BOMB TESTS IN THE ATMOSPHERE WERE DETECTED. (REACTOR HAS NOT OPERATED.)

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24648 *CONTINUED*

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

*SURVEY, RADIATION, ENVIRONMENTAL + FALLOUT + LACROSSE (BWR) + REACTOR, BWR

15-24650 ALSO IN CATEGORY 14

MCCLELLAN RD + RUPPRECHT FC
ANNUAL REPORT, 1966-1967, FISSION PRODUCT INHALATION PROGRAM
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, N. M.
LF-38 +. 168 PAGES, TABLES, FIGURES, REFERENCES, NOVEMBER 1967

THE PRIME OBJECTIVE OF THIS STUDY IS TO IMPROVE KNOWLEDGE OF THE BIOLOGICAL CONSEQUENCES OF
INHALING FISSION-PRODUCT RADIONUCLIDES, SINGLY AND IN MIXTURES, SO THAT VARIOUS LEVELS OF
EXPOSURE MAY BE RELATED TO EFFECT. THE MAJOR STIMULUS FOR DEVELOPMENT AND CONTINUATION OF
THE PROGRAM STEMS FROM THREE USES OF NUCLEAR ENERGY THAT MAY RESULT IN POTENTIAL ACCIDENT
SITUATION WITH DISPERSION OF RADIOACTIVE AEROSOLS - POWER REACTORS, SPACE NUCLEAR SYSTEMS,
AND NUCLEAR PROPULSION SYSTEMS.

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

*AEROSOL + *BIOLOGICAL CONCENTRATION, MAN + *INHALATION + *NUCLEAR ROCKET + *REACTOR POWER + *SPACECRAFT +
CERIUM + CESIUM + DOSE + DOSIMETRY, GENERAL + FISSION PRODUCT RELEASE, GENERAL +
MONITORING PROGRAM, ENVIRONMENTAL + R AND D PROGRAM + STRONTIUM + USAEC + YTTRIUM

15-24731 ALSO IN CATEGORY 14

RADIOISOTOPES AND IONIZING RADIATIONS IN ENTOMOLOGY. VOL. III. (1964-1965). BIBLIOGRAPHICAL SERIES NO. 24
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA (AUSTRIA)
STI/PUB-21/24 +. 454 PAGES, TABLES, 1967

THIS BIBLIOGRAPHY IS THE THIRD VOLUME OF A SERIES AND CONTAINS OVER 1000 REFERENCES TO THE
LITERATURE FOR THE TWO-YEAR PERIOD 1964-1965. THE FIRST TWO VOLUMES, BIBLIOGRAPHICAL SERIES
NOS. 9 AND 15, COVER THE 11- AND 3-YEAR PERIODS 1950-1960 AND 1961-1963. THE BIBLIOGRAPHY IS
FULLY ANNOTATED AND ABSTRACTS HAVE BEEN INCLUDED WHENEVER POSSIBLE. TABLES GIVE A SYSTEMATIC
LIST OF INSECTS AND RELATED ARTHROPODS, STERILIZATION DATA, LETHAL RADIATION EFFECTS, AND
RADIOISOTOPE TRACER STUDIES ON INSECTICIDES. AN AUTHOR INDEX, A DETAILED SUBJECT INDEX, AND
AN INSECTICIDE INDEX ARE PROVIDED.

AVAILABILITY - NATIONAL AGENCY FOR INTERNATIONAL PUBLICATIONS, INC., 317 EAST 34TH STREET, NEW YORK, N. Y.
10016, \$9.50 COPY

*BIBLIOGRAPHY + *ECOLOGICAL CONSIDERATION + *RADIATION EFFECT + *RADIOISOTOPE +
BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + IAEA + SURVEY, GENERAL +
TRACER, RADIOACTIVE

15-24732

STEPHENSON J
CALIBRATION RIG FOR GAMMA RADIATION DOSE-RATE METERS
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-M-1763 +. 35 PAGES, 8 FIGURES, 3 TABLES, NOV. 1967

THE CODE OF PRACTICE FOR THE PROTECTION OF PERSONS EXPOSED TO IONISING RADIATION IN RESEARCH
AND TEACHING STATES THAT THE CONTROLLING AUTHORITY MUST ENSURE THAT INSTRUMENTS ARE TESTED
AND CALIBRATED WHEN THEY ARE FIRST TAKEN INTO USE AND RE-TESTED AT LEAST ANNUALLY. THIS
MEMORANDUM DESCRIBES THE DESIGN, OPERATION AND PERFORMANCE OF A CALIBRATION RIG DESIGNED FOR
THE ROUTINE TESTING AND CALIBRATION OF GAMMA RADIATION DOSE-RATE METERS IN USE AT HARWELL.
THE TEST AND CALIBRATION SCHEDULES FOR THESE INSTRUMENTS ARE GIVEN AND THE RECORD KEEPING
SYSTEM IS DESCRIBED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN CRITERIA + *INSTRUMENTATION CALIBRATION + *TEST INTERVAL + *UNITED KINGDOM +
DOSE MEASUREMENT, EXTERNAL + GAMMA EMITTER + MONITOR, RADIATION, ENVIRONMENTAL +
PERSONNEL PROTECTIVE DEVICE + TEST, INSTRUMENT RESPONSE

15-24733

PETROCK KF + JONES DE
A SEMI-AUTOMATED THERMOLUMINESCENT DOSIMETER READER
CALIFORNIA UNIV., LIVERMORE. LAWRENCE RADIATION LAB.
UCRL-70860 + CONF-680302-2 +. 18 PAGES, JAN. 8, 1968, PRESENTED AT INTERNATIONAL SYMPOSIUM ON NUCLEAR
ELECTRONICS AND RADIOPROTECTION, TOULOUSE, FRANCE

THIS PAPER DESCRIBES AN IMPROVED THERMOLUMINESCENT DOSIMETER (TLD) READER WITH THESE PRINCIPLE
FEATURES - UNATTENDED READOUT OF 80 TLDs AFTER MANUAL LOADING, HEATING OF THE TLDs WITH HOT
NITROGEN GAS, AND VERSATILE ELECTRONICS THAT ALLOW SIMULTANEOUS READOUT OF THE GLOW CURVE AND
INTEGRATED LIGHT OUTPUT. A PROTOTYPE UNIT READS 80 EXTRUDED LiF RODS OVER A DYNAMIC RANGE OF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24733 *CONTINUED*

3 MR TO 300 R IN 40 MIN. DIGITAL LIGHT OUTPUT AND GLOW CURVES SUITABLE FOR COMPUTER ANALYSIS HAVE BEEN PRODUCED WITH THE READER. CURRENT IMPROVEMENTS SHOULD INCREASE THE DYNAMIC RANGE AT LEAST AN ORDER OF MAGNITUDE AND HIGHER DOSES CAN BE READ BY FILTERING THE LIGHT OUTPUT OR LOWERING THE PHOTOMULTIPLIER TUBE VOLTAGE. PLANNED MODIFICATIONS WILL BE DISCUSSED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSE + *DOSIMETRY, THERMOLUMINESCENCE + *INSTRUMENTATION, RADIATION MONITORING + *PERSONNEL PROTECTIVE DEVICE

15-24734 ALSO IN CATEGORY 17

LAU FL

INITIAL RADIATION SURVEY, SHIPPINGPORT ATOMIC POWER STATION, PWR PROJECT
BETTIS ATOMIC POWER LAB., WEST MIFFLIN, PA.
WAPD-PWR-TE-204 +. 22 PAGES, NOV. 10, 1967

THE SECOND CORE FOR THE SHIPPINGPORT ATOMIC POWER STATION IS DESIGNED FOR OPERATION AT 505 MW(TH) WHICH IS ABOUT 2.2 TIMES THE DESIGN POWER FOR CORE 1. WAPD-PWR-TE-204 REPORTS THE RESULTS OF AN EVALUATION OF THE INITIAL CORE-2 RADIATION SURVEY OF THE SHIPPINGPORT ATOMIC POWER STATION. THE RADIATION LEVELS REPORTED ARE PRIMARILY THOSE WHICH ARE PRESENT DURING PLANT OPERATION. THE RESULTS SHOW THAT THERE IS NO DETECTABLE NEUTRON RADIATION OUTSIDE THE EXTERNAL SHIELD AND THAT GENERAL GAMMA LEVELS ARE LESS THAN 0.1 MREM/HR. RADIATION LEVELS INSIDE THE PLANT AT SHIELDED VALVE STATIONS AND IN THE REACTOR CHAMBER AFTER SHUTDOWN ARE ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION SAFETY AND CONTROL + *SHIELDING + *SHIPPINGPORT (PWR) + *TESTING + GAMMA EMITTER + NEUTRON + REACTOR, PWR + SURVEY, RADIATION, ENVIRONMENTAL

15-24735 ALSO IN CATEGORY 14

AARKROG A + LIPPERT J

ENVIRONMENTAL RADIOACTIVITY IN DENMARK IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØE. RESEARCH ESTABLISHMENT
RISO-154 +. 100 PAGES, FIGURES, TABLES, 21 REFERENCES, JUNE 1967

THE PRESENT REPORT DEALS WITH THE MEASUREMENT OF FALLOUT RADIOACTIVITY IN DENMARK IN 1966. SR-90 AND CS-137 WERE DETERMINED IN SAMPLES FROM ALL OVER THE COUNTRY OF PRECIPITATION, SOIL, GROUND WATER, SEA WATER, GRASS, DRIED MILK, FRESH MILK, GRAIN, BREAD, POTATOES, VEGETABLES, FRUIT, TOTAL DIET, DRINKING WATER, HUMAN BONE, ETC.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DENMARK + *FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + PRECIPITATION

15-24736 ALSO IN CATEGORY 14

MATTERN FC + DROST R + STRACKEE L

SR-90 AND CS-137 IN THE HUMAN DIET IN THE NETHERLANDS DURING 1966
RIJKS INSTITUUT VOOR DE VOLKSGEZONDHEID, BILTHOVEN (NETHERLANDS). LABORATORIUM VOOR STRALINGSONDERZOEK
RA-30 +. 30 PAGES, SEPT. 1967

RESULTS OF MEASUREMENTS OF SR-90 AND CS-137 IN A NUMBER OF FOODSTUFFS ARE REPORTED, AND A SHORT DESCRIPTION OF THE SAMPLING PROCEDURE IS GIVEN. THE YEARLY MEAN OF THE DAILY DIETARY INTAKE OF SR-90 AND CS-137 IN THE NETHERLANDS IS ESTIMATED AS 20 AND 92 PCI/DAY. THE COMPUTATION OF THE ESTIMATED VALUES FROM THE NATIONAL FOOD BALANCE SHEET IS DESCRIBED IN SOME DETAIL.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DIETARY HABIT + *NETHERLANDS + *STRONTIUM + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + SAMPLING

15-24737

DRAGANIC IG + SEHESTED K + HOLM NW

INFLUENCE OF DOSE RATE AT LARGE ABSORBED DOSES ON THE OXALIC-ACID DOSIMETER
DANISH ATOMIC ENERGY COMMISSION, RISØE, RESEARCH ESTABLISHMENT
RISO-112 +. 18 PAGES, 7 FIGURES, 12 REFERENCES, AUGUST 1967

A NUMBER OF EXPERIMENTS DEALING WITH THE INFLUENCE OF HIGH DOSE RATES ON THE OXALIC-ACID DOSIMETER ARE DESCRIBED. A PULSED ELECTRON LINEAR ACCELERATOR WAS USED AS RADIATION SOURCE. IT IS SHOWN THAT THE SYSTEM MAY BE USED AT DOSE RATES UP TO 10 TO THE 10TH RADS/SEC WHEN AN ADEQUATE INITIAL CONCENTRATION IS APPLIED AND THE IRRADIATION FIELD IS REASONABLY HOMOGENEOUS.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24737 *CONTINUED*
AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*ACCELERATOR + *DOSE MEASUREMENT, EXTERNAL + *DOSIMETRY, GENERAL + *ELECTRON + ENERGY LEVEL +
ENERGY SOURCE + EXPERIMENT, GENERAL + IRRADIATION TESTING

15-24738 ALSO IN CATEGORY 14

AARKROG A + LIPPERT J
ENVIRONMENTAL RADIOACTIVITY IN THE FAROES IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØE, RESEARCH ESTABLISHMENT
MEASUREMENTS OF FALLOUT RADIOACTIVITY IN THE FAROES IN 1966 ARE PRESENTED. SR-90 (AND CS-137 IN MOST INSTANCES) WAS DETERMINED IN REGULARLY COLLECTED SAMPLES OF PRECIPITATION, MILK, POTATOES, SHEEP, FISH, AND DRINKING WATER. IN ADDITION, ANALYSES OF SPOT SAMPLES OF GRASS, SOIL, SEA WATER, SEA PLANTS, BIRDS, VEGETABLES, BREAD, CHEESE, EGGS, AND HUMAN BONE WERE CARRIED OUT. ESTIMATES OF THE MEAN CONTENTS OF SR-90 AND CS-137 IN THE HUMAN DIET IN THE FAROES IN 1966 ARE GIVEN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *ENVIRONMENTAL CONDITION + *FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM +
BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, ANIMAL +
BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, FOOD +
BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + DENMARK + DIETARY HABIT + OCEAN AND SEA +
SOIL

15-24739 ALSO IN CATEGORY 14

AARKROG A + LIPPERT J
ENVIRONMENTAL RADIOACTIVITY IN GREENLAND IN 1966
DANISH ATOMIC ENERGY COMMISSION, RISØE, RESEARCH ESTABLISHMENT
RISO-156 +. 21 PAGES, FIGURES, TABLES, 4 REFERENCES, JULY 1967

MEASUREMENTS OF FALLOUT RADIOACTIVITY IN GREENLAND IN 1966 ARE REPORTED. SR-90 (AND CS-137 IN MOST INSTANCES) WAS DETERMINED IN SAMPLES OF PRECIPITATION, SOIL, SEA WATER, VEGETATION, ANIMALS, AND DRINKING WATER. ESTIMATES OF THE MEAN CONTENTS OF SR-90 AND CS-137 IN THE HUMAN DIET IN GREENLAND IN 1966 ARE GIVEN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CESIUM + *DENMARK + *ENVIRONMENTAL CONDITION + *MONITOR, RADIATION, ENVIRONMENTAL + *STRONTIUM +
BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT + FALLOUT +
OCEAN AND SEA + PRECIPITATION + SAMPLING + SOIL + WATER, DRINKING

15-24740

OSBORNE RV
STUDIES AND TECHNIQUES IN TRITIUM HEALTH PHYSICS AT CRNL
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO). CHALK RIVER NUCLEAR LABS.
AECL-2699 + CONF-670218-2 +. 19 PAGES, 13 FIGURES, 7 REFERENCES, NOV. 1967, FROM SYMPOSIUM ON
INSTRUMENTATION, EXPERIENCE, AND PROBLEMS IN HEALTH PHYSICS TRITIUM CONTROL, ALBUQUERQUE, N. MEX.

IONIZATION CHAMBERS AND PLASTIC SCINTILLATION DETECTORS ARE USED TO MEASURE TRITIATED WATER (HTO) VAPOUR IN AIR DOWN TO 0.5 MICROCURIE/CU. METER. THEIR RESPONSES TO GAMMA BACKGROUND ARE REDUCED 96% BY SUBTRACTING THE IONIZATION CURRENT FROM A CONCENTRIC SEALED IONIZATION CHAMBER AND BY SCINTILLATION PULSE HEIGHT ANALYSIS. THE PENETRATION OF HTO THROUGH HUMAN SKIN HAS BEEN STUDIED EXPERIMENTALLY BY EXPOSING VOLUNTEERS TO HTC VAPOUR. RESPIRATORS WITH CHARCOAL FILTERS HAVE BEEN SHOWN TO HOLD UP PASSAGE OF HTO VAPOUR. AN AUTOMATIC URINALYSER ALLOWS WORKERS TO MEASURE THEIR OWN BODY BURDENS OF TRITIUM IN TWO MINUTES.

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

*BIOLOGICAL CONCENTRATION, MAN + *INSTRUMENTATION, RADIATION MONITORING + *MONITOR, RADIATION, AIR +
*TRITIUM + CANADA + CHALK RIVER

15-24741

BLACK SC + BRETTAUER EW
POLONIUM-210 IN TOBACCO
SOUTHWESTERN RADIOLOGICAL HEALTH LAB., LAS VEGAS, NEV.
8 PAGES, 4 FIGURES, 10 TABLES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(3), PAGE 145-152, (MARCH 1968)

VARIATIONS OF PO-210 CONTENT IN TOBACCO, THE AMOUNT IN VARIOUS FRACTIONS OF SMOKED CIGARETTES, AND CHANGES IN PO-210 CONTENT OF MAINSTREAM SMOKE CAUSED BY VARIATION IN THE SMOKING PROCEDURE HAVE BEEN DETERMINED. THE AVERAGE CONTENT FOR WHOLE CIGARETTES WAS FOUND TO BE 0.483 PCI/GRAM AND 0.477 PCI/GRAM FOR BUTTS. NO ENRICHMENT IN THE BUTT OF CIGARETTES DURING SMOKING WAS FOUND. POLONIUM-210 CONTENT AND CONCENTRATION IN MAINSTREAM SMOKE INCREASES WITH PUFF SIZE.

*BIOLOGICAL CONCENTRATION, MAN + *DOSE CALCULATION, INTERNAL + *POLONIUM + *RADIATION DAMAGE +
ALPHA EMITTER + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + EXPERIMENT, GENERAL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24742 ALSO IN CATEGORY 14

DATA. SECTION I. MILK AND FOOD

42 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(3), PAGE 153-194, (MARCH 1968)

RADIOLOGICAL HEALTH DATA AND REPORTS SUBMITS DATA FROM SURVEILLANCE PROGRAMS DEALING WITH MILK AND FOOD, FOR PARTS OF 1967, GROSS RADIOACTIVITY IN SURFACE WATERS OF THE UNITED STATES, SEPT. 1967, RADIOACTIVITY IN AIRBORNE PARTICLES AND PRECIPITATION, ENVIRONMENTAL LEVELS OF RADIOACTIVITY AT USAEC INSTALLATIONS FOR FIRST HALF OF 1967.

*FALLOUT + *MONITOR, RADIATION, ENVIRONMENTAL + *POPULATION EXPOSURE + *PRECIPITATION + *SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + AIRBORNE RELEASE + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, VEGETATION + DIETARY HABIT + FEDERAL RADIATION COUNCIL + PARTICLE, RADIOACTIVE + RAINOUT + SAMPLING + WATER POLLUTION

15-24743

MULLER J + THOMAS J

THE COURSE IN TIME OF THE STRONTIUM RETENTION IN MAN

INSTITUTE OF RADIATION HYGIENE, PRAGUE, CZECHOSLOVAKIA

7 PAGES, 2 FIGURES, 2 TABLES, 10 REFERENCES, HEALTH PHYSICS 14(4), PAGES 285-92 (APRIL 1968)

THE BODY BURDENS OF SR-90 IN NINE LUMINIZERS WERE DETERMINED IN THE TIME PERIOD OF 900-2600 DAYS FOLLOWING INTAKE BY EXCRETION ANALYSIS, USING A POWER FUNCTION. A METHOD IS SUGGESTED FOR COMBINING THESE RESULTS OF ANALYSIS OF THE MIDDLE PHASE OF THE STRONTIUM RETENTION WITH THE RESULTS OF THE EARLY PHASE.

*BIOLOGICAL CONCENTRATION, MAN + *CZECHOSLOVAKIA + *DOSE CALCULATION, INTERNAL + *COSIMETRY, GENERAL + *STRONTIUM

15-24744

CAPILL DF + WHEELER JK

THE BIOLOGICAL HALF-LIFE OF CESIUM-137 IN CHILDREN DETERMINED BY URINARY ASSAY

U.S. PUBLIC HEALTH SERVICE, MONTGOMERY ALABAMA

5 PAGES, 3 TABLES, 13 REFERENCES, HEALTH PHYSICS 14(4), PAGES 293-97 (APRIL 1968)

URINE SPECIMENS (24 HR SAMPLES) WERE OBTAINED MONTHLY FROM 9-14-YEAR-OLD CHILDREN AT SIX INSTITUTIONS THROUGHOUT THE UNITED STATES AND PERIODICALLY FROM A CONTROL GROUP AT THIS LABORATORY DURING 1966. THE SAMPLES WERE ANALYZED FOR CS-137, K, AND CREATININE. THE RANGES AND AVERAGE LEVELS OF THESE CONSTITUENTS IN CONTROL URINES ARE PRESENTED AND DISCUSSED. CALCULATED ESTIMATES OF AVERAGE BODY BURDENS AGREED WELL WITH WHOLE-BODY MEASUREMENTS AT TWO OF THE INSTITUTIONS.

*BIOLOGICAL CONCENTRATION, MAN + *CESIUM + *MONITOR, RADIATION, ENVIRONMENTAL + *SURVEILLANCE PROGRAM + FALLOUT + RADIOLOGY + SAMPLING

15-24745

SULLIVAN AH

RADIOBIOLOGICAL CELL SURVIVAL DATA AND THE PRINCIPLES OF RADIATION DOSIMETRY

EUROPEAN COUNCIL FOR NUCLEAR RESEARCH

7 PAGES, 1 FIGURE, 1 TABLE, HEALTH PHYSICS 14(4), PAGES 299-305 (APRIL 1968)

A THEORY OF CELL SURVIVAL IS DEVELOPED TO OBTAIN A RELATION FOR THE SURVIVING FRACTION OF CELLS. A MODEL OF RADIATION INTERACTION IS DISCUSSED WHERE IT IS DEDUCED THAT A MEASUREMENT OF THE FREQUENCY WITH WHICH THE ION DENSITY EXCEEDS SOME THRESHOLD WILL BE PROPORTIONAL TO THE RADIATION DAMAGE INDEPENDENT OF THE TYPE OF RADIATION. ANALYSIS OF CELL SURVIVAL DATA SUGGESTS THAT THIS THRESHOLD OCCURS WHEN TWO IONS ARE PRODUCED WITHIN A DISTANCE OF ABOUT 30 ANGSTROMS IN TISSUE.

*DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *DOSE MEASUREMENT, EXTERNAL + *DOSE MEASUREMENT, INTERNAL + *RADIOBIOLOGY + BIOLOGICAL CONCENTRATION, MAN + RADIATION DAMAGE + RADIATION MODEL

15-24746

ALSO IN CATEGORY 14

VAN AS D + DASSEN JK

FALLOUT OVER SOUTH AFRICA FROM NUCLEAR WEAPONS TESTED BY FRANCE IN 1966

ATOMIC ENERGY BOARD, PELINDABA, SOUTH AFRICA

3 PAGES, 2 FIGURES, 1 TABLE, 10 REFERENCES, HEALTH PHYSICS 14(4), PAGES 307-9 (APRIL 1968)

MEASUREMENTS ON AIRBORNE AND DEPOSITED FALLOUT OVER SOUTH AFRICA, RESULTING FROM THE FRENCH NUCLEAR DETONATIONS DURING 1966 IN THE SOUTH PACIFIC, ARE REPORTED WITH TRANSIT TIME AND AGE ANALYSES.

*FALLOUT + *FRANCE + *MONITOR, RADIATION, ENVIRONMENTAL + *SOUTH AFRICA + AIRBORNE RELEASE + BARIUM + NUCLEAR DETONATION + RADIATION SAFETY AND CONTROL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24747. ALSO IN CATEGORY 14

FRENCH RL

ON THE BURIED-SOURCE MODEL FOR COMPUTING FALLOUT GROUND ROUGHNESS EFFECTS

RADIATION RESEARCH ASSOCIATES, INC., FORT WORTH, TEXAS

8 PAGES, 6 FIGURES, 1 TABLE, 16 REFERENCES, HEALTH PHYSICS 14(4), PAGES 331-38 (APRIL 1968)

MOST CALCULATIONS OF THE GAMMA RADIATION ENVIRONMENT PRODUCED BY FALLOUT ASSUME THAT THE RADIOACTIVE MATERIAL IS UNIFORMLY DEPOSITED ON A SMOOTH GROUND SURFACE. A RECENT STUDY OF POSSIBLE MATHEMATICAL MODELS FOR INCLUDING THE EFFECTS OF GROUND ROUGHNESS ON THE GAMMA-RAY ENERGY AND ANGLE DISTRIBUTIONS IN AIR ABOVE FALLOUT PLACED EMPHASIS ON THE BURIED-SOURCE MODEL. THIS MODEL IS BASED ON THE ASSUMPTION THAT THE FALLOUT IS COVERED BY A UNIFORM LAYER OF SOIL WHOSE THICKNESS CORRESPONDS TO THE DEGREE OF GROUND ROUGHNESS.

*DOSE CALCULATION, EXTERNAL + *MATHEMATICAL STUDY + *MONITOR, RADIATION, ENVIRONMENTAL + *RADIATION MODEL + SOURCE, RADIATION + TESTING

15-24748

CUSIMANO JP + CIPPERLEY FV

PERSONNEL DOSIMETRY USING THERMOLUMINESCENT DOSIMETERS

IDAHO HEALTH SERVICES LABORATORY, IDAHO FALLS, IDAHO

6 PAGES, 13 FIGURES, 6 REFERENCES, HEALTH PHYSICS 14(4), PAGES 339-344 (APRIL 1968)

A ROUTINE SYSTEM OF PERSONNEL DOSIMETRY BASED ON THERMOLUMINESCENCE WAS DEVELOPED AT THE NATIONAL REACTOR TESTING STATION (NRTS). THE DOSIMETER UTILIZES TWO LITHIUM FLUORIDE-TEFLON DISC DOSIMETERS THAT ARE HELD IN A PLASTIC DOSIMETER RETAINER THAT IS THE SAME SIZE AND SHAPE AS A STANDARD FILM PACKET. THE EXPERIMENTAL RESULTS ARE DISCUSSED IN TERMS OF RELIABILITY, REPRODUCIBILITY, RESPONSE CHARACTERISTICS, AND OTHER FACTORS THAT AFFECT THE VALIDITY OF PERFORMANCE. THE INITIAL FIELD EXPERIENCE OF THE SYSTEM SINCE ITS APPLICATION IN NOVEMBER 1966 IS PRESENTED.

*DOSIMETRY, THERMOLUMINESCENCE + *MONITOR, RADIATION, PERSONNEL + *NRTS + DOSE + IDAHO FALLS + PERSONNEL PROTECTIVE DEVICE

15-24749

ALSO IN CATEGORY 14

CHENG HS + HAMAGUCHI H

STUDIES ON THE ADSORPTION OF RADIOISOTOPES ON MARINE SEDIMENTS

TSING HUA UNIVERSITY, HSINCHU, TAIWAN, CHINA + TOKYO KYOIKU UNIVERSITY, TOKYO

11 PAGES, 8 FIGURES, 2 TABLES, 19 REFERENCES, HEALTH PHYSICS 14(4), PAGES 353-63 (APRIL 1968)

THE DISTRIBUTION COEFFICIENTS OF CESIUM IN DEMINERALIZED WATER AND SEA WATER WERE PROPORTIONAL TO THE RATIO OF EITHER EXCHANGEABLE POTASSIUM TO TOTAL POTASSIUM OR EXCHANGEABLE MAGNESIUM TO TOTAL MAGNESIUM OF THE MARINE SEDIMENTS. THE DEGREE OF THE DESORPTION WAS, ON THE CONTRARY, INVERSELY PROPORTIONAL TO THESE RATIOS.

*ADSORPTION + *FISSION PRODUCT RETENTION + *RADIOISOTOPE + *SEDIMENT + CESIUM + MAGNESIUM + POTASSIUM + WASTE TREATMENT, FIXATION

15-24750

ALSO IN CATEGORY 14

WILSON DW + WARD GM

TRANSFER OF FALLOUT MN-54 FROM FEED TO MILK

COLORADO STATE UNIV., FORT COLLINS

2 PAGES, 1 FIGURE, 6 REFERENCES, J. DAIRY SCI., 50, PAGE 592 AND 593, (APR. 1967)

MN-54 WAS REGULARLY OBSERVED SINCE MAY, 1963, IN FALLOUT-CONTAMINATED DAIRY FEEDS, AND IN RAINFALL AND SURFACE AIR. THE RATE OF SECRETION OF MN-54 INTO MILK IS EXTREMELY LOW, DUE TO POOR ABSORPTION FROM THE GUT. MN-54 WAS NOT FOUND IN MUSCLE TISSUE OF DAIRY CATTLE, BUT WAS IN THE LIVER OF SEVERAL SLAUGHTERED COWS. IT WAS NOT OBSERVED IN THE URINE OF THE COWS. ALTHOUGH MN-54 IN THE LIVER OF COWS INDICATED THAT SOME OF IT WAS ABSORBED, ITS POORER ABSORPTION COMPARED TO CS-137 PRECLUDED APPRECIABLE SECRETION OF FALLOUT MN-54 INTO MILK. THUS MN-54 IN FALLOUT DOES NOT CONTRIBUTE SIGNIFICANTLY TO THE GAMMA-RADIATION HAZARD TO THE CONSUMER.

*BIOLOGICAL CONCENTRATION, MILK + *CESIUM + *MANGANESE + BIOLOGICAL CONCENTRATION, ANIMAL FEED + FALLOUT + GAMMA EMITTER + NEUTRON + RAINOUT

15-24754

CROSS WG

TABLES OF BETA DOSE DISTRIBUTIONS

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)

AECL-2793 +. 32 PAGES, 1 FIGURE, 3 TABLES, 11 REFERENCES, NOV. 1967

TABLES ARE GIVEN OF DOSE DISTRIBUTIONS NEAR ISOTROPIC POINT AND PLANE BETA SOURCES IN AIR AND WATER FOR 37 NUCLIDES OF IMPORTANCE IN MEDICINE AND HEALTH PHYSICS. THESE WERE CALCULATED FROM SPENCERS DOSE DISTRIBUTION TABLES FOR MONOENERGETIC ELECTRONS. A SIMPLE METHOD IS GIVEN

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24754 *CONTINUED*
FOR DERIVING DOSE DISTRIBUTIONS IN OTHER LOW-Z MEDIA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*BETA EMITTER + *DOSE CALCULATION, EXTERNAL + *SOURCE, RADIATION + AIR + RADIOLOGY

15-24798
MOHRLE G
MEDICAL CONSIDERATIONS AND GUIDE LINES ON PERSONNEL DECONTAMINATION AND DECORPORATION
4 PAGES, FIGURES, ATOMPRAXIS, 14 PAGES 69-72 (FEBRUARY 1968) IN GERMAN

IN THE LIGHT OF PREVIOUS EXPERIENCE, ATTENTION IS DRAWN TO PRACTICAL DECONTAMINATION
FACILITIES, AND A SUMMARY REVIEW IS GIVEN OF GENERAL AND SPECIFIC DECONTAMINATION MEASURES AS
WELL AS THE MEDICAL TREATMENT OF CONTAMINATED WOUNDS.

*BIOMEDICAL + *DECONTAMINATION + CONTAMINATION + RADIATION INJURY, TREATMENT OF

15-24799
U.S. CONGRESS - ELECTRONICS PRODUCTS RADIATION CONTROL. SUPPLEMENT HEARING BEFORE THE SUBCOMMITTEE ON
PUBLIC HEALTH AND WELFARE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES.
NINETIETH CONGRESS ON H.R. 10790
CONGRESS U.S. HOUSE AND SENATE COMMITTEES
SERIAL NO. 90-27, 63 PAGES, 1 FIGURE, 7 TABLES, 7 REFERENCES, OCT. 17, 1967

A HEARING WAS HELD BEFORE THE SUBCOMMITTEE ON PUBLIC HEALTH AND WELFARE OF THE COMMITTEE ON
INTERSTATE AND FOREIGN COMMERCE, HOUSE OF REPRESENTATIVES, AUG. 14, SEPT. 28, OCT. 5, 11, AND
17, 1967. THEIR CONCERN WAS BILL H.R. 10790, WHICH IS A BILL TO AMEND THE PUBLIC HEALTH
SERVICE ACT TO PROVIDE FOR THE PROTECTION OF THE PUBLIC HEALTH FROM RADIATION EMISSIONS FROM
ELECTRONIC PRODUCTS.

AVAILABILITY - SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402

*CONGRESSIONAL ACTIVITY + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM +
*X-RAY + ICRP + MONITOR, RADIATION, ENVIRONMENTAL + REPORT, REVIEW OF SAR + TESTING

15-24800
U. S. CONGRESS - ELECTRONIC PRODUCTS RADIATION CONTROL. HEARINGS BEFORE THE SUBCOMMITTEE ON PUBLIC HEALTH
AND WELFARE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE, HOUSE OF REPRESENTATIVES. 1968
U. S. CONGRESS HOUSE AND SENATE COMMITTEES
466 PAGES, FIGURES, OCTOBER 17, 1967, SERIAL NO. 90-11, HR 10790

THE BILL H. R. 10790 IS TO AMEND THE PUBLIC HEALTH ACT TO PROVIDE FOR THE PROTECTION OF THE
PUBLIC FROM RADIATION EMISSIONS FROM ELECTRONIC PRODUCTS.

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

*CONGRESSIONAL ACTIVITY + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM +
*X-RAY + HAZARDS ANALYSIS + NCRP

15-24801
U. S. CONGRESS - BILL RADIATION CONTROL FOR HEALTH AND SAFETY OF 1968 - IN THE SENATE OF THE U. S., H. R.
10790
U. S. CONGRESS HOUSE AND SENATE COMMITTEES
19 PAGES, MARCH 21, 1968, 90TH CONGRESS, SECOND SESSION

THIS IS AN ACT TO AMEND THE PUBLIC HEALTH SERVICE ACT TO PROVIDE FOR THE PROTECTION OF THE
PUBLIC HEALTH FROM RADIATION EMISSIONS FROM ELECTRONIC PRODUCTS - HR-10790

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

*CONGRESSIONAL ACTIVITY + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *X-RAY + NCRP +
SURVEILLANCE PROGRAM + USAEC

15-24802
U. S. CONGRESS - RADIATION CONTROL FOR HEALTH AND SAFETY ACT OF 1967 - HEARINGS BEFORE THE COMMITTEE ON
COMMERCE, UNITED STATES SENATE ON S2067
U. S. CONGRESS HOUSE AND SENATE COMMITTEES
408 PAGES, TABLES, FIGURES, AUGUST 30, 1967, SERIAL 90-49

THE HEARINGS ON S-2067 ARE TO PROVIDE FOR THE PROTECTION OF THE PUBLIC FROM RADIATION
EMISSIONS FROM ELECTRONIC PRODUCTS WHICH ARE IN COMMERCE OR ARE IMPORTED INTO THE U. S. TWO
APPENDIXES RELATING TO THE PROTECTION OF THE PUBLIC FROM RADIATION ARE ADDED.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-24802 *CONTINUED*

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

*CONGRESSIONAL ACTIVITY + *POPULATION EXPOSURE + *RADIATION SAFETY AND CONTROL + *UNITED STATES + *X-RAY +
HAZARDS ANALYSIS + HEALTH PHYSICS TRAINING + NCRP + SAFETY REVIEW + SURVEILLANCE PROGRAM

15-24882 ALSO IN CATEGORY 1

WEAVER CL + HARWARD ED

SURVEILLANCE OF NUCLEAR POWER REACTORS

PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

14 PAGES, 3 TABLES, PUBLIC HEALTH REP. (U.S.), 82, PAGES 899-912 (OCT. 1967)

GIVES A GENERALIZED CONCEPT OF NUCLEAR POWER PLANTS, PARTICULARLY AS THEY PERTAIN TO PUBLIC SAFETY AND ENVIRONMENTAL SURVEYS, TOGETHER WITH SIMPLIFIED FLOW DIAGRAMS FOR A TYPICAL BOILING WATER REACTOR AND A TYPICAL PRESSURIZED WATER REACTOR. BIOLOGICAL PROPERTIES OF IMPORTANT RADIONUCLIDES ARE LISTED AS WELL AS FISSION PRODUCTS WHICH ARE IMPORTANT DUE TO ATOM YIELD OR HALF LIFE. SURVEILLANCE METHODS FOR REACTOR PRE-OPERATIONAL AND OPERATIONAL PHASES ARE OUTLINED. A TYPICAL ENVIRONMENTAL SURVEILLANCE PROGRAM IS GIVEN AND EMERGENCY PROCEDURES ARE DISCUSSED BRIEFLY.

*REACTOR, BWR + *REACTOR, POWER + *REACTOR, PWR + *REVIEW + *SURVEILLANCE PROGRAM +
*SURVEY, RADIATION, ENVIRONMENTAL + *SURVEY, RADIATION, USPHS

15-24886 ALSO IN CATEGORY 9

CROMWELL HH

AUTOMATED INSTRUMENTATION FOR IN VIVO RADIATION MONITORING

UNION CARBIDE CORP., Y-12 PLANT, OAK RIDGE, TENN.

Y-1595 +. 62 PAGES, JAN. 30, 1968

AN IN-VIVO SPECTROMETER UTILIZES A SMALL DIGITAL COMPUTER TO COLLECT, STORE, AND PROCESS RADIATION DATA OBTAINED FROM MONITORING THE INTERNAL BODY BURDENS OF GAMMA-EMITTING RADIOISOTOPES. A SIGNIFICANT FEATURE OF THE INSTRUMENTATION IS THE STORAGE OF DIFFERENTIAL RATHER THAN ABSOLUTE SPECTRA. IN ADDITION TO PERFORMING THE FUNCTION OF A MULTICHANNEL ANALYZER, THE COMPUTER CALCULATES BODY BURDENS AND MAKES THE RESULTS IMMEDIATELY AVAILABLE TO THE OPERATOR. IT ALSO FACILITATES SYSTEM CALIBRATION AND MAINTENANCE AND CAN BE REPROGRAMMED FOR OTHER FUNCTIONS.

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

*DOSE MEASUREMENT, INTERNAL + *PERSONNEL EXPOSURE, RADIATION + COMPUTER, DIGITAL + DOSIMETRY, GENERAL +
INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, PERSONNEL + SPECTROMETRY, GAMMA

15-25008

MEDICAL X RAY AND GAMMA RAY PROTECTION FOR ENERGIES UP TO 10 MEV. EQUIPMENT DESIGN AND USE

NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS, WASHINGTON, D. C.

NP-17328 + NCRP-33 +. 66 PAGES, FIGURES, TABLES, FEB. 1, 1968

THIS REPORT IS CONCERNED WITH PROTECTION AGAINST RADIATION EMITTED BY MEDICAL X-RAY EQUIPMENT OPERATING AT ENERGIES UP TO 10 MEV AND MEDICAL GAMMA-BEAM THERAPY EQUIPMENT. IT PRESENTS RECOMMENDATIONS PERTAINING TO EQUIPMENT DESIGN, USE AND OPERATING CONDITIONS AND TO RADIATION PROTECTION SURVEYS AND PERSONNEL MONITORING. IT INCLUDES SECTIONS FOR THE SPECIFIC GUIDANCE OF (1) THE PHYSICIAN AND HIS ASSOCIATES, (2) THE EQUIPMENT DESIGNER AND MANUFACTURER, (3) THE RADIOLOGICAL PHYSICIST CONCERNED WITH CALIBRATION PROCEDURES, EQUIPMENT PERFORMANCE, AND PROTECTION SURVEYS AND, (4) THE RADIOLOGICAL HEALTH INSPECTOR CONCERNED WITH EQUIPMENT INSPECTION AND SURVEY MEASUREMENTS.

AVAILABILITY - NCRP PUBLICATIONS, P. U. BOX 4867, WASHINGTON, D. C. 20008, \$0.75 PER COPY

*GAMMA EMITTER + *MAXIMUM PERMISSIBLE DOSE (MPD) + *NCRP + *RADIATION SAFETY AND CONTROL +
*SURVEY, RADIATION, ENVIRONMENTAL + *X-RAY + MONITOR, RADIATION, PERSONNEL + SURVEY, RADIATION, EMERGENCY

15-25018

X-RAY PROTECTION STANDARDS FOR HOME TELEVISION RECEIVERS. INTERIM STATEMENT OF THE NATIONAL COUNCIL ON

RADIATION PROTECTION AND MEASUREMENTS (NCRP)

NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS (NCRP)

4 PAGES, APPROVED FEBRUARY 23, 1968

SOME RECENT EVENTS HAVE INDICATED THAT SOME TELEVISION SETS ARE NOT MEETING THE RADIATION-PROTECTION RECOMMENDATIONS OF THE NCRP GIVEN IN NOV. 1959. IN MEETINGS DURING 1967, THE BASIC INTENT OF THE 1959 DECISION WAS REAFFIRMED BUT WITH SOME CLARIFICATION NEEDED IN SOME ASPECTS. FURTHER STUDY IS TO BE GIVEN TO THE PROBLEMS OF RADIATION-EMITTING DEVICES USED BY THE PUBLIC. THE ANNUAL GENETIC DOSE TO THE POPULATION SHOULD BE NO MORE THAN 5% OF THE NATIONAL BACKGROUND DOSE. SPECIAL TRAINING, WHERE NEEDED, SHOULD BE GIVEN TV REPAIRMEN AND OTHER TECHNICIANS IN ELECTRONIC FIELDS.

AVAILABILITY - NATIONAL COUNCIL ON RADIATION PROTECTION AND MEASUREMENTS, 4201 CONNECTICUT AVENUE, N.W.,
SUITE 402, WASHINGTON, D. C.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25018 *CONTINUED*

*NCRP + *RADIATION SAFETY AND CONTROL + *X-RAY + DOSIMETRY, GENERAL + HEALTH PHYSICS TRAINING + POPULATION EXPOSURE

15-25020

HOLM NW + BJERGBAKKE E + SEHESTED K + DRAGANIC IG
INVESTIGATION OF THE OXALIC-ACID SYSTEM FOR 60-CO DOSIMETRY
DANISH ATOMIC ENERGY COMMISSION, RISØE
RISO-111 +. 38 PAGES, FIGURES, TABLES, AUGUST, 1967

REVIEWS THE WORK DONE IN OXALIC ACID DOSIMETRY AND DESCRIBES A SYSTEMATIC INVESTIGATION OF THE SYSTEM FOR CO-60 DOSIMETRY. A PROCEDURE FOR ITS USE IS ADDED AS AN APPENDIX.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS, AND JUL. GJELLERUP, BOOKSELLERS, 87 SOLVGÅDE, KØBENHAVN K, DENMARK

*COBALT + *DOSIMETRY, GENERAL + *EXPERIMENT, GENERAL + INSTRUMENTATION CALIBRATION + IRRADIATION FACILITY + SOURCE MECHANISM

15-25052

ALSO IN CATEGORY 14

DEJONGHE P

REVIEW OF RADIOACTIVE WASTE MANAGEMENT IN WESTERN EUROPE

CEN, MOL, BELGIUM

12 PAGES, 5 FIGURES, 23 REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 169-180 (1967)

SINCE THE ESTABLISHMENT IN WESTERN EUROPE OF A RESPECTABLE NUMBER OF NUCLEAR FACILITIES, A LARGE EFFORT HAS BEEN DEVOTED TO DEVELOPING SPECIFIC METHODS FOR THE PURIFICATION AND CONDITIONING OF RADIOACTIVE WASTES. AT THE SAME TIME, METHODS FOR TREATING CONVENTIONAL WASTES HAVE BEEN ADOPTED BECAUSE OF THEIR APPLICATION IN RADIOACTIVE WASTE MANAGEMENT. THE AREAS OF DEVELOPMENT INCLUDE ALSO HANDLING OF SOLID COMBUSTIBLE AND NONCOMBUSTIBLE WASTES, PURIFICATION OF GASES, TREATMENT OF LIQUID EFFLUENTS AND CONDITIONING OF CONCENTRATES RESULTING FROM THE TREATMENT OF VARIOUS RADIOACTIVE WASTES. THE DIFFERENT TYPES AND STEPS OF TREATMENT ARE REVIEWED, WITH PARTICULAR ATTENTION TO POSSIBLE FUTURE DEVELOPMENTS.

*RADIATION SAFETY AND CONTROL + *WASTE MANAGEMENT + ECONOMICS + EFFLUENT + FOAM + INCINERATION + PRECIPITATION + RADIATION PROTECTION, CHEMICAL + WASTE DISPOSAL, OCEAN

15-25053

SPEIGHT RG

A COMPARISON OF THE PREDICTED AND OBSERVED LOW ENERGY RADIATION FROM THE THORAX OF A NORMAL HUMAN MALE
UKAEA, WINFRITH, ENGLAND

AEEW-M-715 +. 4 PAGES, 1 FIGURE, 1 TABLE, 3 REFERENCES, JULY, 1967

THE NORMAL HUMAN MALE EMITS A CONTINUUM OF LOW-ENERGY PHOTONS (LESS THAN 100 KEV) WHOSE MAGNITUDE DEPENDS ON THE BODY CONTENT OF K-40 AND CS-137 AND THE PHYSICAL PARAMETERS OF THE BODY. AN EXPERIMENT IS DESCRIBED FROM WHICH IT HAS BEEN POSSIBLE TO DEVISE A METHOD OF FORECASTING THE LEVEL OF THIS CONTINUUM WITH AN ACCURACY OF PLUS OR MINUS 6%.

AVAILABILITY - HER MAJESTY'S STATIONERY OFFICE, LONDON, ENGLAND

*BIOLOGICAL CONCENTRATION, MAN + *CESIUM + *EXPERIMENT, GENERAL + *POTASSIUM + *RADIATION SAFETY AND CONTROL + ENERGY LEVEL

15-25054

ALSO IN CATEGORY 14

PARKER FL

RECENT DEVELOPMENTS IN AND FUTURE PLANS FOR RADIOACTIVE WASTE MANAGEMENT IN THE UNITED STATES OF AMERICA
VANDERBILT UNIVERSITY, NASHVILLE, TENN.

29 PAGES, FIGURES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 93-121 (1967)

THE FUNDAMENTAL POLICY AND MAIN DIRECTION OF RADIOACTIVE-WASTE MANAGEMENT IN THE UNITED STATES OF AMERICA IS NOW EVIDENT. POLICY IS TO KEEP TOTAL RADIATION HAZARDS AT OR BELOW THEIR PRESENT LEVELS ALTHOUGH THE AMOUNT OF NUCLEAR POWER GENERATION WILL INCREASE EXPONENTIALLY. THIS LEVEL WILL BE MAINTAINED THROUGH INCREASED EMPHASIS ON CONCENTRATING, SOLIDIFYING AND CONTAINING BOTH HIGH- AND LOW-LEVEL WASTES AND BY DISCHARGING TO THE ENVIRONMENT A NONHAZARDOUS, ECONOMICALLY IRREDUCIBLE MINIMUM OF RADIOACTIVE MATERIAL.

BIOLOGICAL CONCENTRATION, MAN + CALCINATION + DECONTAMINATION + HAZARDS ANALYSIS + PARTICULATE + R AND D PROGRAM + RADIATION SAFETY AND CONTROL + REACTOR POWER + UNITED STATES + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, SALT + WASTE DISPOSAL, TERRESTRIAL + WASTE MANAGEMENT + WASTE TREATMENT, ECONOMICS + WASTE TREATMENT, FIXATION

15-25055

ALSO IN CATEGORY 14

PARKER FL

RADIOACTIVE WASTES FROM FISSION REACTORS

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25055 *CONTINUED*

2 PAGES, REFERENCES, SCIENCE, 159(3810), PAGES 83-84 (JAN. 5, 1968)

CALCULATION OF THE AMOUNT OF TRITIUM RELEASED FROM A HYPOTHETICAL FUSION REACTOR SHOWS THAT IT IS 20,000 TIMES THE AMOUNT RELEASED BY GENERATION OF AN EQUIVALENT AMOUNT OF ELECTRICITY BY A FISSION REACTOR. RELEASE OF THE TRITIUM GENERATED BY A POWER ECONCMY, IF THE NUCLEAR POWER WERE ALL FUSION, WOULD RESULT IN UNACCEPTABLE WORLDWIDE DCSAGES BY THE YEAR 2000.

*FISSION PRODUCT RELEASE, GENERAL + *TRITIUM + NEUTRON + REACTOR, POWER

15-25056 ALSO IN CATEGORY 14

MALASEK E

TREATMENT OF RADIOACTIVE WASTES IN BULGARIA, CZECHOSLOVAKIA, THE GERMAN DEMOCRATIC REPUBLIC, HUNGARY, POLAND AND ROMANIA

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA

17 PAGES, TABLES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4), PAGES 151-167 (1967)

RESEARCH WORK ON DECONTAMINATION AND TREATMENT OF RADIOACTIVE WASTE IS DIRECTED TOWARDS IMPROVING EXISTING METHODS OF DECONTAMINATION, TREATMENT AND STORAGE, AND ALSO TOWARDS THE DISCOVERY AND USE OF PROGRESSIVE TECHNOLOGICAL PROCESSES AND NEW MATERIALS GIVING A NUMBER OF ADVANTAGES OVER THOSE USED AT PRESENT. THE PURPOSE OF THE INVESTIGATIONS IS TO INCREASE THE EFFICIENCY OF DECONTAMINATION, TO CONCENTRATE THE RADIOACTIVITY IN THE SOLID PHASE, TO REDUCE THE VOLUME OF WASTE, AND TO LOWER THE COST OF ITS TREATMENT AND STORAGE.

BULGARIA + CZECHOSLOVAKIA + DECONTAMINATION + GERMANY + HUNGARY + POLAND + R AND D PROGRAM + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + RADIOLOGICAL ASSISTANCE + REACTOR POWER + RUMANIA + WASTE TREATMENT, FIXATION + WASTE TREATMENT, GENERAL

15-25057 ALSO IN CATEGORY 14

KOLYCHEV BS + SEDOV VM

THE PRESENT STATE AND PROSPECTS OF DEVELOPMENT IN RADIOACTIVE WASTE MANAGEMENT IN THE USSR

STATE COMMITTEE FOR UTILIZATION OF ATOMIC ENERGY, MOSCOW

28 PAGES, FIGURES, TABLES, REFERENCES, ATOMIC ENERGY REVIEW, 5(4) PAGES 123 TO 150 (1967)

THE DEVELOPMENT OF COMMERCIAL ATOMIC ENERGY, THE USE OF RADIOISOTOPES IN SCIENCE, INDUSTRY AND MEDICINE, THE USE OF ATOMIC ENERGY IN MANY TYPES OF HUMAN ACTIVITIES, IN PARTICULAR, FOR SEA-WATER DESALINATION, DEPEND CONSIDERABLY ON THE RATIONAL AND ECONOMICAL SOLUTION OF THE RADIOACTIVE WASTE TREATMENT AND DISPOSAL PROBLEM. THE SIGNIFICANCE OF THIS PROBLEM IS APPRECIATED IN THE USSR, WHERE GREAT ATTENTION IS THEREFORE PAID TO THE ELABORATION OF NEW PROCESSING METHODS AND THE IMPROVEMENT OF EXISTING METHODS. RESEARCH AND DEVELOPMENT ARE BEING CARRIED OUT TO IMPROVE THE LIQUID WASTE DECONTAMINATION, REDUCE THE SOLID AND LIQUID WASTE VOLUMES, ACHIEVE THEIR SAFE BURIAL, DECREASE THE OPERATING COSTS AND CREATE NEW MATERIALS AND APPARATUS FOR RADIOACTIVE WASTE PROCESSING.

*RADIATION SAFETY AND CONTROL + *USSR + *WASTE MANAGEMENT + *WASTE TREATMENT, GENERAL + CESIUM + CONTAMINATION + DECONTAMINATION + GEOLOGICAL CONSIDERATION, GENERAL + R AND D PROGRAM + STRONTIUM

15-25076 ALSO IN CATEGORY 17

LONG LD + SHAPER RS + MOELLER DW + HARRIS SJ

DEVELOPMENT OF EXAMINATIONS FOR THE EVALUATION OF RADIOLOGICAL HEALTH PERSONNEL

AMERICAN PUBLIC HEALTH ASSOCIATION + U.S. PUBLIC HEALTH SERVICE

5 PAGES, 2 REFERENCES, HEALTH PHYSICS, 11, PAGE 579-583, (1965)

THE PROFESSIONAL EXAMINATION SERVICE OF THE AMERICAN PUBLIC HEALTH ASSCC. (UNDER USPHS CONTRACT) SOLICITED 2000 QUESTIONS FROM 125 OF 1100 WORKERS IN THE FIELD, AND FROM THEM COMPILED 7 EXAMINATIONS TO CERTIFY STATE AND LOCAL HEALTH DEPARTMENT PERSONNEL AS RADIOCHEMISTS, RADIOLOGICAL HEALTH SPECIALISTS, AND INSPECTORS. ASSERTS THAT THE CRITICISMS OF A MULTIPLE-CHOICE TEST ARE OVERCOME BY INVOLVING A LARGE REPRESENTATIVE NUMBER OF THE PROFESSION IN INITIATING THE QUESTIONS AND HAVING LEADERS IN THE FIELD REVIEW THEM.

*STAFFING, TRAINING, QUALIFICATION + *STATE PROGRAM + HEALTH PHYSICS TRAINING + RADIATION SAFETY AND CONTROL

15-25089

VANT RIET B

REMOVAL OF 90SR FROM MILK WITH CALCIUM PYROPHOSPHATE, STRONTIUM PYROPHOSPHATE, OR MIXTURE THEREOF

U. S. ATOMIC ENERGY COMMISSION

U. S. PATENT 3,359,117 +. 3 PAGES, DECEMBER 19, 1967

A PROCESS FOR REMOVING RADIOACTIVE STRONTIUM FROM MILK BY CONTACTING THE MILK WITH AN INORGANIC SALT OF EITHER STRONTIUM PYROPHOSPHATE, CALCIUM PYROPHOSPHATE OR A MIXTURE THEREOF, SAID INORGANIC SALT BEING ATTACHED TO A SILICA-ALUMINA PORCUS SUPPORT, THEREBY REMOVING RADIOACTIVE STRONTIUM FROM THE MILK.

AVAILABILITY - THE U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.25 PER COPY)

*BIOLOGICAL CONCENTRATION, MILK + *DECONTAMINATION + *PATENT + *STRONTIUM + CALCIUM + CHEMICAL REACTION + PHOSPHATE + USAEC

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25090

X-RADIATION MAY BE CO-FACTOR IN CAUSING CANCER
US DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, ROCKVILLE, MARYLAND
PRESS RELEASE HEW-T90 +. 2 PAGES, APRIL 24, 1968

DATA FROM THE EXPERIMENT SUPPORTS THE FACT THAT RATS FED ETHIONINE AND GIVEN WHOLEBODY RADIATION DEVELOPED THE MOST MAMMARY TUMORS. IT THEREFORE IS BELIEVED THAT RADIATION MAY TEAM UP WITH SOME OTHER FACTORS TO CAUSE INCREASED MAMMARY TUMORS IN RATS. ALSO THE MAMMARY-TUMOR RESPONSE FOLLOWING RADIATION EXPOSURE PLUS ETHIONINE DEFINITELY INDICATES SYNERGISM. ALSO SIGNIFICANT IS THE FACT THAT THE INCREASE IN TUMOR DEVELOPMENT WAS NOT APPARENT FOR ABOUT A YEAR AFTER THE X-RAY TREATMENT.

AVAILABILITY - U. S. DEPART. OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, NATIONAL CENTER FOR RADIOLOGICAL HEALTH, ROCKVILLE, MARYLAND

*BIOLOGICAL CONCENTRATION, ANIMAL + *EXPERIMENT, GENERAL + DIETARY HABIT + X-RAY

15-25092

ALSO IN CATEGORY 14

FARRIS GC

FACTORS INFLUENCING THE ACCUMULATION OF SR-90, STABLE STRONTIUM, AND CALCIUM IN MULE DEER
COLORADO STATE UNIV., FORT COLLINS, COLORADO
COO-1156-26 +. 189 PAGES, AUGUST 1967

CONCENTRATIONS OF SR-90, STABLE STRONTIUM AND CALCIUM WERE MEASURED IN MULE DEER BONE AND IN EIGHT FORAGE SPECIES WHICH WERE SAMPLED OVER A FIVE YEAR PERIOD FROM THE CACHE LA POUDE DRAINAGE IN NORTH CENTRAL COLORADO. VEGETATION WAS COLLECTED FROM SAMPLING POINTS WITHIN EACH OF THE MAJOR PLANT COMMUNITIES UTILIZED BY DEER.

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

*BIOLOGICAL CONCENTRATION, ANIMAL + *BIOLOGICAL CONCENTRATION, VEGETATION + *CALCIUM + *ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *STRONTIUM + BIOMEDICAL + CONTAMINATION + COUNTER + DIETARY HABIT + FALLOUT + MATHEMATICAL TREATMENT + RADIOCHEMICAL ANALYSIS + YTTRIUM

15-25093

DROZDOV VE

THE CALCULATION OF THE ABSORBED DOSE CAPACITY FROM GAMMA SOURCES OF SPENT REACTOR FUEL ELEMENTS
4 PAGES, AT. ENERG. (USSR), 23, PAGE 120-123, (AUGUST 1967), (IN RUSSIAN)

APPROXIMATE ANALYTICAL EXPRESSIONS FOR THE CALCULATION OF THE ABSORBED DOSE CAPACITY FROM LINEAR GAMMA SOURCES OF SPENT FUEL ELEMENTS WITH COSINE DISTRIBUTION OF THE ACTIVITIES WERE DERIVED. IT WAS SHOWN THAT THE NON-UNIFORMITY OF THE FIELD OF ABSORBED DOSE CAPACITY FROM THE SPENT FUEL ELEMENTS CAN BE 5 AND MORE. FOR CALCULATION OF THE REPEATED SCATTERING OF THE RADIATION IN MATTER IT WAS EXPEDIENT TO USE THE ACCUMULATION FACTOR IN THE INTEGRAL FORM. A SATISFACTORY AGREEMENT OF THE VALUES CALCULATED BY THE FORMULAS AND THE EXPERIMENTAL VALUES OF THE ABSORBED DOSE CAPACITY WAS OBTAINED.

DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + FUEL ELEMENT + GAMMA EMITTER + REACTOR, POWER + USSR

15-25094

KAMETANI K + IKEBUCHI H

SR-90 AND CS-137 CONCENTRATION IN IMPORTED FOODS. I.
3 PAGES, EISEI SHIKESHO HOKOKU, 89, PAGE 74-76, (OCT. 1965), (IN JAPANESE)

THE SR-90 AND CS-137 CONTENT OF BUTTERMILK, WHEAT, AND SOYBEANS IMPORTED FROM THE UNITED STATES WAS DETERMINED. THE HIGHEST CONTENT OF SR-90 IN THE BUTTERMILK AND IN THE WHEAT WERE 61.8 MICRO-MICROCURIES/100 G AND 82.7 MICRO-MICROCURIES/100 G, AND THE MEAN VALUES WERE 29.9 MICRO-MICROCURIES/100 G AND 31.5 MICRO-MICROCURIES/100 G, RESPECTIVELY. THE CONTENTS OF SR-90 AND CS-137 WAS FAIRLY LOW IN THE SOY BEANS. THESE FOODS WERE PRODUCED IN MINNESOTA, IOWA, NORTH DAKOTA, NEBRASKA, AND WISCONSIN. THE VALUES AGREED WITH THOSE REPORTED FROM THE UNITED STATES.

*BIOLOGICAL CONCENTRATION, FOOD + *CESIUM + *JAPAN + *STRONTIUM + *UNITED STATES

15-25095

ALSO IN CATEGORY 14

SPAANDER P

RADIOACTIVE CONTAMINATION OF DRINKING WATER

5 PAGES, VIERDE MACHT, 15, PAGE 54-58, (APRIL 1966) (IN DUTCH)

THE CONTAMINATION OF DRINKING WATER OCCURRING AS A RESULT OF ATOMIC BOMB EXPLOSIONS IS CONSIDERED. THE PRINCIPLES USED IN THE CALCULATION OF THE MAXIMUM PERMISSIBLE CONCENTRATIONS IN WATER ARE OUTLINED, AND THE PERMISSIBLE DOSE FOR INTERNAL RADIATION IS GIVEN. THE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25095 *CONTINUED*

RADIATION DOSE OF THE POPULATION CONSIDERED IN ITS ENTIRETY IS CALCULATED. THE MAXIMUM PERMISSIBLE CONCENTRATION AFTER AN ATOMIC BOMB EXPLOSION IS TABULATED FOR I-131, CS-137, SR-89, AND SR-90.

*CONTAMINATION + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *WATER, GENERAL + DOSE CALCULATION, INTERNAL + FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + NUCLEAR DETONATION + POPULATION EXPOSURE

15-25096

VOROB-EV AM

CHOICE OF DETERGENT MIXTURES FOR SKIN DECONTAMINATION FROM RADIOACTIVE CONTAMINATIONS
5 PAGES, GIG. SANIT., 7, PAGE 45-49, (JULY 1967), (IN RUSSIAN)

THE EXPERIMENTAL BACKGROUND FOR THE PREPARATION OF DETERGENT MIXTURES FOR USE FOR REMOVAL OF RADIOACTIVE CONTAMINANTS FROM SKIN IS DISCUSSED. THE BEST DECONTAMINATING EFFECT WAS PRODUCED BY A COMPLICATED MIXTURE CONTAINING SURFACE-ACTIVE SUBSTANCES, CERTAIN COMPLEX COMPONENTS, AND SOLID BASES. THE BEST MIXTURES OF DETERGENTS WERE WORKED OUT FOR SKIN DEACTIVATION FROM A LARGE VARIETY OF RADIOACTIVE ISOTOPES.

*CONTAMINATION + *DECONTAMINATION + *DECONTAMINATION FACTOR + *DECONTAMINATION SPRAY +
*RADIATION PROTECTION, CHEMICAL + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL

15-25097

BRONSHTEIN IE + KRISYUK EM + LIBERMAN AN

DEPENDENCE OF THE MAXIMUM PERMISSIBLE DOSE ON THE ENERGY OF X-RAY OR GAMMA-IRRADIATION
LENINGRAD SCIENTIFIC-RESEARCH INST. OF RADIATION PROTECTION
4 PAGES, GIG. SANIT., 9, PAGE 47-50, (SEPT. 1967), (IN RUSSIAN)

EXPERIMENTS ARE BASED ON THE PREVIOUSLY DETERMINED CORRELATIONS BETWEEN THE GENERAL BIOLOGICAL EFFECT ON THE BODY AND THAT PRODUCED IN CERTAIN CRITICAL ORGANS WITH THE AVERAGE CONSUMED DOSE. CALCULATIONS MAKE IT POSSIBLE TO DETERMINE THE MAXIMUM PERMISSIBLE DOSES OF IRRADIATION OF THE WHOLE BODY, THE CRYSTALLINE LENS, THE SKIN AND THE MALE GONADS BY THE GAMMA AND X RAYS.

*DOSE CALCULATION, INTERNAL + *GAMMA EMITTER + *MAXIMUM PERMISSIBLE DOSE (MPC) + *X-RAY +
BIOLOGICAL CONCENTRATION, MAN + USSR

15-25098

HAJEK V

RADIATION ACCIDENTS IN PEACE. PART II. DETERMINATION OF THE DOSE ACCORDING TO DOSIMETRY AND LABORATORY EXAMINATIONS
SLOVAK NATIONAL UPRISING MILITARY HOSPITAL, RUZOMBEROK, CZECH.
7 PAGES, VOJ. ZDRAVOT. LISTY, 36, PAGE 122-128, (JUNE 1967), (IN CZECH)

VARIOUS WELL KNOWN ACCIDENTS THAT OCCURRED RECENTLY ARE REVIEWED. SYMPTOMS PROVOKED BY RADIATION ARE DESCRIBED, AND THEIR SERIOUSNESS EVALUATED. SUITABLE METHODS OF DIAGNOSIS ARE DESCRIBED.

*ACCIDENT ANALYSIS + *ACCIDENT, GENERAL + *BIOLOGICAL CONCENTRATION, MAN + *PERSONNEL PROTECTIVE DEVICE +
DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, EXTERNAL +
DOSE MEASUREMENT, INTERNAL + RADIATION DAMAGE + RADIATION INJURY, TREATMENT OF +
SURVEY, RADIATION, EMERGENCY + SURVEY, RADIATION, ENVIRONMENTAL

15-25099

KNIZHNIKOV VA

EFFECT OF FLUORINE IN DRINKING WATER ON THE EXTENT OF STRONTIUM ACCUMULATION IN THE HUMAN BODY
7 PAGES, GIG. SANIT., 7, PAGE 39-45, (JULY 1967), (IN RUSSIAN)

THE CONTENT OF CALCIUM, FLUORINE, STRONTIUM-90, AND STABLE STRONTIUM WAS STUDIED IN DRINKING WATER AND VARIOUS COMPONENTS OF THE DIET OF THE POPULATION IN SEVERAL TOWNS. THE CONTENT OF THESE ELEMENTS WAS ALSO DETERMINED IN THOUSANDS OF TEETH EXTRACTED FROM ADULTS AND CHILDREN. THE AMOUNT OF STRONTIUM ACCUMULATED IN THE BONE TISSUE OF THE ADULT POPULATION WAS INCREASED, DEPENDING ON THE CONTENT OF FLUORINE IN WATER.

*BIOLOGICAL CONCENTRATION, MAN + *FLUORINE + *STRONTIUM + *WATER, DRINKING + DIETARY HABIT +
POPULATION EXPOSURE

15-25100

ALSO IN CATEGORY 14

KOSAKA T + TAKIZAWA Y

EFFECTS OF THIRD COMMUNIST CHINESE NUCLEAR TEST. I. FALLOUT OF STRONG RADIOACTIVE PARTICLES DETECTED IN NIIGATA
NIIGATA UNIV., JAPAN
3 PAGES, NIIGATA IGAKKAI ZASSHI, 80, PAGES 456-458 (AUG. 1966) IN JAPANESE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25100 *CONTINUED*

COMMUNIST CHINA CARRIED OUT ITS THIRD NUCLEAR TEST IN MAY 1966 IN THE AIR OVER THE WESTERN PART OF MAINLAND CHINA. THE FALL OF HIGHLY RADIOACTIVE PARTICLES DUE TO THIS TEST WAS DETECTED AND THE STATE OF THEIR FALLING AND THE NATURE OF THE PARTICLES WERE INVESTIGATED. THE FALLING OF HIGHLY RADIOACTIVE PARTICLES APPEARED RAPIDLY AFTER THE TEST COMPARED WITH THE PREVIOUS ONE, AND THE FALLOUT WAS LARGE IN AMOUNT AND OF A SINGLE PASSAGE. THE INTENSITY OF RADIOACTIVITY OF INDIVIDUAL PARTICLES ALSO TENDED TO BE HIGH.

*ATMOSPHERIC DIFFUSION, GLOBAL + *CHINA + *FALLOUT + *NUCLEAR DETONATION + ATMOSPHERIC POLLUTION + JAPAN + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + PARTICLE, RADIOACTIVE

15-25107

CRAIG OK + WINKLER BC + COLLEY JR
THE HEALTH PHYSICS ASPECTS OF THE FAILURE OF A PLUTONIUM-BERYLLIUM START-UP SOURCE IN THE SAFARI 1 REACTOR
ATOMIC ENERGY BOARD, PELINDABA, PRETORIA, SOUTH AFRICA
PEL-154 + CONF-660920-19 +. 32 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1967, PAPER PRESENTED AT 1ST INTERNATIONAL CONGRESS OF THE INTERNATIONAL RADIATION PROTECTION ASSN., ROME, ITALY

A NEUTRON START-UP SOURCE, CONTAINING 160 GRAMS OF PLUTONIUM, WAS SUPPLIED BY THE SUBCONTRACTORS FOR THE SAFARI 1 REACTOR. DURING THE START-UP AND COMMISSIONING PERIOD, FOR WHICH THE REACTOR WAS UNDER THE CONTROL OF THE SUBCONTRACTORS, THE CONTAINER FOR THIS SOURCE RUPTURED. THIS ALLOWED SOME OF THE PLUTONIUM AND ITS FISSION PRODUCTS TO ESCAPE INTO THE VARIOUS REACTOR SYSTEMS. THE EVENTS LEADING UP TO AND SURROUNDING THE INCIDENT ARE DESCRIBED. THE HEALTH PHYSICS ASPECTS OF THE INCIDENT ARE PRESENTED AND THE CONSEQUENCES ARE DISCUSSED. WHILE GREATLY INCREASED RADIATION AND CONTAMINATION HAZARDS AROSE, NO PERSONNEL SUFFERED INJURY, INGESTED RADIOACTIVE MATERIAL, OR RECEIVED RADIATION EXPOSURES IN EXCESS OF INTERNATIONALLY RECOMMENDED MAXIMUM PERMISSIBLE LIMITS. FURTHERMORE, NO DANGER TO THE GENERAL PUBLIC AROSE IN ANY WAY AS A CONSEQUENCE OF THE INCIDENT.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*ACCIDENT ANALYSIS + *BERYLLIUM + *NEUTRON + *PLUTONIUM + *RADIATION SAFETY AND CONTROL + *SOURCE, RADIATION + AIRBORNE RELEASE + EFFLUENT + FUEL ELEMENT + GAMMA EMITTER + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + MONITOR, RADIATION, STACK + PARTICULATE + SURVEY, GENERAL

15-25108

LIN F + CAMERON JR
THE RADIATION DISTRIBUTIONS AROUND LINEAR RADIUM SOURCES AS MEASURED WITH THERMOLUMINESCENCE DOSIMETRY (TLD)
UNIV. OF WISCONSIN, MADISON
7 PAGES, 7 FIGURES, 1 TABLE, 16 REFERENCES, AMER. J. ROENTGENOL., RADIUM THER. NUCL. MED., 100, PG. 863-869, (AUGUST 1967)

THE USE OF SMALL SINGLE CRYSTALS OF LiF AS THERMOLUMINESCENT DOSIMETERS WAS DEMONSTRATED TO HAVE SUFFICIENT ACCURACY TO MAP RADIATION DISTRIBUTIONS CLOSE TO RADIUM SOURCES IN THE AREAS OF CLINICAL INTEREST. ON THE PARTICULAR RADIUM SLUG STUDIED, THE EXPERIMENTAL RESULTS SHOWED THE ASYMMETRIC DISTRIBUTION OF RADIUM SALT IN THE SLUG AND THE GREATER FILTRATION AT THE EYELET END OF THE SLUG WHICH WAS CONFIRMED BY A COMBINED AUTORADIOGRAPH AND ROENTGENOGRAM.

*DOSE MEASUREMENT, EXTERNAL + *DOSE MEASUREMENT, INTERNAL + *DOSIMETRY, THERMOLUMINESCENCE + MATHEMATICAL TREATMENT + RADIUM + SOURCE, RADIATION

15-25109

LANE FW + SHAW RK + SIEBEL G
COMPUTER TECHNIQUE FOR INTRACAVITARY RADIUM DOSIMETRY
DARTMOUTH MEDICAL SCHOOL, HANOVER, N. H.
8 PAGES, 9 FIGURES, 9 REFERENCES, AMER. J. ROENTGENOL., RADIUM THER. NUCL. MED., 100, PAGE 870-877, (AUGUST 1967)

A COMPUTER PROGRAM IS DESCRIBED THAT WAS DEVELOPED FOR DETERMINING GAMMA DOSE DISTRIBUTIONS AROUND INTERSTITIAL AND INTRACAVITARY RA APPLICATORS.

*COMPUTER PROGRAM + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *RADIUM + DOSIMETRY, GENERAL + GAMMA EMITTER

15-25110

ROSE JA + RUBINSON JE + BLOEDORN FG
COMPUTER DOSIMETRY SYSTEM FOR RADON SEED IMPLANTS
UNIV. OF MARYLAND, BALTIMORE
8 PAGES, 7 FIGURES, 3 REFERENCES, AMER. J. ROENTGENOL., RADIUM THER. NUCL. MED., 100, PAGE 878-885, (AUGUST 1967)

A COMPUTER TECHNIQUE IS DESCRIBED THAT WAS DEVELOPED TO CALCULATE AND PLOT RADIATION FIELDS PRODUCED BY RN SEED IMPLANTS.

*COMPUTER PROGRAM + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *RADON + DOSIMETRY, GENERAL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25127
SHAMSON A
INVESTIGATION OF THE LIF TLD SYSTEM FOR LGW EXPOSURES
NEW YORK OPERATIONS OFFICE (AEC), N. Y. HEALTH AND SAFETY LAB.
HASL-191 +. 12 PAGES, FIGURES, REFERENCES, DEC. 1967

VARIOUS PROBLEMS CONNECTED WITH THE USE OF A COMMERCIAL LIF DOSIMETRY SYSTEM FOR LOW RADIATION EXPOSURE MEASUREMENTS WERE INVESTIGATED. THESE ARE ADSORPTION OF MOISTURE, ITS EFFECT ON DISPENSING LIF POWDER, THE CONSISTENCY OF READOUTS, THE RELATION BETWEEN CAPSULE SIZE, AND SENSITIVITY OF LIF POWDER IN BONNER SPECTROMETRY. MOISTURE ADSORPTION WAS FOUND TO BE NEGLIGABLE, READOUT INCONSISTENCIES WERE ELIMINATED BY MODIFICATION OF READOUT INSTRUMENTATION, SENSITIVITY WAS SHOWN TO INCREASE WITH DECREASE IN CAPSULE DIAMETER WHEN EXPOSURE WAS TO THERMALIZED NEUTRONS. TO ELIMINATE SOME OF THE DISADVANTAGES ASSOCIATED WITH THE HANDLING OF POWDER, A LIF PELLETT DOSIMETER WAS DEVELOPED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DOSIMETRY, THERMOLUMINESCENCE + *INSTRUMENTATION, NUCLEAR + *PERSONNEL PROTECTIVE DEVICE + ADSORPTION + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + SPECTROMETRY, GAMMA + SPECTROMETRY, NEUTRON

15-25128
RADIATION MONITORING AND CONTROL OF THE JPDR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1149 +. 44 PAGES, MAR 1967, (IN JAPANESE)

THE JPDR NUCLEAR POWER PLANT HAS A HEAT OUTPUT OF 45,000 KW, CORRESPONDING TO A ELECTRIC OUTPUT AT THE TURBINE GENERATOR OF 12,500 KW. THE REACTOR IS OF THE NATURAL-CIRCULATION, DIRECT-CYCLE, LIGHT-WATER COOLED AND MODERATED TYPE. A DESCRIPTION IS FIRST GIVEN OF THE POLICY OF RADIATION MONITORING, RADIATION CONTROL AND MONITORING INSTRUMENTATION. SECONDLY, THE MEASURED RESULTS ARE GIVEN OF THE RADIOLOGICAL MONITORING FOR THE THREE-YEAR PERIOD OF DEC. 1964 TO MAR. 1967. FINALLY, A DESCRIPTION IS MADE OF RADIATION LEVELS IN THE WORKING AREAS AND THE RADIATION DOSE RECEIVED BY PERSONNELS. THE GAMMA RADIATION-LEVELS MEASURED AROUND THE REACTOR VESSEL AGREED WELL WITH THE CALCULATED VALUES.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*INSTRUMENTATION, RADIATION MONITORING + *JAPAN + *MONITOR, RADIATION, GENERAL + *REACTOR POWER + CONTAMINATION + DOSE + DOSE CALCULATION, EXTERNAL + DOSE MEASUREMENT, EXTERNAL + MONITOR, RADIATION, AIR + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, GAS + MONITOR, RADIATION, LIQUID + MONITOR, RADIATION, SOLID + MONITOR, RADIATION, SURFACE + RADIATION SAFETY AND CONTROL + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, SOLID

15-25129
PEARSALL SG + WILSHUSEN W
DISPOSAL OF CHEMICAL AND RADIOACTIVE WASTE
BROOKHAVEN NATIONAL LAB., UPTON, N. Y.
BNL-11508 + CONF-670623-1 +. 26 PAGES, 1966, PAPER PRESENTED AT NATIONAL CONFERENCE ON CAMPUS SAFETY, LINCOLN, NEB.

CHEMICAL AND RADIOACTIVE WASTES CONTRIBUTE IN A LARGE MEASURE TO THE ENVIRONMENTAL POLLUTION PROBLEM. ALSO, PROBLEMS EXIST AT SUCH FACILITIES AS MUNICIPAL SEWAGE PLANTS. RESPONSIBILITY FOR DISPOSAL OF WASTE MATERIALS MUST BE SPECIFICALLY DELEGATED TO ENSURE THAT THE OPERATION IS CARRIED ON SAFELY AND EFFICIENTLY. HOWEVER, BEFORE THIS CAN BE DONE, THREE MAJOR ASPECTS OF THE PROBLEMS MUST BE CONSIDERED - (1) RULES AND REGULATIONS -- FEDERAL, STATE, AND LOCAL, (2) KNOWLEDGE OF THE AREA IN WHICH DISPOSAL WORK IS TO BE CARRIED ON, (3) TOXICITY OR HAZARD OF THE MATERIAL REQUIRING DISPOSAL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ENVIRONMENTAL CONDITION + *LICENSING STATUS OF NUCLEAR PROJECTS + *POPULATION EXPOSURE + *REGULATION, AEC + *REGULATION, STATE + *USAEC + *WASTE DISPOSAL, GENERAL + *WATER POLLUTION + AIRBORNE RELEASE + RADIATION SAFETY AND CONTROL + REGULATION, GENERAL + REGULATION, ICC + WATER TREATMENT

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-09100 ALSO IN CATEGORY 14

MAMURO T

PHYSICO-CHEMICAL PROPERTIES OF FALLOUT PARTICLES IN RELATION TO BURST CONDITIONS

RADIATION CENTER OF OSAKA PREFECTURE, SHINKECHO 704, SAKAI-SHI, OSAKA (JAPAN)

6 PAGES, 3 FIGURES, 2 TABLES, 18 REFERENCES, ATOMPRAXIS 14(1), PAGE 24 THRU 28, (JAN. 1968)

PHYSICO-CHEMICAL PROPERTIES OF HIGHLY RADIOACTIVE FALLOUT PARTICLES COLLECTED IN JAPAN SHORTLY AFTER SOVIET OR CHINESE NUCLEAR EXPLOSIONS ARE DESCRIBED AND DISCUSSED BRIEFLY IN RELATION TO BURST CONDITIONS. CONSIDERABLE DIFFERENCES ARE FOUND BETWEEN FALLOUT PARTICLES FROM AIR BURSTS AND THOSE FROM SURFACE BURSTS (SHAPE, COLOR, MATRIX MATERIAL, SPECIFIC ACTIVITY, RELATION BETWEEN THE INITIAL ATOM NUMBER OF THE RADIONUCLIDE AND THE PARTICLE VOLUME, RADIONUCLIDE FRACTIONATION, AND U AND PU CONTENT).

*AEROSOL, RADIOACTIVE + *NUCLEAR EXPLOSION DEBRIS + *RADIOCHEMICAL ANALYSIS + FALLOUT + JAPAN

16-21337

SOTOBAYASHI T + KOYAMA S + SUZUKI T

GEOCHEMICAL BEHAVIOR OF FRESH NUCLEAR DEBRIS OF KNOWN ORIGIN IN THE ATMOSPHERE

NIIGATA UNIV., JAPAN

2 PAGES, 1 FIGURE, 1 TABLE, 9 REFERENCES, BULL. CHEM. SOC. JAP., 40, PAGE 1269-1270, (MAY 1967)

DISCUSSES THE GEOCHEMICAL BEHAVIOR OF FRESH NUCLEAR DEBRIS FROM A CHINESE ATOMIC BOMB EXPLOSION AT GROUND LEVEL ON OCT. 16, 1965, AND THE VENTING OF A LARGE-SCALE RUSSIAN UNDERGROUND NUCLEAR TEST ON JAN. 15, 1965. THE MEAN SPECIFIC ACTIVITY OF SR-89 IN RAIN DECREASED FASTER THAN THE RADIOACTIVE DECAY RATE OF SR-89 DURING THE PERIOD FROM LATE OCTOBER TO DECEMBER 1964. HOWEVER, THE SPECIFIC ACTIVITY OF OLD SR-89 WAS ALMOST UNCHANGED.

*AEROSOL, RADIOACTIVE + *CHEMICAL ANALYSIS + *JAPAN + ATMOSPHERIC CIRCULATION, GLOBAL + ATMOSPHERIC DIFFUSION + FALLOUT + NUCLEAR EXPLOSION DEBRIS + RAINOUT

16-23211

FRIZZOLA JA + SINGER IA + BUSCH NE

A SUMMARY OF RECENT TURBULENCE MEASUREMENTS AT BROOKHAVEN NATIONAL LABORATORY

BROOKHAVEN NATIONAL LABORATORY, UPTON, N. Y.

BNL-11889 + CONF-67C931-16 +. 21 PAGES, AUGUST 29, 1967, FROM USAEC METEOROLOGICAL INFORMATION MEETING, CHALK RIVER, ONTARIO, CANADA

REVIEWS A RECENT ANALYSIS OF MEAN GRADIENT AND SPECTRAL MEASUREMENTS AT BROOKHAVEN. SPECTRAL DATA ARE PRESENTED WHICH INDICATE THAT THE VERTICAL VELOCITY COMPONENT OBEYS SIMILARITY THEORY AND THAT THOSE SPECTRA AGREE WITH SOME RECENT SUGGESTIONS FOR THE SHAPE OF THE W SPECTRA. THE U AND V COMPONENTS ALSO OBEY THE SIMILARITY HYPOTHESIS BUT OVER A SMALLER FREQUENCY RANGE THAN THE W COMPONENT. THE V COMPONENT ALSO APPEARS TO BE MORE INFLUENCED BY THERMAL STRATIFICATION THAN THE OTHER TWO COMPONENTS. THE RATIO OF THE VERTICAL VELOCITY VARIANCE TO THE STRESS FITS QUITE ADEQUATELY INTO RECENT SUGGESTIONS CONCERNING THE SHAPE OF THE SPECTRA.

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

*STATISTICAL CORRELATION + *TURBULENCE, SHEAR (WIND) + ATMOSPHERIC STABILITY + BNL + EXPERIMENT, GENERAL + WIND PROFILE

16-23248 ALSO IN CATEGORY 14

VAN DER HOVEN I

ATMOSPHERIC TRANSPORT AND DIFFUSION AT COASTAL NUCLEAR SITES

AIR RESOURCES, LAB., INSTITUTE FOR ATMOSPHERIC SCIENCES, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION, SILVER SPRING, MARYLAND

1 PAGE, ABSTRACT IN HEALTH PHYSICS 13, PAGE 527, (1967), PAPER PRESENTED AT THE TWELFTH ANNUAL MEETING OF THE HEALTH PHYSICS SOCIETY, WASHINGTON, D. C., JUNE 18-22, 1967

A COMPARISON IS MADE BETWEEN OVERWATER AND OVERLAND ATMOSPHERIC DIFFUSION RATES AS A FUNCTION OF THE DIFFERENCE BETWEEN LAND AND WATER TEMPERATURES. THE TRANSITION FROM OVERWATER TO OVERLAND TRANSPORT IS DESCRIBED ON A PHYSICAL BASIS AND DIFFUSION MODELS ARE SUGGESTED TO ACCOUNT FOR THE DIFFUSION RATES WITHIN THIS TRANSITION ZONE. COASTLINE ATMOSPHERIC TRAJECTORIES ARE DISCUSSED IN TERMS OF LOCAL EFFECTS AND LARGE-SCALE PRESSURE GRADIENT EFFECTS AND WITH REGARD TO THE EFFECT OF TEMPORAL CHANGES IN EFFLUENT TRAJECTORIES UPON DIFFUSION AVERAGED OVER A PERIOD OF HOURS OR DAYS.

*ATMOSPHERIC DIFFUSION + *METEOROLOGY + ATMOSPHERIC DIFFUSION, CLIMATOLOGY

16-23730

HALITSKY J + KARMIN I + LIU S

TRANSVERSE JET PLUMES. TECHNICAL PROGRESS REPORT, NOVEMBER 1, 1966 TO NOVEMBER 30, 1967

NEW YORK UNIVERSITY

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-23730 *CONTINUED*
NYO-3673-2 +. 26 PAGES, 6 FIGURES, DECEMBER 1, 1967

THE SECOND YEAR WAS DEVOTED PRINCIPALLY TO CONSTRUCTION OF THE FIELD STATION, BUILDING OF SPECIAL INSTRUMENTS FOR THE TUNNEL TESTS, CHECKING THE CHARACTERISTICS OF THE OSCILLATING AIR STREAM PRODUCED IN THE TUNNEL BY THE VANE MECHANISM, AND DEVELOPING A COMPUTER MODEL FOR MATHEMATICALLY OSCILLATING A STEADY WIND PLUME.

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

*WIND TUNNEL EXPERIMENT + COMPUTER PROGRAM + INSTRUMENTATION, METEOROLOGICAL + MATHEMATICAL STUDY +
TURBULENCE, SHEAR (WIND)

16-23731
PEARCE DW + COMPTON MR
PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1966 TO THE USAEC DIVISION OF BIOLOGY AND MEDICINE. VOLUME
II. PHYSICAL SCIENCES. PART I. ATMOSPHERIC SCIENCES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-481-1 +. 105 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1967

PACIFIC NORTHWEST LABORATORY ANNUAL REPORT FOR 1966. PROGRESS REPORT ON WORK DONE IN
ATMOSPHERIC SCIENCES. REPORT INCLUDES WORK DONE ON DIFFUSION STUDIES, TURBULENCE, WASHOUT,
TRACERS, AND METEOROLOGICAL INSTRUMENTATION.

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

*DOWNWASH + *INSTRUMENTATION, METEOROLOGICAL + *PLUME BEHAVIOR, GENERAL + *WIND PROFILE + HANFORD SITE +
METEOROLOGY + SAMPLING + TRACER, RADIOACTIVE + TURBULENCE, STATISTICS + WASHOUT

16-23732
ENGELMANN RJ + HAGEN DI
PRECIPITATION SCAVENGING STUDIES
BATTELLE-NORTHWEST LABORATORY
BNWL-481-1 +. 10 PAGES, 6 FIGURES, 3 TABLES, 9 REFERENCES, PAGES 43-52 FROM PACIFIC NORTHWEST LABORATORY
ANNUAL REPORT FOR 1966, OCTOBER 1967

PRESENTS DATA ON THE MEASURED WASHOUT COEFFICIENTS FOR GASEOUS AND PARTICULATE TRACERS IN RAIN
AND SNOW. SHOWS THAT PARTICLES ARE WASHED OUT IN SNOW ABOUT THE SAME AS IN RAIN FOR A GIVEN
PRECIPITATION RATE. THIS IS IN CONTRAST TO A MUCH LOWER WASHOUT OF GASES IN SNOW THAN IN
RAIN.

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

*AEROSOL, RADIOACTIVE + *PRECIPITATION + *WASHOUT + EXPERIMENT, GENERAL + PLUME BEHAVIOR, GENERAL + SNOW +
SOURCE, ELEVATED + TRACER, RADIOACTIVE

16-23733
DOTSON WL + NICKOLA PW + WOLF MA
REAL TIME SAMPLING OF AIRBORNE TRACER WITH AIRCRAFT
BATTELLE-NORTHWEST LABORATORY
BNWL-481-1 +. 16 PAGES, 6 FIGURES, 3 TABLES, 2 REFERENCES, PAGES 53-68 FROM PACIFIC NORTHWEST LAB. ANNUAL
REPORT FOR 1966, OCTOBER 1967

DESCRIBES THE ADAPTATION OF THE CONCEPT TO AN AIRBORNE REAL-TIME SAMPLER INSTALLATION AND THE
SUBSEQUENT MODIFICATIONS WHICH WERE REQUIRED TO PROVIDE A MEANINGFUL SYSTEM. DETERMINATIONS
OF TRACER POSITION AND DISTRIBUTION WERE MADE AND COMPARED WITH SURFACE OBSERVATIONS OF
TRACER AND METEOROLOGICAL PARAMETERS.

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

*AIRCRAFT + *CONCENTRATION, CROSSWIND INTEGRATED + *INSTRUMENTATION, METEOROLOGICAL + *SAMPLING +
HANFORD SITE + PLUME BEHAVIOR, GENERAL + SOURCE, CONTINUOUS

16-23734
HINDS WT
WAKE STUDIES
BATTELLE-NORTHWEST LABORATORY
BNWL-481-1 +. 5 PAGES, 3 FIGURES, 4 REFERENCES, PAGES 28-32 OF PACIFIC NORTHWEST LABORATORY ANNUAL REPORT
FOR 1966, OCTOBER 1967

INVESTIGATED THE DIFFUSION OF POLLUTANTS AROUND AND NEAR A BUILDING FROM A GROUND-LEVEL
SOURCE. THE VARIATION IN CONCENTRATION CAUSED BY THE EXISTENCE OF THE WAKE APPEARS TO BE
SIMILAR IN MAGNITUDE TO THOSE CAUSED BY AN ELEVATED SOURCE. THE EFFECT OF AN ELEVATED SOURCE
DISCHARGED INTO A WAKE IS AT PRESENT UNKNOWN.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-23734 *CONTINUED*

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

*CONCENTRATION, PEAK TO AVERAGE + *DOWNWASH + *SOURCE, GROUND LEVEL + ATMOSPHERIC DIFFUSION EXPERIMENT +
HANFORD SITE + SAMPLING + TURBULENCE, MECHANICAL

16-23735

NICKOLA PW + ELDERKIN CE

INSTANTANEOUS PLUME DETECTION

BATTELLE-NORTHWEST LABORATORY

BNWL-481-1 +. 11 PAGES, 4 FIGURES, 3 TABLES, 3 REFERENCES, PAGES 33-43 OF PACIFIC NORTHWEST LABORATORY
ANNUAL REPORT FOR 1966, OCTOBER 1967

A REAL-TIME TRACER SAMPLER MOVING CROSSWIND THROUGH A TRACER PLUME WAS USED TO INVESTIGATE
RELATIONS BETWEEN MEAN AND INSTANTANEOUS TRACER CONCENTRATIONS. A RELATION WAS INDICATED
BETWEEN THE STANDARD DEVIATIONS OF WIND DIRECTION ABOUT THE 1-MIN AVERAGES AND THE
INSTANTANEOUS PLUME WIDTHS FOR THE INDIVIDUAL INTERCEPTS.

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

*CONCENTRATION, CROSSWIND INTEGRATED + *INSTRUMENTATION, METEOROLOGICAL +
ATMOSPHERIC DIFFUSION EXPERIMENT + HANFORD SITE + PLUME BEHAVIOR, GENERAL + WIND STATISTICS

16-23736

ELDERKIN CE + HINDS WT + SLOOT HW

ELEVATED SOURCE DIFFUSION STUDIES

BATTELLE-NORTHWEST LABORATORY

BNWL-481-1 +. 4 PAGES, 3 FIGURES, 1 TABLE, 2 REFERENCES, PAGES 5-8 OF PACIFIC NORTHWEST LABORATORY ANNUAL
REPORT FOR 1966, OCTOBER 1967

TESTS WERE MADE WITH SIMULTANEOUS RELEASES AT GROUND AND ELEVATED SOURCE POINTS UNDER
UNSTABLE, NEUTRAL, AND SLIGHTLY STABLE ATMOSPHERIC CONDITIONS. FOR THE UNSTABLE CASES, THE
MERGING OF THE ELEVATED AND GROUND SOURCES IS OBVIOUS AND ACCORDS WELL WITH THEORETICAL
EXPECTATIONS. FOR THE NEUTRAL AND SLIGHTLY STABLE CONDITIONS, THE EXPOSURES FROM THE GROUND
SOURCE ARE NEARLY IDENTICAL. THIS IS DUE TO THE DOMINANT PART PLAYED BY MECHANICAL
TURBULENCE IN THE LOWER PORTION OF THE ATMOSPHERE.

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

*ATMOSPHERIC STABILITY + *CONCENTRATION, CROSSWIND INTEGRATED + *SOURCE, ELEVATED + *SOURCE, GROUND LEVEL +
ATMOSPHERIC DIFFUSION + COMPARISON, THEORY AND EXPERIENCE + HANFORD SITE + PLUME BEHAVIOR, GENERAL

16-23737

ELDERKIN CE

TURBULENCE INVESTIGATION

BATTELLE-NORTHWEST LABORATORY

BNWL-481-1 +. 20 PAGES, 23 FIGURES, 2 TABLES, 8 REFERENCES, PAGES 8-27 OF PACIFIC NORTHWEST LABORATORY
ANNUAL REPORT FOR 1966, OCTOBER 1967

MEASUREMENTS, MADE WITH A FAST-RESPONSE THERMOCOUPLE-WIRE WIND SENSOR, WERE CONDUCTED DURING A
VARIETY OF WIND SPEEDS AND ATMOSPHERIC STABILITIES AND AT A NUMBER OF HEIGHTS. COSPECTRAL
DISTRIBUTIONS BETWEEN THE LONGITUDINAL, VERTICAL, AND LATERAL COMPONENTS ARE PRESENTED. THE
REYNOLDS STRESSES ARE GIVEN. THOUGH THE REYNOLDS STRESSES COVER A CONSIDERABLE RANGE OF
MAGNITUDES, THE RATIOS DEMONSTRATE THAT THEY ARE CONSISTENT AND REASONABLE.

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

*MEASUREMENT, GENERAL + *TURBULENCE, STATISTICS + *WIND PROFILE + ATMOSPHERIC STABILITY + HANFORD SITE +
TURBULENCE, SHEAR (WIND) + WIND STATISTICS

16-23879

HUFF FA + BRADLEY WE + FETERIS PJ

STUDY OF RAINOUT OF RADIOACTIVITY IN ILLINOIS. SIXTH PROGRESS REPORT

ILLINOIS STATE WATER SURVEY, URBANA

COO-1199-14 +. 19 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 1967

RESEARCH DURING 1967 CONCENTRATED ON FOUR STUDIES. INVESTIGATION OF THE RELATION BETWEEN THE
CONCENTRATION AND DEPOSITION OF RADIOACTIVITY IN RAIN WATER AND AIR CONCENTRATIONS OF
RADIOACTIVITY AIRCRAFT SAMPLING OF THE VERTICAL DISTRIBUTION OF TRITIUM EXPANDED TO INCLUDE
SPATIAL SAMPLING AND MEASUREMENT OF RADON CONCENTRATIONS. CASE STUDIES INVOLVING ANALYSES OF
AIR TRAJECTORIES AT LEVELS BETWEEN THE SURFACE AND 200 MF. A STUDY TO DETERMINE THE
RELATIONSHIP BETWEEN THE TIME DISTRIBUTIONS OF RADIOACTIVITY AND SELECTED CHEMICAL
CONSTITUENTS IN RAINWATER.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-23879 *CONTINUED*

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

*ANALYTICAL TECHNIQUE, AIR + *RAINOUT + CHEMICAL ANALYSIS + CONCENTRATION, AREA + DEPOSITION + RADON +
TRITIUM + WASHOUT

16-23881

LUNA RE

TURBULENCE DATA FOR USE IN HAZARD ANALYSES

SANDIA CORP., ALBUQUERQUE, N. MEX.

SC-DC-67-2343 + CONF-671205-2 +. 25 PAGES, NOV. 1967, PRESENTED AT SYMPOSIUM ON THEORY AND MEASUREMENT OF
ATMOSPHERIC TURBULENCE AND DIFFUSION IN THE PLANETARY BOUNDARY LAYER, ALBUQUERQUE, N. MEX.

PRESENTS THE OCCURRENCE STATISTICS OF TURBULENCE AND WIND-SPEED PARAMETERS WHICH APPEAR IN THE
GENERALIZED EQUATIONS DESCRIBING TURBULENT DIFFUSION. THESE DATA ARE BASED ON TWO YEARS OF
WIND SPEED AND DIRECTION OBSERVATIONS MADE AT WHITE SANDS MISSILE RANGE AND ARE APPLICABLE TO
THAT SITE ONLY. HOWEVER, THE DATA PRESENT A USEFUL GUIDELINE FOR ESTIMATING MAGNITUDE AND
VARIABILITY OF THESE QUANTITIES AT OTHER SITES WHERE MEASUREMENTS OVER A COMPARABLE TIME SPAN
ARE NOT AVAILABLE.

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

*TURBULENCE, STATISTICS + *WIND STATISTICS + ATMOSPHERIC DIFFUSION COEFFICIENT + MICROMETEOROLOGY +
SITE CLIMATOLOGY + WIND PROFILE

16-23882

GREEN W + FRANK R

THE EFFECTS OF WEATHER ON THE OPTICAL DETECTION OF DEEP SPACE NUCLEAR BURSTS. PART I

PLESSET (E.H.) ASSOCIATES, INC., SANTA MONICA, CALIF.

CONF-671022-1 + C-83-58103 +. 8 PAGES, OCTOBER 1967, PRESENTED AT ANNUAL MEETING OF THE OPTICAL SOCIETY
OF AMERICA, DETROIT, MICH.

PRESENTS A METHOD FOR COMPUTING THE DIRECT AND SCATTERED LIGHT FLUX RECEIVED BY A GROUND-BASED
DETECTOR FROM A FLOURESCENT LIGHT SOURCE IN THE EARTH'S ATMOSPHERE. THIS LIGHT SOURCE IS
ASSUMED TO BE CAUSED BY THE ARRIVAL OF X RAYS THAT ORIGINATE FROM A DEEP-SPACE NUCLEAR
DETONATION. THE STUDY WAS TO DETERMINE THE EFFECT OF THE SCATTERED LIGHT FLUX ON THE TIME
HISTORY OF THE SIGNAL RECEIVED BY THE DETECTOR.

FLUX DISTRIBUTION + IONOSPHERE + NUCLEAR DETONATION + THEORETICAL INVESTIGATION + X-RAY

16-24077

SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 31, 1967. MOLTENSALT REACTOR PROGRAM

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL 4171 +. 200 PAGES, FIGURES, TABLES, DECEMBER 1967

REPORTS TWO LONG RUNS (102 AND 42 DAYS), WITH THE MSRE EXPERIENCING ALMOST NO DIFFICULTY.
FUEL CHEMISTRY AND FISSION-PRODUCT BEHAVIOR ARE REPORTED. OTHER AREAS OF INTEREST ARE -
COMPONENT DEVELOPMENT, INSTRUMENTATION AND CONTROLS, REACTOR ANALYSIS FOR MSRE AND MSBR,
DESIGN AND DEVELOPMENT FOR MSBR, FUEL CHEMISTRY, IRRADIATION EXPERIMENTS, AND MATERIALS
DEVELOPMENT.

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

*MSRE (RE) + *OPERATING EXPERIENCE + COMPONENTS, MISCELLANEOUS + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT

16-24212

ALSO IN CATEGORY 16

APPENDIX 2F - METEOROLOGICAL STATION

SACRAMENTO MUNICIPAL UTILITY DISTRICT

2 PAGES, PAGES 2F-1 AND 2F-2 OF AMENDMENT 1 TO RANCHO SECO PSAR, FEBRUARY 2, 1968, DOCKET 50-312,

TYPE--PWR, MFG.--B+W, AE--BECHTEL

A 200-FT TOWER WILL BE INSTALLED WITH INSTRUMENTATION AS FOLLOWS - (200-FT LEVEL) SPEED,
HORIZONTAL DIRECTION, TEMPERATURE, (50 FT) THE SAME, PLUS VERTICAL WIND DIRECTION, (6 FT)
WET- AND DRY-BULB TEMPERATURES. STANDARD DEVIATION WILL BE COMPUTED HOURLY, USING TWENTY
3-MIN INTERVALS WITH ON-LINE DATA ACQUISITION, WHICH WILL EVENTUALLY BE MOVED TO THE CONTROL
ROOM. DATA REDUCTION WILL BE DONE MONTHLY.

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

*INSTRUMENTATION, METEOROLOGICAL + *SITE CLIMATOLOGY + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-24227

OBSERVED RADIOACTIVITY IN RAIN COLLECTED AT FIXED TIME DAILY (TABLE 3, APRIL-JUNE 1966)
JAPAN METEOROLOGICAL AGENCY, TOKYO
35 PAGES, TAIKI HOSHANO KANSOKU SEISEKI, 45, PAGE 10-44, (MARCH 1967), (IN JAPANESE)

THE MEASURED VALUES OF RADIOACTIVITY IN RAIN WATER IN CPM/L, FOR THE RESPECTIVE DAYS OF THE PERIOD FROM APRIL TO JUNE 1966, ARE SHOWN, WHICH WERE OBTAINED AT WAKKANAI, SAPPORO, JUSHIRO, SENDAI, AKITA, TOKYO, WAJIMA, HACHIJO-JIMA, OSAKA, YONAGO, MUROTOMISAKI, FUKUOKA, AND KAGOSHIMA. THE MAXIMUM VALUES AT EACH LOCATION ARE RESPECTIVELY 465, 229, 41, 1509, 2600, 660, 194, 90, 2144, 1764, 110, 378, AND 70 CPM/L. THE RADIOACTIVITIES AT 6 AND 72 HOURS AFTER THE STARTING POINT, AS WELL AS THE BACKGROUNDS, ARE ALSO SHOWN.

*AEROSOL, RADIOACTIVE + *PRECIPITATION + JAPAN + NUCLEAR EXPLOSION DEBRIS + RADIOCHEMICAL ANALYSIS + RAINOUT + WASHOUT

16-24228

MARENCO A + FONTAN J + BLANC D + LACCMBE JP + HUGUET R
VARIATIONS AT TOULOUSE, OF CONCENTRATIONS OF PB-210, PO-210, AND BE-7 IN THE AIR AND PRECIPITATIONS
FACULTE DES SCIENCES, TOULOUSE
5 PAGES, GEOFIS. METEOROL. (GENOA), 16, PAGE 31-35, (JAN. APR. 1967), (IN FRENCH)

SINCE SEPTEMBER 1965, DATA WERE COLLECTED ON THE LONG-LIVED NATURAL RADIOACTIVITY OF AEROSOLS IN THE AIR AND IN RAIN (BE-7, PB-210, AND PO-210) AS PART OF A STUDY OF SOME PROBLEMS OF THE PHYSICS OF THE ATMOSPHERE. MEASUREMENTS MADE ON RAIN SHOWED THAT THE ACTIVITIES ARE LINKED TO PLUVIOMETRY. THE HOMOGENEITY OF AIR MASSES, WITH RESPECT TO THE LONG-LIVED NATURAL RADIOACTIVITY, WAS CONFIRMED BY THE IDENTICAL RESULTS OBTAINED AT 2 DIFFERENT POINTS OF SAMPLING. SEASONAL VARIATIONS WERE OBSERVED, AND THE INFLUENCE OF THE PLUVIOMETRY ON THE CONCENTRATIONS OF THE LONG-LIVED RADIOACTIVE ELEMENTS IN THE AIR IS SHOWN. COMPARISON OF THE ACTIVITY IN THE AIR AND IN THE PRECIPITATIONS SHOWED SOME PARALLEL VARIATIONS.

*AEROSOL, RADIOACTIVE + ATMOSPHERIC DIFFUSION + FALLOUT + PRECIPITATION + RADIOCHEMICAL ANALYSIS

16-24229

MARTIN A + BARBER FR
SULPHUR DIOXIDE CONCENTRATIONS MEASURED AT VARIOUS DISTANCES FROM A MODERN POWER STATION
CENTRAL ELECTRICITY GENERATING BOARD, MIDLANDS REGION, RESEARCH AND DEVELOPMENT DEPT., NOTTINGHAM, ENGLAND
23 PAGES, 14 FIGURES, 8 TABLES, 15 REFERENCES, ATMOSPHERIC ENVIRONMENT, 1(6), PAGE 655-677, (1968)

DATA ARE PRESENTED ON GROUND-LEVEL CONCENTRATIONS OF SO₂ MEASURED AT VARIOUS DISTANCES FROM HIGH MARNHAM POWER STATION DURING THE PERIOD OCTOBER 1965 TO SEPTEMBER 1966. THE MEASUREMENTS INCLUDE POLLUTION FROM BACKGROUND SOURCES AROUND THE AREA, AS WELL FROM THE POWER STATION, AND THE RESULTS ARE COMPARED WITH THOSE OF PREVIOUS YEARS.

*CONCENTRATION, GROUND LEVEL + *SOURCE, AREA + *SULFUR DIOXIDE + ATMOSPHERIC POLLUTION + UNITED KINGDOM

16-24230

ATMOSPHERIC BURNUP OF A PLUTONIUM-238 GENERATOR
AEC. HEALTH AND SAFETY LABORATORY
3 PAGES, 3 FIGURES, 7 REFERENCES, SCIENCE 158(3802), PAGE 769-771, (1967)

THE STRATOSPHERIC INVENTORY OF THE PLUTONIUM-238 RESULTING FROM THE DISINTEGRATION OF A NUCLEAR AUXILIARY POWER GENERATOR (SNAP-9A) IN EARLY 1966 ACCOUNTS FOR NEARLY ALL THE PLUTONIUM PRESENT IN THE ORIGINAL GENERATOR THAT REENTERED THE ATMOSPHERE. CONSEQUENTLY, THE PYROPHORIC PU-238 MUST HAVE COMPLETELY BURNED UP DURING REENTRY AND ABLATED INTO SMALL PARTICLES. THE ARITHMETIC MEAN OF THE DISTRIBUTION OF THE PU-238 PARTICLE SIZE WAS ESTIMATED TO BE 10 MILLIMICRONS, WHICH CONFIRMS THIS CONCLUSION.

*ATMOSPHERIC DIFFUSION, GLOBAL + *REENTRY, ATMOSPHERIC + *SNAP 9 (SR) + AEROSOL, RADIOACTIVE + PLUTONIUM + REACTOR, SPACE + STRATOSPHERE

16-24338

ELDERKIN CE
MEASUREMENTS OF TURBULENCE IN THE LOWER ATMOSPHERE
BATTELLE-NORTHWEST LAB., RICHLAND, WASH.
BNWL-SA-1541 + CONF-671205-3 +. 21 PAGES, DECEMBER 4, 1967, FROM SYMPOSIUM ON THEORY AND MEASUREMENT OF ATMOSPHERIC TURBULENCE AND DIFFUSION IN THE PLANETARY BOUNDARY LAYER, ALBUQUERQUE, N. MEX.

MEASUREMENTS OF TURBULENCE IN THE THREE COMPONENTS OF THE WIND WERE MADE AT SEVERAL HEIGHTS UP TO 87 METERS, IN NEUTRAL, UNSTABLE, AND STABLE CONDITIONS, AND IN A VARIETY OF WIND SPEEDS. THE DATA WERE COMPARED WITH EXPECTATION FROM SIMILARITY THEORY. SIMILARITY OF THE POWER-SPECTRAL DISTRIBUTIONS WAS OBSERVED MOST NOTICEABLY FOR THE VERTICAL COMPONENT, REASONABLY WELL IN THE LONGITUDINAL COMPONENT, AND LEAST CLEARLY FOR THE LATERAL.

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

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-24338 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*TURBULENCE, CONVECTIVE + *TURBULENCE, MECHANICAL + *WIND PROFILE + ATMOSPHERIC STABILITY +
COMPARISON, THEORY AND EXPERIENCE + HANFORD SITE + STATISTICAL CORRELATION

16-24339
CROCKER GR
THE FORMATION, DISTRIBUTION, AND CHARACTERISTICS OF RADIOACTIVE FALLOUT
NAVAL RADIOLOGICAL DEFENSE LAB, SAN FRANCISCO, CALIF.
2 PAGES, J. AIR POLLUT. CONTROL ASS., 17, PAGES 578-579 (SEPT. 1967)

THE WORK OF THE U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY IN STUDYING THE FORMATION,
DISTRIBUTION, AND CHARACTERISTICS OF RADIOACTIVE FALLOUT FROM NUCLEAR EXPLOSIONS IS BRIEFLY
OUTLINED.

*FALLOUT + *PARTICLE SIZE DISTRIBUTION + AEROSOL, RADIOACTIVE + COMPARISON, THEORY AND EXPERIENCE +
NUCLEAR EXPLOSION DEBRIS + RADIOCHEMICAL ANALYSIS

16-24340
PEIRSON DH + CAMBRAY RS
INTERHEMISPHERIC TRANSFER OF DEBRIS FROM NUCLEAR EXPLOSIONS USING A SIMPLE ATMOSPHERIC MODEL
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENG.
4 PAGES, NATURE (LONDON), 216, PAGES 755-758 (NOV. 25, 1967)

USING A SIMPLE ATMOSPHERIC MODEL, EXPRESSIONS FOR THE RESERVOIRS OF FISSION PRODUCTS IN THE
ATMOSPHERE FROM THE 1961-62 NUCLEAR EXPLOSIONS ARE FOUND. ESTIMATES OF THE RATE OF
INTERHEMISPHERIC TRANSFER AND THE RATIO OF NORTHERN AND SOUTHERN RESERVOIRS ARE COMPUTED FROM
OBSERVED VALUES OF THE FISSION PRODUCTS.

*ATMOSPHERIC CIRCULATION, GLOBAL + *MODEL TESTING + *TRACER, RADIOACTIVE + NUCLEAR EXPLOSION DEBRIS +
STRATOSPHERE + TRANSPORT THEORY

16-24341
HICKS BB
CONCENTRATIONS OF BE-7 OVER AUSTRALIA DURING 1965
CSIRO, VICTORIA, AUSTRALIA
2 PAGES, NATURE (LONDON), 216, PAGES 250-251 (OCT. 21, 1967)

DURING 1965 A STUDY WAS MADE OF THE TROPOSPHERIC AND STRATOSPHERIC CONCENTRATIONS OF BE-7,
WHICH IS A RADIOISOTOPE PRODUCED BY COSMIC RAYS. AIR FILTERS WERE EXPOSED AT ALTITUDES
BETWEEN 5 AND 30 KM, AND ANALYSIS WAS BY GAMMA SPECTROMETRY. THE FOUR MEANS PLOTTED ARE
ABOUT TWICE THE EXPECTED VALUES. ON THE BASIS OF A DIFFUSION MODEL, THE LARGE CONCENTRATIONS
OF BE-7 OBSERVED IN THE LOWER STRATOSPHERE CAN BE EXPLAINED ONLY BY STRONGER MIXING POLEWARD
OF 42 DEGREES SOUTH.

*BERYLLIUM + *SAMPLING, HIGH ALTITUDE + ATMOSPHERIC DIFFUSION, GLOBAL + AUSTRALIA +
COMPARISON, THEORY AND EXPERIENCE + COSMIC RADIATION + STRATOSPHERE

16-24342
TER HAAR GL + HOLTZMAN RB + LUCAS HF
LEAD AND LEAD-210 IN RAINWATER
ARGONNE NATIONAL LAB., ILL.
2 PAGES, NATURE (LONDON), 216, PAGES 353-354 (OCT. 28, 1967)

STUDIES WERE MADE TO EVALUATE THE RELATIONSHIP BETWEEN STABLE PB AND PB-210 IN THE ATMOSPHERE.
RAINWATER WAS SELECTED AS THE MEDIUM FOR STUDY. THE DATA SHOW THAT THERE IS GOOD MIXING OF
STABLE PB AND PB-210 IN THE ATMOSPHERE AND THAT PB-210 IS A VALID TRACER FOR STUDIES OF
RESIDENCE TIME OF STABLE PB IN RAINWATER AND PERHAPS IN HIGHER-ALTITUDE AIR. A MEAN
RESIDENCE TIME OF ABOUT 1 MONTH FOR STABLE PB IS INDICATED.

*LEAD + *PRECIPITATION + *RADIOCHEMICAL ANALYSIS + ANAL + SAMPLING

16-24389
SISEFSKY J
STUDIES OF DEBRIS PARTICLES FROM THE FOURTH AND FIFTH CHINESE NUCLEAR TESTS
FORSVARETS FORSKNINGSANSTALT, STOCKHOLM, SWEDEN
FOA-4-4327-28 +. 8 PAGES, NOVEMBER 1967

DESCRIBES THE THERMODYNAMIC PROCESSES, STARTING FROM A POINT CORRESPONDING TO A MEAN CLOUD
TEMPERATURE OF ABOUT 1000 TO 1500 K. THE FACTORS TAKEN INTO ACCOUNT ARE RADIATION, ADIABATIC
COOLING, AND ENTRAINMENT FROM THE AMBIENT AIR. THE RESULTS ARE DERIVED FOR CONSTANT HEIGHT
INTERVALS BY MEANS OF NUMERICAL DATA PROCESSING APPLIED TO THE BASIC DIFFERENTIAL EQUATIONS.
THE PROGRAM PERMITS VARIATION OF THE INITIAL AND METEOROLOGICAL DATA.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-24389 *CONTINUED*
AVAILABILITY - AEC DEPOSITORY LIBRARIES, IN THE US AND OVERSEAS

*BUOYANT RISE + *COMPUTER PROGRAM, METEOROLOGICAL + *NUCLEAR DETONATION + AIRBURST +
RADIOACTIVITY RELEASE + THEORETICAL INVESTIGATION

16-24390
DICKSON CR + START GE + MARKEE EH + RICHTER AP + KEARNS J
METEOROLOGY FOR THE LOSS OF FLUID TEST REACTOR. 2ND PROGRESS REPORT, JANUARY 1966-JANUARY 1967
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION, IDAHO FALLS, IDAHO
IDO-12059 +. 55 PAGES, JULY 1967

THIS PROGRESS REPORT CONSISTS MAINLY OF THREE SECTIONS - (1) THE REVALUATION OF LOFT
METEOROLOGY, (2) THE EVALUATION OF PRACTICE FIVE-DAY FORECASTS OF GO-VERSUS-NO-GO CONDITIONS
AT LOFT, AND (3) SMOKE-PLUME PHOTOGRAPHIC TECHNIQUES UNDER NIGHTTIME INVERSION CONDITIONS.

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

*NRTS + *SITE CLIMATOLOGY + CONCENTRATION, GROUND LEVEL + CONTROL, METEOROLOGICAL + FORECAST +
PLUME, SMOKE, PHOTOGRAPHY

16-24613
OBSERVED RADIOACTIVITY IN AIRBORNE DUSTS COLLECTED BY THE DUST COLLECTOR (TABLE 4, APRIL-JUNE 1966)
JAPAN METEOROLOGICAL AGENCY, TOKYO
18 PAGES, TAIKI HOSHANO KANSOKU SEISEKI, 45, PAGES 45-63 (MAR. 1967) IN JAPANESE

THE MEASURED VALUES OF RADIOACTIVITY IN AIRBORNE DUSTS IN CPM/10 CU. METERS, FOR THE PERIOD
FROM APRIL TO JUNE 1966, ARE SHOWN, WHICH WERE OBTAINED AT SAPPORO, SENDAI, TOKYO, OSAKA AND
FUKUOKA.

*MEASUREMENT, REACTIVITY + *PARTICLE, RADIOACTIVE + JAPAN + RADIOCHEMICAL ANALYSIS + SAMPLING +
STATISTICAL ANALYSIS

16-24614
MEASUREMENTS OF TEMPORARY STANDARD SAMPLE (U308) AT EACH STATION (TABLE 1 APRIL-JUNE 1966).
JAPAN METEOROLOGICAL AGENCY, TOKYO
4 PAGES, TAIKI HOSHANO KANSOKU SEISEKI, 45, PAGES 1-4 (MAR. 1967) IN JAPANESE

THE MEASURED VALUES OF U308 IN CPM/DAY AND ITS MONTHLY PER-DAY MEAN DURING THE PERIOD OF APRIL
TO JUNE 1966, OBTAINED AT EACH STATION OF THE FOLLOWING LOCATIONS ARE GIVEN - WAKKANAI,
SAPPORO, KUSHIRO, SENDAI, AKITA, TOKYO, HACHIO-JIMA, WAJIMA, OSAKA, YONAGO, MURATOMISAKI,
AND FUKUOKA. THE MONTHLY PER-DAY MEAN VALUES FOR APRIL, MAY AND JUNE FOR THESE STATIONS ARE
GIVEN.

*AEROSOL, RADIOACTIVE + JAPAN + MEASUREMENT, GENERAL + STATISTICAL ANALYSIS

16-24615
SUMMARY OF MEAN RADIOACTIVITY IN RAIN COLLECTED AT FIXED TIME DAILY (TABLE 2, APRIL-JUNE 1966)
JAPAN METEOROLOGICAL AGENCY-TOKYO
5 PAGES, TAIKI HOSHANO KANSOKU SEISEKI, 45, PAGES 5-9 (MAR. 1967) IN JAPANESE

THE MEAN VALUES OF RADIOACTIVITY IN RAIN WATER IN MICRO-MICROCURIES AT 6 AND 72 HOURS AFTER
THE STARTING POINT, FOR THE RESPECTIVE DAYS OF THE PERIOD FROM APRIL TO JUNE 1966, ARE SHOWN,
WHICH WERE OBTAINED AT WAKKANAI, SAPPORO, KUSHIRO, SENDAI, AKITA, TOKYO, HACHIO-JIMA,
WAJIMA, OSAKA, YONAGO, MURATOMISAKI, FUKUOKA, AND KAGOSHIMA. THE MAXIMUM VALUES FOR 6 AND 72
HOURS ARE 0.2 AND 0.1 MICRO-MICROCURIES RESPECTIVELY, FOR APRIL, 6.0 AND 2.3 FOR MAY, AND 1.2
AND 1.0 FOR JUNE. THE AMOUNTS OF PRECIPITATION IN MM IN THE PRECEDING 24 HOURS ARE ALSO
SHOWN.

*MEASUREMENT, REACTIVITY + *PRECIPITATION + JAPAN + RAINOUT + SAMPLING + WASHOUT

16-24617
MALAKHOV SG + BAKULIN VN
INFLUENCE OF THE VARIATIONS IN THE EXHALATION OF RADON AND THORON ON THE CONCENTRATION CHANGES OF THESE
EMANATIONS AND OF THEIR DECAY PRODUCTS IN THE ATMOSPHERE
INST. OF APPLIED GEOPHYSICS, MOSCOW
7 PAGES, IZV. AKADE. NAUK SSSR, FIZ. ATMOS. OKEANA, 3, PAGES 773-9 (JULY 1967) IN RUSSIAN

ATTEMPTED TO DETERMINE THE EFFECT OF VARIATIONS OF RADON AND THORON EMANATIONS AS A FUNCTION
OF TIME ON CONCENTRATION CHANGES IN THE ATMOSPHERE. THE DIFFUSION EQUATION WAS SOLVED, USING
THE COSINE OF THE DAILY VARIATIONS OF THE EXHALATION AS THE BOUNDARY CONDITION. REVEALED A
STRONG PERTURBATION IN THE RADIOACTIVE EQUILIBRIUM BETWEEN RADON AND ITS DECAY PRODUCTS IN
THE LAYER NEAR THE GROUND. THIS IS NOT DUE TO VARIATIONS IN THE EXHALATION BUT TO THE FLUX
OF SHORT-LIVED DECAY PRODUCTS OF THE EMANATION NEAR THE SURFACE.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-24617 *CONTINUED*

*DIFFUSION COEFFICIENT + *TRACER, RADIOACTIVE + MATHEMATICAL TREATMENT + RADON + SOURCE, GROUND LEVEL + THORON + USSR

16-24618

GANDINO C

CORRELATIONS BETWEEN THE VERTICAL THERMAL GRADIENTS AND THE SOLAR RADIATION FOR THE CONTROL OF THE ATMOSPHERIC POLLUTION AT ISPRA.

CCR-EURATOM, ISPRA, ITALY

6 PAGES, ING. NUCL. 7, (3-6), PAGES 1-6 (MAY-DEC. 1966) IN ITALIAN

THE FAVORABLE CLIMATE AT ISPRA IN RESPECT TO SUNSHINE CAN BE CONCLUDED FROM COMPARISON WITH OTHER STATIONS. THE VERTICAL THERMAL GRADIENTS, MEASURED FOR THE RADIOACTIVE AIR POLLUTION CONTROL WITH THE METEOROLOGICAL TOWER OF ISPRA, ARE COMPARED WITH THE HOURLY SOLAR RADIATION. ALSO TWO CORRELATIONS BETWEEN PASQUILL'S CATEGORIES AND HOURLY SOLAR RADIATION ARE MADE.

*ATMOSPHERIC STABILITY + *DIFFUSION + *SITE CLIMATOLOGY + ITALY + STATISTICAL CORRELATION

16-24619

PIATKOWSKI A

EVALUATION OF THE METHODS FOR DETERMINING THE RADIOACTIVE POLLUTION OF THE ATMOSPHERE BASED ON VARIOUS FILTRATION TECHNIQUES

WARSAW POLYTECHNIC INST.

THESIS, 1965, IN POLISH

A DISCUSSION OF THE GENERAL STATE OF RESEARCH IN THE FIELD OF RADIOACTIVE ATMOSPHERIC POLLUTION AND THE PHYSICAL ASPECTS OF FILTRATION THROUGH FILTER PAPER IS PRESENTED.

*ATMOSPHERIC POLLUTION + *INSTRUMENTATION, AIR SAMPLING + AEROSOL, RADIOACTIVE + FILTER CHARACTERISTICS + POLAND

16-25048

BARRY PJ + MUNN RE

USE OF RADIOACTIVE TRACERS IN STUDYING MASS TRANSFER IN THE ATMOSPHERIC BOUNDARY LAYER.

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, ONTARIO, CANADA

4 PAGES, 3 TABLES, 1 FIGURE, REFERENCES, PHYS. FLUIDS, SUPPL. S263-6 (1967)

CERTAIN NATURAL SURFACES SUCH AS SNOW ACT AS ALMOST PERFECT SINKS FOR SOME RADIOACTIVE GASES. EXPERIMENTS IN WHICH TRACERS OF DIFFERING MOLECULAR DIFFUSIVITIES ARE RELEASED SIMULTANEOUSLY, THEREFORE, PERMIT INFERENCES TO BE DRAWN ABOUT THE IMPORTANCE OF THE LOWEST FEW MILLIMETERS OF THE ATMOSPHERE IN REGULATING VERTICAL FLUXES. THE RESULTS OF SOME TRACER FIELD EXPERIMENTS AT CHALK RIVER, CANADA, ARE DESCRIBED, AND THE IMPLICATIONS ARE DISCUSSED.

CANADA + EXPERIMENT, GENERAL + IODINE + MICROMETEOROLOGY + SNOW + TRACER, RADIOACTIVE

16-25050

HINDS WT + NICKOLA PW

THE MOUNTAIN IRON DIFFUSION PROGRAM--PHASE I. SOUTH VANDENBERG. VOLUME 1

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-572(VOL.1) + AFWTR-TR-67-1 +. 220 PAGES, FIGURES, TABLES, NOVEMBER 1967

FIELD DIFFUSION EXPERIMENTS WERE CONDUCTED AT VANDENBURG AIR FORCE BASE, CALIFORNIA, DURING 1965 AND 1968. THE ONLY POLLUTANT SOURCE CHARACTER STUDIED WAS TOXIC PROPELLANT MATERIALS RELEASED CONTINUOUSLY FROM GROUND-LEVEL POOLS. VOLUME 1 OF THIS REPORT CONTAINS THE OPERATIONAL APPLICATIONS AND LIMITATIONS OF THE EQUATIONS AND OTHER RESULTS OBTAINED. THE APPENDICES COVER PLUME PATTERNS, MONTHLY AVERAGE SURFACE WINDS, AND MOST PROBABLE WIND PATTERNS OF MID-SEASON MONTHS FOR DAY AND NIGHT CONDITIONS.

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

*CONCENTRATION, GROUND LEVEL + *SOURCE, GROUND LEVEL + ATMOSPHERIC DIFFUSION EXPERIMENT + COMPARISON, THEORY AND EXPERIENCE + PLUME BEHAVIOR, GENERAL + SITE CLIMATOLOGY + WIND STATISTICS

16-25051

ALSO IN CATEGORY 14

CAMBRAY RS + FISHER EM + BROOKS WL + PEIRSON DH

RADIOACTIVE FALLOUT IN AIR AND RAIN. RESULTS TO THE MIDDLE OF 1967

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND

AERE-R-5575 +. 49 PAGES, TABLES, FIGURES, NOV. 1967

SAMPLES OF ATMOSPHERIC DUST AND RAINWATER HAVE BEEN COLLECTED FROM THE UNITED KINGDOM AND ELSEWHERE. RESULTS ARE PRESENTED OF THE ANALYSES OF THESE SAMPLES FOR VARIOUS FISSION PRODUCTS AND CERTAIN OTHER RADIONUCLIDES.

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

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-25051 *CONTINUED*
\$3.00 COPY, \$0.65 MICROFICHE

*FALLOUT + *PRECIPITATION + *SAMPLING + AEROSOL, RADIOACTIVE + NUCLEAR EXPLOSION DEBRIS +
RADIOCHEMICAL ANALYSIS

16-25166
FALLOUT FROM THE CHINESE NUCLEAR EXPLOSION OF 17 JUNE 1967
UNIV. OF ARKANSAS
2 PAGES, 1 FIGURE, 1 TABLE, 8 REFERENCES, SCIENCE, 158(3808), PAGE 1692 AND 1693, (DECEMBER 1967)

LOW-LEVEL ACTIVITIES OF I-131, BA-140, AND SR-90 WERE FOUND IN A SERIES OF RAIN SAMPLES
COLLECTED AT FAYETTEVILLE, ARKANSAS, DURING THE PERIOD FROM LATE JUNE THROUGH AUGUST 1967.
THE RATIOS OF THESE SHORT-LIVED ISOTOPES TO SR-90 WERE DETERMINED AS ACCURATELY AS POSSIBLE.
THE DATA INDICATE THAT THE DEBRIS FROM THE CHINESE NUCLEAR EXPLOSION WAS INJECTED PRIMARILY
INTO THE STRATOSPHERE.

*AEROSOL, RADIOACTIVE + *PRECIPITATION + *RADIOCHEMICAL ANALYSIS + ATMOSPHERIC CIRCULATION, GLOBAL +
FALLOUT + NUCLEAR EXPLOSION DEBRIS + STRATOSPHERE

16-25167
NATIONAL SURVEY ANNUAL SUMMARY TABLE 1, FOR THE YEAR ENDED MARCH, 1966. THE INVESTIGATION OF AIR POLLUTION
GREAT BRITAIN, MINISTRY OF TECHNOLOGY, WARREN SPRING LAB.
221 PAGES, MARCH 1966

SUMMARY OF THE MONTHLY 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 TO SMOKE RATIO.

AVAILABILITY - THE DIRECTOR, WARREN SPRING LABORATORY, STEVENAGE, HERTFORDSHIRE

ATMOSPHERIC POLLUTION + CONCENTRATION, AREA + MEASUREMENT, GENERAL + SMOKE + SULFUR DIOXIDE +
UNITED KINGDOM

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-09120 ALSO IN CATEGORY 11
HADDAM NECK STEAM LINE ISOLATION VALVE FAILURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
2 PAGES, JANUARY 24, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ON JAN. 12, 1968, THE TURBINE STOP VALVES WERE TESTED AT REDUCED LOAD. ONE WOULD CLOSE ONLY PARTIALLY AND THE OTHER NOT AT ALL. THE PLANT WAS TRIPPED OFF LINE, AND MANUAL CLOSURE OF THE STEAM-LINE-ISOLATION VALVES INITIATED. TWO FAILED TO CLOSE BECAUSE INCOMPATIBILITY BETWEEN THE VALVE-STEM MATERIAL AND THE PACKING RESULTED IN CORROSION OF THE VALVE STEM AND SUBSEQUENT BINDING. ALL FOUR VALVES WERE REPACKED WITH MATERIAL SUGGESTED BY CRANE CO. VALVE MODIFICATION TO ALLOW ON-LINE TESTING MAY BE POSSIBLE.

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

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + HADDAM NECK (PWR) + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON LINE + TEST, PROOF

17-17175
BURSEY RJ
REACTOR PERSONNEL TRAINING STUDY. REPORT ON PROJECT MFC-10
DOUGLAS UNITED NUCLEAR, INC., RICHLAND, WASHINGTON
DUN-1617 +. 63 PAGES, 2 FIGURES, 1 TABLE, JUNE, 1967

STUDY FOR AEC INDICATES NEED FOR TRAINING 3100 OPERATORS AND SUPERVISORS (AND 1700 MANAGEMENT ORIENTATIONS) IN 1967-77 FOR POWER REACTORS. MANY UTILITIES WOULD USE OUTSIDE ASSISTANCE, AND AN INDEPENDENT TRAINING FACILITY HAS MERIT. UNIVERSITIES ARE BEGINNING TO PROVIDE SPECIAL ORIENTATION FOR TRAINEE. STANDARDIZATION OF FUNDAMENTAL TRAINING MATERIAL IS NEEDED. 50-MW REACTOR IS NEEDED FOR OPERATION WITH TEMPERATURE POWER, AND XENON EFFECTS. QUESTIONNAIRE AND ANSWERS ARE APPENDED, AS ARE CURRICULUM OUTLINE FOR LECTURES, OUTLINES FOR NUCLEAR EDUCATIONAL PROGRAM, AND TRAINING SCHEDULES FOR 2 POWER PLANTS.

AVAILABILITY - R.J. BURSEY, DOUGLAS UNITED NUCLEAR INC., RICHLAND, WASHINGTON

*STAFFING, TRAINING, QUALIFICATION + REACTOR, POWER

17-19794 ALSO IN CATEGORY 11
HAYES DW
PRTR CONTAINMENT VESSEL LEAK RATE TEST EXPERIENCE
BATTELLE-NORTHWEST LABORATORY
BNWL-504 +. 26 PAGES, 2 FIGURES, 3 TABLES, 8 REFERENCES, AUGUST 1967

THE LEAK RATE OF THE PLUTONIUM RECYCLE TEST REACTOR CONTAINMENT STRUCTURE WAS MEASURED, USING THE REFERENCE-VOLUME METHOD, DURING THE WEEK OF NOVEMBER 7, 1966. THE MEASUREMENT WAS MADE WITH THE CONTAINMENT SYSTEM IN AN AS-IS CONDITION AT A VESSEL PRESSURE OF 10 PSIG. THE ACCURACY OF THE RESULTS WAS VERIFIED BY SUPERIMPOSING A KNOWN LEAK RATE OF 0.88%/DAY ON THE EXISTING VESSEL LEAK RATE. THE MEASURED LEAK RATE INCREASED FROM 0.40% TO 1.19%/DAY, GIVING A 0.79% INCREASE, VERSUS AN EXPECTED 1.28% OR 0.88% INCREASE. THE FINAL VESSEL LEAKAGE RATE WAS 0.43 PLUS OR MINUS 0.026%/DAY, COMPARED WITH AN ALLOWABLE OPERATIONAL LEAK RATE OF 0.678%/DAY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT REFERENCE MEASURING SYSTEM + *PRTR (TR) + *TEST, LEAK RATE + CONTAINMENT INSTRUMENTATION + CONTAINMENT PENETRATION, GENERAL + CONTAINMENT SPRAY + CONTAINMENT, HIGH PRESSURE + STATISTICAL ANALYSIS + TEST, LEAK LOCATION

17-19798
LARSON, HJ
UPRATING THE POWER OF THE GENERAL ELECTRIC TEST REACTOR
GENERAL ELECTRIC, PLEASANTON, CALIFORNIA
19 PAGES, 11 FIGURES, 3 REFERENCES, AMERICAN NUCLEAR SOCIETY TRANSACTIONS, 10(1), PAGES 326-345 (JUNE 15, 1967)

DESCRIBES UPRATING FROM 33 MWTH TO 50. THERMAL FLUX OF 5×10^{14} (14TH) WAS OBTAINED. COST EXCEEDED ONE-QUARTER MILLION DOLLARS. SYSTEM MODIFICATIONS TO CONFORM WITH PRESENT SAFETY PRACTICES INCLUDED ADDITION OF REDUNDANT ISOLATION VALVES, INSTALLATION OF A LIQUID-MANOMETER-TYPE BUILDING-VACUUM-RELIEF SYSTEM, MORE FREQUENT LEAK TESTS OF CONTAINMENT PENETRATIONS AND ANNUAL BUILDING TESTS IN THE AS-IS CONDITION, INSTALLATION OF A SYSTEM TO RETURN WATER TO POOL LOST BY PIPE RUPTURE, ADDITION OF A GONC3 SHUTDOWN SYSTEM, AND PROVIDING INSTRUMENT-CIRCUIT TESTABILITY. ADAPTATION OF EXPERIMENTS DISCUSSED.

*MODIFICATION, SYSTEM OR EQUIPMENT + *POWER UPRATING + ACCIDENT, LOSS OF COOLANT + CONTAINMENT PENETRATION, CLOSURE OF + CONTAINMENT VACUUM BREAKER + EXPERIMENT, GENERAL + GETR (TR) + INSTRUMENTATION, TESTING + OPERATING EXPERIENCE + REACTOR, TEST + REDUNDANCE + SHUTDOWN SYSTEM, SECONDARY + TEST INTERVAL + TEST, LEAK RATE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-21915 ALSO IN CATEGORY 9
UNIVERSITY OF MICHIGAN AMENDMENT 18--CONTROL ROD INSPECTION SHIELDING
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
7 PAGES, DOCKET 50 2, DECEMBER 26, 1967

TO ALLOW AN OPERATING CYCLE OF 32 DAYS AT 2 MW CHANGES THE INSPECTION INTERVAL FROM EVERY 6 MONTHS OR 50 MWD TO EVERY 6 MONTHS (WITH EXPOSURE LESS THAN 1.7×10^{20}) OR TO WHICHEVER OF THE FOLLOWING COMES FIRST - 6 MONTHS OR 65 MWD (WITH GREATER EXPOSURES). ***EXPOSURE CRITERIA BASED ON ELK RIVER AND PATHFINDER CRACKING AT THIS LEVEL.

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

*CONTROL ROD + *CONTROL ROD BURNUP + *EXAMINATION + BORON + RADIATION DAMAGE + REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + STEEL, STAINLESS + TECHNICAL SPECIFICATIONS

17-21968 ALSO IN CATEGORY 1
AEC TESTIMONY TO JCAE ON FERMI MELTDOWN CAUSE
ATOMIC ENERGY COMMISSION, US
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(7), PAGE 46 (FEBRUARY 12, 1968)

ACCORDING TO MILTON SHAW, THE FLOW-BLOCKING OBJECT WAS A PIECE OF A CONICAL FLOW GUIDE WHICH HAD VIBRATED LOOSE. REP. HOSMER NOTED THAT THE DESIGNER IN 1959 COVERED THE VESSEL BOTTOM WITH ZIRCONIUM SHEET, AND SAID PADA HAD RECEIVED A MEMO INDICATING IT WAS EASIER TO PUT ZIRCONIUM SHROUDS OVER THE CORE THAN TO JUSTIFY NOT PUTTING IT IN TO THE ACRS. SHAW OBSERVED IT WAS A LAST-MINUTE DECISION HURRIEDLY MADE, NOT SHOWN IN THE FINAL CONSTRUCTION DRAWINGS. HOSMER ASKED IF ACRS HAD PEOPLE SO FRIGHTENED. SHAW REPLIED, NO, AND THIS WAS NOT AN EXCUSE NOT TO DO A THOROUGH ENGINEERING JOB.

*FLOW BLOCKAGE + *FUEL MELTDOWN + *QUALITY CONTROL + ACRS + CONGRESSIONAL ACTIVITY + FERMI (LMFBR) + REACTOR, FAST + REACTOR, LMCR

17-22578 ALSO IN CATEGORIES 12 AND 9
YANKEE REVIEW OF EMERGENCY CORE COOLING
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
2 PAGES, JANUARY 12, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ONE PHASE OF THE RE-EVALUATION OF A YANKEE PRIMARY-COOLANT-SYSTEM RUPTURE, BEGUN IN 1967, RESULTED IN THE INTENTION TO (1,2) INSTALL A SECOND LOW-PRESSURE INSTRUMENT SO THAT EITHER WILL INITIATE SAFETY INJECTION, (3) DYE-PENETRANT INSPECT THE 12-IN.-LONG PIPE BETWEEN COOLANT LOOP AND SAFETY-INJECTION ISOLATION VALVE, (4) INSTALL A NEW CHECK VALVE IN THE 2-IN. CHARGING LINE. ***OTHER MODIFICATIONS ARE BEING CONSIDERED AND WILL BE SUBMITTED IN MARCH 1968.

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

*CORE REFLOODING SYSTEM + *MODIFICATION, SYSTEM OR EQUIPMENT + EXAMINATION + INSTRUMENTATION, PRESSURE + PIPING + PLANT PROTECTIVE SYSTEM + REACTOR, PWR + REDUNDANCE + VALVE + YANKEE (PWR)

17-23142 ALSO IN CATEGORY 11
HADCAM NECK STEAM LINE ISOLATION VALVE FAILURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
2 PAGES, JANUARY 24, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST, AE--STONE + WEBSTER

ON JAN. 12, 1968, THE TURBINE STOP VALVES WERE TESTED AT REDUCED LOAD. ONE WOULD ONLY PARTIALLY CLOSE AND THE OTHER NOT AT ALL. THE PLANT WAS TRIPPED OFF LINE, AND MANUAL CLOSURE OF THE STEAM-LINE-ISOLATION VALVES INITIATED. TWO FAILED TO CLOSE BECAUSE INCOMPATIBILITY BETWEEN THE VALVE-STEM MATERIAL AND THE PACKING MATERIAL RESULTED IN CORROSION OF THE VALVE STEM AND SUBSEQUENT BINDING. ALL FOUR VALVES WERE REPACKED WITH MATERIAL SUGGESTED BY CRANE CO. VALVE MODIFICATION TO ALLOW ON-LINE TESTING MAY BE POSSIBLE.

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

*CONTAINMENT PENETRATION, CLOSURE OF + *FAILURE, EQUIPMENT + HADCAM NECK (PWR) + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON LINE + TEST, PROOF

17-23205
EXPERIMENTAL BERYLLIUM OXIDE REACTOR PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JUNE 30, 1966.
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF.
GA-7318 +. 23 PAGES, JULY 29, 1966

THIS REPORT IS ONE OF A SERIES OF REPORTS ON THE FOLLOWING TOPICS--(1) FUEL-PIN CYCLING TESTS, (2) METALLOGRAPHIC EXAMINATION OF CLADDING SPECIMENS, (3) TESTING OF THE TIPPING REFLECTOR PNEUMATIC ACTUATORS, (4) SCRAM-MOTOR MALFUNCTION DUE TO IMPROPER FIT OF GEARS AND MOTOR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23205 *CONTINUED*

HOUSING, (5) CHECKOUT OF FUEL-HANDLING TOOL, AND (6) STATUS OF CONSTRUCTION.

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

*EBOR (GCR) + FAILURE, SCRAM MECHANISM + FUEL INTEGRITY + REACTOR, BEO MODERATED + REACTOR, GCR

17-23292 ALSO IN CATEGORIES 9 AND 12

DRESDEN 1 PLANS TO INSTALL CONTROL ROD DRIVE THIMBLE SUPPORTS
COMMONWEALTH EDISON COMPANY

13 PAGES, TABLES, FIGURES, JANUARY 18, 1968, DOCKET 50-10, TYPE--BWR, MFG.--G.E., AE--BECHTEL

PROPOSED SUPPORTS ARE ANCHORED BY BOLTS WELDED TO THE THIMBLE GUIDE PLATE IN THE SPACES BETWEEN THIMBLES. THE SUPPORTS ARE SHAPED LIKE THE SPACE BETWEEN FOUR ADJACENT THIMBLES (I.E., LIKE A FOUR-POINTED STAR). EACH HOLDS PART OF FOUR THIMBLES, AND FOUR SUPPORTS HOLD A THIMBLE. EACH MUST BE TURNED 45 DEG TO REMOVE THE THIMBLE. A SETSCREW IN THE POINTS OF THE SUPPORT MAKE CONTACT WITH THE THIMBLES. DESIGN BASIS IS TO KEEP THIMBLE FROM MOVING MORE THAN 1/8 IN. IN CASE OF THIMBLE FAILURE.

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

*CONTROL ROD DRIVE + *SUPPORT STRUCTURE + ACCIDENT, CONTROL ROD EJECTION + DRESDEN 1 (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR

17-23373

ANNUAL REPORT, JULY 1, 1967, BROOKHAVEN NATIONAL LABORATORY
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK

BNL-50,057(AS-21) +. 227 PAGES, FIGURES, TABLES, NOVEMBER 1967

ANNUAL PROGRESS REPORT. TOPICS DISCUSSED ARE - PHYSICS, HIGH-ENERGY ACCELERATORS, INSTRUMENTATION, CHEMISTRY, NUCLEAR ENGINEERING, APPLIED MATHEMATICS, BIOLOGY, MEDICAL RESEARCH, AND SUPPORTING SERVICES.

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

*REVIEW + ACCELERATOR + BNL + INSTRUMENTATION, GENERAL + R AND D PROGRAM

17-23374

SAVAGE HC + COMPERE EL + BAKER JM + BOHLMANN EG
OPERATION OF MOLTEN-SALT CONVECTION LOOPS IN THE ORR
OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1960 +. 35 PAGES, 15 FIGURES, 5 TABLES, DECEMBER 1967

DESCRIBES OPERATION OF 2 IN-PILE LOOPS CONTAINING MOLTEN-FLUORIDE FUEL TO STUDY THE COMPATIBILITY OF THE SALT WITH GRAPHITE, HASTELLOY N, ALSO FUEL AND FISSION-PRODUCT CHEMISTRY. BOTH EXPERIMENTS WERE TERMINATED BECAUSE OF BREAKS IN THE PRIMARY LOOP SYSTEMS. THE FIRST DEVELOPED A LEAK IN THE COOLING JACKET AROUND THE GAS-SEPARATION TANK, WHICH CAUSED THE NICKEL SPRAY BONDING TO BREAK, RESULTING IN AN UNSUPPORTED SAMPLE LINE WHICH FAILED FROM EXCESSIVE MECHANICAL STRESSES. IN THE SECOND EXPERIMENT, A LEAK IN THE CORE OUTLET TUBE (HASTELLOY N) WAS CAUSED BY EXCESSIVE THERMAL STRESSES AND THERMAL SHOCK DUE TO SIX REACTOR SETBACKS. NO RESULTS GIVEN ON COMPATIBILITY STUDY.

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

*IN PILE LOOP + *OPERATION + FAILURE, PIPE + FLUORIDE + MOLTEN FUEL + ORR (RR) + REACTOR, RESEARCH + SALT + THERMAL MECHANICAL EFFECT + VIBRATION

17-23378

KAUTH JE
RADIOLOGY OVEREXPOSURES AT ST. FRANCIS HOSPITAL
ST. FRANCIS HOSPITAL, TULSA, OKLA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 38, (APRIL 8, 1968)

(LETTER, MAR. 7) THREE EXPOSURES IN 4TH QUARTER 1967 EXCEEDED 1.25 REMS - (1) 1.55 REMS (2) 1.436, (3) 2.727. ALL ARE LESS THAN 5 REMS FOR THE YEAR. *** THE WORKER WITH THE LARGEST DOSE HAS BEEN DOING ALL THE SPECIAL PROCEDURES BUT NOW IS CHIEF TECHNICIAN AND SHOULD HAVE NO FURTHER PROBLEM.

*RADIOLOGY + PERSONNEL EXPOSURE, RADIATION

17-23393
HAUTER RL

ALSO IN CATEGORY 14

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23393 *CONTINUED*

BIG ROCK POINT OPERATIONS REPORT MAY 1 THROUGH OCT. 31, 1966
CONSUMERS POWER CO., JACKSON, MICHIGAN
TID-23638 +. 16 PAGES, DECEMBER 20, 1966, DOCKET 50-155

A SERIES OF FEEDWATER-HEATER TUBE FAILURES AND FUEL FAILURES RESULTED IN OPERATION AT 35 MWE (WITH THE HP HEATER BYPASSED) TO STAY BELOW STACK-DISCHARGE LIMITS. ON AUG. 8, LOAD REJECTION TOGETHER WITH IMPROPERLY BRAZED PILOT VALVES CAUSED TURBINE BYPASS VALVES TO OPEN WHILE MAIN STEAM VALVE WAS CLOSING, BLOWING THE LP-TURBINE RUPTURE DISK. A COMBINATION OF FLUX TILTING AND DRY SIPPING LOCATED 11 LEAKY FUEL BUNDLES, WITH FOUR INCOLOY-800-CLAD BUNDLES HAVING LONG LONGITUDINAL SPLITS CONTRIBUTING TO MOST OF THE OFF-GAS.

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

*FAILURE, FUEL ELEMENT + *PERFORMANCE LIMIT + *SOURCE, CONTINUOUS + BIG ROCK POINT (BWR) + CONTAINMENT PENETRATION, CLOSURE OF + FAILURE, CLADDING + FAILURE, EQUIPMENT + FAILURE, TUBING + INCIDENT, EQUIPMENT + INCOLOY + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + OFF GAS + REACTOR POWER + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

17-23394

CVTR MONTHLY OPERATING REPORT NOV. 1966
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.
CVNA-271 +. 36 PAGES, NOVEMBER 1966

THE FAILED R-AND-D FUEL ELEMENT WAS REMOVED FROM B-3 AND REACTOR WAS STARTED UP ON NOV. 11. ON NOV. 21, POWER WAS LOWERED TO 85% AND CONTROL-ROD PATTERN WAS CHANGED TO PERFORM A PHYSICS TEST, THEN AN INCREASED COOLANT ACTIVITY WAS NOTED. POWER WAS LOWERED TO 67%, AND AFTER CLEANUP BY ION EXCHANGERS, EACH PRESSURE TUBE WAS MONITORED WHILE THE REACTOR POWER WAS RAISED 10%. INCREASED 8-R ACTIVITY INDICATED ANOTHER R-AND-D FUEL FAILURE. IN REMOVAL ACTIVITY, XE-133 GAS AFFECTED TRITIUM MONITORS. FOUR SCRAMS OCCURRED, THREE SPURIOUS.

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

*FAILURE, FUEL ELEMENT + CONTROL ROD PROGRAM + CVTR (PWR) + REACTOR, PWR + REPORT, OPERATIONS + SCRAM, SPURIOUS

17-23581

SAXTON CHANGE REQUEST 30 - TEST FUEL ASSEMBLIES XX AND XXI-CREEP TESTING
SAXTON NUCLEAR EXPERIMENTAL CORPORATION
5 PAGES, FEBRUARY 2, 1968, DOCKET NO. 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

FUEL ASSEMBLIES ARE TO TEST ZIRCALOY CREEP PROPERTIES. TESTS UNDER CHANGE 22 RESULTED IN UNEXPECTED 2% LOCAL DIAMETER CHANGES AFTER 4700 EFPH (RODS WERE INTERNALLY PRESSURIZED TO PRODUCE TENSILE STRESSES OF 22,000 PSI). ASSEMBLY XX - A 9-ROD SUBASSEMBLY CONSISTS OF 2 BURNABLE-POISON TEST RODS CONTAINING PYREX, 5 DUMMY FUEL RODS IN THE CORNERS AND CENTER, AND 2 INTERNALLY PRESSURIZED ZIRC-4 (23.5 MILS THICK) CLAD UO2 FUEL RODS WITH TENSILE STRESS - UP TO 22,000 PSI. ASSEMBLY XXI - 5 STANDARD FUEL RODS IN THE CORNERS AND CENTER, AND 4 INTERNALLY PRESSURIZED ZIRC-4 FUEL RODS.

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

CREEP + FUEL ELEMENT + IRRADIATION TESTING + REACTOR, PWR + REACTOR, TEST + SAXTON (PWR) + TECHNICAL SPECIFICATIONS + ZIRCALOY

17-23588

ALSO IN CATEGORY 6

STUART MR + SPHAR CD
DEPLETION ANALYSIS OF SHIPPINGPORT (PWR) CORE-1, SEEDS-1 AND 2 USING THE TNTC2 COMPUTER PROGRAM
WESTINGHOUSE ELECTRIC CORPORATION, BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.
WAPD-TM-637 +. 68 PAGES, 40 FIGURES, 13 TABLES, 17 REFERENCES, NOVEMBER, 1967

COVERS BURNUP CALCULATIONS ON CORE 1, SEEDS 1 AND 2, AND COMPARES RESULTS WITH ACTUAL ROD POSITIONS. DESCRIBES APPROXIMATIONS MADE (INCLUDING HOMOGENIZATION) AND VARIOUS PROGRAMS FOR OBTAINING BASIC DATA (CROSS SECTIONS, ETC.). RESULTS INDICATE A DISTINCT IMPROVEMENT IN (1) REACTIVITY VARIATION WITH LIFETIME, THE TOTAL VARIATION BEING 1.5% DELTA-K FOR 2 SEED LIFETIMES (VS 2.5% IN EARLIER STUDIES) (2) GROSS POWER DISTRIBUTION, AND (3) MATERIALS INVENTORY.

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

*COMPUTER PROGRAM + *FUEL BURNUP + ANALYTICAL MODEL + MATHEMATICAL TREATMENT + REACTOR, PWR + SHIPPINGPORT (PWR)

17-23740

MARSHALL RP
ANALYSIS OF FAILED 17-4 PH BOLTS FROM THE HWCTR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23740 *CONTINUED*

DU PONT DE NEMOURS AND COMPANY, SAVANNAH RIVER LABORATORY, AIKEN, S. C.
DP-1102 +. 20 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER, 1967

DURING INSPECTION OF INTERIOR OF REACTOR VESSEL IN FEB. 1964, FIVE BOLTS FROM THE GAS-STILLING BAFFLE WERE FOUND TO HAVE FAILED. ALL BOLTS WERE 17-4 PH STAINLESS STEEL. EXAMINATIONS SHOWED CAUSE WAS STRESS CORROSION (A THREAD LUBRICANT CONTAINING CHLORIDES HAD BEEN USED) ALONG WITH AN IMPROPER HEAT TREATMENT, RESULTING IN HARDER CONDITION CONDUCTIVE TO STRESS CORROSION. REACTOR OPERATED 276 DAYS BEFORE DISCOVERY. REPLACEMENT BOLTS OF INCONEL X AND AISI 4140 STEEL WERE SATISFACTORY FOR REMAINING 126 DAYS OF OPERATION.

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

*FAILURE, EQUIPMENT + *METAL + *STEEL, STAINLESS + *STRESS CORROSION + CHLORIDE + CORE COMPONENTS + FAILURE, FABRICATION ERROR + HEAT TREATMENT + HWCTR (TR) + LUBRICATION + REACTOR, TEST

17-23745 ALSO IN CATEGORY 11

GIBSON SP + EVANS W + WATSON RD
CHLORIDE STRESS CORROSION CRACKING IN THREADED 300 SERIES STAINLESS STEEL COMPONENTS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO). CHALK RIVER NUCLEAR LABS.
AECL-2878 + CONF-670522-3 +. 16 PAGES, 8 FIGURES, 1 TABLE, 3 REFERENCES, MAY 1967, PRESENTED AT INTERNATIONAL CONFERENCE ON WORLD REVIEW OF NUCLEAR REACTORS AND RADIOISOTOPES, MONTREAL, CANADA

DESCRIBES TWO COSTLY FAILURES DUE TO USE OF CHLORO-FLUORO ORGANICS AS LUBRICANTS ON INTERNALLY THREADED COMPONENTS OF 300-SERIES STAINLESS STEEL. A TYPE-316 STRAINER PLUG FAILED AFTER ONLY 100 HR AT 500 F AND 1000 PSIG. THREADS COULD BE BROKEN OFF BY HAND. A SPIRALLY WOUND GASKET AT THE PLUG SHOWED CRACKING. PLUG BODY WAS ALSO CRACKED. SIMILAR PLUGS TESTED UNDER THE SAME CONDITIONS ALSO SHOWED CRACKING. PLUGS TESTED WITH LOW-CHLORINE LUBRICANTS SHOWED NO CRACKING. SCREWED BONNETS OF SAME VALUES FAILED ALSO.

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

*CHLORIDE + *CORROSION + *LUBRICATION + *STEEL, STAINLESS + *STRESS CORROSION + CANADA + FAULT + IN PILE LOOP + MAIN COOLING SYSTEM + OPERATING EXPERIENCE + REPORT, OPERATIONS ANALYSIS + VALVE

17-23776

FERMI RADIATION EMERGENCY PROCEDURES
POWER REACTOR DEVELOPMENT COMPANY
25 PAGES, FIGURES, FEBRUARY 14, 1968, DOCKET 50-16, TYPE--LMFBR, MFG.--APDA, AE--COMMONWEALTH ASSOC.

(LETTER TO DRL) REPLIES TO DRL LETTER OF DEC. 29, 1967, WITH FEB. 1968 UPDATINGS OF THE INSTRUCTIONS TO BE FOLLOWED IN THE EVENT OF FIRE (2 PG), NOTIFICATION OF RADIATION INCIDENTS (5 PG), AND RADIATION EMERGENCY PROCEDURE - OPERATING PROCEDURE 704 (25 PG). THE LATTER IS 5 PG OF GENERAL INSTRUCTIONS, 11 PG OF SPECIFIC INSTRUCTION FOR 4 CLASSES OF EMERGENCIES, AND 8 PG OF APPENDICES.

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

*EMERGENCY PROCEDURE + FERMI (LMFBR) + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR

17-23777

HUGHES JH
DRESDEN 1 EMERGENCY PLAN
COMMONWEALTH EDISON COMPANY
LETTER TO DR. PETER A. MORRIS, DIVISION OF REACTOR LICENSING, USAEC, 25 PAGES, TABLES, JANUARY 31, 1968, DOCKET 50-10, TYPE--BWR, MFG.--G.E., AE--BECHTEL

(LETTER TO DRL) IN RESPONSE TO DRL LETTER OF DEC. 29, 1967, DRESDEN SUBMITS THEIR EMERGENCY PLAN, UPDATED EARLY IN DEC. TO REFLECT NAME AND PHONE-NUMBER CHANGES. ***CHAPTERS ARE - GENERAL (3 PG), INDIVIDUAL ACTION (3 PG), FIRE AND EXPLOSION (2 PG), CIVIL DISTURBANCE (1 PG), NUCLEAR RADIATION INCIDENT (2 PG), SITE EVACUATION PROCEDURE (2 PG), PROTECTION OF THE PUBLIC (3 PG), OFF-SITE MONITORING STATION - DIRECTIONS (5 PG), AND RECOVERY ACTION (1 PG).

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

*EMERGENCY PROCEDURE + DRESDEN 1 (BWR) + REACTOR, BWR

17-23778

WATZL EL
PATHFINDER EMERGENCY PLAN
NORTHERN STATES POWER COMPANY
LETTER TO DR. PETER A. MORRIS, DIVISION OF REACTOR LICENSING, USAEC, 36 PAGES, JANUARY 31, 1968, DOCKET 50-130, TYPE--BWR, MFG.--A.C., AE--PIONEER SERV.

(LETTER TO DRL) ENCLOSES PLAN DATED JAN. 8, 1967, WITH SECTIONS ON LOCAL EMERGENCY (3 PAGES), SITE EMERGENCY (3 PAGES), GENERAL EMERGENCY (3 PAGES), AND EMERGENCY RADIATION ALARMS,

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23778 *CONTINUED*
MEDICAL TREATMENT, AND EMERGENCY SUPPLIES (1 PAGE EACH). HOSPITAL ASSISTANCE PLAN DISCUSSES FIRST AID AND DECONTAMINATION AT THE HOSPITAL.

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

*EMERGENCY PROCEDURE + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT

17-23779

MITCHELL HB

CORRECTION TO LICENSE AMEND. 7 - CLAD OF TRANSIENT ROD

ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA, MARYLAND

LETTER TO DONALD J. SKOVOLT, DIVISION OF REACTOR LICENSING, USAEC, 2 PAGES, FEBRUARY 2, 1968, DOCKET 50-170

THE JAN. 25 REQUEST DESCRIBED A TRANSIENT ROD SIMILAR TO THE ORIGINAL EXCEPT THAT THE BORATED GRAPHITE WAS REDUCED FROM 5/16 TO 1/8 IN. THE CHANGE WAS REQUESTED BECAUSE THE STEEL-CLAD CORE WOULD REDUCE THE EXISTING ROD BELOW 1.9% DELTA K/K. AMEND. 7 (24 FEB. 65) DESCRIBED THE NEW ROD AS STAINLESS CLAD. THE CLADDING IS STILL 0.065 ALUMINUM. THE HAZARDS ANALYSIS IS BASED ON ALUMINUM CLADDING. ***THE DESCRIPTION (STAINLESS-STEEL CLAD) CAN BE CORRECTED TO READ ALUMINUM CLAD, AS THIS DOES NOT CONSTITUTE AN UNREVIEWED SAFETY QUESTION.

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

CLAD + CONTROL ROD + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + TRIGA (RR)

17-23867

ALSO IN CATEGORY 11

GRONWALL B + LJUNGBERG L + HUBNER W + STUART W

INTERCRYSTALLINE STRESS CORROSION CRACKING OF INCONEL 600 INSPECTION TUBES IN THE AGESEA REACTOR

AKTIEBOLAGET ATOMENERGI, STOCKHOLM, SWEDEN

8 PAGES, 7 FIGURES, 2 TABLES, 13 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 6(4) PAGE 383 THRU 390, (SEPT. 2, 1967)

IN 1964, INTERCRYSTALLINE STRESS-CORROSION CRACKING WAS OBSERVED IN THREE INSPECTION TUBES IN THE REACTOR VESSEL. THE CRACKS DEVELOPED ON THE OUTSIDE SURFACE WHICH WAS EXPOSED TO 217 C LIGHT WATER CONTAINING 1-4 PPM LIOH OR KOH AND ONLY SMALL AMOUNTS OF OXYGEN AND CHLORIDE, WHICH MAY HAVE ENRICHED IN CREVICES AT WHICH MOST OF THE CRACKING OCCURRED. OTHER FACTORS ARE TENSILE STRESSES OF THE ORDER OF THE 0.2% OFFSET Y.S., BUILT UP DURING SHOP WELDING, AND A RELATIVELY HIGH CARBON CONTENT (0.08%), CAUSING HEAVY PRECIPITATION OF CARBIDES. THE OBSERVATIONS AGREE WITH PREVIOUSLY PUBLISHED OBSERVATIONS. THE FAILURES ENCOUNTERED SHOW THAT INCONEL 600 UNDER CERTAIN CONDITIONS MAY BE SUSCEPTIBLE TO CRACKING IN ALKALINE HIGH-TEMPERATURE WATER. ALTHOUGH ATTEMPTS TO REPRODUCE THE FAILURE IN THE LAB HAVE NOT YET YIELDED CRACKS, IT REMAINS TO BE SHOWN WHETHER A SATISFACTORY PERFORMANCE OF INCONEL 600 CAN BE OBTAINED FOR LONG OPERATING PERIODS (SEE NSIC ABSTRACT 11962).

*FAULT + *INCONEL + *OPERATING EXPERIENCE + *STRESS CORROSION + AGESEA (PWR) + COOLANT CHEMISTRY + REACTOR, PWR + SWEDEN + TUBING

17-23875

ALSO IN CATEGORY 6

O-BOYLE MJ

SPECIAL ISOTOPES IN YANKEE CORE

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIVISION

WCAP-6085 +. 56 PAGES, 4 FIGURES, 7 TABLES, YANKEE CORE EVALUATION PROGRAM. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JUNE 30, 1967, OCTOBER 1967

(PG 350.1 THROUGH .14) 26 FUEL SAMPLES WHICH HAD BEEN IN VARIOUS YANKEE CORES WERE CHECKED FOR U, PU, NP, AM, CM ISOTOPIC CONTENT. ND-148 WAS ANALYSED AS AN ACCURATE FUEL BURNUP INDICATOR. A COMPUTER CODE BASED ON LASER WHO DEVELOPED TO PREDICT HEAVY-ELEMENT FORMATION. ITS CHECK AGAINST MEASURED CONCENTRATION WAS BEGUN. EXCEPT FOR COMPLETION OF THE MOVIE (INSIDE THE YANKEE CORE), THIS APPEARS TO BE ALL THAT WAS DONE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*FUEL BURNUP + *TRANSURANIUM PROGRAM + COMPUTER PROGRAM + R AND D PROGRAM + REACTOR, PWR + YANKEE (PWR)

17-23876

A SUMMARY OF INDUSTRIAL ACCIDENTS IN USAEC FACILITIES, 1956

AEC, DIVISION OF OPERATIONAL SAFETY, INDUSTRIAL SAFETY AND FIRE PROTECTION BRANCH, WASHINGTON, D. C.

TID-5360(SUPPL.1)(REV.) +. 21 PAGES, AUGUST 1967

A REPRINT OF THE ORIGINAL DOCUMENT, WITH THE FORMAT REVISED TO AGREE WITH LATER VERSIONS.

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

*INCIDENT COMPILATION + REACTOR, AEC OWNED

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23906

WORK-INJURY EXPERIENCE IN ATOMIC ENERGY 1965 AND 1966
U.S. DEPARTMENT OF LABOR, BUREAU OF LABOR STATISTICS, WASH., D.C.
BLS-REPORT-334 +. 8 PAGES, 2 TABLES, 1968

176 PRIVATELY OWNED ESTABLISHMENTS REPLIED TO A QUESTIONNAIRE. STATISTICS ON NONRADIATION INJURIES WERE COMPILED IN THE SAME WAY AS BY NATIONAL SAFETY COUNCIL. THE AVERAGE FREQUENCY RATE WAS 4.3 (1965) AND 4.7 (1966) VS 4.2 AND 5.1 FOR THE MANUFACTURING AVERAGE. THE SEVERITY RATE IN DAYS LGST WAS 514 (1965) AND 539 (1966) VS 450 AND 470 FOR THE MANUFACTURING AVERAGE. THE 1965 AVERAGE SEVERITY RATE OF 514 DAYS LOST PER MILLION MAN-HOURS WORKED WAS COMPOSED OF 418 FOR FACILITY DESIGN AND ENGINEERING, 457 FOR COMPONENT DESIGN AND MANUFACTURING, AND 953 IN REACTOR OPERATION AND MAINTENANCE. ONLY TWO INJURIES WITH RADIATION-EXPOSURES WERE REPORTED FOR THE TWO YEARS.

AVAILABILITY - DEPT. OF LABOR, BUREAU OF LABOR STATISTICS, 14TH STREET, CONSTITUTION AVENUE N.W., WASHINGTON, D. C. 20210

INCIDENT COMPILATION + INCIDENT, NONNUCLEAR

17-23907

ALSO IN CATEGORIES 9 AND 12

MAXWELL WA
A SURVEY OF LEAK DETECTION METHODS FOR THE ON-LINE MONITORING OF BWR AND PWR PRIMARY LOOPS
SOUTHERN NUCLEAR ENGINEERING, INC., DUNEDIN, FLA.
SNE-36 +. 43 PAGES, 10 REFERENCES, OCTOBER 1967

LITERATURE SEARCH REVEALED LITTLE, EXCEPT IN OIL REFINING. DISCUSSES EXPERIENCE WITH THREE MAIN METHODS - (1) RADIOACTIVITY MONITORING OF CONTAINMENT AIR (POWER REACTORS WITH CLEAN FUEL AND COOLANT AFTER A REFUELING MIGHT HAVE A DEAD-TIME), (2) HUMIDITY MONITORING (NEEDS A FLOATING SETPOINT FOR NORMAL CONDITION), (3) SOUND (DEPENDS ON OPERATORS AUDIOSENSITIVITY AND BACKGROUND NOISE). OTHER LEAKS HAVE BEEN DETECTED BY MATERIAL BALANCE, INSPECTION, ETC. HUMIDITY MONITORING LOOKS BEST. ACOUSTIC-EMISSION DETECTORS WILL BE APPLIED TO ELK RIVER AND PM 1A.

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

*INSTRUMENTATION, SURVEILLANCE + *LEAK + *MAIN COOLING SYSTEM + CONTAINMENT INSTRUMENTATION + FAILURE, PIPE + HUMIDITY + MONITOR, RADIATION, AIR + REACTOR, BWR + REACTOR, PWR

17-23922

ALSO IN CATEGORY 11

REPORT ON PRESSURE TESTING OF REACTOR CONTAINMENT FOR CONNECTICUT YANKEE ATOMIC POWER PLANT, CONNECTICUT
YANKEE ATOMIC POWER CO., HADDAM, CONNECTICUT
STONE + WEBSTER ENGINEERING CORP., BOSTON, MASS.
28 PAGES, 10 FIGURES, 4 TABLES, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PRESENTS RESULTS OF THE MEASUREMENTS AND OBSERVATIONS MADE ON THE REINFORCED-CONCRETE REACTOR CONTAINMENT TO CONFIRM ITS INTEGRITY UNDER A MAXIMUM PRESSURE 15% IN EXCESS OF 40 PSI GAGE, THE DESIGN PRESSURE UNDER INCIDENT CONDITIONS. NO EXCESSIVE DEFORMATION OR CRACKING OCCURRED, AND ALL SUCH MOVEMENTS WHICH DID OCCUR RETURNED ALL AREAS TO THEIR ORIGINAL CRACKED POSITION WITHOUT LEAVING ANY SIGNIFICANT PERMANENT DEFORMATION WHEN THE PRESSURE DROPPED. THUS, THE TESTS DEMONSTRATED THAT EACH OF THE CRITERIA ESTABLISHED PRIOR TO THE PERFORMANCE OF THE TEST HAD BEEN SATISFACTORILY MET.

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

*CONCRETE + *CONTAINMENT, HIGH PRESSURE + *INSPECTION AND COMPLIANCE + *TEST, PROOF + HADDAM NECK (PWR) + REACTOR, PWR + TEST, LEAK LOCATION

17-23946

ALSO IN CATEGORY 9

BALL GL
RESULTS OF THE LOW-POWER NUCLEAR TEST PROGRAM FOR THE ENRICO FERMI FAST BREECER REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-302 +. 128 PAGES, 29 FIGURES, 16 TABLES, REFERENCES, FEB. 1967

(PG 41) 1/M FUEL-LOADING PLOTS EXTRAPOLATED VERY CLOSE TO CRITICAL VALUE, HOWEVER WAS NOT USED FOR OFFICIAL PREDICTIONS BECAUSE LINEAR EXTRAPOLATION GAVE UNACCEPTABLE OVERESTIMATES. (PG 67) NEUTRON-DETECTOR GUIDE TUBES WERE FLUX-MAPPED (GAMMA AND NEUTRON) TO SET DETECTOR LOCATIONS. GAMMA PEAKS WERE FOUND NEAR SODIUM PIPES, AND NEUTRON PEAKS DUE TO BORON WINDOW AND TO TRANSITION DECK. (PG 87) INDIVIDUAL SAFETY RODS WERE WORTH 15% LESS THAN PREDICTED, AND THE GROUP WAS SHADOWED BY 11%, GIVING AN \$8 WORTH. (PG 118) RELATIVELY LARGE INCREASES IN REACTIVITY FOLLOWING SHORT PERIODS WITH THE COOLANT SYSTEM ISOTHERMAL AT 700 F, ARE CALCULATED TO BE FROM PHASE-TRANSFORMATION SHRINKAGE (27 IN-HOURS) AND HYDRIDING OF THE CLAD (22 IN-HOURS).

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-23946 *CONTINUED*

*INSTRUMENTATION, ABNORMAL INDICATION + *REACTIVITY EFFECT, ANOMALOUS + *REACTOR STARTUP TESTING + CONTROL ROD INTERACTION + CONTROL ROD WORTH + FERMI (LMFBR) + HYDRIDE + INSTRUMENTATION CALIBRATION + REACTIVITY EFFECT, EXPANSION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, FAST + REACTOR, LMCR + ZIRCALOY

17-24001 ALSO IN CATEGORIES 9 AND 6

TABOR WH + HURT SS

OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHanneled ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT + CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

17-24041

WOLTER FE

CONSOLIDATION OF ELK RIVER RECORDS

RURAL COOPERATIVE POWER ASSOCIATION, ELK RIVER, MINNESOTA

LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 3 PAGES, FEB. 5, 1968, DOCKET NO. 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ACKNOWLEDGES P. A. MORRIS LETTER OF JAN. 17 (REQUESTING RCPA ADVISE DRL OF PLANS TO KEEP DRAWINGS, INSPECTION RESULTS, AND CHEMICAL ANALYSES AFTER ALLIS CHALMERS DISCONTINUES NUCLEAR OPERATIONS), AND TRANSMITS LETTER TO COO ASKING THEM TO DETERMINE WHAT INFORMATION IS MISSING.

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

*INFORMATION RETRIEVAL + ADMINISTRATIVE CONTROL + ELK RIVER (BWR) + REACTOR, BWR

17-24043

BARKLEY PB

REPORT OF PLUM BROOK CHANGES OCT. 67-JAN. 68

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO

LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASH., D. C., 11 PAGES, FEBRUARY 12, 1968, DOCKET NO. 50-3C

CHANGES TO FACILITY WERE ONLY IN WASTE EFFLUENT MONITORING. DESCRIBES IRRADIATION PROGRAM.

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

PLUM BROOK (TR) + REACTOR, TEST + REPORT, OPERATIONS SUMMARY

17-24044

UAPL AH

ANNUAL REPORT OF COLORADO STATE AGN 201

COLORADO STATE UNIVERSITY, FORT COLLINS, COLORADO

LETTER TO D. S. BOYD, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASH., D. C., 2 PAGES, FEBRUARY 2, 1968, DOCKET NO. 50-80

(1) A NEUTRON GENERATOR WAS INSTALLED IN THE REACTOR VAULT. (2) REACTOR HAZARDS COMMITTEE WAS CHANGED.

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

*REPORT, OPERATIONS SUMMARY + AGN (TNG) + REACTOR, TRAINING

17-24045

MONTGOMERY CR

REVISED SAR PAGES FOR SAXTON SUPERCRITICAL LOOP

SAXTON NUCLEAR EXPERIMENTAL CORP., GENERAL PUBLIC UTILITIES SYSTEM

LETTER TO D. J. SKOVHOLT, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 25 PAGES, FEB. 9, 1968, DOCKET NO. 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSCC.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24045 *CONTINUED*

TRANSMITS REVISED PAGES (ACCORDING TO DRL CHANGE REPORT 14, 10 OCT. 1967) TO THE SAFEGUARDS REPORT FOR THE SUPERCRITICAL TECHNOLOGY PROGRAM.

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

*HEAT TRANSFER, SUPERCRITICAL + *IN PILE LOOP + REACTOR, PWR + REPORT, SAR + SAXTON (PWR)

17-24046 ALSO IN CATEGORY 11

MORRIS PA

SUPPLEMENT 1 TO HADDAM NECK CHANGE 4

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

LETTER TO S. R. KNAPP, CONNECTICUT YANKEE ATOMIC POWER CO., HARTFORD, CONNECTICUT, 2 PAGES, FEB. 12, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS A CLOSURE TIME OF 10 SEC FOR MAIN-STEAM-LINE ISOLATION VALVE UP TO FIRST 2800 EFPH, AT WHICH TIME THE MODERATOR COEFFICIENT IS ONLY SLIGHTLY NEGATIVE. THIS IS AN EXTENSION FROM 1800 EFPH, TO ALLOW COMPLETION OF THE CHANGE-5 REVIEW.

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

*CONTAINMENT PENETRATION, CLOSURE OF + *RESPONSE TIME + *VALVE + ACCIDENT, COLD COOLANT + HADDAM NECK (PWR) + MODERATOR COEFFICIENT + REACTOR, PWR + TECHNICAL SPECIFICATIONS + TESTING

17-24047

HACKERMAN N

PROPOSED AMENDMENT FOR CO-60 IRRADIATOR

UNIVERSITY OF TEXAS AT AUSTIN, AUSTIN, TEXAS

LETTER TO DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASH., D. C. 13 PAGES, JAN. 23, 1968, DOCKET NO. 50-192

REQUESTS PERMISSION TO INSTALL 8400-CURIE SOURCE IN REACTOR POOL. CALCULATIONS SHOW THIS ADDS LITTLE TO DOSE RATE AFTER A LOSS OF SHIELDING WATER TO BOTH REACTOR AND SOURCE.

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

*COBALT + *SOURCE, RADIATION + REACTOR, RESEARCH + SHIELDING + TECHNICAL SPECIFICATIONS + TRIGA (RR)

17-24048 ALSO IN CATEGORY 11

HAUETER RL

BIG ROCK POINT LEAK RATE TEST RESULTS

CONSUMERS POWER CO.

LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 1 PAGE, FEBRUARY 14, 1968, DOCKET NO. 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

1968 TEST WILL BE DURING JUNE-JULY OUTAGE. PAST RESULTS WERE - (1/61) 0.036 %/DAY AT 27 PSIG, (10/62) 0.021 %/DAY AT 10 PSIG, (4/64) 0.037 + - 0.034 AT 10 PSIG, (4/66) 0.077 + - 0.025 AT 10 PSIG. ALLOWABLE LEAK RATE IS 0.5 AT 2.7, AND 0.121 AT 10 PSIG.

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

*REPORT, OPERATIONS SUMMARY + *TEST, LEAK RATE + BIG ROCK POINT (BWR) + CONTAINMENT, HIGH PRESSURE + REACTOR, BWR

17-24049

WILSON ED

ANNUAL REPORT 3 FOR THE DEACTIVATED VBWR

GENERAL ELECTRIC CO., NUCLEAR ENERGY DIVISION, SAN JOSE, CALIFORNIA

LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, U. S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 7 PAGES, 1 TABLE, FEB. 16, 1968, DOCKET NO. 50-18, TYPE--BWR, MFG--G.E., AE--BECHTEL

INSPECTION INDICATED RADIATION LEVELS DECREASING, VESSEL WATER LEVEL CONSTANT.. NO SIGNIFICANT CHANGES.

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

*REPORT, OPERATIONS SUMMARY + REACTOR DECOMMISSIONING + REACTOR, BWR + VBWR (BWR)

17-24052 ALSO IN CATEGORY 9

SELECTED BONUS OPERATING EXPERIENCES

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO

13 PAGES, 4 TABLES, SEPT. 1967, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT, NO. 9, DOCKET NO. 115-4, TYPE--BWR, MFG--G.E., AE--JACKSON + MORELAND

DURING INSPECTION OF THE CONTROL RODS, A 6-SQUARE-INCH PIECE OF A CONTROL ROD WAS FOUND ON THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24052 *CONTINUED*

CORE-STRUCTURE COVER PLATE. MEASUREMENTS OF SHUTDOWN MARGIN AND CONTROL-ROD WORTH DISCUSSED. TESTS CONDUCTED ON RECIRCULATION FLOW MEASUREMENT SYSTEM TO VERIFY THAT REDUCTIONS IN FLOW WERE REAL. AN AUXILIARY HOIST PUSH-BUTTON CONTROL UNIT FAILED BY STICKING IN THE UP POSITION. THE POWER TO THE UNIT WAS DISCONNECTED, AND A BROKEN ACTUATOR WAS REPLACED.

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

*FAILURE, EQUIPMENT + *FAILURE, SCRAM MECHANISM + *FUEL HANDLING MACHINE + *SHUTDOWN MARGIN + BONUS (ISR) + CONTROL ROD + CONTROL ROD WORTH + FLOW, RECIRCULATION + INSTRUMENTATION, ABNORMAL INDICATION + MEASUREMENT, SUBCRITICALITY + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS

17-24053 ALSO IN CATEGORY 5

SELECTED BONUS OPERATING EXPERIENCE

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO

12 PAGES, 3 TABLES, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT NO. 10, OCTOBER 1967, DOCKET NO. 115-4, TYPE--DWR, MFG--C.E., AE--JACKSON + MORELAND

INSPECTION OF CORE PERFORMED TO DETERMINE CAUSE OF REDUCTION IN RECIRCULATION FLOW. HIGH-COPPER-CONTENT CRUD OBSERVED ON CORE-STRUCTURE-BOX ORIFICES AND FUEL-ASSEMBLY END PIECES. CONTROL-ROD INSPECTIONS DISCUSSED. BELLEVILLE SPRINGS (EMERGENCY SHOCK ABSORBERS) ON ROD NO. 9 FOUND FLATTENED DUE TO POOR HYDRAULIC SNUBBING ACTION CAUSED BY LOW OIL VISCOSITY.

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

*CRUD + *SURFACE FILM DEPOSIT + BONUS (ISR) + CONTROL ROD + COPPER + CORE COMPONENTS + EXAMINATION + FAILURE, SCRAM MECHANISM + FUEL ELEMENT + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + SHOCK ABSORBER

17-24054

SKOVHOLT DJ

ADDITIONAL INFORMATION FOR ADVANCED TRIGA

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

LETTER TO M. WYMAN, NUCLEAR ENGINEERING PROGRAM, URBANA, ILLINOIS, 4 PP., FEB. 12, 1968, DOCKET NO. 50-151

DRL REQUESTS ADDITIONAL INFORMATION WITH 22 QUESTIONS ON THE ADVANCED TRIGA FACILITY, E.G., (1) CONSEQUENCES OF TORNADO STRIKING BUILDING, (8) JUSTIFY MAXIMUM ALLOWABLE WORTH OF THE TWO PULSE RODS, (11) HOW ARE THE EMERGENCY SPRAY RINGS TESTED, (12) ANALYZE A PARTIAL FLOW BLOCKAGE, (20) ANALYZE A \$4.60 PULSE WITH THE CLAD-FUEL GAP FILLED WITH WATER, (22) DESCRIBE THE HP CONTROLS DURING DRILLING OF THE BEAM PORTS.

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

AEC QUESTION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (RR)

17-24148

LOSS OF POOL AND CANAL WATER

AEC, DIVISION OF OPERATIONAL SAFETY

ROE-68-1 +. 3 PAGES, 1 FIGURE, OPERATING EXPERIENCES - REACTOR SAFETY, MARCH 5, 1968

THE SHIELDING WATER COVERING SPENT FUEL AT A TEST REACTOR WAS LOWERED 6 FT WHEN A TEMPORARY WATER SEAL (INFLATED BASKETBALL) WAS EXPELLED FROM A 10-INCH POOL-PUMP SUCTION LINE ON WHICH MAINTENANCE WAS BEING PERFORMED. RADIATION LEVEL INCREASED A FACTOR OF 130 TO 2 REMS/HR. WHEN THE MAINTENANCE JOB WAS DELAYED, A SHIFT SUPERVISOR DECIDED TO PROCEED WITH OTHER WORK AND RAISED THE WATER LEVEL IN THE POOL, THEN REMOVED A 6-FT GATE TO THE FUEL-STORAGE CANAL. AT THIS POINT, THE BALL WAS EXPELLED BECAUSE OF STATIC HEAD. THIS DEMONSTRATES NEED FOR PROCEDURES TO DESCRIBE HAZARDS, NEED TO REVIEW MAINTENANCE SCHEDULE WHEN NECESSARY TO MODIFY, USE OF SEALS WHICH IMPROVES WITH INCREASED PRESSURE, AND NEED FOR CONSULTATION WHEN OPERATIONS ARE QUESTIONABLE.

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

*FUEL STORAGE + *INCIDENT, HUMAN ERROR + *SHIELDING + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, DESIGN ERROR + MAINTENANCE AND REPAIR + OPERATING EXPERIENCE + REACTOR, TEST

17-24189

AABAKKEN D

SURVEY OF ACTIVITIES, 1966

INSTITUTT FOR ATOMENERGI, KJELLER, NORWAY

KR-116 +. 134 PAGES, 37 FIGURES, 23 TABLES, 49 REFERENCES, MARCH 1967

TOPICS DISCUSSED INCLUDE REACTOR STUDIES AND DEVELOPMENT, FUEL REPROCESSING, WASTE TREATMENT, FUEL-ELEMENT DEVELOPMENT, CORROSION STUDIES, ISOTOPE PRODUCTION, HEALTH PHYSICS, NEUTRON PHYSICS, CHEMISTRY, AND METALLURGY. DISCUSSES PROGRESS IN MAKING A TECHNICAL AND ECONOMIC EVALUATION OF A 500-MWE POWER PLANT. RESULTS OF A PRELIMINARY COMPARISON OF DIFFERENT REACTOR TYPES ARE GIVEN. METALLURGY SECTION DISCUSSES VARIOUS CLADDING AND WELD FAILURES IN INSTRUMENTED TEST-FUEL ASSEMBLIES.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24189 *CONTINUED*
AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*NORWAY + *REVIEW + CORROSION + FAILURE, FUEL ELEMENT + FUEL ELEMENT + FUEL REPROCESSING + IN PILE LOOP + REACTOR, POWER + WASTE TREATMENT, GENERAL

17-24200 ALSO IN CATEGORY 9
MORE INFORMATION ON REQUEST FOR EXEMPTION FROM 10 CFR 20.203 (C)(2)
YANKEE ATOMIC ELECTRIC COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 9-10 (MARCH 18, 1968), DOCKET 50-213

(LETTER TO DRL, MARCH 1) GENERAL DISCUSSION IN SUPPLEMENT OF THE JAN. 3 REQUEST. ALARM AND CONTROL DEVICES FOR HIGH-RADIATION AREAS DO NOT LEND THEMSELVES TO NUCLEAR POWER PLANTS WHERE RADIATION LEVELS ARE CONSTANTLY CHANGING. ADMINISTRATIVE AND PHYSICAL CONTROLS ARE BETTER. A REVIEW OF PAST INCIDENTS WILL REVEAL MANY CASES WHERE OVER-RELIANCE UPON PROTECTIVE DEVICES WAS THE DIRECT CAUSE OF OVER EXPOSURE.

*RADIATION SAFETY AND CONTROL + ADMINISTRATIVE CONTROL + HADDAM NECK (PWR) + MONITOR, RADIATION, AREA + REACTOR, PWR + REGULATION, AEC

17-24201 ALSO IN CATEGORY 9
GAYETER RL
BIG ROCK POINT INCORE INSPECTION
CONSUMERS POWER COMPANY, JACKSON, MICHIGAN
2 PAGES, MARCH 5, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 21-22 (MARCH 18, 1968) DOCKET 50-155

(LETTER, MARCH 5) ROD F-5 WAS JAMMED BY A STAINLESS-STEEL BOLT (FROM THE UPPER GRID PLATE) IN THE ROD-DRIVE-NOZZLE EXTENSION. DRIVE D-3 WAS JAMMED BY A PIECE OF STEEL, POSSIBLY FROM A FIELD MODIFICATION TO THE UPPER GRID. ONE OF THE SIX WEDGES AT THE LOWER THERMAL SHIELD WAS FOUND IN THE VESSEL BOTTOM. UNIDENTIFIED MONEL GASKET MATERIAL WAS FOUND WEDGED BETWEEN REACTOR VESSEL AND CORE-SUPPORT PLATE. A SMALL PIECE OF FLEXITAILIC GASKET FROM RECIRC. PUMP REPAIR OF MAY 1967 WAS REMOVED FROM THE REACTOR. VESSEL INTERNALS AND PRIMARY SYSTEM ARE IN GOOD CONDITION.

*EXAMINATION + *PRESSURE VESSEL + BIG ROCK POINT (BWR) + FAILURE, SCRAM MECHANISM + INCIDENT, EQUIPMENT + REACTOR, BWR

17-24203
BERMAN HL
CO-60 TELETHERAPY INCIDENT AT SINAI HOSPITAL
SINAI HOSPITAL OF BALTIMORE, INC., BALTIMORE, MD.
2 PAGES, JANUARY 11, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 27-28 (MARCH 18, 1968)

(LETTER, JAN. 11) ON DEC. 28, 1967, A PATIENT RECEIVED AN EXTRA 5 R (AIR DOSE) WHEN THE SOURCE FAILED TO RETURN TO THE SHIELD AFTER THE PRESET TIME. THE TECHNICIAN PRESSED THE OFF SWITCH WITHIN 5 SEC, ENDING THE EXPOSURE. ON JAN. 3, THE SHUTTER SPRING WAS FOUND BROKEN. RATHER THAN AN ELECTRICAL CIRCUIT MALFUNCTION.

*INCIDENT, EQUIPMENT + *RADIOLOGY + COBALT + FAILURE, EQUIPMENT + PERSONNEL EXPOSURE, RADIATION

17-24204 ALSO IN CATEGORY 11
DIENHART AV
WELDMENT CRACKING OF MONTICELLO CONTAINMENT LINER
NORTHERN STATES POWER COMPANY
1 PAGE, MARCH 6, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 23 (MARCH 18, 1968) DOCKET 50-282

(MARCH 6) TRANSMITS CHICAGO BRIDGE AND IRON REPORT (FEB. 2) ABOUT VISUAL DISCOVERY OF CRACKING WHERE ON INSERT PLATE WAS WELDED TO THE DRY-WELL SHELL OF THE CONTAINMENT VESSEL.

CONTAINMENT LINER + CONTAINMENT, PRESSURE SUPPRESSION + INCIDENT, EQUIPMENT + MONTICELLO (BWR) + REACTOR, BWR + WELDING

17-24205 ALSO IN CATEGORY 9
PETERSON RH
PROPOSED HUMBOLDT BAY ADDENDUM E - ONE STARTUP CHANNEL
PACIFIC GAS AND ELECTRIC COMPANY
1 PAGE, MARCH 8, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 23 (MARCH 18, 1968) DOCKET 50-133

(LETTER, MARCH 8) REQUESTS IMPLEMENTATION OF ONE OF THE TECHNICAL SPECIFICATIONS IN PROPOSED CHANGE 22, AS ONE OF TWO STARTUP CHANNELS HAS FAILED, SO A SHUTDOWN WOULD REQUIRE AT LEAST 5 DAYS OF REPAIR. REVISION SOUGHT IS TO ALLOW ONLY ONE OPERABLE STARTUP CHANNEL FOR CONTROL-ROD-WITHDRAWAL PATTERNS WHICH HAVE DEMONSTRATED THAT INTERMEDIATE- AND POWER-RANGE CHANNELS RESPOND PRIOR TO CRITICALITY.

*INSTRUMENTATION, STARTUP RANGE + HUMBOLDT BAY (BWR) + REACTOR, BWR + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24206

MULLIKIN MS

TWO RADIOGRAPHERS OVER EXPOSED DURING FOURTH QUARTER 1967

UNIVERSAL TESTING CO., INC., SALT LAKE CITY, UTAH

1 PAGE, JAN. 22, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 28 (MARCH 18, 1968)

(LETTER, JAN. 22) DOSES OF 2.273 AND 1.59/REMS WERE RECEIVED BY RADIOGRAPHERS DURING THE QUARTER AS A RESULT OF MECHANICAL PROBLEMS WITH A CAMERA. THE EXTENSION ADAPTER WAS TOO LONG FOR PROPER ATTACHMENT OF THE CONTROL CABLE TO THE SOURCE CABLE, AND THE THREADS IN THE CAMERA PULLED OUT, CAUSING THE SOURCE CONNECT AND DISCONNECT TO HANG. THE RADIOGRAPHERS THEN HAD TO WORK THE SOURCE CABLE BACK AND FORTH UNTIL IT CAME FREE. THE SOURCE WAS EXPOSED DURING THIS TIME. THESE TIMES WERE SHORT, BUT THERE WERE SEVERAL DURING THE QUARTER. THE CAMERA WAS RETURNED FOR REPAIR.

*RADIOGRAPHY + FAILURE, EQUIPMENT + INCIDENT, NONREACTOR + PERSONNEL EXPOSURE, RADIATION + SOURCE, RADIATION

17-24207

MORE INFORMATION REQUESTED FROM U OF MD. ON SAFETY COMMITTEE

UNIVERSITY OF MARYLAND, COLLEGE PARK, MD.

2 PAGES, MARCH 15, 1967, ATOMIC ENERGY CLEARING HOUSE, 14(13), PAGES 9-10, (MARCH 25, 1968), DOCKET 50-166

(LETTER TO W.H. ELKINS, MAR. 15) ORL SUGGESTS THAT TECH. SPECS. BE DEVELOPED ALONG THE LINES OF THE AUG. 1966 10 CFR 50 PROPOSED RULE-MAKING, AND REQUESTS SPECIFIC INFORMATION ON (A) PROCEDURE FOR ENSURING NO OPERATION WITHOUT SRO AVAILABILITY, (B) QUALIFICATIONS ESTABLISHED FOR REACTOR DIRECTOR, (C) REACTOR SAFETY COMMITTEE EXPERTISE AND INDEPENDENT FROM LINE RESPONSIBILITY, AND (D) FUNCTIONS FORMERLY HANDLED BY RADIOLOGICAL SAFETY COMMITTEE. THE ABOVE ITEMS SHOULD BE ANSWERED WITH PROPOSED LICENSE AMENDMENTS.

*AEC QUESTION + *SAFETY REVIEW + *TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + STAFFING, TRAINING, QUALIFICATION

17-24208

ALSO IN CATEGORY 15

BEATTIE WC

PROPOSED CHANGE TO ALLOW CONTAINMENT ENTRY DURING FULL POWER OPERATION

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

2 PAGES, MARCH 5, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 20-21 (MARCH 18, 1968) DOCKET 50-3

(LETTER, MARCH 5) THE RADIATION SURVEY (LETTER DATED JUNE 25, 1965) INDICATED QUALIFIED PERSONNEL CAN ENTER CONTAINMENT AND REMAIN WITHIN 10 CFR 20 EXPOSURE LIMITS. SECTION 4.2-1 WOULD BE REVISED TO ALLOW ROUTINE ENTRY FOR TWO TWO-MAN TEAMS TO ENTER CONTAINMENT AT POWER LEVELS UP TO 100% FOR INSPECTION AND MINOR WORK.

INDIAN POINT 1 (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + TECHNICAL SPECIFICATIONS

17-24242

SUGURI S

JPDR OPERATION RECORD AND EXPERIENCES

JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO

9 PAGES, GENSHIROYOKU KOGYO, 13(1), PAGE 33-41, (DEC. 1966), (IN JAPANESE)

JPDR HAS THREE MAIN PURPOSES - EXPERIENCES ON THE CONSTRUCTION, OPERATION AND MAINTENANCE OF A NUCLEAR POWER PLANT, EXPERIMENTS AND TESTS TO KNOW THE CHARACTERISTICS OF A POWER REACTOR SYSTEM, AND VARIOUS STUDIES AND DEVELOPMENTS, CONTRIBUTING TO THE DOMESTIC PRODUCTION OF POWER REACTORS. BY FUEL-ELEMENT PERFORMANCE TESTS, DOMESTIC-COMPONENT CHARACTERISTIC TESTS, ETC. THE OPERATION RECORD AND EXPERIENCES OF JPDR FROM THE COMPLETION INSPECTION UNTIL THE PRESENT ARE DESCRIBED IN THE FOLLOWING SECTIONS - COMPLETION INSPECTION, OPERATION RECORD, RADIATION CONTROL, TESTS, EXPERIMENTS (REACTOR-PHYSICAL, THERMO-HYDRODYNAMIC AND KINETIC CHARACTERISTIC TESTS, PLANT CHARACTERISTIC TESTS, AND DOMESTIC-FUEL IRRADIATIONS), AND CO-ORDINATION WITH POWER COMPANIES.

*OPERATING EXPERIENCE + JAPAN + REACTOR STARTUP EXPERIENCE + REACTOR, BWR

17-24243

ALSO IN CATEGORY 15

KAJEK V

RADIATION ACCIDENTS IN PEACE TIME. PROBLEMS OF DOSIMETRY AND MEDICAL SERVICES. PART I. REVIEW OF ACCIDENTS IN NUCLEAR INDUSTRY IN THE YEARS 1945-1964

SLOVAK NATIONAL UPRIISING MILITARY HOSPITAL, RUZOMBEROK, CZECHOSLOVAKIA

4 PAGES, VOJ. ZDRAVOT. LISTY, 36, PAGE 80-83, (APRIL 1967), IN CZECH

VARIOUS ACCIDENTS WHICH HAPPENED IN NUCLEAR INDUSTRY IN THE USSR IN 1953 ARE DESCRIBED. TWO MEN WHO RECEIVED DOSES OF 300 AND 450 R RECOVERED FULLY IN 18 MONTHS. A CZECHOSLOVAK ACCIDENT WHICH HAPPENED IN 1960 IS DISCUSSED. A BOY CARRIED A 150-MC COBALT RADIATION SOURCE FOR 45 MINUTES BUT WAS NOT HURT. IN ANOTHER CZECHOSLOVAK ACCIDENT IN 1963, 13 MEN WERE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24243 *CONTINUED*

MOVING A CONTAINER WITH 2000 C OF CO-60 WHEN THE CONTAINER WAS DAMAGED. THE HIGHEST EXPOSURE RATE WAS 17.5 R AND NO SERIOUS DAMAGE WAS CAUSED.

*INCIDENT, GENERAL + CZECHOSLOVAKIA + PERSONNEL EXPOSURE, RADIATION + SOURCE, RADIATION + USSR

17-24281

SELECTED PEACH BOTTOM OPERATING EXPERIENCE

PHILADELPHIA ELECTRIC COMPANY

22 PAGES, PEACH BOTTOM MONTHLY OPERATIONS REPORT NO. 23, JANUARY 1968, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

A HELIUM COMPRESSOR TRIPPED DUE TO A JAMMED OIL-FLOWMETER FLOAT. HEAVY RAIN WASHED LEAVES INTO THE INTAKE SCREENS, NECESSITATING SHUTDOWN OF THE CIRCULATING WATER PUMP FOR REMOVAL OF THE LEAVES. CONTAINMENT ISOLATION OCCURRED FOUR TIMES DUE TO SPURIOUS ELECTRICAL SIGNALS CAUSED BY A LOW-FLOW SWITCH ON STACK-MONITOR 1 WHILE MONITOR 2 WAS OUT OF SERVICE. AT 98% OF FULL POWER, THE PRIMARY-SYSTEM ACTIVITY INCREASED A FACTOR OF 13 FROM 330 MILLICURIES DUE TO FISSION PRODUCTS FROM ONE OR MORE FUEL ELEMENTS. POSSIBLE CAUSES ARE A FRACTURED FUEL ELEMENT OR A RESTRICTION IN THE PURGE FLOW.

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

*FISSION PRODUCT RELEASE, GENERAL + *MAIN COOLING SYSTEM + *REPORT, OPERATIONS + CONTAINMENT PENETRATION, CLOSURE OF + FAILURE, EQUIPMENT + FAILURE, FUEL ELEMENT + FAILURE, INSTRUMENT + INSTRUMENTATION, FLOW + INSTRUMENTATION, SWITCH + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR

17-24282

BOYER VS + KEMPER JS + GIBBONS JP

PEACH BOTTOM OPERATING EXPERIENCE DURING THE APPROACH TO POWER

PHILADELPHIA ELECTRIC COMPANY, DELTA, PENN.

13 PAGES, ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 319, PRESENTED AT THE ANS MEETING, SAN DIEGO, CALIF., JUNE 12-15, 1967, DOCKET 50-171

AFTER A BRIEF DESCRIPTION OF THE PLANT, FAILURES AND THE CORRECTIVE MEASURES ARE DISCUSSED. FAILURES INCLUDED STRESS-CORROSION CRACKING OF STEAM-GENERATOR TUBES, A TUBE-TO-SHELL LEAK IN A REGENERATIVE HEAT EXCHANGER RESULTING IN HIGH COOLANT ACTIVITY CAUSED BY ICE PLUGGING IN THE TUBES, HIGH HELIUM TEMPERATURE ON THE EXIT FROM STEAM GENERATOR DUE TO INADEQUATE BAFFLING, RUPTURED DIAPHRAGM ON A STEAM-GENERATOR DUMP VALVE, DUE TO POOR MATERIAL, SAMPLE CORROSION FROM THE CONTAINMENT INERT ATMOSPHERE, PIPE-INSULATION FIRE DUE TO WRONG APPLICATION, AND SEIZURE OF A BOILER-FEED PUMP WHEN A SAMPLE TAP BROKE OFF AND THE DE-AERATOR PRESSURE WAS LOST.

*CONTAINMENT ATMOSPHERE, INERT + *FAILURE, DESIGN ERROR + *FAILURE, EQUIPMENT + *FAILURE, TUBING + *HEAT EXCHANGER + *OPERATING EXPERIENCE SUMMARY + *REACTOR STARTUP EXPERIENCE + *STEAM GENERATOR + CORROSION + FIRE + MAIN COOLING SYSTEM + MATERIAL + PEACH BOTTOM 1 (HTGR) + PUMP + QUALITY CONTROL + REACTOR, HTGR + STRESS CORROSION + VALVE

17-24516

NUCLEAR TECHNOLOGY BRANCHES QUARTERLY REPORT, APRIL 1 - JUNE 30, 1967

IDAHO NUCLEAR CORPORATION, IDAHO FALLS, N. Y.

IN-1126 +. 20 PAGES, FIGURES, TABLES, DECEMBER 1967

DISCUSSES STUDIES TO DETERMINE ERRORS IN MEASURING FISSION RATES AND FUEL-ELEMENT POWERS IN ATRC, BORON ASSAYING OF ETR AND ATR FUEL ELEMENTS, AND RESULTS OF FAST-CHOPPER CROSS-SECTION MEASUREMENTS ON PM-147, AND ACTIVATION CROSS SECTIONS OF AM-243 AND -244. *** BY RESETTING ARMF SERVO GAIN AND ROD-WITHDRAWAL RATES, A 15% DECREASE IN THE TIME NEEDED TO CANCEL EFFECT OF A SAMPLES REACTIVITY CHANGE IS POSSIBLE.

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

*ATR (TR) + *MEASUREMENT, GENERAL + *MEASUREMENT, REACTIVITY + ACTIVATION + AMERICIUM + BORON + CROSS SECTION + ETR (TR) + FUEL ELEMENT + PROMETHIUM + REACTOR, TEST + TEST, PHYSICS

17-24517

AIKIN AM

EXPERIENCE WITH CANDU REACTORS AND THEIR POTENTIAL

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER, CANADA

AECL-2795 + CNF-671210-1 +. 13 PAGES, NOVEMBER 1967, FROM CONFERENCE ON PROSPECTS AND PROBLEMS OF NUCLEAR POWER APPLICATIONS IN DEVELOPING COUNTRIES, SANTIAGO, CHILE

BRIEFLY REVIEWS THE EXPERIENCE WITH THE NPD AND DOUGLAS POINT REACTORS AND DISCUSSES THE ECONOMIC STATUS AND FUTURE POTENTIAL OF CANDU REACTORS. PROBLEMS WITH NPD WERE EQUIPMENT FAILURES, PARTICULARLY THE FUELING MACHINE. MAJOR PROBLEM AT DOUGLAS POINT WAS FAILURE OF MAIN PUMPS TO OPERATE MORE THAN A FEW HUNDRED HOURS, ALTHO 4000-HR TESTS WERE RUN, WITH ONLY SLIGHT DIFFERENCES IN PUMP MOUNTING. CANDU FUEL COSTS ARE NOW LESS THAN 0.6 MILL/KWH WITHOUT PU CREDIT. INTEREST IN WR-1 HAS REVIVED BECAUSE OF ITS PERFORMANCE.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24517 *CONTINUED*

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

*CANADA + *CANU (HWR) + *ECONOMICS + *FAILURE, EQUIPMENT + FUEL HANDLING MACHINE + NPD 2 (HWR) +
OPERATING EXPERIENCE SUMMARY + PUMP + REACTOR, HWR + REACTOR, ORGANIC COOLED + WR 1 (OCR)

17-24518

TABOR W-

BULK SHIELDING FACILITY QUARTERLY REPORT, JULY, AUGUST, AND SEPTEMBER OF 1967

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-TM-2107 +. 31 PAGES, TABLES, FIGURES, JANUARY 10, 1968

(PCA) - OPERATION AND MAINTENANCE REPORTED. *** (BSR) - REGULATING ROD FAILED TO WITHDRAW WHEN
THE SERVO SYSTEM HAD A WITHDRAW SIGNAL. THE CAUSE WAS A LOOSE SCREW ON A WIRE CONNECTION TO
A RELAY CONTACT. IONIZATION-CHAMBER FAILURES IN THE NEW MULTISECTION RESULTED IN USE OF ALL
OLD PCP CHAMBERS BORROWED FROM PCA, NECESSITATING A STARTUP PROCEDURE AS USED WITH A NEW
REACTOR.

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

*CONTROL SYSTEM + *FAILURE, INSTRUMENT + *INSTRUMENTATION, POWER RANGE + BSR (RR) +
INSTRUMENTATION, INTERMEDIATE RANGE + MAINTENANCE AND REPAIR + REACTOR, RESEARCH + REPORT, OPERATIONS

17-24519

WEBSTER CC

OPERATING SAFETY LIMITS FOR THE OAK RIDGE NATIONAL LABORATORY RESEARCH REACTOR (ORR)

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-689 REV. 2 +. 11 PAGES, JANUARY 11, 1968

CONTAINS THE REVISED LIMITS FOR OPERATING VARIABLES DIRECTLY RELATED TO REACTOR SAFETY.
LIMITS GIVEN FOR THE BUILDING CONTAINMENT, CORE, COOLING SYSTEMS, CONTROL AND SAFETY SYSTEMS,
RADIATION MONITORING SYSTEM, EXPERIMENTS, AND ADMINISTRATIVE AND PROCEDURAL SAFEGUARDS.

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

*OPERATION + *TECHNICAL SPECIFICATIONS + ADMINISTRATIVE CONTROL + CONTAINMENT SYSTEM, OPERATION OF +
CORE, PLATE TYPE + MONITORING SYSTEM, RADIATION + ORR (RR) + PROCEDURES AND MANUALS +
REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + SAFETY PRINCIPLES AND PHILOSOPHY

17-24578

DE LA PAZ A

NUCLEAR REACTOR SAFETY REVIEW PROCEDURES IN THE DEPARTMENT OF DEFENSE

U.S. ARMY, WHITE SANDS MISSILE RANGE, NEW MEXICO

6 PAGES, 1 TABLE, NUCLEAR SAFETY 9(2), PAGES 106-111 (MAR.-APR. 1968)

OF THE 16 NONPROPULSION REACTORS WITHIN THE SCOPE, 5 ARE ALSO LICENSED. REPORT LIMITS ITSELF
TO SAYING WHAT IS REVIEWED (NEW REACTORS, MODIFICATIONS, INSPECTIONS) AND BY WHOM (AGENCIES
ARE DIFFERENT FOR ARMY, NAVY AND AIR FORCE). CERTIFICATION OF OPERATORS SIMILARLY TREATED.

*REACTOR, MILITARY + *SAFETY REVIEW + STAFFING, TRAINING, QUALIFICATION

17-24579

EXPERIENCE IN DEVELOPING TECHNICAL SPECIFICATIONS

SOUTHERN CALIFORNIA EDISON

15 PAGES, 8 FIGURES, 8 REFERENCES, NUCLEAR SAFETY 9(2), PAGES 150-164 (MAR.-APR. 1968)

BRIEFLY REVIEWS EXPERIENCE IN HOW TO DETERMINE WHAT SHOULD BE A SPECIFICATION, HOW TO ARRIVE
AT PROPER VALUES. COMMENTS ON WHAT IS NEEDED TO BETTER DEFINE THE INFORMATION DESIRABLE IN
THE NEW-MODEL SPECIFICATIONS.

*OPERATING EXPERIENCE SUMMARY + *TECHNICAL SPECIFICATIONS + MITR (RR) + NINE MILE POINT (BWR) +
REACTOR, BWR + REACTOR, POWER + REACTOR, PWR + REACTOR, RESEARCH + SAN ONOFRE (PWR)

17-24580

ALSO IN CATEGORY 5

WEBSTER CC

WATER-LOSS TESTS IN WATER-COOLED AND -MODERATED RESEARCH REACTORS

OAK RIDGE NATIONAL LABORATORY

7 PAGES, 5 FIGURES, 15 REFERENCES, NUCLEAR SAFETY 8(6), PAGES 590-96 (NOV.-DEC. 1967)

DISCUSSES LOSS-OF-WATER TESTS IN LTR, ASTR, AND LPJR. THE TESTS INDICATE THAT A
WATER-COOLED-AND-MODERATED REACTOR CAN OPERATE FOR A WEEK AT 3 MW AND THEN LOSE THE COOLANT
WITHOUT CORE DAMAGE, BUT THAT ALL THE EXPERIMENTS TO PROVE MATHEMATICAL MODELS LEAVE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24580 *CONTINUED*
CONSIDERABLE WORK TO GO ABOVE THIS LEVEL. SHIELDING TESTS MENTIONED.

*ACCIDENT, LOSS OF COOLANT + *MATHEMATICAL STUDY + *TEST, PROOF + REACTOR, RESEARCH + REACTOR, WATER + REVIEW + SHIELDING

17-24599 ALSO IN CATEGORY 11
HAACK K
LEAKAGE MEASUREMENTS OF THE DR 3 CONTAINMENT DURING REACTOR OPERATION TO MEET A DEMAND OF MAXIMUM 0.1 PERCENT LEAKAGE PER 48 HOURS
DANISH ATOMIC ENERGY COMMISSION, RISØE. RESEARCH ESTABLISHMENT
RISO-137 +. 17 PAGES, 3 FIGURES, 4 REFERENCES, DEC. 1966

THE RATIO BETWEEN THE ABSOLUTE TEMPERATURE T AND THE PARTIAL PRESSURE P OF THE ATMOSPHERIC AIR IN THE HALL IS TAKEN AS A REPRESENTATIVE OF THE NUMBER OF AIR MOLES PRESENT. A PLOT VERSUS TIME GIVES THE LEAK RATE. THE TEMPERATURE IS MEASURED BY MEANS OF AN IRON WIRE THROUGH THE HALL. THE PRESSURE IS DETERMINED BY PROJECTING THE MERCURY SURFACE OF A PRECISION MANOMETER ONTO A SCREEN. THE ARRANGEMENTS AND THE EQUIPMENT ARE DESCRIBED AND THE UNCERTAINTIES OF THE RESULTS DISCUSSED. THE EXPERIENCES FROM SIX YEARLY TESTS HAVE LED TO A METHOD WHICH IS CONSIDERED TO BE MORE CONVENIENT THAN THAT USED PREVIOUSLY, AND YET SUFFICIENTLY ACCURATE TO CONTROL THE TIGHTNESS OF THE DR 3 REACTOR BUILDING AT LESS THAN 0.1% PER 48 HR AT ABOUT 6.5 PSIG.

AVAILABILITY - JUL. GJELLERUP, 87, SOELVGADE, COPENHAGEN K, DENMARK

*CONTAINMENT ABSOLUTE MEASURING SYSTEM + *ERROR ANALYSIS + *TEST, LEAK RATE + CONTAINMENT INSTRUMENTATION + CONTAINMENT, HIGH PRESSURE + DENMARK + TEMPERATURE COEFFICIENT

17-24605
CHADWICK DR + PECSOK DA + NELSON DJ
PLANNING FOR THE CONTROL OF RADIATION ACCIDENTS
PUBLIC HEALTH SERVICE, WASHINGTON, D. C.
NP-17209 +. 19 PAGES, NOVEMBER 13, 1963

GENERAL DISCUSSION OF PLANNING FOR POSTACCIDENT RESPONSES, PRIMARILY FOR OFF-SITE DOSES. DISCUSSES ROUTINE MONITORING (TO INDICATE ACCIDENT), FIXING RESPONSIBILITY ON INDIVIDUAL FOR INITIAL RESPONSE, TRAINING OF LOCAL OPERATOR, AND LIAISON WITH GOVERNMENT AGENCIES. BRIEF DISCUSSION OF ACTIONS FOLLOWING 1961 CALIFORNIA CRASH OF B-52 CARRYING NUCLEAR WEAPONS. BIG PROBLEM IS TO DECIDE WHEN (AND ON WHAT GROUNDS) TO TAKE COUNTERMEASURES TO CONTROL POPULATION EXPOSURE.

AVAILABILITY - U. S. PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

*EMERGENCY PROCEDURE + AIRBORNE RELEASE + FALLOUT + RADIOLOGICAL ASSISTANCE

17-24610 ALSO IN CATEGORY 15
SULLIVAN LO
600 R DOSE TO 3 ACCELERATOR TECHNICIANS
THE WALL STREET JOURNAL, MARCH 4, 1968

ON OCT. 4, THREE TECHNICIANS TURNED OFF THE GULF RESEARCH VAN DE GRAAF ACCELERATOR AT HARMARVILLE, PA., AND REPAIRED A TARGET-COOLING HOSE. APPARENTLY THE INTERLOCKS FAILED, AND DOSES OF 600, 300, AND 110 R WERE RECEIVED. AT FIRST THEY THOUGHT THEY HAD FLU, DESPITE NAUSEA AND VOMITING, BUT FILM BADGES SHOWED DOSES. BONE-MARROW TRANSPLANTS FROM A TWIN BROTHER WERE NECESSARY FOR ONE MAN. INFECTION WAS MINIMIZED AT THE WESTERN PENNSYLVANIA HOSPITAL BY A REVERSE ISOLATION SYSTEM. *** NATIONAL CENTER ON RADIOLOGICAL HEALTH SAYS THERE HAVE BEEN 12 KNOWN ACCIDENTS SINCE 1944 IN THE 600 ACCELERATORS NOW IN USE IN THE U.S.

*ACCELERATOR + *PERSONNEL EXPOSURE, RADIATION + DOSE + FAILURE, EQUIPMENT + INCIDENT, EQUIPMENT + PERSONNEL PROTECTIVE DEVICE + RADIATION INJURY, TREATMENT OF + X-RAY

17-24624 ALSO IN CATEGORY 12
MAINE YANKEE PSAR -- VOLUME I
MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE
750 PAGES, TABLES, FIGURES, REFERENCES, SEPTEMBER 27, 1967, DOCKET 50-309, TYPE--PWR, MFG.--C.E., AE--STONE + WEBSTER

VOL. 1 CONTAINS PART A (LICENSE APPLICATION INCLUDING DECISIONS ON STOCK-ISSUE PROCEEDINGS) AND PART B (PSAR CHAPTERS (1) GENERAL, (2) SITE, (3) REACTOR, (4) COOLANT SYSTEM, (5) CONTAINMENT, AND (6) ENGINEERED SAFEGUARDS). *** 2440-MWT/827-MWE PWR LOCATED 10 MILES FROM THE ATLANTIC AND 30 MILES NE OF PORTLAND. POWER DOPPLER EFFECT IS 1.6%. CLAIMED AS ENGINEERED SAFETY FEATURES ARE THE SAFETY-INJECTION SYSTEM (HIGH PRESS., LOW PRESS., AND 3 SAFETY-INJECTION TANKS) AND THE CONTAINMENT SPRAY SYSTEM. CONTAINMENT LEAKAGE IS CONTINUOUSLY MONITORED, USING THE ABSOLUTE METHOD.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24624 *CONTINUED*

BAILEY POINT (PWR) + CONTAINMENT, CONTINUOUS MONITORING SYSTEM + ENGINEERED SAFETY FEATURE + REACTOR, PWR + REPORT, PSAR

17-24627

PROPOSED HADDAM NECK TECHNICAL SPECIFICATIONS (AMENDMENT 16)
CONNECTICUT YANKEE ATOMIC POWER COMPANY

111 PAGES, FIGURES, APRIL 3, 1967, DOCKET 50-213, TYPE--PWR, MFG.--WEST, AE--STONE + WEBSTER

AMENDMENT 16 TRANSMITS PROPOSED TECHNICAL SPECIFICATIONS IN TWO FORMATS - (PART A, 38 PAGES) THE SPECIFICATIONS WITHOUT ELABORATION OR EXPLANATION, (PART B, 73 PAGES PLUS FIGURES) THE SAME SPECIFICATION WITH THE APPLICABILITY AND BASES (I.E., THE NEW FORMAT).

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

HADDAM NECK (PWR) + REACTOR, PWR + TECHNICAL SPECIFICATIONS

17-24628

TECHNICAL SPECIFICATIONS FOR THE MIT RESEARCH REACTOR
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

118 PAGES, REFERENCES, JUNE 1967, DOCKET 50-20

PROPOSED SPECIFICATIONS, WRITTEN IN THE NEW FORMAT, ARE TO SUPPLANT ALL PREVIOUS ONES. INCLUDES MUCH MORE DETAIL ON BASES THAN USUAL (E.G., COMPLETE MATHEMATICAL TREATMENT TO SHOW THAT 8 MWT IS THE POWER SAFETY LIMIT). SECTIONS INCLUDE - (II, 10 PGS) DEFINITIONS; (III, 38 PGS) SAFETY LIMITS; (IV, 36 PAGES) LIMITING CONDITIONS FOR OPERATION; (V, 14 PGS) OPERATIONAL SURVEILLANCE REQUIREMENTS; (VI, 5 PGS) DESIGN FEATURES, AND (VII, 8 PAGES) ADMINISTRATIVE REQUIREMENTS.

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

*TECHNICAL SPECIFICATIONS + MATHEMATICAL TREATMENT + MITR (RR) + REACTOR POWER + REACTOR, HWR + REACTOR, RESEARCH + SURVEILLANCE PROGRAM

17-24631

ALSO IN CATEGORY 13

PEGORS J

CORRESPONDENCE ON NFS AUGUST 1966 ACCIDENT
NUCLEAR FUEL SERVICE, HOPKINS, MINN.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 34-35 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO AEC JAN. 31, 1968.) REQUESTS INFORMATION ON AUGUST 29, 1966, ACCIDENT (REPORTED TO BE A RESULT OF SEVERAL ENGINEERING AND DESIGN ERRORS), CORRECTIVE MEASURES FOR FUTURE PLANTS, AND MEASURES TO PROTECT PEOPLE DOWNSTREAM OF THIS PLANT. (COMPLIANCE REPLY, MARCH 16) ON AUGUST 29, A TRUCK ROLLED DOWN HILL AND SEVERED STEAM, WATER, AND AIR LINES WITHOUT INJURY OR RELEASE. ON AUGUST 30, 75 GAL OF CONDENSATE WAS TRANSFERRED TO AN UNSHIELDED CELL BECAUSE OF OPERATOR ERROR, WITHOUT EXPOSURE OR RELEASE. MODIFICATIONS WERE MADE TO THE SYSTEM. ***10 CFR 50 PROVIDES FOR AEC DESIGN REVIEW. AEC INSPECTIONS ARE MADE DURING OPERATION.

*INCIDENT, HUMAN ERROR + *RADIATION, PUBLIC EDUCATION/ACCEPTANCE + FUEL REPROCESSING + INSPECTION AND COMPLIANCE + NFS + SAFETY REVIEW

17-24632

ALSO IN CATEGORIES 13 AND 7

AEC-NFS CORRESPONDENCE ON NFS FILTER SYSTEM PROBLEMS
U.S. ATOMIC ENERGY COMMISSION

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 33-34 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO COMPLIANCE, MARCH 22.) DISSOLVER OPERATIONS SUSPENDED AS DISSOLVER OFF-GAS FILTER FAILURES AND REPLACEMENTS ALLOWED MONTHLY RELEASE OF PARTICLES TO REACH 115%. (REPORT TO COMPLIANCE, MARCH 24) FILTER FAILURES DUE TO RADIATION WEAKENING ORGANIC BINDER OR GASKETS. (MARCH 26 TWX FROM COMPLIANCE) CONDITIONAL AUTHORIZATION TO RESUME OPERATIONS. (APRIL 2 LETTER FROM COMPLIANCE) LISTS 5 QUESTIONS TO BE ANSWERED IN REPORT - (1) CONSEQUENCES OF A PUFF RELEASE OF 100% OF MATERIAL IN FILTER. (2) MAXIMUM AMOUNT POSSIBLE ON FILTERS. (3) RADIATION-DAMAGE EFFECTS. (4) POSSIBILITY OF CHEMICAL AGENTS TRANSPORTED TO THE FILTER. (5) DO RADIATION/CHEMICAL AFFECTS AGGRAVATE EACH OTHERS EFFECTS.

*AIRBORNE RELEASE + *FILTER, DAMAGED + AEC QUESTION + EFFLUENT + FUEL REPROCESSING + HAZARDS ANALYSIS + INSPECTION AND COMPLIANCE + NFS + RADIATION DAMAGE + STACK

17-24633

ALSO IN CATEGORIES 14 AND 13

LUMB RF

CRITICISM OF RCSI BULLETIN 2 ON NFS SR-9C EFFLUENT
WESTERN N.Y. NUCLEAR RESEARCH CENTER, INC.

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 10-12 (APRIL 15, 1968)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24633 *CONTINUED*

(LETTER TO GEORGE BERG, ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION, DATED FEB. 28.)
CRITICIZES RELEASE OF CONCLUSIONS TO THE PRESS, APPARENTLY WITHOUT ADEQUATE PROFESSIONAL
REVIEW, AS BEING IRRESPONSIBLE BY TENDING TO MISLEAD PUBLIC RATHER THAN INFORM. HIS
CONCLUSION IS THAT THE REPORT REFLECTS INCORRECTLY ANALYZED DATA, CONTAINS ERRORS OF FACT,
AND ARRIVES AT INCORRECT CONCLUSIONS. (DISCUSSION FOLLOWS). CLOSING COMMENT POINTS OUT
TRESPASSING IN OBTAINING SAMPLES, VIOLATION OF LAWS IN POSSESSING AND HANDLING RADIOACTIVITY
WITHOUT LICENSE, AND NEED TO CHECK SAMPLERS HOME FOR CONTAMINATION. AUTHOR REGRETS
NEWSPAPERS WILL PRINT THIS LETTER ON BACK PAGES.

DILUTION + EFFLUENT + FUEL REPROCESSING + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS +
RADIATION, PUBLIC EDUCATION/ACCEPTANCE + WASTE DISPOSAL, LIQUID

17-24635 ALSO IN CATEGORIES 13 AND 14
COMPLIANCE INVESTIGATION OF ALLEGED NFS EXCESSIVE DISCHARGE OF SR-90 IN LIQUID EFFLUENT
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 3-5 (APRIL 15, 1966)

PUBLIC RELEASE OF A REPORT BY ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION CHARGING NFS
CAUSED A FEB. 27-29, 1968, INVESTIGATION. ON DEC. 16, 1967, AN RCSI AGENT SAMPLED BUTTERMILK
CREEK AND THE NFS LAGOON DISCHARGE PIPE AFTER ENTERING A GAP IN THE FENCE. THE AEC-NYOO
HEALTH AND SAFETY LABORATORY FIRST SAID THE SAMPLES CONTAINED 3.6 AND 0.28 MICROCURIE/LITER,
AND THESE WERE QUOTED IN FEB. 25 NEWSPAPERS. A RECHECK BY HASL GAVE ONLY 0.0869 AND 0.004.
NFS LOGS INDICATE A CONTROLLED RELEASE THAT DATE, BUT WITH ADEQUATE DILUTION FACTOR (4000).
ORIGINAL RCSI BULLETIN USED OLD LIMIT OF 100, WHILE NEWEST LIMIT IS 0.3 MICROCURIE/LITER.
INVESTIGATION SHOWED LIMITS BEING MET.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + *WASTE DISPOSAL, LIQUID + DILUTION + EFFLUENT +
FUEL REPROCESSING + INSPECTION AND COMPLIANCE + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + NFS

17-24646
SELECTED BIG ROCK POINT OPERATING EXPERIENCES
CONSUMERS POWER COMPANY, JACKSON, MICH.
TID-23699 +. 23 PAGES, SELECTED PORTIONS FROM BIG ROCK POINT NUCLEAR PLANT MONTHLY OPERATING REPORT NO.
49, OCTOBER 1966, NOVEMBER 15, 1966

THE SEPT. RELOADING CONTINUED. 68 FUEL BUNDLES WERE DRY-SIPPED, AND 12 LEAKED. ON STARTUP,
OCT. 21, ROD B-5 FAILED TO WITHDRAW. REMOVAL OF GRID-BAR BOLT IN THE ROD THIMBLE RESULTED IN
REPLACING 68 OF THE 70 SIMILAR BOLTS. A CHANGE IN THE FOUR CENTER BUNDLES WAS DELAYED 2 DAYS
BY HIGH WATER TURBIDITY. ***CHECKS SHOWED TEMP. COEFF. TURNED NEGATIVE AT 123 F AFTER ADDING
6.4 CENTS. DURING STEAM-BYPASS TESTS, THE VALVE OSCILLATED AND LAGGED PRESSURE.
TRANSMITTERS WERE RELOCATED TO SHORTEN LINES. ***FOUR PERSONS RECEIVED MORE THAN 2 R DURING
QUARTER. WELDERS WORKED IN THE REGEN. HEAT EXCHANGER ROOM, RECEIVED ABOUT AN R PER 20 MIN.
OTHER HIGH-RADIATION JOBS LISTED.

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

*FAILURE, FUEL ELEMENT + *FAILURE, SCRAM MECHANISM + *PERSONNEL EXPOSURE, RADIATION +
BIG ROCK POINT (BWR) + CORE COMPONENTS + MAINTENANCE AND REPAIR + REACTOR, BWR + REPORT, OPERATIONS +
TEMPERATURE COEFFICIENT + TURBINE + VALVE

17-24647
SUNDERMAN ID
HALLAM NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 45
CONSUMERS PUBLIC POWER DISTRICT, HALLAM, NEBR.
TID-23023 +. 15 PAGES, APRIL 1966

THIS PROGRESS REPORT IS ONE OF A SERIES. SINCE THE REACTOR IS BEING DISMANTLED, THE MORE
APPROPRIATE INFORMATION RELATES TO MAINTENANCE, CORE-ELEMENT TRANSFERS, RADIATION SAFETY AND
CONTROL. INCLUDES SHORT SUMMARIES OF EACH DAYS WORK.

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

*REACTOR DECOMMISSIONING + HALLAM (LMR) + REACTOR, GRAPHITE MODERATED + REACTOR, LMCR + REPORT, OPERATIONS

17-24648 ALSO IN CATEGORY 15
LACROSSE BOILING WATER REACTOR ENVIRONMENTAL RADIATION SURVEY PROGRAM SEMI-ANNUAL REPORT, APRIL 1,
1966-SEPTEMBER 30, 1966
DAIRYLAND POWER COOPERATIVE, GENDA, WIS.
TID-23701 +. 29 PAGES, 1966

NO UNUSUAL TRENDS IN AIR, PRECIPITATION, RIVER WATER, GROUND WATER, RIVER SILT, SOIL
VEGETATION, MILK, OR FISH WERE FOUND AT SITE OR MORE DISTANT REFERENCE AREAS. GIVES LOCATION
OF SAMPLES, ANALYTICAL TECHNIQUE, SENSITIVITIES, AND VALUES MEASURED. CHINESE AND FRENCH
NUCLEAR BOMB TESTS IN THE ATMOSPHERE WERE DETECTED. (REACTOR HAS NOT OPERATED.)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24648 *CONTINUED*

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

*SURVEY, RADIATION, ENVIRONMENTAL + FALLOUT + LACROSSE (BWR) + REACTOR, BWR

17-24649 ALSO IN CATEGORIES 9 AND 6

SELECTED BONUS OPERATING EXPERIENCE

PUERTO RICO WATER RESOURCES AUTHORITY

PRWRA-106 + WRA-8-66-7 +. SECTIONS FROM REACTOR OPERATIONS AT THE BONUS PLANT, MONTHLY REPORT NO. 11, 46
PAGES, NOVEMBER 1966

(PG 5) RODS 4 AND 15 CONTINUED TO MOVE OUT OF THE CORE AFTER RAISE SWITCH RELEASED, AS RELAY CONTACTS REMAINED CLOSED EVEN WHEN THE SPRING WAS SET FOR MAXIMUM FORCE. AFTER ROUGHENING THE CONTACTS (WHICH HAD BEEN DRY AND HIGHLY POLISHED), THERE WAS NO MORE FAILURE. (PG 6,31) PLACING THE PURIFICATION SYSTEM IN OPERATION WAS NOT PROPERLY DONE, AND THE COLC-WATER INJECTION CAUSED A POWER LEVEL INCREASE FROM 3 TO 4.15 MWTH. (PG 17) AFTER A SCRAM AND DIVERSION OF OFF-GAS TO THE VAPOR SPHERE, VARIOUS DRAINS WOULD PLUG, CAUSING PRESSURE BUILDUP TO BLOW THE WATER SEALS, RELEASING RADIOGAS. (PG 23) AN ABNORMAL RCD PROGRAM TO MAINTAIN SUPERHEAT TEMPERATURES WAS CAUSED BY CARRYOVER BY TOO HIGH A WATER LEVEL. THE INDICATED WATER LEVEL WAS LOW BECAUSE OF TOO LOW A FLOW IN THE WATER COLUMN. OPENING THE RECIRCULATION VALVE INCREASED THE BOTTOM TEMP. FROM 425 TO 481 F. (PG 28) AN ANALYSIS OF THE OCT. 24 LOAD REJECTION SHOWS THAT THE SCRAM MAY HAVE BEEN FROM HIGH FLUX OR FROM TURBINE BYPASS VALVE OPENING. WITH THE ADMISSION VALVES IN AUTOMATIC, A LINE-FREQUENCY CHANGE CAUSES THE PRESSURE ERROR AND THE SPEED ERROR TO OPPOSE.

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

*ACCIDENT, COLD COOLANT + *ACCIDENT, LOAD REJECTION + *AIRBORNE RELEASE + *FAILURE, COMPONENT +
*INSTRUMENTATION, ABNORMAL INDICATION + *INSTRUMENTATION, RELAY + BONUS (ISR) + CONTROL ROD DRIVE +
CONTROLLER + COOLANT PURIFICATION SYSTEM + FAILURE, OPERATOR ERROR +
INSTRUMENTATION, LIQUID LEVEL DETECTION + OFF GAS + OPERATING EXPERIENCE + REACTOR, INTERNAL SUPERHEAT +
REPORT, OPERATIONS + TURBINE

17-24734 ALSO IN CATEGORY 15

LAU FL

INITIAL RADIATION SURVEY, SHIPPINGPORT ATOMIC POWER STATION, PWR PROJECT

BETTIS ATOMIC POWER LAB., WEST MIFFLIN, PA.

WAPD-PWR-TE-204 +. 22 PAGES, NOV. 10, 1967

THE SECOND CORE FOR THE SHIPPINGPORT ATOMIC POWER STATION IS DESIGNED FOR OPERATION AT 505 MW(TH) WHICH IS ABOUT 2.2 TIMES THE DESIGN POWER FOR CORE 1. WAPD-PWR-TE-204 REPORTS THE RESULTS OF AN EVALUATION OF THE INITIAL CORE-2 RADIATION SURVEY OF THE SHIPPINGPORT ATOMIC POWER STATION. THE RADIATION LEVELS REPORTED ARE PRIMARILY THOSE WHICH ARE PRESENT DURING PLANT OPERATION. THE RESULTS SHOW THAT THERE IS NO DETECTABLE NEUTRON RADIATION OUTSIDE THE EXTERNAL SHIELD AND THAT GENERAL GAMMA LEVELS ARE LESS THAN 0.1 MREM/HR. RADIATION LEVELS INSIDE THE PLANT AT SHIELDED VALVE STATIONS AND IN THE REACTOR CHAMBER AFTER SHUTDOWN ARE ALSO PRESENTED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*RADIATION SAFETY AND CONTROL + *SHIELDING + *SHIPPINGPORT (PWR) + *TESTING + GAMMA EMITTER + NEUTRON +
REACTOR, PWR + SURVEY, RADIATION, ENVIRONMENTAL

17-24781 ALSO IN CATEGORY 5

POLASKI CA + CUCHEAN RG

EXPERIMENTAL DETERMINATION OF THE SOURCE OF PHOTONEUTRONS IN A WATER MODERATED NUCLEAR REACTOR

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-17 +. 34 PAGES, 11 FIGURES, 1 TABLE, 14 REFERENCES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 17,
JANUARY 1966

PRESENTS DETAILS OF EXPERIMENTS WHICH DETERMINED THAT LA-140 GAMMA RAYS PRODUCED PHOTONEUTRONS FROM DEUTERIUM IN ORDINARY WATER. THE ABSOLUTE THERMAL FLUX AFTER 6 DAYS OF SHUTDOWN FROM 100-KW OPERATION WAS 154 N/CM SQUARED-SEC. CONCLUDES THAT SOURCELESS STARTUPS SHOULD BE RECONSIDERED, PROVIDED THAT CERTAIN SAFETY PRECAUTIONS ARE SATISFIED SUCH AS PLACING DETECTOR CLOSER THAN 60 CM TO CORE TO OBSERVE MULTIPLIED NEUTRONS RATHER THAN THOSE PRODUCED IN REFLECTOR (SEE TECHNICAL REPORT 20).

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*DEUTERIUM + *SOURCE, NEUTRON + INSTRUMENTATION, STARTUP RANGE + LANTHANUM + MEASUREMENT, GENERAL +
REACTOR STARTUP, LOW SOURCE + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFLECTOR + TEST, PHYSICS

17-24782

PERRY RT

THE MEASUREMENT OF THERMAL NEUTRON FLUX DISTRIBUTIONS THROUGH A VARIABLE WATER GAP AND GRAPHITE SLAB

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24782 *CONTINUED*

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-18 +. 13 PAGES, 13 FIGURES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 18, JUNE 1966

GIVES RESULTS OF MEASUREMENTS OF THERMAL FLUX IN WATER GAP BETWEEN CORE AND A 4-IN.-THICK GRAPHITE BLOCK TO DETERMINE OPTIMAL DISTANCE BASED ON USE AS IRRADIATION SPACE WHILE NOT EXCEEDING ALLOWABLE REACTIVITY EFFECT OF 0.4% DELTA K/K. GRAPHITE LOCATED WITH 2-IN. WATER GAP, RESULTING IN PEAK FLUX OF 43% OF CORE PEAK FLUX.

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*FLUX DISTRIBUTION + *MEASUREMENT, GENERAL + GRAPHITE + IRRADIATION FACILITY + REACTIVITY, EXCESS + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFLECTOR + THERMAL NEUTRON

17-24783

FELTZ DE + RANDALL JD + GODSEY TA + MUELLER DW

RESULTS OF THE CRITICAL TEST PROGRAM FOR LOADING NUMBER 8-B

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-19 +. FIGURES, 3 TABLES, 4 REFERENCES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 19, NOV. 1966

DESCRIBES NEW CORE LOADING AND EXPERIMENTAL FACILITIES FOR 100-KW NSC REACTOR FACILITY GIVES FLUX DISTRIBUTION IN EXPERIMENTAL FACILITIES AND RESULTS OF VOID COEFFICIENT MEASUREMENTS, CONTROL-ROD CALIBRATION, AND POWER CALIBRATION. NEW CORE LOADING CAN OPERATE ANYWHERE IN THE REACTOR POOL. FACILITIES INCLUDE USUAL ONES PLUS A 3-IN.-OD WET-TUBE FACILITY IN CENTRAL POSITION (WHICH HAS A SLOW-SPEED LEFT MOTOR TO MINIMIZE REACTIVITY EFFECTS) AND A SMALL CADMIUM-LINED TUBE (FOR SHORT-TIME IRRADIATIONS) WHICH EJECTS SAMPLES AT REACTOR BRIDGE.

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*IRRADIATION FACILITY + *REACTOR STARTUP TESTING + *SYSTEM DESCRIPTION + FLUX DISTRIBUTION + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-24784

ALSO IN CATEGORY 5

RANDALL JD + POLASKI CA + BECK CL + PERRY RT + WILSON WB

INVESTIGATION OF THE PROPERTIES OF PHOTONEUTRONS IN THE NSCR CORE

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-20 +. 12 PAGES, 7 FIGURES, 2 REFERENCES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 20, MAY 1967

DISCUSSES MEASUREMENTS OF THE PHOTONEUTRONS IN THE CORE AND REFLECTOR. DISTRIBUTION IN THE CORE WAS THE SAME AS THE OPERATING FLUX BUT DECREASED SLOWER WITH DISTANCE IN THE WATER REFLECTOR. WITH THE SOURCE REMOVED, MEASUREMENTS SHOWED THAT NEUTRON POPULATION RESPONDED TO SUBCRITICAL MULTIPLICATION CHANGES (FROM -6.9% TO -0.4%) JUST AS WITH PO-EE SOURCE. CONCLUDES THAT NO SOURCE IS NEEDED IF REACTOR LOGS GREATER THAN 1000 KWHR/WEEK AND IF STARTUP-CHANNEL DETECTOR IS POSITIONED NEAR THE CORE (SEE ALSO TECHNICAL REPORT 17).

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*DEUTERIUM + *GAMMA + *SOURCE, NEUTRON + FLUX DISTRIBUTION + INSTRUMENTATION, STARTUP RANGE + MEASUREMENT, GENERAL + NEUTRON + REACTOR STARTUP, LOW SOURCE + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-24785

ALSO IN CATEGORY 6

BARKER DG

THE MEASUREMENT OF THERMAL NEUTRON FLUX DISTRIBUTIONS THROUGH A VARIABLE WATER GAP AND A VOID

TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS

NSC-22 +. 10 PAGES, 5 FIGURES, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NO. 22, SEPT. 1967

FLUX DISTRIBUTIONS AND REACTIVITY CHANGES WERE MEASURED FOR EFFECTS OF PLACING A 4-IN.-THICK VOID 3, 2, AND 1 IN. FROM THE CORE FACE. RESULTS ARE COMPARED WITH THOSE FOR A SIMILAR TEST CONDUCTED WITH GRAPHITE (SEE TECHNICAL REPORT 18). VOID WAS CONSTRUCTED WITH ALUMINUM PLATES. THE FLUX TRANSMITTED ACROSS THE VOID TO BEAM PORTS WOULD BE 1 TIMES 10(12TH), ASSUMING A PEAK FLUX OF 2 TIMES 10(12TH) IN A 2-IN. WATER GAP. THE VALUE FOR A GRAPHITE REFLECTOR IS 7 TIMES 10(11TH). SUGGESTED PLACEMENT IS A 4-IN. GRAPHITE (WITH INTERNAL VOID) REFLECTOR 2 IN. FROM CORE. THIS MINIMIZES REACTIVITY OF VOID.

AVAILABILITY - NUCLEAR SCIENCE CENTER, TEXAS A + M UNIVERSITY, COLLEGE STATION, TEXAS 77843

*BEAM HOLE + *FLUX DISTRIBUTION + *MEASUREMENT, GENERAL + REACTIVITY EFFECT, VOID + REACTOR, POOL TYPE + REACTOR, RESEARCH + REFLECTOR

17-24809

MEHANN RO

6 HPH LEAKAGE FROM NS SAVANNAH ISOLATION VALVE

FIRST ATOMIC SHIP TRANSPORT, INC.

1 PAGE, APRIL 10, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGE 9 (APRIL 22, 1968) COCKET 50-238

(LETTER, APRIL 10) ON MAR. 18, 1968, ENROUTE TO NEW YORK CITY FROM SPAIN, CONTAINMENT DRAIN TANK LEVEL STARTED INCREASING. ON MAR. 24, THE VESSEL BERTHED AND CONTAINMENT INSPECTED. THE ISOLATION VALVE FOR PRESSURIZER RELIEF VALVE PR-3V WAS LEAKING THROUGH A LOOSE CLOSURE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24809 *CONTINUED*

ASSEMBLY AND CUT PACKING UNDER THE PLUG. THE PLUG AND PACKING WERE REPLACED WITH A FREEZE PLUG TO TEMPORARILY STOP FLOW.

*LEAK + NS SAVANNAH (PWR) + OPERATING EXPERIENCE + REACTOR, MARITIME + REACTOR, PWR + VALVE

17-24810

ALSO IN CATEGORIES 7 AND 5

MILLER PH

HIGHER TRIGA ARGON ACTIVITY FROM INCREASED TRANSFER COEFFICIENT

GULF GENERAL ATOMIC, INC.

1 PAGE, APRIL 5, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGE 10 (APRIL 22, 1968) DOCKET 50-227

(LETTER, APRIL 5) DURING A THERMIONIC TRIGA COMPLIANCE INSPECTION MARCH 6-7, AR-41 RELEASE FROM REACTOR POOL APPEARED TO BE HIGHER DUE TO TURBULENCE IN THE POOL WATER, INCREASING THE TRANSFER COEFFICIENT. RECALCULATING THE AR-41 ACTIVITY WITH THE HIGHEST COEFF. FROM SAR GIVES $8.2 \times 10(-6\text{TH})$ MICROCURIE/CC VS A MEASUREMENT OF $4 \times 10(-6\text{TH})$. THE ACTIVITY DISCHARGED IS 6.4 RATHER THAN 2.48 MICROCURIES/SEC AND GIVES A MAX. DOWNWIND CONCENTRATION ONLY A FACTOR OF 6 LESS THAN MFC. THIS REQUIRES A DILUTION FACTOR OF 6.7. COMPUTATIONS ARE CONSERVATIVE BY A FACTOR OF 2.

*ARGON + *COMPARISON, THEORY AND EXPERIENCE + *REACTOR, POOL TYPE + *WATER, GENERAL + DILUTION + INSPECTION AND COMPLIANCE + PARTITION COEFFICIENT + REACTOR, RESEARCH + STACK + TRIGA (RR)

17-24811

ALSO IN CATEGORY 9

JOHNSON WR

FAILURE OF BEAM HOLE MODERATOR, RESTART ATTEMPTED WITHOUT SRD

UNIVERSITY OF VIRGINIA

2 PAGES, APRIL 3, 1966, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 11-12 (APRIL 22, 1968) DOCKET 50-62

(LETTER, APRIL 3) ON MARCH 10, A WELDED SEAM FAILED ON THE MODERATOR BOX OF THE OLD TANGENTIAL BEAM PORT, PUTTING GRAPHITE POWDER INTO THE REACTOR POOL. THE REACTOR WAS SCRAMMED BY PERIOD AND HIGH FLUX (VARIOUS RECORDS SHOWED 117-161% POWER). THE OPERATOR INCORRECTLY ASCERTAINED THAT THIS WAS FAILURE OF THE POWER-CONTROL SERVO AND TRIED TO RESTART THE REACTOR WITHOUT NOTIFYING A SENIOR OPERATOR. THE REACTOR COULD NOT OVERCOME XENON. *** THE NEXT DAY, POOL-WATER DARKENING WAS SEEN. ON MAR. 14, COMPLIANCE WAS NOTIFIED, AND, ON MAR. 25, INSPECTORS WITNESSED RESTART. *** POOR THERMAL CONDUCTIVITY AND A LARGE PLATE SUPPORTED ONLY AT THE SIDES CAUSED THE FAILURE. *** OPERATOR PERFORMANCE WAS NOT SATISFACTORY, IN PART BECAUSE AUTOMATIC SHUTDOWNS DUE TO INSTRUMENT MALFUNCTION ARE TOO FREQUENT.

*BEAM HOLE + *FAILURE, EQUIPMENT + *REACTIVITY EFFECT, ANOMALOUS + CONTROLLER + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + GRAPHITE + INCIDENT, HUMAN ERROR + INSPECTION AND COMPLIANCE + MODERATOR + REACTOR POWER + REACTOR, POOL TYPE + REACTOR, RESEARCH + RELIABILITY, SYSTEM + SCRAM, SPURIOUS + STAFFING, TRAINING, QUALIFICATION + WELDS

17-24813

ALSO IN CATEGORY 1

COE RJ

CONN. YANKEE SUGGESTS SYSTEM 24 HR TECHNICAL SPECIFICATION WAIVERS.

CONNECTICUT YANKEE

2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(15), PAGES 27-28 (APRIL 8, 1968), DOCKET 50-213

(LETTER, MAR. 20) A FEB. 21, 1968, COMPLIANCE CITATION (RELATING TO LEAKAGE FEB. 7 AND 8) WAS ANSWERED MAR. 12. IN OUR OPINION THE TECH. SPEC. SET LEAKAGE AT TOO LOW A VALUE FROM THE SAFETY STANDPOINT, AND WE HAVE PROPOSED A HIGHER VALUE. *** THIS NEW FORM OF TECH. SPECS. ESTABLISHES MANY MORE LIMITS AND CONDITIONS ON MORE VARIABLES THAN BEFORE. SECTION 3 (LIMITING CONDITIONS FOR OPERATION) CONTAINS MANY CALCULATED VALUES BELOW SAFETY LIMITS, AND STRICT COMPLIANCE WITH THESE COULD LEAD TO UNNECESSARY SHUTDOWN. *** THERE SHOULD BE A MECHANISM FOR AEC TO GRANT A 24-HR WAIVER OF TECH. SPEC. SO SITUATION COULD BE CORRECTED, REPLACEMENT POWER PURCHASED, OR SITUATION ANALYZED.

*OPERATING EXPERIENCE SUMMARY + *TECHNICAL SPECIFICATIONS + HADDAM NECK (PWR) + REACTOR, PWR

17-24815

ORL OFFERS GUIDELINES ON PREPARING APPLICATION FOR INDIAN POINT 1 FULL TERM LICENSE

CONSOLIDATED EDISON COMPANY OF NEW YORK

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 29 (APRIL 8, 1968)

(LETTER, MARCH 27) (1) APPLICATION SHOULD INCLUDE OPERATING HISTORY, CONFIRMATION OF DESIGN BASES, ADEQUACY OF LICENSEES ORGANIZATION, SIGNIFICANT CHANGES, AND COMMENTS BY ACRS. (2) AN ANALYSIS OF UNIT 1 WITH AEC GENERAL DESIGN CRITERIA AND WITH PROPOSED IEEE STANDARD. (3) CERTAIN TOPICS ACRS HAS EXPRESSED INTEREST IN. (4) TECH. SPECS. IN THE NEW FORMAT.

*OPERATING LICENSE PROCESS + *REGULATION, AEC + AEC DESIGN CRITERIA + INDIAN POINT 1 (PWR) + REACTOR, PWR + REPORT, OPERATIONS SUMMARY + TECHNICAL SPECIFICATIONS

17-24816

ALSO IN CATEGORY 12

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24816 *CONTINUED*

MEHANN RD

NS SAVANNAH EMERGENCY COOLING SYSTEM FAILURE

FIRST ATOMIC SHIP TRANSPORT

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 29-30 (APRIL 8, 1968)

(LETTER, MAR. 15) ON MAR. 18 IN GENOA, DURING FLUSHING OF SALT-WATER DECAY-HEAT-REMOVAL CIRCUIT AFTER A SUCCESSFUL ROUTINE TEST, SALT-WATER INLET VALVE DK-IV DID NOT OPEN. REACTOR WAS SHUT DOWN, AND A FIRE HOSE WAS CONNECTED TO A FLUSHING VALVE. *** THE VALVE BONNET WAS REMOVED, SHOWING THAT THE STEM HAD CORRODED AWAY, ALLOWING DISK TO DROP AND CLOSING VALVE. VALVE REASSEMBLED WITHOUT DISK, TO BE FIXED IN N. Y. CITY. THIS VALVE WILL BE INCLUDED IN THE ANNUAL SEA-VALVE INSPECTION.

*FAILURE; EQUIPMENT + *SHUTDOWN COOLING SYSTEM + *VALVE + INCIDENT, EQUIPMENT + NS SAVANNAH (PWR) + REACTOR, MARITIME + REACTOR, PWR + TEST, SYSTEM OPERABILITY

17-24817 ALSO IN CATEGORIES 12 AND 10

COE RN

REPCRT ON SAN ONOFRE CABLE FIRE, MAR. 12, 1968

SOUTHERN CALIFORNIA EDISON COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 31-32 (APRIL 8, 1968), DOCKET 50-206

(LETTER, MAR. 21) AN OPERATOR WAS INVESTIGATING AN INTAKE-STRUCTURE LEVEL ALARM AND CALLED CONTROL ROOM AT 12/21 AM TO REPORT SMOKE AND A BLUE FLASH FROM NO. 2 480-V SWITCHGEAR ROOM. THE ROOM WAS SO FILLED WITH SMOKE THAT FAILURE COULD NOT BE DETERMINED. REACTOR SCRAMMED AT 12/34 AM. *** FOR A WHILE DURING COOLDOWN, BORIC ACID PUMP WAS INOPERABLE AND CHARGING PUMP HAD HIGH SUCTION PRESSURE. BOTH BORIC ACID TANK HEATERS WERE INOPERABLE. *** THREE CABLE TRAYS CONTAINING 750 CONDUCTORS WERE AFFECTED FOR A 15 FT LENGTH.

*ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + CONTAINMENT PENETRATION, ELECTRICAL + ELECTRIC POWER, SHUTDOWN + INDEPENDENCE + PUMP + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN SYSTEM, SECONDARY + TECHNICAL SPECIFICATIONS

17-24818 ALSO IN CATEGORY 3

FREDERICKSON RL

LOST RADIOPHARMACEUTICALS ON HIGHWAY

ABBOTT LABORATORIES

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 34-35 (APRIL 8, 1968)

(LETTER, FEB. 10) ON FEB. 10, ABOUT 2/30 A.M., THE HOOD OF A VW BLEW OFF ON THE SANTA ANA FREEWAY IN CALIFORNIA, AND 5 PACKAGES OF RADIOPHARMACEUTICALS BLEW OUT. TWO WERE RECOVERED AFTER BEING RUN OVER, BUT STILL SEALED. ANOTHER WAS LATER RECOVERED. STILL MISSING ARE TWO PACKAGES (2 MILLICURIES OF CR-51, 900 MICROCURIES OF I-131 AND 500 OF I-125), ALTHOUGH FRAGMENTS OF THE PACKAGE WERE FOUND.

*RADIOISOTOPE + *SOURCE, RADIATION, LOST + CHROMIUM + IODINE + TRANSPORTATION AND HANDLING

17-24819

KNAPP SR

HADDAM NECK CITATION FOR COOLANT LEAKAGE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 35-36 (APRIL 8, 1968)

(LETTER, FEB. 21) CITATION IS FOR OPERATING 19 HR ON FEB. 7/8 WITH RESIDUAL-HEAT-REMOVAL PUMP SEAL LEAKAGE EXCEEDING 1 LITER/HR, AND FOR THIS NOT BEING REVIEWED BY SAFETY COMMITTEE. (REPLY, MAR. 12) AFTER A FEB. 6 TEST, THE LEAK WAS 3 LITERS/HR NEXT DAY, RATHER THAN DROPS. PLANT MANAGER DECIDED DIRT IN SEAL FACE COULD BE REMOVED BY CONTINUOUS OPERATION OF PUMP, AND LEAKAGE WAS DOWN TO 1.5 AFTER 2 HOURS, AND LESS THAN 1 AFTER 10 HR. ON FEB. 7, CHAIRMAN OF SAFETY REVIEW COMMITTEE AND ON FEB. 8 THE OPERATIONS REVIEW COMMITTEE REVIEWED EVENT AND RECOMMENDED INSPECTION DURING MARCH SHUTDOWN. NUCLEAR SAFETY COMMITTEE NOT REVIEWING WAS AN OVERSIGHT.

*LEAK + *SAFETY REVIEW + *TECHNICAL SPECIFICATIONS + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + INSPECTION AND COMPLIANCE + PUMP + REACTOR, PWR + SHUTDOWN COOLING SYSTEM

17-24820

SCHROEDER AW

COMPLIANCE CITATION OF PETRO CHEM. CORP.

PETRO-CHEM ENGINEERING CORP., CHICAGO, ILL.

3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 36-38 (APRIL 8, 1968)

(LETTER, JAN. 24) INSPECTION NOV. 17, 1967, AT CITIES SERVICE REFINERY (CHICAGO, ILL.) REVEALED 7 ITEMS (RADIATION OUTSIDE TRAILER GREATER THAN 2 MR/HR, OUTSIDE OF RADIOGRAPHY SHIELD GREATER THAN 500 MR/HR). INSPECTION SEPT. 20, 1967, AT HOUSTON, TEX., REVEALED 8 MORE (RECORDS WERE INCOMPLETE, UNLICENSED DEVICES WERE USED, FILMS WERE NOT USED, INSTRUMENTS NOT CALIBRATED). *** NUMBER AND NATURE OF NONCOMPLIANCE ITEMS INDICATE INADEQUATE MANAGEMENT CONTROL OVER SAFETY.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-24820 *CONTINUED*
*FAILURE, ADMINISTRATIVE CONTROL + *RADIOGRAPHY + INSPECTION AND COMPLIANCE

17-24821
ICE RD
TECHNETIUM SPILL
TEMPLE UNIVERSITY, PHILADELPHIA, PA.
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE 14(15), PAGE 38 (APRIL 8, 1968)

(FEB. 27, TELEGRAM) 250 MICROCURIES OF TC-99M WAS SPILLED AT 9/30 A.M., FEB. 26, 1968. NO SIGNIFICANT WHOLE-BODY EXPOSURE, INGESTION, OR PROPERTY DAMAGE. CITY NOTIFIED SITUATION UNDER CONTROL.

*CONTAMINATION + *TECHNETIUM

17-24823
STERMAN JJ
EXPOSURE AT U OF ILL. TRIGA
UNIVERSITY OF ILLINOIS, URBANA, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 38-39 (APRIL 8, 1968)

(LETTER, FEB. 27) ON FEB. 12, HP OFFICE WAS NOTIFIED THAT A FILM BADGE WORN JAN. 12-FEB. 9 READ 3.15 R GAMMA AND 2.67 BETA. INVESTIGATION SHOWED THAT A GRADUATE STUDENT HAD REMOVED 5 COPPER SAMPLES (15 R/HR, CONTACT) JAN. 18-19 FROM REACTOR AND MADE PHYSICAL-PROPERTY MEASUREMENTS (100 MR/HR CONTACT) DURING JAN. 26-31. INDIVIDUAL HAS SINCE LEFT. NO CONTAMINATION FOUND. A SIMILAR PROCEDURE IN DECEMBER GAVE NO EXPOSURE.

*PERSONNEL EXPOSURE, RADIATION + COPPER + IRRADIATION TESTING + PROPERTY, PHYSICAL + REACTOR, RESEARCH + TRIGA (RR)

17-24898 ALSO IN CATEGORY 1
SENATE TESTIMONY ON POWER PLANT THERMAL EFFECTS
U. S. SENATE
7 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 2-7 (APRIL 22, 1968)

TESTIMONY BEFORE SUBCOMMITTEE ON AIR AND WATER POLLUTION BY S. LISS (MARYLAND PUB. SERVICE COMMISSION), J. W. GORE (BALTIMORE GAS AND ELECTRIC), L. W. CADWELLADER (PEPCO), P. W. MCKEE (MD. DEPT. OF WATER RESOURCES). *** LISS REFERRED TO MD. SENATE BILL 22 AS A MODEL OF STATE CONTROL, BELIEVES STATES ARE CLOSEST TO AFFECTED INDIVIDUALS. MCKEE AND GORE DEcriED USE OF EMOTION-PROVOKING WORDS RATHER THAN FACTS. *** A COMPUTATION SHOWS THAT THE THERMAL EFFECT ON CHEASEPEAKE BAY WOULD BE A TEMP. RISE LESS THAN 1 DEG, EVEN IF ALL PLANTS BUILT IN MD. REST OF CENTURY WERE BUILT ON THIS BODY OF WATER.

*CONGRESSIONAL ACTIVITY + *THERMAL POLLUTION

17-25000
BOZEK JM
EXPERIMENTAL DETERMINATION OF GAMMA EXPOSURE RATE IN PLUM BROOK HB-6 FACILITY
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TM-X-1490 +. 13 PAGES, FIGURES, TABLES, FEBRUARY, 1968

MEASUREMENTS WERE MADE WITH LIF THERMOLUMINESCENT DOSIMETERS AND AR-FILLED ION CHAMBERS. AN EMPIRICAL EQUATION WAS DEVELOPED WHICH PREDICTS THE EXPOSURE RATE. EQUATION IS EXPRESSED AS A STANDARDIZED EXPOSURE RATE MODIFIED BY CORRECTION FACTORS, WHICH ARE FRACTIONAL CHANGES. GRAPHS ARE GIVEN FOR DETERMINING CORRECTION FACTORS WHICH CONSIDER SHIM-ROD POSITION, POWER, AMOUNT OF WATER IN ATTENUATION TANKS, POSITION IN THE BEAM-HOLE, AND OTHER EXPERIMENT PERTURBATIONS. PURPOSE IS TO PERMIT EXPERIMENTERS TO PREDICT EXPOSURE RATE AS CONDITIONS CHANGE IN THE BEAM HOLE.

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

*BEAM HOLE + *GAMMA + *HEAT GENERATION, INTERNAL + *MEASUREMENT, GENERAL + DOSIMETRY, THERMOLUMINESCENCE + FLUX DISTRIBUTION + MATHEMATICAL TREATMENT + PLUM BROOK (TR) + REACTOR, TEST + REACTOR, TEST

17-25001 ALSO IN CATEGORIES 9 AND 6
TABOR WF + HURT SS
OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER,

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25001. *CONTINUED*

WHICH HAD BEEN CHanneled ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37)
REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A
REACTIVITY LOSS OF 1.4-2.65 % DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + *CONTROL ROD + *CONTROL ROD BURNUP + *IRRADIATION FACILITY + *REACTIVITY EFFECT +
CADMIUM + CORROSION + EROSION + FAILURE, FABRICATION ERROR + MAIN COOLING SYSTEM +
MAINTENANCE AND REPAIR + ORR (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, REAL

17-25058 ALSO IN CATEGORY 6

KARP J

POSITIVE MODERATOR COEFF. AT PLATR

UNITED NUCLEAR CORPORATION

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(18), PAGE 16 (APRIL 29, 1968), DOCKET 50-101

(LETTER, APRIL 10) REPORTS THAT MARCH MEASUREMENTS SUGGEST THAT THE OVERALL MODERATOR
TEMPERATURE COEFFICIENT AT PAWLING LATTICE TEST RIG WAS SLIGHTLY POSITIVE. ON MAR. 15,
SYSTEM WAS SHUT DOWN. EVALUATION SHOWS COEF. BETWEEN 65-90 F IS +0.00003 DK/K PER DEG C.
SYSTEM WILL NOT BE OPERATED UNTIL EITHER THE SYSTEM OR TECHNICAL SPECIFICATION IS MODIFIED TO
CONFORM.

*MODERATOR COEFFICIENT + *TECHNICAL SPECIFICATIONS + CRITICAL ASSEMBLY FACILITY + OPERATING EXPERIENCE +
TEMPERATURE COEFFICIENT

17-25059 ALSO IN CATEGORY 11

MINNICK LE

PROPOSED REDUCTION IN DIAMETER OF ONE REACTOR VESSEL STUD

YANKEE ATOMIC ELECTRIC COMPANY

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(18), PAGE 16 (APRIL 29, 1968)

(LETTER, APRIL 17) DURING DISASSEMBLY OF THE VESSEL HEAD FOR REFUELING, ONE OF THE 52 STUDS
GALLED THE THREADED PORTION IN BOTH THE STUD AND VESSEL FLANGE. REMOVAL NECESSITATED HIGH
TORQUES, WHICH DAMAGED THE THREAD BEYOND REPAIR WITH A THREAD CHASER. THE 5.25-IN.-DIAM STUD
WILL BE REPLACED WITH A 4.75-IN.-DIAM STUD. THE SA-193-B16 VESSEL FLANGE WILL BE BORED OUT
FOR AN A 320-L43 MATERIAL SLEEVE (YIELD POINT 121,000 PSI INSTEAD OF 85,000) TO RETAIN THE
EFFECTIVENESS OF THE STUD. ITS ELOGATION IS BEING CALCULATED.

*DAMAGE + *PRESSURE VESSEL + *REFUELING + FRICTION + OPERATING EXPERIENCE + REACTOR, PWR + STRESS +
TECHNICAL SPECIFICATIONS + YANKEE (PWR)

17-25060

BAAS C + DELCROIX V + JACQUEMAIN M + MAROUBY R + MEUNIER C + DEROBIEIN E + ROSSILLON F

SAFETY REPORT CONCERNING MELUSINE (AFTER POWER INCREASE TO 4 MW). DESCRIPTIVE PART.

COMMISSARIAT A L'ENERGIE ATOMIQUE, GRENoble, FRANCE

CEA-R-3131(VOLS. 1 AND 2) +. 222 PAGES IN VOL. 1, 83 PAGES IN VOL. 2, FIGURES, TABLES, MARCH 1967, IN
FRENCH

(IN FRENCH) BASICALLY A CURRENT DESCRIPTION OF A REACTOR OPERATED AT 1 MW MAR. 59, AND
OPERATED AT 4 MW SINCE DEC. 1965. POOL REACTOR WITH INDUCED WATER FLOW DOWNWARD THRU CORE TO
A DECAY TANK. (VOL. 1, 139 PG) - CORE, COOLANT CIRCUITS, AND I AND C. (VOL. 2, 80 PG) -
BUILDING, VENTILATION, EXPERIMENTS AND HOT CELL, RESIN TREATMENT. SHORT APPENDICES ON AIR
AND WATER ACTIVATION, CORE TEMPERATURE VS POWER LEVEL, CORE TEMPERATURE AFTER PUMP TRIP. ***
POOL NOW HAS A STEEL LINER, A STACK WAS ADDED, AND CONTROL ELECTRONICS PRINCIPLE MODIFIED AND
TRANSISTORIZED.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE US AND OVERSEAS.

*POWER UPGRATING + *REACTOR DESCRIPTION + FRANCE + MODIFICATION, SYSTEM OR EQUIPMENT +
REACTOR SAFETY SYSTEM + REACTOR, ITS TYPE + REACTOR, RESEARCH + STEEL LINER

17-25061

SAVOLAINEN AW

SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING SEPTEMBER 29, 1967. GAS-COOLED REACTOR PROGRAM

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-4200 +. 255 PAGES, FIGURES, TABLES, FEBRUARY, 1968

PROGRESS REPORT. TOPICS - FUEL ELEMENT DEVELOPMENT, COATED PARTICLE STUDIES, IRRADIATION
TESTS ON COATED PARTICLES, GRAPHITE AND PYROLYTIC-CARBON PROPERTIES AND IRRADIATION EFFECTS,
FISSION-PRODUCT RELEASE AND TRANSPORT STUDIES, OXIDATION OF COATED PARTICLES,
NUCLEAR-REACTOR-PROGRAM STUDIES, PCRV RESEARCH AND DEVELOPMENT, IRRADIATION TESTS OF GCFR
FUEL, AND HEAT-TRANSFER STUDIES.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25061 *CONTINUED*

*R AND D PROGRAM + *REACTOR, GCR + *REACTOR, HTGR + CARBON + COATED PARTICLE + CONCRETE, PRESTRESSED + FISSION PRODUCT TRANSPORT + FUEL ELEMENT + HEAT TRANSFER + IRRADIATION TESTING + OXIDATION + PRESSURE VESSEL + PYROLYTIC + RADIATION EFFECT

17-25062 ALSO IN CATEGORY 11

CORUM JM + SMITH JE

PCRVM MODEL STUDY PROGRAM

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-4200 +. 19 PAGES, FIGURES, PAGES 191-209 OF SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING SEPTEMBER 29, 1967. GAS-COOLED REACTOR PROGRAM, FEBRUARY 1968

(PG. 191-209) DESCRIBES PNEUMATIC AND HYDRAULIC TESTS ON FOUR MODELS (CONCRETE PROTOTYPE, T&C MORTAR OR MICRO-CONCRETE, AND EPOXY) AND COMPARES MEASURED STRAINS WITH FINITE-ELEMENT PREDICTIONS FOR VARIOUS AREAS OF MORTAR MODEL NO. 1. BOTH AXISYMMETRIC AND PLANE ANALYSES WERE MADE.

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

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + COMPARISON, THEORY AND EXPERIENCE + CONTAINMENT RESEARCH AND DEVELOPMENT + PRESSURE, INTERNAL + STRESS ANALYSIS

17-25064

FABRICATION OF THE PM REACTOR CORES (TYPE 2 DESIGN)

HITTMAN ASSOCIATES, INC., BALTIMORE, MD.

HIT-242 +. 46 PAGES, 11 FIGURES, 3 TABLES, JAN. 1967

DESCRIBES REPLACEMENT CORES BOUGHT ON FIXED-PRICE BASIS, USING PRODUCT-TYPE SPECS., RESOLUTION OF MATERIALS PROCUREMENT, FABRICATION AND TESTING PROBLEMS. INCLUDES GENERAL CORE DESCRIPTION, MATERIALS AND PRODUCT REQUIREMENTS, FABRICATION PROCESSES AND TESTS, AND QUALITY-CONTROL RESULTS FOR FUEL ASSEMBLIES, BURNABLE-POISON ELEMENTS, AND CONTROL RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*FABRICATION + *FUEL ELEMENT + CORE, PLATE TYPE + FUEL, METALLIC TYPE + PM 1 (PWR) + PM 3A (PWR) + POISON, BURNABLE + QUALITY CONTROL + REACTOR, MILITARY + REACTOR, PWR + TESTING

17-25066

TERRESTRIAL LOW-POWER PROGRAM QUARTERLY PROGRESS FOR PERIOD ENDING SEPTEMBER 30, 1967

OAK RIDGE NATIONAL LABORATORY, REACTOR DIVISION, TENN.

ORNL-4216 +. 42 PAGES, 8 FIGURES, 8 TABLES, MARCH 1968

PROGRESS REPORT. TOPICS - PROGRAM OBJECTIVES, COMPARISON OF PM 3A (THE ARMY STANDARD PLANT) AND INDIAN POINT 2, REACTOR-SYSTEM SIMPLIFICATION STUDIES, MATERIALS EVALUATION, SIMPLIFIED SMALL BOILING-WATER REACTOR, CONTROL OF A SIMPLIFIED SMALL BOILING-WATER REACTOR, AND DESIGN STUDY OF SMALL HIGH-SPEED HERMETICALLY SEALED STEAM TURBINE-GENERATORS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR, BWR + *REACTOR, MILITARY + *REACTOR, PWR + COMPARISON, REACTOR CHARACTERISTICS + FUEL ELEMENT + INDIAN POINT 2 (PWR) + R AND D PROGRAM + TURBINE

17-25067

ALSO IN CATEGORY 6

PELLARIN DJ + BAUMANN NP + CRANDALL JL + O-NEILL GF + SATTERFIELD RM

ZERO POWER EXPERIMENTS WITH U-235-ENRICHED THORIA AND THORIUM METAL LATTICES FOR THE HWOGR

DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.

DP-1125 +. 100 PAGES, 46 FIGURES, 32 TABLES, 19 REFERENCES, NOV. 1967

CRITICAL AND EXPONENTIAL SUBSTITUTION BUCKLING MEASUREMENTS AND FOIL ACTIVATIONS WERE PERFORMED TO DETERMINE SUBCADMIUM NEUTRON DISTRIBUTIONS, NEUTRON TEMPERATURES, CADMIUM RATIOS FOR 232-TH AND 235-TH CAPTURES, AND 232-TH/235-U FISSION RATIOS. EXPERIMENTAL RESULTS AGREED WITH HAMMER CODE CALCULATIONS WITHIN PLUS OR MINUS 25 MICROBARNES. IT WAS ESTIMATED THAT HAMMER CODE COULD CALCULATE NEUTRON ECONOMY OF ALL SYSTEMS STUDIED WITHIN 1%.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY EXPERIMENT + *REACTOR, HWR + *REACTOR, ORGANIC COOLED + BUCKLING + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + CRITICAL ASSEMBLY FACILITY + THORIUM + URANIUM-235

17-25068

HAUBENREICH PN + ENGEL JR + GABBARD CH + GUYMON RH + PRINCE BE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25068 *CONTINUED*

MSRE DESIGN AND OPERATIONS REPORT. PART V-A. SAFETY ANALYSIS OF OPERATION WITH U-233
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2111 +. 80 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1968

SUMMARIZES EXPERIENCE AND NEW INFORMATION. ASSESSES SAFETY OF OPERATING MSRE WITH U-233, TAKING INTO ACCOUNT EXPERIENCE, PHYSICAL CONDITION OF SYSTEM, AND DIFFERENT NEUTRONIC CHARACTERISTICS WITH U-233 IN PLACE OF U-235. (REFERENCES MSRE DESIGN REPORT AND ORIGINAL SAR FOR MUCH OF DETAILED DESCRIPTION OF REACTOR AND SITE). CONCLUDES IT IS SAFE TO OPERATE MSRE WITH U-233 BECAUSE ALTHOUGH U-233 HAS SMALLER FRACTION OF DELAYED NEUTRONS, IT GIVES A LARGER (NEGATIVE) TEMPERATURE COEFFICIENT OF REACTIVITY, GIVING THE SYSTEM A LARGER STABILITY MARGIN, PARTICULARLY AT LOW POWERS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*REPORT, OPERATIONS ANALYSIS + *REPORT, SAR + *URANIUM-233 + DELAYED NEUTRON + MSRE (RE) +
REACTOR STABILITY + REACTOR, MOLten SALT + SAFETY MARGIN

17-25069

MONTHLY OPERATING REPORT, MARCH 1967
CARLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.
CVNA-291 +. 28 PAGES, MARCH 1967

MONTHLY PROGRESS REPORT. TOPICS INCLUDE GENERAL PLANT PERFORMANCE, PLANT CHEMISTRY, PLANT MAINTENANCE, HEALTH AND SAFETY, AND STATUS OF RESEARCH AND DEVELOPMENT PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*REPORT, OPERATIONS + COOLANT CHEMISTRY + CVTR (PWR) + MAINTENANCE AND REPAIR +
RADIATION SAFETY AND CONTROL + REACTOR, HWR + REACTOR, PRESSURE TUBE + REACTOR, PWR

17-25070

MONTHLY OPERATING REPORT
CARLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.
CVNA-277 +. 38 PAGES, FEBRUARY 1967

PLANT WAS SHUT DOWN ENTIRE PERIOD TO REMOVE 5 LEAKY ELEMENTS (3 R AND D, 2 STANDARD). (PG. 23) MINIMUM DNB RATIO AT ESTIMATED TIME OF FAILURE IN TUBE L4 WAS CALCULATED AS 3.86, WITH NO LOCAL BOILING INDICATED. AS THE FAILURE WAS ON THE INLET LEG, THE INCREASED SUBCOOLING WOULD GIVE A DNB RATIO GREATER THAN 3.86. FUEL AND PRESSURE-TUBE MOVES WERE CALCULATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CNB + *FAILURE, FUEL ELEMENT + CVTR (PWR) + PERFORMANCE LIMIT + REACTOR, PRESSURE TUBE + REACTOR, PWR +
REFUELING + REPORT, OPERATIONS

17-25075

ALSO IN CATEGORY 9

FROELICHER B
INTRODUCTION TO THE STUDY OF BOILING IN SWIMMING-POOL REACTORS. MEASUREMENT OF THE EFFICIENCY OF A C C 5
CHAMBER
COMMISSARIAT A L-ENERGIE ATOMIQUE, SACLAY (FRANCE). CENTRE D-ETUDES NUCLEAIRES
CEA-R-3326 +. 11 PAGES, 2 FIGURES, NOV. 1967, (IN FRENCH)

EFFICIENCY OF A CC5 IONIZATION CHAMBER HAS BEEN ROUGHLY EVALUATED BY INTEGRATING THE RELATIONSHIP (P EQUALS $\epsilon F (1 + \epsilon A)$) OVER THE BANDWIDTH OF THE APPARATUS. THIS SHOWS THE INFLUENCE OF ϵ . (A MORE REALISTIC VALUE OF THE EFFICIENCY WILL BE DERIVED LATER, USING THE LOW-POWER TRANSFER FUNCTION OF THE REACTOR ULYSSE.) RESULT IS A GRAPH OF -DB VS FREQUENCY, WHICH IS 0 DB TO 100 HERTZ, FALLING SHARPLY TO -16 DB AT 950 HERTZ. VARIANCE OF THE SIGNAL IS CALCULATED AND MEASURED FOR DIFFERENT DISTANCES FROM THE CORE.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CHAMBER, ION + *MATHEMATICAL TREATMENT + *TRANSFER FUNCTION + COMPARISON, THEORY AND EXPERIENCE + FRANCE +
INSTRUMENTATION, NUCLEAR + REACTOR, POOL TYPE + TEST, INSTRUMENT RESPONSE

17-25076

ALSO IN CATEGORY 15

LONG LD + SHAPER RS + MOELLER DW + HARRIS SJ
DEVELOPMENT OF EXAMINATIONS FOR THE EVALUATION OF RADIOLOGICAL HEALTH PERSONNEL
AMERICAN PUBLIC HEALTH ASSOCIATION + U.S. PUBLIC HEALTH SERVICE
5 PAGES, 2 REFERENCES, HEALTH PHYSICS, 11, PAGE 579-583, (1965)

THE PROFESSIONAL EXAMINATION SERVICE OF THE AMERICAN PUBLIC HEALTH ASSOC. (UNDER USPHS CONTRACT) SOLICITED 2000 QUESTIONS FROM 125 OF 1100 WORKERS IN THE FIELD, AND FROM THEM COMPILED 7 EXAMINATIONS TO CERTIFY STATE AND LOCAL HEALTH DEPARTMENT PERSONNEL AS RADIOCHEMISTS, RADIOLOGICAL HEALTH SPECIALISTS, AND INSPECTORS. ASSERTS THAT THE CRITICISMS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25076 *CONTINUED*
OF A MULTIPLE-CHOICE TEST ARE OVERCOME BY INVOLVING A LARGE REPRESENTATIVE NUMBER OF THE PROFESSION IN INITIATING THE QUESTIONS AND HAVING LEADERS IN THE FIELD REVIEW THEM.

*STAFFING, TRAINING, QUALIFICATION + *STATE PROGRAM + HEALTH PHYSICS TRAINING +
RADIATION SAFETY AND CONTROL

17-25080 ALSO IN CATEGORIES 9 AND 6
FILIPCZAK N + FILIPCZAK W + FURET J + KAISER J
REPORT OF BLIND STARTUP EXPERIMENTS CARRIED OUT ON THE REACTOR CABRI BETWEEN JULY 4 AND 8, 1966
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY, FRANCE
CEA-R-3341 +. 24 PAGES, FIGURES, NOV. 1967, IN FRENCH

(IN FRENCH) TWELVE STARTUPS (WITH VARYING RATIOS OF GAMMA/NEUTRON INDUCED CURRENT IN THE COMPENSATED CHAMBERS) WERE RUN WITH VARYING REACTIVITY INSERTION RATES (BOTH LINEAR AND EXPONENTIAL) TO OBTAIN COMPARISONS WITH ANALOGUE STUDIES (1966/SER/1233 BY M.W. FILIPCZAK). OUTPUT IS A GRAPH FOR EACH STARTUP, SHOWING POWER, GAMMA, AND NEUTRON SIGNALS. ALTHOUGH THE NUMBER OF EXPERIMENTS WAS TOO LOW FOR A DEFINITE CONCLUSION, THE BLIND STARTUP METHOD DOES NOT APPEAR INCOMPATIBLE WITH SAFETY.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*MEASUREMENT, GENERAL + *REACTOR STARTUP, LOW SOURCE + *SOURCE, NEUTRON + *TEST, PROOF +
ANALOG SIMULATION + CHAMBER, COMPENSATED + REACTOR TRANSIENT + REACTOR, RESEARCH

17-25084 ALSO IN CATEGORY 8
VILLARD R
CHEMICAL PROBLEMS POSED BY THE OPERATION OF REACTORS. SYMPOSIUM ON THE CHEMISTRY OF REACTORS, JUELICH, OCTOBER 1966
CEA, PARIS
7 PAGES, RADIOCHIM. ACTA, 8, PAGES 1-6 (SEPT. 1967) IN FRENCH

CONTAMINATION AND PURIFICATION OF WATER IN REACTORS MODERATED WITH EITHER D2O OR H2O IS DISCUSSED. THE PROBLEM OF THE HOMOGENEOUS POISONING OF THE WATER THAT CAN BE USED AS A CONTROLLING DEVICE IN H2O- AND D2O-REACTORS IS CONSIDERED. DIFFICULTIES RELATED TO THE ISOTOPIC DILUTION OF HEAVY WATER AND SOME PRECAUTIONS THAT HAVE TO BE TAKEN IN ORDER TO AVOID SUCH POLLUTION ARE DESCRIBED. SOME METHODS USED FOR RECOVERING HEAVY WATER AND CONVERTING IT INTO A FORM SUITABLE FOR FURTHER USE ARE REPORTED.

*CONTAMINATION + *COOLANT CHEMISTRY + *HEAVY WATER + *WATER, GENERAL + COOLANT PURIFICATION SYSTEM +
FRANCE + IMPURITY + REACTOR COOLANT + RECOVERY PROCESS

17-25087 ALSO IN CATEGORY 5
MARK H
BERKLEY TRIGA REPORTS WIDE VARIATION IN SAFETY CHANNEL READINGS
UNIVERSITY OF CALIFORNIA, BERKLEY, CALIF.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 16 (MAY 6, 1968), DOCKET 50-224

(LETTER, APRIL 18) REQUESTS A CHANGED TECH. SPEC. FOR ITS TRIGA MARK III TO CHANGE THE ALLOWABLE OVERPOWER MARGIN (WHICH DETERMINES THE SCRAM SETPOINT ON THE SAFETY CHANNEL) FROM 110% TO 130% OF FULL POWER. NEEDED IS THE WIDE VARIATION IN INDICATION AS A FUNCTION OF VARIOUS REACTOR OPERATING PARAMETERS AT 1 MW. THIS VARIATION (FOR A FIXED SCRAM SETTING) GENERATED OCCASIONAL PERIODS OF NONCOMPLIANCE WHEN THE MARGIN HAS EXCEEDED 10%, FOR WHICH THE UNIVERSITY HAS ALREADY BEEN CITED.

*INSTRUMENTATION, ABNORMAL INDICATION + *SETPOINT + INSPECTION AND COMPLIANCE +
INSTRUMENTATION, POWER RANGE + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (RR)

17-25101 ALSO IN CATEGORY 9
GUPPY WH + MASCHKE GC
NUCLEAR POWER PLANT OPERATOR TRAINING AND QUALIFICATION
COMMONWEALTH EDISON COMPANY, CHICAGO, ILL. + GENERAL ELECTRIC CO., SAN JOSE, CALIF.
20 PAGES, FIGURES, 1968

GE (TRAINING OF HANFORD OPERATORS - LESS THAN HIGH-SCHOOL EDUCATION) AND CON ED (EARLY DEVELOPMENT OF PLANT SYNCHRONIZATION SIMULATORS, STAFFING A PLANT WITH NEW HIRES) EXPERIENCE IN PAST 20 YEARS INDICATED TRAINING MUST USE ACTUAL EQUIPMENT, PROVIDE PLANT MANEUVERING, AND HAVE MUCH MAN-TO-MAN DISCUSSION. IN A 3-MONTH TRAINING COURSE, ABOUT EQUAL TIME IS SPENT IN CONTROL ROOM, STUDY AND QUIZ, VIDEO TAPE LECTURES, AND STUDYING DRESDEN SYSTEMS. 80 MALFUNCTIONS CAN BE SIMULATED.

AVAILABILITY - W. H. GUPPY, GENERAL STAFF ENGINEER, COMMONWEALTH EDISON COMPANY, CHICAGO, ILL.

*STAFFING, TRAINING, QUALIFICATION + ANALOG SIMULATION + OPERATING EXPERIENCE SUMMARY + REACTOR, POWER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25155
FOSTER JS
CANADIAN VIEW OF THE NATURAL URANIUM HEAVY WATER POWER REACTOR TODAY
ATOMIC ENERGY OF CANADA LTD., SHERIDAN PARK (ONTARIO)
AECL-2790 +. 18 PAGES, NOV. 1967

OPERATING DATA FOR NPD IS PRESENTED AND CONCLUSION DRAWN THAT A D2O-COOLED POWER REACTOR IS PRACTICAL. EARLY OPERATING EXPERIENCE FOR DOUGLAS POINT IS GIVEN, AND NOTHING REFLECTS ADVERSELY ON BASIC SYSTEM. GENTILLY STATION, BOILING LIGHT-WATER-COOLED REACTOR, AND ENCOURAGING PERFORMANCE OF ORGANIC-COOLED WR-1 TEST REACTOR ARE DISCUSSED. CONCLUSION IS THAT CANADIAN EXPERIENCE IS RELEVANT TO OTHER COUNTRIES, INCLUDING U.S., BECAUSE URANIUM REQUIREMENTS FOR NATURAL-U HEAVY-WATER REACTOR ARE ONLY HALF THOSE OF OTHER TYPES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR, HWR + *REACTOR, POWER + *REVIEW + CANDU (HWR) + NPD 2 (HWR) + WR 1 (OCR)

17-25156
MILLAR CH
HEAVY WATER POWER REACTORS
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)
AECL-2827 +. 25 PAGES, 3 TABLES, 3 REFERENCES, NOV. 1966

HWR CHARACTERISTICS AND SPECIAL FEATURES ARE DISCUSSED AND COMPARED. HISTORY OF HWR DEVELOPMENT REVIEWED, STATUS OF DEMONSTRATION REACTORS NOTED, FULL-SCALE POWER REACTORS UNDER CONSTRUCTION LISTED. CURRENT AREAS OF R AND D ARE OUTLINED, TOGETHER WITH PREDICTIONS OF POSSIBLE FUTURE DEVELOPMENTS. (SUBMITTED FOR PUBLICATION IN THE ITALIAN JOURNAL, L ELETTRICO TECNICA.)

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR, HWR + *REACTOR, POWER + *REVIEW + CANDU (HWR) + ECONOMICS + R AND D PROGRAM

17-25158 ALSO IN CATEGORY 6
PRINCE BE + BALL SJ + ENGEL JR + HAUBENREICH PN + KERLIN TW
ZERO-POWER PHYSICS EXPERIMENTS ON THE MOLTEN-SALT REACTOR EXPERIMENT
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4233 +. 60 PAGES, 24 FIGURES, 4 TABLES, 25 REFERENCES, EAB. 1968

COMPLETE DESCRIPTION OF ALL MEASUREMENTS MADE OF NEUTRONIC BEHAVIOR BEFORE SUBSTANTIAL NUCLEAR HEAT WAS GENERATED. IN ADDITION TO CONTROL-ROD CALIBRATION AND TEMPERATURE AND PRESSURE REACTIVITY EFFECTS, DYNAMICS TESTS CONSISTING OF FREQUENCY-RESPONSE MEASUREMENTS, PULSE TESTS, PSEUDO-RANDOM BINARY SEQUENCE TESTS, NEUTRON FLUCTUATION, AND TRANSIENT FLOW-RATE TESTS WERE CONDUCTED. NO EVIDENCE OF OPERATIONAL STABILITY PROBLEMS WAS FOUND.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CRITICALITY EXPERIMENT + *REACTOR STARTUP TESTING + *REACTOR, MOLTEN SALT + *TEST, PHYSICS + CONTROL ROD CALIBRATION + DYNAMICS, NONLINEAR + MSRE (RE) + REACTIVITY EFFECT, PRESSURE + REACTOR, CIRCULATING FUEL + TEMPERATURE REACTIVITY EFFECT

17-25159 ALSO IN CATEGORY 11
ABSORPTION OF CORROSION HYDROGEN BY A302B STEEL AT 70 F TO 500 F
WESTINGHOUSE ELECTRIC CORP., ATOMIC POWER DIV., PITTSBURGH, PA.
WCAP-7099 +. 37 PAGES, 7 FIGURES, 2 TABLES, 8 REFERENCES, DEC. 1, 1967, DOCKET 50-29

DEBRIS IN REACTOR VESSEL ERODED STAINLESS-STEEL CLADDING, EXPOSING ABOUT 2 SQ. IN. A302B BASE METAL TO COOLANT. STEEL SPECIMENS, EXPOSED IN TESTS TO BOTH AERATED AND DEAERATED BORIC ACID SOLUTIONS, CORRODED A MAXIMUM OF ABOUT 2450 MG/SQ. DM/MONTH IN 140 F AERATED BORIC ACID AND ABOUT 10 TO 30 MG/SQ. DM/MONTH IN LOW-TEMPERATURE DEAERATED BORIC ACID. MAXIMUM HYDROGEN IN STEEL FROM CORROSION WAS LESS THAN 2 PPM AND DID NOT INCREASE WITH TIME OR TOTAL CORROSION. HYDROGEN SOAK STEP IN PLANT HEATUP PROCEDURE THEREFORE NOT JUSTIFIED AND WILL BE ELIMINATED.

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

*CORROSION + *HYDROGEN + *STEEL + CHEMICAL REACTION + CLAD + EMBRITTLEMENT + HYDRIDE + POISON, SOLUBLE + PRESSURE VESSEL + PROCEDURES AND MANUALS + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + YANKEE (PWR)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-09182 ALSO IN CATEGORY 2

PILE FOUNDATION DESIGN

OMAHA PUBLIC POWER DISTRICT

5 PAGES OF SUPPLEMENT 4, EXHIBIT F4, TO FT. CALHOUN 1 - FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, DOCKET 50-285, TYPE--PWR, MFG--C.E., AE--GIBBS + HILL

EXTENDS INFORMATION RELATIVE TO FOUNDATIONS AS COVERED IN SECTION V-2.5.3 OF THE PSAR AND REFLECTS SUBSEQUENT DEVELOPMENTS RESULTING FROM SITE EXPLORATION. CAVITIES IN THE BEDROCK BENEATH THE PLANT SITE WERE DISCLOSED BY BORINGS. DESCRIBES THE PILES TO SUPPORT THE CLASS-I STRUCTURES, METHOD OF INSTALLATION, AND TEST PROGRAM.

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

*FOUNDATION ENGINEERING + FT. CALHOUN (PWR) + REACTOR, PWR + REPORT, PSAR + SOIL PROPERTY, IN SITU

18-19833 ALSO IN CATEGORY 11

SUPPLEMENT NO. 9 TO APPLICATION FOR LICENSES TURKEY POINT 1

FLORIDA POWER AND LIGHT COMPANY

28 PAGES, 8 FIGURES OF SUPPLEMENT 9 TO THE LICENSE APPLICATION AND THE PRELIMINARY SAFETY ANALYSIS REPORT, NOV. 29, 1966, DOCKET 50-250 AND 50-251

ADDITIONAL INFORMATION CONCERNING CONTAINMENT STRUCTURAL DESIGN IS SUBMITTED FOR SUPPLEMENT 5 (QUESTION 6) AND SUPPLEMENT 8 (QUESTIONS 1, 6, 13, 18B, 18C, 19, 21, 22). NINE QUESTIONS ARE ANSWERED.

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

AEC QUESTION + CONTAINMENT DESIGN + REACTOR, PWR + REPORT, PSAR + TURKEY POINT 3 AND 4 (PWR)

18-20351 ALSO IN CATEGORY 11

APPENDIX A--CONTAINMENT VESSEL DESIGN CRITERIA

FLORIDA POWER AND LIGHT COMPANY

9 PAGES, PAGE A-1 THROUGH A-9 OF SUPPLEMENT 3 TO THE LICENSE APPLICATION AND PRELIMINARY SAFETY ANALYSIS REPORT. SEPTEMBER 1, 1966, DOCKET 50-250 AND 50-251

APPENDIX A DISCUSSES DESIGN CRITERIA FOR PRESTRESSED-CONCRETE CONTAINMENT VESSELS.

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

*CONCRETE, PRESTRESSED + *CONTAINMENT DESIGN + *DESIGN CRITERIA + AEC QUESTION + CONTAINMENT VESSEL LOADING + REACTOR, PWR + REPORT, PSAR + STRESS + TURKEY POINT 3 AND 4 (PWR)

18-21854

POINT BEACH 1, SUPPLEMENT 4 TO PSAR. ADDITIONAL INFORMATION

WISCONSIN MICHIGAN POWER COMPANY

32 PAGES, 10 FIGURES, 2 REFERENCES, 1 TABLE, FOURTH SUPPLEMENT TO THE POINT BEACH 1 PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

ADDITIONAL INFORMATION IS ADDED TO ANSWER ACRS QUESTIONS ON THE ANSWERS TO 11 QUESTIONS ORIGINALLY GIVEN IN SUPPLEMENTS 1 AND 2. ANSWERS TO NEW QUESTION ALSO GIVEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-21858

QUESTION 68--TENDON SURVEILLANCE PROGRAM

WISCONSIN MICHIGAN POWER COMPANY

1 PAGE, PAGE 68-1. POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

THE SURVEILLANCE PROGRAM IS UNACCEPTABLE. PROVIDE A PROGRAM FOR THE LIFE OF THE STRUCTURE. *** (ANSWER) SURVEILLANCE REQUIREMENTS WILL BE INCLUDED IN THE TECH. SPECS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONCRETE, PRESTRESSED + *STEEL + *SURVEILLANCE PROGRAM + AEC QUESTION + CORROSION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21860 ALSO IN CATEGORY 6
QUESTION I.13.8--OPERATION WITH FAILED FUEL
WISCONSIN MICHIGAN POWER COMPANY
4 PAGES, 1 FIGURE, PAGES I.13.8-1/I.13.8-4, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDE EXPERIMENTAL EVIDENCE THAT OPERATION WITH DNB FAILED FUEL WILL NOT DAMAGE NEIGHBORING RODS SUFFICIENTLY AND SPREAD FAILURE. EXPLAIN HOW CONTROL AND PROTECTION SYSTEMS GUARD AGAINST A LOW DNB.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DNB + AEC QUESTION + FAILURE, FUEL ELEMENT + FAILURE, SEQUENTIAL + POINT BEACH 1 AND 2 (PWR) + REACTOR SAFETY SYSTEM + REACTOR, PWR + REPORT, PSAR

18-21861 ALSO IN CATEGORY 11
QUESTION I.14--DEFORMATION CRITERIA FOR CLASS I COMPONENTS
WISCONSIN MICHIGAN POWER COMPANY
7 PAGES, 4 FIGURES, 1 TABLE, 2 REFERENCES, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDE THE DEFORMATION CRITERIA OR YIELD LIMITS FOR ALL CLASS-I COMPONENTS THAT MUST SATISFY THE NO-LOSS-OF-FUNCTION REQUIREMENTS UNDER SEISMIC LOADING.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT, GENERAL + *EARTHQUAKE ENGINEERING + AEC QUESTION + DESIGN CRITERIA + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-21862
QUESTION II.5--CONTROL ROOM FIRE
WISCONSIN MICHIGAN POWER COMPANY
2 PAGES, PAGES II.5-1/II.5-2, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

DISCUSS THE PROVISIONS INCORPORATED IN THE DESIGN OF THE CONTROL ROOM TO PREVENT FIRE. IF THE CONTROL ROOM SHOULD BECOME UNINHABITABLE OR INEFFECTIVE DUE TO A FIRE OR OTHER DISASTER, DISCUSS HOW VITAL SYSTEM PARAMETERS AND EQUIPMENT WILL BE MONITORED AND OPERATED.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTROL PANEL/ROOM + *FIRE + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-21863 ALSO IN CATEGORY 2
QUESTION III.1(C)--PROTECTION OF EQUIPMENT ESSENTIAL TO PLANT SAFETY FROM FLOODING
WISCONSIN MICHIGAN POWER COMPANY
2 PAGES, PAGES III.1 (C)-1/III.1(C)-2, POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

DOES MAXIMUM RUNUP FROM WAVE ACTION OF 9.23 FT INCLUDE EFFECT OF SEICHE. DISCUSS SEICHES AT PT. BEACH.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*EQUIPMENT, GENERAL + *FLOOD + *SEICHE + AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR + SITING, REACTOR

18-21864 ALSO IN CATEGORY 5
QUESTION IV.6--CORE DAMAGE FROM STEAM LINE RUPTURE
WISCONSIN MICHIGAN POWER COMPANY
1 PAGE, PAGE IV.6-1 OF POINT BEACH 1, FOURTH SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT, 14 APRIL 67, DOCKET 50-266. TYPE--PWR, MFG--WEST., AE--BECHTEL

YOUR ANALYSIS OF THE TRANSIENT EFFECTS FROM A STEAM-LINE RUPTURE INDICATED THAT LIMITED CORE DAMAGE WOULD BE ACCEPTED. PLEASE PROVIDE YOUR CRITERION FOR THE AMOUNT OF CORE DAMAGE THAT YOU CONSIDER ACCEPTABLE UNDER THESE CONDITIONS, AND THE BASIS FOR THIS CRITERION. INCLUDE A DISCUSSION OF STUCK CONTROL RODS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-21864 *CONTINUED*

*ACCIDENT, STEAM LINE RUPTURE + ACCIDENT, CONSEQUENCES + AEC QUESTION + CORE MELTDOWN + DESIGN CRITERIA + FAILURE, SCRAM MECHANISM + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-22130

ADDENDUM TO POINT BEACH 1 PSAR SUPPLEMENT 4- CORRECTED QUESTIONS

WISCONSIN MICHIGAN POWER COMPANY

SUPPLEMENT 3 TO POINT BEACH APPLICATION TO LICENSES. MARCH 15, 1967. DOCKET 50-266 AND -301. TYPE--PWR, MFG--WEST., AE--BECHTEL

POINT BEACH TRANSMITS CORRECT QUESTIONS FOR ANSWERS GIVEN IN SUPPLEMENT 4. ANSWERS WERE TRANSMITTED UNDER ORIGINAL QUESTIONS INSTEAD OF UNDER REVISED QUESTIONS ORIGINATING AS A RESULT OF AN ACRS SUBCOMMITTEE MEETING ON 24 MAR. 1967.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEC QUESTION + ACRS + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-22937

ALSO IN CATEGORY 11

ZION 1 AND 2 PRELIMINARY SAFETY ANALYSIS REPORT, VOL. II

COMMONWEALTH EDISON COMPANY

400 PAGES, TABLES, FIGURES, REFERENCES, JUNE 15, 1967, DOCKET 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

DESCRIBES ENGINEERED SAFEGUARDS, INSTRUMENTATION, ELECTRICAL, AND EMERGENCY SYSTEMS. THE SAFETY EVALUATION OF A LOSS-OF-COOLANT ACCIDENT (DOUBLE-ENDED RUPTURE) INDICATES THAT 2-HR SITE-BOUNDARY DOSES FROM CONTAINMENT LEAKAGE ACTIVITY ARE 0.81 TO THE THYROID AND LESS THAN 0.42 MILLIREM WHOLE-BODY. THE DOSE-REDUCTION FACTOR (EFFECTIVENESS IN LIMITING OFF-SITE EXPOSURE) FOR THE SAFETY-INJECTION SYSTEM IS 14.8, ISOLATION-VALVE SEAL WATER IS 120, AND THE CONTAINMENT SPRAY SYSTEM IS 31. APPENDIX B CONTAINS REPORT OF GEOLOGICAL AND SEISMOLOGICAL STUDIES.

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

*REPORT, PSAR + ACCIDENT, LOSS OF COOLANT + CONTAINMENT LEAKAGE CONTROL + CONTAINMENT PENETRATION, CLOSURE OF + ENGINEERED SAFETY FEATURE + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR DESCRIPTION + REACTOR, PWR + SAFETY ANALYSIS + SEISMOLOGY + SITING, GENERAL + ZION 1 AND 2 (PWR)

18-23200

ALSO IN CATEGORY 11

FOURTH SUPPLEMENT TO PRELIMINARY FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT

ROCHESTER GAS AND ELECTRIC CORPORATION

88 PAGES, FIGURES, TABLES, SEPTEMBER 1966, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

THIS SUPPLEMENT TO THE PRELIMINARY SAFETY ANALYSIS REPORT SUBMITTED BEFORE RECEIPT OF A PROVISIONAL CONSTRUCTION PERMIT CONTAINS FURTHER INFORMATION ON THE DESIGN STANDARDS AND CRITERIA FOR THE FACILITY, ESPECIALLY FOR THE CONTAINMENT SYSTEM. IT CONSTITUTES A PRELIMINARY RESPONSE TO THE COMMENTS MADE BY THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS IN ITS LETTER OF MARCH 18, 1966, TO THE COMMISSION. THE ORDER OF PRESENTATION OF INFORMATION IN THIS SUPPLEMENT IS THE SAME AS THE ORDER OF COMMENT IN THE ACRS LETTER.

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

*CONTAINMENT DESIGN + *CONTAINMENT, HIGH PRESSURE + *DESIGN CRITERIA + *GINNA (PWR) + *QUALITY CONTROL + CONCRETE, PRESTRESSED + CONTAINMENT CONSTRUCTION + CONTAINMENT EQUIPMENT HATCH + CONTAINMENT INSTRUMENTATION + CONTAINMENT LINER + CONTAINMENT PENETRATION, GENERAL + EARTHQUAKE ENGINEERING + TEST, PROOF

18-23201

ALSO IN CATEGORY 11

PRIMARY CONTAINMENT DESIGN REPORT

GENERAL ELECTRIC, SAN JOSE, CALIFORNIA

150 PAGES, FIGURES, TABLES, SEPTEMBER 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

THIS REPORT DESCRIBES THE DESIGN BASIS, DESIGN EVALUATION, FABRICATION METHODS, INSPECTION, AND TESTING OF THE PRESENT SUPPRESSION CONTAINMENT FOR THE OYSTER CREEK NUCLEAR POWER PLANT. IT COVERS ALL AVAILABLE INFORMATION, INDEPENDENT CALCULATIONS PERTAINING TO SPECIFIC PORTIONS OF THE CONTAINMENT SYSTEM, AND ASSESSMENTS OF THE ADEQUACY OF CERTAIN FEATURES OF THE DESIGN SUCH AS PENETRATIONS, ISOLATION VALVES, AND MAIN STEAM LINES WITHIN CONTAINMENT.

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

*CONTAINMENT ANALYSIS + *CONTAINMENT DESIGN + *CONTAINMENT, PRESSURE SUPPRESSION + *DESIGN CRITERIA + *OYSTER CREEK 1 (BWR) + ACCIDENT ANALYSIS + CONTAINMENT CONSTRUCTION + CONTAINMENT EQUIPMENT HATCH + CONTAINMENT PENETRATION, ELECTRICAL + CONTAINMENT PENETRATION, PIPE + DESIGN STUDY + EARTHQUAKE ENGINEERING

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-23202
PRAIRIE ISLAND AMENDMENT 3
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
99 PAGES, FIGURES, TABLES, JAN. 12, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

CONTAINS REVISED SAFETY ANALYSIS REPORT PAGES, REFLECTING AMENDMENTS OF AUG. 25 AND DEC. 15, 1966, AND PROVIDES ADDITIONAL INFORMATION REQUESTED IN DRL LETTERS OF OCT. 26 AND DEC. 29, 1967, AND IN DISCUSSION OF SEPT. AND NOV. 1967.

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

AEC QUESTION + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-23203 ALSO IN CATEGORY 9
REVISED PSAR SECT 7.1 - PROTECTION SYSTEMS
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
35 PAGES, PAGE 7.1-1 THRU 7.1-35 OF AMENDMENT 3 TO LICENSE APPLICATION, REVISED PRELIMINARY SAFETY ANALYSIS REPORT, JAN. 15, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

REVISES SECTION TO SHOW INTENT TO MEET PROPOSED IEEE STANDARD. BRIEF DISCUSSION OF INDEPENDENCE AND TESTING ON-LINE BY INJECTING A TEST SIGNAL AT THE SENSOR. CIRCUIT SCHEMATIC SHOWN.

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

*CODES AND STANDARDS + *PLANT PROTECTIVE SYSTEM + *REACTOR SAFETY SYSTEM + INDEPENDENCE + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR + TEST, ON LINE

18-23204 ALSO IN CATEGORY 11
APPENDIX M - SHIELD BUILDING VENT SYSTEM PERFORMANCE STUDY AND EVALUATION OF EFFECT OF OFFSITE DOSAGES
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
25 PAGES, FIGURES, TABLES, PAGE MI-1 THRU MI-25 OF AMENDMENT 3 TO LICENSE APPLICATION, APPENDIX M TO REVISED PRELIMINARY SAFETY ANALYSIS REPORT, JAN. 15, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

SIGNALS FROM CONTAINMENT-VESSEL HIGH-PRESSURE INSTRUMENTS START THE SHIELD-BUILDING VENT SYSTEM TO MAINTAIN THE AIR ANNULUS BETWEEN CV AND SB AT 0.6 IN. H₂O NEG., AND EXHAUST AIR AT ABOUT 5000 CFM TO A STACK THROUGH FILTERS. CALCULATED DOSES WITH A FILTER EFFICIENCY OF 95% ARE 11.9 (2-HR EXCL. RADIUS) AND 1.2 REMS (30-DAY LOW-POP. ZONE) FOR THE INHALATION DOSE, WHILE THE IMMERSION DOSES ARE 2.3 AND LESS THAN 1 REM RESPECTIVELY.

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

AIRBORNE RELEASE + CONTAINMENT, MULTIPLE + CONTAINMENT, PRESSURE VENTING + DOSE + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-23560
DRESDEN 2 PSAR AMENDMENT 4--ANSWERS TO AEC QUESTIONS
COMMONWEALTH EDISON COMPANY
56 PAGES, 7 TABLES, 12 FIGURES, 2 REFERENCES, SEPTEMBER 16, 1965, DOCKET 50-237, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

AMENDMENT 4 ANSWERS 19 QUESTIONS RAISED BY DRL IN LETTER OF SEPT. 3, 1965. AMENDMENTS 2, 3, AND 4 ARE CONSIDERED AS SUPERSEDING ANY INCONSISTENT PROVISIONS IN THE ORIGINAL REPORT. UNIT-2 DESIGN CHANGES ARE LISTED IN AMENDMENT 4.

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

AEC QUESTION + DRESDEN 2 (BWR) + REACTOR, BWR + REPORT, PSAR

18-23580
PROPOSED ISSUANCE OF AMENDED CONSTRUCTION PERMIT AND FACILITY LICENSE TO GEORGIA TECH
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
18 PAGES, FEBRUARY 16, 1968, DOCKET NO. 50-276

REACTOR IS AN AGN-201, FORMERLY AT U OF AKRON (100 MILLIWATT, 0.5% EXCESS REACTIVITY (BARE), 0.65% WITH EXPERIMENTS). CORE IS A STACK OF POLYETHYLENE DISKS IMPREGNATED WITH UO₂. CRITICAL MASS IS 656 G. BOTTOM HALF OF THE CORE IS SUPPORTED BY A THERMAL FUSE MECHANISM (POLYSTYRENE, IMPREGNATED WITH DOUBLE THE NORMAL AMOUNT OF UO₂), WORTH ABOUT 5% REACTIVITY. CONTROL RODS ARE FUELED. MCA IS A STEP INSERTION OF 2%. EXCURSION IS TERMINATED BY THE TEMPERATURE COEFFICIENT AND RESULTS IN NO POLYETHYLENE MELTING. ENERGY RELEASE IS 1.71 MW-SEC, RESULTING IN A 17-REM WHOLE-BODY DOSE 1 FT FROM TANK.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-23580 *CONTINUED*

AGN (TNG) + REACTOR DESCRIPTION + REACTOR FUSE + REACTOR, TRAINING + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

18-23582

SALEM 1 AND 2 PSAR AMENDMENT 4 - PSAR APPENDIX D - QUALITY CONTROL
PUBLIC SERVICE ELECTRIC AND GAS CO., NEWARK, NEW JERSEY

20 PAGES, FEBRUARY 12, 1968, DOCKET NO. 50-272/311, TYPE--PWR, MFG--WEST., AE--PUBLIC SERVICE OF N. J.

AMENDMENT 4 CONSISTS OF APPENDIX D (QUALITY CONTROL), WHICH WAS OMITTED FROM AMENDMENT 3. DESCRIBES TESTS AND INSPECTIONS IN THE QUALITY-ASSURANCE PROGRAM FROM FABRICATION TO CONSTRUCTION, AND THE ORGANIZATION AND RESPONSIBILITY OF THE VARIOUS GROUPS CONCERNED WITH QUALITY CONTROL.

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

QUALITY CONTROL + REPORT, PSAR + SALEM 1 AND 2 (PWR)

18-23870 ALSO IN CATEGORIES 6 AND 8

DEFELICE J + HYLAND M

FAST TEST REACTOR HYPOTHETICAL MELTDOWN ACCIDENT. PROGRESS REPORT. OCTOBER 1965 - DECEMBER 1965

BATTELLE NORTHWEST, RICHLAND, WASH.

COO-1430-3 +. 65 PAGES, 3 FIGURES, 17 TABLES, 10 REFERENCES, JAN. 21, 1966

A STUDY OF THE ENERGY YIELD FROM A MELTDOWN IS IN PROGRESS. FUEL-ZONING EFFECTS WERE EXPLORED IN DETAIL WITH AX-1 AND WEAK-EXPLOSION COMPUTER CODES. AX-1 INDICATES A SMALLER ENERGY RELEASE DUE TO FUEL ZONING THAN EXPECTED, AND INSENSITIVENESS TO DEGREE OF ZONING. WEAK-EXPLOSION RESULTS IN A LARGE ENERGY RELEASE INCREASE WITH ZONING, HOWEVER ITS LACK OF TREATMENT OF SURFACE EFFECTS UNDOUBTEDLY OVERESTIMATES ZONING EFFECTS. WORK CONTINUES.

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

*ACCIDENT ANALYSIS + *ACCIDENT, REACTIVITY + COMPUTER PROGRAM + FFTF (TR) + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST

18-23877

ASTLEY ER

FAST FLUX TEST FACILITY. QUARTERLY PROGRESS REPORT, JANUARY-MARCH 1967

BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-501 +. 202 PAGES, 116 FIGURES, 32 TABLES, APRIL 1967

SECTIONS INCLUDE DESIGN AND CONSTRUCTION ENGINEERING (68 PG), NUCLEAR AND SYSTEMS ENGINEERING (100 PG), DEVELOPMENT (20 PG).

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

*R AND D PROGRAM + FFTF (TR) + REACTOR, FAST + REACTOR, TEST

18-23918 ALSO IN CATEGORY 12

PRAIRIE ISLAND 1 AND 2 CONTAINMENT AIR COOLING AND SHIELD BUILDING RECIRCULATION SYSTEMS

NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA

37 PAGES, 6 FIGURES, PAGES 14.3.2-1 THRU 14.3.3-9, SECTION 6.6 AND APPENDIX M OF PRAIRIE ISLAND NUCLEAR GENERATING PLANT FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 4, 18 DECEMBER 1967, DOCKETS 50-282/306, TYPE--PWR, MFG--WEST., AE--PIECNEER SERV.

(PSAR REVISED - 12/15/67) THE CONTAINMENT-AIR COOLING SYSTEM CONSISTS OF FOUR FIN-FAN COOLER UNITS. IN EVENT OF DUCT COLLAPSE, GRAVITY (WEIGHTED) VALVES WILL OPEN TO ALLOW UNITS TO REMAIN IN OPERATION. FANS ARE CENTRIFUGAL DIRECT-DRIVE TYPES ENCLOSED TO WITHSTAND THE TEMP. AND PRESS. OF A LOSS-OF-COOLANT ACCIDENT (LOCA). MOTOR WILL BE CAPABLE OF AT LEAST 48 HR OF OPERATION WITH FAN WORKING IN AN AIR-WATER MIXTURE. DUCTS WILL BE DESIGNED TO ACCOMMODATE DIFFERENTIAL PRESS. DEVELOPED DURING LOCA OR WILL BE EQUIPPED WITH PRESSURE-RELIEVING VALVES. ***SHIELD-BUILDING RECIRCULATION SYSTEM TAKES SUCTION FROM REGION AROUND CONTAINMENT SHELL AND FILTERS THE AIR. PART IS RELEASED TO THE VENT, WHILE THE REMAINDER IS RECIRCULATED TO THE SHIELD BUILDING. APPENDIX M - SHIELD-BUILDING VENT-SYSTEM PERFORMANCE STUDY AND EVALUATION OF EFFECT ON OFF-SITE DOSES (SUBMITTED 1/15/68).

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

*CONTAINMENT AIR COOLING + *CONTAINMENT, PRESSURE VENTING + *VENTILATION SYSTEM + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + SYSTEM OPERABILITY IN ACCIDENT

18-23947

ALSO IN CATEGORY 9

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-23947 *CONTINUED*

QUARTERLY TECHNICAL PROGRESS REPORT ON AEC-SPONSORED ACTIVITIES. MARCH 15-JUNE 15, 1966
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-193 +. 107 PAGES, 26 FIGURES, 9 TABLES, REFERENCES, MARCH 15, 1966

INDIVIDUAL PROJECTS ARE - (PROJECT 8) PASTE CONCEPT FOR BLANKETS (29 PG) - TEST LOOP OPERATED, IN-PILE LOOP DESIGNED, 1000-MWE REF.-DESIGN MADE. (10) SMALL-LEAK SODIUM-WATER REACTION (10 PG) - SOME TESTS ON TUBE WASTAGE MADE. (11) SODIUM LOOP OPERATION FOR IMPURITY DETECTION AND REMOVAL (43 PG). (14) UNDER-SODIUM SCANNER (8 PG) - DISPLAY OF ULTRASONIC SIGNAL ON TV TUBE BEING ASSEMBLED. (15) COMPILATION OF FERMI EXPERIENCE (3 PG) - LISTS TOPICAL REPORTS IN PROGRESS. (16) FAST-FLUX TEST FACILITY (3 PG) - WORK REPORTED IN APDA 186, 187, 188.

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

*FAILURE, TUBING + *OUT OF PILE LOOPS AND EXPERIMENTS + *REMOTE MANIPULATING AND VIEWING + COOLANT PURIFICATION SYSTEM + CORROSION + FFTF (TR) + FUEL HANDLING + INSTRUMENTATION, COOLANT QUALITY + R AND D PROGRAM + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + SODIUM

18-23948

QUARTERLY TECHNICAL PROGRESS REPORT ON AEC-SPONSORED ACTIVITIES, DECEMBER 15, 1966-MARCH 15, 1967
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-204 +. 63 PAGES, 6 FIGURES, 5 TABLES, REFERENCES, MARCH 15, 1967

INDIVIDUAL PROJECTS ARE - (PROJECT 8) SODIUM-WATER REACTION STUDIES (24 PG) - TEST AND EVALUATION CONTINUED. (11) SODIUM LOOP FOR COOLANT-IMPURITY DETECTION AND CLEANUP (18 PG). (14) UNDER-SODIUM SCANNER (5 PG) - NARROW-BEAM TRANSDUCER BEING TRIED IN A TANK OF SODIUM. (15) CURRENT FERMI EXPERIENCE (3 PG) - LISTS REPORTS IN PROGRESS. (16) FAST-FLUX TEST FACILITY (3 PG). WORK BEGUN ON ENERGY RELEASE FROM GROSS MELTDOWN OF METAL CORE AND CARBIDE CORE.

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

*FAILURE, TUBING + COOLANT PURIFICATION SYSTEM + CORROSION + FFTF (TR) + FUEL HANDLING + INSTRUMENTATION, COOLANT QUALITY + OUT OF PILE LOOPS AND EXPERIMENTS + R AND D PROGRAM + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REMOTE MANIPULATING AND VIEWING + SODIUM

18-24002

KELLER DL
PROGRESS RELATING TO CIVILIAN APPLICATIONS DURING OCTOBER THROUGH DECEMBER 1967
BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO
BMI-1826 +. FIGURES, TABLES, JANUARY 1, 1968

PROGRESS REPORTED ON STUDIES TO EVALUATE POTENTIAL OF MIXED U AND PU NITRIDE FUELS FOR LIQUID-METAL FAST-BREEDER REACTORS INCLUDES MATERIAL PROPERTIES, COMPATIBILITY, FABRICATION, AND IRRADIATION TESTING. SECOND TOPIC IS STUDY OF RADIATION EFFECTS ON VARIOUS CLADDING AND STRUCTURAL MATERIALS, WITH EMPHASIS ON MECHANICAL-PROPERTY CHANGES, PARTICULARLY FOR 347 STAINLESS STEEL. THE THIRD TOPIC - CHARACTERISTICS OF COATED-PARTICLE FUEL MATERIALS. FABRICATION, COMPATIBILITY, THERMAL SHOCK RESISTANCE, AND IRRADIATION TESTING ARE DISCUSSED.

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

*FUEL ELEMENT + *NITRIDE + *PLUTONIUM + *URANIUM + CLAD + COATED PARTICLE + FABRICATION + IRRADIATION TESTING + MATERIAL + PROPERTY, PHYSICAL + R AND D PROGRAM + REACTOR, BREEDER + REACTOR, LMCR + REVIEW + STEEL, STAINLESS + THERMAL MECHANICAL EFFECT

18-24042

WORAM MG
HEIGHT OF EXHAUST STACK FOR COL U REACTOR
COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, NEW YORK
LETTER TO DIVISION OF REACTOR LICENSING, U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., 2 PAGES, FEBRUARY 14, 1968, DOCKET NO. 50-208

THE HEIGHT OF THE STACK IS 15 FT ABOVE THE MUDD BUILDING, AND IS 248 FT 11 IN. ABOVE GRADE.

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

*STACK + REACTOR, RESEARCH + TRIGA (RR)

18-24050

SKOVHOLT DJ
AMENDMENT 1 TO GI TECH CONSTRUCTION PERMIT
AEC, DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.
LETTER TO F. W. CHAMBERS, GEORGIA INSTITUTE OF TECHNOLOGY, ENGINEERING EXPERIMENT STATION, ATLANTA, GEORGIA, 5 PAGES, FEB. 27, 1968, DOCKET NO. 50-276

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24050 *CONTINUED*

AUTHORIZES INSTITUTE TO REBUILD (BUT NOT OPERATE) THE AGN-201 ON ITS ATLANTA CAMPUS.

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

*CONSTRUCTION PERMIT PROCESS + AGN (TNG) + REACTOR, TRAINING

18-24051

MORRIS PA

OUTSTANDING MATTERS IN OYSTER CREEK OPERATING LICENSE REVIEW

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

LETTER TO J. E. LOGAN, JERSEY CENTRAL POWER AND LIGHT CO., MORRISTOWN, NEW JERSEY, 7 PAGES, JANUARY 9, 1968, DOCKET NO. 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

SIXTEEN ITEMS ARE LISTED FOR RESOLUTION, SOME WHICH CAN BE IMPLEMENTED AFTER THE LICENSE IS ISSUED. INCLUDED ARE - (1) ALTERNATIVE APPROACH TO EMERGENCY POWER, (4) CORROSIVE MEDIUM NOT IDENTIFIED FOR CONTROL-ROD-TUBE CRACKS, (10) PLANNED TECH.-SPEC. CHANGES MUST BE COMPLETE BEFORE REVIEW IS COMPLETE.

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

*OPERATING LICENSE PROCESS + OYSTER CREEK 1 (BWR) + REACTOR, BWR

18-24055

MORRIS PA

ACRS QUESTIONS ON FT CALHOUN

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

LETTER TO J. L. WILKINS, OMAHA PUBLIC POWER DISTRICT, OMAHA, NEBRASKA, 2 PAGES, NOV. 29, 1967, DOCKET NO. 50-285, TYPE--PWR, MFG--C.E., AE--GIBBS + HILL

ACRS SUBCOMMITTEE REQUESTED NOV. 16, 1967, INFORMATION ON (1) SOIL LIQUEFACTION AT SITE, (2) DESCRIPTION OF PLANT PROTECTION SYSTEM AND INSTRUMENTATION, INCLUDING SIGNIFICANT CHANGES FROM PALISADES POINT, PLUS (3) MODERATOR TEMPERATURE AND DENSITY COEFFICIENTS AND REACTIVITY EFFECTS DURING A COOLANT-PIPE LEAK.

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

*ACRS + *AEC QUESTION + FT. CALHOUN (PWR) + REACTOR, PWR + REPORT, PSAR

18-24056

MORRIS PA

DRL QUESTIONS ON 9 MILE POINT FSAR

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

LETTER TO M.H. PRATT, NIAGARA MOHAWK POWER CORP., SYRACUSE, NEW YORK, 13 PAGES, FEB. 20, 1968, DOCKET NO. 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

IN MEETINGS DEC. 1967 AND JAN. 1968, DRL INDICATED THAT ADDITIONAL INFORMATION WAS REQUIRED. LETTER DISCUSSES DESIGN CHANGES, T AND C INDEPENDENCE, CERTAIN EQUIPMENT MALFUNCTIONS NOT EVALUATED, AND INADEQUATELY SUPPORTED CHOICE OF IODINE SEPARATION FACTORS IN OFF-SITE DOSES. SPECIFIC QUESTIONS ASKED ARE - GENERAL (5), ENGINEERED SAFETY FEATURES (14), REACTOR COOLANT SYSTEM (13), INSTRUMENTATION AND CONTROL (14), ELECTRICAL SYSTEMS (11), ACCIDENT ANALYSIS (12), AND CONDUCT OF OPERATIONS (5).

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

AEC QUESTION + NINE MILE POINT (BWR) + REACTOR, BWR + REPORT, SAR

18-24057

ALSO IN CATEGORY 11

PROBABILITY AND CONSEQUENCES OF AIRCRAFT STRIKING THREE MILE ISLAND REACTOR

METROPOLITAN EDISON CO., READING, PA.

29 PAGES, 7 FIGURES, 5 TABLES, THREE MILE ISLAND AMENDMENT 8 (PSAR SUPPLEMENT 5), FEB. 23, 1968, DOCKET NO. 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

SECTION A (10 PG) USES 1956-65 CAB AIR-CRASH STATISTICS AND OLMSTED AIRPORT TRAFFIC AND PATTERNS TO CONCLUDE THAT THERE IS ONE CHANCE IN A MILLION PER YEAR THAT AN AIRPLANE WOULD HIT THE STATION. SECTION B (3 PG) DISCUSSES STUDIES MADE OF IMPACT ON VARIOUS BUILDINGS. APPENDIXES A AND B (6 PG) OUTLINE THE STRUCTURAL ANALYSIS METHODS USED. CONTAINMENT WILL WITHSTAND A HIT WITHOUT COLLAPSE. OTHER BUILDINGS ARE BEING EVALUATED.

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

*AIRCRAFT + *MISSILE GENERATION AND PROTECTION + *PROBABILITY + ACCIDENT, CONSEQUENCES + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + THREE MILE ISLAND (PWR)

18-24156

ALSO IN CATEGORY 11

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24156. *CONTINUED*
BERGSTROM RN + CHITTENDEN WA + MCCLINTOCK DC
SODIUM-COOLED FAST REACTORS
SARGENT + LUNDY
3 PAGES, 1 FIGURE, POWER ENGINEERING, 71(10), PAGE 56-58, (OCT. 1967)

QUITE GENERAL DISCUSSION OF STRUCTURAL PROBLEMS OF THE BUILDING, WHICH, WHILE NOT BASICALLY DIFFERENT FROM WATER REACTORS, ARE COMPLEX AND HARDER TO ANALYZE.

*BUILDING + REACTOR, LMCR + STRESS ANALYSIS

18-24209
RANCHO SECO AMENDMENT 1
SACRAMENTO MUNICIPAL UTILITY DISTRICT
700 PAGES, TABLES, FIGURES, REFERENCES, JANUARY 26, 1968, DOCKET 50-312, TYPE--PWR, MFG.--B+W, AE--BECHTEL

CONSISTS OF REVISED PSAR PAGES AND ADDITIONAL APPENDIXES WHICH UPDATE THE PSAR TO CONFORM WITH THREE MILE ISLAND PSAR AND ITS AMENDMENTS 1,2,3,4. THESE QUESTIONS ARE ANSWERED IN APPENDIXES 1A, 3A, 4A, 5J, 6A, 7A, 9A, 11A, 12A, AND 14A. ***NEW APPENDIXES ARE - (18) QUALITY-ASSURANCE PROGRAM, (20) REPORT ON SEISMIC HAZARD AT THE SIERRAN SITES AREA, (2F) METEOROLOGICAL STATION, (2G) STORAGE-RESERVOIR CRITERIA, PLUS SUPPLEMENT.

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

AEC QUESTION + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

18-24210 ALSO IN CATEGORY 1
APPENDIX 18 - QUALITY ASSURANCE OPERATIONS
SACRAMENTO MUNICIPAL UTILITY DISTRICT
5 PAGES, PAGES 18-1 THRU 18-5 OF AMENDMENT 1 TO RANCHO SECO PSAR, DOCKET 50-312, FEBRUARY 2, 1968
TYPE--PWR, MFG.--B+W, AE--BECHTEL

A QUALITY-ASSURANCE ENGINEER (QAE) WILL WORK IN THE PROJECT-ENGINEERING GROUP (PEG) TO ESTABLISH PROCEDURES AND CRITERIA AND TO ARRANGE FOR APPROPRIATE TESTS AND INSPECTIONS.

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

*QUALITY CONTROL + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

18-24211 ALSO IN CATEGORY 2
PYERLY P
APPENDIX 2D - REPORT ON SEISMIC HAZARD AT THE SIERRAN SITES AREA
SACRAMENTO MUNICIPAL UTILITY DISTRICT
9 PAGES, PAGES 1 THRU 9 OF AMENDMENT 1 TO RANCHO SECO PSAR, FEBRUARY 2, 1968, DOCKET 50-312, TYPE--PWR, MFG.--B+W, AE--BECHTEL

(REPORT DATED MARCH 3, 1964) A LISTING OF ALL RECORDED EARTHQUAKES SINCE 1854 IN THE LOCAL AREA, USING THE MODIFIED MERCALLI SCALE. ONLY 3 OF THE 17 WERE AS HIGH AS V. RISK APPEARS NEGLIGIBLE. NO REASON TO SUSPECT ANY EPICENTERS. THE GREATEST INTENSITY TO EXPECT WOULD BE ABOUT 4.5, WITH AN ACCELERATION OF 10 CM/SEC-SEC.

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

*EARTHQUAKE RECORDS + EARTHQUAKE EPICENTER + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

18-24212 ALSO IN CATEGORY 16
APPENDIX 2F - METEOROLOGICAL STATION
SACRAMENTO MUNICIPAL UTILITY DISTRICT
2 PAGES, PAGES 2F-1 AND 2F-2 OF AMENDMENT 1 TO RANCHO SECO PSAR, FEBRUARY 2, 1968, DOCKET 50-312, TYPE--PWR, MFG.--B+W, AE--BECHTEL

A 200-FT TOWER WILL BE INSTALLED WITH INSTRUMENTATION AS FOLLOWS - (200-FT LEVEL) SPEED, HORIZONTAL DIRECTION, TEMPERATURE, (50 FT) THE SAME, PLUS VERTICAL WIND DIRECTION, (6 FT) WET- AND DRY-BULB TEMPERATURES. STANDARD DEVIATION WILL BE COMPUTED HOURLY, USING TWENTY 3-MIN INTERVALS WITH ON-LINE DATA ACQUISITION, WHICH WILL EVENTUALLY BE MOVED TO THE CONTROL ROOM. DATA REDUCTION WILL BE DONE MONTHLY.

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

*INSTRUMENTATION, METEOROLOGICAL + *SITE CLIMATOLOGY + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24213 ALSO IN CATEGORY 2
APPENDIX 2G - STORAGE RESERVOIR CRITERIA
SACRAMENTO MUNICIPAL UTILITY DISTRICT
3 PAGES, PAGES 2G-1 THRU 2G-A1 OF AMENDMENT 1 TO RANCHO SECO PSAR, DOCKET 50-312, FEBRUARY 2, 1968,
TYPE--PWR, MFG--B+W, AE--BECHTEL

THE CREST OF THE EASTERN EMBANKMENT (LOCATED 1 MILE EAST OF THE PLANT) IS 60 FT ABOVE THE STREAM BED AND 22 FT WIDE. CONVENTIONAL METHODS WILL BE USED TO ANALYZE THE STABILITY OF THE EMBANKMENT SECTIONS. SAFETY FACTORS OF 1.5 (NORMAL OPERATING CONDITION), 1.2 (DESIGN EARTHQUAKE OR RAPID DRAWDOWN), AND 1.0 (MAXIMUM HYPOTHETICAL EARTHQUAKE) HAVE BEEN ESTABLISHED. ONE-PAGE SUPPLEMENT INDICATES A SOIL-INVESTIGATION PROGRAM.

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

*DESIGN CRITERIA + *IMPOUNDMENT + RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR + SOIL PROPERTY, IN SITU

18-24237 ALSO IN CATEGORY 1
DISCUSSION OF THE CONCEPT OF THE MAXIMUM POTENTIAL ACCIDENTS
INSTITUT FUER REAKTORSICHERHEIT DET TUEV, E. V., GERMANY
2 PAGES, ATOMWIRTSCHAFT, 12(3) PAGE 147 AND 148, (MARCH 1967), (IN GERMAN)

THE INSTITUTE FOR REACTOR SAFETY OF THE TECHNICAL SURVEY ASSOCIATION HELD ON AUGUST 11, 1966, AT THE JULICH NUCLEAR RESEARCH PLANT A TECHNICAL DISCUSSION ON THE THEME - THE MAXIMUM POTENTIAL ACCIDENT AS THE CRITERION FOR THE SAFETY OF THE ATOMIC PLANTS. THE INTERNATIONAL DETERMINABLE DISPLEASURE OVER THIS CONCEPT WAS ALSO VISIBLE. UNFORTUNATELY THE REPORTS CONVEY QUITE GENERAL CONSIDERATIONS ON THE PHILOSOPHY OF SAFETY EXCEPT THAT THE BELIEFS, WHICH IN PART ARE VERY INTERESTING, ARE MADE USEFUL BY CONCRETE PROPOSALS AND EXAMPLES OF THE PRACTICE.

ACCIDENT, MAXIMUM CREDIBLE (MCA) + GERMANY + SAFETY PRINCIPLES AND PHILOSOPHY

18-24239
VATHAIRE FD
REACTOR SAFETY, PRESENT ACHIEVEMENTS AND TRENDS
COMMISSARIAT A L'ENERGIE ATOMIQUE, SACLAY (FRANCE), CENTRE D'ETUDES NUCLEAIRES
8 PAGES, 6 FIGURES, 28 REFERENCES, ENERGIE NUCLEAIRE 9(7), PAGE 421-428, (NOV. 1967), (IN FRENCH)

THE BUILDING OF LARGE ATOMIC POWER STATIONS HAS SPEEDED UP SPECTACULARLY BECAUSE OF THE COMPETITIVE COST OF NUCLEAR-PRODUCED ELECTRICITY. THE MAIN GUARANTEE OF THE SAFETY OF NUCLEAR PLANTS IS A REALISTIC AWARENESS OF POTENTIAL DANGERS, FROM DESIGN RIGHT THROUGH TO THE OPERATION OF THE POWER STATION. AFTER A BRIEF NOTE ON GENERAL TECHNIQUES, THE WRITER CONSIDERS THE SPECIAL ASPECTS OF EACH TYPE AT PRESENT BEING INVESTIGATED IN FRANCE - GRAPHITE/GAS, HEAVY WATER/GAS, ORDINARY WATER, HIGH-SPEED NEUTRONS, AND THE REGULATIONS APPLYING TO THEM.

FRANCE + REACTOR, POWER + SAFETY PROGRAM

18-24240
KARASSIK IJ + VALENTIN JE + BUSH AR + PARADISI M
FEEDING PUMPS FOR NUCLEAR PLANTS. ADVANTAGES DERIVED FROM THE EXPERIENCE IN CONVENTIONAL PLANTS
9 PAGES, TERMOTECNICA (MILAN), 20, PAGE 693 THRU 701, (DEC. 1966), (IN ITALIAN)

(REPORT IN ITALIAN, 7 OF 8 REFERENCES ARE IN ENGLISH.) THE DESIGN AND DEVELOPMENT OF THE BOILER FEED PUMP TO BE USED IN THE NINE MILE POINT NUCLEAR POWER PLANT IS REVIEWED. THE CONCEPTS INCORPORATED IN ITS DESIGN ARE EXAMINED WITH RESPECT TO PRESENT AND FUTURE NEEDS IN FEED PUMPS FOR WATER-MODERATED NUCLEAR POWER PLANTS.

*PUMP + *SYSTEM DESCRIPTION + MAIN COOLING SYSTEM + NINE MILE POINT (BWR) + REACTOR, BWR

18-24486
REVISIONS TO COOPER PSAR
CONSUMERS PUBLIC POWER DISTRICT
5 PAGES, FEBRUARY 10, 1968, DOCKET 50-298; TYPE--BWR; MFG--G.E.; AE--BURNS + ROE

PART 1 CONSISTS OF FIVE PAGES INCORPORATING REVISIONS TO THE EMERGENCY CORE-COOLING SYSTEM (SEPARATION OF PUMPS AND PIPING, PROVISION FOR ALTERNATE WATER STORAGE AND GETTING WATER DIRECTLY FROM THE RIVER). PART 2 CONTAINS ADDITIONAL MATERIAL ON ELEVEN TOPICS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

*EMERGENCY COOLING CONSIDERATIONS + AEC QUESTION + COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24498
COOPER STATION AMENDMENT 5
CONSUMERS PUBLIC POWER DISTRICT
12 PAGES, 5 FIGURES, OF AMENDMENT 5 TO COOPER LICENSE APPLICATION (PSAR), FEB. 20, 1968, DOCKET 50-298,
TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PROVIDES TWO REVISED PSAR PAGES AND EIGHT PAGES OF DISCUSSION OF THE EFFECT OF RHR HEAT EXCHANGER SIZE ON THE CONTAINMENT CAPABILITY AND ON POSTULATED EVACUATION OF THE MAIN CONTROL ROOM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 COPY, \$0.65 MICROFICHE

AEC QUESTION + COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

18-24500
CLARIFICATION OF PSAR INFORMATION
CONSUMERS PUBLIC POWER DISTRICT
11 PAGES, TABLES, FROM AMENDMENT 6 TO COOPER STATION LICENSE APPLICATION (PSAR), MARCH 3, 1968, DOCKET 50-298, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CLARIFIES MEANING OF TERMS AND TABLES PRESENTED IN THE PSAR AND IN AMENDMENT 2.

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

*AEC QUESTION + COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

18-24507
COOPER PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
CONSUMERS PUBLIC POWER DISTRICT
600 PAGES, TABLES, FIGURES, REFERENCES, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS THE FOLLOWING CHAPTERS - (7) I AND C, (8) ELECTRICAL SUPPLY SYSTEMS, (11) POWER CONVERSION SYSTEM (12) STRUCTURES, (13) OPERATIONS, AND (14) SAFETY ANALYSIS. *** SAFETY ANALYSIS SHOWS FOLLOWING OFF-SITE DOSES - ROD-DROP ACCIDENT (0.2 REM WHOLE BODY, AND 0.004 REM THYROID), REFUELING (0.007/0.01), STEAM-LINE RUPTURE (8 X 10⁻⁷TH/0.002), AND LOSS OF COOLANT (0.005/0.002).

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

*ACCIDENT ANALYSIS + *ACCIDENT, CONTROL ROD EJECTION + ACCIDENT, LOSS OF COOLANT + ACCIDENT, REFUELING + AIRBORNE RELEASE + COOPER (BWR) + DOSE + REACTOR, BWR + REPORT, PSAR

18-24508
COOPER PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME I
CONSUMERS PUBLIC POWER DISTRICT
300 PAGES, TABLES, FIGURES, REFERENCES, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

VOL. I CONTAINS THE FOLLOWING CHAPTERS - (1) INTRO. AND SUMMARY, (2) SITE, (3) CORE, (4) COOLING SYSTEM, (5) CONTAINMENT, AND (6) ENGINEERED SAFEGUARDS. *** A 2381-MWT/836-MWE BWR LOCATED ON THE NEBRASKA BANK OF THE MISSOURI RIVER, 60 MILES NW OF ST. JOSEPH, MO. AND 60 MI. SE OF LINCOLN, NEB. DESIGN EARTHQUAKE RESULTS IN 0.10-G ACCELERATION (MAXIMUM HYPOTHETICAL, 0.20 G). APPENDIX A, VOL III, GIVES A DETAILED ANALYSIS OF THE LIQUEFACTION POTENTIAL AT THE SITE. FOUNDATION IS TO BE MAT-SUPPORTED BY DENSE STRUCTURAL FILL EXTENDING 30 FT TO BED ROCK.

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

COOPER (BWR) + FOUNDATION ENGINEERING + LIQUEFACTION + REACTOR, BWR + REPORT, PSAR

18-24509 ALSO IN CATEGORIES 11 AND 12
COOPER CONTAINMENT ATMOSPHERIC CONTROL SYSTEM
CONSUMERS PUBLIC POWER DISTRICT
2 PAGES, 1 FIGURE, PAGES VI-6-1 AND VI-6-2 OF VOLUME I OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

(SECTION VI-6) - LIQUID NITROGEN WILL BE CONVERTED TO THE GASEOUS FORM AND BE FORCED INTO THE SUPPRESSION CHAMBER DURING CONTINUOUS OPERATION. IT WILL BE FORCED INTO THE DRY WELL THROUGH THE VACUUM BREAKERS AND MIXED BY THE VENTILATION FANS. ANALYSIS OF METAL-WATER REACTION FOLLOWING A LOSS-OF-COOLANT ACCIDENT SHOWS THAT THE RESULTANT HYDROGEN WOULD BE ONLY 1.8% IN

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24509 *CONTINUED*

AIR, BELOW THE FLAMMABILITY LIMIT OF 5%. (SECTION V.2.3.4) - THE MAKEUP OF THE CONTAINMENT INERT ATMOSPHERE IS MONITORED AS A FURTHER INDICATION THAT ALL PENETRATIONS ARE SEALED DURING OPERATION.

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

*CONTAINMENT ATMOSPHERE, INERT + *CONTAINMENT, CONTINUOUS MONITORING SYSTEM + ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + COOPER (BWR) + HYDROGEN + REACTOR, BWR + REPORT, PSAR

18-24510

COOPER PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME III

CONSUMERS PUBLIC POWER DISTRICT

600 PAGES, TABLES, FIGURES, REFERENCES, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

VOL. III CONTAINS APPENDIXES - (A) SITE STUDIES, (B) SPECIFICATIONS FOR DIESEL-GENERATOR EMERGENCY SYSTEM, (C) CONTROL-ROD-DRIVE SYSTEM AND DESCRIPTION, (D) JET-PUMP DEVELOPMENT PROGRAM, (E) CORE SPRAY-COOLING TEST PROGRAM, AND (F) CORE THERMAL DESIGN. *** APPENDIXES B, C, AND D GIVE GOOD DESCRIPTIONS OF THE SYSTEMS.

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

*CONTROL ROD DRIVE + *CORE SPRAY + *GENERATOR, ENGINE + *PUMP, JET + *SYSTEM DESCRIPTION + COOPER (BWR) + R AND D PROGRAM + REACTOR, BWR + REPORT, PSAR + THERMAL ANALYSIS

18-24511

ALSO IN CATEGORY 2

COOPER PSAR APPENDIX A - SITE STUDIES

CONSUMERS PUBLIC POWER DISTRICT

80 PAGES, 50 FIGURES, 17 TABLES, REFERENCES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

GEOLOGY, SEISMOLOGY, SUBSURFACE INVESTIGATION, AND FOUNDATION RECOMMENDATIONS. SEISMOLOGICAL CONSIDERATIONS INCLUDE DISCUSSIONS OF PERTINENT EARTHQUAKES (1811 AND 1812 NEW MADRID, 1877 LINCOLN, 1935 TECUMSEH, AND 1952 EL RENO). A DETAILED ANALYSIS OF THE SOIL PROPERTIES IS GIVEN, WITH STRESS ON LIQUEFACTION. CONCLUSION (ALTHOUGH BASED ON NONCONSERVATIVE ASSUMPTIONS) IS THAT THE LIQUEFACTION OF THE SUBSOIL (SAND) WOULD PROBABLY OCCUR DURING THE DESIGN EARTHQUAKE. SOLUTIONS LISTED ARE (1) RAISING SITE GRADE BY AT LEAST 20 TO 40 FT, (2) STABILIZATION OF THE LOCAL SAND STRATUM BY EITHER VIBROFLUTATION OF GROUTING, (3) USE OF A PILE FOUNDATION, AND (4) STRUCTURAL-FILL FOUNDATION. THE LAST TWO ARE BOTH TECHNICALLY AND ECONOMICALLY FEASIBLE. A FILL FOUNDATION IS RECOMMENDED. THIS CONSISTS IN EXCAVATING TO BED ROCK AND BACK-FILLING WITH DENSE MATERIAL. STRUCTURES WOULD REST ON REINFORCED CONCRETE MATS ON THIS FILL.

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

*FOUNDATION ENGINEERING + *LIQUEFACTION + COOPER (BWR) + EARTHQUAKE + EARTHQUAKE ENGINEERING + GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, BWR + REPORT, PSAR + SEISMOLOGY + SITING, REACTOR + SOIL + SOIL MECHANICS

18-24512

ALSO IN CATEGORIES 12 AND 5

COOPER PSAR APPENDIX E - REACTOR CORE SPRAY COOLING TEST PROGRAM

CONSUMERS PUBLIC POWER DISTRICT

7 PAGES, 15 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

(2, SPRAY DISTRIBUTION) - MOCKUP TESTS SHOWED THAT SOME WATER SPLASHED OFF. A FLOW-DEFICIENT REGION WITHIN A FUEL ELEMENT BETWEEN CENTER AND OUTSIDE CAN BE IMPROVED FROM 35% TO 40% OF AVERAGE FLOW. (3, COOLING EFFECTIVENESS) - A 36-ROD TEST SECTION SHOWED NEGLIGIBLE EFFECTS OF FLOW FROM 1.8 - 2.8 GPM, NOR VENTING TOP OR BOTTOM, AS RADIANT HEAT TRANSFER IS IMPORTANT. (4, FLOODING EFFECTIVENESS) - WATER ONLY 2/3 HEIGHT OF CORE HELD TYPES OF RODS TO A MAX. OF 975 F. (6, BLOWDOWN HEAT TRANSFER) - SUMMARIZES GE-APED TESTS DONE THE SUMMER OF 1965. BOILING HEAT TRANSFER COEFFICIENTS CONTINUE UNTIL THE WATER FILM IS DRIED OUT, WHICH DEPENDS ON POWER DENSITY.

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

*CORE SPRAY + *SYSTEM CAPABILITY + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + COOPER (BWR) + HEAT FLUX, DRYOUT + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, RADIANT + MODEL TESTING + REACTOR, BWR + REPORT, PSAR

18-24513

ALSO IN CATEGORIES 5 AND 9

COOPER PSAR APPENDIX F - REACTOR CORE THERMAL DESIGN

CONSUMERS PUBLIC POWER DISTRICT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24513 *CONTINUED*

15 PAGES, 9 FIGURES, VOLUME III OF COOPER NUCLEAR STATION PRELIMINARY SAFETY ANALYSIS REPORT, JULY 27, 1967, DOCKET 50-298, TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

ANALYSIS HERE IS SIMILAR TO THAT OF APPENDIX G FOR BROWNS FERRY. BASIC CRITERION REMAINS UNCHANGED BUT SIGNIFICANT NEW DATA IS APPLIED. THE 1962 MCHFR LIMITS WOULD BE 1.3, BUT THE NEW ONES GIVE 1.9 AT 100% POWER. SENSITIVITY OF MCHFR DISCUSSED, ALSO FISSION GAS PRESSURE ON FUEL CLAD. (SECT. 5, CORE PERFORMANCE BENEFITS OF IMPROVED PLANT EQUIPMENT). BEGINNING WITH THIS REACTOR, PROTECTION AGAINST LOCAL FLUX PEAKING WILL BE PROVIDED BY THE ROD-BLOCK MONITOR. AS DIFFERENT CONTROL RODS ARE SELECTED, A SPECIAL SWITCHING SYSTEM APPLIES SIGNALS FROM THE NEAREST 16 LPRM CHANNELS TO THE RBM SYSTEM. ON-LINE COMPUTER WILL PROVIDE QUICK INFORMATION TO THE OPERATOR ON CALCULATED POWER DISTRIBUTION. AN ANTICIPATING LOAD TRIP SCRAM WILL BE ADDED BECAUSE TURBINE BYPASS IS ONLY 25%.

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

COOPER (BWR) + REACTOR, BWR + REPORT, PSAR

18-24514

KARSTEN G + KUMMERER K

PROGRAM, PIN DESIGN, AND SPECIFICATIONS FOR FUEL IRRADIATION EXPERIMENTS IN THE ENRICO FERMI FAST BREEDER REACTOR

KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
KFK-586 +. 69 PAGES, FIGURES, TABLES, MAY 1967

DESCRIBES THE PROPOSED FUEL IRRADIATIONS FOR THE FAST-BREEDER PROJECTS ASSOCIATED WITH EURATOM. FUEL PINS ARE UO2 - PUO2 PELLETS CLAD WITH INCONEL AND STAINLESS STEEL. DETAILS GIVEN OF TEMPERATURE AND HEAT-TRANSFER DATA, CRITERIA OF IRRADIATION CONDITIONS AND DESIGN AND FABRICATION OF FUEL. APPENDICES INCLUDE REACTIVITY CALCULATIONS OF FUEL TEST SUBASSEMBLY, DETAILS OF PRIOR IRRADIATION EXPERIENCE, CLAD STRESS CONDITIONS, AND CREEP STRAIN.

AVAILABILITY - AEC DEPOSITORY LIBRARIES, US AND OVERSEAS

*FUEL, PELLET TYPE + *IRRADIATION TESTING + *R AND D PROGRAM + CLAD + CREEP + DESIGN CRITERIA + EURATOM + HEAT TRANSFER + PLUTONIUM DIOXIDE + RADIATION EFFECT + REACTOR, BREEDER + REACTOR, FAST + STRESS + URANIUM DIOXIDE

18-24515

SHAVER RE + WITTENBROCK NG

REVIEW OF REACTOR SAFETY ANALYSES OF FAST AND LIQUID METAL COOLED REACTORS

BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-477 +. 58 PAGES, TABLES, NOVEMBER, 1967

TO GUIDE DESIGN AND SAFETY ANALYSIS OF THE FAST-FLUX TEST FACILITY, THIS COMPILATION WAS MADE FROM SAFETY-ANALYSIS REPORTS ON U.S. FAST AND LIQUID-METAL-COOLED REACTORS. FACILITIES ARE - GENI, HALLAM, JEPUR, FAKEL, EBR 1 AND 2, ZPR III. TABULATED INFORMATION ON CONTROL AND SAFETY SYSTEMS, REACTOR PROTECTION SYSTEMS, BACKUP SYSTEMS, CONTAINMENT, REACTIVITY EFFECTS AND PARAMETERS, FUEL AND FUEL HANDLING, ACCIDENTS AND CHEMICAL PROBLEMS, SITE, VENTILATION SYSTEM, AND WASTE EFFLUENTS. NO CONCLUSIONS GIVEN.

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

*COMPARISON, REACTOR CHARACTERISTICS + *REVIEW + ACCIDENT, GENERAL + CONTAINMENT, GENERAL + CONTROL SYSTEM + COOLANT CHEMISTRY + FFTF (TR) + FUEL HANDLING + PLANT PROTECTIVE SYSTEM + REACTIVITY EFFECT + REACTOR SAFETY SYSTEM + REACTOR, FAST + REACTOR, LMC + SITING, GENERAL + VENTILATION SYSTEM + WASTE MANAGEMENT

18-24523

REVISIONS TO PSAR

CONNECTICUT YANKEE ATOMIC POWER COMPANY

75 PAGES, TABLES, FIGURES, REFERENCES, AMENDMENT 13 TO HADDAM NECK LICENSE APPLICATION, JANUARY 11, 1967, DOCKET 50-213, TYPE--PWR, MFG.--WEST., AE--STONE + WEBSTER

CONTAINS REVISED PAGES FOR THE FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT WITH INFORMATION FROM RECENT STUDIES OF PLANT RESPONSE, MODIFICATIONS TO SYSTEMS TO IMPROVE SAFETY AND OPERABILITY, THE INCLUSION OF 16 ZIRCALOY CLAD FUEL RODS IN THE FIRST CORE, AND CHANGES IN THE PLANT ORGANIZATION CHART. PG. 11.5-3 THRU -12 CONTAIN THE DETAILED EMERGENCY PLANS.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *REPORT, SAR + CLAD + EMERGENCY PROCEDURE + FUEL ELEMENT + HADDAM NECK (PWR) + REACTOR, PWR + ZIRCALOY

18-24535

ALSO IN CATEGORY 11

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24535 *CONTINUED*

AMENDMENT NUMBER 15 TO HADDAM NECK LICENSE APPLICATION
CONNECTICUT YANKEE ATOMIC POWER PLANT, HADDAM, CONNECTICUT
9 PAGES, MARCH 23, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

FOUR QUESTIONS ARE ANSWERED CONCERNING CONTAINMENT-LINER SHEAR TESTS, STRUCTURAL ACCEPTANCE CRITERIA FOR CONTAINMENT, EMERGENCY POWER SUPPLY, AND FREQUENCY OF INSTRUMENT TESTS AND CALIBRATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*AEC QUESTION + HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR

18-24582

REPORTS FROM WORLD NUCLEAR POWER STATION SITES
13 PAGES, FIGURE, TABLES, NUCLEAR ENGINEERING 13(142) PAGES 202-214 (MARCH 1968)

BRIEF PARAGRAPHS AND ONE PICTURE SHOWING CURRENT CONSTRUCTION OF POWER PLANTS AROUND THE WORLD.

*REACTOR DESCRIPTION + CONTAINMENT CONSTRUCTION + REACTOR, POWER

18-24583

HADDAM NECK FSAR - VOLUME II
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-5 +. 850 PAGES, TABLES, FIGURES, REFERENCES, JULY 22, 1966, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INCLUDES CHAPTER 7 (I AND C), 8 (SECONDARY SYSTEMS), 9 (ELECTRICAL SYSTEMS), 10 (ACCIDENTS AND POTENTIAL HAZARDS), 11 (TESTS AND PLANT OPERATIONS,) AND 12 (ADMINISTRATION AND PLANNING).
*** ACCIDENTS ARE ANALYSED AT 1825 MWTH. THE HYPOTHETICAL ACCIDENT GIVES A 9-REM DOSE IN 24 HR AT BOUNDARY, AND A THYROID DOSE OF 60 REMS.

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

HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR

18-24584

HADDAM NECK FINAL SAFETY ANALYSIS REPORT - VOLUME I
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-5 +. 850 PAGES, TABLES, FIGURES, REFERENCES, JULY 22, 1966, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

VOL. I CONTAINS THE FOLLOWING CHAPTERS - (1) GENERAL, (2) SITE, (3) CONTAINMENT, (4) REACTOR DESIGN (5) PLANT SYSTEMS, AND (6) SHIELDING. *** A 1473-MWT/490 MWE WESTINGHOUSE PWR, LOCATED ON THE CONNECTICUT RIVER, 21 MI. SSE OF HARTFORD, CONN. ENGINEERED SAFEGUARDS INCLUDE HPIS, LPIS, CONTAINMENT, AIR COOLING AND FILTRATION, AND CONTAINMENT SPRAY.

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

HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR

18-24585

KEWAUNEE PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME III
WISCONSIN PUBLIC SERVICE CORPORATION
500 PAGES, TABLES, FIGURES, REFERENCES, AUGUST 23, 1967, DOCKET 50-305, TYPE--PWR, MFG--WEST, AE--PIONEER SERV.

VOL. III (SUBMITTED AS PART OF AMENDMENT I) CONSISTS OF APPENDIXES (K) OVERALL PLANT REQUIREMENTS (THE 70 AEC DESIGN CRITERIA), (L) POWER ESCALATION TEST SEQUENCE PROGRAM AND RESULTS (SAN ONOFRE AND SELNI), (M) CONTAINMENT CAPABILITY, (N) FOUNDATION DESIGN CRITERIA, REPORT ON FOUNDATION CONDITIONS, SUBSURFACE INVESTIGATION, AND (C) CONSTRUCTION QUALITY-ASSURANCE PROGRAM.

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

AEC DESIGN CRITERIA + CONTAINMENT ANALYSIS + CONTAINMENT CONSTRUCTION + FOUNDATION ENGINEERING + KEWAUNEE (PWR) + QUALITY CONTROL + REACTOR STARTUP TESTING + REACTOR, PWR + REPORT, PSAR + SITING, REACTOR

18-24586

KEWAUNEE PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME II
WISCONSIN PUBLIC SERVICE CORPORATION

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24586 *CONTINUED*

750 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 23, 1967, DOCKET 50-305, TYPE--PWR, MFG.--WEST, AE--PIONEER SERV.

VOL. II CONSIST OF CHAPTERS (7) I AND C, (8) ELECTRICAL SYSTEMS, (9) AUXILIARY SYSTEMS, (10) STEAM AND POWER-CONVERSION SYSTEM, (11) RADWASTE, (12) OPERATIONS, (13) INITIAL TESTING AND OPERATIONS, AND (14) SAFETY ANALYSIS. APPENDIXES - (A) SITE STUDIES, (B) STRUCTURAL DESIGN PROCEDURES, (C) METEOROLOGICAL MODEL, (D) RADIOACTIVE SOURCES FOR SAFETY ANALYSIS, (E) TURBINE-GENERATOR-RUNAWAY ANALYSIS, (F) DOSE-CALCULATION MODEL, (G) RADIOACTIVE SOURCES FOR CONTAINMENT LEAKAGE, (H) RADIOLYTIC DECOMPOSITION OF SAFETY-INJECTION WATER, (I) EFFECTS ON REACTOR VESSEL OF LOSS OF COOLANT AND SAFETY INJECTION, AND (J) FORCE ANALYSIS ON REACTOR INTERNALS FOLLOWING MAJOR PIPE BREAKS.

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

KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-24587 ALSO IN CATEGORY 5

KEWAUNEE PSAR LOSS OF LOAD ANALYSIS

WISCONSIN PUBLIC SERVICE CORPORATION

1 PAGE, PAGE 14.1.6-1 OF VOLUME II OF THE FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, AUGUST 23, 1967, DOCKET 50-305, TYPE--PWR, MFG.--WEST, AE--PIONEER SERV.

PLANT WILL BE DESIGNED TO ACCEPT COMPLETE LOSS OF EXTERNAL ELECTRICAL LOAD WITHOUT REACTOR OR TURBINE TRIP. UPON LOSS OF LOAD, (1) TURBINE CONTROL VALVE CLOSES, INCREASING REACTOR TEMPERATURE, (2) CONTROL RODS DRIVE IN, (3) STEAM DUMP VALVES OPEN. STEAM SYSTEM IS DESIGNED TO DUMP 40% OF FULL-LOAD STEAM FLOW TO THE CONDENSER AND 45% TO THE ATMOSPHERE.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF POWER + EFFLUENT + KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR + TURBINE

18-24588

KEWAUNEE PRELIMINARY SAFETY ANALYSIS REPORT - VOLUME I

WISCONSIN PUBLIC SERVICE CORPORATION

700 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 23, 1967, DOCKET 50-305, TYPE--PWR, MFG.--WEST., AE--PIONEER SERV.

VOL. 1 CONTAINS CHAPTERS (1) INTRO. AND SUMMARY, (2) SITE, (3) CORE, (4) COOLING SYSTEM, (5) CONTAINMENT, AND (6) ENGINEERED SAFEGUARDS. ***1650-MWT/559-MWE PWR, LOCATED 30 MILES ESE OF GREEN BAY, WISC., ON LAKE MICHIGAN. SITE IS 4.25 MILES NORTH OF POINT BEACH NUCLEAR STATION. CONTAINMENT IS SIMILAR TO THAT FOR PRAIRIE ISLAND (SECONDARY CONTAINMENT SHELL IS THE SHIELD BUILDING). ENGINEERED SAFEGUARDS INCLUDE HPIS, LPIS, INTERNAL CONTAINMENT SPRAY (EXTERNAL SPRAY IS ELIMINATED IN AMENDMENT 1), CV AIR-HANDLING SYSTEM, AND SHIELD BUILDING VENT AND EXHAUST SYSTEM.

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

*REPORT, PSAR + CONTAINMENT, MULTIPLE + CONTAINMENT, PRESSURE VENTING + KEWAUNEE (PWR) + REACTOR, PWR

18-24602

ALSO IN CATEGORY 11

SPENCER A

FEASIBILITY DESIGN OF PRESTRESSED CONCRETE PRESSURE VESSELS FOR HIGH-PRESSURE GAS COOLED REACTORS

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS

AAEC/TM-390 +. 74 PAGES, FIGURES, REFERENCES, MAY 1967

THE DESIGN POLICY OF PRESTRESSED CONCRETE PRESSURE VESSELS IS EXAMINED, WITH PARTICULAR REFERENCE TO THE DESIGN FOR A 200-MWE HTGC REACTOR. EQUATIONS FOR PRELIMINARY DESIGN AND COSTING OF SUCH VESSELS ARE DERIVED, AND THEIR USE FOR OPTIMIZATION IS DEMONSTRATED. CONSIDERABLE DESIGN INVESTIGATION IN SUPPORT OF THE METHODS USED IS PRESENTED AS APPENDICES TO THE REPORT.

AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*CONCRETE, PRESTRESSED + *DESIGN STUDY + *ECONOMICS + *PRESSURE VESSEL + DESIGN CRITERIA + REACTOR, HTGC

18-24622

ALSO IN CATEGORY 12

KEWAUNEE PSAR AMENDMENT 1 - REVISED PAGES

WISCONSIN PUBLIC SERVICE CORPORATION

500 PAGES, TABLES, FIGURES, JANUARY 2, 1968, DOCKET 50-305, TYPE--PWR, MFG.--WEST., AE--PIONEER SERV.

AMENDMENT 1 CONSISTS OF REVISED AND NEW PAGES TO THE PSAR, AND A NEW VOL. III. CHAPTERS 5 AND 6 (CONTAINMENT AND ENGINEERING SAFEGUARDS) ARE COMPLETELY REVISED. CHANGES ARE MOSTLY DUE TO ELIMINATION OF EXTERNAL CONTAINMENT SPRAY.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24622 *CONTINUED*

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

CONTAINMENT SPRAY + KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-24623

MAINE YANKEE PSAR -- VOL. II

MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE

750 PAGES, TABLES, FIGURES, REFERENCES, SEPTEMBER 27, 1967, DOCKET 50-309, TYPE--PWR, MFG.--C.E.,
AE--STONE + WEBSTER

CONSISTS OF CHAPTERS 7-14 (FROM I AND C TO SAFETY ANALYSIS). THE HYPOTHETICAL ACCIDENT RESULTS IN A 93-REM 2-HR THYROID DOSE AT THE SITE BOUNDARY, WHILE ENGINEERED-SAFETY-FEATURE ACTION PREVENTS RELEASES FROM OTHER ACCIDENTS. ONLY FUEL HANDLING, STEAM-GENERATOR-TUBE RUPTURE, AND WASTE-GAS RELEASE GIVE OFF-SITE DOSES.

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

BAILEY POINT (PWR) + REACTOR, PWR + REPORT, PSAR

18-24625

NINE MILE PT PROPOSED TECHNICAL SPECIFICATION

NIAGARA MOHAWK POWER CORPORATION

57 PAGES, TABLES, FIGURES, JULY 1967, DOCKET 50-220, TYPE--BWR, MFG.--G.E. AE--NIAGARA MOHAWK

NEW-FORMAT SPECIFICATIONS INCLUDE SECTIONS ON SAFETY LIMITS AND SAFETY-SYSTEM SETTINGS (5 PGS), MINIMUM CONDITION FOR OPERATION AND SURVEILLANCE REQUIREMENTS (38 PGS), DESIGN FEATURES (2 PGS), ADMINISTRATIVE CONTROLS (5 PGS).

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

*TECHNICAL SPECIFICATIONS + NINE MILE POINT (BWR) + REACTOR, BWR

18-24636

ALSO IN CATEGORY 11

KCMAROVSKII AN

DESIGN OF NUCLEAR PLANTS

ATOMIZDAT, MOSCOW

AEC-TR-6722 + IPST-CAT.-1875 +. 482 PAGES, FIGURES, TABLES, REFERENCES, TRANSLATION OF STROITEL-STVO YADERNYKH USTANOVOK, ATOMIZDAT, MOSCOW, 1965

TITLE SHOULD BE - CIVIL ENGINEERING, SHIELDING AND BUILDINGS - BECAUSE THIS IS A SURVEY/DESCRIPTION FOR USSR CIVIL-ENGINEERING COLLEGES. WELL ILLUSTRATED WITH NON-USSR REACTORS. LITTLE ATTENTION PAID TO SHIELDING CALCULATIONS. NOTHING SAID OF REACTOR PHYSICS OR HEAT TRANSFER. SECTIONS INCLUDE (1, 20 PG) SPECIAL ASPECTS OF CONCRETE AS BIOLOGICAL SHIELDING. (3, 181 PG) GENERAL DESIGN OF CONCRETE SHIELDS, THERMAL SHIELD, BUILDINGS, FUEL-STORAGE POOLS, PAINTS. (4, 45 PG) CONTAINMENT ASPECTS OF BUILDINGS AND SPECIAL STEEL HOUSINGS, INCLUDING STRESSES FROM HIGH-PRESSURE FLASHING WATER. (5, 46 PG) SPECIAL FEATURES IN SHIELD AND CONTAINMENT CONSTRUCTION. (APPENDIXES, 80 PG) COST AND MATERIAL DATA, SPECIAL CALCULATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT CONSTRUCTION + BIBLIOGRAPHY + BUILDING + CONCRETE + CONCRETE, PRESTRESSED + CONTAINMENT DESIGN + CONTAINMENT PAINT + REACTOR, POWER + REVIEW + SHIELDING + THERMAL SHIELD + USSR

18-24804

SURRY 1 AND 2. AMENDMENT 9

VIRGINIA ELECTRIC AND POWER COMPANY

250 PAGES, TABLES, FIGURES, REFERENCES, FEBRUARY 14, 1968, DOCKET 50-280/281, TYPE--PWR, MFG.--WEST.,
AE--STONE + WEBSTER

PROVIDES ANSWERS TO DRL QUESTIONS AT MEETING JANUARY 23-24, 1968, ON A VARIETY OF SUBJECTS.

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

*AEC QUESTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-24805

CRYSTAL RIVER 3 AND 4. AMENDMENT 3.

FLORIDA POWER CORPORATION

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24805 *CONTINUED*

400 PAGES, TABLES, FIGURES, REFERENCES, MARCH 1, 1968, DOCKETS 50-302/303, TYPE--PWR, MFG.--B+W, AE--GILBERT ASSOC.

INCLUDES REVISED PSAR PAGES AND SUPPLEMENT 2, WHICH IN TURN INCLUDES ANSWERS TO SEVEN INFORMAL QUESTIONS PLUS A PACKAGE ON ENGINEERING GEOLOGY AND FOUNDATION DESIGN.

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

AEC QUESTION + CRYSTAL RIVER 3 AND 4 (PWR) + REACTOR, PWR + REPORT, PSAR

18-24806

SURRY 1 AND 2. AMENDMENT 10
VIRGINIA ELECTRIC AND POWER COMPANY
75 PAGES, TABLES, FIGURES, MARCH 1, 1968, DOCKET 50-280/281, TYPE--PWR, MFG.--WEST., AE--STONE + WEBSTER

PROVIDES ANSWERS TO VARIOUS AEC QUESTIONS.

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-24807

ALSO IN CATEGORY 11
POINT BEACH UNIT 2. SUPPLEMENT 2
WISCONSIN ELECTRIC POWER COMPANY

40 PAGES, FIGURES, TABLES, FEBRUARY 24, 1968, DOCKET 50-301, TYPE--PWR, MFG.--WEST, AE--BECHTEL

RESPONDS TO DRL LETTER OF JAN. 19, 1968, REQUESTING MORE INFORMATION ON THE CONTAINMENT AND PRIMARY-SYSTEM STRUCTURE, DYNAMIC ANALYSIS OF CONTAINMENT, LINER ANCHORAGE, AND CONTAINMENT-LOADING COMBINATION.

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

*AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-24808

BROWNS FERRY UNIT 3 PSAR AMENDMENT 3
TENNESSEE VALLEY AUTHORITY

50 PAGES, TABLES, FIGURES, REFERENCES, MARCH 4, 1968, DOCKET 50-296, TYPE--BWR, MFG.--G.E., AE--TVA

CONTAINS ANSWERS TO REMAINING QUESTIONS RAISED IN DRL LETTER OF JAN. 26, 1968. INCLUDES COMPLIANCE WITH 70 DESIGN CRITERIA, DESIGN CRITERIA FOR CLASS-I SYSTEMS, LOSS-OF-COOLANT ECCS PERFORMANCE.

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

*AEC QUESTION + BROWNS FERRY (BWR) + REACTOR, BWR + REPORT, PSAR

18-24812

ALSO IN CATEGORY 2

SENATE BILL 3330 - ELECTRIC POWER PLANT SITING ACT OF 1968

U. S. SENATE

6 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 20-25 (APRIL 22, 1968)

TO AMEND FEDERAL POWER ACT SO THAT AEC SHALL NOT ISSUE A (PWR REACTOR) LICENSE UNDER ATOMIC ENERGY ACT SECT. 103 OR 104 (EXCEPT FOR NATIONAL EMERGENCY OR NO ECONOMICALLY FEASIBLE ALTERNATIVE) UNTIL THE FPC COMPLETES A NATIONAL POWER-PLANT-SITING STUDY, AND SUBMITS A NATIONAL POWER-PLANT-SITING PLAN TO CONGRESS. PLAN TO BE SUBMITTED WITHIN 2 YEARS OF PASSAGE OF BILL. *** E. KENNEDY STATEMENT REFERS TO GROWTH OF ELECTRIC POWER, PREPONDERANCE OF LARGE PLANTS BEING NUCLEAR, SPECIAL PROBLEMS OF NUCLEAR PLANTS DISCHARGING WATER 11 TO 23 DEG HOTTER THAN ON INTAKE, POTENTIALLY DISASTROUS EFFECT ON AQUATIC LIFE AND IRRIGATION.

*CONGRESSIONAL ACTIVITY + *SITING, REACTOR + *THERMAL POLLUTION

18-24814

ALSO IN CATEGORY 1

COMMENTS ON INDIAN POINT 3 PSAR

CONSOLIDATED EDISON COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 28-29 (APRIL 8, 1968) DOCKET 50-286

(FILED IN PDR, JAN. 30) A REPORT BY BELGIAN CONSULTANTS RETAINED BY CITY OF NEW YORK. AGREES THAT PLANT CAN BE BUILT AND OPERATED WITHOUT ADVERSE CONSEQUENCES IN TERMS OF PUBLIC SAFETY. FOLLOWING POINTS SHOULD BE BORNE IN MIND - (A) CONTAINMENT SHOULD BE MAINTAINED AND TESTED,

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24814 *CONTINUED*

(B) FEEDWATER AND STEAM LINES SHOULD BE PROTECTED FROM MISSILES, (C) FAN AND SPRAY COOLING ADEQUACY, (D) SAFETY-INJECTION DELAY EFFECT SHOULD BE ANALYZED, (E) ELECTRICAL FIRE SHOULD BE ANALYZED, (F) NO LOSS OF POWER SHOULD ENTAIL FALSE INDICATION FROM VITAL INSTRUMENTATION, (G) GAS-WASTE MONITORING ANALYZED, (H) METHYL IODIDE INVESTIGATED, (I) PRIMARY-COOLANT CONTINUOUS BORON MONITORING ADVISED.

*REPORT, PSAR + ENGINEERED SAFETY FEATURE + INDIAN POINT 3 (PWR) + REACTOR, PWR

18-24885 ALSO IN CATEGORY 6
FRANK FJ
THE NUCLEAR DESIGN OF THE SENA REACTOR
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-2785 +. 124 PAGES, MAY 1965

THE SENA REACTOR IS A CLOSED-CYCLE PWR TO BE BUILT ALONG THE MEUSE RIVER AT CHOOZ, FRANCE. IT INCORPORATES CHEMICAL-POISON SHIM CONTROL, NONUNIFORM MULTIREGION FUEL LOADING, AND PARTIAL CORE REFUELING. THE REACTIVITY CONTROL OF THE CORE, USING BCTH ROD AND CHEMICAL POISON, IS DESCRIBED. THE X-Y POWER DISTRIBUTION IS GIVEN FOR THE CORE AT THE BEGINNING OF LIFE FOR VARIOUS CONTROL-ROD PATTERNS AND ALSO DESCRIBED AS A FUNCTION OF BURNUP WITH NO RODS INSERTED. REACTIVITY COEFFICIENTS AND THE PROMPT AND DELAYED-NEUTRON CHARACTERISTICS ARE PRESENTED.

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

*REACTOR CONTROL + CONTROL ROD INTERACTION + FRANCE + REACTOR POWER + REACTOR, POWER + REACTOR, PWR

18-24899
KEWAUNEE AMENDMENT 4
WISCONSIN PUBLIC SERVICE CORPORATION
250 PAGES, TABLES, FIGURES, APRIL 1, 1968, DOCKET 50-305

AMENDMENT 4 CONSISTS OF REVISED PSAR PAGES AND PSAR SUPPLEMENT 2, WHICH ANSWERS MARCH 8, 1968, ORL QUESTIONS 3,4,5,7,8,9,12,14,15 AND THOSE BY NEWMARK AND HALL IN CONNECTION WITH PRAIRIE ISLAND.

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

*AEC QUESTION + KEWAUNEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-24900
AMENDMENT 7 TO THE DIABLO CANYON APPLICATION (SUPPLEMENT 6) TO THE PRELIMINARY SAFETY ANALYSIS REPORT
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
84 PAGES, 26 FIGURES, 10 REFERENCES, NOV. 9, 1967, DOCKET NO. 50-275, TYPE--PWR, MFG--WEST., AE--PG+E

AMENDMENT 7 (SIXTH SUPPLEMENT) PRESENTS ANSWERS TO QUESTIONS 3-5 OF AEC LETTER OF OCTOBER 26, 1967 (OTHER ANSWERS IN AMENDMENT 6) AND I AND C INFORMATION REQUESTED IN AEC LETTER OF OCTOBER 26, 1967, PLUS ANSWERS TO AEC LETTER OF NOVEMBER 1, 1967. FIFTEEN ANSWERS ARE GIVEN.

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

*AEC QUESTION + DIABLO CANYON (PWR) + REACTOR, PWR + REPORT, PSAR

18-24903 ALSO IN CATEGORY 9
SUPPLEMENTAL INFORMATION ON INSTRUMENTATION AND CONTROL SYSTEM
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIFORNIA
11 PAGES, 12 FIGURES, PAGE I-7 THRU I-17 AND I-23 THRU I-35 OF AMENDMENT 7 TO THE DIABLO CANYON APPLICATION (SUPPLEMENT 6) TO THE PRELIMINARY SAFETY ANALYSIS REPORT, NOV. 9, 1967, DOCKET NO. 50-275, TYPE--PWR, MFG--WEST., AE--PG+C

ADDITIONAL INFORMATION SUPPLIED IN RESPONSE TO AEC LETTER DATED OCTOBER 26, 1967. THE PRELIMINARY DESIGN AND SAFETY EVALUATION IS GIVEN, BASED ON THE CURRENT STATE OF THE DETAILED DESIGN. DISCUSSES REACTOR PROTECTION AND CONTROL SYSTEM AND THE EMERGENCY ELECTRICAL POWER SYSTEM. INTERLOCKS, INDEPENDENCE, INTERACTION, AND TEST AND CALIBRATION CAPABILITY ARE DESCRIBED TO DEMONSTRATE HOW DESIGN CRITERIA WILL BE IMPLEMENTED.

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

*INSTRUMENTATION, CONTROL + *INSTRUMENTATION, PROTECTIVE + *SYSTEM DESCRIPTION + CODES AND STANDARDS + DIABLO CANYON (PWR) + EMERGENCY POWER, ELECTRIC + INDEPENDENCE + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TESTING + REACTOR, PWR

18-24917 ALSO IN CATEGORY 2

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24917 *CONTINUED*

RESPONSE TO QUESTION 10.1--LOADING DURING MAXIMUM EARTHQUAKE FOR CLASS I EQUIPMENT
VIRGINIA ELECTRIC AND POWER COMPANY
6 PAGES, 2 TABLES, PAGE S10.1-1 THRU -6 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2
(SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

STATE YOUR CRITERION REGARDING ACCEPTABLE STRESSES AND STRAINS IN EQUIPMENT RATED CLASS I FOR
SEISMIC DESIGN DURING THE MAXIMUM EARTHQUAKE. IN EACH CASE, ARE FUNCTIONAL, ACCIDENT, AND
SEISMIC LOADS ASSUMED TO OCCUR SIMULTANEOUSLY. ***(ANSWER ON PAGES S10.1-1 THRU -6.)

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*STRESS + EQUIPMENT, GENERAL + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-24919 ALSO IN CATEGORY 2

RESPONSE TO QUESTION 10.3--SEISMIC DESIGN OF SECONDARY SYSTEM COMPONENTS
VIRGINIA ELECTRIC AND POWER COMPANY
1 PAGE, PAGE S10.3-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC
8, 1967. DOCKET 50-280 AND 50-281.

LIST THOSE PORTIONS OF THE SECONDARY SYSTEM WHICH ARE RATED AS CLASS I FOR SEISMIC DESIGN. IN
PARTICULAR, INDICATE THE SEISMIC-DESIGN CRITERIA FOR THE STEAM-GENERATOR SHELL AND THE MAIN
STEAM LINES FROM THE STEAM GENERATOR TO THE TRIP VALVES. ***(ANSWER) LIST GIVEN.
STEAM-GENERATOR SHELL AND MAIN STEAM LINES FROM GENERATOR TO TRIP VALVES ARE INCLUDED IN LIST.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*MAIN COOLING SYSTEM + *PIPING + *STEAM GENERATOR + REACTOR, PWR + REPORT, PSAR

18-24921 ALSO IN CATEGORY 11

RESPONSE TO QUESTION 11.1--CRITERIA FOR CONTAINMENT PIPING PENETRATION
VIRGINIA ELECTRIC AND POWER COMPANY
2 PAGES, PAGE S11.1-1 THRU -2 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME
2). DECEMBER 8, 1967. DOCKET 50-280 AND 50-281.

WE BELIEVE THAT THESE CRITERIA DISCUSS EXTENT TO WHICH CRITERIA FOR CONTAINMENT PIPING
PENETRATION WILL BE MET. DESCRIBE ANY MODIFICATION TO VALVE ARRANGEMENTS REQUIRED TO MEET
THESE CRITERIA. ***(ANSWER) CRITERIA LISTED WILL BE MET EXCEPT FOR DEEP-WELL
RECIRCULATION-SPRAY-PUMP SUCTION AND DISCHARGE LINES, WHICH ARE BELOW GRADE, ABOUT THE
CONTAINMENT, AND ARE DESIGNED TO BE EXTENSIONS OF CONTAINMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT PENETRATION, PIPE + *DESIGN CRITERIA + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-24922 ALSO IN CATEGORY 11

RESPONSE TO QUESTION 12.1-1--VACUUM LOAD ON CONTAINMENT DURING OPERATION
VIRGINIA ELECTRIC AND POWER COMPANY
3 PAGES, PAGE S12.1.1 (1)-1 THRU S12.1.1 (2)-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2
(SUPPLEMENT VOLUME 2). DEC 8, 1967. DOCKET 50-280 AND 50-281.

IMPLICATIONS OF A VACUUM LOAD OF 10 (PLUS OR MINUS 0.5) CONTAINMENT DURING THE NORMAL
OPERATION ARE NOT CLEAR. IN THE EVENT OF VACUUM CONTROL FAILURE, WHAT IS THE POTENTIAL
ADDITIONAL VACUUM ON THE CONTAINMENT DUE TO BAROMETRIC PRESSURE INCREASE AND/OR CONTAINMENT
COOLDOWN. IN THE EVENT OF A DESIGN-BASIS ACCIDENT, WHAT IS THE MAXIMUM POTENTIAL VACUUM THAT
COULD BE ESTABLISHED WITHIN THE CONTAINMENT. ***(ANSWER) BAROMETRIC EFFECT LESS THAN 1 PSI,
COOLDOWN LESS THAN 1.5. FOR DESIGN-BASIS ACCIDENT, MAXIMUM VACUUM WOULD BE THAT OF INITIAL
OPERATING CONDITION OF ABOUT 10 PSIA.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT VESSEL LOADING + *CONTAINMENT, LOW PRESSURE + *CONTROL, GENERAL + *PRESSURE, SUBATMOSPHERIC +
ACCIDENT, LOSS OF COOLANT + DESIGN CRITERIA + FAILURE, EQUIPMENT + REACTOR, PWR + REPORT, PSAR +
SURRY 1 AND 2 (PWR)

18-24950 ALSO IN CATEGORY 9

RESPONSE TO QUESTION 13.3--TEST OF DIFFERENTIAL PRESSURE DEVICES
VIRGINIA ELECTRIC AND POWER COMPANY
1 PAGE, PAGE S13.3-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC
8, 1967. DOCKET 50-280 AND 50-281.

WILL DIFFERENTIAL-PRESSURE DEVICES (TYPICAL OF THOSE TO BE USED FOR MEASURING PRESSURIZER
LEVEL) BE TESTED UNDER SIMULATED BLOWDOWN CONDITIONS TO DETERMINE THAT THEY WILL, IN FACT,
SENSE LOW LEVEL UNDER WET CONDITIONS. ***(ANSWER) WESTINGHOUSE HAS A PROGRAM UNDERWAY.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-24950 *CONTINUED*

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*INSTRUMENTATION, LIQUID LEVEL DETECTION + *INSTRUMENTATION, PRESSURE + *SYSTEM OPERABILITY IN ACCIDENT + *TEST, INSTRUMENT RESPONSE + BLOWDOWN + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR, PWR + REPORT, PSAR + SIMULATION + SURRY 1 AND 2 (PWR)

18-24965 ALSO IN CATEGORY 10

RESPONSE TO QUESTION 14.7--MISSILE PROTECTION OF CONDUCTORS IN CONTAINMENT VESSEL

VIRGINIA ELECTRIC AND POWER COMPANY

1 PAGE, PAGE S14.7-1 OF AMENDMENT 6 TO LICENSE APPLICATION FOR SURRY 1 AND 2 (SUPPLEMENT VOLUME 2). DEC. 8, 1967. DOCKET 50-280 AND 50-281.

HOW WILL ESSENTIAL CONDUCTORS WITHIN THE CONTAINMENT VESSEL BE PROTECTED AGAINST MISSILES.

***(ANSWER) PHYSICAL SEPARATION OF REDUNDANT CIRCUITS AND MAJOR PORTION WILL BE RUN IN THE PROTECTED AREA BETWEEN THE CRANE WALL AND CONTAINMENT-VESSEL WALL BELOW CHARGING-FLOOR LEVEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ELECTRIC POWER, GENERAL + *INDEPENDENCE + *MISSILE GENERATION AND PROTECTION + *REDUNDANCE + ELECTRICAL CONDUCTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-25002

KELLER DL

PROGRESS RELATING TO CIVILIAN APPLICATIONS DURING OCTOBER THROUGH DECEMBER 1967

BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO

BMI-1826 +. FIGURES, TABLES, JANUARY 1, 1968

PROGRESS REPORTED ON STUDIES TO EVALUATE POTENTIAL OF MIXED U AND PU NITRIDE FUELS FOR LIQUID-METAL FAST-BREEDER REACTORS INCLUDES MATERIAL PROPERTIES, COMPATIBILITY, FABRICATION, AND IRRADIATION TESTING. SECOND TOPIC IS STUDY OF RADIATION EFFECTS ON VARIOUS CLADDING AND STRUCTURAL MATERIALS, WITH EMPHASIS ON MECHANICAL-PROPERTY CHANGES, PARTICULARLY FOR 347 STAINLESS STEEL. THE THIRD TOPIC - CHARACTERISTICS OF COATED-PARTICLE FUEL MATERIALS. FABRICATION, COMPATIBILITY, THERMAL SHOCK RESISTANCE, AND IRRADIATION TESTING ARE DISCUSSED.

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

*FUEL ELEMENT + *NITRIDE + *PLUTONIUM + *URANIUM + CLAD + COATED PARTICLE + FABRICATION + IRRADIATION TESTING + MATERIAL + PROPERTY, PHYSICAL + R AND D PROGRAM + REACTOR, BREEDER + REACTOR, LMCR + REVIEW + STEEL, STAINLESS + THERMAL MECHANICAL EFFECT

18-25003

GOLDING TA + KRUPP WE

HEAVY WATER ORGANIC COOLED REACTOR. POSTIRRADIATION EXAMINATION OF THE SAP-UC FUEL BUNDLES OF THE NRU-305 EXPERIMENT

ATOMIC INTERNATIONAL, CANOGA PARK, CALIF.

AI-CE-76 +. 52 PAGES, FIGURES, TABLES, DEC. 1, 1967

DESCRIBES THE IRRADIATION EXPERIMENT CONDUCTED AS A MATERIALS EVALUATION TEST ON SINTERED-ALUMINUM-POWDER-CLAD URANIUM CARBIDE FUEL (SAP-UC). PEAK BURNUP WAS 10,000 MWD/MTU. EXAMINATION INCLUDED VISUAL, FISSION GAS, AND GAMMA SCAN MEASUREMENTS, FOULING-FILM SAMPLING, PROFILOMETER MEASUREMENTS. NO CONCLUSIVE EVIDENCE OF DEFECTS OF RADIATION-INDUCED DEGRADATION WAS OBSERVED. VISUAL EXAMINATION OF THE INTERIOR SURFACES OF THE CLADDING SHOWED A REACTION PRODUCT OVER 30 TO 45% OF THE CIRCUMFERENCE, WHICH GREW INTO THE FUEL, NOT INTO THE CLADDING. THICKNESS WAS LESS THAN 1 MIL, AND DEPOSIT HAD NO DETRIMENTAL EFFECT.

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

*EXAMINATION + *FUEL BURNUP + *IRRADIATION TESTING + ALLOY + ALUMINUM + CLAD + FUEL ELEMENT + R AND D PROGRAM + RADIATION EFFECT + REACTOR, HWR + REACTOR, ORGANIC COOLED + SURFACE FILM DEPOSIT + URANIUM CARBIDE

18-25025

POINT BEACH 2. SUPPLEMENT 3

WISCONSIN ELECTRIC POWER COMPANY + WISCONSIN MICHIGAN POWER COMPANY

15 PAGES, TABLES, APRIL 4, 1968, DOCKET 50-301, TYPE--PWR, MFG.--WEST, AE--BECHTEL

REPLIES TO 5 DRL QUESTIONS OF MARCH 27, 1968, ON CONTAINMENT-LINER BUCKLING, CONTAINMENT-SPRAY ADDITIVE, OTHER R AND D, QUALITY-CONTROL PROGRAM, NO RETURN TO CRITICALITY FOLLOWING A STEAM-RELIEF-PIPE BREAK.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25025 *CONTINUED*
*AEC QUESTION + POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-25034
COOK LICENSE APPLICATION AMENDMENT 1
INDIANA AND MICHIGAN ELECTRIC COMPANY
400 PAGES, TABLES, FIGURES, MARCH 25, 1968, DOCKET 50-315/316

INCLUDES (1) DESCRIPTION OF BROWN-BOVERI TURBINE FOR UNIT 2, AND FAILURE ANALYSIS OF THIS AND
GE UNIT-1 TURBINE, (2) MATHEMATICAL MODEL FOR CONTAINMENT-STRUCTURE SEISMIC ANALYSIS, (3)
RESULTS OF SITE-FOUNDATION INVESTIGATIONS, AND (4) OTHER CORRECTIONS TO PSAR.

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

*FAILURE MODE ANALYSIS + *TURBINE + ANALYTICAL MODEL + CONTAINMENT DESIGN + COOK 1 AND 2 (PWR) +
FOUNDATION ENGINEERING + REACTOR, PWR + REPORT, PSAR

18-25035
PILGRIM STATION AMENDMENT 11
BOSTON EDISON COMPANY
5 PAGES, APRIL 3, 1968, DOCKET 50-293, TYPE--BWR, MFG.--G.E., AE--BECHTEL

REVISES PAGE 5 OF PART A, EXHIBIT B, TO PROVIDE ADDITIONAL INFORMATION ON BOSTON EDISON
FINANCIAL QUALIFICATION.

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

*CONSTRUCTION PERMIT PROCESS + PILGRIM STATION (BWR) + REACTOR, BWR

18-25036
MORRIS PA
DRL ASKS MORE INFORMATION ON RUSSELLVILLE
DIVISION OF REACTOR LICENSING, AEC
LETTER TO J. D. PHILLIPS, ARKANSAS POWER AND LIGHT COMPANY, 12 PAGES, APRIL 3, 1968, DOCKET 50-312

REVIEW OF PSAR INDICATES MORE INFORMATION NEEDED. REFERS TO GUIDE FOR CONTENTS OF SAR (BASES,
HOW BASES ARE MET, ETC.) AND ASKS 72 QUESTIONS - GENERAL (5), SITE AND ENVIRONMENT (11),
REACTOR (2), INITIAL TESTS AND OPERATION (3), ENGINEERED SAFETY FEATURES (6), INSTRUMENTATION
AND CONTROL (10), EMERGENCY ELECTRICAL POWER (5), QUALITY ASSURANCE (9), CONDUCT OF OPERATION
(9), REACTOR COOLANT SYSTEM (12).

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

*AEC QUESTION + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-25037
AMENDMENT 6 FOR ZION 1 AND 2
COMMONWEALTH EDISON COMPANY
11 PAGES, APRIL 4, 1968, DOCKETS 50-295/304, TYPE--PWR, MFG.--WEST, AE--SGT + LUNDY

AMENDMENT 6 CONSISTS OF A REVISED TABLE OF CONTENTS FOR VOLUMES I-V AND ANSWERS TO 3 DRL
QUESTIONS ASKED FEB. 16, 1968 (CONTAINMENT INSTRUMENTATION, OPERATOR TRAINING, QUALITY
ASSURANCE).

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + ZION 1 AND 2 (PWR)

18-25041 ALSO IN CATEGORY 11
MORRIS PA
MORE INFORMATION NEEDED FOR DRL REVIEW OF OYSTER CREEK VESSEL REPAIR
DIVISION OF REACTOR LICENSING, AEC
LETTER TO J. E. LOGAN, JERSEY CENTRAL POWER AND LIGHT COMPANY, 1 PAGE, APRIL 15, 1968, DOCKET 20-219,
TYPE--BWR, MFG.--G.E., AE--BURNS + ROE

AS DISCUSSED ON APRIL 8, 1968, AFTER PRELIMINARY REVIEW OF AMENDMENTS 35 AND 36 ON THE REPAIRS
TO STUB TUBES OF VESSEL, WE WILL REQUIRE COMPLETE TECHNICAL JUSTIFICATION FOR YOUR
CONCLUSIONS, INCLUDING (1) ANALYSIS TO DEFINE CONSEQUENCES OF FAILURE OF AFFECTED COMPONENTS,
(2) ANALYSIS OF CAUSES OF KNOWN DEFECTS, (3) ANALYSES WHICH SUPPORT CONCLUSION THAT REPAIRS
WILL BE ACCEPTABLE FOR PLANT LIFETIME, (4) VERIFICATION THAT INTEGRITY OF REPAIRS CAN BE
ACHIEVED.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25041 *CONTINUED*
*MAINTENANCE AND REPAIR + *PRESSURE VESSEL + *WELDING + AEC QUESTION + OPERATING LICENSE PROCESS +
OYSTER CREEK 1 (BWR) + REACTOR, BWR

18-25042
GINNA FSAR SUPPLEMENT 1
ROCHESTER GAS AND ELECTRIC CORPORATION
46 PAGES, TABLES, FIRST SUPPLEMENT TO THE GINNA FINAL FDSAR (EXHIBIT D-6), MARCH 29, 1968, DOCKET 50-244,
TYPE--PWR, MFG--WEST, AE--GILBERT ASSOC.

INCLUDES MISCELLANEOUS REVISED FSAR PAGE (PG. 6A-3). SELECTION OF NACH INSTEAD OF NA2S203 FOR
CONTAINMENT SPRAY FOLLOWED AN EVALUATION PROGRAM REPORTED IN WCAP-7153 (PROPRIETARY
INFORMATION).

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$2.00
COPY, \$0.65 MICROFICHE

ADDITIVE + CONTAINMENT SPRAY + GINNA (PWR) + REACTOR, PWR + REPORT, SAR

18-25043
DOCUMENTATION OF HADDAM NECK STUDIES
CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.
26 PAGES, 15 FIGURES, 2 TABLES, 9 REFERENCES, AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6,
1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

A RECORD OF THE INFORMATION PRESENTED VERBALLY AT VARIOUS AEC STAFF AND ACRS SUBCOMMITTEE
MEETINGS. DISCUSSES EFFECT OF POSITIVE MODERATOR COEFFICIENT ON POTENTIAL REACTIVITY
INSERTION, LOSS-OF-COOLANT TRANSIENT ANALYSIS AND BLOWDOWN FORCES IN STEAM GENERATOR PRIMARY
TO SECONDARY BARRIERS, AND CONTAINMENT-LINER SHEAR TEST.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT, LOSS OF COOLANT + ACRS + AEC QUESTION + HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR

18-25044 ALSO IN CATEGORY 11
REACTOR CONTAINMENT LINER SHEAR TEST
CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.
3 PAGES, 1 FIGURE, PAGE 4-1 THROUGH 4-3 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967,
DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

DESCRIBES TESTS RUN TO EVALUATE SHEARING CHARACTERISTICS BETWEEN LINER AND THE STUDS ANCHORING
IT TO CONCRETE. RESULTS INDICATED ADEQUACY TO TRANSFER SHEAR FROM CONCRETE TO PLATE. FOR
SHEAR TRANSFERRED BY BOND, A FAILURE SAFETY MARGIN OF 60 WAS DEMONSTRATED, WITH A MARGIN OF
9.5 DEMONSTRATED FOR STUD LOADING. MAXIMUM SHEAR STRESS IN LINER PLATE AT SHELL-MAT JUNCTION
IS 9,400 PSI. GUARANTEED YIELD STRENGTH IS 32,000 PSI.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*CONTAINMENT LINER + *INTEGRITY + *TEST, PROOF + CONTAINMENT VESSEL LOADING + HADDAM NECK (PWR) +
REACTOR, PWR + REPORT, SAR + STRESS

18-25045 ALSO IN CATEGORY 5
BLOWDOWN FORCES IN STEAM GENERATOR BARRIERS
CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.
8 PAGES, 2 FIGURES, PAGE 3-1 THROUGH 3-8 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967,
DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ANALYSIS SHOWS THAT STRESSES IN TUBES AND TUBE SHEET WILL NOT EXCEED DESIGN STRESSES.
ANALYSIS FOR DIVIDER PLATE INDICATES THAT EVEN IF FAILURE OCCURS, SEVERITY OF LOSS-OF-COOLANT
ACCIDENT WILL NOT INCREASE. STEAM GENERATOR IS DESCRIBED. THE ANALYSIS WAS COMPUTED USING
THE DIGITAL COMPUTER PROGRAM SATAN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA,
22151, \$3.00 COPY, \$0.65 MICROFICHE

*BLOWDOWN + *STEAM GENERATOR + *STRESS + ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + COMPUTER PROGRAM +
HADDAM NECK (PWR) + REACTOR, PWR + REPORT, SAR + TUBING

18-25046 ALSO IN CATEGORY 5
LOSS OF COOLANT TRANSIENT ANALYSIS
CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.
12 PAGES, 8 FIGURES, 2 TABLES, 4 REFERENCES, PAGE 2-1 THROUGH 2-12 OF AMENDMENT 4 TO HADDAM NECK LICENSE
APPLICATION, MARCH 6, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25046 *CONTINUED*

DESCRIBES IN DETAIL THE THREE PHASES OF ANALYSIS (BLOWDOWN, REACTOR KINETICS, AND CORE COOLING). METHOD USED AND RESULTS FOR EACH ARE GIVEN. RESULTS OF LOSS-OF-COOLANT CALCULATIONS FOR POSITIVE MODERATOR COEFFICIENT INDICATES NO CLAD MELTING AS LONG AS OUTSIDE POWER IS AVAILABLE, AND LESS THAN 2.7% CLAD MELTING IN THE LARGEST BREAK OF 8.25 SQ. FT, EVEN WITH NO OUTSIDE POWER. FOR BREAKS UNDER 3 SQ. FEET, CLAD MELTING IS LIMITED TO A FRACTION OF A PERCENT, EVEN WITH NO OUTSIDE POWER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ANALYTICAL TECHNIQUE, GENERAL + *BLOWDOWN + *REACTOR KINETICS + EMERGENCY COOLING CONSIDERATIONS + FAILURE, CLADDING + HADDAM NECK (PWR) + MODERATOR COEFFICIENT + REACTOR, PWR + REPORT, SAR

18-25047

ALSO IN CATEGORY 6

POSITIVE MODERATOR COEFFICIENT IN HADDAM NECK

CONNECTICUT YANKEE ATOMIC POWER PLANT, BOSTON, MASS.

3 PAGES, 4 FIGURES, 5 REFERENCES, PAGE 1-1 THROUGH 1-3 OF AMENDMENT 4 TO HADDAM NECK LICENSE APPLICATION, MARCH 6, 1967, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

THE COEFFICIENT WILL BE POSITIVE AT BEGINNING OF LIFE OF FIRST CYCLE, ZERO AT BURNUP OF 2000 MWD/MTU, AND NEGATIVE THEREAFTER. ANALYSES GIVEN HERE SHOWS THAT THE MAXIMUM REACTIVITY INSERT IS 0.005 DELTA K AND IS CONSERVATIVE. COMPARES MEASUREMENTS TO VERIFY CALCULATION METHOD. FIGURES SHOW POTENTIAL REACTIVITY INSERT VS MODERATOR TEMP. COEFF., MOD. TEMP. COEFF. VS MOD. TEMP., DIFFERENCE BETWEEN MEASURED AND PREDICTED ACTIVITY POWER-DENSITY DISTRIBUTIONS IN THE SELMI REACTOR FOR BEGINNING OF LIFE AND AFTER BURNUP OF 10,038 MWD/MTU.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*MODERATOR COEFFICIENT + *REACTIVITY COEFFICIENT + COMPARISON, THEORY AND EXPERIENCE + HADDAM NECK (PWR) + MEASUREMENT, REACTIVITY + POWER DISTRIBUTION + REACTOR, PWR + REPORT, SAR

18-25065

POZDNYAKOV BS

ATOMIC POWER ENGINEERING

JPRS-43842 +. 23 PAGES, TRANSLATED FROM PRIRODA, 57(10), PAGE 28-39, (1967)

DURING THE PAST 20 YEARS, SOVIET SCIENCE AND TECHNOLOGY PROGRESSED FROM THE STARTING OF THE FIRST NUCLEAR REACTOR TO A NUMBER OF ELECTRIC POWER STATIONS, FROM PREDICTION OF NUCLEAR REACTIONS TO EXPERIMENTAL HEIGHTS IN SOLUTION OF PROBLEM OF REGULATED THERMONUCLEAR SYNTHESIS, AND SYNTHESIS OF NEW ELEMENTS. PROGRESS IN THE FIELD OF MASTERING ATOMIC ENERGY WAS A NORMAL RESULT OF THE GREAT ROLE OF SCIENCE AS A BASIS OF TECHNOLOGICAL PROGRESS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*REACTOR, POWER + *USSR + REVIEW

18-25074

ALSO IN CATEGORIES 12 AND 13

MERKER LG + BURNHAM JB + DEONIGI DE

COMPARATIVE COSTS OF OXIDE FUEL ELEMENTS. VOLUME 2. PROCESS FACILITY DESCRIPTION AND COST ESTIMATES BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.

BNWL-273(VOL.2) +. 77 PAGES, 4 FIGURES, 6 TABLES, 5 REFERENCES, DEC. 1966

CONCEPTUAL DESIGN STUDY OF FABRICATING 1-TON/DAY QUANTITIES OF REACTOR FUELS ENRICHED WITH UO₂ AND PUO₂, USING VIBRATORY COMPACTION AND PELLETING PROCESSES. ASSUMPTIONS WERE BASED ON PRESENT AND PROJECTED PROCESSES. GIVES PLANT DESCRIPTIONS, ESTIMATED COSTS FOR BUILDINGS, EQUIPMENT, SHIELDING CONCEPTUAL LAYOUTS, AND PROCESS FLOW SHEETS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*DESIGN STUDY + *ECONOMIC STUDY + *FUEL ELEMENT + *FUEL, PELLET TYPE + *VIBRATORY COMPACTION + FABRICATION + FABRICATION FACILITY + GLOVE BOX + HANFORD SITE + PLUTONIUM DIOXIDE + RADIOCHEMICAL PLANT SAFETY + URANIUM DIOXIDE

18-25088

ALSO IN CATEGORY 2

PUBLIC INTERVENTION ON COLUMBIA UNIVERSITY TRIGA

3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(19), PAGES 18-20 (MAY 6, 1968)

(APRIL 30 FILING FROM REGULATORY STAFF - SUMMARIZES THREE INTERVENTION PETITIONS, ASSERTS THAT MOST OF THE MATTERS ARE NOT PERTINENT TO PUBLIC HEALTH AND SAFETY, AND REQUESTS INTERVENTION BE LIMITED TO RELEVANT MATTERS. (APRIL 24 LETTER FROM RIVERSIDE DEMOCRATS, INC. - ASSERTS BENEFITS TO COMMUNITY WOULD NOT COMPENSATE FOR HAZARDS, NOR IS THERE COMMUNITY PARTICIPATION TO ENSURE SAFE OPERATION). (APRIL 20 LETTER FROM COMMITTEE TO END RADIOLOGICAL HAZARDS) - REFERS TO ACCIDENT POTENTIAL, SABOTAGE. REACTOR SHOULD NOT BE ALLOWED WITHIN CITY OF NEW

CATEGORY 10
SAFETY ANALYSIS AND DESIGN REPORTS

18-25088 *CONTINUED*

YORK. (APRIL 19, LETTER FROM MORNINGSIDE RENEWAL COUNCIL) - REFERS TO FERMI, THRESHER, AND
NE BLACKOUT AS FALLIBILITY OF TESTIMONY OF ENGINEERS.

*SITING, URBAN + OPERATING LICENSE PROCESS + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + REACTOR, RESEARCH +
TRIGA (RR)

18-25153 ALSO IN CATEGORY 11

AUBERT G + HASSIG JM + PEUCHMAUR A + ROCHE R + VRILLON B
SUPPORT STRUCTURE FOR THE PRESSURE TUBES IN A NUCLEAR REACTOR CALANDRIA TANK
COMMISSARIAT A L'ENERGIE ATOMIQUE
BRITISH PATENT 1-081-650 +. 4 PAGES, 2 FIGURES, AUGUST 31, 1967, PATENT (BRITISH)

AN ASSEMBLY OF CLOSED-BOX ELEMENTS, EACH DESIGNED TO SUPPORT AT LEAST ONE PRESSURE-TUBE
EXTENSION, COMPRISES A SUPPORT STRUCTURE IN A GAS-COOLED, HEAVY-WATER-MODERATED REACTOR.
PRESTRESSING CABLES, FASTENED TO TOP AND BOTTOM END BEAMS, PASS THROUGH THE ASSEMBLY, GIVING
IT RIGIDITY.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND, (\$0.49 CENTS/COPY)

*REACTOR, GCR + *REACTOR, HWR + *REACTOR, PRESSURE TUBE + *SUPPORT STRUCTURE + FUEL ELEMENT + PATENT +
UNITED KINGDOM

18-25157

BOWLES LF + TAYLOR D
PROTOTYPE FAST REACTOR SODIUM PUMPS
UKAEA, FAST REACTOR DESIGN OFFICE, RISLEY + ENGLISH ELECTRIC CO., LTD., WHETSTONE, GREAT BRITAIN
TRG-1538(R) +. 9 PAGES, 4 FIGURES, 4 REFERENCES, MARCH 1967, NUCLEAR ENGINEERING 12(132), PAGE 36-366

DESCRIBES 11,600- PRIMARY AND 17,000-GPM SECONDARY SODIUM PUMPS TO BE BUILT FOR THE PROTOTYPE
FAST REACTOR (PFR) AT DOUNREAY. MAIN PROBLEMS SUCH AS NEED FOR LONG SHAFTS, SEALING, AND
SODIUM-LUBRICATED BEARINGS ARE DISCUSSED. SPECIAL NOISE AND CAVITATION PROBLEMS OF PRIMARY
PUMPS ALSO OUTLINED. DESIGN BASED ON DEVELOPMENT FROM 6000-GPM PROTOTYPE PUMP AT UKAEA
REACTOR ENGINEERING LABORATORY, RISLEY. FIRST PUMP WILL UNDERGO FULL-SCALE TESTS IN WATER IN
MID-1968, AND ALL PUMPS WILL BE INSTALLED BY END OF 1969.

*EQUIPMENT DESIGN + *PUMP + *SODIUM + REACTOR, FAST + REACTOR, LMFR + UNITED KINGDOM

CATEGORY 19
BIBLIOGRAPHIES

19-23754. ALSO IN CATEGORY 3
SAWAI S + SHICHI O
BIBLIOGRAPHY ON IRRADIATED FUEL SHIPPING AND ITS SHIPPING CASKS
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-4039 +. 33 PAGES, REFERENCES, OCTOBER 1966

PRESENT PROBLEMS OF IRRADIATED FUEL SHIPPING AND SHIPPING CASKS, ESPECIALLY FROM THE STANDPOINT OF ITS DESIGN AND MANUFACTURE, ARE DESCRIBED. ABOUT 400 FOREIGN AND NATIONAL REPORTS ARE DIVIDED INTO 12 GROUPS ACCORDING TO THEIR OWN FIELDS, AND LISTED CHRONOLOGICALLY. DOCUMENTS PUBLISHED AFTER 1959 ARE MAINLY COLLECTED, CONSIDERING EFFORTS AND DEVELOPMENT WORKS ON THESE PROBLEMS DONE BY THE IAEA AND MANY COUNTRIES IN THESE SEVERAL YEARS.

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

BIBLIOGRAPHY + JAPAN + SHIPPING CONTAINER

19-23788
AEC 16 MM FILM CATALOG - POPULAR LEVEL
U.S. ATOMIC ENERGY COMMISSION
73 PAGES, 1966-1967

LISTS AND BRIEFLY DESCRIBES (100-200 WORDS) ABOUT 200 USAEC MOTION PICTURES FOR THE GENERAL PUBLIC (FROM GRADE SCHOOL CHILDREN UP). AVAILABLE FREE ON LOAN FOR PUBLIC NONPROFIT EXHIBITION. INFORMATION IS INCLUDED ON WHERE AND HOW TO ORDER THE FILMS. FILMS CLASSIFIED ACCORDING TO AGE GROUPS.

AVAILABILITY - US ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

BIBLIOGRAPHY + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + STAFFING, TRAINING, QUALIFICATION

19-23927
EVERY RS
LIST OF UNCLASSIFIED PUBLICATIONS AND AWRE REPORTS BY STAFF OF THE WEAPONS GROUP PUBLISHED DURING THE YEAR 1966
ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON (ENGLAND)
AWRE-LIB-BIB-16 +. 41 PAGES, MAY 1967

THE REPORTS AND PUBLICATIONS APPEARING IN THIS LIST ARE ARRANGED ALPHABETICALLY UNDER AUTHORS IN THE SUBJECT CATEGORIES USED IN THE UKAEA MONTHLY LIST OF PUBLICATIONS AVAILABLE TO THE PUBLIC. THE DEFINITIONS OF THE SUBJECT CATEGORIES ARE GIVEN AT THE BEGINNING OF THE LIST AND AN AUTHOR INDEX IS APPENDED. A LIST OF OMISSIONS FOR A PREVIOUS (AWRE LIBRARY BIBLIOGRAPHY NO. 14) IS ALSO APPENDED. PREVIOUS LISTS ARE AWRE LIBRARY BIBLIOGRAPHIES NO. 11 (JANUARY 1960 TO DECEMBER 1963), NO. 12 (1964) AND NO. 14 (1965) AND ARE AVAILABLE FROM HEAD OF TECHNICAL SERVICES, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BIBLIOGRAPHY + UNITED KINGDOM + WASTE DISPOSAL, GENERAL + WASTE TRANSPORTATION

19-24135
ARGONNE NATIONAL LABORATORY PUBLICATIONS, JULY 1, 1966-JUNE 30, 1967
ARGONNE NATIONAL LAB., ILL.
ANL-7396 +. 372 PAGES, NOV. 1967

THIS PUBLICATION LIST IS A BIBLIOGRAPHY OF SCIENTIFIC AND TECHNICAL ACCOUNTS ORIGINATED AT ARGONNE AND PUBLISHED DURING THE FISCAL YEAR 1967 (JULY 1, 1966, THROUGH JUNE 30, 1967). IT INCLUDES ITEMS PUBLISHED AS JOURNAL ARTICLES, TECHNICAL REPORTS, BOOKS, ETC., ALL OF WHICH HAVE BEEN MADE AVAILABLE TO THE PUBLIC. THE LIST IS DIVIDED INTO THREE PARTS. THE FIRST IS A BIBLIOGRAPHIC LIST OF PUBLICATIONS SORTED ACCORDING TO ORGANIZATIONAL DIVISION OF THE LABORATORY. THE SECOND PART IS AN ALPHABETICAL AUTHOR INDEX. THE THIRD PART CONSISTS OF A KWOC (KEY WORD OUT OF CONTEXT) SUBJECT INDEX.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, \$3.00 COPY, \$0.65 MICROFICHE

*BIBLIOGRAPHY + ANL

19-24165
BIBLIOGRAPHIES OF ATOMIC ENERGY LITERATURE
U.S. ATOMIC ENERGY COMMISSION, DIVISION OF TECHNICAL INFORMATION EXTENSION, OAK RIDGE, TENN.
TID-3744 +. 8 PAGES, DECEMBER 1967

CATEGORY 19
BIBLIOGRAPHIES

19-24165 *CONTINUED*

BIBLIOGRAPHIES OF ATOMIC ENERGY LITERATURE, TID-3700 SERIES, ARE INTENDED TO SERVE AS A REFERENCE SOURCE TO AVAILABLE CURRENT BIBLIOGRAPHIES AND TO ANNOUNCE THOSE THAT ARE IN PREPARATION, BOTH DOMESTIC AND FOREIGN.

*BIBLIOGRAPHY + HEAT TRANSFER

19-24377 ALSO IN CATEGORIES 14 AND 15

RUSSELL BG

PLUTONIUM ABSTRACTS. VOLUME 7, NUMBER 11

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-644 +. 85 PAGES, NOVEMBER 30, 1967

PLUTONIUM ABSTRACTS IS A CURRENT-AWARENESS SERVICE TO THE ATOMIC ENERGY COMMISSION AND ITS RESEARCH AND DEVELOPMENT CONTRACTORS FOR NEW DEVELOPMENTS IN ALL AREAS OF PLUTONIUM TECHNOLOGY. THIS ISSUE COVERS THE FOLLOWING - BIOLOGY AND MEDICINE, CHEMISTRY, HEALTH AND SAFETY, METALLURGY, MISCELLANEOUS, PHYSICS, AND REACTOR TECHNOLOGY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA \$2.00 COPY, \$0.65 MICROFICHE

*BIBLIOGRAPHY + *PLUTONIUM

19-25063 ALSO IN CATEGORY 1

SUPPLEMENTAL INSERT SHEETS FOR ENGINEERING MATERIALS LIST

USAEC DIVISION OF TECHNICAL INFORMATION

TID-4100(SUPPL.43) +. 25 PAGES, FEBRUARY 1968

INCLUDES DRAWING LISTS FOR, AMONG OTHERS, LEAK DETECTOR WITH FREON-12 TRACER FOR IN-PLACE TESTING OF INSTALLED CARBON BEDS AT SRL, CONTAINER FOR PACKAGING U-233, U-235, OR PU-239, CONSTRUCTION OF UF₆ SAMPLING AND TRANSFER FACILITY IN PREPARATION FOR TOLL ENRICHMENT AT ORGDP, AND PACKAGING FOR UF₆ SHIPPING CYLINDERS.

AVAILABILITY - USAEC DIVISION OF TECHNICAL INFORMATION, OAK RIDGE, TENN.

*ENGINEERING DRAWING LIST + CHARCOAL + FILTER + PLUTONIUM + SAMPLING + SHIPPING CONTAINER + STORAGE CONTAINER + TEST, FILTER + TRANSPORTATION AND HANDLING + URANIUM HEXAFLUORIDE + URANIUM-233 + URANIUM-235

INFORMATION AT NSIC IS DIVIDED INTO 19 CATEGORIES. AN ITEM OF INFORMATION MAY BE KEYED TO AS MANY AS THREE OF THESE. A COLLECTION OF SELECTORS OR KEYWORDS IS USED TO DENOTE THE MAIN SAFETY RELATED POINTS COVERED IN AN ARTICLE. THE FOLLOWING INDEX IS AN ALPHABETICAL LISTING OF SELECTORS GIVING REFERENCES TO EACH ARTICLE WHICH WAS KEYED TO IT. THE CATEGORY NUMBER IS GIVEN FIRST, FOLLOWED BY THE ACCESSION NUMBER. THE ACCESSION NUMBERS ARE USED TO LOCATE BIBLIOGRAPHIC ITEMS WITHIN A CATEGORY.

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ANALYTICAL TECHNIQUE, CALIBRATION					14-23254	14-23255	14-23277	14-23897
4-25144	7-24457	7-24460	7-24461		14-24285	14-24731	14-24735	14-24738
ANALYTICAL TECHNIQUE, FOOD					14-24739	14-25092	15-23207	15-23253
14-23270					15-23254	15-23255	15-23261	15-23277
ANALYTICAL TECHNIQUE, GAS					15-23897	15-24285	15-24731	15-24735
14-23269					15-24738	15-24739	15-25090	15-25092
ANALYTICAL TECHNIQUE, GENERAL					BIOLOGICAL CONCENTRATION,		ANIMAL FEED	
5-25046	14-23251	18-25046			14-24750	15-24750		
ANALYTICAL TECHNIQUE, LIQUID					BIOLOGICAL CONCENTRATION,		AQUATIC ORGANISMS	
7-25145					1-24249	14-21934	14-23924	14-24356
ANALYTICAL TECHNIQUE, SOLID					14-24479	14-24483	14-24738	15-23524
14-23270					15-24356	15-24479	15-24482	15-24738
ANALYTICAL TECHNIQUE, URINE					BIOLOGICAL CONCENTRATION,		FOOD	
14-23267	15-23268				14-23250	14-23288	14-24252	14-24265
ANL					14-24326	14-24482	14-24735	14-24736
14-23282	15-23265	15-23282	16-24342		14-24738	15-23250	15-23288	15-24252
19-24135					15-24285	15-24482	15-24735	15-24736
AQUATIC ORGANISMS					15-24738	15-25094		
14-23898	15-23898				BIOLOGICAL CONCENTRATION,		GENERAL	
ARGON					14-21934	14-23291	14-24285	14-24406
5-24810	7-24465	7-24810	17-24810		14-24482	15-24285	15-24406	15-24462
ATMOSPHERIC CHEMISTRY					BIOLOGICAL CONCENTRATION,		MAN	
7-24383					14-23207	14-23210	14-23218	14-23262
ATMOSPHERIC CIRCULATION, GLOBAL					14-23282	14-23584	14-23739	14-23741
16-21337	16-24340	16-25166			14-24247	14-24252	14-24425	14-24482
ATMOSPHERIC DIFFUSION					14-24650	14-24736	14-24738	14-24742
14-23248	14-24144	14-24251	15-24144		14-25054	15-23207	15-23210	15-23218
15-24251	16-21337	16-23248	16-23736		15-23262	15-23282	15-23584	15-23739
16-24228					15-23741	15-24136	15-24247	15-24252
ATMOSPHERIC DIFFUSION COEFFICIENT					15-24425	15-24482	15-24650	15-24736
16-23881					15-24738	15-24740	15-24741	15-24742
ATMOSPHERIC DIFFUSION EXPERIMENT					15-24743	15-24744	15-24745	15-25053
14-24481	15-24481	16-23734	16-23735		15-25054	15-25097	15-25098	15-25099
16-25050					BIOLOGICAL CONCENTRATION,		MILK	
ATMOSPHERIC DIFFUSION, CLIMATOLOGY					14-23218	14-23288	14-24231	14-24345
14-23248	16-23248				14-24735	14-24738	14-24750	15-23218
ATMOSPHERIC DIFFUSION, GLOBAL					15-23288	15-24231	15-24735	15-24738
14 25100	15-25100	16-24230	16-24341		15-24750	15-25089		
ATMOSPHERIC POLLUTION					BIOLOGICAL CONCENTRATION,		VEGETATION	
1-24249	2-23239	14-24233	14-24254		14-21934	14-23218	14-23899	14-24244
14-24321	14-25100	15-24233	15-24254		14-24251	14-24482	14-24731	14-24739
15-24321	15-25100	16-24229	16-24619		14-24742	14-25052	15-23218	15-23899
16-25167					15-24244	15-24251	15-24462	15-24731
ATMOSPHERIC STABILITY					15-24739	15-24742	15-25092	
16-23211	16-23736	16-23737	16-24338		BICMEDICAL			
16-24618					1-23884	14-21956	14-23253	14-23254
ATOMICS INTERNATIONAL					14-25005	14-25092	15-21956	15-23253
4-24386	7-24386				15-23254	15-23256	15-23260	15-23284
ATR (TR)					15-23285	15-23884	15-24798	15-25092
17-24516					BIOA			
AUSTRALIA					14-23898	14-24479	14-24480	15-23858
8-25085	16-24341				15-24479	15-24480		
BAILEY POINT (PWR)					BLOWDOWN			
12-24624	17-24624	18-24623			5-24512	5-24600	5-25045	5-25046
BARIUM					9-24950	11-24600	12-24512	18-24512
9-24893	14-24251	14-24746	15-24251		18-24950	18-25045	18-25046	
15-24746					BNL			
BATTELLE NORTHWEST					15-23281	16-23211	17-23373	
7-24381	14-23253	14-23254	14-23262		BONUS (ISR)			
14-23276	14-24439	14-25005	15-23253		6-24649	9-24052	9-24053	9-24649
15-23254	15-23258	15-23260	15-23262		17-24052	17-24053	17-24649	
15-23271	15-23276	15-23280	15-23285		BORON			
15-23298	15-23746	15-24439			4-24387	9-21915	9-25102	12-24471
BFAM HOLE					13-24471	17-21915	17-24516	
6-24785	9-24811	17-24785	17-24811		BRAZIL			
17-25000					1-22462	14-23250	14-24483	15-23250
BELGIUM					15-24483			
14-25007					BRITTLE FRACTURE			
BERYLLIUM					11-21120	11-23775	11-23802	11-23892
4-24382	7-24382	15-23206	15-25107		11-23893	11-23896	11-23919	11-23920
16-24341					11-23928	11-23929		
BETA EMITTER					BROWNS FERRY (BWR)			
9-24133	14-24234	14-24320	15-23243		18-24808			
15-23280	15-23298	15-24136	15-24234		BSR (RR)			
15-24754					17-24518			
BIBLIOGRAPHY					BUCKLING			
3-23754	11-23771	11-23775	11-24636		6-25067	11-23590	11-23591	11-23712
14-24949	14-24355	14-24377	14-24731		11-23713	11-23757	11-23794	17-25067
15-24355	15-24359	15-24377	15-24731		BUILDING			
18-24636	19-23754	19-23788	19-23927		11-24156	11-24636	18-24156	18-24636
19-24135	19-24165	19-24377			BULGARIA			
BIG ROCK POINT (BWR)					14-25056	15-24245	15-25056	
9-24201	11-24048	14-23393	17-23393		BUOYANT RISE			
17-24048	17-24201	17-24646			16-24389			
BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE					CADMIUM			
14-24621	14-24735	14-24738	15-24621		6-24001	6-25001	9-24001	9-25001
15-24735	15-24738	15-24741			14-24345	15-23242	17-24001	17-25001
BIOLOGICAL CONCENTRATION, ALGAE					CALCINATION			
15-23299					14-23742	14-24321	14-25054	15-23742
BIOLOGICAL CONCENTRATION, ANIMAL					15-24321	15-25054		
14-21183	14-21934	14-23207	14-23253		CALCIUM			

14-21183	14-24235	14-25092	15-24235	COATING, SURFACE			
15-25089	15-25092			7-24410	12-24769	12-24803	13-24803
CALIFORNIUM				COEALT			
14-23252	15-23252			11-22916	14-21934	15-25020	17-24047
CANADA				17-24203			
1-24881	9-25123	11-23745	11-25152	CODES AND STANDARDS			
14-24612	15-23241	15-23266	15-23273	1-24601	9-23203	9-24503	11-24601
15-24612	15-24740	16-25048	17-23745	18-23203	18-24903		
17-24517				COMPARISON, REACTOR CHARACTERISTICS			
CANDU (HWR)				9-24332	17-25066	18-24515	
17-24517	17-25155	17-25156		COMPARISON, THEORY AND EXPERIENCE			
CARBIDE				5-24810	6-23738	6-24351	6-25047
4-24382	4-25143	7-22540	7-24382	6-25067	7-24810	9-23738	9-23853
7-24394				9-24351	9-24473	9-25021	9-25075
CARBON				11-23743	11-23768	11-23773	11-23751
7-24394	7-24458	7-24462	7-25149	11-23792	11-23799	11-25062	16-23736
9-24887	11-23709	12-24191	14-24144	16-24338	16-24339	16-24341	16-25050
15-24144	15-24191	17-25061		17-24810	17-25062	17-25067	17-25075
CARBON DIOXIDE				18-25047			
7-24395	7-25138	8-25138		COMPONENTS, MISCELLANEOUS			
CASK OPERATING EXPERIENCE				9-23728	12-23728	16-24077	
3-24764				COMPOSITE MATERIAL			
CERAMICS				11-23597			
14-24162				COMPUTER CONTROL			
CERIUM				9-23725			
7-24371	14-24285	14-24358	14-24371	COMPUTER PROGRAM			
14-24650	15-24285	15-24650		1-24601	3-24790	5-25045	6-23588
CERT				6-23738	6-23670	6-23675	6-23516
14-24482	15-24482			6-24791	6-25067	7-24343	7-24367
CESIUM				7-24463	7-25142	8-23870	9-23738
7-24371	14-21183	14-21934	14-21934	11-23527	11-23758	11-23761	11-23764
14-23255	14-23291	14-23297	14-23898	11-23772	11-23775	11-23787	11-23795
14-23899	14-24235	14-24244	14-24252	11-23797	11-23797	11-23859	11-24601
14-24285	14-24326	14-24345	14-24356	14-23289	14-23583	14-24611	14-25005
14-24360	14-24371	14-24650	14-24735	15-23242	15-23289	15-23583	15-24611
14-24736	14-24738	14-24739	14-24749	15-25109	15-25110	16-23730	17-23588
14-24750	14-25005	14-25057	15-23255	17-23875	17-25067	18-23670	18-25045
15-23297	15-23898	15-23899	15-24235	COMPUTER PROGRAM, METEOROLOGICAL			
15-24244	15-24252	15-24285	15-24356	16-24389			
15-24650	15-24735	15-24736	15-24738	COMPUTER, DIGITAL			
15-24739	15-24744	15-24749	15-24750	6-23738	9-23718	9-23719	9-23738
15-25053	15-25057	15-25094		9-24255	9-24886	15-23242	15-23271
CHALK RIVER				15-24886			
14-24143	15-23241	15-23266	15-24143	CONCENTRATION, AREA			
15-24353	15-24740			14-24376	15-24376	16-23879	16-25167
CHAMBER, COMPENSATED				CONCENTRATION, CROSSWIND INTEGRATED			
6-25080	9-25080	17-25080		16-23733	16-23735	16-23736	
CHAMBER, ION				CONCENTRATION, GROUND LEVEL			
9-23208	9-25032	9-25075	9-25114	16-24229	16-24390	16-25050	
14-24612	15-24612	17-25075		CONCENTRATION, PEAK TO AVERAGE			
CHARCOAL				16-23734			
1-25063	7-24397	7-24455	7-24458	CONCRETE			
7-25149	19-25063			1-23230	2-23230	11-21120	11-23764
CHARCOAL ADSORBER				11-23922	11-23932	11-24604	11-24636
7-24455	7-24458	7-25149		14-24160	17-23922	18-24636	
CHEMICAL ANALYSIS				CONCRETE, PRESTRESSED			
14-24358	16-21337	16-23819		11-20351	11-23200	11-23764	11-23789
CHEMICAL EQUILIBRIUM				11-23793	11-23800	11-23859	11-23932
8-25005				11-24596	11-24597	11-24598	11-24602
CHEMICAL KINETICS				11-24603	11-24636	11-25062	17-25061
1-25086	4-24372	7-24372	7-24380	17-25062	18-20351	18-21858	18-23200
7-24385	7-24455	7-25086	11-25086	18-24602	18-24636		
CHEMICAL REACTION				CONGRESSIONAL ACTIVITY			
8-25085	11-25159	14-25007	15-25089	1-21968	1-24898	2-24812	15-24795
17-25159				15-24800	15-24801	15-24802	17-21968
CHEMICAL SHIM				17-24898	18-24812		
9-25102				CONSTRUCTION PERMIT PROCESS			
CHEMISORPTION				18-24050	18-25035		
7-24397				CONTAINER TIEDOWN			
CHINA				3-24790			
1-24883	14-24164	14-24483	14-25100	CONTAINMENT ABSOLUTE MEASURING SYSTEM			
15-24164	15-24483	15-25100		11-24599	17-24599		
CHLORIDE				CONTAINMENT AIR COOLING			
11-23745	17-23740	17-23745		12-23918	18-23918		
CHROMATOGRAPHY				CONTAINMENT AIR LOCK			
7-24385	7-24397	7-24465	14-23267	12-25071	12-25072	13-25071	13-25072
14-23269	14-24611	15-24611		CONTAINMENT ANALYSIS			
CHROMIUM				11-23201	11-23527	11-23795	11-23796
3-24818	11-23767	14-23898	15-23698	11-23797	11-23797	18-23201	18-24585
17-24818				CONTAINMENT ATMOSPHERE, INERT			
CIVIL DEFENSE				11-24509	12-24509	17-24282	18-24509
1-24158				CONTAINMENT CONSTRUCTION			
CLAD				11-23200	11-23201	11-23800	11-24636
4-24369	7-24369	11-23585	11-23709	18-23200	18-23201	18-24582	18-24585
11-23894	11-25159	17-23779	17-25159	18-24636			
18-24002	18-24514	18-24523	18-25002	CONTAINMENT DESIGN			
18-25003				7-24343	11-19833	11-20351	11-23200
COATED PARTICLE				11-23201	11-23932	11-24509	11-24636
7-24394	17-25061	18-24002	18-25002	12-24509	18-19833	18-20351	18-23200
COATING				18-23201	18-24509	18-24636	18-25034
12-24803	13-24803			CONTAINMENT EQUIPMENT HATCH			

11-23200	11-23201	12-25071	12-25072	CONTRGL ROD INTERACTION			
13-25071	13-25072	18-23200	18-23201	6-24885	9-23946	9-25113	9-25121
CONTAINMENT INSTRUMENTATION				17-23946	18-24885		
9-23907	11-19794	11-23200	11-24599	CONTROL ROD PROGRAM			
12-23907	17-19794	17-23907	17-24599	17-23394			
18-23200				CONTROL ROD SCRAM MECHANISM			
CONTAINMENT LEAKAGE CONTROL				9-23853			
9-23726	11-22937	12-23726	18-22937	CONTROL ROD WORTH			
CONTAINMENT LINER				6-23738	6-24351	9-23738	9-23946
11-23200	11-24204	11-25044	17-24204	9-24052	9-24351	9-24449	9-24473
18-23200	18-25044			17-23946	17-24052		
CONTAINMENT PAINT				CONTROL SYSTEM			
11-24636	12-24803	13-24803	18-24636	6-23916	9-24349	9-24897	9-25104
CONTAINMENT PENETRATION, CLOSURE OF				9-25113	9-25114	9-25117	17-24518
11-09120	11-22937	11-23142	11-24046	18-24515			
14-23393	17-09120	17-19798	17-23142	CONTROL, GENERAL			
17-23393	17-24046	17-24281	18-22937	11-24922	18-24922		
CONTAINMENT PENETRATION, ELECTRICAL				CONTROL, METEOROLOGICAL			
10-24817	11-23201	12-24817	17-24817	16-24390			
18-23201				CONTROLLER			
CONTAINMENT PENETRATION, GENERAL				6-24649	9-24649	9-24811	17-24649
11-19794	11-21120	11-23200	17-19794	17-24811			
18-23200				CONVECTIVE BOILING			
CONTAINMENT PENETRATION, PIPE				4-25144	9-23717		
11-23201	11-24921	18-23201	18-24921	COCK 1 AND 2 (PWR)			
CONTAINMENT REFERENCE MEASURING SYSTEM				18-25034			
11-19794	17-19794			COOLANT CHEMISTRY			
CONTAINMENT RESEARCH AND DEVELOPMENT				4-24372	4-24386	4-25144	7-24372
5-24600	7-24343	7-24396	7-25146	7-24386	7-25138	7-25145	8-25084
11-23775	11-24600	11-24604	11-25062	8-25138	11-23867	11-23889	11-23894
14-23584	15-23584	17-25062		17-23867	17-25069	17-25084	18-24515
CONTAINMENT SPRAY				COOLANT COEFFICIENT			
1-25086	7-24396	7-25086	11-19794	6-23916	6-24795		
11-25086	12-24622	17-19794	18-24622	COOLANT PURIFICATION SYSTEM			
18-25042				6-24649	8-25084	9-23947	9-24649
CONTAINMENT SYSTEM, OPERATION OF				11-23709	17-24649	17-25084	18-23947
17-24519				18-23948			
CONTAINMENT VACUUM BREAKER				COOPER (BWR)			
17-19798				2-24511	5-24512	5-24513	9-24513
CONTAINMENT VESSEL LOADING				11-24509	12-24509	12-24512	18-24466
11-20351	11-24922	11-25044	18-20351	18-24498	18-24500	18-24507	18-24508
18-24922	18-25044			18-24509	18-24510	18-24511	18-24512
CONTAINMENT, CONTINUOUS MONITORING SYSTEM				18-24513			
9-23726	11-24509	12-23726	12-24509	COPPER			
12-24624	17-24624	18-24509		9-24053	17-24053	17-24823	
CONTAINMENT, GENERAL				COPE COMPONENTS			
1-25086	7-25086	11-21861	11-25086	9-24053	11-23706	12-23706	17-23740
18-21861	18-24515			17-24053	17-24646		
CONTAINMENT, HIGH PRESSURE				CORE MELT DOWN			
11-19794	11-23200	11-23922	11-24048	5-21864	6-24794	18-21864	
11-24599	11-24604	17-19794	17-23922	CORE REFLECTING SYSTEM			
17-24048	17-24599	18-23200		9-22578	11-23706	12-22578	12-23706
CONTAINMENT, LOW PRESSURE				17-22578			
11-24922	11-25154	12-25154	18-24922	CORE SPRAY			
CONTAINMENT, MULTIPLE				5-24512	11-23706	12-23706	12-24512
11-23204	18-23204	18-24588		18-24510	18-24512		
CONTAINMENT, PRESSURE SUPPRESSION				CORE, PLATE TYPE			
11-23201	11-24204	17-24204	18-23201	17-24519	17-25064		
CONTAINMENT, PRESSURE VENTING				CORROSION			
11-23204	11-25154	12-23918	12-25154	4-24368	4-24369	6-24001	6-25001
18-23204	18-23918	18-24588		7-24369	7-25138	8-25138	9-23947
CONTAINMENT, SHOCK GENERATION AND PROTECTION				9-24001	9-25001	11-23703	11-23745
11-21120	11-23527	11-23795	11-23797	11-23760	11-23887	11-23888	11-23889
11-24604				11-23894	11-25159	12-24368	17-23745
CONTAMINATION				17-24001	17-24189	17-24282	17-25001
1-24124	8-25004	14-23252	14-23295	17-25159	18-21858	18-23947	18-23948
14-23585	14-24233	14-24234	14-24235	COSMIC RADIATION			
14-24244	14-24326	14-24354	14-24425	14-24483	15-24232	15-24483	16-24341
14-24479	14-24522	14-25057	14-25092	COUNTER			
14-25095	14-25125	15-23252	15-23298	9-24255	9-24590	9-24595	9-24891
15-23585	15-24124	15-24233	15-24234	9-24893	9-25015	9-25106	14-23245
15-24235	15-24244	15-24245	15-24354	14-24375	14-25092	15-23209	15-23746
15-24425	15-24479	15-24522	15-24798	15-24245	15-24353	15-24590	15-24595
15-25057	15-25092	15-25095	15-25096	15-25092			
15-25128	17-24821	17-25084		COUNTER, WHOLE BODY			
CONTROL PANEL/ROOM				14-23262	14-23583	14-24483	15-23255
18-21862				15-23260	15-23262	15-23274	15-23583
CONTROL ROD				15-24483			
6-24001	6-25001	9-21915	9-24001	COUPLED CRES			
9-24052	9-24053	9-24449	9-25001	6-24797			
9-25115	9-25120	17-21915	17-23779	CREEP			
17-24001	17-24052	17-24053	17-25001	2-25169	11-23590	11-23713	11-23761
CONTROL ROD BURNUP				11-23763	11-23766	11-23774	11-23783
6-24001	6-25001	9-21915	9-24001	11-23785	11-23794	11-23895	17-23581
9-25001	17-21915	17-24001	17-25001	18-24514			
CONTROL ROD CALIBRATION				CREEP BEHAVIOR			
6-25158	9-24449	17-25158		11-23590	11-23766	11-23774	11-23785
CONTROL ROD DRIVE				11-24596	11-24597	11-24598	14-24325
6-24649	9-23292	9-24472	9-24649	CREEP PROPERTY			
9-25112	9-25113	9-25116	12-23292	11-23785			
17-23292	17-24649	18-24510		CRITICAL ASSEMBLY FACILITY			

6-25058	6-25067	17-25058	17-25067	9-24781	9-24784	17-24781	17-24784
CRITICALITY EXPERIMENT				DIABLO CANYON (PWR)			
3-23752	6-24792	6-24793	6-25067	9-24903	18-24900	18-24903	
6-25158	13-23752	17-25067	17-25158	DIETARY HABIT			
CRITICALITY SAFETY				14-23218	14-23250	14-24252	14-24345
3-23752	3-23755	3-24758	6-24793	14-24406	14-24735	14-24736	14-24738
6-24794	12-24471	13-23752	13-24468	14-24739	14-24742	14-25092	15-23218
13-24471				15-23250	15-24252	15-24406	15-24735
CROSS SECTION				15-24736	15-24738	15-24739	15-24742
6-24792	17-24516			15-25090	15-25092	15-25099	
CRUD				DIFFUSION			
9-24053	17-24053			7-22540	7-24380	7-24394	7-24398
CRYOGENICS				7-24462	7-25150	14-24250	15-24250
4-24363	4-24387	4-25140	4-25141	16-24618			
7-25136				DIFFUSION COEFFICIENT			
CRYSTAL RIVER 3 AND 4 (PWR)				7-24453	14-25005	16-24617	
18-24805				DILUTION			
CSE				5-24810	7-24810	13-24633	13-24635
1-25086	7-24367	7-25086	7-25146	14-23748	14-23925	14-24161	14-24633
11-23527	11-23797	11-25086		14-24635	15-23748	15-23925	17-24633
CURIUM				17-24635	17-24810		
14-23252	15-23252			DISPERSION			
CVTR (PWR)				14-23748	14-23925	14-24360	14-25005
9-23933	17-23394	17-25069	17-25070	15-23748	15-23925		
CYLINDER				DISPLACEMENT, GENERAL			
11-23590	11-23592	11-23597	11-23700	2-24641	2-24643	2-25169	
11-23702	11-23706	11-23711	11-23712	DISSOLUTION			
11-23756	11-23757	11-23770	11-23790	13-24786			
11-23791	11-23864	12-23706		DNB			
CZECHOSLOVAKIA				6-21860	17-25070	18-21860	
14-23742	14-25056	15-23742	15-24243	DOPPLER COEFFICIENT			
15-24743	15-25056	17-24243		6-23916	6-24794	6-24795	
CAMAGE				DOSE			
1-23230	2-23225	2-23230	2-23231	1-23884	11-23204	14-21934	14-23210
2-24644	2-25171	6-24794	11-25059	14-23739	14-23741	14-24236	14-24406
17-25059				14-24425	14-24480	14-24481	14-24650
DAMPING				15-23210	15-23271	15-23739	15-23741
2-23225	11-23705			15-23884	15-24145	15-24236	15-24353
DATA PROCESSING				15-24406	15-24425	15-24480	15-24461
6-25004	9-24331	9-24854	9-25009	15-24610	15-24650	15-24733	15-24748
14-24439	15-24439			15-25128	17-24610	18-23204	18-24507
DECONTAMINATION				DOSE CALCULATION, EXTERNAL			
12-24193	12-24194	12-24286	12-24606	1-23884	13-23290	14-23290	14-23583
12-24788	12-24789	12-24803	12-25130	14-24747	15-23242	15-23249	15-23271
13-24803	13-25130	14-23747	14-25054	15-23272	15-23274	15-23290	15-23563
14-25056	14-25057	15-23747	15-24245	15-23884	15-24745	15-24747	15-24754
15-24798	15-25054	15-25056	15-25057	15-25093	15-25098	15-25109	15-25110
15-25089	15-25096			15-25128			
DECONTAMINATION FACTOR				DOSE CALCULATION, INTERNAL			
7-24395	15-25096			1-23884	13-23290	14-23247	14-23262
DECONTAMINATION SPRAY				14-23290	14-23583	14-25095	15-23247
12-24194	15-25096			15-23261	15-23262	15-23290	15-23563
DEFORMATION				15-23884	15-24327	15-24484	15-24741
2-23231	2-23238	3-24222	11-23711	15-24743	15-24745	15-25093	15-25095
11-23759	11-23769	11-23784	11-23786	15-25097	15-25098	15-25109	15-25110
14-24325				DOSE MEASUREMENT, EXTERNAL			
DELAYED NEUTRON				14-21934	15-23264	15-23273	15-24732
17-25068				15-24737	15-24745	15-25098	15-25108
DENMARK				15-25128			
11-24599	13-23729	14-24735	14-24738	DOSE MEASUREMENT, INTERNAL			
14-24739	15-24735	15-24738	15-24739	9-24886	14-21934	14-24143	14-24163
17-24599				15-24143	15-24163	15-24484	15-24745
DEPOSITION				15-24886	15-25098	15-25108	
7-24366	7-24381	7-24394	7-24396	DOSIMETRY, GENERAL			
7-24410	7-25150	7-25151	14-24234	9-24886	9-25106	14-24376	14-24650
14-24254	14-24375	14-24376	14-24482	15-23244	15-23263	15-23264	15-23266
14-24483	14-24621	14-25125	14-25151	15-23273	15-23275	15-23746	15-24145
15-24234	15-24254	15-24376	15-24482	15-24327	15-24344	15-24359	15-24376
15-24483	15-24608	15-24621	16-23879	15-24650	15-24737	15-24743	15-24866
DESALINATION				15-25018	15-25020	15-25109	15-25110
1-23224	12-24606			DOSIMETRY, PHOTOGRAPHIC			
DESIGN CRITERIA				15-23280	15-24145	15-24359	
1-24601	2-24213	3-24763	4-24363	DOSIMETRY, RADIOPHOTOLUMINESCENCE			
5-21864	7-25137	9-24346	9-24352	15-24359			
9-24472	9-25009	9-25083	10-25077	DOSIMETRY, THERMOLUMINESCENCE			
10-25079	11-20351	11-21861	11-23200	9-24509	14-24481	15-23243	15-23273
11-23201	11-24601	11-24602	11-24604	15-24359	15-24481	15-24589	15-24733
11-24921	11-24922	12-24788	14-23586	15-24748	15-25108	15-25127	17-25006
15-23586	15-24732	18-20351	18-21861	DOWNGRADE			
18-21864	18-23200	18-23201	18-24213	16-23731	16-23734		
18-24514	18-24602	18-24921	18-24922	DRAGON (HTGR)			
DESIGN STUDY				7-24394			
1-22462	4-24363	7-25137	9-24887	DRESDEN 1 (BWR)			
11-23201	11-24602	12-25074	13-25074	9-23292	12-23292	17-23292	17-23777
15-23215	15-23217	16-23201	18-24602	DRESDEN 2 (BWR)			
18-25074				18-23560			
DESORPTION				DYNAMICS, NONLINEAR			
7-24410				6-24791	6-24797	6-25158	11-23702
DESTRUCTIVE TRANSIENT				11-23794	17-25158		
5-23323	6-24794			EARTHQUAKE			
DEUTERIUM				2-24511	2-24594	9-24594	14-25005

18-24511				11-22937	12-24624	17-24624	18-22937
EARTHQUAKE ENGINEERING				18-24814			
1-23230	1-24601	2-23225	2-23230	ENGINEERING DRAWING LIST			
2-23231	2-23232	2-24511	2-24644	1-25063	19-25063		
11-21861	11-23200	11-23201	11-24601	ENVIRONMENTAL CONDITION			
18-21861	18-23200	18-23201	18-24511	9-24352	13-23290	14-21955	14-23250
EARTHQUAKE EPICENTER				14-23585	14-23586	14-23748	14-24234
2-24211	2-24641	18-24211		14-24235	14-24251	14-24321	14-24345
EARTHQUAKE PREDICTION				14-24360	14-24376	14-24406	14-24475
2-23226	2-23236	2-23237	2-24637	14-24480	14-24483	14-24738	14-24739
2-24638	2-24642	2-25170	2-25173	14-25092	15-21955	15-23290	15-23585
EARTHQUAKE RECORDS				15-23586	15-23748	15-24234	15-24235
1-23230	2-23230	2-23232	2-23233	15-24251	15-24321	15-24322	15-24376
2-23234	2-23235	2-23238	2-24211	15-24406	15-24479	15-24480	15-24483
2-24641	2-24644	2-25169	2-25171	15-24484	15-24738	15-24739	15-25052
2-25172	18-24211			15-25129			
EARTHQUAKE, GENERAL				EQUATION OF STATE			
1-23230	2-23225	2-23226	2-23230	6-24794			
2-23231	2-23232	2-23233	2-23234	EQUATION, GENERAL			
2-23235	2-23236	2-23237	2-23238	11-23795	11-23797		
2-24637	2-24638	2-24639	2-24641	EQUIPMENT DESIGN			
2-24642	2-24643	2-24644	2-24645	3-23749	3-24757	3-24758	3-24759
2-24779	2-25168	2-25169	2-25170	3-24760	3-24765	4-22470	7-22470
2-25171	2-25172	2-25173		9-23208	9-24153	9-24352	9-24589
EBUR (GCR)				9-24593	9-24892	12-24607	12-24787
17-23205				12-25071	12-25072	13-24470	13-25071
ECOLOGICAL CONSIDERATION				13-25072	15-24589	18-25157	
14-21934	14-23897	14-23898	14-23899	EQUIPMENT, GENERAL			
14-24244	14-24247	14-24285	14-24356	2-21863	2-24917	12-24190	12-24191
14-24479	14-24731	15-23897	15-23898	12-24193	12-24194	12-24195	12-24803
15-23899	15-24244	15-24247	15-24285	12-25071	12-25072	13-24803	13-25071
15-24356	15-24479	15-24731		13-25072	15-24191	18-21863	18-24917
ECONOMIC STUDY				ERCSION			
1-23224	1-24126	12-24606	12-25074	6-24001	6-25001	9-24001	9-25001
13-25074	18-25074			17-24001	17-25001		
ECONOMICS				ERROR ANALYSIS			
2-24076	9-25032	9-25121	11-24602	11-24599	17-24599		
14-24357	14-25052	15-25052	17-24517	ESTUARY			
17-25156	18-24602			14-23216	14-24375		
EFFLUENT				ETR (TR)			
1-24324	5-24587	7-24632	13-24632	17-24516			
13-24633	13-24635	14-23924	14-23925	EURATOM			
14-24481	14-24633	14-24635	14-25052	1-23223	11-25152	12-25072	13-24465
15-23924	15-23925	15-24481	15-25052	13-25072	18-24514		
15-25107	17-24632	17-24633	17-24635	EUROPIUM			
18-24587				14-24358			
ELASTICITY				EVAPORATION			
11-23765	11-23775	11-23784	11-23866	12-25132	13-25132	15-24245	
11-24596	11-24597	11-24598		EXAMINATION			
ELECTRIC POWER, AUXILIARY				9-21915	9-22578	9-23728	9-24053
10-23214	10-25024			9-24201	11-23708	12-22578	12-23728
ELECTRIC POWER, GENERAL				17-21915	17-22578	17-24053	17-24201
10-24965	10-25077	10-25079	18-24965	18-25003			
ELECTRIC POWER, NORMAL				EXCURSION, LARGE			
9-23208	9-24478	10-24478	10-25077	6-24794	11-21120		
10-25079				EXPANSION			
ELECTRIC POWER, SHUTDOWN				11-23786	11-23792		
10-24817	12-24817	17-24817		EXPERIMENT, GENERAL			
ELECTRICAL CONDUCTION				7-25126	12-25131	13-24469	13-25131
9-25114	10-24817	10-24965	12-24817	14-24325	15-23206	15-24737	15-24741
17-24817	18-24965			15-25020	15-25053	15-25090	16-23211
ELECTRON				16-23732	16-25048	17-19798	
15-24737				EXPLOSION			
ELECTRON MICROSCOPY				11-21120	11-23769	11-23772	11-24146
7-24383				11-24147	14-24236	14-24479	15-24236
ELECTROSTATIC CHARGE				15-24479			
7-24391	7-24399	7-24451	7-24465	EXPLOSIVE, CONVENTIONAL			
ELECTROSTATIC PRECIPITATION				11-24604			
7-25134				FABRICATION			
ELK RIVER (BWR)				11-23781	11-23886	11-23890	11-23891
17-24041				11-24603	12-25074	13-25074	17-25064
EMBRITTEMENT				18-24002	18-25002	18-25074	
11-25159	17-25159			FABRICATION FACILITY			
EMERGENCY COOLING CONSIDERATIONS				12-25074	13-25074	18-25074	
5-25046	11-23706	12-23706	18-24486	FAILURE MODE ANALYSIS			
18-25046				18-25034			
EMERGENCY POWER, ELECTRIC				FAILURE, ADMINISTRATIVE CONTROL			
9-24903	10-23214	10-25024	18-24903	17-24148	17-24820		
EMERGENCY PROCEDURE				FAILURE, CLADDING			
17-23776	17-23777	17-23778	17-24605	5-25046	9-24225	11-23589	11-23709
18-24523				11-23894	12-24225	14-23393	17-23393
EMERGENCY SYSTEM				18-25046			
9-25122				FAILURE, COMPONENT			
ENERGY LEVEL				6-24649	9-23727	9-24649	12-23727
2-23232	2-23236	2-24775	2-25173	17-24649			
14-21934	14-24142	15-24143	15-24737	FAILURE, DESIGN ERROR			
15-25053				9-24811	17-24148	17-24282	17-24811
ENERGY SOURCE				FAILURE, EQUIPMENT			
14-21934	15-24737			9-23721	9-23722	9-24052	9-24811
ENGINEERED SAFETY FEATURE				11-09120	11-23142	11-24922	12-24816
1-24814	2-24076	2-24594	9-24594	14-23393	15-24610	17-09120	17-23142

17-23393	17-23740	17-24052	17-24203	FILTER THEORY, IMPACTION			
17-24206	17-24281	17-24282	17-24517	7-25148			
17-24610	17-24811	17-24816	17-24819	FILTER, BED			
18-24922				4-22490	7-22490	7-25134	7-25135
FAILURE, FABRICATION ERROR				7-25147			
6-24001	6-25001	9-24001	9-25001	FILTER, DAMAGED			
17-23740	17-24001	17-25001		7-24632	13-24632	17-24632	
FAILURE, FATIGUE				FILTER, FIBER			
11-23775	11-23792	11-23892	11-23893	7-24364	7-24384	7-24451	7-25134
11-23920				7-25135	7-25147		
FAILURE, FUEL ELEMENT				FILTER, HIGH EFFICIENCY			
4-24386	6-21860	7-24386	9-23219	4-22490	7-22490		
9-24133	9-24225	12-24225	14-23393	FILTER, MEMBRANE			
17-23393	17-23394	17-24189	17-24281	12-24606			
17-24646	17-25070	18-21860		FILTER, METALLIC			
FAILURE, GENERAL				4-22490	7-22490		
4-24373	9-23725	9-23727	11-21120	FILTER, PAPER			
12-23727	12-24373			7-24451			
FAILURE, INSTRUMENT				FILTER, PREFILTER			
17-24281	17-24518			4-22490	7-22490		
FAILURE, OPERATOR ERROR				FILTER, ROUGHING			
6-24649	9-24649	9-24811	17-24649	7-25134	7-25135		
17-24811				FILTRATION			
FAILURE, PIPE				14-24161			
9-23907	11-23775	12-23907	17-23374	FIRE			
17-23907				4-22490	7-22490	10-24817	12-24617
FAILURE, SCRAM MECHANISM				17-24282	17-24817	18-21862	
5-21864	9-24052	9-24053	9-24201	FISSION GAS RELEASE			
17-23205	17-24052	17-24053	17-24201	4-24382	7-24382	7-24394	7-24398
17-24646	18-21864			FISSION PRODUCT RELEASE, GENERAL			
FAILURE, SEQUENTIAL				1-25086	7-24366	7-25086	7-25142
6-21860	18-21860			7-25146	7-25151	11-25086	14-24650
FAILURE, TUBING				14-25055	14-25151	15-24650	15-25055
8-21402	9-23947	14-23393	17-23393	17-24281			
17-24282	18-23947	18-23948		FISSION PRODUCT RETENTION			
FALLOUT				1-25086	7-22540	7-24394	7-25086
7-24383	14-09100	14-23210	14-23288	11-25086	14-24749	15-24749	
14-23289	14-23293	14-23587	14-23739	FISSION PRODUCT TRANSPORT			
14-23897	14-23899	14-24144	14-24164	1-25086	4-24386	7-24366	7-24371
14-24231	14-24234	14-24235	14-24244	7-24380	7-24383	7-24386	7-24396
14-24251	14-24254	14-24326	14-24345	7-24462	7-25086	7-25142	7-25146
14-24355	14-24406	14-24439	14-24479	7-25151	11-25086	14-23287	14-23291
14-24483	14-24621	14-24735	14-24738	14-24371	14-25151	17-25061	
14-24739	14-24742	14-24746	14-24750	FISSION PRODUCT, AIRBORNE			
14-25051	14-25092	14-25095	14-25100	1-25086	7-25086	11-25086	
14-25125	15-23210	15-23288	15-23289	FISSION PRODUCT, IODINE			
15-23293	15-23587	15-23735	15-23897	7-24343	7-24380	7-24383	7-24385
15-23899	15-24144	15-24164	15-24231	7-24395	7-24410	7-25145	
15-24234	15-24235	15-24244	15-24251	FISSION PRODUCT, SEPARATION FROM WASTE			
15-24254	15-24355	15-24406	15-24439	13-24470			
15-24479	15-24483	15-24621	15-24648	FISSION RECOIL			
15-24735	15-24738	15-24739	15-24742	7-24398			
15-24744	15-24746	15-24750	15-25092	FLAW			
15-25095	15-25100	16-09100	16-21337	5-23723	9-23723	11-23723	
16-24228	16-24339	16-25051	16-25166	FLCOD			
17-24605	17-24648			2-21863	18-21863		
FAULT				FLOW BLOCKAGE			
2-23226	2-23233	2-23236	2-23237	1-21968	17-21968		
2-23238	2-24638	2-24641	2-24643	FLOW CRIFICE			
2-24644	2-24645	2-24775	2-25168	5-24600	11-24600		
2-25169	2-25172	11-23707	11-23745	FLOW THEORY AND EXPERIMENTS			
11-23867	11-23885	11-23894	17-23745	7-25150			
17-23867				FLCW, GENERAL			
FEDERAL RADIATION COUNCIL				7-24381	7-24391	7-25137	11-23758
1-23884	14-24252	14-24253	14-24742	FLCW, LAMINAR			
15-23884	15-24252	15-24253	15-24742	7-25150			
FERMI (LMFBR)				FLCW, RECIRCULATION			
1-21968	9-23946	9-24332	17-21968	9-24052	17-24052		
17-23776	17-23946			FLCW, TUBE			
FFTF (TR)				7-25150			
6-23870	8-23870	9-23947	12-24471	FLOW, TURBULENT			
13-24471	18-23870	18-23877	18-23947	7-25150			
18-23948	18-24515			FLCW, TWO PHASE			
FILM, GENERAL				5-25030	9-24593	9-25030	
7-24462				FLUCTUATION			
FILTER				9-23722			
1-25063	4-22490	7-22490	7-24384	FLUIDIZED BED			
7-24393	7-24451	7-24463	12-24190	7-25139			
12-24191	12-24195	14-24161	14-24323	FLUORIDE			
14-24611	15-23206	15-24191	15-24611	17-23374			
19-25063				FLUORINE			
FILTER CHARACTERISTICS				7-25139	15-25099		
16-24619				FLUX DISTRIBUTION			
FILTER EFFICIENCY				6-24785	6-24797	9-24784	16-23882
7-24364	7-24451	7-25126	7-25147	17-24782	17-24783	17-24784	17-24785
FILTER PACK				17-25000			
7-24364				FLUX, INTEGRATED			
FILTER SPRAY				9-25031	9-25032	9-25114	
7-24393				FOAM			
FILTER SYSTEM				14-25052	15-25052		
4-22490	7-22490	12-24788		FORECAST			

16-24390				4-24387	13-23729	14-24162	
FORESHOCK				GLCVE BOX			
2-25173				3-24762	12-24607	12-24788	12-25071
FOUNDATION ENGINEERING				12-25074	13-24762	13-25071	13-25074
2-09182	2-23225	2-24511	18-09182	18-25074			
18-24508	18-24511	18-24585	18-25034	GRAPHITE			
FRACTURE TOUGHNESS				4-24387	7-24398	7-24462	7-24463
1-24601	11-23885	11-24601		7-25137	7-25138	8-25138	9-24811
FRANCE				11-23786	17-24782	17-24811	
1-23222	3-24218	3-24763	6-24885	GRCSS BETA			
8-25084	9-23220	9-24225	9-24226	14-24254	14-24285	15-24254	15-24285
9-25075	11-23789	11-23793	11-23800	GROSS GAMMA			
11-23932	11-25154	12-24225	12-25154	14-24285	15-24285		
13-24218	14-24285	14-24746	15-22814	GRCUND MOTION			
15-23244	15-24285	15-24746	17-25060	2-23226	2-23233	2-23234	2-23235
17-25075	17-25084	18-24239	18-24885	2-23238			
FRICTION				GROUND WATER, NUCLIDE OCCURRENCE			
11-25059	17-25059			14-24522	15-24522		
FT. CALHOUN (PWR)				HACDAM NECK (PWR)			
2-09182	18-09182	18-24055		1-24813	5-25045	5-25046	6-25047
FUEL BURNUP				9-24200	11-09120	11-23142	11-23922
6-23588	6-23875	6-24795	7-25151	11-24046	11-24535	11-25044	17-09120
14-25151	17-23588	17-23875	18-25003	17-23142	17-23522	17-24046	17-24200
FUEL ELEMENT				17-24627	17-24813	17-24819	18-24523
1-23222	3-24765	4-24365	4-24386	18-24535	18-24583	18-24584	18-25043
6-23916	7-24369	7-24386	7-25137	18-25044	18-25045	18-25046	18-25047
7-25142	9-24053	11-25152	11-25153	HALLAM (LMR)			
12-25074	13-25074	14-25007	15-25093	3-23755	17-24647		
15-25107	17-23581	17-24053	17-24189	HANFORD (PR)			
17-24516	17-25061	17-25064	17-25066	14-23898	15-23898		
18-24002	18-24523	18-25002	18-25003	HANFORD SITE			
18-25074	18-25153			12-24471	12-25074	13-24471	13-25074
FUEL ELEMENT CLUSTER				16-23731	16-23733	16-23734	16-23735
9-25121				16-23736	16-23737	16-24338	18-25074
FUEL HANDLING				HARWELL			
3-24218	3-24757	3-24764	9-23947	12-24789	14-21956	15-21956	
13-24218	18-23947	18-23948	18-24515	HAZARDS ANALYSIS			
FUEL HANDLING MACHINE				7-24632	13-24632	14-23293	14-23586
3-24755	9-24052	17-24052	17-24517	14-23739	14-23741	14-24236	14-24360
FUEL INTEGRITY				14-24376	14-24425	14-24480	14-24611
4-24386	7-24386	7-24394	17-23205	14-25054	15-23293	15-23586	15-23739
FUEL MELTDOWN				15-23741	15-24236	15-24248	15-24376
1-21968	6-24794	17-21968		15-24425	15-24480	15-24484	15-24611
FUEL REPROCESSING				15-24800	15-24802	15-25054	17-24632
4-22470	7-22470	7-24632	7-25139	HEALTH PHYSICS TRAINING			
13-23290	13-24468	13-24469	13-24631	15-24802	15-25018	15-25076	17-25076
13-24632	13-24633	13-24635	13-24786	HEAT EXCHANGER			
14-23290	14-24633	14-24635	15-23290	5-24128	9-24128	11-23768	17-24282
17-24189	17-24631	17-24632	17-24633	HEAT FLUX, DRYOUT			
17-24635				5-24512	12-24512	18-24512	
FUEL STORAGE				HEAT GENERATION, INTERNAL			
3-23752	12-24471	12-24803	13-23752	11-23706	12-23706	14-23742	15-23742
13-24471	13-24803	17-24148		17-25000			
FUEL, METALLIC TYPE				HEAT TRANSFER			
17-25064				3-23749	5-25030	5-25124	6-23516
FUEL, PELLETTYPE				9-25030	9-25124	17-25061	18-24514
12-25074	13-25074	18-24514	18-25074	19-24165			
GAMMA				HEAT TRANSFER ANALYSIS			
7-24367	7-24385	9-24784	14-23247	3-23755	5-24128	9-24128	
14-23270	14-23289	15-23244	15-23247	HEAT TRANSFER EXPERIMENT			
15-23258	15-23259	15-23264	15-23271	5-24512	12-24512	18-24512	
15-23274	15-23280	15-23289	15-23746	HEAT TRANSFER, BOILING			
15-24232	15-24327	17-24784	17-25000	4-25144	9-23717		
GAMMA EMITTER				HEAT TRANSFER, RADIANT			
9-24133	14-24320	14-24612	14-24750	5-24512	12-24512	18-24512	
15-23209	15-23298	15-24136	15-24145	HEAT TRANSFER, SUPERCRITICAL			
15-24609	15-24612	15-24732	15-24734	17-24045			
15-24750	15-25008	15-25093	15-25097	HEAT TREATMENT			
15-25107	15-25109	17-24734		11-23781	11-23886	11-23887	11-23890
GENERATOR, ENGINE				17-23740			
10-25024	18-24510			HEAVY WATER			
GEOLOGICAL CONSIDERATION, GENERAL				1-24881	8-25084	17-25084	
2-23226	2-23236	2-23237	2-24511	HELIUM			
2-25171	11-22937	14-23297	14-24325	7-24463	7-25136		
14-24357	14-24360	14-24522	14-25005	HFIR (FTR)			
14-25057	15-23297	15-24232	15-24522	9-23715	9-23719	9-23722	9-25015
15-25057	18-22937	18-24511		HIGH RADIATION			
GEOLOGICAL CONSIDERATION, GEOCHEMICAL				14-23585	15-23585	15-24609	
14-21934				HIGH TEMPERATURE			
GEOLOGICAL CONSIDERATION, GEOPHYSICAL				4-25143	5-25030	9-23717	9-24687
2-24638	2-24643			9-25009	9-25030		
GERMANY				HOT CELL			
1-24125	1-24126	1-24237	3-24755	1-23221	12-24788	12-25072	13-23221
3-24761	6-25004	7-24343	9-24897	13-25072	14-24320		
14-24231	14-25056	15-24125	15-24231	HOT LABORATORY			
15-24327	15-25056	18-24237		12-24788			
GETR (TR)				HPRR (FBR)			
17-19798				15-23264			
GINNA (PWR)				HUMBOLDT BAY (BWR)			
11-23200	18-23200	18-25042		9-24205	17-24205		
GLASS				HUMIDITY			

7-24364	7-24453	9-23907	12-23907	15-24376	15-24425	15-24611	15-24650
17-23907				INSPECTION AND COMPLIANCE			
HUNGARY				1-24601	5-24810	7-24632	7-24810
14-25056	15-25056			9-24811	9-25087	9-25111	11-23922
HWCTR (TR)				11-24601	13-24631	13-24632	13-24635
17-23740				14-24635	17-23922	17-24631	17-24632
HYDRAULIC ANALYSIS				17-24635	17-24810	17-24811	17-24815
5-23323				17-24820	17-25087		
HYDRAULIC EFFECT				INSTABILITY			
5-23323	9-23720			11-23589	11-23593	11-23770	
HYDRIDE				INSTRUMENTATION CALIBRATION			
9-23946	11-23707	11-25155	17-23946	9-23946	9-24590	9-24591	9-24893
17-25159				9-24903	9-25033	15-23264	15-23265
HYDROGEN				15-23274	15-24590	15-24732	15-25020
11-23802	11-24509	11-25155	12-24509	17-23946	18-24903		
14-23269	14-24425	15-24425	17-25159	INSTRUMENTATION, ABNORMAL INDICATION			
18-24509				5-23723	6-24649	9-23723	9-23946
HYDROLOGICAL CONSIDERATION, GENERAL				9-24052	9-24649	9-24892	9-24950
14-23297	14-24161	14-24250	14-24357	9-25087	11-23723	17-23946	17-24052
14-24360	14-24522	14-25005	14-25125	17-24649	17-25087	16-24950	
15-23297	15-24250	15-24522		INSTRUMENTATION, AIR SAMPLING			
IAEA				7-24392	7-24397	9-24592	15-24592
1-23223	1-23224	14-24731	15-24731	16-24619			
ICRP				INSTRUMENTATION, AMPLIFIER			
15-24799				9-23208	9-24151	9-24337	9-24895
IDAHO FALLS				9-25010	15-23241		
15-23274	15-24748			INSTRUMENTATION, COINCIDENT			
IMPACT PROPERTY				9-23715	9-25123		
1-25086	7-25086	11-23919	11-25086	INSTRUMENTATION, COMPONENT			
IMPACT SHOCK				5-25124	9-23208	9-23714	9-23727
3-24222	11-21120	11-23770	11-23798	9-23853	9-24153	9-24226	9-24335
15-23206				9-24337	9-24887	9-24892	9-25016
IMPOUNDMENT				9-25124	12-23727		
2-24213	18-24213			INSTRUMENTATION, CONTROL			
IMPURITY				2-24594	9-23213	9-23220	9-23725
8-25084	17-25084			9-24151	9-24346	9-24349	9-24472
IN CORE MEASUREMENT				9-24594	9-24903	9-25118	15-23256
9-23717	9-23720	9-24593	9-25032	18-24903			
9-25111				INSTRUMENTATION, COOLANT QUALITY			
IN PILE EXPERIMENT				9-23717	9-23726	9-23947	9-25102
1-25086	7-25086	11-25086		9-25103	12-23726	18-23947	18-23548
IN PILE LOOP				INSTRUMENTATION, CURRENT			
11-22916	11-23745	17-23374	17-23745	9-24336			
17-24045	17-24189			INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT			
INCIDENT COMPILATION				9-23219	9-24133	9-24153	9-24225
17-23876	17-23906			12-24225	14-23393	17-23393	
INCIDENT, EQUIPMENT				INSTRUMENTATION, EARTHQUAKE			
9-24201	10-24617	11-23142	11-24204	2-23233	2-24594	9-24594	
12-24816	12-24617	14-23393	15-24610	INSTRUMENTATION, FLOW			
17-23142	17-23393	17-24201	17-24203	5-25030	9-24590	9-24593	9-25006
17-24204	17-24610	17-24816	17-24817	9-25030	9-25033	9-25103	15-24590
INCIDENT, EXPOSURE				17-24281			
14-24236	15-24236			INSTRUMENTATION, FUEL SCANNING			
INCIDENT, GENERAL				9-23219			
15-24243	17-24243			INSTRUMENTATION, GENERAL			
INCIDENT, HUMAN ERROR				5-25030	6-25004	7-25145	8-21402
9-24811	13-24631	17-24149	17-24631	9-23213	9-23220	9-24346	9-24652
17-24811				9-23009	9-25011	9-25030	14-23564
INCIDENT, NONNUCLEAR				15-23584	17-23373		
17-23906				INSTRUMENTATION, IN CORE			
INCIDENT, NONREACTOR				9-23717	9-24133	9-24593	9-25032
17-24206				9-25103			
INCINERATION				INSTRUMENTATION, INDICATOR			
14-25052	15-25052			9-24336			
INCOLOY				INSTRUMENTATION, INTERMEDIATE RANGE			
14-23393	17-23393			17-24518			
INCONEL				INSTRUMENTATION, LINEAR			
11-23867	17-23867			9-24151	9-25015		
INDEPENDENCE				INSTRUMENTATION, LIQUID LEVEL DETECTION			
9-23203	9-24903	10-24817	10-24965	5-25030	6-24649	9-24649	9-24950
12-24817	17-24817	18-23203	18-24903	9-25030	9-25105	17-24649	18-24950
18-24965				INSTRUMENTATION, LOGARITHMIC			
INDIAN POINT 1 (PWR)				9-24151	15-24609		
15-24208	17-24208	17-24815		INSTRUMENTATION, METEOROLOGICAL			
INDIAN POINT 2 (PWR)				16-23730	16-23731	16-23733	16-23735
17-25066				16-24212	18-24212		
INDIAN POINT 3 (PWR)				INSTRUMENTATION, NUCLEAR			
1-24814	18-24814			9-23219	9-24133	9-24346	9-24348
INFILTRATION				9-24891	9-24893	9-25075	15-25127
14-25125				17-25075			
INFORMATION RETRIEVAL				INSTRUMENTATION, OPERATING REACTIVITY			
9-24331	17-24041			9-23220	9-23718	9-23719	
INGESTION				INSTRUMENTATION, POSITION			
1-23884	14-21956	14-23276	14-24355	9-24153	9-25017		
14-24425	15-21956	15-23276	15-23884	INSTRUMENTATION, POWER RANGE			
15-24355	15-24425			9-23208	9-23213	9-25087	17-24518
INHALATION				17-25087			
14-23207	14-23247	14-23253	14-23254	INSTRUMENTATION, PRESSURE			
14-23255	14-23278	14-24376	14-24425	5-23723	5-25030	9-22578	9-23723
14-24611	14-24650	15-23207	15-23247	9-24950	9-25009	9-25030	11-23723
15-23253	15-23254	15-23255	15-23278	12-22578	17-22578	18-24950	

INSTRUMENTATION, PROCESS	8-21402	9-23726	9-24346	12-23726	17-24242	19-23754		
INSTRUMENTATION, PROTECTIVE	2-24594	9-23213	9-23715	9-23716	KEWAUNEE (PWR)	5-24587	12-24622	18-24585
INSTRUMENTATION, PULSE	9-24594	9-24903	9-25123	18-24903		18-24587	18-24588	18-24622
	9-24151	9-24255	9-24332	9-24347	KRYPTON	3-24765	7-24453	7-24455
INSTRUMENTATION, RADIATION MONITORING	9-25106					9-24590	13-23290	14-23290
	7-24460	7-25145	9-24589	9-24590	LACROSSE (BWR)	15-23290	15-24483	15-24590
	9-24592	9-24595	9-24886	9-24891		11-23919	15-24648	17-24648
	9-25078	9-25106	13-25078	14-24143	LANDSLIDE	2-24644	2-25169	
	15-23241	15-23746	15-24143	15-24232	LANTHANUM	9-24781	17-24781	
	15-24589	15-24590	15-24592	15-24595	LASER	1-24158	14-24611	15-24611
	15-24733	15-24740	15-24886	15-25128	LASL	15-23242	15-23283	
INSTRUMENTATION, RATE OF CHANGE	9-24151	9-24255	9-25015		LAW	1-23223	1-24124	15-24124
INSTRUMENTATION, REDUNDANT	9-25123				LAYER	11-23594	11-23711	11-23757
INSTRUMENTATION, RELAY	6-24649	9-24336	9-24649	9-25016	LEAD	3-24222	3-24756	14-23282
	9-25123	17-24649				15-23282	15-24611	16-24342
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	17-24205	17-24781	17-24784		LIABILITY	1-23223	3-24761	
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	9-25106	9-25111	12-23907	14-24406	LIQUEFACTION	2-24511	18-24508	18-24511
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	9-25030	9-25114	9-25124		LRL	15-23263		
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	9-25014				MAIN COOLING SYSTEM	2-24919	6-24001	6-25001
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INTEGRITY	9-23728	11-21120	11-25044	12-23728		11-23745	12-23907	17-09120
	18-25044					17-23745	17-23907	17-24001
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	7-24410	7-25126	12-24191	13-24786		9-24753	9-25001	11-25041
	14-23288	14-23297	14-23583	14-23748		17-24148	17-24518	17-24646
	14-24251	14-24252	14-24482	14-24483		17-25069	18-25041	17-25001
	15-23259	15-23288	15-23297	15-23583	MAINTENANCE, REMOTE	12-24787		
	15-23748	15-24191	15-24251	15-24252	MANGANESE	14-23898	14-24285	14-24750
	15-24482	15-24483	16-25048	17-24818		15-24285	15-24750	15-23858
ION EXCHANGE	7-24395	12-24606	12-25131	12-25132	MASS TRANSFER	7-24366	7-24363	7-24396
	13-25131	13-25132	15-23268		MATERIAL	1-23222	1-24601	11-23783
IONOSPHERE	16-23882					17-24282	18-24002	18-25002
IRIDIUM	3-24756	14-23278	15-23278		MATHEMATICAL STUDY	2-24643	2-25170	5-24580
IRON	11-23767	14-23898	15-23898			11-23799	14-24747	15-24322
IRRADIATED FOOD	1-24884					16-23730	17-24580	15-24747
IRRADIATION FACILITY	6-24001	6-25001	9-24001	9-25001	MATHEMATICAL TREATMENT	5-23858	6-23588	7-24398
	15-25020	17-24001	17-24782	17-24783		9-24476	9-24477	9-24752
	17-25001					9-25022	9-25023	9-25075
IRRADIATION TESTING	4-25140	4-25141	4-25143	11-22916		11-23705	11-23706	11-23713
	11-23890	11-23919	14-24611	15-24145		11-23759	11-23765	11-23768
	15-24322	15-24611	15-24737	17-23581		11-23783	11-23785	11-23787
	17-24823	17-25061	18-24002	18-24514		11-23791	11-23799	11-23858
	18-25002	18-25003				11-23864	11-23866	11-24146
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ISOTOPIC GENERATOR	7-25151	14-25151				15-25092	15-25108	16-24617
ITALY	3-24762	12-24145	13-24762	16-24618		17-24628	17-25000	17-25075
JAPAN	3-23754	3-24757	3-24760	3-24764	MAXIMUM PERMISSIBLE BODY BURDEN	15-23258		
	6-23738	9-23738	12-25132	13-25132	MAXIMUM PERMISSIBLE CONCENTRATION (MPC)	13-24633	13-24635	14-24323
	14-09100	14-24323	14-25100	15-25094		14-24635	14-25095	15-25095
	15-25100	15-25128	16-09100	16-21337		17-24635		17-24633
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MAXIMUM PERMISSIBLE DOSE (MPD)				12-24788	14-24357	15-23242	15-23258
1-24124	14-23584	15-23584	15-24124	15-25128			
15-24484	15-25008	15-25097		MONITOR, RADIATION, GENERAL PRACTICE			
MEASUREMENT, GENERAL				12-24788			
6-24785	6-25080	9-23533	9-24781	MONITOR, RADIATION, LIQUID			
9-24784	9-25080	14-23296	15-23215	9-25078	13-25078	15-23245	15-25128
15-23217	15-23296	16-23737	16-24614	MONITOR, RADIATION, PERSONNEL			
16-25167	17-24516	17-24781	17-24782	9-24589	9-24595	9-24886	14-23584
17-24784	17-24785	17-25000	17-25080	14-24376	14-25095	15-23285	15-23564
MEASUREMENT, NOISE				15-24353	15-24359	15-24376	15-24589
5-23723	9-23723	11-23723		15-24595	15-24748	15-24886	15-25008
MEASUREMENT, REACTIVITY				15-25095	15-25107		
6-25047	16-24613	16-24615	17-24516	MONITOR, RADIATION, SAMPLING			
18-25047				12-24190			
MEASUREMENT, SUBCRITICALITY				MONITOR, RADIATION, SOLID			
9-24052	17-24052			15-25128			
MEASUREMENT, TEMPERATURE				MONITOR, RADIATION, STACK			
5-24128	5-25124	9-24126	9-25124	9-25078	13-25078	15-25107	
MERCURY				MONITOR, RADIATION, SURFACE			
5-25030	9-25030			15-24245	15-25128		
METAL				MONITORING PROGRAM, ENVIRONMENTAL			
7-25135	7-25148	11-23775	11-23894	1-23286	14-23262	14-23584	14-24163
17-23740				14-24650	15-23262	15-23286	15-23564
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8-21402				MONITORING SYSTEM, RADIATION			
METAL, ALKALI				9-25078	13-25078	15-23281	15-24609
4-24368	4-24369	7-24369	9-25033	17-24519			
12-24368				MONTE CARLO			
METAL, LIQUID				15-23272			
4-24368	4-24369	4-24386	4-25144	MONTICELLO (BWR)			
5-25030	7-24369	7-24386	8-21402	11-24204	17-24204		
9-25030	9-25033	9-25103	12-24368	MSRE (RE)			
METEOROLOGY				6-25158	9-23718	9-23722	9-24346
14-23248	14-23924	14-23925	14-24164	9-25017	11-22916	16-24077	17-25068
14-24482	15-23924	15-23925	15-24164	17-25158			
15-24482	16-23248	16-23731		NAK			
MICROEARTHQUAKE				11-23760			
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7-24642	2-24645	2-25170		15-23243			
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16-23881	16-25048			14-23584	14-24234	15-23215	15-23217
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15-23245				15-24802	15-25008	15-25018	
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1-23222	15-23284			1-24601	11-24601		
MISSILE GENERATION AND PROTECTION				NEON			
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18-24965				NEPTUNIUM			
MISTR (RR)				15-23268			
17-24579	17-24628			NETHERLANDS			
MODEL TESTING				14-24235	14-24736	15-24235	15-24736
2-24637	2-24639	2-24775	5-24512	NEUTRON			
5-24600	7-25147	7-25150	11-23772	9-23722	9-24784	9-25031	9-25032
11-24600	11-25062	12-24512	14-24144	9-25114	14-23247	14-23252	14-24163
15-24144	16-24340	17-25062	18-24512	14-24483	14-24521	14-24750	14-25055
MODERATOR				15-23242	15-23242	15-23247	15-23252
4-24382	7-24382	9-24811	11-24811	15-23260	15-23263	15-23264	15-23265
MODERATOR COEFFICIENT				15-23266	15-23271	15-23272	15-23280
5-25046	6-25047	6-25058	11-24046	15-23746	15-24136	15-24163	15-24463
17-24046	17-25050	18-25046	18-25047	15-24521	15-24734	15-24750	15-25055
MODIFICATION, SYSTEM OR EQUIPMENT				15-25107	17-24734	17-24784	
9-22578	9-23292	12-22578	12-23292	NEUTRON INTERACTION			
17-19798	17-22578	17-23292	17-23775	6-23738	9-23738		
17-24054	17-25060	18-24523		NFS			
MOLECULAR SIEVE				7-24632	13-24631	13-24632	13-24633
7-24399	7-24455	7-25136	12-24607	13-24635	14-24633	14-24635	17-24631
MOLTEN FUEL				17-24632	17-24633	17-24635	
17-23374				NICKEL			
MOLYBDENUM				11-23767	11-23868		
7-22540				NINE MILE POINT (BWR)			
MONITOR, RADIATION, AIR				17-24579	18-24056	18-24240	18-24625
7-24460	7-24461	9-23907	9-24592	NIOBIUM			
9-25078	12-23907	13-25078	14-24254	4-24372	4-25143	7-22540	7-24372
15-24254	15-24592	15-24740	15-25128	14-23297	15-23297		
17-23907				NITRIDE			
MONITOR, RADIATION, AREA				4-24368	12-24368	18-24002	18-25002
9-24200	17-24200			NITROGEN			
MONITOR, RADIATION, BACKGROUND				7-24458	7-25133	7-25136	11-23782
14-23295				NOBLE GAS			
MONITOR, RADIATION, ENVIRONMENTAL				7-24453	7-24455	7-24458	
14-23218	14-24231	14-24481	14-24482	NOISE			
14-24735	14-24738	14-24739	14-24742	9-23727	12-23727		
14-24746	14-24747	14-25095	15-23218	NOISE ANALYSIS			
15-24231	15-24353	15-24481	15-24482	9-23720	9-23721	9-23722	9-23933
15-24484	15-24608	15-24732	15-24735	9-25031			
15-24738	15-24735	15-24742	15-24744	NORWAY			
15-24746	15-24747	15-24799	15-25095	17-24189			
15-25107	15-25128			NOZZLE			
MONITOR, RADIATION, GAS				1-25086	7-25086	11-23710	11-23743
9-25078	13-25078	15-23245	15-25128	11-23744	11-23765	11-23773	11-23796
MONITOR, RADIATION, GENERAL				11-25086			

NPD 2 (HWR)	14-25100	15-23246	15-24376	15-24611
17-24517 17-25155	15-24742	15-25100	16-24613	
NRTS	PARTICULATE			
14-23297 14-24321	7-24364	7-24383	7-24391	7-24393
15-24748 16-24390	7-25133	7-25148	12-24191	14-23207
NS SAVANNAH (PWR)	14-24250	14-24254	14-25005	14-25054
12-24816 17-24809	15-23206	15-23207	15-24191	15-24250
17-24816	15-24254	15-25054	15-25107	
NUCLEAR ATTACK	PARTITION COEFFICIENT			
14-24355 15-24355	5-24810	7-24810	17-24810	
NUCLEAR DETONATION	PATENT			
1-24158 14-23210	3-24756	3-24757	3-24758	3-24759
14-24235 14-24244	3-24760	3-24765	9-24068	9-25111
14-24746 14-25095	9-25112	9-25113	9-25114	9-25115
15-23293 15-24234	9-25116	9-25117	9-25118	9-25119
15-24251 15-24406	9-25120	9-25121	9-25122	9-25123
15-25100 16-23882	11-25153	11-25154	12-24787	12-25071
NUCLEAR EXPLOSION DEBRIS	12-25072	12-25154	13-25071	13-25072
14-09100 14-24233	14-23295	15-25089	18-25153	
15-24233 15-24355	PATHFINDER (ISR)			
16-24227 16-24339	17-23778			
16-25166	PFACH BOTTOM 1 (BTGR)			
NUCLEAR INCIDENT DOSIMETER	7-24463	17-24281	17-24282	
14-24355 15-24355	PEACH BOTTOM 2 AND 3 (BWR)			
NUCLEAR ROCKET	9-24449			
14-24650 15-24650	PERFORMANCE LIMIT			
NUCLEATE BOILING	10-25079	14-23393	17-23393	17-25070
9-23717 9-23720	PERSONNEL EXPOSURE, RADIATION			
OCEAN AND SEA	1-24125	9-24886	14-23210	14-24285
1-24249 3-24764	15-23210	15-24125	15-24243	15-24248
14-24233 14-24250	15-24285	15-24610	15-24886	15-25046
14-24738 14-24739	15-25127	17-23378	17-24203	17-24206
15-24250 15-24738	17-24243	17-24610	17-24646	17-24623
OFF GAS	PERSONNEL PROTECTIVE DEVICE			
6-24649 9-24649	1-24158	15-24344	15-24610	15-24732
17-24649	15-24733	15-24748	15-25098	15-25127
OPERATING EXPERIENCE	17-24610			
3-23750 3-23751	PERTURBATION METHOD			
9-23718 9-23721	6-24795			
11-23745 11-23867	PH REACTIVITY EFFECT			
17-19798 17-23745	9-23933			
17-24242 17-24649	PHOSPHATE			
17-25059	15-25089			
OPERATING EXPERIENCE SUMMARY	PHOSPHORUS			
1-24813 9-25101	14-23898	15-23898		
17-24579 17-24813	PILGRIM STATION (BWR)			
17-25101	18-25035			
OPERATING LICENSE PROCESS	PIPING			
2-25088 11-25041	2-24919	5-23723	9-22578	9-23723
18-25041 18-25088	11-23723	11-23744	11-23775	11-23792
OPERATION	12-22578	17-22578	18-24919	
1-24324 15-24608	PLANT PROTECTIVE SYSTEM			
17-23374 17-24519	9-22578	9-23203	9-23714	9-25078
ORGANIC COOLANT	9-25083	12-22578	13-25078	17-22578
1-24881	18-23203	18-24515		
ORGANIC IODIDE	PLASTICITY			
7-24385 7-24410	11-23892	14-24325		
ORNL	PLATINUM			
9-24335 9-24336	15-24327			
9-25011 9-25012	FLOWSHARE PROGRAM			
9-25015 9-25016	14-23293	15-23293		
13-23290 13-24786	FLOWSHARE PROGRAM, GASBUGGY			
14-23290 15-23256	9-24590	15-24590		
15-23272 15-23275	PLUM BROOK (TR)			
ORR (RR)	17-24043	17-25000		
6-24001 6-25001	PLUME BEHAVIOR, GENERAL			
17-23374 17-24001	16-23731	16-23732	16-23733	16-23735
17-24515 17-25001	16-23736	16-25050		
OTTO HAHN (PWR)	PLUME, SMOKE, PHOTOGRAPHY			
1-24126	16-24390			
OUT OF PILE LOGS AND EXPERIMENTS	PLUTONIUM			
1-25086 4-24368	1-25063	3-23749	3-24762	4-22470
7-25086 9-23947	7-22470	7-24343	7-24381	7-24383
18-23947 18-23948	7-24457	8-25085	9-24595	13-24468
OXIDATION	13-24762	13-24786	14-23207	14-23246
1-24385 7-24462	14-23247	14-23252	14-23254	14-23276
14-23287 17-25061	14-24254	14-24320	14-24345	14-24376
OXIDE	14-24377	14-24425	14-24611	14-25005
4-22490 4-24382	15-23207	15-23209	15-23246	15-23247
7-24382 7-24465	15-23252	15-23254	15-23258	15-23259
8-25085	15-23268	15-23276	15-23283	15-23285
OXYGEN	15-24254	15-24376	15-24377	15-24425
4-24372 7-24372	15-24595	15-24611	15-25107	16-24230
OYSTER CREEK 1 (BWR)	18-24002	18-25002	19-24377	19-25063
11-23201 11-25041	PLUTONIUM DIOXIDE			
18-25041	12-25074	13-25074	18-24514	18-25074
PARTICLE SIZE	PLUTONIUM OXIDE			
7-24364 7-24392	13-24468	13-24469	14-23247	14-23276
14-24376 14-25100	15-23247	15-23276		
PARTICLE SIZE DISTRIBUTION	PM 1 (PWR)			
7-24364 7-24381	17-25064			
7-24392 7-25148				
14-24376 14-25100				
15-25100 16-24339				
PARTICLE, RADIOACTIVE				
14-23246 14-24376				
14-24611 14-24742				

PM 3A (PWR)				18-24510			
9-25083	17-25064			PYROLYTIC			
POINT BEACH 1 AND 2 (PWR)				7-24394	17-25061		
2-21863	5-21864	6-21860	11-21861	QUALITY CONTROL			
11-24807	18-21854	18-21858	18-21860	1-21968	1-24210	1-24601	9-23728
18-21861	18-21862	18-21863	18-21864	11-23200	11-23708	11-24601	12-23728
18-22130	18-24807	18-25025		17-21968	17-24282	17-25064	18-232CC
POISON, BURNABLE				18-23582	18-24210	18-24585	
17-25064				R AND D PROGRAM			
POISON, SOLUBLE				1-23222	6-23875	9-23947	11-237C5
9-25119	11-25159	12-24471	13-24471	11-23781	11-23782	11-23796	11-23885
17-25159				11-23887	11-23890	11-23891	11-23892
POLAND				11-23893	11-23895	11-23896	14-24360
14-25056	15-25056	16-24619		14-24650	14-25007	14-25054	14-25056
POLONIUM				14-25057	15-23298	15-24650	15-25054
14-24621	15-24621	15-24741		15-25056	15-25057	17-23373	17-23875
PONTRYAGINS PRINCIPLE				17-25061	17-25066	17-25156	18-23877
9-23212				18-23947	18-23948	18-24002	18-24510
POPULATION EXPOSURE				18-24514	18-25002	18-25003	
1-24249	1-24324	14-23210	14-23218	RADIATION DAMAGE			
14-23748	14-24233	14-24247	14-24285	4-24382	4-24386	4-25140	4-25141
14-24357	14-24479	14-24480	14-24483	4-25143	7-24382	7-24385	7-24386
14-24742	14-25095	15-23210	15-23215	7-24398	7-24632	9-21915	11-237C3
15-23217	15-23218	15-23748	15-24233	11-23780	11-23786	11-23802	11-23850
15-24247	15-24248	15-24285	15-24479	11-23894	11-23696	13-24470	13-24632
15-24480	15-24483	15-24742	15-24799	14-21934	14-23282	14-23586	14-23741
15-24800	15-24601	15-24802	15-25018	14-24236	14-24425	14-24521	15-23256
15-25095	15-25099	15-25125		15-23257	15-23275	15-23282	15-23264
POROUS MEDIA				15-23285	15-23586	15-23741	15-24136
7-24453	11-23797			15-24236	15-24425	15-24521	15-24741
POTASSIUM				15-24745	15-25098	17-21915	17-24632
4-25144	5-25030	9-25030	9-25033	RADIATION EFFECT			
14-21934	14-24749	15-24749	15-25053	4-24382	4-25140	4-25141	4-25143
POWER DISTRIBUTION				7-24382	7-24385	7-24398	11-237C3
6-25047	18-25047			11-23759	11-23780	11-23802	11-23850
POWER UPDATING				11-23895	11-23896	14-24425	14-24521
17-19798	17-25060			14-24731	15-24425	15-24521	15-24731
PRAIRIE ISLAND 1 AND 2 (PWR)				17-25061	18-24514	18-25003	
9-23203	11-23204	12-23918	18-23202	RADIATION IN PERSPECTIVE			
18-23203	18-23204	18-23918		2-23239	2-23240	14-23291	
PRECIPITATION				RADIATION INJURY, TREATMENT OF			
14-24735	14-24739	14-24742	14-25051	1-23286	14-23262	14-24236	15-23249
14-25052	15-24735	15-24739	15-24742	15-23282	15-23286	15-24236	15-24610
15-25052	16-23732	16-24227	16-24228	15-24798	15-25098	17-24610	
16-24342	16-24615	16-25051	16-25166	RADIATION MODEL			
PRESSURE PULSE				14-24521	14-24747	14-25125	15-24521
5-23858	11-23858			15-24745	15-24747		
PRESSURE TRANSIENT				RADIATION PROTECTION, CHEMICAL			
5-23323				13-24468	14-25052	15-25052	15-25056
PRESSURE VESSEL				RADIATION PROTECTION, ORGANIZATION			
1-24601	1-25086	4-24387	5-23323	1-23286	1-24124	1-24127	14-23585
5-23723	7-25086	9-23723	9-24201	14-24285	15-22814	15-23286	15-23585
11-22916	11-23710	11-23723	11-23743	15-24124	15-24127	15-24285	
11-23744	11-23789	11-23793	11-23802	RADIATION SAFETY AND CONTROL			
11-23859	11-23885	11-23886	11-23891	1-23286	1-24125	1-24249	1-24884
11-23892	11-23893	11-23896	11-23919	3-23753	4-24386	7-24381	7-24386
11-23932	11-24596	11-24597	11-24598	7-25151	9-24200	12-24190	12-24181
11-24601	11-24602	11-24603	11-25041	12-25071	12-25072	13-25071	13-25072
11-25059	11-25062	11-25086	11-25159	14-23218	14-23295	14-23584	14-23747
17-24201	17-25059	17-25061	17-25062	14-23748	14-23897	14-24160	14-24162
17-25159	18-24602	18-25041		14-24321	14-24323	14-24345	14-24479
PRESSURE, EXTERNAL				14-24480	14-24461	14-24621	14-24746
11-23772				14-25052	14-25054	14-25056	14-25057
PRESSURE, INTERNAL				14-25092	14-25125	14-25151	15-22814
5-23323	5-23858	11-21120	11-23712	15-23215	15-23217	15-23218	15-23266
11-23756	11-23761	11-23858	11-24146	15-23584	15-23747	15-23748	15-23857
11-24147	11-25062	17-25062		15-24125	15-24208	15-24321	15-24322
PRESSURE, SUBATMOSPHERIC				15-24479	15-24480	15-24481	15-24484
11-24922	18-24922			15-24609	15-24621	15-24734	15-24746
PROBABILITY				15-24799	15-24800	15-24801	15-24802
11-24057	18-24057			15-25008	15-25018	15-25052	15-25053
PROCEDURES AND MANUALS				15-25054	15-25056	15-25057	15-25076
11-25159	17-24519	17-25159		15-25092	15-25096	15-25107	15-25127
PROMETHIUM				15-25120	15-25129	17-24200	17-24208
14-23253	14-24358	15-23253	17-24516	17-24734	17-25069	17-25076	
PROMPT NEUTRON LIFETIME				RADIATION UNIT			
6-24795				14-23296	14-24425	15-23296	15-24425
PROPERTY, PHYSICAL				RADIATION, PUBLIC EDUCATION/ACCEPTANCE			
4-24368	4-24369	4-24373	4-25140	2-25088	13-24631	13-24633	13-24635
4-25141	4-25143	7-24369	11-23766	14-23748	14-24633	14-24635	15-23748
11-23767	11-23780	11-23781	11-23894	17-24631	17-24633	17-24635	18-25088
11-23895	11-23928	11-23925	12-24368	19-23788			
12-24373	17-24623	18-24002	18-25002	RADIOACTIVITY RELEASE			
PRTR (TR)				7-24383	14-23210	14-23741	14-25125
11-19794	17-19794			15-23210	15-23741	16-24389	
PULSED NEUTRON TECHNIQUE				RADIOBIOLOGY			
9-24332				14-21183	14-21934	14-21956	14-23253
PUMP				14-23254	14-23255	14-23276	14-23277
10-24817	12-24817	17-24282	17-24517	14-23278	14-23282	14-23291	14-24611
17-24817	17-24819	18-24240	18-25157	15-21956	15-23253	15-23254	15-23255
PUMP, JET				15-23256	15-23257	15-23259	15-23260

15-23275	15-23276	15-23277	15-23278	REACTOR DECOMMISSIONING			
15-23282	15-23283	15-23285	15-24611	9-25111	17-24049	17-24647	
15-24745				REACTOR DESCRIPTION			
RADIOCHEMICAL ANALYSIS				1-24883	11-22937	11-23789	17-25060
14-09100	14-23587	14-24144	14-24164	18-22937	18-23580	18-24582	
14-24358	14-24406	14-24439	14-25051	REACTOR DYNAMICS			
14-25092	15-23587	15-24144	15-24164	6-23916	6-24791	6-24797	
15-24406	15-24439	15-25092	16-09100	REACTOR FUSE			
16-24227	16-24228	16-24339	16-24342	16-23580			
16-24613	16-25051	16-25166		REACTOR KINETICS			
RADIOCHEMICAL PLANT SAFETY				5-25046	6-23916	6-24791	6-25004
1-23221	9-25078	12-24191	12-24193	18-25046			
12-24194	12-24195	12-24471	12-24607	REACTOR POWER			
12-24787	12-24803	12-25071	12-25072	1-24324	6-24885	9-24332	9-24811
12-25074	13-23221	13-23729	13-24470	9-25032	14-23393	14-23586	14-23736
13-24471	13-24786	13-24803	13-25071	14-23748	14-23898	14-24323	14-24355
13-25072	13-25074	13-25078	15-24191	14-24357	14-24481	14-24650	14-25007
18-25074				14-25054	14-25056	15-23586	15-23736
RADIOCHEMICAL PROCESSING				15-23748	15-23896	15-24355	15-24461
4-24386	7-24371	7-24386	12-25130	15-24650	15-25054	15-25056	15-25128
13-23729	13-24468	13-24469	13-24470	17-23393	17-24628	17-24811	18-24885
13-24786	13-25130	14-24371	15-23299	REACTOR SAFETY SYSTEM			
RADIOGRAPHY				2-24594	6-21860	6-24351	9-23203
17-24206	17-24820			9-23213	9-23715	9-23716	9-23724
RADIOISOTOPE				9-23725	9-24226	9-24346	9-24351
3-24818	7-25145	7-25151	14-21934	9-24594	9-25083	9-25123	17-24515
14-23250	14-23585	14-24161	14-24731	17-25060	18-21860	18-23203	18-24515
14-24749	14-25056	14-25151	15-23250	REACTOR STABILITY			
15-23585	15-24731	15-24749	15-25056	6-24797	17-25068		
17-24818				REACTOR STARTUP EXPERIENCE			
RADIOLOGICAL ASSISTANCE				17-24242	17-24202		
14-24163	14-24356	14-24483	14-25056	REACTOR STARTUP TESTING			
15-24163	15-24356	15-24483	15-25056	6-25158	9-23946	17-23946	17-24783
17-24605				17-25158	18-24585		
RADIOLOGY				REACTOR STARTUP, LOW SOURCE			
14-23587	14-24251	14-24253	14-24439	6-25080	9-24781	9-24784	9-25080
15-23249	15-23587	15-24136	15-24145	17-24781	17-24784	17-25080	
15-24251	15-24253	15-24439	15-24744	REACTOR TRANSIENT			
15-24754	17-23378	17-24203		6-24791	6-24797	6-25004	6-25080
RADIOLYTIC GAS				9-25080	17-25080		
12-24190				REACTOR, AEC OWNED			
RADIONUCLIDE, INDUCED				9-23715	9-23718	9-23719	9-23722
7-25151	14-23207	14-23739	14-24483	9-25015	16-24077	17-23876	
14-25151	15-23207	15-23739	15-24483	REACTOR, BEC MODERATED			
RADIUM				17-23205			
14-23270	14-23282	14-24247	14-24250	REACTOR, BREEDER			
14-24355	14-24612	15-24247	15-24247	4-24373	7-24343	9-23946	11-23789
15-24250	15-24327	15-24355	15-24484	12-24373	17-23776	17-23946	18-24002
15-24612	15-25108	15-25109		18-24514	18-25002		
RADON				REACTOR, BWR			
7-24383	7-24451	12-24190	14-24250	1-24324	1-24682	2-24511	5-24512
14-24611	15-23284	15-24250	15-24611	5-24513	9-23292	9-23726	9-23907
15-25110	16-23879	16-24617		9-24201	9-24205	9-24449	9-24513
RAINOUT				11-23919	11-24048	11-24204	11-24509
14-23897	14-23899	14-24231	14-24235	11-25041	12-23292	12-23726	12-23907
14-24244	14-24251	14-24254	14-24285	12-24509	12-24512	14-23393	14-23748
14-24742	14-24750	15-23897	15-23899	15-23748	15-24648	15-24882	17-23252
15-24231	15-24235	15-24244	15-24251	17-23393	17-23777	17-23507	17-24041
15-24254	15-24285	15-24742	15-24750	17-24048	17-24049	17-24201	17-24204
16-21337	16-23879	16-24227	16-24615	17-24205	17-24242	17-24579	17-24646
RANCHO SECO (PWR)				17-24648	17-25066	18-23560	18-24051
1-24210	2-24211	2-24213	16-24212	18-24056	18-24240	18-24486	18-24498
18-24209	18-24210	18-24211	18-24212	18-24500	18-24507	18-24508	18-24509
18-24213				18-24510	18-24511	18-24512	18-24513
REACTIVITY COEFFICIENT				18-24625	18-24808	18-25035	18-25041
6-24795	6-25004	6-25047	9-23718	REACTOR, CIRCULATING FUEL			
9-25117	18-25047			6-25158	17-25158		
REACTIVITY EFFECT				REACTOR, DESALINATION			
6-24001	6-24351	6-25001	9-24001	1-23224			
9-24351	9-24449	9-24473	9-25001	REACTOR, FAST			
17-24001	17-25001	18-24515		1-21968	3-24218	4-24373	6-23870
REACTIVITY EFFECT, ANOMALOUS				6-25004	7-24343	8-23870	9-23946
9-23719	9-23722	9-23946	9-24811	9-23946	9-23947	9-24332	9-25112
17-23946	17-24811			9-25117	12-24373	12-24471	13-24218
REACTIVITY EFFECT, EXPANSION				13-24471	17-21968	17-23776	17-23946
9-23946	17-23946			17-23946	18-23870	18-23877	18-23947
REACTIVITY EFFECT, PRESSURE				18-23948	18-24514	18-24515	18-25157
6-25158	17-25158			REACTOR, FAST BURST			
REACTIVITY EFFECT, VOID				15-23264			
6-24785	6-24896	9-24896	17-24785	REACTOR, FLUX TRAP			
REACTIVITY, EXCESS				9-23715	9-23717	9-23722	9-25015
17-24782				REACTOR, GCR			
REACTOR CONTRL				7-24463	7-25137	7-25138	8-25085
6-24885	6-24896	9-23220	9-24068	8-25138	9-25115	11-23789	11-25153
9-24349	9-24096	9-24097	9-25031	11-25154	12-25154	17-23205	17-25061
9-25104	9-25113	9-25114	9-25116	18-25153			
9-25117	9-25118	9-25119	9-25120	REACTOR, GRAPHITE MODERATED			
9-25122	18-24885			3-23755	11-23789	17-24647	
REACTOR COOLANT				REACTOR, HTGR			
8-25084	9-23717	9-23726	12-23726	1-25086	7-24394	7-24463	7-25086
14-23262	15-23262	17-25084		7-25142	11-24602	11-25086	17-24281

17-24282	17-25061	18-24602		18-24922	18-24950	18-24965	18-25025
REACTOR, HWR				18-25034	18-25036	18-25037	18-25042
1-22462	6-24896	6-25067	9-23933	18-25043	18-25044	18-25045	18-25046
9-24896	11-25152	11-25153	17-24517	18-25047			
17-24628	17-25067	17-25069	17-25155	REACTOR, RESEARCH			
17-25156	18-25003	18-25153		1-23222	2-25068	3-24755	5-24580
REACTOR, INTERNAL SUPERHEAT				5-24810	6-24001	6-24785	6-25001
5-23323	6-24649	9-24052	9-24053	6-25080	7-24810	9-21915	9-23715
9-24649	17-23778	17-24052	17-24053	9-23719	9-23722	9-24001	9-24781
17-24649				9-24784	9-24811	9-25001	9-25015
REACTOR, LMCR				9-25080	9-25087	17-21915	17-23374
1-21968	3-23755	4-24369	4-24373	17-23779	17-24001	17-24047	17-24054
4-24386	6-23870	7-24343	7-24369	17-24207	17-24518	17-24519	17-24579
7-24386	8-23870	9-23946	9-23947	17-24580	17-24628	17-24781	17-24782
9-24332	9-25112	11-24156	12-24373	17-24783	17-24784	17-24785	17-24810
12-24471	13-24471	17-21968	17-23776	17-24811	17-24823	17-25001	17-25060
17-23946	17-24647	18-23870	18-23947	17-25080	17-25087	18-24042	18-25088
18-23948	18-24002	18-24156	18-24515	REACTOR, SAFETY RESEARCH			
18-25002				6-25004			
REACTOR, LMFBR				REACTOR, SPACE			
18-25157				1-23884	3-23749	9-24352	9-25005
REACTOR, MARITIME				14-23246	14-23247	15-23246	15-23247
1-24126	1-24883	9-24472	9-25118	15-23884	16-24230		
12-24816	17-24809	17-24816		REACTOR, TEST			
REACTOR, MILITARY				6-23870	8-23870	9-23933	9-23947
17-24578	17-25064	17-25066		12-24471	13-24471	17-15798	17-23581
REACTOR, MOLTEN SALT				17-23740	17-24043	17-24148	17-24516
6-25158	9-23718	9-23722	9-24346	17-25000	17-25000	18-23870	18-23877
11-22916	16-24077	17-25068	17-25158	18-23947	18-23948		
REACTOR, ORGANIC COOLED				REACTOR, THERMAL			
1-24881	6-25067	17-24517	17-25067	9-24068			
18-25003				REACTOR, TRAINING			
REACTOR, POOL TYPE				17-24044	18-23580	18-24050	
5-24810	6-24785	7-24810	9-21915	REACTOR, WATER			
9-24781	9-24784	9-24811	9-25075	1-24601	5-24580	9-24133	11-24601
17-21915	17-24781	17-24782	17-24783	17-24580			
17-24784	17-24785	17-2481C	17-24811	RECOVERY PROCESS			
17-25060	17-25075			6-25084	17-25084		
REACTOR, POWER				REDUCTION			
1-23222	1-24862	6-24085	7-25126	14-23287			
9-23721	9-24897	9-25022	9-25101	REDUNDANCE			
9-25120	9-25121	11-24636	12-25132	9-22578	9-24349	9-24751	9-24753
13-25132	14-25055	15-24882	15-25055	9-25023	9-25123	10-24965	12-22578
15-25093	17-17175	17-24189	17-24579	17-19798	17-22578	18-24965	
17-25101	17-25155	17-25156	18-24239	REENTRY, ATMOSPHERIC			
18-24582	18-24636	18-24885	18-25065	16-24230			
REACTOR, PRESSURE TUBE				REFLECTOR			
1-24881	9-23933	11-23707	11-25152	6-24785	6-24797	9-24781	17-24781
11-25153	11-25154	12-25154	17-25069	17-24782	17-24785		
17-25070	18-25153			REFRACTORY MATERIAL			
REACTOR, PRODUCTION				4-25143			
14-23898	15-23898			REFUELING			
REACTOR, PULSED				11-25059	17-25059	17-25070	
17-24054				REGULATION, AEC			
REACTOR, PWR				1-24601	9-24200	11-24601	15-25129
1-24126	1-24210	1-24813	1-24814	17-24200	17-24815		
1-24082	1-24083	2-24082	2-24083	REGULATION, FDA			
2-24211	2-24213	2-24917	2-24919	1-24884			
5-21864	5-23050	5-24587	5-25045	REGULATION, GENERAL			
5-25046	6-21860	6-23588	6-23875	1-23222	1-24125	1-24127	11-23753
6-24885	6-25047	9-22578	9-23203	15-24125	15-24127	15-25129	
9-23721	9-23907	9-23933	9-24200	REGULATION, IAEA			
9-24903	9-24950	9-25083	9-25116	3-23750	3-23751	3-23753	
9-25118	10-24817	10-24965	11-09120	REGULATION, ICC			
11-19833	11-20351	11-21861	11-22937	15-25129			
11-23142	11-23204	11-23795	11-23797	REGULATION, STATE			
11-23858	11-23667	11-23922	11-24046	15-25129			
11-24057	11-24535	11-24807	11-24921	RELEASE RATE			
11-24922	11-25044	11-25059	11-25159	4-24382	7-24382	13-23290	14-23250
12-22578	12-23907	12-23918	12-24622	15-23290			
12-24624	12-24816	12-24817	14-23748	RELIABILITY ANALYSIS			
15-23748	15-24208	15-24734	15-24882	9-23728	9-24226	9-24331	9-24349
16-24212	17-09120	17-22578	17-23142	9-24476	9-24477	9-24478	9-24751
17-23394	17-23581	17-23588	17-23867	9-24752	9-24753	9-24894	9-25021
17-23875	17-23907	17-23922	17-24045	9-25022	9-25023	10-24478	11-23775
17-24046	17-24200	17-24208	17-24579	12-23728			
17-24624	17-24627	17-24734	17-24809	RELIABILITY, COMPONENT			
17-24813	17-24815	17-24816	17-24817	9-24331			
17-24819	17-25059	17-25064	17-25066	RELIABILITY, SYSTEM			
17-25069	17-25070	17-25159	18-09182	9-23716	9-24226	9-24349	9-24476
18-19833	18-20351	18-21854	18-21858	9-24477	9-24478	9-24751	9-24752
18-21860	18-21861	18-21862	18-21863	9-24753	9-24811	9-25022	10-24478
18-21864	18-22130	18-22937	18-23202	10-25077	10-25079	17-24811	
18-23203	18-23204	18-23918	18-24055	REMOTE MANIPULATING AND VIEWING			
18-24057	18-24209	18-24210	18-24211	9-23947	12-24787	12-24788	18-23947
18-24212	18-24213	18-24523	18-24535	18-23948			
18-24583	18-24584	18-24585	18-24586	REPORT, OPERATIONS			
18-24587	18-24588	18-24622	18-24623	6-24001	6-24649	6-25001	9-24001
18-24804	18-24805	18-24806	18-24807	9-24052	9-24053	9-24649	9-25001
18-24814	18-24885	18-24899	18-24900	17-23394	17-24001	17-24052	17-24053
18-24903	18-24917	18-24919	18-24921	17-24281	17-24518	17-24646	17-24647

17-24649	17-25001	17-25069	17-25070	1-25063	7-24392	7-25148	12-24190
REPORT, OPERATIONS ANALYSIS				12-24191	12-24195	14-23924	14-24252
11-23745	11-25159	17-23745	17-25068	14-24356	14-24439	14-24480	14-24461
17-25159				14-24483	14-24611	14-24736	14-24735
REPORT, OPERATIONS SUMMARY				14-24742	14-25051	15-23206	15-23924
11-24048	14-23393	17-23393	17-24043	15-24191	15-24252	15-24322	15-24356
17-24044	17-24048	17-24045	17-24815	15-24439	15-24480	15-24481	15-24483
REPORT, PSAR				15-24608	15-24611	15-24736	15-24735
1-24210	1-24814	2-09182	2-21863	15-24742	15-24744	16-23731	16-23733
2-24211	2-24213	2-24511	2-24917	16-23734	16-24342	16-24613	16-24615
2-24919	5-21864	5-24512	5-24513	16-25051	19-25063		
5-24587	6-21860	9-23203	9-24513	SAMPLING, HIGH ALTITUDE			
9-24950	10-24965	11-19833	11-20351	16-24341			
11-21861	11-22937	11-23204	11-24057	SAN ONOFRE (PWR)			
11-24509	11-24807	11-24921	11-24922	10-24817	12-24817	17-24579	17-24817
12-24509	12-24512	12-24622	12-24624	SAVANNAH RIVER PLANT			
16-24212	17-24624	18-09182	18-19833	13-24470	14-23252	14-23269	15-23252
18-20351	18-21854	18-21858	18-21860	15-23261	15-23268		
18-21861	18-21862	18-21863	18-21864	SAXTON (PWR)			
18-22130	18-22937	18-23202	18-23203	9-23933	17-23581	17-24045	
18-23204	18-23560	18-23582	18-24055	SCANDIUM			
18-24057	18-24209	18-24210	18-24211	14-24375			
18-24212	18-24213	18-24486	18-24498	SCRAM, REAL			
18-24500	18-24507	18-24508	18-24509	2-24594	6-24001	6-25001	9-24001
18-24510	18-24511	18-24512	18-24513	9-24594	9-25001	17-24001	17-25001
18-24585	18-24586	18-24587	18-24588	SCRAM, SPURIOUS			
18-24622	18-24623	18-24804	18-24805	9-24811	17-23394	17-24811	
18-24806	18-24807	18-24808	18-24814	SCRUBBER			
18-24899	18-24900	18-24917	18-24919	7-24393	7-25133	7-25134	
18-24921	18-24922	18-24950	18-24956	SEDIMENT			
18-25025	18-25034	18-25036	18-25037	14-24358	14-24480	14-24483	14-24745
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15-24799				SEFOR (RE)			
REPORT, SAR				6-25004			
5-25045	5-25046	6-25047	11-24535	SEICHE			
11-25044	17-24045	17-25068	18-24056	2-21863	18-21863		
18-24523	18-24535	18-24583	18-24584	SEISMIC ZONE			
18-25042	18-25043	18-25044	18-25045	2-25170	2-25172	2-25173	
18-25046	18-25047			SEISMOLOGY			
RESIN				2-23235	2-23237	2-23238	2-24511
4-24387	7-24395	7-24399		2-25172	2-25173	11-22937	14-24357
RESPONSE SPECTRUM				14-25005	18-22937	18-24511	
2-23232				SEISMOLOGY, GENERAL			
RESPONSE TIME				2-24076	2-24594	9-24594	
9-23853	11-24046	17-24046		SERVOMECHANISM			
REVIEW				9-25010	9-25017		
1-24126	1-24127	1-24581	1-24882	SETPOINT			
5-24580	8-25085	9-23714	9-23717	9-25087	17-25087		
11-24636	15-24127	15-24882	17-23373	SHELL			
17-24189	17-24580	17-25155	17-25156	11-23590	11-23591	11-23592	11-23593
18-24002	18-24515	18-24636	18-25002	11-23595	11-23596	11-23597	11-23702
18-25065				11-23711	11-23712	11-23743	11-23755
RHODIUM				11-23765	11-23773	11-23774	11-23784
15-23299				11-23787	11-23790	11-23791	11-23795
RIVER, COLUMBIA				11-23864	11-23866		
14-23262	14-23898	14-23924	14-23925	SHIELDING			
14-24406	14-24439	14-24483	14-25005	3-23755	3-24222	3-24756	3-24760
15-23262	15-23898	15-23924	15-23925	5-24580	11-24636	12-24787	12-24788
15-24406	15-24439	15-24483		13-24468	15-23259	15-24734	17-24047
RIVER, GENERAL				17-24148	17-24580	17-24734	18-24636
1-24324	14-23287			SHIPPING ANALYSIS			
ROCK MECHANICS				3-23750	3-23751	3-24764	3-24790
2-24637	2-24638	2-24639	2-24642	SHIPPING CONTAINER			
2-24779				1-25063	3-23754	3-23755	3-24222
RUMANIA				3-24756	3-24758	3-24760	3-24763
14-25056	15-23299	15-25056		19-23754	19-25063		
RUSSELLVILLE (PWR)				SHIPPINGPORT (PWR)			
18-25036				6-23588	15-24734	17-23588	17-24734
RUTHENIUM				SHOCK ABSORBER			
14-21934	14-24320	15-23299		9-24053	9-25115	11-21120	11-23798
SAFETY ANALYSIS				17-24053			
3-23755	11-22937	15-23206	18-27937	SHOCK WAVE			
SAFETY EVALUATION				5-24600	11-21120	11-23700	11-23758
9-21915	17-21915	18-23580		11-23771	11-23772	11-23791	11-24146
SAFETY MARGIN				11-24147	11-24600		
11-23744	17-25068			SHUTDOWN COOLING SYSTEM			
SAFETY PRINCIPLES AND PHILOSOPHY				12-24816	17-24816	17-24819	
1-24237	2-23240	3-23753	3-24755	SHUTDOWN MARGIN			
3-24761	3-24762	9-23715	9-23716	9-23212	9-24052	17-24052	
9-23724	9-23725	9-23727	9-25083	SHUTDOWN SYSTEM, SECONDARY			
12-23727	13-24762	17-24515	18-24237	9-25116	9-25119	9-25122	10-24017
SAFETY PROGRAM				12-24817	17-19798	17-24817	
18-24239				SILICON			
SAFETY REVIEW				7-24394	7-24465	15-23209	
13-24631	14-23585	15-23585	15-24802	SIMULATION			
17-24207	17-24578	17-24631	17-24819	7-25146	9-23853	9-24950	18-24950
SALEM 1 AND 2 (PWR)				SITE CLIMATOLOGY			
18-23582				16-23881	16-24212	16-24390	16-24618
SALT				16-25050	18-24212		
17-23374				SITE CRITERIA, EARTHQUAKE			
SAMPLING				2-23226	2-25168	14-23586	15-23586

SITING, CHEMICAL PROCESS PLANT				14-24483	15-23209	15-24483	15-24486
2-23240				15-25127			
SITING, GENERAL				SPECTROMETRY, NEUTRON			
2-25168	11-22937	18-22937	18-24515	15-25127			
SITING, REACTOR				SPHERE			
2-21863	2-23239	2-23240	2-24076	11-23596	11-23743	11-23773	11-23795
2-24511	2-24812	18-21863	18-24511	SPRAY, GENERAL			
18-24585	18-24812			7-24391	7-24393	7-24396	
SITING, URBAN				STACK			
2-24076	2-25088	18-25088		5-24810	7-24632	7-24810	13-24632
SITING, WASTE DISPOSAL				17-24632	17-24810	18-24042	
3-24761				STAFFING, TRAINING, QUALIFICATION			
SLAB				1-24581	9-24811	9-25101	15-25076
11-23594	11-23787			17-17175	17-24207	17-24578	17-24811
SMOKE				17-25076	17-25101	19-23788	
7-24383	7-24393	16-25167		STATE PROGRAM			
SNAP 8 (SR)				15-25076	17-25076		
9-24352	9-25009			STATISTICAL ANALYSIS			
SNAP 9 (SR)				11-19794	15-24248	15-24322	16-24613
14-23246	15-23246	16-24230		16-24614	17-19794		
SNAP, GENERAL (SR)				STATISTICAL CORRELATION			
1-23884	3-23749	14-23247	15-23247	9-25021	16-23211	16-24338	16-24618
15-23884				STEAM			
SNOW				7-24396	7-24463	9-23726	11-23887
16-23732	16-25048			11-23888	11-23889	12-23726	
SODIUM				STEAM GENERATOR			
3-24218	4-22490	4-24368	4-24372	2-24919	5-25045	8-21402	11-23768
4-24373	4-24386	5-25030	7-22490	17-24282	18-24919	18-25045	
7-24343	7-24372	7-24386	8-21402	STEEL			
9-23947	9-24153	9-24887	9-25030	1-24601	1-25086	7-25086	11-23765
9-25033	9-25103	9-25105	12-24368	11-23780	11-23781	11-23885	11-23886
12-24373	12-25130	13-24218	13-25130	11-23888	11-23890	11-23892	11-23893
14-21934	14-24483	15-24483	18-23947	11-23896	11-23919	11-23928	11-23929
18-23948	18-25157			11-24601	11-25086	11-25159	17-25159
SOIL				18-21858			
1-23884	2-24511	14-24357	14-24522	STEEL LINER			
14-24738	14-24739	14-25005	15-23884	11-24603	17-25060		
15-24522	15-24738	15-24739	18-24511	STEEL, STAINLESS			
SOIL MECHANICS				4-22490	4-24366	7-22490	7-24364
1-23230	2-23230	2-24511	2-24644	9-21915	11-23589	11-23703	11-23705
18-24511				11-23745	11-23756	11-23760	11-23782
SOIL PROPERTY, IN SITU				11-23887	11-23888	11-23889	11-23920
2-09182	2-24213	18-09182	18-24213	12-24368	17-21515	17-23740	17-23745
SOIL, RADIONUCLIDE MOVEMENT THROUGH				18-24002	18-25002		
14-23742	14-24360	14-25125	15-23742	STORAGE CONTAINER			
SOLID				1-25063	3-24765	14-23742	15-23742
11-23797				19-25063			
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FOLLOWING IS A LIST OF AUTHORS WHOSE DOCUMENTS
HAVE BEEN ABSTRACTED IN THIS PUBLICATION

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