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FEBRUARY 1969

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

FOREWORD

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

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

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

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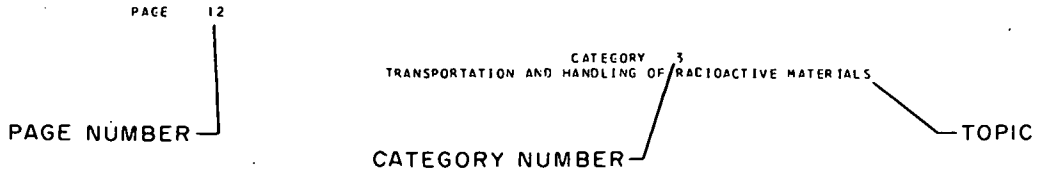

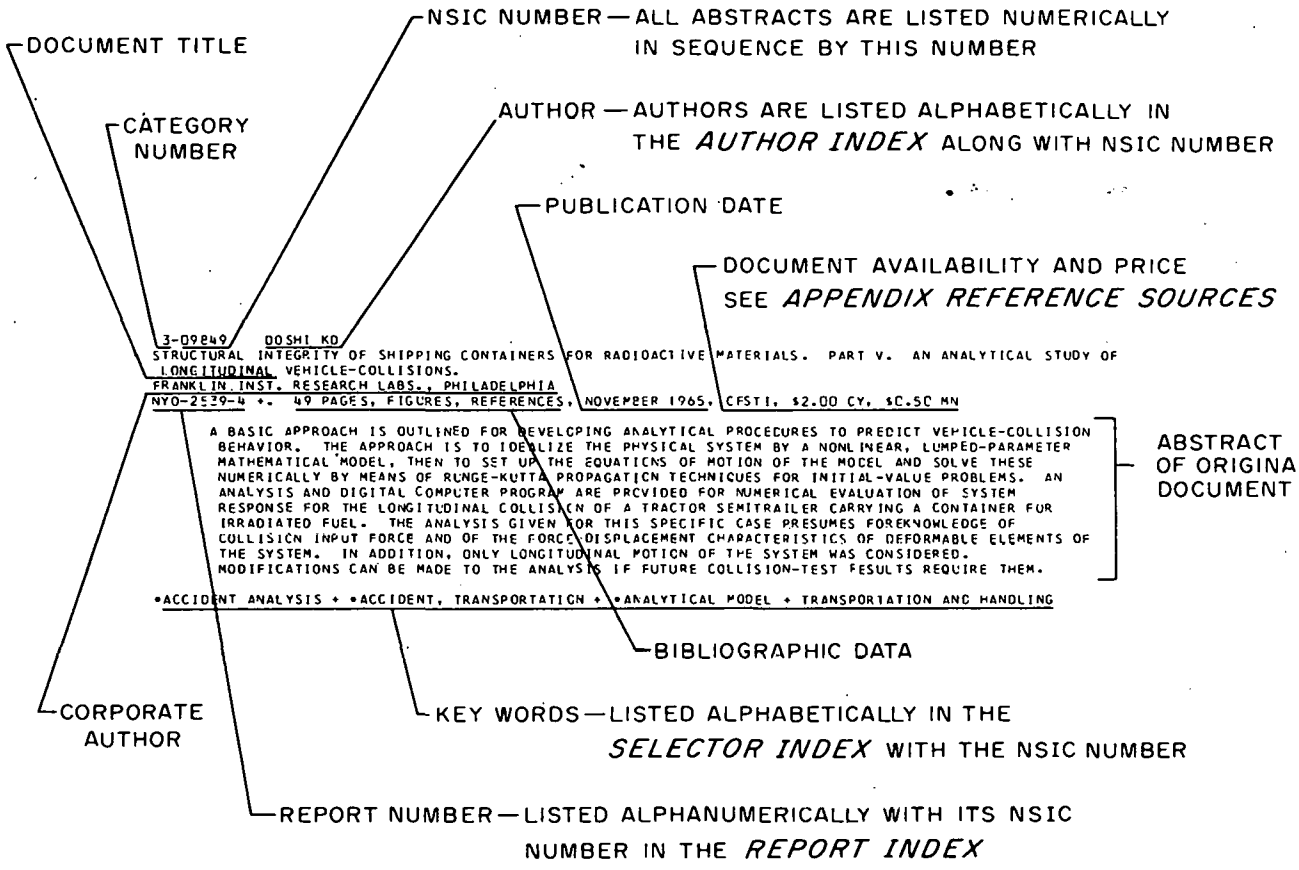

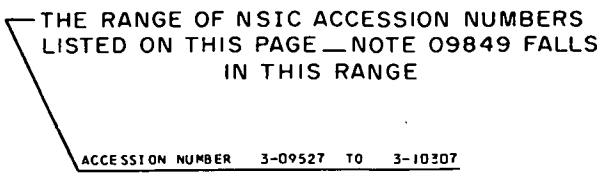

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TABLE OF CONTENTS

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 EARTHS 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

1-25264
KRUGER P
NUCLEAR CIVIL ENGINEERING OUTLINE SYLLABUS FOR CE 277 GIVEN WINTER QUARTER, 1966. TECHNICAL REPORT NO. 70
STANFORD UNIV., CALIF. DEPT. OF ENGINEERING
TID-23743 +. 341 PAGES, SEPT. 1966

NOTES FROM LECTURES BY 12 PERSONS. GENERAL SUBJECT INCLUDES BACKGROUND (20 PG), GENERAL AND SPECIFIC ASPECTS OF TRANSFERS OF ENERGY UNDERGROUND (120 PG), HAZARDS EVALUATION (50 PG), APPLICATIONS (127 PG). MATERIAL IS PRIMARILY DESCRIPTIVE AND WIDE-RANGING, PARTICULARLY IN APPLICATIONS, (FROM RECREATION LAKES TO PANAMA CANAL TO CHEMICAL MINING OF DEEP UNDERGROUND ORE BEDS). HAZARDS ANALYSIS IS MOSTLY ESTIMATES OF DOSE THRU ESCAPED RADIOGAS OR THRU GROUND-WATER LEACHING.

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

*EXCAVATION, NUCLEAR + GROUND WATER, GENERAL + HAZARDS ANALYSIS + MINING + NUCLEAR EXPLOSION DEBRIS + PLOWSHARE PROGRAM, ATLANTIC-PACIFIC CANAL

1-25278 ALSO IN CATEGORY 15
REPORT OF ADJUDICATED AND/OR APPROVED RADIATION WORKMEN(S) COMPENSATION CLAIM
U.S. ATOMIC ENERGY COMMISSION
15 PAGES OF FORM AEC-725

THIS FORM (AEC-725) HAS BEEN PREPARED FOR USED BY APPROPRIATE STATE AGENCIES IN ANALYZING ADJUDICATED OR APPROVED SETTLEMENTS OF COMPENSATION CLAIMS BY WORKMEN ALLEGING RADIATION-INDUCED INJURY OR DISABILITY. IN THE EVENT INFORMATION PERTINENT TO THE SETTLEMENT OF A CLAIM IS NOT COVERED BY THE FORM, SUCH INFORMATION SHOULD BE REPORTED ON A SEPARATE PAGE(S) AND ATTACHED AS AN ADDENDUM TO THE FORM. NO PUBLIC DISCLOSURE OF THE INFORMATION INCLUDED IN THIS FORM WILL BE MADE WHICH WILL IDENTIFY THE INDIVIDUAL OR EMPLOYER.

AVAILABILITY - U.S. ATOMIC ENERGY COMMISSION

*INSURANCE + *LIABILITY + *RADIATION DAMAGE + *RADIATION EXPOSURE, RECORD KEEPING + *REGULATION, AEC + *REGULATION, STATE

1-25292 ALSO IN CATEGORIES 11 AND 18
SAFETY STANDARDS, CRITERIA, AND GUIDES FOR THE DESIGN, LOCATION, CONSTRUCTION, AND OPERATION OF REACTORS. III. TECHNICAL SAFETY GUIDE. REACTOR CONTAINMENT LEAKAGE TESTING AND SURVEILLANCE REQUIREMENTS
U.S. ATOMIC ENERGY COMMISSION, DIVISION OF SAFETY STANDARDS
TID-24085 +. 14 PAGES, DECEMBER 15, 1966

IN RECOGNITION OF THE NEED TO PROVIDE EVIDENCE, DURING SERVICE, OF THE CAPABILITY OF A CONTAINMENT SYSTEM TO PERFORM ITS INTENDED SAFETY FUNCTION, A PROGRAM OF TESTING AND SURVEILLANCE IS OUTLINED. BECAUSE THE LEAKAGE RATE OF CONTAINMENT SYSTEM IS A PRACTICAL MEASURE OF ITS READINESS TO FULFILL THE CONTAINMENT FUNCTION, THE INTEGRATED LEAKAGE-RATE TEST IS CONSIDERED A PRINCIPAL AND ESSENTIAL TEST.

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

*CONTAINMENT INTEGRITY + *CONTAINMENT, GENERAL + *SURVEILLANCE PROGRAM + *TEST, LEAK RATE + CONTAINMENT ABSOLUTE MEASURING SYSTEM + CONTAINMENT PENETRATION, GENERAL + CONTAINMENT REFERENCE MEASURING SYSTEM + ENGINEERED SAFETY FEATURE

1-25332
NAKATANI RE
BIOLOGICAL EFFECTS OF HANFORD HEAT ON COLUMBIA RIVER FISHES. A REVIEW
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-SA-1682 +. 24 PAGES, FEB. 15, 1968

THE LONG-STANDING CONCERN OF THE AEC ABOUT POSSIBLE DETRIMENTAL EFFECTS OF HANFORD REACTOR COOLING WATER ON THE FISHERY RESOURCES OF THE COLUMBIA RIVER LED TO AN EARLY MONITORING PROGRAM IN WHICH YOUNG SALMON AND TROUT WERE REARED IN VARIOUS CONCENTRATIONS OF REACTOR AFFLUENT. THIS PROGRAM, ALONG WITH A COMPLETE SURVEILLANCE PROGRAM OF EFFECTS OF IRRIGATION AND HYDROELECTRIC DAMS, IS DISCUSSED.

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

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *RIVER, COLUMBIA + *THERMAL CONSIDERATION + *THERMAL POLLUTION + BATTELLE NORTHWEST + ECOLOGICAL CONSIDERATION + EFFLUENT + SURVEILLANCE PROGRAM + THERMAL ANALYSIS

CATEGORY 1
GENERAL SAFETY CRITERIA

1-25341 ALSO IN CATEGORY 18
BOLSA ISLAND PSAR, VOLUME I
SOUTHERN CALIFORNIA EDISON COMPANY + SAN DIEGO GAS AND ELECTRIC COMPANY
150 PAGES, FIGURES, TABLES, FROM BOLSA ISLAND NUCLEAR POWER AND DESALTING PLANT, PART B, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME I, AUGUST 1967, DOCKET 50-307/308

INTRODUCTION AND SITE FOR TWO 3400-MWTH REACTORS ON A MAN-MADE ISLAND OFF SUNSET BEACH, FOR POWER AND DESALINATION. ***REPORT INCLUDES GEOLOGY AND SEISMICITY (23 PG), SOILS (12 PG), OCEANOGRAPHY (15 PG), HYDROLOGY, METEOROLOGY (16 PG), AND CRITERIA FOR EARTHQUAKE ENGINEERING AND ISLAND CONSTRUCTION.

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*SITING, REACTOR + BOLSA ISLAND + FLOOD + REACTOR, DESALINATION + REPORT, PSAR + SOIL PROPERTY, IN SITU

1-25374 ALSO IN CATEGORY 6
PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON FAST CRITICAL EXPERIMENTS AND THEIR ANALYSIS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7320 + CONF-661019 +. 818 PAGES, FIGURES, TABLES, HELD AT ARGONNE NATIONAL LABORATORY, OCTOBER 10-13, 1966

PAPERS DIRECTLY RELEVANT TO FAST REACTOR SAFETY WERE PRESENTED IN SESSIONS IV AND V. INDIVIDUAL TITLES WERE - (1) ZPR-6 DOPPLER MEASUREMENTS AND COMPARISIONS WITH THEORY. (2) DEPENDENCE OF THE DOPPLER COEFFICIENT OF REACTIVITY FOR HEAVY ELEMENTS ON CHEMICAL FORM, SURFACE-TO-MASS RATIO, AND NEUTRON SPECTRUM. (3) DOPPLER COEFFICIENT MEASUREMENTS IN THE CRYOGENIC TEMPERATURE REGION. (4) RESULTS OF RECENT DOPPLER EXPERIMENTS IN ZPR-3. (5) INTERPRETATION OF DOPPLER COEFFICIENT MEASUREMENTS IN FAST CRITICAL ASSEMBLIES. (6) SOME THEORETICAL STUDIES CONCERNING THE INTERPRETATION OF THE DOPPLER LOOP MEASUREMENTS IN ZEBRA. (7) CALCULATION OF THE SODIUM-VOID EFFECT IN LARGE CARBIDE CORES. (8) CALCULATIONAL STUDIES OF SODIUM-VOID REACTIVITY VARIATIONS DUE TO THIN SLAB HETEROGENITIES IN FAST CRITICAL ASSEMBLIES. (9) A PRELIMINARY INVESTIGATION OF THE EFFECT OF HETEROGENEITY ON ACTIVATING DOPPLER EXPERIMENTS. (10) CALCULATION OF THE SODIUM-VOID AND DOPPLER REACTIVITY COEFFICIENTS IN FAST REACTORS AND CRITICAL ASSEMBLIES, WITH HETEROGENEITY TAKEN INTO ACCOUNT.

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*CRITICALITY EXPERIMENT + *DOPPLER COEFFICIENT + *REACTOR, FAST + *SODIUM COEFFICIENT + COMPARISON, THEORY AND EXPERIENCE + CRITICAL ASSEMBLY FACILITY + REACTOR PHYSICS

1-25378
JASKE RT
THERMAL MODIFICATION OF RIVER WATER QUALITY
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-719 +. 16 PAGES, 7 FIGURES, 2 TABLES, 4 REFERENCES, APRIL 1968

DURING THE PAST FIVE YEARS A GREAT DEAL OF ATTENTION HAS BEEN FOCUSED ON THE GENERAL MATTER OF THERMAL MODIFICATIONS OF LAKES AND STREAMS RESULTING FROM THE ACTIVITIES OF MAN IN UTILIZING NATURES ABUNDANCE FOR HIS OWN PURPOSES. EFFORTS AT HANFORD INCLUDE EXTENSIVE DATA SUMMARIES, ADVANCEMENTS IN WATER TREATMENT, MATHEMATICAL SIMULATION OF WATER QUALITY, AND PIONEER EFFORTS IN THE MANIPULATION OF THE COLUMBIA RIVER IN ORDER TO ENHANCE WATER TEMPERATURES FOR THE COMBINED PURPOSES OF PRODUCTION INCREASE AND AID TO ANADROMOUS FISH. TO EVALUATE THE RESULTS OF THIS COOLING PROGRAM, A SYSTEM OF DATA COLLECTION POINTS WAS INSTALLED, WITH PARTICULAR EMPHASIS ON MEASUREMENT ACCURACY. THE RESULTING TEMPERATURE DATA HAVE BEEN USED TO DEVELOP AN ENVIRONMENTAL SIMULATION MODEL CAPABLE OF PREDICTING TEMPERATURE AND ASSOCIATED WATER-QUALITY VARIABLES TO A HIGH DEGREE OF ACCURACY.

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

BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + MATHEMATICAL TREATMENT + R AND D PROGRAM + REACTOR, POWER + RIVER, COLUMBIA + STATISTICAL ANALYSIS + THERMAL CONSIDERATION + THERMAL POLLUTION + USAEC + WATER POLLUTION + WATER TREATMENT

1-25383
CADWALLADER LW
THERMAL POLLUTION AND THE POWER INDUSTRY BY L. W. CADWALLADER, VICE PRESIDENT POTOMAC ELECTRIC POWER COMPANY, WASHINGTON, D. C.
POTOMAC ELECTRIC POWER COMPANY, 929 E. STREET, NORTHWEST, WASHINGTON, D. C.
9 PAGES, AMERICAN POWER CONFERENCE, APRIL 24, 1968, PAPER PRESENTED AT AMERICAN POWER CONFERENCE 30TH ANNUAL MEETING, CHICAGO, ILLINOIS, APRIL 24, 1968

THE FORTHCOMING PROBLEM OF THERMAL POLLUTION PROMISES TO HAVE A MORE SIGNIFICANT EFFECT ON ELECTRIC UTILITY PLANNING THAN THAT OF AIR POLLUTION. IT IS INHERENT WITH A STEAM GENERATING PLANT WHETHER BY BOILER OR ATOMIC REACTOR. SUCH RESULTS AS RIVERS BEING DEVOID OF DISSOLVED OXYGEN, ELEVATED TEMPERATURES AND THEIR EFFECTS ON AQUATIC LIFE AND GENERAL BIOLOGICAL

CATEGORY 1
GENERAL SAFETY CRITERIA

1-25383 *CONTINUED*
CONDITIONS, PLUS THE EVER INCREASING NUMBER OF POWER PLANTS AND SIZE CAUSES ALARM. REGULATORY ACTION IS NECESSARY ALONG WITH SCIENTIFIC STUDY BY HYDRAULIC MODELS AND OTHER RESEARCH WORK IN COOPERATION WITH INDUSTRY, STATE, AND FEDERAL GOVERNMENT.

AVAILABILITY - L. W. CADWALLADER, VICE PRESIDENT, POTOMAC ELECTRIC POWER CO., WASHINGTON, D. C.

BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + ECOLOGICAL CONSIDERATION + ESTUARY + RIVER, GENERAL + STEAM GENERATOR + THERMAL CONSIDERATION + THERMAL POLLUTION + WATER POLLUTION

1-25467
FAST REACTOR SAFETY
2 PAGES, NUCLEAR ENGINEERING, 12(139), PAGES 933-934 (DECEMBER, 1967)

GIVES THE MOST STRIKING COMMENTS OF 11 PERSONS PRESENTED DURING A PANEL DISCUSSION. ONE MEMBER FROM THE USSR STATED THAT THE MAIN ATTENTION SHOULD BE DIRECTED TOWARD SMALL ACCIDENTS, WHERE THE PROBABILITY IS GREATEST. ON THE SUBJECT OF SODIUM BOILING, MANY PROBLEMS ARE PROBABLY FALSE. REAL PROBLEMS EXPERIENCED INCLUDED SODIUM LEAKAGE AND OXIDATION IN THE CORE. OPINIONS WERE EXPRESSED THAT (1T IT HAS BEEN FORTUNATE THAT ENERGY RELEASED IN ACCIDENTS COMPARES WITH WHAT CAN BE CONTAINED BY DESIGN, (2) SAFETY IS A PROBLEM OF INSTRUMENTATION, AND (3) ACCIDENTS ARE NOT FORESEEN BUT ARE FORESEEABLE.

*SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, GENERAL + DESIGN CRITERIA + REACTOR, FAST + REACTOR, LMCR + UNITED KINGDOM

1-25621 ALSO IN CATEGORY 13
BROWN, CL + LAWRENCE, LA
FFTF CRITICALITY SAFETY SYSTEM 72-- UNDERWATER EXAMINATION FACILITY CONCEPTUAL DESIGN EVALUATION
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-595 +. 7 PAGES, 2 REFERENCES, OCTOBER, 1967

GUIDELINES FOR CRITICALITY SAFETY IN THE UNDERWATER CELL EXAMINATION FACILITY ARE RECOMMENDED. INCLUDED ARE FUEL-BUNDLE-DISASSEMBLY OPERATIONS AND SUBSEQUENT TRANSFER, HANDLING, EXAMINATION, AND PACKAGING OPERATION.

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

*CRITICALITY SAFETY + *FUEL HANDLING + FFTF (TR) + FUEL STORAGE + PROCEDURES AND MANUALS + REACTOR, FAST + REACTOR, TEST

1-25898 ALSO IN CATEGORIES 17 AND 15
US NUCLEAR CORP DENIED LICENSE RENEWAL FOR PU-BE SOURCE FABRICATION
UNITED STATES ATOMIC ENERGY COMMISSION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(24), PAGE 4-7,(JUNE 12, 1968)

(JUNE 1 NOTICE OF DENIAL.) REQUIRES DISPOSAL OF PLUTONIUM AND DECONTAMINATION/DISMANTLING OF FACILITY LICENSED ORIGINALLY APRIL 6, 1967. CITED IN APPENDIX A ARE 3 ITEMS OF NONCOMPLIANCE REVEALED IN A MAY 24, 1967, INSPECTION, 3 ON JUNE 5, 2 ON JULY 11, 3 ON DEC. 14-15, AND 6 DURING THE JAN.-MAR. 1968 INVESTIGATION OF A JAN. 18, 1968 INCIDENT (CUTTING INTO A 35-CURIE PU-BE SOURCE IN AN OPEN MACHINE SHOP UNAUTHORIZED FOR SNM OPERATIONS). (THE 15 ITEMS APPARENTLY ESTABLISH A REPETITIVE PATTERN OF INADEQUATE AIRBORNE-PU SURVEYS, PLUS OTHER INADEQUATE RECORD KEEPING AND INADEQUATE HEALTH PHYSICS CAPABILITY).

*HEALTH PHYSICS TRAINING + *INSPECTION AND COMPLIANCE + *OPERATING LICENSE PROCESS + *SOURCE, NEUTRON + *SPECIAL NUCLEAR MATERIAL + APPLICATION FOR AEC LICENSE + FAILURE, ADMINISTRATIVE CONTROL + LICENSING STATUS OF NUCLEAR PROJECTS + PLUTONIUM + RADIATION SAFETY AND CONTROL + RADIOISOTOPE

1-26067 ALSO IN CATEGORY 17
SAFETY PROCEDURES AND HAZARDS OF DECOMMISSIONED ARR (L-54) REACTOR
IIT RESEARCH INSTITUTE, CHICAGO, ILLINOIS
4 PAGES, LETTER TO D.J. SKOVHOLT FROM R.B. MOLER AND R.E. ZELAC, MARCH 6, 1968, DOCKET NO. 50-1

THE RISK OF PRESSURE BUILDUP DUE TO RADIOLYTIC PRODUCTION OF H2 AND O2, AND SUBSEQUENT PRECIPITATION OF UO2 BY H2O2, ARE NOT CREDIBLE SINCE (1) RECOMBINATION RATE OF 2H2 AND O2 WAS OBSERVED TO BE SAME AS PRODUCTION RATE DURING OPERATION, AND (2) EVEN IF ALL UO2 PRECIPITATED, REACTOR WOULD REMAIN SUBCRITICAL. EMERGENCY PROCEDURES AVAILABLE BEFORE OPERATION CEASED ARE STILL SUITABLE NOW FOR PLAUSIBLE INCIDENTS SUCH AS FIRE OR EXPLOSION AND INVOLVE ARRANGEMENTS WITH CHICAGO FIRE DEPT., AEC RADIOLOGICAL ASSISTANCE TEAM, CAMPUS SECURITY FORCE, AND HEALTH PHYSICS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*EMERGENCY PROCEDURE + *HAZARD, RELATIVE + *RADIOLYTIC GAS + CHEMICAL REACTION + EXPLOSION + FIRE + PRECIPITATION + PRESSURE, INTERNAL + RADIOLOGICAL ASSISTANCE + REACTOR DECOMMISSIONING + REACTOR, HOMOGENEOUS + REACTOR, RESEARCH + URANIUM DIOXIDE

CATEGORY 1
GENERAL SAFETY CRITERIA

1-26270 ALSO IN CATEGORY 15
A REPORT ON IONIZING RADIATION RECORD KEEPING
WOODWARD AND FONDILLER, NEW YORK, N.Y.
123 PAGES, 3 FIGURES, 38 REFERENCES, FROM STUDIES IN WORKMENS COMPENSATION AND RADIATION INJURY, JULY, 1966

UP TO NOW THE MAIN PURPOSE OF STATUTORY PROVISIONS GOVERNING RECORDS HAS BEEN TO ENSURE COMPLIANCE WITH SAFETY STANDARDS. THIS STUDY DISCLOSES A SERIOUS LACK OF ADHERANCE TO UNIFORMLY SATISFACTORY STANDARDS REGARDING THE ADEQUACY OF RECORDS FOR THE COMPENSATION OF DISABLED WORKERS. THIS REFLECTS EQUALLY RESPECTABLE OPINIONS ABOUT EVERY ASPECT OF RECORD-KEEPING EXCEPT ACKNOWLEDGMENT OF NEED. THE REPORT SUGGESTS ESTABLISHMENT OF A PANEL OF EXPERTS TO EVALUATE DOSE-EFFECT RELATIONS ON A CONTINUING BASIS AND TO RECOMMEND CAUSES OF EXPOSURE TO BE RECORDED AND REPORTED FOR REFERENCE IN CLAIMS ADJUDICATION AND EXPERIENCE ANALYSIS.

AVAILABILITY - U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C., $0.40

*RADIATION EXPOSURE, RECORD KEEPING + DOSIMETRY, GENERAL + MONITOR, RADIATION, PERSONNEL + RADIATION EFFECT + RADIATION SAFETY AND CONTROL

1-26271 ALSO IN CATEGORY 15
RADIATION PROTECTION STANDARDS FOR RADIOLUMINOUS TIMEPIECES. RECOMMENDATIONS DRAWN UP BY A JOINT GROUP OF EXPERTS OF THE EUROPEAN NUCLEAR ENERGY AGENCY AND THE INTERNATIONAL ATOMIC ENERGY AGENCY
INTERNATIONAL ATOMIC ENERGY AGENCY
STI/PUB/167 +. 37 PAGES, 9 TABLES, REFERENCES, 1967

THE ACTIVITY PRESENT IN A TIMEPIECE WITH A RADIOLUMINOUS DIAL MUST BE AS LOW AS PRACTICABLE AND, IN ANY EVENT, LOWER THAN THE AMOUNT OF RADIONUCLIDE WHICH WOULD CAUSE THE CRITICAL ORGAN TO RECEIVE THE MAXIMUM PERMISSIBLE DOSE IN CASE OF ACCIDENTAL CONTAMINATION IN THE MOST UNFAVOURABLE CONDITIONS. UNDER NORMAL CONDITIONS OF USE, THE DOSE RESULTING FROM THE PRESENCE OF RADIONUCLIDES IN PIECES SHOULD ONLY CONSTITUTE A MINOR FRACTION OF THE MAXIMUM PERMISSIBLE DOSE FOR EXPOSURE OF INDIVIDUAL MEMBERS OF THE POPULATION. THIS REDUCED THE RADIOISOTOPES ELIGIBLE FOR USE IN THE MANUFACTURE OF LUMINOUS TIMEPIECES - BOTH FROM THE HEALTH AND FROM THE CURRENT TECHNICAL STANDPOINT - TO A VERY SMALL NUMBER (TRITIUM, PROMETHIUM-147 AND RADIUM-226).

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

*CODES AND STANDARDS + *DOSIMETRY, RADIOPHOTOLUMINESCENCE + *IAEA + *RADIOISOTOPE + *REGULATION, IAEA

1-26401
LANE, JA
NUCLEAR SAFETY ECONOMICS
OAK RIDGE NATIONAL LABORATORY
1 PAGE, NUCLEAR SAFETY ECONOMICS, 8(4), PAGE 316 (1967)

COSTS OF NUCLEAR SAFETY, ALTHOUGH IMPORTANT, DO NOT IN THEMSELVES PRESENT A SERIOUS BARRIER TO THE ACHIEVEMENT OF ECONOMIC NUCLEAR POWER. THE COSTS OF ITEMS DESIGNED TO PREVENT OR LIMIT THE ACCIDENTAL RELEASE OF RADIOACTIVITY, FOR EXAMPLE, ARE ESTIMATED AT $8/KW(E) FOR A 600-MW(E) PLANT, AND THE COST OF A STANDARD CONTAINMENT STRUCTURE ADDS ANOTHER $8/KW(E). A MORE SERIOUS COST PROBLEM IS THAT OF REMOTE SITING OF A NUCLEAR PLANT TO MEET ISOLATION-DISTANCE REQUIREMENTS, WHICH CAN ADD AN EQUIVALENT OF $10 TO $20KW(E). THE USE OF MULTIPLE CONTAINMENT AND OTHER ENGINEERED SAFEGUARDS, HOWEVER, OFFERS THE PROMISE OF REDUCING ISOLATION-DISTANCE REQUIREMENTS AND ASSOCIATED COSTS.

*ECONOMIC STUDY + *REACTOR, POWER + *SAFETY EVALUATION + CONTAINMENT, GENERAL + DISTANCE + ECONOMICS + ENGINEERED SAFETY FEATURE

1-26402
BANCROFT AR
THE CANADIAN APPROACH TO CHEAPER HEAVY WATER
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)
AECL-3044 +. 42 PAGES, 13 FIGURES, 10 TABLES, 45 REFERENCES, FEBRUARY, 1968

CANADIAN HEAVY WATER PRODUCTION CAPACITY WILL BE 800 TONS/YEAR BY 1970 IN TWO PLANTS IN NOVA SCOTIA USING THE HYDROGEN SULFIDE-WATER EXCHANGE (GS) PROCESS. SINCE FORECAST DEMANDS INDICATE THE LIKELIHOOD OF ADDITIONAL PLANT CAPACITY REQUIREMENTS BY 1975 AECL IS DIRECTING DEVELOPMENT EFFORT AT NEW PROCESSES TO REDUCE THE COST IN FUTURE PLANTS. THERE IS NO ESTABLISHED COMPETITOR TO THE GS PROCESS, BUT THERE IS ENOUGH DATA FOR AMMONIA-HYDROGEN EXCHANGE TO ALLOW A FAIRLY DETAILED COST STUDY. A 60-70 TON/YEAR UNIT USING AMMONIA SYNTHESIS GAS AS FEED MAY BE ATTRACTIVE IF THE DEUTERIUM CONTENT OF THE FEED IS ABOVE 120 PPM AND IF AN EFFICIENT GAS-LIQUID CONTACTOR CAN BE DEVELOPED. STUDIES ARE UNDER WAY TO CONFIRM THESE ASSUMPTIONS AND TO EXAMINE A NUMBER OF OTHER ASPECTS OF DEUTERIUM-HYDROGEN SEPARATION PROCESSES.

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

CATEGORY 1
GENERAL SAFETY CRITERIA

1-26402 *CONTINUED*
*AECL + *CANADA + *ECONOMIC STUDY + DEUTERIUM + FORECAST

1-26403
NELSON, P
AN OPTIMIZATION PROBLEM IN NUCLEAR REACTOR ECONOMICS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-4172 +. 17 PAGES, 9 REFERENCES, FROM THE OPTIMIZATION PROBLEM IN NUCLEAR REACTOR ECONOMICS, OCTOBER, 1967

A PROBLEM OF CURRENT INTEREST IS THE DETERMINATION OF MINIMUM COSTS FOR A NUCLEAR POWER SYSTEM OF A GIVEN REACTION TYPE TO SUPPLY A SPECIFIC POWER LEVEL. A SOLUTION MUST RESORT TO NUMERICAL METHODS AND THE FORMULATION OF MODELS THAT CAN BE STUDIED ANALYTICALLY. SUCH A MODEL IS DEVISED AND ANALYZED IN THIS REPORT. THE OBJECTIVE IS ACCOMPLISHED BY A CERTAIN CONSTRUCTION THAT YIELDS A POLICY OF MINIMUM COST FOR ANY SET OF DATA FOR WHICH A FEASIBLE POLICY EXISTS.

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

*ECONOMIC STUDY + *MATHEMATICAL STUDY + *REACTOR, POWER + *THEORETICAL INVESTIGATION

1-26404
FORECAST OF GROWTH OF NUCLEAR POWER
U.S. ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONS ANALYSIS AND FORECASTING
WASH-1004 +. 50 PAGES, TABLES, DECEMBER 1967

THE METHOD ADOPTED FOR FORECASTING THE GROWTH OF NUCLEAR POWER IN THE UNITED STATES THROUGH 1980 IS TO USE DATA ON ELECTRICAL GENERATING CAPACITY, CONVENTIONAL AND NUCLEAR, INSTALLED DURING THE PAST SEVEN YEARS AND PLANNED TO BE INSTALLED DURING THE NEXT SEVEN AS A BASIS FOR EXTRAPOLATING FOR A FURTHER SEVEN YEARS. THE TOTAL CAPACITY OF NUCLEAR POWER PLANTS INSTALLED THROUGH 1980 WOULD BE 145,000 MW(E). ADDITIONAL U.S. FORECAST MAY BE CALCULATED AS MW(E) EQUALS 33,000 + 12,500 T-SQUARED, WHERE T IS THE TIME IN YEARS AFTER 1973. THIS EXTRAPOLATES TO 735,000 MW(E) BY THE YEAR 2000. THE FREE-WORLD FOREIGN FORECAST MAY BE CALCULATED BY 10,000 + 4000 T + 1000 T-SQUARED. FOREIGN CAPACITY WOULD EXCEED U.S. CAPACITY IN 1993.

AVAILABILITY - U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C., $0.25 COPY

*ELECTRIC POWER, GENERAL + *FORECAST + *REACTOR, POWER + *URANIUM + *USAEC

1-26405
GUIDE TO THE COSTING OF WATER FROM NUCLEAR DESALINATION PLANTS. TECHNICAL REPORTS SERIES NO. 80
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA
STI/DOC-10/80 +. 84 PAGES, REFERENCES, 1967

IT WAS DECIDED THAT THE MOST USEFUL WAY OF PRESENTING THE COST OF WATER OVER A VERY WIDE RANGE OF DIFFERENT CONDITIONS WOULD BE TO PRESENT SECTIONALIZED DATA FROM WHICH THE POTENTIAL USER COULD BUILD UP THE COST OF POWER AND WATER FOR HIS OWN PARTICULAR CASE. THE DATA ARE THEREFORE IN THE FORM OF A SERIES OF INDIVIDUAL COST AND PERFORMANCE CURVES. THE HIGH-PRESSURE STEAM LEAVING THE NUCLEAR OR STEAM-RAISING ISLAND HAS BEEN TREATED AS ONE SECTION WITH COSTS BEING PRESENTED FOR LIGHT-WATER, GAS-COOLED, AND FAST BREEDER REACTOR SYSTEMS, TOGETHER WITH THE COST OF STEAM FROM FOSSIL-FUELED BOILERS FOR COMPARISON PURPOSES. WITH THESE COSTS AVAILABLE, THE COST OF ELECTRICAL POWER GENERATED CAN BE ESTIMATED FROM THE FURTHER DATA PRESENTED AS CAN THE COST OF LOW-PRESSURE STEAM EXHAUSTING TO THE HEAT INPUT SECTION OF THE DISTILLATION PLANT.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, $2.00 COPY

*DESALINATION + *ECONOMIC STUDY + *WATER, GENERAL + REACTOR, DESALINATION + STEAM

1-26406
KELLY JC
GOOD BREEDING - HOW WILL FUTURE POWER NEEDS BE PROVIDED
WESTINGHOUSE ELECTRIC CORPORATION
6 PAGES, 10 FIGURES, IEEE TRANS. ON INDUSTRY AND GENERAL APPLICATIONS IGA-3(6), PAGES 476-81 (NOV.-DEC. 1967)

THE NUCLEAR POWER SYSTEM IN USE IN THE 1980S AND BEYOND CERTAINLY WILL INCLUDE THE HIGH-GAIN FBR. WITH THE SUCCESSFUL APPLICATION OF THE LMFBR, FUEL-CYCLE COSTS OF ALL SYSTEMS WILL BECOME STABILIZED AND PREDICTABLE. THE DEVELOPMENT TIME REQUIRED TO BRING A COMMERCIAL LMFBR INTO BEING IS ESTIMATED AT 12 TO 20 YEARS, DEPENDING ON THE APPROACH AND LEVEL OF RISK ACCEPTED. THE PRESENT LARGE-SCALE AEC PROGRAM APPEARS TO BE BASED UPON THE INTRODUCTION OF THE COMMERCIAL LMFBR IN THE 1980S. THE DEVELOPMENT OF THE LMFBR WILL NOT TRULY BE UNDERWAY UNTIL THERE IS A UTILITY COMMITMENT TO PLANT CONSTRUCTION COMPARABLE TO THAT UNDERTAKEN BY THE UTILITIES ON LWRS IN THE LATE 1950S.

*REACTOR, LMFBR + FORECAST + REACTOR, BREEDER + REACTOR, FAST + REACTOR, POWER

CATEGORY 1
GENERAL SAFETY CRITERIA

1-26447 ALSO IN CATEGORIES 17 AND 13
DETAILED REPLY TO COMPLIANCE LETTER OF APRIL 1, 1968
U.S. RADIUM CORPORATION, MORRISTOWN, NEW JERSEY
8 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 19-26 (JUNE 24, 1968)

(LETTER TO COMPLIANCE, APRIL 30) PROVIDES PLANS FOR NEW FACILITIES FOR OCCUPANCY LATE 68 OR EARLY 69. DISCUSSES EACH OF 7 CITATION ITEMS IN DEPTH AND POINTS OUT GENERAL PROBLEM AREAS CURRENTLY BEING RESOLVED. (1-3) REORGANIZATION AND REASSIGNMENT OF RESPONSIBILITY AND PERSONNEL UPGRADING. (5-6) NEW RADIATION MONITORING AND MEASUREMENT EQUIPMENT. (7-9) OPERATING PROCEDURES HAVE BEEN UPDATED, AND REVIEW COMMITTEE MEETS OFTNER. ***CONTRIBUTING FACTORS WERE ERRONEOUS IDEAS OF ECONOMY, GIVING INADEQUATE AMOUNTS OF EQUIPMENT BROUGHT TO LIGHT BY THE EMERGENCY, A FALSE IDEA THAT THE AMERICIUM CONTAMINATION WAS DUE TO RADIUM (FROM RADIUM EQUIPMENT MOVED IN IN 1949). MOST PROBLEMS WERE TRACED TO COMPLETE DEGREDATION OF TECHNIQUES WHICH HAD TAKEN PLACE OVER PAST YEARS (RATHER THAN TO EQUIPMENT).

*INSPECTION AND COMPLIANCE + AMERICIUM + CONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + INCIDENT, NONREACTOR + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + RADIUM

1-26497 ALSO IN CATEGORIES 17 AND 15
DUNLOP WW
SATISFACTORY OPERATION OF SAN ONOFRE AND HUMBOLDT BAY
CALIFORNIA PUBLIC UTILITIES COMMISSION, SAN FRANCISCO, CALIF. + DIVISION OF COMPLIANCE, WASHINGTON, D. C.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(27), PAGE 17 AND 17, (JULY 1, 1968), DOCKET NO. 50-155 AND 50-206, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER, MAY 1, TO AEC COMPLIANCE, CALIFORNIA) - ARE SAN ONOFRE AND HUMBOLDT BAY COMPLYING WITH RADIATION SAFETY REQUIREMENTS. (REPLY, JUNE 20) - COMPLIANCE IS DETERMINED BY PERIODIC ON-SITE INSPECTION, WITH PARTICULAR ATTENTION TO (1) PERFORMANCE OF PLANT EQUIPMENT, (2) ABNORMAL EVENTS, (3) PLANT ORGANIZATION AND PROCEDURES, (4) PERSONNEL RADIATION EXPOSURES, (5) CONTAMINATION CONTROL, (6) WASTE RELEASE, AND (7) ENVIRONMENTAL MONITORING. ON THE BASIS OF INSPECTIONS TO DATE, WE FIND THESE TWO LICENSEES SATISFACTORILY OPERATING THEIR STATIONS WITHIN AEC REGULATIONS AND LICENSE CONDITIONS.

*INSPECTION AND COMPLIANCE + *STATE PROGRAM + HUMBOLT BAY (BWR) + INCIDENT, GENERAL + MONITORING PROGRAM, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL + REACTOR, BWR + REACTOR, PWR + SAN ONOFRE (PWR)

1-26581 ALSO IN CATEGORY 18
TENTH ANNUAL REPORT, 1965-1966
ATOMIC ENERGY COMMISSION, TOKYO, JAPAN
NP-17017 +. 110 PAGES

PROGRESS REPORT. TOPICS - DEVELOPMENT AND UTILIZATION OF NUCLEAR REACTORS, FUEL DEVELOPMENT, APPLICATION OF RADIATION, GENERAL SAFETY MEASURES, ENVIRONMENTAL RADIOACTIVITY, INTERNATIONAL COOPERATION, AND TRAINING.

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

*JAPAN + *R AND D PROGRAM + FUEL ELEMENT + IRRADIATION TESTING + SAFETY PRINCIPLES AND PHILOSOPHY + STAFFING, TRAINING, QUALIFICATION

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-25174
SEED HB + MARTIN GR
THE SEISMIC COEFFICIENT IN EARTH DAM DESIGN
UNIV. OF CALIFORNIA, BERKELEY, CALIF. + UNIV. OF AUCKLAND, AUCKLAND, NEW ZEALAND
33 PAGES, 19 FIGURES, 1 TABLE, J. SOIL MECHANICS AND FOUNDATIONS DIV., PAGE 25-57, (MAY 1966)

AN ATTEMPT HAS BEEN MADE HEREIN TO EXAMINE THE LIMITATIONS OF METHODS OF EARTHQUAKE-RESISTANT DESIGN OF EMBANKMENTS BASED ON PSEUDO-STATIC ANALYSES AND INCORPORATING A STATIC SEISMIC FORCE DESIGNATED BY A SEISMIC COEFFICIENT. IT HAS BEEN SUGGESTED THAT, FROM CONSIDERATIONS OF SOIL BEHAVIOR UNDER CYCLIC LOADING CONDITIONS AND FOR PURPOSES OF ASSESSING EMBANKMENT DEFORMATIONS RESULTING FROM EARTHQUAKES, THE DEVELOPMENT OF A METHOD TO PREDICT DYNAMIC SEISMIC FORCES AND THEIR VARIATION WITH TIME WOULD PROVIDE A MORE REASONABLE APPROACH FOR DESIGN PURPOSES. A METHOD OF ACCOMPLISHING THIS OBJECTIVE HAS BEEN SUGGESTED AND REPRESENTATION OF THE RESULTS BY AN EQUIVALENT SIMPLIFIED SEISMIC FORCE SERIES HAS BEEN PROPOSED. SOME JUDGMENT IS NECESSARY IN SELECTING DESIGN PARAMETERS FOR ANY PROJECT. HOWEVER, THE TYPE OF RESULTS PRESENTED IN THIS PAPER MIGHT BE CONSIDERED A USEFUL BASIS FOR GUIDING THIS JUDGMENT. FURTHERMORE, IT WOULD SEEM REASONABLE TO CONCLUDE THAT, IN DESIGNATING SEISMIC COEFFICIENTS FOR DESIGN PURPOSES, IT IS IMPORTANT TO DISTINGUISH BETWEEN EMBANKMENTS OF DIFFERENT HEIGHTS AND MATERIAL CHARACTERISTICS AS WELL AS DIFFERENT POSITIONS OF THE POTENTIAL SLIDE MASS WITHIN THE EMBANKMENT SECTION.

*SOIL MECHANICS + DESIGN CRITERIA + EARTH MATERIAL, DYNAMIC PROPERTY + EARTHQUAKE, GENERAL + FOUNDATION ENGINEERING + LURCHING + VIBRATION ANALYSIS

2-25178
GIFFORD FA
THE VIENNA SYMPOSIUM ON CONTAINMENT AND SITING OF NUCLEAR POWER PLANTS
U.S. WEATHER BUREAU
4 PAGES, 1 TABLE, 3 REFERENCES, NUCLEAR SAFETY 9(2), PAGE 103-106, (MARCH 1968)

THE THIRD IN A SERIES OF INTERNATIONAL ATOMIC ENERGY AGENCY SYMPOSIA ON REACTOR SITING WAS HELD IN VIENNA IN THE SPRING OF 1967. FOUR PRINCIPAL TOPICS WERE CONSIDERED - NATIONAL PRACTICES IN REACTOR SITING, REACTOR SITING CONSIDERATIONS, CONTAINMENT, AND RELEASE AND TRANSPORT OF POLLUTANTS.

CONTAINMENT, GENERAL + FISSION PRODUCT RELEASE, GENERAL + IAEA + SITING, GENERAL + SITING, REACTOR

2-25180
THIRIET L
OPTIMAL SIZES AND SITING OF NUCLEAR FUEL REPROCESSING PLANTS
COMMISSARIAT A L-ENERGIE ATOMIQUE, PARIS (FRANCE)
CEA-R-3364 +. 120 PAGES, 4 FIGURES, 6 REFERENCES, SEPT. 1967, (IN FRENCH AND ENGLISH)

ADJUSTING THE CAPACITY OF EXISTING PLANTS TO MEET FUTURE NEEDS IS DIFFICULT, THEREFORE NEW AND LARGER FACILITIES MUST BE BUILT. VERY LARGE PLANTS OFFER AN ECONOMIC ADVANTAGE, BUT LOW INITIAL PLANT-LAND FACTOR MAY CAUSE ECONOMIC LOSSES. A COMPROMISE MUST BE FOUND. THIS PAPER PRESENTS A METHOD OF ECONOMIC ANALYSIS WHICH ATTEMPTS TO SATISFY THIS COMPROMISE.

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

ECONOMIC STUDY + FRANCE + FUEL REPROCESSING + SITING, CHEMICAL PROCESS PLANT + TRANSPORTATION AND HANDLING + URANIUM

2-25201 ALSO IN CATEGORY 17
PETERSON RH
HUMBOLDT BAY EMERGENCY PLAN APPENDIX IV, TESTING FOLLOWING AN EARTHQUAKE
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIF.
LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, 3 PAGES, APRIL 18, 1968, DOCKET NO- 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

PROVIDES THAT SITUATION SHALL BE EVALUATED BY SENIOR SUPERVISORY PERSONNEL AFTER A SEVERE EARTHQUAKE (ONE THAT CAUSES PLANT SHUTDOWN). PROVIDES A SET OF INSPECTIONS FOLLOWING A MODERATE EARTHQUAKE (THAT WHICH IS FELT), AND REQUIRES SHIFT FOREMAN TO NOTIFY SUPERVISION IF ABNORMALITIES ARE FOUND. ENGINEERED SAFETY FEATURES WILL BE CHECKED, AS WELL AS WATER LEVELS AND BUILDING LEAK RATE. IN ADDITION, AFTER A SEVERE EARTHQUAKE, ISOLATION VALVES, POISON-INJECTION VALVES, PROTECTION CHANNELS, AND EMERGENCY-POWER-TRANSFER SCHEME WILL BE TESTED.

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

*EARTHQUAKE + *EMERGENCY PROCEDURE + *TEST, INSTRUMENT RESPONSE + EXAMINATION + HUMBOLT BAY (BWR) + PROCEDURES AND MANUALS + REACTOR, BWR

2-25274

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-25274 *CONTINUED*
BURNHAM JB + FLETCHER JF + TALLMAN RJ + WARCHOL EJ
NUCLEAR SITING SURVEY OF THE PACIFIC NORTHWEST AND ITS IMPACT ON TRANSMISSION PLANNING
PACIFIC NORTHWEST LABORATORIES, BATTELLE MEMORIAL INSTITUTE + BONNEVILLE POWER ADMINISTRATION, U.S. DEPT. OF THE INTERIOR, PORTLAND, OREGON
26 PAGES, 6 FIGURES, 2 TABLES, 11 REFERENCES, APRIL 23, 1968, PRESENTED AT THE 1968 AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 1968

THERE IS AN ABUNDANCE OF EXCELLENT NUCLEAR POWER PLANT SITES IN THE PACIFIC NORTHWEST. MOST HAVE FEW PROBLEMS WITH POPULATION DENSITY, EARTHQUAKES, OR HEAT REJECTION. PROTECTION OF THE MIGRATORY FISH IS A MAJOR CONSIDERATION IN THE PACIFIC NORTHWEST. CAREFUL PLANNING IS ESSENTIAL TO FINDING ECONOMICAL MEANS OF ASSURING ADEQUATE PROTECTION OF THIS RESOURCE. ECONOMIC CHOICE OF POTENTIAL SITES RIDES PRIMARILY ON TRANSMISSION COSTS AND PLANT CAPITAL COSTS. THESE MAY BE INFLUENCED BY CONSTRUCTION LABOR AND SITE DEVELOPMENT COSTS. THE LARGEST FACTOR WILL BE COOLANT SYSTEM.

AVAILABILITY - J. B. BURNHAM, PACIFIC NORTHWEST LABORATORIES, RICHLAND, WASHINGTON + R. J. TALLMAN, BONNEVILLE POWER ADMINISTRATION, U.S. DEPT. OF THE INTERIOR, PORTLAND, OREGON

*SITING, REACTOR + *UNITED STATES + ECONOMIC STUDY + RIVER, COLUMBIA

2-25401 ALSO IN CATEGORY 18
SUPPLEMENT 10 TO FORT CALHOUN UNIT 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
OMAHA PUBLIC POWER DISTRICT
26 PAGES, 2 FIGURES, NOV. 10, 1967, DOCKET NO. 50-285, TYPE--PWR, MFG--C.E., AE--GIBBS + HILL

REVISES ANSWERS 11 AND 12 TO DRL QUESTIONS OF JUNE 14, 1967. ALSO REVISES ANSWERS 1.4 AND 13.3 TO DRL QUESTIONS OF JULY 20, 1967. ANSWERS APPEARED IN SUPPLEMENTS 2, 3, AND 8.

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

*EARTHQUAKE ENGINEERING + AEC QUESTION + FT. CALHOUN (PWR) + REACTOR, PWR + REPORT, PSAR

2-25583 ALSO IN CATEGORIES 12 AND 11
WADE GE
ESADA-GE SAFETY DEVELOPMENT PROGRAM
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
15 PAGES, 10 FIGURES, APRIL 15, 1968, PAPER PRESENTED FOR AMERICAN INSTITUTE OF CHEMICAL ENGINEERING IN THE REACTOR SAFETY PROGRAM, TAMPA, FLORIDA, MAY 21, 1968

EMPIRE STATE ATOMIC DEVELOPMENT ASSOCIATES, INC. (ESADA) AND THE ATOMIC POWER EQUIPMENT DEPARTMENT OF GENERAL ELECTRIC COMPANY ARE STUDYING SOME OF THE CONSIDERATIONS THAT MAY BE IMPORTANT FOR METROPOLITAN SITING OF NUCLEAR REACTORS. THE GENERAL OBJECTIVES OF THIS PROGRAM ARE - TO DEVELOP A BETTER UNDERSTANDING OF POSTULATED ACCIDENTS, TO DEMONSTRATE THE PERFORMANCE AND RELIABILITY OF ENGINEERED SAFEGUARDS, AND TO IMPROVE PUBLIC ACCEPTANCE OF NUCLEAR POWER PLANTS.

AVAILABILITY - G. E. WADE, PROJECT ENGINEER, GENERAL ELECTRIC COMPANY, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA 95123

*CONTAINMENT SPRAY + *CORE SPRAY + *SITING, REACTOR + *TESTING + ACCIDENT, HYPOTHETICAL + EMERGENCY COOLING CONSIDERATIONS + ENGINEERED SAFETY FEATURE + EXCURSION, LARGE + FISSION PRODUCT RELEASE, GENERAL + SPRAY, GENERAL

2-25616 ALSO IN CATEGORY 18
VERMONT YANKEE ASKS EASING OF THERMAL EFFECTS ORDER
3 PAGES, TABLE, NUCLEAR INDUSTRY, 15(5), PAGES 24-26 (MAY 1968)

AT THE MAY 2 VERMONT WATER RESOURCES BOARD HEARING, VERMONT YANKEE GAVE AN EBASCO SERVICES REPORT INDICATING THAT THE APRIL 5 ORDER (75 F UPPER TEMP. LIMIT, WITH TEMP. INCREASE OF 1 DEG AT 74 F AND A MAX. OF 9 F AT 35 F) WILL INCREASE POWER COST. VY ASKED FOR A FLAT 4 F INCREASE, AND AN INCREASE RATE OF 1-5 F/HR, AS OTHERWISE THE OPERATING COST WOULD BE INCREASED 10% AND THE FLEXIBLE COOLING-TOWER-SYSTEM ADVANTAGES NEGATED.

*REGULATION, STATE + *THERMAL POLLUTION + COOLING TOWER + ECONOMICS + OPERATION + REACTOR, BWR + VERMONT YANKEE (BWR)

2-25659 ALSO IN CATEGORY 18
HATCH PSAR VOLUME III
GEORGIA POWER COMPANY
200 PAGES, TABLES, FIGURES, REFERENCES FROM EDWIN I. HATCH NUCLEAR PLANT, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, MAY 1968, DOCKET 50-321

CONTAINS APPENDIX A(GEOTECHNICAL STUDIES) - (A1) HYDROLOGY, (A2) GEOLOGY AND SEISMOLOGY, (A3) FOUNDATIONS. ***MAXIMUM POTENTIAL EARTHQUAKE WOULD BE A RECURRENCE OF THE 1886 CHARLESTON INTENSITY-IX QUAKE, AND AT THE CLOSEST APPROACH OF THE COASTAL BELT ZONE (50 MILES).

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-25659 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, $3.00 COPY, $0.65 MICROFICHE

*EARTHQUAKE ENGINEERING + *FOUNDATION ENGINEERING + *HYDROLOGICAL CONSIDERATION, GENERAL + HATCH (BWR) + REACTOR, BWR + REPORT, PSAR

2-25829 ALSO IN CATEGORY 17
N.S. SAVANNAH, PORT OPERATING PLANT, PORT OF PIRAEUS, PIRAEUS, GREECE, FEBRUARY 1966
FIRST ATOMIC SHIP TRANSPORT INC.
FAST 131(REV.) +. 26 PAGES, 1 FIGURE, 2 TABLES, APRIL 1968

OUTLINES ARRIVAL PRECAUTIONS (TWO TUGS FOR ESCORT), CONTROLLED (APPROXIMATELY 600 FT) AND LOW-POPULATION (APPROXIMATELY 1020 FT) ZONES. TOTAL POPULATION DOSE FOR 24 HR WOULD BE 541,600 MAN-REMS.

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

*SITING, REACTOR + GREECE + NS SAVANNAH (PWR) + REACTOR, MARITIME + TECHNICAL SPECIFICATIONS

2-25887 ALSO IN CATEGORY 18
BELL STATION PSAR VOLUME III
NEW YORK STATE ELECTRIC AND GAS CORPORATION
250 PAGES, FIGURES, TABLES, REFERENCES, DOCKET 50-319, MARCH 1968

APPENDIXES INCLUDE - (A) SEISMIC DESIGN CRITERIA, 81 PAGES. (B) REACTOR CORE THERMAL DESIGN, 10 PAGES. LOAD-TRIP SCRAM PROVIDED BECAUSE TURBINE BYPASS CAPABILITY IS ONLY 2.5%. (C) CONTROL-ROD-DRIVE DESCRIPTION. (D) JET-PUMP DEVELOPMENT. (E) CORE-SPRAY COOLING TEST PROGRAM. (F) TECHNICAL-SPECIFICATION OUTLINE. (G) COMPARATIVE EVALUATION WITH 70 AEC GENERAL DESIGN CRITERIA, USUALLY A LISTING OF APPROPRIATE PSAR SECTIONS.

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

*ACCIDENT, LOAD REJECTION + *AEC DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + BELL (BWR) + REACTOR, BWR + REPORT, PSAR

2-25938 ALSO IN CATEGORY 18
COMMENTS ON SURRY STATION
VIRGINIA ELECTRIC AND POWER COMPANY + DIVISION OF REACTOR LICENSING, USAEC
2 PAGES, MAY 21, 1968, LETTER TO P. A. MORRIS FROM R. R. GARVEY, JR., DOCKET 50-280/281, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

IN A REPLY TO LETTER FROM DIRECTOR OF REGULATION APRIL 17, 1968, COUNCIL CONCLUDED THAT THE PROBABLE EFFECT OF SURRY STATION ON THE COLONIAL NATIONAL HISTORICAL PARK CANNOT BE JUDGED TO BE SUFFICIENTLY ADVERSE TO WARRANT COUNCIL COMMENT.

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

REACTOR, PWR + SITING, REACTOR + SURRY 1 AND 2 (PWR)

2-26056 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON NO LOSS OF FUNCTION CRITERIA FOR CLASS I CONCRETE STRUCTURES
BOSTON EDISON COMPANY
6 PAGES, 3 REFERENCES, PAGE, OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

MAXIMUM PERMISSIBLE CALCULATED CONCRETE COMPRESSION IS LIMITED TO 0.85 F-SUB-C-PRIME (CONCRETE COMPRESSIVE STRENGTH). MAXIMUM PERMISSIBLE CALCULATED MAIN REINFORCING STEEL TENSION IS LIMITED TO 0.9 F-SUB-Y (NOMINAL YIELD STRENGTH). CALCULATED DEFORMATION IS LIMITED TO 0.5 MAXIMUM PERMISSIBLE, OR CALCULATED ENERGY ABSORBTION CAPABILITY IS AT LEAST TWICE CALCULATED ENERGY INPUT.

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

*DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + *REPORT, PSAR + BUILDING + PILGRIM (BWR) + REACTOR, BWR + STRUCTURAL INTEGRITY

2-26057 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON NO LOSS OF FUNCTION CRITERIA FOR CLASS I DUCTILE METALLIC EQUIPMENT AND STRUCTURES
BOSTON EDISON COMPANY
2 PAGES, PAGES 2-1 THRU 2-2 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-26057 *CONTINUED*
CALCULATED VALUES OF DEFORMATION ARE LIMITED TO 0.8 TIMES MAXIMUM PERMISSIBLE DEFORMATION.

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

*DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + BUILDING + ENGINEERED SAFETY FEATURE + EQUIPMENT DESIGN + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + STRUCTURAL INTEGRITY

2-26058 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON SEISMIC ANALYSIS
BOSTON EDISON COMPANY
2 PAGES, PAGES 3-1 THRU 3-2 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

MATHEMATICAL MODEL LUMPED WEIGHTS OF BUILDING AND MAJOR INTERNAL ELEMENTS AT EACH FLOOR. ROCKING WAS BY SPRINGS REPRESENTING SOIL STIFFNESS. NATURAL FREQUENCIES AND MODE SHAPES WERE DETERMINED BY TRIDIAGONALIZATION BY SUCCESSIVE ROTATIONS. TIME HISTORY OF TAFT EARTHQUAKE (JULY 21, 1952) WAS USED, WITH AMPLITUDE SCALED TO 0.08 AND 0.15 G GROUND ACCELERATION FOR DESIGN AND MAXIMUM EARTHQUAKES. SPECTRUM PLOT OF RESPONSE OF SINGLE-MASS SYSTEM WAS MADE FOR EACH FLOOR FOR RANGE OF NATURAL FREQUENCIES FROM 0.1 TO 30 CPS. MAXIMUM RESPONSE, AS ACCELERATION, WAS THEN PLOTTED FOR EACH FREQUENCY.

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

*BUILDING + *EARTHQUAKE ENGINEERING + *STRUCTURAL ANALYSIS, DYNAMIC + COMPUTER PROGRAM + EARTHQUAKE + FREQUENCY SPECTRA + GROUND MOTION + MATHEMATICAL TREATMENT + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + STRUCTURAL INTEGRITY

2-26059 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON DAMPING VALUES
BOSTON EDISON COMPANY
1 PAGE, PAGE 4-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

BECAUSE EXAMINATION OF FIRST STRUCTURAL MODE OF VIBRATION SHOWS STRUCTURE ACTING IN COMBINATION OF ROCKING AND BENDING, COMPOSITE DAMPING VALUES OF 5 AND 7.5% WERE USED IN ANALYSES OF REACTOR BUILDING FOR DESIGN AND MAXIMUM EARTHQUAKE, RESPECTIVELY. VALUE OF 2% WILL BE USED FOR INTERNAL CONCRETE STRUCTURES. VALUES FOR PIPING AND EQUIPMENT ARE LISTED IN TABLE XII-2-1 OF DAR. SEE ALSO COMMENT 20, AMENDMENT 5.

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

*DAMPING + *EARTHQUAKE ENGINEERING + *STRUCTURAL ANALYSIS, DYNAMIC + BUILDING + GROUND MOTION + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + SOIL, PROPERTY + VIBRATION

2-26060 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON CLASS I PIPING
BOSTON EDISON COMPANY
1 PAGE, PAGE 5-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

STRESSES IN CLASS-I PIPING (OTHER THAN ECCS PIPING DISCUSSED IN REPLY TO COMMENT 3.4.1, AMENDMENT 4 TO DAR) WILL BE COMBINED IN ACCORDANCE WITH POWER-PIPING CODE USAS B31.1.0 - 1967 AND WILL INCLUDE (1) DESIGN PRESSURES AND TEMPERATURES, (2) THERMAL EXPANSION, (3) DESIGN EARTHQUAKE, (4) DEAD AND LIVE LOADS. TOTAL PRIMARY STRESS LEVEL DURING MAXIMUM EARTHQUAKE WILL BE LESS THAN YIELD STRESS AT OPERATING TEMPERATURE. THIS LOADING CONDITION WILL INCLUDE NORMAL OPERATING CONDITIONS LISTED ABOVE.

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

*PIPING + *STRESS ANALYSIS + CODES AND STANDARDS + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + PILGRIM (BWR) + PRESSURE, INTERNAL + REACTOR, BWR + REPORT, PSAR + THERMAL MECHANICAL EFFECT

2-26066 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON MAIL CONTROL PANELS
BOSTON EDISON COMPANY
1 PAGE, PAGE 6-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

AS STRUCTURAL DESIGN PROGRESSES, RESPONSE SPECTRUM FOR DESIGN AND MAXIMUM EARTHQUAKE WILL BE PREPARED FOR MAIN-CONTROL-ROOM FLOOR. (TENTATIVE VALUE BASED ON PRELIMINARY DESIGN IS 0.32 G FOR MAXIMUM EARTHQUAKE.) EACH TYPE OF PROTECTIVE-SYSTEM INSTRUMENT AND ITS SUPPORTING PANEL OR CABINET WILL BE ANALYZED, TESTED, OR INVESTIGATED TO CONFIRM THAT IT WILL WITHSTAND INTERACTION EFFECTS RESULTING FROM MAIN-CONTROL-ROOM-FLOOR ACCELERATION WITHOUT LOSS OF

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-26066 *CONTINUED*
FUNCTION. INTERACTION EFFECTS COULD BE DETERMINED BY DYNAMIC RESPONSE OF SUPPORTING CONTROL PANEL OR CABINET, BY STATIC ANALYSIS, OR BY TEST.

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

*CONTROL PANEL/ROOM + *EARTHQUAKE ENGINEERING + *INSTRUMENTATION, PROTECTIVE + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + RESPONSE SPECTRUM + STRUCTURAL ANALYSIS, DYNAMIC

2-26499 ALSO IN CATEGORY 18
SIERRA CLUB RECONSIDERS DIABLO CANYON SITE
PACIFIC GAS + ELECTRIC CO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 16 AND 17, (JULY 8, 1968), DOCKET NO. 50-275, TYPE--PWR, MFG--WEST., AE--PG+E

(LETTER, JUNE 22) REVISION OF CLUBS ACTION WILL HAVE PRIORITY ON THE NEXT BOARD MEETING. OUR STUDIES INDICATE THAT ADVERSE MARINE EFFECTS ARE INEVITABLE. CONSTRUCTION PROGRESS INDICATES THAT MAJOR SCENIC-RESOURCE IMPAIRMENT IS ALSO INEVITABLE. WE PROPOSE THAT PG AND E DEFER FURTHER SITE ACTIVITY WHILE RECONSIDERING. WE ALSO REQUEST PERMISSION TO GO ON THE SITE FOR PHOTOGRAPHS AND FOR OUR NUCLEAR ENGINEER (LAURENCE MOSS) TO CONTINUE REVIEWING ECONOMIC AND ENGINEERING DATA. NO UTILITY HAS PLANNED MORE DYNAMICALLY THAN PG AND E FOR POPULATION GROWTH, AND WITH GENIUS, BUT WE BELIEVE IT IS WORTH PAYING EXTRA TO KEEP CALIFORNIA BEAUTIFUL AND LIVABLE.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + *SITING, REACTOR + DIABLO CANYON (PWR) + REACTOR, PWR

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-26443 ALSO IN CATEGORY 17
CORRESPONDENCE ON LICENSE REQUIREMENTS FOR POSSESORS OF SHIPPING CONTAINER
LONG ISLAND NUCLEAR SERVICE CORP. + DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 15 AND 16 (JUNE 24, 1968)

(LINS LETTER TO COMPLIANCE, APRIL 1) INDICATES THAT X CORP. RETAINS AND MAY BE USING WITHOUT LICENSE A SHIPPING CONTAINER OWNED AND LICENSED BY LINS CO. ASKS FOR INVESTIGATION OF ICC REGULATION VIOLATION. (COMPLIANCE REPLY MAY 9, COPY TO DEPT. OF TRANSPORTATION). LICENSEE OWNERSHIP OF EQUIPMENT IN WHICH LICENSED MATERIAL IS PLACED IS NOT A LICENSING REQUIREMENT. SUGGESTS LINS NOTIFY DEPT. OF TRANSPORTATION. (LINS REPLY, MAY 18). - AEC IS AVOIDING ISSUE. IN A SIMILAR SITUATION YEARS AGO, AEC POSITION IN WRITING WAS THAT CARRIER DOES NOT HAVE PROPER LICENSING. SHOULD NOT AEC NOTIFY ICC OF VIOLATIONS.

*SHIPPING CONTAINER + *TRANSPORTATION AND HANDLING + INSPECTION AND COMPLIANCE + REGULATION, ICC

3-26445 ALSO IN CATEGORIES 17 AND 15
STATE OF MASSACHUSETTS INQUIRY ON LEAKING SHIPPING CONTAINER IN BOSTON
DIVISION OF COMPLIANCE + STATE OF MASSACHUSETTS
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 16 AND 17 (JUNE 24, 1968)

(LETTER FROM MASS. GOVERNOR, MARCH 68) - COOPERATIVE EFFORTS OF FEDERAL, STATE, AND LOCAL OFFICIALS AVERTED ANY SERIOUS DANGER IN GREATER BOSTON AREA FROM LEAKING SHIPPING CONTAINER. REQUEST AEC REVIEW SHIPPING-CONTAINER DESIGN AND INSTRUCTIONS FOR HANDLING IN TRANSIT. (APRIL 16 REPLY FROM G.T. SEABORG) - ENCLOSES COMPLIANCE INVESTIGATION REPORT SUMMARY. DEPT. OF TRANSPORTATION SUSPENDED THE CASK PERMIT. AEC AND FEDERAL AGENCIES HAVE DEVELOPED IMPROVED STANDARDS AND REQUIREMENTS (10 CFR 71, AUG. 66). IN 20 YEARS, MANY HUNDRED THOUSAND SHIPMENTS HAVE BEEN MADE WITH AN OUTSTANDING RECORD OF SAFETY.

*ACCIDENT, TRANSPORTATION + *CASK OPERATING EXPERIENCE + *RADIOISOTOPE + INCIDENT, NONREACTOR + INSPECTION AND COMPLIANCE + RADIOLOGICAL ASSISTANCE + REGULATION, AEC + SHIPPING CONTAINER

3-26446 ALSO IN CATEGORIES 17 AND 15
SUMMARY OF INVESTIGATION BY DIVISION OF COMPLIANCE OF AN INCIDENT INVOLVING THE SPREAD OF CONTAMINATION IN THE BOSTON MASS. AREA
DIVISION OF COMPLIANCE, AEC
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 17 AND 18 (JUNE 24, 1968)

16 QUARTZ AMPOULES (CONTAINING 4 CURIES OF I-131, CS-134, RB-86, AND S-35) WERE SHIPPED IN A CONTAINER FROM GETR ON FEBRUARY 31, 1968, AND DELIVERED TO NENC IN BOSTON FEBRUARY 26. CONTAMINATION AND WATER DRIPPING FROM CASK DRAIN PLUG WERE FOUND. APPARENTLY WATER IN THE CASK FROZE AND CRUSHED THE SAMPLES, AFTER BEING LOADED ON D AND J TRUCK FEBRUARY 24 AND PARKED OUTDOORS. ***A RESIDENCE WAS CONTAMINATED 20 MRADS/HR. A SHOE COMPANY WAS CONTAMINATED TO 50 MRADS/HR. FEATURE ARTICLE APPEARED IN MARCH 3 BOSTON HERALD TRAVELER.

*ACCIDENT ANALYSIS + *ACCIDENT, TRANSPORTATION + *FAILURE, OPERATOR ERROR + *INSPECTION AND COMPLIANCE + CASK OPERATING EXPERIENCE + GETR (TR) + INCIDENT, HUMAN ERROR + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + RADIOISOTOPE + RADIOLOGICAL ASSISTANCE + REACTOR, RESEARCH + SHIPPING CONTAINER + TRANSPORTATION AND HANDLING

CATEGORY 4
AEROSPACE SAFETY

4-25176
GREGSON W
STUDY OF THE CHEMICAL INTEGRITY OF RADIOISOTOPE CONTAINMENT MATERIALS IN LAUNCH ABORT ENVIRONMENTS
TRW SYSTEMS, REDONDO BEACH, CALIF.
SC-CR-67-2830 +. 111 PAGES, 45 FIGURES, 5 TABLES, DEC. 1967

THREE REPRESENTATIVE RADIOISOTOPE CONTAINMENT MATERIALS (316 STAINLESS STEEL, HAYNES 25, AND TANTALUM) WERE TESTED IN CONTROLLED FLAME ENVIRONMENTS ALONG WITH OTHER MATERIALS (ALUMINUM, MAGNESIUM, GRAPHITE) TO DETERMINE THE DEGREE OF HAZARD TO BE EXPECTED FROM THE HOSTILE ENVIRONMENT FROM AN ON-PAD ABORT. QUALITATIVE AND QUANTITATIVE RESULTS ARE PRESENTED AND INCLUDE GROSS DAMAGE TO THE MATERIALS AND METALLURGICAL DEGRADATION FROM CHEMICAL INTERACTION.

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

*AEROSPACE SAFETY + *STEEL, STAINLESS + *TANTALUM + ALLOY + ALUMINUM + CHEMICAL REACTION + GRAPHITE + MAGNESIUM + TEST, COMPONENT + TEST, DESTRUCTIVE

4-25210 ALSO IN CATEGORY 9
SHEN CN + LIU TC
DISTRIBUTED PARAMETER TYPE OF CONTROL FOR A BILINEAR SYSTEM WITH REFERENCE TO CONTROL OF A NUCLEAR REACTOR
RENSSELAER POLYTECHNICA INSTITUTE, TROY, NEW YORK
10 PAGES, 2 FIGURES, 16 REFERENCES, PAGES 26B.1 THRU 26B.10 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

A BILINEAR SYSTEM OCCURS IN CONTROLLING PHYSICAL PROCESSES SUCH AS A NUCLEAR REACTOR. ATTEMPTS ARE MADE TO CONTROL THE BILINEAR SYSTEM IN BOTH THE TIME AND SPACE DOMAINS. TWO CONSECUTIVE OPTIMIZATION PROCEDURES ARE APPLIED FOR ACHIEVING THIS. THE BANG-BANG CONTROL IS USED FOR SELECTING THE REFERENCE VARIABLES. THE OPTIMUM FEEDBACK CONTROL IS EMPLOYED TO ADJUST THE SYSTEM TO APPROXIMATELY FOLLOW THE REFERENCE VARIABLES UNDER ARBITRARY STARTING CONDITIONS AND DISTURBANCES.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, CONTROL + MATHEMATICAL TREATMENT + NUCLEAR ROCKET + REACTOR, SPACE + SPACE DEPENDENT DYNAMICS + THEORETICAL INVESTIGATION

4-26477 ALSO IN CATEGORY 15
COLEMAN JR + PEREZ LJ
RADIOLOGICAL SAFETY STUDIES OF SPACE NUCLEAR SYSTEMS. FOURTH QUARTERLY AND FINAL REPORT
NUS CORP., WASHINGTON, D. C.
SC-CR-67-2729 +. 270 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1967

DESCRIBES PROGRESS ON THE DEVELOPMENT AND APPLICATION OF DOSE MODELS FOR REENTRY OF RADIOISOTOPE FUELED SPACE POWER UNITS.

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

*AEROSPACE SAFETY + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *RADIATION MODEL + DOSE + ENVIRONMENTAL CONDITION + INGESTION + INHALATION + REACTOR, SPACE + SNAP, GENERAL (SR)

4-26804
ILLING RG
QUARTERLY REPORT JANUARY 1-MARCH 31, 1968. SAND LABORATORIES AEROSPACE NUCLEAR SAFETY PROGRAM
SANDIA LABORATORIES, AEROSPACE NUCLEAR SAFETY DEPT., ALBUQUERQUE, NEW MEXICO AND LIVERMORE, CALIFORNIA
SC-PR-68-212 +. 57 PAGES, 15 FIGURES, 15 TABLES, APRIL, 1968

DESCRIBES RESEARCH, DEVELOPMENT, SUPPORT, AND TEST ACTIVITIES IN THE SANDIA LABORATORY AEROSPACE NUCLEAR SAFETY PROGRAM FROM JANUARY 1 TO MARCH 31, 1968.

*AEROSPACE SAFETY + ACCIDENT MODEL + DOSE + DOSE CALCULATION, INTERNAL + FALLOUT + FISSION GAS RELEASE + GRAPHITE + PARTICLE SIZE DISTRIBUTION + TESTING

CATEGORY 5
ACCIDENT ANALYSIS

5-25179 ALSO IN CATEGORY 8
IVINS RO + TEVEBAUGH AD + BINGLE JD
REACTOR SAFETY
ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
ANL-7375 +. 189 PAGES, FIGURES, TABLES, REFERENCES, OCT. 1967, ARGONNE NATIONAL LABORATORY. CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1967

THE ANL REACTOR SAFETY PROGRAM IS NOW CONCENTRATED TO (1) STUDIES RELATING TO THERMAL (WATER-COOLED) REACTORS, AND (2) STUDIES RELATING TO FAST (SODIUM-COOLED) REACTORS. ITEM-1 EFFORTS ARE DIRECTED TO ANALYTICAL STUDIES CONSIDERING THE METAL-WATER REACTION, CORE HEATUP, AND FUEL FAILURE IN LOSS-OF-COOLANT AND NUCLEAR EXCURSION ACCIDENTS, AND TO EXPERIMENTAL STUDIES CONSIDERING THE MELTDOWN AND COOLING OF ZIRCALOY-2 CLAD UO2 FUEL RODS UNDER LOSS-OF-COOLANT AND NUCLEAR EXCURSION ACCIDENT CONDITIONS. ITEM-2 EFFORTS ARE DIRECTED TO STUDIES OF THE HIGH-TEMPERATURE PHYSICAL AND TRANSPORT PROPERTIES OF FAST-REACTOR FUEL MATERIALS, ENERGY TRANSFER FROM HIGH TEMPERATURE FUEL MATERIALS TO LIQUID SODIUM, AND SODIUM-AIR REACTION.

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

*ACCIDENT, LOSS OF COOLANT + *ACCIDENT, REACTIVITY + *ANALYTICAL MODEL + *CHEMICAL REACTION + *FUEL MELTDOWN + *HEAT TRANSFER EXPERIMENT + *PROPERTY, PHYSICAL + *SODIUM + *URANIUM DIOXIDE + *ZIRCALOY + ACCIDENT MODEL + AIR + ANL + COMPUTER PROGRAM + CORE SPRAY + EMERGENCY COOLING CONSIDERATIONS + HEAT TRANSFER ANALYSIS + HEAT TRANSFER, BOILING + IN PILE EXPERIMENT + OXIDATION + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + STEAM + TREAT (PRR)

5-25190 ALSO IN CATEGORIES 18 AND 11
ZION 1 AND 2 AMENDMENT 7
COMMONWEALTH EDISON CO.
59 PAGES, FIGURES, TABLES, APRIL 17, 1968, DOCKET NO. 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + CUNDY

CONSISTS OF REVISED PSAR PAGES (RELATED TO CONTAINMENT SPRAY AND ADDITIVES FOR IODINE REMOVAL, AND TO CORE-MELTDOWN ANALYSIS) AND 9 ANSWERS TO QUESTIONS ASKED AT AN APRIL 5, 1968, MEETING WITH DRL.

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

*ADDITIVE + *CONTAINMENT SPRAY + *CORE MELTDOWN + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + ZION 1 AND 2 (PWR)

5-25225
WALLIS GB + COLLIER JG
TWO PHASE FLOW AND HEAT TRANSFER, VOL. I, II, III, AND IV
DARTMOUTH COLLEGE + ATOMIC POWER CONSTRUCTIONS
1394 PAGES, FIGURES, TABLES, REFERENCES, 1967, NOTES FOR SUMMER COURSE JULY 24 - AUGUST 4, 1967, STANFORD UNIVERSITY, STANFORD, CALIFORNIA

THIS IS A COMPREHENSIVE 1394-PAGE SUMMARY OF THE FIELD OF TWO-PHASE FLOW AND HEAT TRANSFER, USED AS NOTES FOR A SUMMER COURSE AT STANFORD UNIVERSITY. ONE PURPOSE OF THE TEXT IS TO SHOW HOW BASIC TECHNIQUES CAN BE APPLIED TO A VARIETY OF PRACTICAL PROBLEMS. CHAPTER HEADINGS INCLUDE - INTRODUCTION TO NATURAL AND FORCED CONVECTIVE BOILING, BASIC LAWS AND GENERAL EQUATIONS, EMPIRICAL TREATMENTS FOR APPLICATION TO ENGINEERING DESIGN, ONE DIMENSIONAL WAVES IN TWO-COMPONENT FLOW, SUSPENSIONS OF PARTICLES IN FLUIDS, BUBBLY FLOW, SLUG FLOW, ANNULAR AND STRATIFIED FLOW, TWO-PHASE-FLOW MEASURING TECHNIQUES, THERMAL STABILITY, CONDENSATIONS, FLASHING AND CRITICAL FLOW, STABILITY, AND TRANSIENT RESPONSES.

AVAILABILITY - G. B. WALLIS, ASSOCIATE PROFESSOR, THAYER SCHOOL OF ENGINEERING, DARTMOUTH COLLEGE, HANOVER, N. H.

*ONB + *FLOW, TWO PHASE + *HEAT FLUX, CRITICAL + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONDENSATION + *HEAT TRANSFER, TWO PHASE + HEAT TRANSFER

5-25255 ALSO IN CATEGORY 17
GROSSMANN SR + GOTTSCHALK VB
SAFETY ANALYSIS REPORT FOR FRAN PROMPT BURST MACHINE
PHILLIPS PETROLEUM COMPANY
IDO-17231(ADDENDUM) +. 15 PAGES, 3 FIGURES, 2 TABLES, FEB. 1968

CONTAINS OPERATING PROCEDURES AND RESULTS OF STUDY ON ERRORS NEEDED TO PRODUCE BURST EXCEEDING LIMIT OF 5.6 X 10(16TH). FLOWSHEET SHOWS WHERE ERRORS COULD OCCUR AND HOW DETECTED. CALCULATIONS AND RESULTS GIVEN SHOWING SENSITIVITY OF BURST YIELD AND RADIATION DOSES TO REACTIVITY INSERTIONS. FOR REACTIVITY INSERTION ABOVE PROMPT CRITICAL OF 0.80$, YIELD IS 7 X 10(18TH), CLOUD GAMMA DOSE IS 45 MILLIREMS, AND THYROID DOSE IS 200 MILLIREMS AT 10,000 METERS FROM REACTOR.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-25255 *CONTINUED*
22151, $3.00 COPY, $0.65 MICROFICHE

*ACCIDENT, REACTIVITY + *FAILURE MODE ANALYSIS + ACCIDENT ANALYSIS + DOSE + NRTS + OFF SITE + REACTIVITY EFFECT, ANOMALOUS + REACTOR, FAST BURST + REPORT, SAR

5-25256 ALSO IN CATEGORY 18
GROSSMANN SR + GOTTSCHALK VB
SAFETY ANALYSIS REPORT FOR FRAN PROMPT BURST MACHINE
PHILLIPS PETROLEUM CO.
IDO-17231 +. 92 PAGES, 16 FIGURES, 4 TABLES, 23 REFERENCES, SEPT. 1967

ANALYSIS CONSIDERS CHANGES IN OPERATING CHARACTERISTICS DUE TO DIFFERENCES IN SITE PROPERTIES AND HOUSING. MACHINE PREVIOUSLY OPERATED AT NEVADA TEST SITE. MAXIMUM REFERENCE ACCIDENT IS THAT YIELDING 1.5 X 10(17TH) FISSIONS AT A CENTRAL TEMPERATURE INCREASE OF ABOUT 1100 C FOR A BURST LASTING A MAXIMUM OF 30 MICROSECONDS. DOSE FROM FUEL ASSEMBLY VAPORIZING AND 100% OF FISSION PRODUCTS BEING DISPERSED AT 1000 M IS 3 MREMS FROM CLOUD GAMMA AND 9 REMS FROM INHALATION. DIRECT DOSE AT 100 M IS 0.2 REM GAMMA AND 9 REMSNEUTRON. ACCIDENT TO OCCUR REQUIRES TWO OPERATORS MISCALCULATING AVAILABLE REACTIVITY, SCRAM-CIRCUIT MALFUNCTIONS TO SUPPORT MISCALCULATIONS, AND EXPERIMENT MOVE TO ADD REACTIVITY WHILE CRITICAL PRIOR TO BURST OPERATION.

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

*REPORT, SAR + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES + NRTS + REACTOR DESCRIPTION + REACTOR, FAST BURST

5-25257 ALSO IN CATEGORIES 12 AND 11
DIETZ KA
QUARTERLY TECHNICAL REPORT ENGINEERING AND TEST BRANCH. JULY 1967 - SEPTEMBER 1967
PHILLIPS PETROLEUM COMPANY
IDO-17241 +. 38 PAGES, 25 FIGURES, 15 TABLES, 19 REFERENCES, FEB. 1968

LOFT PROGRAM EXTENDED TO INCLUDE TESTING OF EMERGENCY CORE-COOLING SYSTEMS. STUDIES INDICATE THAT MODIFIED CORE CAN BE ADEQUATELY CONTROLLED WITH OPEN-LATTICE CRUCIFORM RODS. POWER DISTRIBUTIONS AND CRITICAL ROD POSITIONS WERE CALCULATED FOR 100, 400, AND 800 HR OF OPERATION AT 50 MW. I-131 AND -135 RELEASE TO FUEL-ROD PLENUM WERE CALCULATED FOR HOTTEST AND AVERAGE PINS. METHOD DISCUSSED FOR ESTIMATING EFFICIENCY OF A CONTAINMENT SPRAY DROP FOR COLLECTING AIRBORNE MATTER BY IMPACTION AND DIFFUSION. DROP SIZE MOST USEFUL FOR I REMOVAL IS 200 TO 500 MICRONS.

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

ADDITIVE + AEROSOL + CONTAINMENT SPRAY + CORE REFLOODING SYSTEM + CORE SPRAY + DROPLET + FISSION PRODUCT, AIRBORNE + FISSION PRODUCT, IODINE + LOFT (S-RR) + MATHEMATICAL STUDY + MODIFICATION, SYSTEM OR EQUIPMENT + PARTICLE SIZE + POWER DISTRIBUTION + R AND D PROGRAM + REACTOR CONTROL + REACTOR, SAFETY RESEARCH + SCRUBBER + TESTING

5-25258 ALSO IN CATEGORIES 14 AND 17
BINFORD FT + WEBSTER CC
THE LOW INTENSITY TESTING REACTOR--SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1924 +. 79 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1968

GAUSSIAN-PLUME MODEL USED TO ANALYZE CONSEQUENCES OF EXCURSION, POWER INCREASE BEYOND COOLING CAPACITY, LOSS OF COOLANT, FLOW BLOCKAGE, AND EXPERIMENT FAILURES. MAXIMUM HYPOTHETICAL ACCIDENT IS CATASTROPHIC FAILURE OF REACTOR VESSEL WITH RAPID LOSS OF COOLING WATER. SOME MELTING POSSIBLE, BUT EXPERIMENTAL DATA INDICATES CLAD TEMPERATURES BELOW MELTING FOR 3-MW OPERATION. IODINE DOSE FROM STACK RELEASE FOR INFINITE EXPOSURE IS ABOUT 3 REMS. DIRECT DOSE 1 M FROM BUILDING IS 160 REMS/MIN. NO SERIOUS OFF-SITE CONSEQUENCES. APPENDIXES CONTAIN OPERATING SAFETY LIMITS AND THERMAL ANALYSIS OF CORE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + AIRBORNE RELEASE + DOSE + GAUSSIAN PLUME FORMULA + LITR (TR) + REACTOR, TEST + REPORT, SAR + STACK + TECHNICAL SPECIFICATIONS + THERMAL ANALYSIS

5-25263 ALSO IN CATEGORIES 14 AND 17
BINFORD FT
THE OAK RIDGE RESEARCH REACTOR -- SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4169(VOL.II) +. 69 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968

ANALYSIS BASED ON 45 MW, ALTHOUGH PRESENT LEVEL IS 30. DESCRIBES MODIFICATIONS REQUIRED FOR POWER UPRATING. GAUSSIAN-PLUME FORMULA USED FOR STACK RELEASE. MAX. HYPOTHETICAL ACCIDENT

CATEGORY 5
ACCIDENT ANALYSIS

5-25263 *CONTINUED*
ASSUMES 100% CORE MELTDOWN. FILTER DECONTAMINATION FACTOR OF ONLY 5.3 (NORMALLY 100) REQUIRED TO MAINTAIN PEAK DOSE FROM STACK RELEASE BELOW LIMIT. EXTERNAL DOSE ONE METER FROM BUILDING IS 300 REMS/MIN. NO CREDIBLE ACCIDENT WOULD RELEASE SIGNIFICANT ENERGY. THREE PAGES GIVE HISTORY OF OPERATING DIFFICULTIES. APPENDIXES CONTAIN CORE THERMAL ANALYSIS AND ANALOG ANALYSIS OF STARTUP ACCIDENT AND REACTOR RESPONSE FROM PRIMARY-PUMP FAILURE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF FLOW + AIRBORNE RELEASE + CORE MELTDOWN + DOSE + FAILURE, GENERAL + FILTER EFFICIENCY + GAUSSIAN PLUME FORMULA + OPERATING EXPERIENCE SUMMARY + ORR (RR) + POWER UPRATING + REACTOR, RESEARCH + REPORT, SAR + STACK + THERMAL ANALYSIS

5-25275
MOYER CB
COOLANT MIXING IN MULTIROD FUEL BUNDLES
DANISH ATOMIC ENERGY COMMISSION, RISOE
RISO-125 +. 37 PAGES, 6 FIGURES, 2 TABLES, JULY 1964

THE REPORT GATHERS TOGETHER THE AVAILABLE EXPERIMENTAL DATA IN THE LITERATURE ON MIXING RATES BETWEEN SUBCHANNELS FOR AXIAL FLOW IN MULTI-ROD FUEL-BUNDLE ASSEMBLIES BOTH WITH AND WITHOUT MIXING PROMOTERS. THE DATA ARE COMPARED TO MIXING RATES PREDICTED BY VARIOUS METHODS. THE DATA FOR MIXING AROUND BARE RODS, WITHOUT MIXING PROMOTERS, IS SOMEWHAT ERRATIC AND HARD TO PREDICT WITHIN A FACTOR OF 3. MIXING WITH FINS OR WIRE WRAPS, HOWEVER, SEEMS MORE SYSTEMATIC AND EASIER TO PREDICT. IN THE RANGE OF DATA AVAILABLE, PREDICTIONS SEEM TO BE AS GOOD AS PLUS OR MINUS 50%. INCLUDES AN ANNOTATED BIBLIOGRAPHY.

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

DENMARK + FLOW, CROSS + FLOW, MIXING + FUEL ELEMENT CLUSTER + HEAT TRANSFER AUGMENTATION + HOT CHANNEL ANALYSIS

5-25526
CRANE A + WILLIAMS FJ
PHASE II-RE-ANALYSIS OF N.S. SAVANNAH LOSS-OF-COOLANT ACCIDENT
UNITED NUCLEAR CORPORATION
UNC-5191 +. 36 PAGES, 6 FIGURES, 1 TABLE, 8 REFERENCES, DECEMBER 7, 1967

ALL MEANS OF WATER INJECTION WERE EXAMINED TO DETERMINE IF THERE WERE ANY EFFECTIVE MEANS OF ELIMINATING OR POSTPONING CORE MELTING. RESULTS SHOW THAT ONLY EFFECTIVE MEANS IS COOLING SUPPLY VIA BUFFER SEAL SYSTEM. IF ALL SEALS OPEN, CORE MELTING LIMITED TO 8%. AVAILABILITY STUDIES INDICATED THAT SYSTEM AVAILABILITY IS 0.987. OPERATOR FAILURE RATE IS 1 ERROR PER 10 ATTEMPTS IN COMPLEX PROCEDURES, AND 1 PER 100 FOR SIMPLE PROCEDURES. RESULTS SAME AS DETERMINED PREVIOUSLY (REPORT NO. STS-44). PEAK PRESSURE FROM HYDROGEN BURNING FROM METAL-WATER REACTION IS 181 PSIG.

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

*ACCIDENT, LOSS OF COOLANT + *EMERGENCY COOLING CONSIDERATIONS + *SAFETY ANALYSIS + CONTROL ROD DRIVE + CORE REFLOODING SYSTEM + FAILURE, OPERATOR ERROR + METAL WATER REACTION + NS SAVANNAH (PWR) + REACTOR, MARITIME + REACTOR, PWR + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + SEAL

5-25527 ALSO IN CATEGORY 11
CRANE AT
MISSILE ANALYSIS N. S. SAVANNAH CONTAINMENT
UNITED NUCLEAR CORPORATION
UNC-5197 +. 11 PAGES, 3 FIGURES, DECEMBER 12, 1967

ANALYSIS MADE IN ACCORDANCE WITH ORNL-NSIC-5 (VOL. 1 OF U.S. REACTOR CONTAINMENT TECHNOLOGY). MOST DANGEROUS MISSILE IS MAIN COOLANT VALVE WITH 3-IN.-DIAM STEM. KINETIC ENERGY IS 41,000 FT-LB. PENETRATION ENERGY REQUIRED IS 157,000 FT-LB. EMPIRICAL EQUATION, VALID FOR RANGES TESTED, IS GIVEN TO CALCULATE VESSEL PENETRATION ENERGY. MISSILE FROM DOUBLE-CONNECTED PIPE SECTION IS NOT CREDIBLE. MISSILE FROM SINGLE-CONNECTED PIPE SECTION CREDIBLE, BUT NONE EXIST WITH DIRECT ACCESS TO CONTAINMENT WALLS. STREAM-PROPELLED MISSILES DO NOT ATTAIN PENETRATION ENERGY.

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

*ANALYTICAL TECHNIQUE, GENERAL + *CONTAINMENT, HIGH PRESSURE + *INTEGRITY + *MISSILE GENERATION AND PROTECTION + ACCIDENT, LOSS OF COOLANT + MATHEMATICAL TREATMENT + NS SAVANNAH (PWR) + REACTOR, MARITIME + REACTOR, PWR

5-25568
HASHEMI HT + SLIEPCEVICH CM
A NUMERICAL METHOD FOR SOLVING TWO-DIMENSIONAL PROBLEMS OF HEAT CONDUCTION WITH CHANGE OF PHASE
UNIVERSITY OF OKLAHOMA, NORMAN, OKLAHOMA
8 PAGES, 10 FIGURES, 11 REFERENCES, FROM HEAT TRANSFER WITH PHASE CHANGE, CHEMICAL ENGINEERING PROGRESS

CATEGORY 5
ACCIDENT ANALYSIS

5-25568 *CONTINUED*
SYMPOSIUM SER. 79(63), PAGES 34-41 (1967)

A NUMERICAL PROCEDURE IS OUTLINED FOR SOLVING THE TWO-DIMENSIONAL TEMPERATURE DISTRIBUTION IN A LOCALLY ISOTROPIC MEDIUM WHOSE STATE CHANGES AT MORE THAN ONE TEMPERATURE LEVEL. A FEW EXAMPLE PROBLEMS ARE SOLVED ON A CDC-1604 DIGITAL COMPUTER, AND THE RESULTS ARE BRIEFLY DISCUSSED.

*HEAT TRANSFER, CONDUCTION + *PHASE CHANGE + COMPUTER, DIGITAL + HEAT TRANSFER

5-25569
HASHEMI HT + SLIEPCEVICH CM
A DIFFUSION ANALOGUE METHOD FOR SOLVING PROBLEMS OF HEAT CONDUCTION WITH CHANGE OF PHASE
UNIVERSITY OF OKLAHOMA
9 PAGES, 11 FIGURES, 1 TABLE, 4 REFERENCES, FROM HEAT TRANSFER WITH PHASE CHANGE, CHEMICAL ENGINEERING PROGRESS SYMPOSIUM SER. 79(63), PAGES 42-50 (1967)

THE PURPOSE OF THIS STUDY WAS TO DEMONSTRATE THE PRACTICABILITY OF EMPLOYING BINARY DIFFUSION IN A PARTIALLY MISCIBLE, LIQUID-LIQUID SYSTEM FOR SOLVING PROBLEMS OF TWO-DIMENSIONAL HEAT CONDUCTION WITH CHANGE OF PHASE. SEVERAL DIFFUSION CELLS WERE TESTED UNDER A VARIETY OF CONDITIONS. IT WAS FOUND THAT A PURE TWO-DIMENSIONAL, DIFFUSION CONCENTRATION FIELD CAN ONLY BE PRODUCED IN A SUITABLE POROUS MEDIUM. WITH THE PARTIALLY MISCIBLE, LIQUID-LIQUID SYSTEM OF PHENOL AND WATER USED AS THE WORKING FLUID, AND WHATMAN FILTER PAPER (NO. 52) USED AS THE POROUS MEDIUM, SEVERAL SUCCESSFUL EXPERIMENTS WERE CONCLUDED. IN ONE CASE THE REGION SIMULATED BY THE CELL CORRESPONDED TO A SEMI-INFINITE DOMAIN EXTERNAL TO A SQUARE WHOSE EXPOSED BOUNDARY WAS MAINTAINED AT A FIXED CONCENTRATION. ANOTHER CASE CORRESPONDED TO A SEMI-INFINITE, WEDGELIKE REGION EXTERNAL TO A CIRCLE.

*POROUS MEDIA + DIFFUSION + HEAT TRANSFER + HEAT TRANSFER, CONDUCTION + PHASE CHANGE

5-25570
FARMAN RF + BECKMANN RB
ENTRANCE REGION HEAT TRANSFER IN AN ANNULUS
UNIVERSITY OF MARYLAND + WESTINGHOUSE ELECTRIC CORPORATION
9 PAGES, FIGURES, 23 REFERENCES, FROM HEAT TRANSFER WITH PHASE CHANGE, CHEMICAL ENGINEERING PROGRESS SYMPOSIUM SER. 79(63), PAGES 57-65 (1967)

EXPERIMENTS WERE PERFORMED TO MEASURE THE ENTRANCE-REGION HEAT TRANSFER IN AN ANNULUS. SUMMARY OF THE FINDINGS - (1) A GENERAL EQUATION FOR CORRELATING ANNULAR FILM HEAT TRANSFER COEFFICIENT WITH HEATED LENGTH AND THE REYNOLDS NUMBER WAS OBTAINED. (2) THE SIZE OF CENTER-LINE INLET NOZZLES PRODUCES NO NOTICEABLE EFFECT ON ENTRANCE-REGION HEAT TRANSFER. (3) A TANGENTIAL OFFSET NOZZLE WHICH MATCHES THE WIDTH OF THE ANNULAR GAP EFFECTIVELY LENGTHENS THE ENTRANCE REGION IN AN ANNULUS. (4) THE EFFECT OF INCIDENCE ANGLE RELATIVE TO THE ANNULAR AXIS IS NEGLIGIBLE WITH RESPECT TO ENTRANCE-REGION HEAT TRANSFER.

*ANNULUS + *HEAT TRANSFER + BOUNDARY LAYER + FLOW, ANNULAR + HEAT EXCHANGER + HEAT TRANSFER, CONVECTION

5-25571
BELL KJ
THE LEIDENFROST PHENOMENON - A SURVEY
OKLAHOMA STATE UNIVERSITY, STILLWATER
10 PAGES, 8 FIGURES, 26 REFERENCES, FROM HEAT TRANSFER WITH PHASE CHANGE, CHEMICAL ENGINEERING PROGRESS SYMPOSIUM SER. 79(63), PAGES 73-82 (1967)

THERE IS A SUBSTANTIAL BODY OF REASONABLY CONSISTENT KNOWLEDGE ABOUT THE LEIDENFROST PHENOMENON FOR LIQUID MASSES RESTING QUIESCENTLY ON A PLATE. THE MAJOR PROBLEMS REMAINING IN THIS AREA APPEAR TO BE THE NEED FOR KNOWLEDGE OF THE FLOW FIELD ABOUT THE DROPLET AND THE MECHANISM OF MASS REMOVAL FROM THE UPPER SURFACE AND THE NEED FOR DATA AND THEORY AT HIGH PRESSURES AND POSSIBLY AT VERY LOW PRESSURES. THE PROBLEM OF FILM BOILING WITH THERMAL DECOMPOSITION AND/OR COMBUSTION HAS BEEN TOUCHED UPON BRIEFLY BY SEVERAL WORKERS, AND MORE WORK IS REQUIRED IN THIS AREA.

*FILM BOILING + *HEAT TRANSFER, BOILING + HEAT TRANSFER + HEAT TRANSFER, BOILING + PHASE CHANGE

5-25572
ZUBER N + STAUB FW
AN ANALYTICAL INVESTIGATION OF THE TRANSIENT RESPONSE OF THE VOLUMETRIC CONCENTRATION IN A BOILING FORCED-FLOW SYSTEM
GENERAL ELECTRIC, SCHENECTADY, NEW YORK
11 PAGES, 25 REFERENCES, NUCLEAR SCIENCE AND ENGINEERING 30, PAGES 268-278 (1967)

FOR A BOILING FORCED-FLOW SYSTEM, THE RESULTS OF THE ANALYSIS SHOW THAT - (1) THE RATE OF PROPAGATION OF THE VOIDS, AS WELL AS THE CHANGE, I.E., THE DISTORTION OF THE VOID DISTURBANCE AS IT PROPAGATES ALONG THE DUCT, CAN BE PREDICTED BY MEANS OF KINEMATIC WAVES. (2) THE RATE OF PROPAGATION OF KINEMATIC WAVES DEPENDS ON THE VOLUMETRIC FLUX DENSITY OF THE MIXTURE, THE DRIFT VELOCITY OF THE VAPOR, AND THE VAPOR VOLUMETRIC CONCENTRATION. (3) SINCE THE VELOCITY OF KINEMATIC WAVES DEPENDS ON CONCENTRATION, THE WAVE FORMS MAY DEVELOP DISCONTINUITIES RESULTING IN KINEMATIC SHOCK WAVES. (4) THE VOID RESPONSE DEPENDS, DEFINITIVELY, UPON THE

CATEGORY 5
ACCIDENT ANALYSIS

5-25572 *CONTINUED*
FLOW REGIME, AND IT MAY CHANGE COMPLETELY WITH A CHANGE IN FLOW PATTERN.

*FLOW, TWO PHASE + *HEAT TRANSFER, BOILING + CONVECTIVE BOILING + HEAT TRANSFER + PHASE CHANGE

5-25573
STAUB FW + ZUBER N + BIJWAARD G
EXPERIMENTAL INVESTIGATION OF THE TRANSIENT RESPONSE OF THE VOLUMETRIC CONCENTRATION IN A BOILING FORCED-FLOW SYSTEM
GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK
21 PAGES, 13 FIGURES, TABLES, NUCLEAR AND SCIENCE ENGINEERING 30 (2) PAGES 279-295 (NOV. 1967)

CONCLUSIONS - (1) THE RATE OF PROPAGATION OF THE VOIDS AS WELL AS THE WAVE FORM OF THE VOID DISTURBANCE AS IT PROPAGATES ALONG THE DUCT CAN BE PREDICTED BY MEANS OF KINEMATIC WAVES. (2) THE VOID RESPONSE DEPENDS UPON THE FLOW REGIME. (3) BOTH THE PROPAGATION VELOCITY AND THE WAVE FORM CAN BE PREDICTED RATHER ACCURATELY IF THE EFFECTS OF FLOW REGIME ARE TAKEN INTO ACCOUNT. THE LOSS OF ACCURACY, INTRODUCED BY NOT CONSIDERING THE EFFECT OF FLOW REGIME, IS ALSO DEMONSTRATED.

*FLOW, TWO PHASE + *HEAT TRANSFER, BOILING + CONVECTIVE BOILING + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER + HEAT TRANSFER EXPERIMENT

5-25574
STAUB FW + ZUBER N
VOID RESPONSE TO FLOW AND POWER OSCILLATIONS IN A FORCED-CONVECTION BOILING SYSTEM WITH AXIALLY NONUNIFORM POWER INPUT
GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK
8 PAGES, 10 FIGURES, 9 REFERENCES, NUCLEAR SCIENCE AND ENGINEERING 30 (2) PAGES 296-303, (NOVEMBER 1967)

THE PREDICTED VOID RESPONSE TO COMBINED FLOW AND POWER-INPUT OSCILLATIONS TO THE FLUID INDICATES THAT - (1) THE VOID-PROPAGATION VELOCITY IS ABOUT THE SAME WHETHER THE POWER ALONE, FLOW ALONE, OR POWER AND FLOW TOGETHER ARE OSCILLATED, PROVIDED ALL OTHER PARAMETERS ARE UNCHANGED. (2) FLOW OSCILLATIONS IN PHASE WITH POWER OSCILLATIONS REDUCE THE AMPLITUDE OF THE VOID OSCILLATIONS BELOW THE VALUES THAT WOULD BE PRESENT WITH EITHER THE SAME POWER OR FLOW OSCILLATIONS ACTING ALONE. (3) FLOW OSCILLATIONS 180 DEG OUT OF PHASE WITH POWER OSCILLATIONS RESULT IN VOID OSCILLATIONS WHOSE AMPLITUDES ARE ROUGHLY EQUAL TO THE SUM OF THE VOID AMPLITUDES THAT WOULD EXIST WITH THE RESPECTIVE POWER AND FLOW OSCILLATIONS ACTING ALONE.

*FLOW, TWO PHASE + *HEAT TRANSFER, BOILING + CONVECTIVE BOILING + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER

5-25830 ALSO IN CATEGORY 17
AMENDMENT TO OPERATE THERMIONIC CRITICAL EXPERIMENT
USAEC, DIVISION OF REACTOR LICENSING
11 PAGES, APRIL 15, 1968, LETTER TO S. J. FARMER FROM D. J. SKOVHOLT, DOCKET 50-234

ORIGINAL CONSTRUCTION-PERMIT CONCLUSIONS ARE STILL VALID. TESTS OF PYROPHORICITY OF URANIUM FOILS COATED WITH FLUOROCARBON RESIN MODERATED WITH POLYETHYLENE INDICATE IGNITION AT 330 C FOLLOWED BY AN ORGANIC FIRE. THIS WOULD NOT CAUSE CRITICALITY AS URANIUM BECOMES LESS DENSE AND HYDROGEN IS LOST IN THE ALREADY UNDER-MODERATED CORE. ADDITIONAL RELEASE OF FISSION PRODUCTS FROM A FIRE AFTER A 14.4-MWSEC EXCURSION RAISING FUEL TEMPERATURE TO 445 C GIVES A THYROID DOSE OF 8.6 REMS FOR A 2-HR EXPOSURE AT SITE BOUNDARY.

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

*FIRE + *IGNITION + DOSE + OFF SITE + PYROPHORIC REACTION + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + URANIUM

5-25864 ALSO IN CATEGORY 17
AMENDMENT 1 TO SAXTON CHANGE REQUEST 31
SAXTON EXPERIMENTAL CORPORATION
3 PAGES, APRIL 19, 1968, LETTER TO D. J. SKOVHOT FROM C. R. MONTGOMERY, DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

THE HOT-CHANNEL FACTORS (FQ OF 1.72, AND F DELTA H OF 1.22) IN TABLE 3, PAGE 7 OF CHANGE 20, ARE ACTUALLY THE ASSEMBLY PEAK-TO-AVERAGE VALUES. CORRECT VALUES ARE 6.44 AND 4.56 FOR THE ASSEMBLY PEAK-TO-CORE AVERAGE WHEN ELEMENT IS IN THE CENTRAL CORE LOCATION.

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

*HOT CHANNEL FACTOR + REACTOR, PWR + SAXTON (PWR) + TECHNICAL SPECIFICATIONS

5-25932 ALSO IN CATEGORY 17
WEST GB + HITTEMORE WL + SHOPTAUGH JR + DEE JB + COFFER CO
KINETIC BEHAVIOR OF TRIGA REACTORS

CATEGORY 5
ACCIDENT ANALYSIS

5-25932 *CONTINUED*
GULF GENERAL ATOMIC
GA-7882 +. 36 PAGES, 8 FIGURES, 8 TABLES, 23 REFERENCES, MARCH 31, 1967, RESEARCH REACTORS, MEXICO CITY, MAY 1967 SPONSORED BY COMISION NACIONAL DE ENERGIA NUCLEAR DE MEXICO

DISCUSSES METHODS OF CALCULATING THE PROMPT NEGATIVE TEMP. COEFFICIENT, HEAT CAPACITY, BETA-EFFECTIVE, AND NEUTRON LIFETIME FOR TRIGA REACTOR. CALCULATED PULSE CHARACTERISTICS ARE COMPARED WITH EXPERIMENTAL DATA AND AGREE. FILM BOILING OCCURS AROUND HOTTEST ELEMENTS AT PULSES APPROACHING $5. AN ANNULAR CORE WITH A DRY HOLE WILL ROUTINELY PRODUCE INTEGRATED FAST NEUTRON FLUXES OF 10(15TH) NVT/PULSE, WITH PEAK FUEL TEMPERATURE OF 1000 C AND PEAK POWERS OF 20,200 MW. A DELIBERATE GAP BETWEEN FUEL AND CLADDING REDUCES PEAK HEAT-TRANSFER RATES, SO FILM BOILING IS PRECLUDED. NEUTRON LIFETIME VARIES BETWEEN 39 AND 60 MICROSEC, DEPENDING ON HYDRIDE RATIO AND REFLECTOR MATERIAL.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*COMPARISON, THEORY AND EXPERIENCE + *MATHEMATICAL STUDY + *PERFORMANCE LIMIT + *REACTOR PHYSICS + DOPPLER COEFFICIENT + FAILURE, FUEL ELEMENT + FILM BOILING + HEAT CONDUCTANCE, FUEL TO CLAD + IRRADIATION FACILITY + PROMPT NEUTRON LIFETIME + REACTOR STABILITY + REACTOR, PULSED + REACTOR, RESEARCH + TEMPERATURE COEFFICIENT + TRIGA (RR)

5-25971 ALSO IN CATEGORY 17
PEACH BOTTOM REPORT ON MISSING VIEWING DEVICE LIGHT SHIELD
PHILADELPHIA ELECTRIC COMPANY, PHILADELPHIA, PENNSYLVANIA
6 PAGES, ATTACHED TO LETTER TO P.A. MORRIS FROM V.P. MCDEVITT, APRIL 24, 1968, DOCKET NO. 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

ALTHOUGH SHIELD WAS DISCOVERED MISSING OUTSIDE THE CORE, IT WAS ASSUMED SHIELD (2-3/4 X 5-1/4 X 1/16 IN. CARBON STEEL) FELL INTO CORE AND BLOCKED FLOW TO ONE TRICUSPID. TEMPERATURE ANALYSIS OF CORE HOT SPOT SHOWED SLEEVE TEMPERATURE INCREASE OF LESS THAN 100 F (TO 2875 F) AND NO FUEL-ELEMENT THERMAL-STRESS PROBLEM. NO PROBLEMS FORESEEN IF SHIELD REMAINS ON CORE-PLATE THERMAL SHIELD, SIDE REFLECTOR, IN UPPER PLENUM, OR IN HOT PIPE. IF SHIELD ENTERED HOT PIPE, IT MIGHT BE TRANSPORTED TO STEAM GENERATOR AND COME TO REST ON THE SHROUD. REACTIVITY EFFECT OF SHIELD IN CORE IS ABOUT 1 IN. OF REGULATING-ROD MOVEMENT. NO FUEL-ELEMENT BONDING DUE TO PRESENCE OF SHIELD EXPECTED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*DAMAGE + *FUEL HANDLING MACHINE + *OPERATING EXPERIENCE + FLOW BLOCKAGE + FUEL INTEGRITY + HOT CHANNEL + HOT SPOT + PEACH BOTTOM 1 (HTGR) + REACTIVITY EFFECT + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR, HTGR + REMOTE MANIPULATING AND VIEWING + THERMAL ANALYSIS

5-26000 ALSO IN CATEGORY 17
DRESDEN 1 FUEL CLEANING AND PIPING INSPECTION
COMMONWEALTH EDISON COMPANY
4 PAGES, PAGES 7, 28, 35, AND 43 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL, JANUARY 23, 1968

(PAGE 43) - 437 FUEL ELEMENTS WERE DRY-SIPPED (25 LEAKED). 19 HAD BEEN IN SINCE CYCLE 4, 7 FROM THE FIRST CORE. (PAGE 28) - 356 FUEL ASSEMBLIES BOTTOM NOSE-PIECES WERE CLEANED. FLOW TESTS SHOWED FLOW INCREASES RANGING BETWEEN 30 AND 240% FOR 8-PSI PRESSURE DROP. (PAGE 7) - THE FUEL HOIST RAN AWAY DUE TO TWO GROUNDS IN THE CONTROL CIRCUIT. THE GRAPPLE HELD NO FUEL AT THE TIME. BY THE TIME AN OPERATOR OPENED THE NEARBY POWER DISCONNECT, THE HOIST REACHED MAXIMUM UPTRAVEL. (PAGE 35) - ULTRASONIC TESTING OF THE 6-IN STEAM-GENERATOR PIPING REVEALED 7 CRACKS NEAR WELDS. LATER, A 20-FT SECTION OF PIPE REMOVED REVEALED 9 FLAWS IN ULTRASONIC TESTING, AND ALL ACCESSIBLE PIPES 8 IN. IN DIAMETER OR LESS WERE ULTRASONICALLY INSPECTED, WITHOUT FINDING FURTHER FLAWS.

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

*ACCIDENT, REFUELING + *FAILURE, CLADDING + *FAILURE, PIPE + *SURFACE FILM DEPOSIT + CRUD + DRESDEN 1 (BWR) + FAULT + FLOW ORIFICE + FUEL ELEMENT + MAIN COOLING SYSTEM + REACTOR, BWR + REPORT, OPERATIONS SUMMARY + TEST, NONDESTRUCTIVE + WELDING

5-26070
SPARROW, EM, LLOYD, JR, AND HIXON, CW
EXPERIMENTS ON TURBULENT HEAT TRANSFER IN AN ASYMMETRICALLY HEATED RETANGULAR DUCT
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA
5 PAGES, 6 FIGURES, 14 REFERENCES, JOURNAL OF HEAT TRANSFER, 88(2), PAGES 170-174 (MAY, 1966)

PRESENTS AN EXPERIMENTAL INVESTIGATION INTO THE EFFECTS OF ASYMETRICAL HEATING CONDITIONS ON THE HEAT TRANSFER CHARACTERISTICS OF TURBULENT FLOW IN A FLAT RECTANGULAR DUCT. THE EXPERIMENTAL APPARATUS CONSISTED OF A RECTANGULAR DUCT OF ASPECT RATIO 5 TO 1. AIR WAS THE WORKING FLUID. TWO CASES OF ASYMETRIC HEATING WERE INVESTIGATED - (A) ONE OF THE TWO LONG SIDES WAS HEATED, WHILE THE SECOND WAS UNHEATED, (B) BOTH OF THE LONG SIDES WERE HEATED, WITH THE HEAT RATING AT ONE SIDE BEING TWICE THAT OF THE OTHER. REYNOLDS NUMBERS CONSIDERED RANGED FROM 18,000 TO 142,000. FOR THE FIRST CASE, THE HEAT TRANSFER COEFFICIENTS ARE LOWER THAN THOSE FOR THE SYMMETRICALLY HEATED DUCT. FOR THE SECOND CASE, THE COEFFICIENTS FOR THE MORE STRONGLY HEATED WALL ARE ALSO BELOW THE VALUES FOR SYMMETRICAL HEATING, WHILE THE COEFFICIENTS FOR THE LESSER-HEATED WALL ARE GREATER THAN THE SYMMETRIC HEATING RESULTS. ALL HEAT TRANSFER RESULTS PERTAIN TO HYDRODYNAMICALLY AND THERMALLY DEVELOPED FLOW. THE LENGTH

CATEGORY 5
ACCIDENT ANALYSIS

5-26070 *CONTINUED*
OF THE THERMAL ENTRANCE REGION IS DISCUSSED.

*COOLANT COEFFICIENT + *FLOW, TURBULENT + *HEAT TRANSFER, CONVECTION + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HEAT TRANSFER CORRELATION

5-26071
NEUMAN M + REICHARDT K + MUNCHOW K + BUNDESMANN G + DEHE P + LEHRHEUER W
BOILING WATER FUEL ELEMENT LOOP IN FRJ - 2
KERNFORSCHUNGSANLAGE, JUELICH, WEST GERMANY
JUL-373-RM-RX + CONF-660521-3 +. 2 PAGES, APRIL 1966, PRESENTED AT INTERNATIONAL SYMPOSIUM ON IN-PILE IRRADIATION EQUIPMENT AND TECHNIQUES, HARWELL, ENGLAND

AN IRRADIATION FACILITY, MORE OF A CAPSULE THAN A LOOP, HAS BEEN DEVELOPED TO TEST ROD-TYPE FUEL ELEMENTS UNDER PRESSURIZED BOILING WATER CONDITIONS. AN ARRANGEMENT OF SMALL DISCS INSIDE THE IN-PILE PRESSURE VESSEL MAINTAIN SURFACE BOILING CONDITIONS ALONG THE FUEL ROD, AND THE NUCLEAR HEAT IS TRANSPORTED TO THE SURROUNDING WALL OF THE VESSEL. THE HEAT IS REMOVED BY LOW-PRESSURE LOW-TEMPERATURE SECONDARY COOLING WATER FLOWING OVER THE PRESSURE VESSEL THROUGH THE OUTER TUBES, ENABLING THE TWO-INCH-DIAMETER IN-PILE SECTION TO BE MADE OF ALUMINIUM ALLOY, THUS GIVING VERY LOW NEUTRON FLUX DEPRESSION AND REACTIVITY ABSORPTION. LABORATORY MEASUREMENTS EXHIBIT HIGH BURNOUT LIMITS AND CLOSE RELATION BETWEEN ROD SURFACE TEMPERATURE AND PRESSURE.

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

*IRRADIATION FACILITY + *IRRADIATION TESTING + *REACTOR, BWR + BURNOUT HEAT FLUX + HEAT TRANSFER, BOILING

5-26072
BERGLES AE + ROOS JP + BOURNE JG
INVESTIGATION OF BOILING FLOW REGIMES AND CRITICAL HEAT FLUX. REPORT NO. 663. QUARTERLY PROGRESS REPORT, DECEMBER 16, 1965-JULY 31, 1966.
DYNATECH CORPORATION, CAMBRIDGE, MASSACHUSETTS
NYO-3304-9 +. 11 PAGES, FIGURES, REFERENCES, SEPTEMBER, 1966

DESCRIBES WORK PERFORMED ON THIS CONTRACT DURING THE PERIOD DECEMBER 16, 1965, TO JULY 31, 1966. THE GENERAL CONSTRUCTION AND OPERATION DETAILS OF THE STEAM SYSTEM ARE DESCRIBED. THIS SYSTEM WAS OPERATED OVER A WIDE RANGE OF FLOW CONDITIONS TO DEMONSTRATE THAT IT MEETS ALL SPECIFICATIONS. THE GOALS OF THE FORTHCOMING TEST PROGRAM ARE OUTLINED.

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

*FLOW, TWO PHASE + *HEAT FLUX, CRITICAL + *HEAT TRANSFER, BOILING + *IN PILE LOOP + *STEAM + IN PILE EXPERIMENT

5-26074 ALSO IN CATEGORY 9
LEBL, P
EMERGENCY COOLING OF NUCLEAR POWER REACTOR USING NATURAL CIRCULATION OF THE COOLANT
POWER ENGINEERING INSTITUTE, PRAGUE
12 PAGES, JAD. ENERG., 13, PAGES 41-53 (FEBRUARY, 1967) IN CZECH

THE POSSIBILITY OF USING A NATURAL CIRCULATION OF THE COOLING SYSTEM FOR REACTOR COOLING FOLLOWING AN EMERGENCY SHUT-DOWN IS DISCUSSED. SUCH AN EMERGENCY COOLING SYSTEM DOES NOT RELY ON OUTSIDE POWER FOR GAS-BLOWN COOLING. THE CALCULATIONS OF THE NATURAL GAS CIRCULATION STATIC IN THE PRIMARY LOOP WERE APPLIED FOR THE CASE OF EMERGENCY REACTOR COOLING WITH ACCESS TO GAS BLOWERS. A SERIES OF PROBLEMS RELATED TO THE NATURAL GAS CIRCULATION IN THE REACTOR PRIMARY LOOP ARE ANALYZED. SPECIAL PROBLEMS INVOLVING PREPARATIONS FOR THE TESTS AND MEASUREMENTS NECESSARY FOR THE START UP OF A POWER PLANT AND PARTICULARLY EXPERIMENTAL EMERGENCY REACTOR SHUT-DOWN ARE DISCUSSED.

*EMERGENCY COOLING CONSIDERATIONS + *HEAT TRANSFER, GAS + *HEAT TRANSFER, NATURAL CONVECTION + REACTOR, GCR + THERMAL MECHANICAL EFFECT

5-26075
BIS, J
COOLING OF A-1 POWER PLANT REACTOR DURING LOW-POWER OPERATIONS
SHKODA PLANT, PIZEN, CZECHOSLAVAKIA
5 PAGES, JAD. ENERG., 13, PAGES 226-230 (FEBRUARY, 1967) IN CZECH

A METHOD IS GIVEN FOR APPROXIMATE CALCULATIONS OF THE LIFTING FORCE INFLUENCE ON GAS FLOW STABILITY IN REACTOR CHANNELS, ON THE FUEL ELEMENT COOLING IN A REACTOR WITH GAS DOWNFLOW AT NORMAL OPERATIONS, AND DURING EMERGENCY REACTOR COOLING.

*FLOW STABILITY + *FLOW THEORY AND EXPERIMENTS + *HEAT TRANSFER, GAS + *HOT CHANNEL + HOT CHANNEL ANALYSIS + REACTOR, GCR

CATEGORY 5
ACCIDENT ANALYSIS

5-26076
ROSS, TK
CORROSION AND HEAT TRANSFER--A REVIEW
UNIVERSITY OF MANCHESTER INSTITUTE OF SCIENCE AND TECHNOLOGY
11 PAGES, 5 FIGURES, 44 REFERENCES, BRITISH CORROSION JOURNAL, 2, PAGES 131-140 (JULY, 1967)

THE GENERAL FEATURES OF HEAT EXCHANGE PHENOMENA ARE REVIEWED, AND THEIR INFLUENCE UPON CORROSION PROCESSES IN LIQUIDS IS OUTLINED. THE EXPERIMENTAL TECHNIQUES PREVIOUSLY USED BY OTHERS ARE SURVEYED AND NEW ONES BASED UPON AN ANALYSIS OF THE PROBLEM ARE SUGGESTED. THE PRESENTATION OF DATA OBTAINED BY THESE METHODS IS ILLUSTRATED WITH SOME RESULTS OBTAINED ON MILD STEEL, COPPER AND ALUMINUM.

*CORROSION + *HEAT TRANSFER + HEAT TRANSFER, BOILING + HEAT TRANSFER, TWO PHASE

5-26077
PAPELL SS + SIMONEAU RJ + BROWN DD
BUOYANCY EFFECTS ON CRITICAL HEAT FLUX OF FORCED CONVECTIVE BOILING IN VERTICAL FLOW
NASA, LEWIS RESEARCH CENTER, CLEVELAND
NASA-TN-D-3672 +. 17 PAGES, 7 FIGURES, 8 REFERENCES, OCTOBER 1966

A CHANGE IN BUOYANCY ON A FORCED CONVECTIVE BOILING SYSTEM WAS EFFECTED BY REVERSING THE FLOW DIRECTION FROM UPWARD TO DOWNWARD. CRITICAL HEAT FLUX DATA WERE OBTAINED IN BOTH DIRECTIONS WITH LIQUID NITROGEN FLOWING THROUGH A 0.505-INCH-INSIDE-DIAMETER BY 12-INCH-LONG, RESISTANCE-HEATED, INSTRUMENTED TUBE. SYSTEM PRESSURE WAS VARIED FROM 50 TO 240 PSIA. INLET VELOCITY FROM 0.5 TO 11.0 FPS, AND INLET SUBCOOLING FROM 12 TO 51 R. COMPARISON OF UPWARD- AND DOWNWARD-FLOW DATA SHOWED THAT UNDER CERTAIN CONDITIONS THE CRITICAL HEAT FLUX FOR DOWNWARD FLOW WAS SIGNIFICANTLY LOWER THAN THAT FOR UPWARD FLOW. EXPLANATIONS FOR THIS DIFFERENCE ARE MADE IN TERMS OF THE RELATIVE VELOCITY BETWEEN THE LIQUID AND THE VAPOR PHASES AS INFLUENCED BY BUOYANCY. FOR UPWARD FLOW, A UNIQUE REVERSAL IN THE TREND OF THE CRITICAL HEAT FLUX WITH PRESSURE AND SUBCOOLING WAS OBSERVED ABOVE A PRESSURE OF 150 POUNDS PER SQUARE INCH ABSOLUTE THAT OCCURS AT FLUID INLET VELOCITIES BELOW 5 FEET PER SECOND. AT THESE LOW VELOCITIES, THE FLOWING SYSTEM BEHAVES LIKE A POOL (NONFLOW) SYSTEM.

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

*CONVECTIVE BOILING + *HEAT FLUX, CRITICAL + *HEAT TRANSFER, BOILING + FLOW, TUBE + FLOW, TWO PHASE + HEAT TRANSFER, CONVECTION + HEAT TRANSFER, TWO PHASE

5-26078 ALSO IN CATEGORY 11
ARMISTEAD RA
TURBULENCE-INDUCED HEAT-TRANSFER FLUCTUATIONS IN PIPE FLOW OF WATER USING
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-TM-1602 +. 232 PAGES, 49 FIGURES, MAY 1967

IT IS GENERALLY RECOGNIZED THAT THE WALL LAYER OR LAMINAR SUBLAYER IS THE CONTROLLING REGION IN THE TRANSFER OF HEAT AND MASS BETWEEN A SOLID BOUNDARY AND A TURBULENT FLUID. IT IS MORE KNOWN THAT THE LAMINAR SUBLAYER, RATHER THAN BEING RELATIVELY FREE OF TURBULENT FLUCTUATIONS, AS HAS BEEN POSTULATED IN THE PAST, HAS AN UNSTEADY CHARACTER WHICH GIVES RISE TO FLUCTUATIONS IN THE RATE AT WHICH HEAT AND MASS ARE TRANSFERRED BETWEEN THE WALL AND THE FLUID. THE PRACTICAL MOTIVATION FOR THIS STUDY WAS THE KNOWLEDGE, BASED ON EXPERIMENTAL EVIDENCE, THAT SURFACE TEMPERATURE FLUCTUATIONS CAN CAUSE FATIGUE-TYPE FAILURE AND ACCELERATED SURFACED CORROSION. A SUBLAYER FLOW MODEL, BASED ON RANDOM EDDY PENETRATION, WAS POSTULATED TO EXPLAIN THE TURBULENCE-INDUCED FLUCTUATIONS IN THE RATE OF HEAT TRANSFER FROM THE WALL SENSORS. SUGGESTIONS ARE INCLUDED FOR MODIFICATION OF THE MODEL.

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

*FLOW THEORY AND EXPERIMENTS + *FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + FAILURE, FATIGUE + FLOW, TUBE + HEAT TRANSFER, CONVECTION

5-26120
MAGEE, PM + TROMEL, RH
HEAT TRANSFER FROM FUEL ELEMENTS IN A TIGHTLY PACKED, LIQUID-METAL-COOLED COMPACT REACTOR
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
22 PAGES, 12 FIGURES, 5 REFERENCES, AMERICAN NUCLEAR SOCIETY TRANS., 9(2), PAGE 569 PRESENTED AT THE WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, PITTSBURGH, PA., OCTOBER 31-NOVEMBER 3, 1966

AN ANALYSIS HAS BEEN MADE OF THE DETAILED HEAT TRANSFER CHARACTERISTICS OF FUEL ELEMENTS IN THE TIGHTLY PACKED (P/D EQUAL TO 1.018) SNAP 8 REACTOR CORE. THE INCREASED CLADDING CIRCUMFERENTIAL TEMPERATURE VARIATION DUE TO THE SMALL (ABOUT 3 MILS) RADIAL GAS GAP BETWEEN THE FUEL ROD AND CLADDING WAS FOUND TO BE AS SIGNIFICANT THERMALLY AS THE CLOSE PACKING OF THE ELEMENTS. CALCULATED AVERAGE NUSSELT NUMBERS AND CONVECTIVE HEAT TRANSFER COEFFICIENTS ARE APPROXIMATELY ONE-FOURTH OF THOSE USED FOR FLOW IN A CIRCULAR TUBE OF EQUIVALENT HYDRAULIC DIAMETER. THE EFFECTS OF ELEMENT SPACING, GAP CONDUCTANCE, CLADDING THICKNESS, AND FUEL ROD SYMMETRY WITHIN THE CLADDING WERE ALSO INVESTIGATED. ALTHOUGH THE RESULTS ARE

CATEGORY 5
ACCIDENT ANALYSIS

5-26120 *CONTINUED*
STRICKLY VALID ONLY FOR THE SPECIFIC GEOMETRY OF SNAP 8, THE ANALYTIC TECHNIQUES AND GENERAL CONCLUSIONS ARE APPLICABLE TO ALL LIQUID-METAL-COOLED REACTORS WITH TIGHTLY PACKED BUNDLES OF ELEMENTS.

*FUEL ELEMENT CLUSTER + *HEAT TRANSFER + *METAL, LIQUID + *SNAP 8 (SR) + ATOMICS INTERNATIONAL + NAK + REACTOR DESCRIPTION + REACTOR, SPACE

5-26121
WILLIAMS RF + POLOMIK EE
PRESSURE DROP AND DYE TESTS WITH WATER ON THE SEFOR PROTOTYPE FUEL BUNDLE
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIF.
GEAP-5129 +. 53 PAGES, FEBRUARY 1966

COVERS THE MEASUREMENT OF PRESSURE-LOSS CHARACTERISITICS AND OBSERVATIONAL FLOW STUDIES WITH DYE, ON A PROTOTYPE FUEL BUNDLE FOR THE SEFOR REACTOR. WATER WAS USED AS THE COOLANT IN THESE EXPERIMENTS TO SIMULATE THE SODIUM COOLANT IN SEFOR BY REGULATING WATER TEMPERATURES TO MATCH THE REYNOLDS NUMBER OF THE SODIUM. THIS METHOD IS WIDELY USED TO OBTAIN INFORMATION ON FLOW CONDITIONS IN SODIUM SYSTEMS. SEFOR (SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR) IS A 20 MW(T) FAST SPECTRUM REACTOR. SEFOR WILL HAVE CHARACTERISTICS SIMILAR TO THE LARGE, SOFT-SPECTRUM, FAST BREEDER REACTORS FUELED WITH MIXED PUO2-UO2. ECONOMIC STUDIES OF THESE LARGE POWER REACTORS INDICATE THE POTENTIAL FOR PRODUCING LOW COST POWER. SEFOR WILL BE USED TO OBTAIN PHYSICS AND ENGINEERING DATA AT FUEL COMPOSITIONS, TEMPERATURES, AND CRYSTALLINE STATES CHARACTERISTIC OF POWER REACTOR OPERATING CONDITIONS.

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

*FUEL ELEMENT CLUSTER + *METAL, LIQUID + *SEFOR (RE) + FLOW, TURBULENT + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SODIUM

5-26122
HOFFMANN HJ + MILLER CW + SOZZI GL + SUTHERLAND WA
HEAT TRANSFER IN SEVEN-ROD CLUSTERS. INFLUENCE OF LINER AND SPACER GEOMETRY ON SUPERHEAT FUEL PERFORMANCE
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIF.
GEAP-5289 +. 97 PAGES, FIGURES, OCTOBER 1966

THE GENERAL PROBLEM OF HEAT TRANSFER IN AN ARRAY OF SEVEN RODS IS CONSIDERED. HEAT TRANSFER, PRESSURE DROP, VELOCITY, AND TEMPERATURE-DISTRIBUTION MEASUREMENTS WERE MADE WITH AIR FLOW (PR EQUAL TO 0.7) PAST ELECTRICALLY HEATED RODS. TWO LINER GEOMETRIES WERE INVESTIGATED, CIRCULAR AND SCALLOPED SHAPED. ROD ALIGNMENT AND SPACING WERE MAINTAINED BY SMALL PIN-TYPE SPACERS, GRID-TYPE SPACERS, OR WIRE-WRAP SPACERS. THE DATA OBTAINED OVER A REYNOLDS NUMBER RANGE OF 5,000 TO 140,000 PROVIDED THE ENGINEERING INFORMATION NECESSARY FOR OPTIMIZATION OF HEAT TRANSFER PERFORMANCE IN NUCLEAR SUPERHEAT FUEL ELEMENTS.

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

*FLOW THEORY AND EXPERIMENTS + *FUEL ELEMENT + *HEAT TRANSFER + *THERMAL ANALYSIS + HEAT TRANSFER, CONVECTION + HEAT TRANSFER, GAS

5-26123
GERRAND RP + HOLY ZJ + BINNS IM + HAWKER PA
A SURVEY OF THERMAL AND MECHANICAL ASPECTS OF SOME H.T.G.C. REACTOR CORE DESIGNS UTILIZING BERYLLIUM OXIDE MODERATION
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT
AAEC-E-153 +. 43 PAGES, TABLES, REFERENCES, JUNE 1966

THIS REPORT PRESENTS RESULTS OF A STUDY, FROM JULY 1962 TO JUNE 1963, BY THE CORE DEVELOPMENT GROUP (ENGINEERING RESEARCH DIVISION), OF VARIOUS CORE CONFIGURATIONS FOR A HIGH-TEMPERATURE GAS-COOLED REACTOR SYSTEM, USING FUELS DISPERSED IN UNCLAD BEO WITH BEO MODERATION AND CO2 COOLANT. THE CONFIGURATIONS ARE NATURALLY CLASSIFIED INTO TWO GROUPS - ONE, PARALLEL-CHANNEL REACTORS (CORES WITH FIXED INTERNAL GEOMETRY AND SPECIFIC COOLANT CHANNELS), AND THE OTHER, PEBBLE-BED REACTORS. THE MAJOR ADVANTAGES AND DESIGN PROBLEMS OF EACH TYPE ARE DISCUSSED. METHODS FOR SOLUTION OF THE PROBLEMS ARE SUGGESTED. ALTHOUGH THE REACTOR TYPES ARE COMPARED, IT IS IMPOSSIBLE TO RECOMMEND ANY ONE TYPE IN PREFERENCE TO THE OTHERS, OWING TO THE LACK OF RELIABLE NUCLEAR AND COST DATA.

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

*REACTOR DESCRIPTION + *REACTOR, HTGR + *REACTOR, PEBBLE BED + AUSTRALIA + BERYLLIUM + FUEL HANDLING + THERMAL CONSIDERATION

5-26125
MCELIGOT DM + ORMAND LW + PERKINS HC
INTERNAL LOW REYNOLDS-NUMBER TURBULENT AND TRANSITIONAL GAS FLOW WITH HEAT TRANSFER
UNIVERSITY OF ARIZONA, TUCSON
7 PAGES, 6 FIGURES, 2 TABLES, 30 REFERENCES, J. HEAT TRANSF. ASME TRANS. 88(2) SER. C, PAGES 239-425 (MAY

CATEGORY 5
ACCIDENT ANALYSIS

5-26125 *CONTINUED*
1966)

THE RESULTS OF A SEMITHEORETICAL AND EXPERIMENTAL INVESTIGATION OF THE HEAT-TRANSFER AND FRICTIONAL EFFECTS IN AIR, NITROGEN, AND HELIUM IN STEADY FLOW IN THE DOWNSTREAM REGION OF ROUND TUBES ARE PRESENTED. THE CONSTANT-PROPERTIES ANALYSIS FOR LOW REYNOLDS-NUMBER TURBULENT FLOW IS EVOLVED FROM AN IMPROVED DESCRIPTION OF THE ADIABATIC VELOCITY PROFILE, WITHOUT MODIFYING THE REYNOLDS ANALOGY ASSUMPTION OF EQUAL EDDY DIFFUSIVITIES. DATA COVER PEAK WALL-TO-BULK TEMPERATURE RATIOS FROM NEAR UNITY TO 4.8 AND ENTERING REYNOLDS NUMBERS FROM 1450 TO 45,000. LOW AND MODERATE TEMPERATURE-RATIO DATA ARE USED TO CONFIRM AND TO EXTEND THE ANALYSIS, WHILE HIGH TEMPERATURE-RATIO RESULTS ARE UTILIZED FOR CLASSIFICATION OF FLOW REGIMES AT HIGH HEATING RATES IN THE LOW REYNOLDS-NUMBER RANGE.

*FLOW THEORY AND EXPERIMENTS + *FLOW, TURBULENT + *HEAT TRANSFER + FLOW, TUBE + HEAT TRANSFER, CONVECTION + HEAT TRANSFER, GAS

5-26146 ALSO IN CATEGORIES 6 AND 8
DICKERMAN CE
REVIEW OF NUCLEAR SAFETY EXPERIMENTS ON FAST REACTOR CORE BEHAVIOR
ARGONNE NATIONAL LABORATORY
7 PAGES, 3 FIGURES, 37 REFERENCES, NUCLEAR SAFETY 9(3), PAGES 210-217 (JUNE 1968)

AN EXPERIMENTAL INVESTIGATION WAS MADE ON THE BEHAVIOR DURING ACCIDENTS OF SODIUM-BONDED METALLIC FUEL PINS. MODELS WERE DEVELOPED TO DESCRIBE FAILURE OF METALLIC FUEL PINS (EBR-II, MARK I) IN BOTH FLOWING AND STAGNANT SODIUM, ALTHOUGH THE PREFAILURE AXIAL MOVEMENT OF MOLTEN FUEL CANNOT BE DESCRIBED QUANTITATIVELY. THE FIRST INVESTIGATIONS OF POSTFAILURE MOVEMENT OF COOLANT AND FUEL WERE PERFORMED WITH CLUSTERS OF FUEL PINS. ALTHOUGH LARGE-SCALE SECONDARY MOVEMENTS WERE DEMONSTRATED IN TREAT, MUCH MORE WORK IS NECESSARY TO CHARACTERIZE THEM PROPERLY, INCLUDING DETERMINING EFFECTS OF BLANKETS, LARGER CLUSTERS, AND PROPAGATION PHENOMENA.

FUEL MELTDOWN + REACTOR, FAST + REACTOR, SAFETY RESEARCH + SODIUM + TREAT (PRR)

5-26148
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY. QUARTERLY PROGRESS REPORT NUMBER 6, JULY - SEPTEMBER 1966
GENERAL ELECTRIC, SAN JOSE, ATOMIC POWER EQUIPMENT DEPT.
GEAP-5279 +. 90 PAGES, 46 FIGURES, 11 REFERENCES, NOVEMBER 1966

THE OVERALL OBJECTIVE OF THE PROGRAM IS TO MAXIMIZE THE RELIABILITY OF REACTOR-SYSTEM PIPING BY INCREASING CURRENT KNOWLEDGE OF FAILURE-CAUSING MECHANISMS AND BY ENHANCING CAPABILITY FOR DESIGN EVALUATION AND ANALYSIS. TOWARD THE ATTAINMENT OF THIS OBJECTIVE, WORK IS PROCEEDING ON THE TASKS OF RELIABILITY ENGINEERING, STRESS ANALYSIS, FRACTURE MECHANICS, AND FATIGUE.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT, STEAM LINE RUPTURE + COOLING, GENERAL + FAILURE, COMPONENT + FAILURE, FATIGUE + FAILURE, PIPE + FAILURE, TUBING + PIPING + RELIABILITY, SYSTEM + STRESS ANALYSIS

5-26150
EIFLER W + NIJSING R
EXPERIMENTAL INVESTIGATION OF VELOCITY DISTRIBUTION AND FLOW RESISTANCE IN A TRIANGULAR ARRAY OF PARALLEL RODS
JOINT RESEARCH CENTRE OF THE EUROPEAN COMMUNITY FOR ATOMIC ENERGY (EURATOM), ISPRA, ITALY
21 PAGES, 25 FIGURES, 1 TABLE, 11 REFERENCES, NUCLEAR ENG. AND DESIGN, 5(1), PAGE 22-42, (JAN.-FEB. 1967)

THIS STUDY DEALS WITH THE DETERMINATION OF VELOCITY DISTRIBUTION AND FLOW RESISTANCE FOR FULLY DEVELOPED TURBULENT FLOW PARALLEL TO A TRIANGULAR ARRAY OF RODS. THE EFFECTS OF REYNOLDS NUMBER AND ROD SPACING WERE INVESTIGATED. THE RESULTS OBTAINED APPEAR TO AGREE SATISFACTORILY WITH THEORETICAL PREDICTIONS GIVEN IN A PREVIOUS PAPER.

*FLOW DISTRIBUTION + *FLOW THEORY AND EXPERIMENTS + *FLOW, AXIAL + *FUEL ELEMENT CLUSTER + EURATOM + FLOW, TURBULENT

5-26151
TWO-PHASE FLOW AND HEAT TRANSFER IN MULTIROD GEOMETRIES. EIGHTH QUARTERLY PROGRESS REPORT, JULY 26-OCTOBER 35, 1966
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA. ATOMIC POWER EQUIPMENT DEPT.
GEAP-5300 +. 34 PAGES, FIGURES, REFERENCES, NOVEMBER 1966

THE OBJECTIVES OF THE PROGRAM ARE AS FOLLOWS - TO OBTAIN DETAILED MEASUREMENTS OF FLOW STRUCTURE FOR AIR-WATER AND STEAM-WATER MIXTURES. TESTS TO BE PERFORMED ON AIR-WATER MIXTURES IN A VERTICAL ANNULUS, AIR-WATER MIXTURES IN A VERTICAL NINE-ROD ASSEMBLY, AND STEAM-WATER MIXTURES AT HIGH PRESSURE (600 TO 1400 PSIA) IN A VERTICAL NINE-ROD ASSEMBLY. AN ANALYTICAL EFFORT IN PARALLEL WITH THE AIR-WATER TESTS IS BEING MADE TO DEVELOP A TWO-PHASE FLOW MODEL. IN ADDITION, THERE IS A PROGRAM TO MEASURE THE CRITICAL HEAT FLUX FOR A VERTICAL NINE-ROD GEOMETRY UNDER FORCED-CONVECTION CONDITIONS, WITH WATER AT HIGH PRESSURE (600 TO

CATEGORY 5
ACCIDENT ANALYSIS

5-26151 *CONTINUED*
1400 PSIA) AND FLOW UPWARD. AN EFFORT WILL BE MADE TO APPLY THE FLOW MODEL TO THE PREDICTION OF CRITICAL HEAT FLUX.

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

*FLOW, TWO PHASE + *FUEL ELEMENT CLUSTER + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, TWO PHASE + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER, CONVECTION

5-26152
COOBS JH + SISMAN O
COATED PARTICLE FUELS DEVELOPMENT AT OAK RIDGE NATIONAL LAB FOR PERIOD MAY 15, 1966 TO JANUARY 15, 1967
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1772 +. 70 PAGES, 35 FIGURES, 14 TABLES, MARCH 1967

PROGRESS REPORT ON GRAPHITE-BASE FUEL CONCEPTS INVOLVING PYROLYTIC-CARBON-COATED FUEL PARTICLES FOR GAS-COOLED CIVILIAN POWER REACTOR APPLICATIONS. THE MATHEMATICAL MODEL FOR COATED-PARTICLE BEHAVIOR HAS BEEN MODIFIED TO INCLUDE THE EFFECTS OF IRRADIATION-INDUCED CREEP AND IS BEING USED TO GUIDE THE IRRADIATION PROGRAM AND TO CORRELATE RESULTS FROM IRRADIATION EXPERIMENTS. THE WORK DESCRIBED INCLUDES PYROLYTIC-CARBON COATING STUDIES, OUT-OF-REACTOR CHARACTERIZATION OF COATED PARTICLES, IRRADIATION TESTING, AND POSTIRRADIATION EXAMINATION.

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

*COATED PARTICLE + *HEAT TREATMENT + *IRRADIATION TESTING + CARBON + FAILURE, COATED PARTICLE + FISSION PRODUCT RELEASE, GENERAL + FUEL BURNUP + ORNL + REACTOR, GCR + URANIUM CARBIDE + URANIUM DIOXIDE + URANIUM OXIDE

5-26153
KROGER DG + ROHSENOW WM
CONDENSATION HEAT TRANSFER IN THE PRESENCE OF A NON-CONDENSABLE GAS
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
12 PAGES, 10 FIGURES, 1 TABLE, 8 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(1) PAGES 15-26 (JANUARY 1968)

POTASSIUM VAPOR IS CONDENSED IN THE PRESENCE OF VARIOUS TOTAL AMOUNTS OF ARGON OR HELIUM AS NONCONDENSABLE GASES. IT IS HOWN THAT THE RATE OF CONDENSATION IS GOVERNED BY THE ORDINARY MOLECULAR DIFFUSION EQUATIONS. THE EFFECT OF THERMAL DIFFUSION IS NEGLIGIBLE. SOME INFLUENCE OF NATURAL CONVECTION WAS OBSERVED WHEN ARGON, THE HEAVIER OF THE TWO NONCONDENSABLE GASES, WAS PRESENT.

*HEAT TRANSFER ANALYSIS + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, TWO PHASE + *POTASSIUM + ARGON + HEAT TRANSFER + HELIUM

5-26154
SOLIMAN M + JOHNSON HA
TRANSIENT HEAT TRANSFER FOR FORCED CONVECTION FLOW OVER A FLAT PLATE OF APPRECIABLE THERMAL CAPACITY AND CONTAINING AN EXPONENTIAL TIME-DEPENDENT HEAT SOURCE
AIRESEARCH MANUFACTURING COMPANY, LOS ANGELES, CALIF. + UNIVERSITY OF CALIFORNIA, BERKELEY
12 PAGES, 11 FIGURES, 1 TABLE, 8 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 11(1), PAGES 27-38 (JANUARY 1968)

EXPERIMENTAL DATA AND THEORETICAL PREDICTIONS ARE PRESENTED FOR THE TRANSIENT MEAN WALL TEMPERATURE OF A FLAT PLATE OF APPRECIABLE THERMAL CAPACITY, HEATED BY AN EXPONENTIAL HEAT AND COOLED ON BOTH SIDES BY A STEADY, INCOMPRESSIBLE, FORCED CONVECTION FLOW WITH A PRANDTL NUMBER AROUND UNITY. A SEMI-EMPIRICAL CORRELATION IS DEVELOPED WHICH SATISFACTORILY PREDICTS THE WALL TEMPERATURE.

*HEAT GENERATION, INTERNAL + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER CORRELATION + *TEMPERATURE TRANSIENT + HEAT TRANSFER + HEAT TRANSFER, CONVECTION

5-26155
DESOTO S
COUPLED RADIATION, CONDUCTION AND CONVECTION IN ENTRANCE REGION FLOW
ROCKETDYNE, CANOGA PARK, CALIF.
15 PAGES, 10 FIGURES, 1 TABLE, 17 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 11(1), PAGES 39-53 (JANUARY 1968)

AN ANALYTICAL PROCEDURE IS DEVELOPED TO INVESTIGATE THE INTERACTION OR COUPLING OF RADIATION WITH THE CONDUCTION AND CONVECTION MECHANISM IN A NONISOTHERMAL NONGRAY GAS FLOWING IN THE ENTRANCE REGION OF A TUBE WITH ISOTHERMAL BLACK WALLS. THE FLOW IS CONSIDERED TO BE HYDRO-DYNAMICALLY DEVELOPED AND LAMINAR. THE EXACT FORMULATION OF THE INTERACTION OF RADIATION, CONDUCTION, AND CONVECTION IN A FLOWING, NONGRAY, EMITTING AND ABSORBING MEDIUM IS REPRESENTED BY A NONLINEAR INTEGRO-DIFFERENTIAL EQUATION WHICH WAS SOLVED NUMERICALLY. THE RESULTS OF VARIOUS SIMPLIFIED PREDICTION METHODS WERE COMPARED WITH THE EXACT RESULTS

CATEGORY 5
ACCIDENT ANALYSIS

5-26155 *CONTINUED*
OBTAINED.

*HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, GAS + FLOW, LAMINAR + FLOW, TUBE + HEAT TRANSFER + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, RADIANT

5-26157
AMSDEN AA
PARTICLE-IN-CELL METHOD FOR THE CALCULATION OF THE DYNAMICS OF COMPRESSIBLE FLUIDS
LOS ALAMOS SCIENTIFIC LAB., UNIV. OF CALIFORNIA, N. MEX.
LA-3466 +. 170 PAGES, 23 FIGURES, 1 TABLE, 41 REFERENCES, FEB. 1966

AN EXTENSIVE DISCUSSION OF THE PARTICLE-IN-CELL COMPUTING METHOD FOR SOLVING NONSTEADY TWO-DIMENSIONAL FLUID DYNAMICS PROBLEMS IS PRESENTED. THE TOPICS TREATED INCLUDE BOUNDARY CONDITIONS, NUMEROUS PROPERTIES OF THE METHOD, ITS APPLICABILITY AND LIMITATIONS, AND THE INCLUSION OF ADDITIONAL PHYSICAL EFFECTS, SUCH AS THE FULL VISCOUS STRESS TENSOR, WHICH IS DISCUSSED FOR THE FIRST TIME. FLOW DIAGRAMS FOR A PIC CODE AND EXAMPLES OF SEVERAL CALCULATIONAL RESULTS ARE ALSO PRESENTED.

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

*FLOW DISTRIBUTION + *FLOW THEORY AND EXPERIMENTS + *MATHEMATICAL STUDY + COMPUTER PROGRAM + COMPUTER, DIGITAL + MATHEMATICAL TREATMENT

5-26159
HOOPER JR
STEADY-STATE AND DYNAMIC OPERATING CHARACTERISTICS OF A SIMULATED THREE-LOOP SPACE RANKINE-CYCLE POWERPLANT
UNITED AIRCRAFT CORP., EAST HARTFORD, CONN.
NASA-CR-625 +. 140 PAGES, 66 FIGURES, 8 TABLES, NOVEMBER 1966

EXPERIMENTAL INVESTIGATIONS WERE CONDUCTED WITH A FACILITY WHICH SIMULATED HEAT TRANSFER AND FLUID FLOW IN A RANKINE-CYCLE SPACE POWER-CONVERSION SYSTEM OF THE SNAP-8 TYPE. WATER WAS THE WORKING FLUID. STEADY-STATE CONDENSER AND BOILER DATA ARE PRESENTED IN A FORM SUITABLE TO A LINEARIZED ANALYSIS OF THE INTERACTIONS OF THESE COMPONENTS WITH THE REST OF THE SYSTEM. FREQUENCY-RESPONSE DATA WAS OBTAINED BY VARYING THE POWER-LOOP FLOW RATE AT THE BOILER INLET. EXPERIMENTAL STABILITY MAPS ARE PRESENTED AS A FUNCTION OF THE PRESSURE-FLOW SLOPE IMPOSED AT THE BOILER INLET.

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

*FLOW STABILITY + *HEAT TRANSFER ANALYSIS + *SNAP 8 (SR) + *TRANSFER FUNCTION + FLOW THEORY AND EXPERIMENTS + REACTOR, SPACE + SNAP, GENERAL (SR)

5-26160
MAFCK WJ + REIN JE
BURNUP DETERMINATION OF NUCLEAR FUELS, 1964 ANNUAL REPORT
PHILLIPS PETROLEUM COMPANY
IDO-14656 +. 42 PAGES, 8 FIGURES, 8 TABLES, 15 REFERENCES, MAY 1965

THIS ANNUAL REPORT FOR 1964 DESCRIBES THE STATUS OF THE PROJECT TO DEVELOP METHODS FOR THE DETERMINATION OF BURNUP OF NUCLEAR FUELS. THE MAJOR ANALYTICAL TECHNIQUE BEING INVESTIGATED IS STABLE-FISSION-PRODUCT ANALYSIS. THE PREPARATION OF STANDARD BURNUP AND FISSION YIELD SAMPLES IS PRESENTED. CHEMICAL SEPARATIONS, THE EVALUATION OF SEVERAL METHODS FOR STABLE FISSION PRODUCT ANALYSIS, THE PREPARATION OF STANDARDS FOR MASS SPECTROMETRIC ANALYSIS, AND THE DISSOLUTION OF FUEL SAMPLES ARE DISCUSSED.

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

*FISSION PRODUCT, SEPARATION FROM WASTE + *FUEL BURNUP + CHEMICAL ANALYSIS + REACTIVITY, EXCESS

5-26161
FAJEAU M + SAUNIER JP
CODE CACTUS
COMMISSARIAT A L-ENERGIE ATOMIQUE, SACLAY (FRANCE). CENTRE D-ETUDES NUCLEAIRES
CEA-R-3039 +. 99 PAGES, SEPTEMBER 1966, (IN FRENCH)

CACTUS IS A ONE-DIMENSIONAL MULTICHANNEL COMPUTER CODE FOR THE ANALYSIS OF THERMAL AND HYDRODYNAMIC BEHAVIOR OF WATER-COOLED AND -MODERATED REACTORS AT EITHER HIGH OR LOW PRESSURES, WITH BOILING PERMITTED. FLAT-PLATE GEOMETRY IS ASSUMED FOR THE FUEL ELEMENTS. THE FLOW RATE IN PARALLEL CHANNELS IS CONSIDERED FOR BOTH THE STEADY AND UNSTEADY STATE CASES. REACTOR POWER MAY BE SUPPLIED BY THE USER OR DERIVED FROM AN INTERNAL REACTOR KINETICS CALCULATION. A PROVISION FOR CALCULATIONS REACTOR POWER DURING A SCRAM CONDITION IS INCLUDED. THIS CODE HAS ALSO PROVEN CAPABLE OF STEADY AND UNSTEADY STATE ANALYSIS OF THERMAL EXPERIMENTS ON A WATER LOOP AT HIGH OR LOW PRESSURE. (THE CODE APPEARS TO HAVE BEEN WRITTEN IN FORTRAN, ALTHOUGH NO LISTING OF THE SOURCE PROGRAM IS INCLUDED IN THIS REPORT.)

CATEGORY 5
ACCIDENT ANALYSIS

5-26161 *CONTINUED*
AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*COMPUTER PROGRAM + *HEAT TRANSFER ANALYSIS + *HYDRODYNAMIC ANALYSIS + *REACTOR, WATER + COMPUTER, DIGITAL + FRANCE + REACTOR, BWR

5-26162
CLARK SS + TROOST M
RAT-3D. A GENERAL THREE-DIMENSIONAL HEAT TRANSFER CODE
GENERAL DYNAMICS CORP., SAN DIEGO, CALIF. GENERAL ATOMIC DIVISION
GAMD-7346 +. 227 PAGES, FIGURES, TABLES, OCTOBER 10, 1966

THE RAT-3D PROGRAM IS A FORTRAN-IV CODE FOR SOLVING TRANSIENT THREE-DIMENSIONAL HEAT-TRANSFER PROBLEMS. THE NONLINEAR-PARTIAL-DIFFERENTIAL HEAT-TRANSPORT EQUATION HAS BEEN REWRITTEN AS A SET OF QUASI-LINEAR FINITE-DIFFERENCE EQUATIONS. THIS SET OF EQUATIONS IS SOLVED BY A MATHEMATICALLY STABLE ALTERNATING-GRADIENT METHOD. SOME SPECIAL FEATURES ARE - ANISOTROPIC THERMAL CONDUCTIVITIES, RADIATION ACROSS INTERNAL GAPS, INTERNAL AND EXTERNAL COOLANTS, DESCRIPTION OF MATERIAL PROPERTIES AS FUNCTIONS, AND SIMPLE GEOMETRICAL INPUT. A SMALL SUBROUTINE, LINK, IS WRITTEN IN MAP. THIS SUBROUTINE IS DIFFICULT TO CONVERT BECAUSE IT IS COMPILER DEPENDENT.

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

*COMPUTER PROGRAM + *HEAT TRANSFER + *TEMPERATURE TRANSIENT + HEAT TRANSFER ANALYSIS + REACTOR TRANSIENT

5-26163
KINTNER LL + GREEN GS + KELLY JP + MYERS LB
SUPERHEATER FUEL THERMOCOUPLE CALIBRATION TESTS (711A) AND RADIATION COOLING TESTS (723)
ALLIS-CHALMERS MFG. CO., BETHESDA, MD. ATOMIC ENERGY DIVISION
ACNP-66570 +. 70 PAGES, 38 FIGURES, 4 TABLES, 16 REFERENCES, NOV. 1966

SUPERHEATER TEMPERATURES WITH RADIATION COOLING HAVE BEEN CALCULATED AND MEASURED IN AN OUT-OF-PILE EXPERIMENT DURING THE DESIGN PHASE. REACTOR SHUTDOWN PROCEDURES ARE BASED UPON THE RESULTS OF OUT-OF-PILE TESTING AND DESIGN CALCULATIONS. THE PURPOSE OF THE RADIATION COOLING TESTS IN THE REACTOR WAS TO GAIN ADDED ASSURANCE THAT MAXIMUM SUPERHEATER TEMPERATURES DURING RADIATION COOLING ARE PREDICTED BY DESIGN CALCULATIONS. THE TESTS WERE PERFORMED EARLY IN CORE LIFE, USING FISSION HEAT TO SIMULATE FISSION PRODUCT DECAY HEAT, SO THAT HEATING COULD BE CONTROLLED. FORTY-FIVE THERMOCOUPLES WERE ATTACHED TO FIVE INSTRUMENTED FUEL ELEMENTS TO MEASURE SUPERHEATER TEMPERATURE. THERMOCOUPLE CALIBRATION WAS CHECKED PRIOR TO THE TEST BY ADIABATIC RUNS AT SEVERAL REACTOR WATER TEMPERATURES. THE RESULTS ARE COMPARED WITH DESIGN CALCULATIONS, THE ACCURACY OF THE DESIGN CALCULATIONS.

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

*INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, TEMPERATURE + *PATHFINDER (ISR) + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HEAT TRANSFER, RADIANT + OUT OF PILE LOOPS AND EXPERIMENTS + REACTOR, INTERNAL SUPERHEAT

5-26165
CHEESEWRIGHT R
TURBULENT NATURAL CONVECTION FROM A VERTICAL PLANE SURFACE
DEPT. OF NUCLEAR ENGINEERING, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICH.
8 PAGES, 12 FIGURES, 17 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 1-8, (FEBRUARY 1968)

THE PAPER REPORTS THE RESULTS OF AN EXPERIMENTAL INVESTIGATION WHICH WAS INTENDED TO CLARIFY THE PRESENT UNCERTAIN POSITION WITH REGARD TO THE DISTRIBUTIONS OF MEAN TEMPERATURE AND MEAN VELOCITY IN A TURBULENT NATURAL-CONVECTION BOUNDARY LAYER. DATA REPORTED FOR THE TURBULENT BOUNDARY LAYER FOR GRASHOF NUMBERS BETWEEN 10 TO THE 10TH AND 11TH INCLUDE LOCAL HEAT TRANSFER COEFFICIENTS AND TEMPERATURE DISTRIBUTIONS ARE ALSO REPORTED FOR THE LAMINAR AND TRANSITIONAL BOUNDARY-LAYER REGIONS. RESULTS ARE COMPARED WITH OTHER EXPERIMENTAL DATA AND THEORETICAL PREDICTIONS.

*FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER, NATURAL CONVECTION + *SURFACE, GENERAL + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER CORRELATION + HEAT TRANSFER, GAS + TEMPERATURE GRADIENT

5-26166
WITTE LC
AN EXPERIMENTAL STUDY OF FORCED-CONVECTION HEAT TRANSFER FROM A SPHERE TO LIQUID SODIUM
ARGONNE NATIONAL LABORATORY, ARGONNE, ILL.
4 PAGES, 5 FIGURES, 1 TABLE, 6 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 9-12, (FEBRUARY 1968)

EXPERIMENTAL HEAT-TRANSFER RATES FROM SPHERES MOVING THROUGH LIQUID SODIUM WERE OBTAINED BY A TRANSIENT TECHNIQUE IN WHICH A HEATED METAL SPHERE WAS PASSED THROUGH A POOL OF LIQUID SODIUM. HEAT-TRANSFER RATES UP TO 3,580,000 BTU/HR-SQ. FT. WERE CALCULATED FROM THE

CATEGORY 5
ACCIDENT ANALYSIS

5-26166 *CONTINUED*
EXPERIMENTAL MEASUREMENTS. REYNOLDS NUMBERS, BASED ON THE SPHERE VELOCITY AND DIAMETER, RANGED FROM 35,000 TO 153,000. THE EXPERIMENTAL DATA WERE CORRELATED BY AN EXPRESSION SIMILAR TO THEORETICAL EXPRESSIONS OBTAINED FROM POTENTIAL FLOW THEORY.

*HEAT TRANSFER ANALYSIS + *METAL, LIQUID + *SODIUM + *SPHERE + FLOW, TURBULENT + HEAT TRANSFER + HEAT TRANSFER CORRELATION + METAL, ALKALI

5-26167
ARMISTEAD RA + KEYES JJ
A STUDY OF WALL-TURBULENCE PHENOMENA USING HOT-FILM SENSORS
OAK RIDGE NATIONAL LAB., TENN.
9 PAGES, 9 FIGURES, 14 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 13-21, (FEBRUARY 1968)

FLUSH-MOUNTED HOT-FILM SENSORS WERE USED TO STUDY LOCAL TURBULENCE-INDUCED FLUCTUATIONS IN THE RATE OF HEAT TRANSFER IN PIPE FLOW OF WATER FOR A REYNOLDS NUMBER RANGE OF 11,000 TO 170,000. DETERMINATIONS WERE MADE OF POWER SPECTRAL DENSITY, CHARACTERISTIC FREQUENCY (OBTAINED FROM THE RATE AT WHICH THE SIGNAL CROSSED ITS ZERO LEVEL), AMPLITUDE DENSITY, AND INTENSITY OF THE HEAT-TRANSFER FLUCTUATIONS. STUDIES OF THE RELATIONSHIP BETWEEN THE HEAT-TRANSFER FLUCTUATIONS IN THE VICINITY OF THE WALL INDICATED THAT A SIGNIFICANT CORRELATION EXISTED WHICH SYSTEMATICALLY DECREASED AS THE ANEMOMETER WAS MOVED FROM MODERATE DISTANCES UPSTREAM TO MODERATE DISTANCES DOWNSTREAM OF THE WALL SENSOR. EVIDENCES OF A PERIODIC COMPONENT WERE OBSERVED IN THE AUTOCORRELATION CURVES OF VELOCITY FLUCTUATIONS IN THE VICINITY OF THE WALL FOR A REYNOLDS NUMBER OF 52,000. THE PERIOD DETERMINED WAS OF THE SAME ORDER OF MAGNITUDE AS THAT PREDICTED BY EINSTEIN AND LI AND BLACK SUBLAYER FLOW MODELS.

*BOUNDARY LAYER + *FLOW THEORY AND EXPERIMENTS + *FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + FLOW, TUBE

5-26170
SHERMAN M
CONVECTIVE INSTABILITIES IN FULLY DEVELOPED FLOWS
DEPT. OF GEOPHYSICS AND ASTRONOMY, THE RAND CORP., SANTA MONICA, CALIF.
3 PAGES, 7 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 84-86, (FEBRUARY 1968)

CONSIDERED THE POSSIBILITY OF INDUCING A CONVECTIVE SECONDARY FLOW IN THE FULLY DEVELOPED CHANNEL FLOW OF A QUASI-INCOMPRESSIBLE (BOUSSINESQ) FLUID. INSTABILITIES OF THIS TYPE CAN OCCUR ONLY WHEN THE TEMPERATURE GRADIENT IN THE DIRECTION OF THE BODY FORCE EXCEEDS A CERTAIN CRITICAL VALVE. THIS TEMPERATURE GRADIENT IS PROPORTIONAL TO THE RAYLEIGH NUMBER OF THE FLUID. FOR CHANNELS OF ARBITRARY CROSS SECTION, THE CRITICAL RAYLEIGH NUMBER IS GREATER THAN 1360. FOR TWO SPECIAL GEOMETRIES IT IS POSSIBLE TO IMPROVE THE FOREGOING LOWER BOUND ESTIMATE OF THE CRITICAL RAYLEIGH NUMBER. IN A CIRCULAR CHANNEL, R CRITICAL IS ABOUT 3450, AND IN A SQUARE CHANNEL ABOUT 2480.

*HEAT TRANSFER, CONVECTION + *HOT CHANNEL + *INSTABILITY + FLOW, LAMINAR + FLOW, TURBULENT + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HOT CHANNEL ANALYSIS

5-26172
STAUB FW
THE VOID FRACTION IN SUBCOOLED BOILING-PREDICTION OF THE INITIAL POINT OF NET VAPOR GENERATION
GENERAL ELECTRIC, RESEARCH AND DEVELOPMENT CENTER, SCHENECTADY, NEW YORK
7 PAGES, 7 FIGURES, 24 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 151-157, (FEBRUARY 1968)

THE SATISFACTORY PREDICTION OF THE VAPOR VOLUME FRACTION IN SUBCOOLED BOILING DEPENDS IN LARGE PART ON THE ABILITY TO PREDICT THE POINT WHERE A SIGNIFICANT AMOUNT OF NET VAPOR IS FIRST FORMED. A METHOD FOR PREDICTING THIS POINT IS DERIVED HERE AND COMPARED WITH EXPERIMENTAL MEASUREMENTS AT BOTH LOW AND HIGH FLUID VELOCITIES. THE DERIVED RELATIONSHIPS FOR THIS POINT INCLUDE THE EFFECT OF FLUID PROPERTIES, GEOMETRY, AND THE LIQUID VELOCITY. A COMPARISON WITH THE EMPIRICAL FORMULA OF BOWRING FOR WATER IS GIVEN.

*CONVECTIVE BOILING + *SUBCOOLING + *VOID FRACTION + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HEAT TRANSFER, BOILING + HEAT TRANSFER, TWO PHASE

5-26182
SCHREIBER RE
IRRADIATION OF REFRACTORY FUEL COMPOUNDS, UO2 AND UC, AT HIGH SPECIFIC POWER TO HIGH BURNUPS. POST-IRRADIATION EXAMINATION OF CAPSULE 1. FIRST INTERIM REPORT.
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
NASA-CR-72019 + WCAP-2972 +. 81 PAGES, 39 FIGURES, 14 TABLES, REFERENCES, AUGUST 1966

THE FIRST OF 13 CAPSULES, EACH CONTAINING FOUR FUEL PINS, HAS BEEN IRRADIATED AND EXAMINED. THREE OF THE PINS ARE UO2 AND THE FOURTH IS UC. MEAN POWER LEVELS OF 33 KW/FT AND BURNUPS OF 2.26 X 10(20TH) FISSION/CC WERE ACHIEVED IN EACH OF THE 0.3000-INCH-DIAMETER, 4.0-INCH-LONG FUEL-PELLET COLUMNS. THE AISI 348 STAINLESS STEEL CLAD WAS 10, 20, OR 30 MILS THICK ON THE UO2 PINS AND 20 MILS ON THE UC. ALL PINS WERE GAS-BONDED, SURROUNDED BY NAK, AND OPERATED AT APPROXIMATELY 760 C FUEL-SURFACE TEMPERATURE. FISSION GAS RELEASE, DENSITY CHANGES, MELTING

CATEGORY 5
ACCIDENT ANALYSIS

5-26182 *CONTINUED*
BEHAVIOR, AND DIMENSIONAL CHANGES AGREED WELL WITH PREDICTIONS. THE 20-MIL-CLAD UO2 PIN FAILED, EVIDENTLY BY LOCAL NAK DEPRIVATION.

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

*FUEL BURNUP + *IRRADIATION TESTING + *NAK + *URANIUM CARBIDE + *URANIUM OXIDE + CLAD + CONTAINMENT, GENERAL + FISSION GAS RELEASE + IRRADIATION FACILITY + STEEL, STAINLESS

5-26183
KRISHNAMURTY VV + SAMBASIVA RAO NV
HEAT TRANSFER IN NON-CIRCULAR CONDUITS--PART IV--LAMINAR FORCED CONVECTION IN RECTANGULAR CHANNELS
3 PAGES, 1 FIGURE, 2 TABLES, 7 REFERENCES, INDIAN JOURNAL OF TECHNOLOGY 5(10), PAGES 331-33 (OCTOBER 1967)

ANALYTICAL EXPRESSIONS ENABLING THE PREDICTION OF LOCAL AND AVERAGE FILM COEFFICIENTS OF HEAT TRANSFER FOR LAMINAR FLOW OF INCOMPRESSIBLE FLUIDS IN RECTANGULAR CHANNELS HAVING CONSTANT WALL TEMPERATURE HAVE BEEN DEVELOPED AND ARE PRESENTED HERE.

*FLOW, LAMINAR + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER, CONVECTION + *HOT CHANNEL + HEAT TRANSFER + HOT CHANNEL ANALYSIS + MATHEMATICAL TREATMENT

5-26184
DELCHAMBRE + MILLOT JP + TATTEGRAIN A
EXPERIMENTAL STUDY OF LOSS OF COOLANT FLOW ACCIDENTS IN SWIMMING-POOL REACTORS
CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE
13 PAGES, 15 FIGURES, 2 TABLES, BULL. INFORM. SCI. TECH. 112, PAGES 57-69 (FEB. 1967) IN FRENCH

THE SAFETY MARGINS TO BE COMPLIED WITH WHEN DETERMINING THE POWER OF A SWIMMING POOL REACTOR MUST BE CONSISTENT WITH THE BEHAVIOUR OF THE CORE UNDER LOSS OF COOLANT ACCIDENTAL CONDITIONS. AN EXPERIMENTAL INVESTIGATION OF SUCH ACCIDENTS HAS BEEN CARRIED ON CABRI REACTOR SO AS TO GET A BETTER KNOWLEDGE OF THOSE MARGINS. AS IT IS MENTIONED IN THE REVIEW OF TESTS ON REACTIVITY ACCIDENTS, TWO SERIES OF TESTS WITH OSIRIS- AND SILOE-LIKE CORES HAVE BEEN PERFORMED. THE COOLANT FLOW WAS STOPPED SHORT EITHER BY TURNING OFF A PUMP OR BY CLOSING A VALVE WHILE THE REACTOR WAS OPERATED AT THE STEADY STATE POWER LEVEL. THE BEHAVIOUR OF THE REACTOR AT POWER LEVEL AND OF THE PLATES TEMPERATURES HAVE BEEN MEASURED THEN. THOSE TESTS WILL BE USED AS AN EXPERIMENTAL CHECK FOR A COMPUTER CODE AS DESCRIBED IN THE CHAPTER, CALCULATION OF ACCIDENTS IN SWIMMING POOL REACTORS OPERATED AT POWER.

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + EMERGENCY COOLING CONSIDERATIONS + FRANCE + HAZARDS ANALYSIS

5-26190
BRUNDRETT E + BURROUGHS PR
THE TEMPERATURE INNER-LAW AND HEAT TRANSFER FOR TURBULENT AIR FLOW IN A VERTICAL SQUARE DUCT
UNIVERSITY OF WATERLOO, ONTARIO, CANADA
10 PAGES, 8 FIGURES, 9 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 10(9), PAGES 1133-42 (SEPTEMBER 1967)

THE TEMPERATURE NEAR HEATED WALLS OF A VERTICAL ALUMINUM SQUARE DUCT HAS BEEN MEASURED FOR TURBULENT AIR FLOW. A MINATURE THERMOCOUPLE PROBE WAS DEVELOPED FOR THE INVESTIGATION, AS WELL AS SPECIAL TECHNIQUES FOR INTERPRETING THE RESULTS CLOSE TO A WALL. MODERATE HEAT-TRANSFER RATES WERE EMPLOYED AND IT WAS FOUND THAT THE TEMPERATURE INNER-LAW PARAMETERS CORRELATED THE PROFILES AT ALL POSITIONS AROUND THE DUCT WALL IF THE LOCAL VALUES OF THE WALL SHEAR STRESS AND WALL HEAT FLUX WERE SPECIFIED IN THE CORRELATION. THE LOCAL WALL HEAT-TRANSFER RATES WERE OBTAINED BY A RECENTLY DESCRIBED HEAT-FLUX PROBE. FOR THE WALL SHEAR STRESS DETERMINATION PRESTON TUBE DATA WERE EMPLOYED. THE DISTRIBUTIONS OF WALL SHEAR STRESS AND WALL HEAT FLUX WERE SPECIFIED BY A SINGLE CURVE OVER THE RANGE OF REYNOLDS AND NUSSELT NUMBERS EMPLOYED IN THE INVESTIGATIONS.

*FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER CORRELATION + *HEAT TRANSFER, GAS + HEAT TRANSFER + HEAT TRANSFER, CONVECTION + TEMPERATURE GRADIENT

5-26195
ROUSUEL A + SOURIOUX G + DOLLE J + SANDRIN J
SWIRL FLOWS IN BOILING WATER. CRITICAL FLUX IN SWIRL FLOW IN A TUBE.
SOCIETE NATIONALE D ETUDE ET DE CONSTRUCTION DE MOTEURS D AVIATION, SURESNES (FRANCE)
EURAEC-1544 +. 4 PAGES, 1 TABLE, OCTOBER 1965

THE INFLUENCE OF THE VARIOUS PARAMETERS INVOLVED IN THE DEFINITION OF CRITICAL HEAT FLUX IN SWIRL FLOW IS STUDIED. TUBULAR GEOMETRY WAS SELECTED FOR THIS WORK TO FACILITATE CALCULATION OF LOCAL QUALITY AT RIGHT ANGLES TO BURN OUT, AS CALCULATION IS COMPLICATED IN A ROD CLUSTER WHERE THE RADIAL DISTRIBUTION OF POWER NON HEATED WALLS AND THE RELATED PHENOMENA OF FLOW DISTRIBUTION IN THE SUBCHANNELS HAVE TO BE TAKEN INTO CONSIDERATION. THE INFLUENCE OF THE HEATING LENGTH OF THE CHANNEL, MASS FLOW RATE, AND FLUID ENTHALPY AT THE HEATING-CHANNEL INLET ON THE CRITICAL HEAT FLUX IS EXAMINED.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-26195 *CONTINUED*
22151, $3.00 COPY, $0.65 MICRONEGATIVE

*EURATOM + *FLOW, TUBE + *HEAT FLUX, CRITICAL + *HOT CHANNEL + HEAT TRANSFER, TWO PHASE + HOT CHANNEL ANALYSIS

5-26196
KIRBY GJ
MODEL FOR CORRELATING BURNOUT IN ROUND TUBES
ATOMIC ENERGY ESTABLISHMENT, WINFRITH (ENGLAND)
AEEW-R-511 +. 14 PAGES, REFERENCES, SEPTEMBER 1966

PRESENTS A MODEL WHICH REPRESENTS THE FILM FLOW RATE IN THE CLIMBING-FILM REGIME OF BOILING TWO-PHASE FLOW. BY CALCULATING THE DRYOUT POINT BURNOUT HEAT FLUXES FOR ROUND TUBES BOTH UNIFORMLY AND NON-UNIFORMLY HEATED AXIALLY HAVE BEEN PREDICTED WITH ACCURACIES AS GOOD AS THE BEST EMPIRICAL CORRELATIONS. THE MODEL IS USED TO INVESTIGATE THE EFFECT OF VARYING FLUX PROFILE AS WELL AS THE OTHER SYSTEM DESCRIBING PARAMETERS.

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

*BURNOUT HEAT FLUX + *FLOW, TUBE + *HEAT TRANSFER CORRELATION + CONVECTIVE BOILING + FLOW, TWO PHASE + HEAT TRANSFER + HEAT TRANSFER ANALYSIS

5-26197
ROGERS AE
TURBULENT FLOW IN ECCENTRIC ANNULI
GENERAL ELECTRIC CO., SAN JOSE, CALIF. ATOMIC POWER EQUIPMENT DEPT.
APED-5295 +. 5 PAGES, REFERENCES, NOVEMBER 1966

EQUATIONS DESCRIBING FULLY-DEVELOPED TURBULENT FLOW IN AN ECCENTRIC ANNULUS ARE DERIVED. THE METHODS USED ARE EXTENSIONS OF CONCENTRIC-ANNULUS THEORY. THE PREDICTED SHEAR DISTRIBUTIONS FOR THE INNER AND OUTER WALLS, VELOCITY DISTRIBUTIONS, AND FRICTION-FACTOR RESULTS ARE COMPARED WITH AVAILABLE DATA AND ARE IN GOOD AGREEMENT WITH MOST EXPERIMENTAL RESULTS. AN EXTENSION OF THE ANALYSIS TO INCLUDE INFINITE ROD ARRAYS IS PROPOSED.

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

*FLOW, ANNULAR + *FLOW, TURBULENT + *HEAT TRANSFER + FLOW THEORY AND EXPERIMENTS

5-26198
GARTON DA + HAWES RI + ROSE PW
AN INVESTIGATION OF HEAT EXCHANGER FOULING IN DUST SUSPENSION COOLING SYSTEMS USING GRAPHITE POWDER AND CARBON DIOXIDE GAS
ATOMIC ENERGY ESTABLISHMENT, WINFRITH (ENGLAND)
AEEW-R-509 +. 14 PAGES, 7 FIGURES, 2 TABLES, REFERENCES, 1966

SOME EXPERIMENTS WERE PERFORMED TO STUDY THE FOULING OF HEAT EXCHANGER SURFACES WHERE HEAT IS BEING TRANSFERRED FROM A HEATED FLUID TO A COOLED SURFACE. THE FLUID STUDIED WAS A SUSPENSION OF 4-5 MICRONS MEAN DIAMETER GRAPHITE POWDER IN CARBON DIOXIDE GAS AT NEAR ATMOSPHERIC PRESSURES. THE SOLIDS LOADING RANGE COVERED WAS FROM 5 TO 30 LBS GRAPHITE/LB CARBON DIOXIDE, AND GAS REYNOLDS NUMBERS FROM 6000 TO 16000. TEMPERATURE GRADIENTS ACROSS THE COOLER OF FROM 20 TO 120 C WERE OBTAINED. THE HEAT TRANSFER RATIO IS CORRELATED TO SHOW THE DEPENDENCE UPON THE SOLIDS LOADING RATIO OF THE SUSPENSION, THE GAS REYNOLDS NUMBER AND THE TEMPERATURE GRADIENT ACROSS THE COOLER.

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

*FAILURE, EQUIPMENT + *HEAT EXCHANGER + *HEAT TRANSFER, TWO PHASE + FLOW, TUBE + SURFACE FILM DEPOSIT + SURFACE WATER, SUSPENDED MATERIAL

5-26199
HAWES RI + GARTON DA
HEAT EXCHANGER FOULING WITH DUST SUSPENSIONS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
3 PAGES, 2 FIGURES, 2 TABLES, CHEM. PROCESS ENGINEERING 48(8) PAGES 143-5, 50 (AUGUST 1967)

MUCH INTEREST HAS BEEN PROVOKED BY THE PROBLEM OF SURFACE FOULING BY GAS/SOLID SUSPENSIONS, WHERE THE HEAT CONTAINED IN THE FLUID IS TRANSFERRED TO AND THROUGH THEM. THE PROBLEM IS REVIEWED IN DETAIL, IN THE LIGHT OF THE FUNCTIONS OF HEAT EXCHANGERS, AND A NUMBER OF RELATED CHARACTERISTICS ARE INDICATED WHICH WILL HELP TO MINIMIZE THE FOULING OF THE SURFACES OF HEAT EXCHANGERS BY FLOWING GAS/SOLID SUSPENSIONS.

*FAILURE, EQUIPMENT + *HEAT EXCHANGER + *HEAT TRANSFER, TWO PHASE + FLOW, TUBE + SURFACE FILM DEPOSIT + SURFACE WATER, SUSPENDED MATERIAL

CATEGORY 5
ACCIDENT ANALYSIS

5-26200
SKINNER JH
FRICTION AND HEAT-TRANSFER EFFECTS ON THE NONSTEADY FLOW BEHIND A DETONATION
RENSSALAER POLYTECHNIC INSTITUTE, NEW YORK
3 PAGES, 3 FIGURES, 13 REFERENCES, AIAA JOURNAL 5(11), PAGES 2069-71 (NOVEMBER 1967)

WHEN A DETONATION IS INITIATED IN A DUCT, A FLOW FIELD IS INDUCED WHICH IS NONSTEADY IN ALL FRAMES OF REFERENCE. IF THE DUCT IS VERY LONG, IT IS EXPECTED THAT, AS THE DETONATION CONTINUES TO PROPAGATE AT CONSTANT SPEED, THE DISSIPATIVE EFFECTS OF FRICTION AND HEAT TRANSFER WILL GRADUALLY MODIFY THE FLOW TO ONE THAT IS STEADY IN A FRAME OF REFERENCE MOVING WITH THE DETONATION FRONT. THIS NOTE DEALS WITH A STUDY IN WHICH THE TRANSITION TO STEADY FLOW IS ANALYZED BY THE METHOD OF CHARACTERISTICS, WITH CONSIDERATION OF FRICTION AND HEAT TRANSFER EFFECTS, FOR THE SPECIFIC CASE OF A CHAPMAN-JOUGUET DETONATION.

*ACCIDENT ANALYSIS + *EXPLOSIVE, CONVENTIONAL + *FLOW THEORY AND EXPERIMENTS + *PRESSURE TRANSIENT + EXPLOSION + HEAT TRANSFER ANALYSIS + PRESSURE PULSE

5-26252
BARKER JJ
MICROELECTRONIC DEVICE FOR MEASURING WHAT TRANSFER COEFFICIENTS IN FLUIDIZED BEDS
4 PAGES, 5 FIGURES, 3 TABLES, 2 REFERENCES, IND. AND ENGINEERING CHEMISTRY FUNDAMENTALS 6(1), PAGES 139-142 (FEBRUARY 1967)

A FLUIDIZABLE PARTICLE CONTAINING A HEAT SOURCE, ELECTRON CURRENT SOURCE, THERMISTOR, AND RADIO TRANSMITTER CIRCUIT IS MADE OF BEO AND IS 1 CM. IN DIAMETER. THE CARRIER WAVE IS 80 MC, AND THE TEMPERATURE-SENSITIVE PULSING FREQUENCY IS AROUND 10 KC PER SECOND. HEAT IS SUPPLIED BY 16 CURIES OF PO-210. EARLY PROTOTYPES USE HG HEARING-AID BATTERIES, BUT THERMOELECTRIC DEVICES ARE ADAPTABLE TO LATER UNITS. THE DEVICE IS CAPABLE OF ACCURATE MEASUREMENT OF THE AVERAGE HEAT TRANSFER COEFFICIENT FOR A PARTICLE IN A FLUIDIZED BED. TEMPERATURE DIFFERENCES OF SEVERAL DEGREES, BETWEEN THE PARTICLE AND THE FLUIDIZING, ATMOSPHERIC AIR, CAN BE MEASURED WITH ESTIMATED ERRORS LESS THAN A FEW PER CENT. THE COST OF DEVELOPED UNITS WOULD BE ABOUT $1150, $900 BEING FOR THE HEAT SOURCE.

*FLUIDIZED BED + *HEAT TRANSFER COEFFICIENT + *INSTRUMENTATION, COMPONENT + HEAT TRANSFER + HEAT TRANSFER EXPERIMENT + INSTRUMENTATION, GENERAL

5-26253
SKELLAND AH
ASYMPTOTIC RATES OF HEAT OR MASS TRANSFER IN NON-NEWTONIAN LAMINAR FLOW
UNIVERSITY OF NOTRE DAME, IND.
4 PAGES, 3 FIGURES, 19 REFERENCES, IND. AND ENGINEERING CHEMISTRY FUNDAMENTALS 6(1), PAGES 148-51 (FEBRUARY 1967)

EXPRESSIONS ARE DEVELOPED FOR ASYMPTOTIC NUSSELT NUMBERS IN THE STEADY LAMINAR FLOW OF POWER-LAW AND BINGHAM PLASTIC NON-NEWTONIAN FLUIDS IN TUBES AND BETWEEN PARALLEL PLATES. THE CONDITIONS CONSIDERED INCLUDE A CUBIC POLYNOMIAL TEMPERATURE DISTRIBUTION, CONSTANT HEAT FLUX AT THE WALL, AND CONSTANT WALL TEMPERATURE IN THE DIRECTION OF FLOW. CONCLUSIONS ARE DRAWN FROM COMPARISON WITH EXPERIMENTAL MEASUREMENTS, SHOWING THE MAGNITUDE OF DEVIATIONS CAUSED BY ENTRANCE EFFECTS, NONISOTHERMAL PROPERTIES, AND POSSIBLE NATURAL CONVECTION, UP TO L/D RATIOS OF 600.

*FLOW, NONNEWTONIAN + *HEAT TRANSFER, CONVECTION + *MASS TRANSFER + FLOW, LAMINAR + FLOW, TUBE

5-26254
THOMAS DG
ENHANCEMENT OF FILM CONDENSATION HEAT TRANSFER RATES ON VERTICAL TUBES BY VERTICAL WIRES
OAK RIDGE NATIONAL LABORATORY
7 PAGES, 4 FIGURES, 20 REFERENCES, IND. AND ENGINEERING CHEM. FUND 6(1), PAGES 97-103 (FEBRUARY 1967)

VERTICAL WIRES, 0.030 AND 0.062 IN. IN DIAMETER, LOOSELY ATTACHED TO A 0.5-INCH-OD VERTICAL TUBE 42.5 IN. LONG MARKEDLY INCREASE THE FILM-CONDENSATION HEAT-TRANSFER COEFFICIENT. AT A HEAT FLUX OF 20,000 BTU/HR-SQ. FT, FOUR WIRES OBSTRUCTING 7.6% OF THE SURFACE INCREASED THE CONDENSING COEFFICIENT BY A FACTOR OF 3.14, WHILE 12 WIRES OBSTRUCTING 23% OF THE SURFACE INCREASED THE CONDENSING COEFFICIENT BY A FACTOR OF 4.53. A QUALITATIVE MODEL BASED ON THE FILM AND RIVULET HYDRODYNAMICS PREDICTED THE OBSERVED INCREASE IN CONDENSING COEFFICIENT WITH DECREASING RATE OF CONDENSATION AND INCREASING FRACTIONAL SURFACE COVERAGE BY WIRES. IN ADDITION, THE MODEL AND THE DATA SHOWED A BROAD MAXIMUM FOR A FRACTIONAL SURFACE COVERAGE OF ABOUT 18%.

*HEAT TRANSFER COEFFICIENT + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, CONDENSATION + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER

5-26258
DELCHAMBRE + MILLOT JP

CATEGORY 5
ACCIDENT ANALYSIS

5-26258 *CONTINUED*
STUDIES OF REDISTRIBUTION FLOW AND ITS INCIDENCE ON WATER REACTOR SAFETY
COMMISSARIAT A L ENERGIE ATOMIQUE
15 PAGES, 10 FIGURES, BULLETIN OF SCIENTIFIC AND TECHNICAL INFORMATION NO. 112. (FEBRUARY 1967) IN FRENCH

THE POWER THRESHOLD FOR NUCLEATE BOILING AND FLOW INSTABILITY WAS MEASURED IN OUT-OF-PILE EXPERIMENTS PERFORMED IN GRENOBLE AS A FUNCTION OF THE FLOW RATE (WITH A GIVEN WATER CHANNEL). THE TESTS PERFORMED ON CABRI, TAKING INTO ACCOUNT THE COUPLING BETWEEN VOID AND POWER, SHED LIGHT ON THE CONSEQUENCES OF THESE PHENOMENA FOR THE WHOLE CORE. WE HAVE MEASURED FOR A GIVEN CORE AND UP TO THE INSTABILITY THRESHOLD, THE POWER VARIATION AS A FUNCTION OF THE REACTIVITY INSERTION NECESSARY TO OBTAIN A GIVEN LEVEL, FROM CRITICAL POINT AT ZERO POWER. IN CASE OF INSTABILITY, WE HAVE INVESTIGATED SOME INSTANCES OF THE BEHAVIOUR OF POWER AND OF FUEL PLATES TEMPERATURES AFTER THE BEGINNING OF THE PHENOMENON.

*FLOW THEORY AND EXPERIMENTS + *NUCLEATE BOILING + *REACTOR, WATER + CONVECTIVE BOILING + FLOW, TWO PHASE + OUT OF PILE LOOPS AND EXPERIMENTS

5-26261
MACFARLANE DR + BRITTAN RO
TRANSIENT SODIUM BOILING CALCULATIONS
ARGONNE NATIONAL LABORATORY
15 PAGES, 19 FIGURES, 3 TABLES, 12 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 4(4), PAGES 360-74 (NOVEMBER 1966)

PRESENTS METHODS AND RESULTS OF A THEORETICAL INVESTIGATION ON SODIUM EXPULSION FROM A REACTOR CORE, DUE TO BOILING. USING THE BASIC EQUATIONS OF HYDRODYNAMICS AND LIMITED TO TRANSIENTS WHICH ARE SLOW ENOUGH SO THAT COOLANT BOILING OCCURS BEFORE THE FUEL SURFACE OR CLADDING MELTS. THE RESULTS OF CALCULATIONS PRESENTED FOR POWER INCREASE AND FLOW DECAY TRANSIENTS IN A TYPICAL OXIDE FUELED FAST BREEDER REACTOR COOLANT CHANNEL SHOW THAT (1) THE TWO-PHASE COOLANT MIXTURE IS EXPELLED FROM THE EXIT OF THE CHANNEL AT HIGH VELOCITIES, (2) THE DECREASE OF FLOW RATE IN THE SINGLE-PHASE PORTION OF THE CHANNEL IS RAPID, AND (3) THE PEAK PRESSURES GENERATED IN THE TRANSIENTS STUDIED ARE NOT EXCESSIVELY HIGH.

*CONVECTIVE BOILING + *MATHEMATICAL STUDY + *SODIUM + *TEMPERATURE TRANSIENT + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + NUMERICAL METHOD

5-26262
NIJSING R + GARGANTINI I + EIFLER W
ANALYSIS OF FLUID FLOW AND HEAT TRANSFER IN A TRIANGULAR ARRAY OF PARALLEL HEAT GENERATING RODS
EURATOM, ISPRA, ITALY
24 PAGES, 33 FIGURES, 1 TABLE, 15 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 4(4), PAGES 375-398 (NOVEMBER 1966)

THEORETICAL CONSIDERATIONS ARE PRESENTED ON FLUID FLOW AND HEAT TRANSFER FOR AXIAL TURBULENT FLOW IN A TRIANGULAR ARRAY OF PARALLEL HEAT GENERATING RODS. THE ANALYSIS PROPOSED CAN BE USED TO EVALUATE THE DISTRIBUTION AROUND THE RODS OF LOCAL COOLANT VELOCITIES, LOCAL SHEAR STRESSES, LOCAL COOLANT TEMPERATURES, AND LOCAL HEAT TRANSFER COEFFICIENTS. THE EFFECT OF ROD SPACING, REYNOLDS NUMBER AND PRANDTL NUMBER HAS BEEN INVESTIGATED FOR TWO HEAT TRANSFER BOUNDARY CONDITIONS - THAT OF A UNIFORM PERIPHERAL HEAT FLUX DISTRIBUTION AND THAT OF A UNIFORM PERIPHERAL SURFACE TEMPERATURE DISTRIBUTION AT THE ROD SURFACE.

*FLOW, AXIAL + *FLOW, TURBULENT + *FUEL ELEMENT CLUSTER + *HEAT TRANSFER ANALYSIS + EURATOM + FLOW THEORY AND EXPERIMENTS + HEAT GENERATION, INTERNAL + HEAT TRANSFER

5-26263
HUFSCHMIDT W + BURCK E + RIEBOLD W
DETERMINATION OF LOCAL AND MEAN HEAT TRANSFER COEFFICIENTS IN TUBES WITH HIGH HEAT FLUXES
EUROPEAN ATOMIC ENERGY COMMUNITY
27 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, VOL 9, PAGES 539-65 (1966)

IN DETERMINING THE LOCAL OR MEAN HEAT-TRANSFER COEFFICIENT FOR FLOW IN OR PARALLEL TO AN ELECTRICALLY HEATED TUBE, TWO PROCEDURES ARE COMMONLY USED FOR OBTAINING THE TEMPERATURE OF THE SURFACE IN CONTACT WITH THE FLUID. IN THE FIRST, THE TEMPERATURE OF THE SURFACE NOT IN CONTACT WITH THE FLUID IS MEASURED BY THERMOCOUPLE, IN THE SECOND THE MEAN WALL TEMPERATURE IS CALCULATED FROM THE MEASURED ELECTRICAL RESISTANCE OF THE TUBE. IT IS SHOWN THAT THE SECOND PROCEDURE MAY LEAD TO ERROR IF LOCAL DETERMINATIONS ARE INTENDED. THE TEMPERATURE DIFFERENCES ARE CALCULATED FROM THE SOLUTION OF THE HEAT-CONDUCTION EQUATION WITH HEAT SOURCES, ASSUMING THAT THE PROPERTIES OF THE WALL MATERIAL ARE TEMPERATURE-DEPENDENT. FOR THE REGION OF INTEREST IT IS SHOWN THAT A SIMPLIFIED SOLUTION, BASED ON CONSTANT MEAN PROPERTIES, GIVES RESULTS WHICH DEVIATE ONLY SLIGHTLY FROM THE EXACT SOLUTION OBTAINED WITH AN IBM 7090 COMPUTER.

*FLOW, TUBE + *HEAT TRANSFER, CONVECTION + *MATHEMATICAL TREATMENT + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HEAT TRANSFER COEFFICIENT

5-26264
KOT AA
WATER AND WATER TREATMENT IN NUCLEAR POWER PLANTS

CATEGORY 5
ACCIDENT ANALYSIS

5-26264 *CONTINUED*
VODNYI REZHIM ATOMNYKH ELEKTROSTANTSII, ATOMIZDAT, MOSCOW
AEC-TR-6629 + IPST-CAT.-1503 +. 309 PAGES, FIGURES, TABLES, 206 REFERENCES, 1964

THE DEVELOPMENT OF NUCLEAR POWER ENGINEERING AS THE POWER ENGINEERING OF THE FUTURE IS ABSOLUTELY CLEAR AND THEREFORE PROBLEMS OF WATER TREATMENT AND WATER SUPPLY FOR NUCLEAR POWER PLANTS BECOME VERY IMPORTANT. FOR CORRECT DESIGN AND OPERATION OF THE WATER TREATMENT EQUIPMENT AND FOR ENSURING AN APPROPRIATE WATER SUPPLY TO NUCLEAR POWER STATIONS, LITERATURE IS NECESSARY TO EXPLAIN TECHNOLOGICAL PROCESSES AT THE MODERN SCIENTIFIC AND TECHNICAL LEVEL. THE PUBLICATION OF THIS BOOK IS THE FIRST ATTEMPT OF SIGNIFICANT SCIENTIFIC AND PRACTICAL INTEREST TO SUMMARIZE ALL THE AVAILABLE MATERIAL ON WATER TREATMENT AND WATER SUPPLY. PROPORTIONS OF WATER USED AS A COOLANT IN REACTORS AND THE CHEMISTRY OF WATER IN REACTORS ARE DESCRIBED IN THIS BOOK, ALONG WITH QUESTIONS CONCERNING THE CORROSION OF STRUCTURAL MATERIALS, SCALE FORMATION AND DEPOSITS OF IMPURITIES IN THE STEAM SUPERHEATERS AND TURBINES.

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

*REACTOR, WATER + *WATER POLLUTION + *WATER TREATMENT + REACTOR, POWER + USSR + WATER, GENERAL

5-26265
THE EFFECT OF SURFACE CONDITIONS ON POOL BOILING HEAT TRANSFER OF SODIUM. PROGRESS REPORT, MARCH - OCTOBER 1965
MASSACHUSETTS INSTIT. OF TECH.
TID-22312 +. 3 PAGES, 4 FIGURES, FROM MARCH-OCTOBER 1965

AT REPEATED RUN WITH 12 REENTRANT CAVITIES, IT WAS FOUND THAT BOILING WAS UNSTABLE UP TO HEAT FLUXES OF 200,000 BTU/SQ. FT.-HR. IT WAS DECIDED TO RUN AGAIN WITH THE SAME BOILER AFTER BEING CLEANED. AN ULTRASONIC BATH WAS CHOSEN TO CLEAN THE CAVITIES. THE RESULTS OF THIS RUN SHOW THAT UNSTABLE BOILING TOOK PLACE EVEN AT HIGH HEAT FLUXES OF 190,000 BTU/SQ. FT.-HR. IT WAS DIFFICULT TO GET THE EXACT TEMPERATURE READING, SINCE GREAT VARIATIONS IN TEMPERATURE WERE OBTAINED AT ALL THE THERMOCOUPLES. IT SEEMS REASONABLE TO ASSUME THAT EVEN WITH ULTRASONIC CLEANING IT IS IMPOSSIBLE TO CLEAN COMPLETELY A REENTRY CAVITY. THEREFORE, WE TURNED OUR ATTENTION TO A CYLINDRICAL CAVITY 0.004 IN. IN DIAMETER. THIS INABILITY TO BE CLEANED MAY MAKE THE REENTRANT CAVITY IMPRACTICAL FOR USE IN INDUSTRIAL APPLICATIONS. IT WAS DECIDED TO START A NEW SERIES OF RUNS WITH CYLINDRICAL CAVITIES WITH THE FOLLOWING VARIABLES - NUMBER OF CAVITIES, SIZE OF CAVITY (DIAMETER AND DEPTH).

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

*POOL BOILING + *SODIUM + *SURFACE, GENERAL + SURFACE CONTAMINATION + SURFACE FILM DEPOSIT

5-26266
FINZI S + GRASS G
CONTRIBUTIONS OF THE ISPRACENTER TO STUDIES ON THE BEHAVIOR OF REACTOR COOLANTS AND COMPONENTS UNDER ACCIDENT CONDITIONS
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-TR-1563 +. 14 PAGES, 1966

OUTLINE OF WORK BEING DONE AT THE ISPRA RESEARCH CENTER IN THE BEHAVIOR OF REACTOR COOLANTS AND COMPONENTS UNDER ACCIDENT CONDITIONS. TWO REACTOR SYSTEMS ARE BEING STUDIED- LIGHT-WATER REACTORS AND SODIUM-COOLED FAST REACTORS. THE RESULTS ARE TO BE MADE AVAILABLE TO ALL ORGANIZATIONS OF THE SCIENTIFIC COMMUNITY. ACCIDENT CONDITIONS STUDIED INCLUDE FLASH VAPORIZATION, COOLANT EJECTION, PRESSURE AND TEMPERATURE TRANSIENTS, AND BURNOUT. THIS REPORT IS PURELY A STUDY OUTLINE AND CONTAINS NO TECHNICAL INFORMATION.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *EURATOM + HAZARDS ANALYSIS + HEAT TRANSFER

5-26267
MORRISON DL + BASHAM SJ + BLUTREICH JN
AN EVALUATION OF THE APPLICABILITY OF EXISTING DATA TO THE ANALYTICAL DESCRIPTION OF A NUCLEAR-REACTOR ACCIDENT. QUARTERLY PROGRESS REPORT FOR JANUARY THROUGH MARCH 1967
BATTELLE MEMORIAL INSTITUTE
BMI-1797 +. 50 PAGES, 15 FIGURES, 5 TABLES, 45 REFERENCES, APRIL 1967

INPUT TO NURLOC WAS PREPARED FOR THE ANALYSIS OF A LOSS-OF-COOLANT ACCIDENT IN A 1000-MW(E) BOILING-WATER REACTOR. THE RESULTS OF TTHIS CALULATION WHEN COMPARED TO THE LOFT CALCULATION SHOULD PROVIDE USEFUL INFORMATION ON THE EFFECTS OF REACTOR SIZE, POWER LEVEL, AND POWER DISTRIBUTION ON THE TEMPERATURES IN THE REACTOR DURING THE ACCIDENT. ADDITIONAL NURLOC CALCULATIONS OF LOFT ACCIDENT HEAT TRANSFER WERE PERFORMED. THESE CALCULATIONS WERE EXTENDED TO LONGER ACCIDENT TIMES THAN THOSE PREVIOUSLY PERFORMED. AN EVALUATION WAS MADE OF THE THERMAL AND TRANSPORT PROPERTIES OF STEAM, HYDROGEN, AND STEAM-HYDROGEN MIXTURES AT ELEVATED TEMPERATURES FOR USE IN ANALYSIS OF THE METAL-WATER REACTION. A SIMPLE, GENERALIZED FISSION-PRODUCT-RELEASE MODEL DEVELOPED DURING THIS PROGRAM WAS USED IN CONJUNCTION WITH THE HEAT-TRANSFER ANALYSIS RESULTS TO OBTAIN ESTIMATES OF FISSION-PRODUCT RELEASE FROM THE FUEL DURING NUCLEAR-REACTOR LOC ACCIDENTS AND TO ASSESS THE DEGREE OF UNCERTAINTY ASSOCIATED WITH THESE CALCULATIONS.

CATEGORY 5
ACCIDENT ANALYSIS

5-26267 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, $3.00 COPY, $0.65 MICROFICHE

*ACCIDENT ANALYSIS + *BMI + *LOFT (S-RR) + ACCIDENT, GENERAL + ACCIDENT, LOSS OF COOLANT + FISSION PRODUCT RELEASE, GENERAL

5-26269
WEDEKIND GL + STOECKER WF
THEORETICAL MODEL FOR PREDICTING THE TRANSIENT RESPONSE OF THE MIXTURE-VAPOR TRANSITION POINT IN HORIZONTAL EVAPORATING FLOW
OAKLAND UNIVERSITY, ROCHESTER, MICH. + UNIVERSITY OF ILLINOIS, URBANA, ILL.
10 PAGES, 9 FIGURES, 9 REFERENCES, JOURNAL OF HEAT TRANSFER, TRANSACTIONS OF THE ASME, 90(1), PAGE 165-174, (FEBRUARY 1968)

A HORIZONTAL TUBE EVAPORATOR IN WHICH COMPLETE VAPORIZATION TAKES PLACE CAN BE DIVIDED INTO TWO DISTINCT REGIONS - A TWO-PHASE REGION AND A SUPERHEAT REGION. THE MIXTURE-VAPOR TRANSITION POINT REFERS TO THE BOUNDARY BETWEEN THESE TWO REGIONS. EXPERIMENTAL EVIDENCE IS PRESENTED WHICH INDICATES THAT, DURING STEADY AS WELL AS TRANSIENT FLOW CONDITIONS, THE MOTION OF THE MIXTURE-VAPOR TRANSITION POINT IS OF AN OSCILLATORY NATURE. FURTHERMORE, THE AMPLITUDES OF THE OSCILLATIONS APPEAR TO BE SUFFICIENTLY RANDOM TO PRECLUDE THE POSSIBILITY OF PREDICTING AN INSTANTANEOUS POSITION. THEREFORE, A THEORETICAL MODEL IS PROPOSED FOR PREDICTING THE TRANSIENT RESPONSE OF THE MEAN POSITION OF THE TRANSITION POINT. EXPERIMENTAL VALIDATION OF THE THEORETICAL MODEL IS REASONABLY WELL ESTABLISHED.

*FLOW THEORY AND EXPERIMENTS + *FLOW, TUBE + *FLOW, TWO PHASE + FLOW STABILITY + HEAT TRANSFER, BOILING + TURBULENCE, CONVECTIVE

5-26275
POWELL RW + TYE RP
NEW MEASUREMENTS ON THERMAL CONDUCTIVITY REFERENCE MATERIALS
PURDUE UNIVERSITY, WEST LAFAYETTE, INDIANA + DYNATECH CORPORATION, CAMBRIDGE, MASSACHUSETTS
15 PAGES, 5 FIGURES, 9 TABLES, 48 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 10(5), PAGES 581-596 (MAY, 1967)

IN ORDER TO PROVIDE FURTHER INFORMATION ON THE THERMAL AND ELECTRICAL CONDUCTIVITIES OF MATERIALS THAT HAVE BEEN SUGGESTED FOR USE AS THERMAL CONDUCTIVITY REFERENCE MATERIALS, NEW DATA ARE PRESENTED FOR COPPER (THREE SAMPLES), LEAD, IRON (SIX SAMPLES), TUNGSTEN (TWO SAMPLES), INCONEL 702, AND 18/8 STAINLESS STEEL (NINE SAMPLES). THE THERMAL COMPARATOR METHOD IS SUGGESTED AS A MEANS WHEREBY STANDARD REFERENCE SAMPLES MAY BE READILY INTERCOMPARED. THIS METHOD SEEMS LIKELY TO BE PARTICULARLY APPROPRIATE FOR MATERIALS HAVING A LARGE PHONON COMPONENT OF THERMAL CONDUCTIVITY.

*HEAT TRANSFER, CONDUCTION + *THERMAL PROPERTY + *TRANSPORT PROPERTY + COPPER + INCONEL + IRON + LEAD + STEEL, STAINLESS + TUNGSTEN

5-26277
WILKIE D + COWIN M + BURNETT P + BURGOYNE T
FRICTION FACTOR MEASUREMENTS IN A RECTANGULAR CHANNEL WITH WALLS OF IDENTICAL AND NON-IDENTICAL ROUGHNESS
UKAEA, WINFRITH
11 PAGES, 10 FIGURES, 4 TABLES, 5 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 10(5), PAGES 611-621 (MAY, 1967)

FRICTION FACTOR MEASUREMENTS HAVE BEEN MADE IN A RECTANGULAR CHANNEL FORMED ESSENTIALLY BY TWO FLAT PLATES ROUGHENED BY TRANSVERSE ISOLATED SQUARE RIBS. WHEN THE PLATES ARE NOT IDENTICALLY ROUGHENED A THEORY ALLOWS THE FRICTION FACTOR OF EACH SURFACE TO BE SEPARATED AND APPLIED TO OTHER PASSAGES HAVING RIBS WITH THE SAME RATIOS OF PITCH TO HEIGHT AND HEIGHT TO EQUIVALENT DIAMETER. THE EXPERIMENTS INDICATE THAT THE APPLICATION OF THIS THEORY PRODUCES FRICTION FACTORS WHICH, COMPARED WITH THOSE FOR IDENTICALLY ROUGHENED PLATES FOR WHICH NO TRANSFORMATION IS REQUIRED, VARY SIMILARLY WITH REYNOLDS NUMBER BUT DIFFER IN MAGNITUDE, BUT BY LESS THAN 10 PER CENT OVER THE RANGE COVERED. THE RESULTS SHOW ONLY MODERATE AGREEMENT WITH SIMILAR RESULTS OBTAINED FROM AN ANNULAR CHANNEL.

*FLOW THEORY AND EXPERIMENTS + *FLOW, TURBULENT + *FRICTION, GAS + FLOW DISTRIBUTION + HOT CHANNEL

5-26288
WAMBSGANSS MW
VIBRATION OF REACTOR CORE COMPONENTS
12 PAGES, 8 FIGURES, 54 REFERENCES, REACTOR AND FUEL-PROCESSING TECHNOLOGY, 10(3), PAGES 208-219, (SUMMER, 1967)

THE VIBRATION OF REACTOR CORE COMPONENTS IS GREATLY COMPLICATED BY THE FLOWING-COOLANT ENVIRONMENT AND PRESENTS UNIQUE PROBLEMS TO THE DYNAMICIST. THE FACT THAT SMALL CLEARANCES ARE INVOLVED IN REACTORS, SAY BETWEEN ADJACENT FUEL PINS, AND THAT CHANGE IN THESE CLEARANCES CAN RESULT IN POWER OSCILLATIONS OR HAVE MORE SERIOUS CONSEQUENCES SHOULD LOSS OF COOLANT RESULT, LEADING TO FUEL MELTING, MAKES SMALL DISPLACEMENTS CRITICAL. THE STATE-OF-THE-ART SURVEY INDICATES THE NEED FOR BASIC RESEARCH RELATED TO THE PHENOMENA OF FLOW-INDUCED VIBRATION OF RODS AND PLATES, BEFORE CONSIDERING THE COMPLEX GEOMETRIES AND BOUNDARY

CATEGORY 5
ACCIDENT ANALYSIS

5-26288 *CONTINUED*
CONDITIONS OF REACTOR CORE COMPONENTS.

*REACTOR, GENERAL + *VIBRATION + *VIBRATION ANALYSIS + BIBLIOGRAPHY + FLOW THEORY AND EXPERIMENTS + HYDRAULIC ANALYSIS

5-26289
HALL, WB
HEAT TRANSFER IN WATER COOLED REACTORS UNDER TRANSIENT CONDITIONS
MANCHESTER UNIVERSITY, ENGLAND
20 PAGES, 10 REFERENCES, FROM THE MEETING ON HEAT TRANSFER IN RAPID TRANSIENTS, CADAROCHE, APRIL 25-29, 1966

A NUMBER OF INVESTIGATIONS CONNECTED WITH THE TRANSIENT BEHAVIOUR OF WATER COOLED REACTORS HAVE BEEN IN PROGRESS FOR THE PAST FEW YEARS IN THE NUCLEAR ENGINEERING LABORATORIES AT THE U. OF MANCHESTER. OUR INTEREST WAS PROMPTED INITIALLY BY THE NEED TO INVESTIGATE SOME OF THE SAFETY CHARACTERISTICS OF THE UNIVERSITIES RESEARCH REACTOR. THIS INTEREST HAS DEVELOPED TO THE STAGE WHERE WE HAVE A SMALL RESEARCH GROUP ENGAGED MAINLY ON HEAT TRANSFER PROBLEMS. IN THIS WORK WE MAINTAIN A CLOSE LIAISON WITH THE HEALTH AND SAFETY BRANCH OF THE UKAEA. THE FOLLOWING NOTES ARE INTENDED TO ILLUSTRATE OUR LINES OF THOUGHT AND TO BRIEFLY SUMMARIZE THE INFORMATION THAT HAS BEEN OBTAINED.

AVAILABILITY - W.B. HALL, SIMON ENGINEERING LABORATORIES, THE UNIVERSITY, MANCHESTER, 13, ENGLAND

*HEAT TRANSFER + *REACTOR, WATER + REACTOR, TRAINING + TEMPERATURE TRANSIENT + UNITED KINGDOM

5-26290
WILKIE D + WHITE L
CALCULATION OF FLOW RESISTANCE OF PASSAGES BOUNDED BY A COMBINATION OF ROUGH AND SMOOTH SURFACES
UKAEA, WINFRITH
13 PAGES, 11 FIGURES, TABLE, 2 REFERENCES, JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY, 6(1), PAGES 48-61 (JANUARY, 1967)

A SET OF EQUATIONS IS DERIVED WHICH FORMS THE BASIS OF METHODS OF APPLYING TRANSFORMED ROUGHENED SURFACE FRICTION FACTOR DATA TO THE CALCULATION OF MIXED SURFACE PRESSURE DROP. DETAILED EXAMPLES OF THE METHODS APPLIED TO ANNULAR AND CLUSTER CONFIGURATIONS ARE PRESENTED, AND THE RESULTS ARE COMPARED WITH EXPERIMENTAL VALUES.

*FLOW THEORY AND EXPERIMENTS + *HYDRAULIC ANALYSIS + *PRESSURE DROP + FLOW, ANNULAR + FUEL ELEMENT CLUSTER + SURFACE, GENERAL

5-26291
GRUNWALD G
HEAT TRANSFER AND HYDRAULIC MEASUREMENTS IN A FUEL ASSEMBLY WITH SMOOTH OR ARTIFICIALLY ROUGHENED SIMULATED FUEL ELEMENTS
4 PAGES, 6 FIGURES, 7 REFERENCES, KERNERGIE, 9, PAGES 345-348 (NOVEMBER, 1966) IN GERMAN

IN CONNECTION WITH AN INCREASE OF THE POWER OF THE ROSSENDORF WWR-S REACTOR FROM 2 TO 4 MW, HEAT TRANSFER AND HYDRAULIC MEASUREMENTS WERE CARRIED OUT IN A SQUARE LATTICE FUEL ASSEMBLY WITH SMOOTH OR ARTIFICIALLY ROUGHENED FUEL ELEMENTS. THE HEAT TRANSFER MEASUREMENTS SHOW THAT WITH A SUITABLE ROUGHENED SURFACE OF THE FUEL ELEMENTS THE HEAT TRANSFER COEFFICIENT CAN BE INCREASED BY MORE THAN A FACTOR 2 WITH RESPECT TO THE SMOOTH FUEL ELEMENT SURFACE. FURTHER MEASUREMENTS WERE MADE FOR STUDYING THE HEAT TRANSFER ON THE UNFAVORABLE COOLED FUEL ELEMENTS SITUATED IN THE CORNERS OF THE ASSEMBLY.

*HEAT TRANSFER EXPERIMENT + *HYDRAULIC EXPERIMENT + *REACTOR TEST FACILITY + *SURFACE, GENERAL + HEAT TRANSFER + HYDRAULIC ANALYSIS

5-26294
ICHINO I + SASAKI M
EXPERIMENTAL STUDIES ON HEAT TRANSFER TO CORE SPRAY
NIPPON ATOMIC INDUSTRY GROUP, JAPAN
7 PAGES, 12 FIGURES, NIPPON GENSHIRYOKU GAKKAISHI, 8, PAGES 602-608 (NOVEMBER, 1966) IN JAPANESE

A MULTIROD FUEL ASSEMBLY WAS SPRAY-TESTED TO EVALUATE THE FEASIBILITY AND PERFORMANCE OF A CORE-SPRAY COOLING SYSTEM TO REMOVE DECAY HEAT FROM THE CORE IN THE EVENT OF A LOSS-OF-COOLANT ACCIDENT. THE TEST ASSEMBLY CONSISTED OF 16 IDENTICAL HEAT RODS 12 MM IN DIAMETER, ABOUT 3 M EFFECTIVE HEATING LENGTH, AND 6 KW HEAT OUTPUT PER ROD ARRANGED IN A SQUARE LATTICE INSIDE A 71 BY 71 MM STAINLESS-STEEL CHANNEL. RANGE OF THESE VARIABLES COVERED INCLUDED FLOW RATES UP TO 30 1/MIN, HEAT FLUXES UP TO 40,000 KCAL/HR-M2 AND SYSTEM STEAM PRESSURE FROM 0 TO 6.5 KG/CMZ-G. RESULTS - SPRAYED WATER PARTICLES DID NOT FLOW DOWN INTO THE CHANNEL AS EXPECTED. THEY WERE OBSTRUCTED BY THE UPWARD STEAM FLOW INDUCED BY THE VACCUUM CREATED BY SPRAY COOLING OF STEAM ABOVE THE CHANNEL. THE HEATER WAS COOLED QUITE STRONGLY BY THIS UPFLOWING STEAM, AND HIGH VALUES OF HEAT TRANSFER WERE OBSERVED.

*ACCIDENT, LOSS OF COOLANT + *HEAT TRANSFER, CONVECTION + *HOT CHANNEL + *SPRAY, GENERAL + HEAT TRANSFER + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, TWO PHASE

CATEGORY 5
ACCIDENT ANALYSIS

5-26295
MINTZ MD
A FINITE DIFFERENCE REPRESENTATION AND SOLUTION OF PRACTICAL HEAT-TRANSFER PROBLEMS
LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-7960 REV. II +. 37 PAGES, REFERENCES, SEPTEMBER, 1965

A GENERAL PROCEDURE IS PRESENTED FOR THE NUMERICAL ANALYSIS OF PRACTICAL HEAT TRANSFER PROBLEMS OF VIRTUALLY ANY DEGREE OF COMPLEXITY. THE PROCESSES OF CONDUCTION, CONVECTION, RADIATION, INTERNAL HEAT GENERATION, AND TRANSIENT HEAT ENERGY STORAGE AND MASS TRANSFER ARE CONSIDERED. MATERIAL PROPERTIES ARE ASSUMED TO BE ARBITRARY FUNCTIONS OF TEMPERATURE. IT IS INTENDED THAT THE ACTUAL NUMERICAL CALCULATIONS WILL BE PERFORMED BY A DIGITAL COMPUTER WITH SUITABLE SUBROUTINES FOR SOLVING SETS OF SIMULTANEOUS LINEAR EQUATIONS. THE SIMPLICITY OF APPLYING THESE METHODS IS DEMONSTRATED BY A DISCUSSION OF THE ANALYSIS OF SIMPLE PHASE-CHANGE COOLING PROCESSES AND A STRAIGHT-FORWARD SAMPLE PROBLEM, THE ANALYSES OF A ROTATING SPHERICAL SHELL IN THE FIELD OF A PLANE WAVE RADIATION ENERGY FLUX. THE METHODS DESCRIBED IN THIS REPORT ARE THE BASIS FOR NUMEROUS DIGITAL COMPUTER CODES EMPLOYED IN THE DESIGN AND ANALYSIS OF THE TORY II-C NUCLEAR RAMJET ENGINE (PROJECT PLUTO).

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

*HEAT TRANSFER ANALYSIS + *NUMERICAL METHOD + HEAT GENERATION, INTERNAL + HEAT TRANSFER + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + HEAT TRANSFER, RADIANT

5-26296
WHYTE DD + TAYLOR GR + COHEN P + FLETCHER WD + KELLOGG HB + KITZES AS + BOYKO ES
HIGH TEMPERATURE SUPERCRITICAL PRESSURE WATER LOOP--CORROSION TESTS
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PENNSYLVANIA
WCAP-2056(PT.6) +. 157 PAGES, FIGURES, TABLES, AUGUST, 1965

DESCRIBES CORROSION WORK PERFORMED BY WESTINGHOUSE. THE DESCRIPTION AND RESULTS OF TWO EXTENDED CORROSION OUT-OF-PILE LOOP TESTS IN A SUPERCRITICAL PRESSURE AND TEMPERATURE, OXYGENATED WATER ENVIRONMENT, USING WESTINGHOUSE 16-20 STAINLESS ALLOY THEN CLADDING UNDER HIGH HEAT FLUX ARE GIVEN. IN ONE OF THE TESTS, CHLORIDES WERE ADDED TO THE WATER. CORROSION DATA FROM THESE TESTS ON 16 CR-20 NI STAINLESS ALLOY WITH HEAT FLUXES OF ABOUT 300,000 BTU/HR-SQ. FT., RESULTING IN A CLADDING TEMPERATURE UP TO 1200 F (AT CLEAN METAL), INDICATE THAT CORROSION IS A PROBLEM IN SUPERCRITICAL FLUID CONTAINING SOME (2 TO 10 PPM) OXYGEN.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, $5.00 COPY, $1.00 MN.

*CORROSION + *OUT OF PILE LOOPS AND EXPERIMENTS + *STEEL, STAINLESS + CHLORIDE + HAZARDS ANALYSIS

5-26421
TONG, LS
BOILING HEAT TRANSFER AND TWO PHASE FLOW
1 PAGE, JOURNAL OF THE FRANKLIN INSTITUTE, 282(5), PAGE 344 (NOVEMBER, 1966)

USEFUL BOOK OF CURRENT INTEREST TO THE DESIGNER OF WATER-COOLED REACTORS. IT GUIDES A DESIGNER USING OTHER FLUIDS AS COOLANTS. IT IS AN EXCELLENT INTRODUCTION TO THOSE JUST ENTERING THE FIELD WHO WISH TO BE BROUGHT UP TO DATE. ITS ONLY LACK IS A SECTION ON HYDRAULIC STABILITY, WHICH WOULD BE USEFUL TO A REACTOR DESIGNER.

*FLOW, TWO PHASE + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, TWO PHASE + CONVECTIVE BOILING + HEAT TRANSFER, CONVECTION + NUCLEATE BOILING

5-26424
PALINSKI, R
MATHEMATICAL MODEL FOR THE DESCRIPTION OF THE OPERATIONAL BEHAVIOR OF A REACTOR WITH CRITICAL FLOW
EURATOM, ISPRA, ITALY
7 PAGES, 10 FIGURES, 4 REFERENCES, NUCLEONIK, 9(5), PAGES 245-252 (MARCH, 1967) (IN GERMAN)

UNDER ABNORMAL OPERATING CONDITIONS OF A POWER REACTOR A TWO PHASE FLOW OF THE FLUID COOLANT BECOMES POSSIBLE. THE TWO PHASE FLOW OF THE COOLANT, AS COMPARED WITH THE ONE PHASE FLOW, CAUSES A HIGHER PRESSURE DROP WHICH IS EQUIVALENT TO A REDUCTION OF THE WEIGHT FLOW RATE. THIS CAN LEAD FOR INSTANCE AFTER A FAILURE IN THE POWER SUPPLY OF THE COOLANT PUMP--IF NO RIGHT MEASURES ARE TAKEN--TO A BURN OUT OF THE FUEL ELEMENTS. A MATHEMATICAL MODEL IS ESTABLISHED FOR THE DESIGN OF THE REACTOR COMPONENTS UNDER A DYNAMICAL POINT OF VIEW, WHICH DESCRIBES THE EMERGENCY POWER SUPPLY UNIT AS WELL AS THE COOLANT LOOP OF A POWER REACTOR. THE NUMERICAL CALCULATIONS ARE PERFORMED WITH THE SPECIFIC DATA OF A PROJECTED AND CONSTRUCTED POWER REACTOR. AFTERWARDS THE CURVES GOT FROM THE ANALOG COMPUTER ARE DISCUSSED.

*COMPUTER, ANALOG + *FLOW, TWO PHASE + *HEAT TRANSFER, TWO PHASE + BURNOUT HEAT FLUX + COMPUTER PROGRAM + NUMERICAL METHOD

CATEGORY 5
ACCIDENT ANALYSIS

5-26425
MADEJSKI J
A SIMPLIFIED MODEL FOR BOILING IN A VERTICAL TUBE WITH TWO-PHASE SLUG-FLOW
31 PAGES, 16 FIGURES, 2 TABLES, 18 REFERENCES, NUKLEONIKA XI(11-12), PAGES 827-857 (DECEMBER 1966)

FROM NUMEROUS EXPERIMENTS BY MANY INVESTIGATORS, A TYPICAL PATTERN OF TWO-PHASE FLOW IN HEATED VERTICAL CHANNELS HAS BECOME WIDELY RECOGNIZED. STARTING FROM THE LIQUID INLET, AFTER THE ZONE OF NONBOILING HEATING AND SUBCOOLED SURFACE BOILING, THE SATUATED LIQUID ZONE BEGINS WITH AN AREA IN WHICH THERE ARE SMALL VAPOR BUBBLES DISPERSED IN THE LIQUID FLOWING UPWARDS. AS THE VAPOR FRACTION GROWS, THE BUBBLES COALESCE TO FORM LARGE BULLET-SHAPED TAYLOR BUBBLES SEPARATED BY LIQUID SLUGS. AFTER SLUG FLOW, THE UNSTABLE ROLL-WAVE OR CHURN FLOW FOLLOWS, AND FINALLY ANNULAR FLOW. A WIDE OPINION EXISTS THAT THE DANGEROUS CONDITION OF BURNOUT OCCURS IN THE ANNULAR-FLOW REGION. THE CONDITIONS OF THIS PROCESS ARE STUDIED WITH THE AID OF A SIMPLE SLUG-FLOW MODEL. THE CRITERIA FOR TRANSITION BETWEEN VARIOUS TWO-PHASE-FLOW REGIONS ARE ALSO STUDIED.

*BURNOUT HEAT FLUX + *HEAT FLUX, DRYOUT + *HEAT TRANSFER, TWO PHASE + CONVECTIVE BOILING + FLOW, TWO PHASE + HEAT FLUX, CRITICAL + HEAT TRANSFER + HEAT TRANSFER, BOILING

5-26426
MILLIOT, B + LAZARUS J + NAVARRE JP
VOID FRACTION MEASUREMENTS IN A TWO PHASE FLOW
JOINT RESEARCH CENTRE OF THE EUROPEAN COMMUNITY FOR ATOMIC ENERGY, ISPRA, ITALY
36 PAGES, 19 FIGURES, 13 REFERENCES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS

SEVERAL MEASURING METHODS HAVE BEEN PROVED AND CALIBRATED FOR DETERMINING THE VOID FRACTION IN VERTICAL TWO-PHASE FLOW OF NAK. THE EMULSION WAS CREATED BY INJECTING ARGON IN THE LIQUID METAL. RESULTS HAVE BEEN OBTAINED IN BUBBLE FLOW USING EM FLOWMETERS, CHANGES IN ELECTRICAL RESISTANCE, GAMMA-RAY ATTENUATION, AND TWO-PHASE PRESSURE DROP. ALL RESULTS ARE COMPARED WITH EACH OTHER AND CHECKED WITH THE THEORETICAL MODEL OF MARCHATERRE AND HOGLUND. AS TO THE SLIP RATIO, SOME DIFFERENCE HAS BEEN OBSERVED. MOREOVER, ALL RESULTS HAVE BEEN PLOTTED IN THE LOCKHART-MARTINELLI DIAGRAM.

AVAILABILITY - B. MILLIOT, J. LAZARUS, J.P. NAVARRE, JOINT RESEARCH CENTRE OF THE EUROPEAN COMMUNITY FOR ATOMIC ENERGY, P. BOX NO. 1, ISPRA, ITALY

*FLOW, TWO PHASE + *NAK + *VOID FRACTION + ARGON + EURATOM + FLOW THEORY AND EXPERIMENTS + ITALY + PRESSURE DROP

5-26427
FRIEDLAND, AJ
RELATION BETWEEN MAXIMUM CORE COOLANT TEMPERATURE AND OUTLET THERMOCOUPLE READINGS FOR PLUGGED SUBASSEMBLIES.
ATOMIC POWER DEVELOPMENT ASSOCIATES, DETROIT, MICHIGAN
35 PAGES, 9 FIGURES, 3 REFERENCES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NUCLEAR REACTORS, SEPTEMBER, 1967

COMPUTER CALCULATIONS WERE RUN FOR THE TEMPERATURE DISTRIBUTIONS IN FERMI SUBASSEMBLIES WITH VARIOUS DEGREES OF PLUGGING, FOR POWER LEVELS BELOW THOSE AT WHICH SODIUM BOILING OCCURS. THE MAXIMUM COOLANT TEMPERATURE OCCURRED AT THE CORE MIDPLANE FOR COMPLETE FLOW BLOCKAGE, AND SHIFTED TO THE TOP OF THE CORE FOR 4% OR MORE OF NOMINAL TWO-LOOP FLOW THROUGH THE SUBASSEMBLY. THE AT TO THE THERMOCOUPLE HOLE INLET WAS CALCULATED TO REACH A MAXIMUM OF ABOUT 10 TIMES THE MIXED AT OF A NORMAL SUBASSEMBLY, AT ABOUT 4-5% OF NOMINAL FLOW.

AVAILABILITY - AJ FRIEDLAND, ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN

*ACCIDENT, LOSS OF FLOW + *FERMI (LMFBR) + *HEAT TRANSFER ANALYSIS + *REACTOR, LMFBR + ACCIDENT ANALYSIS + INSTRUMENTATION, TEMPERATURE + REACTOR STARTUP EXPERIENCE + TEMPERATURE GRADIENT

5-26428
HOLTZ, RE + SINGER RM
ON THE SUPERHEATING OF SODIUM AND THE GENERATION OF PRESSURE PULSES
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
18 PAGES, 8 FIGURES, 2 REFERENCES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS, SEPTEMBER, 1967

EXPERIMENTAL RESULTS ARE PRESENTED ON THE SUPERHEAT NECESSARY TO INITIATE BOILING OF SODIUM AND THE ASSOCIATED PRESSURE PULSES. THE EFFECTS OF HEAT FLUX, SYSTEM PRESSURE, AND PRESSURE-TEMPERATURE HISTORY ARE DISCUSSED AND THE RESULTS COMPARED TO THEORETICAL PREDICTIONS. THE CONDITIONS UNDER WHICH SODIUM WILL BOIL STABLY OR UNSTABLY ARE PRESENTED AND DISCUSSED.

AVAILABILITY - R.E. HOLTZ + R.M. SINGER, ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

*HEAT TRANSFER, BOILING + *NUCLEATE BOILING + *SODIUM + CONVECTIVE BOILING + HEAT TRANSFER + HEAT TRANSFER, TWO PHASE

CATEGORY 5
ACCIDENT ANALYSIS

5-26429
FAUSKE, HK
TWO-PHASE COMPRESSIBILITY IN LIQUID METAL SYSTEMS
ARGONNE NATIONAL LABORATORY
30 PAGES, 13 FIGURES, 12 REFERENCES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS, SEPTEMBER, 1967

LIQUID-SODIUM-VAPOR CRITICAL FLOW DATA INCLUDING STAGNATION TEMPERATURES UP TO 1600 F, CRITICAL PRESSURES FROM 1 TO 6 PSIA, AND CRITICAL FLOW RATES RANGING FROM 100 TO 1000 LBS/SEC-FT2 ARE PRESENTED. THE DATA INCLUDE ALSO APPROXIMATE VALUES FOR THE INITIAL SUPERHEAT SUSTAINED BEFORE FLASHING. SIMILAR DATA ARE PRESENTED FOR NON-METALLIC FLUIDS (WATER) COLLECTED WITH TEST SECTIONS AND PROCEDURES IDENTICAL TO THOSE USED FOR THE SODIUM EXPERIMENT. A DIRECT COMPARISON BETWEEN THE TWO SETS OF DATA IS PRESENTED, SUGGESTING THAT CORRELATIONS DEVELOPED FOR STEAM-WATER DATA CAN BE EXTRAPOLATED TO METALLIC FLUIDS (SODIUM).

AVAILABILITY - H.K. FAUSKE, ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

*FLOW, TWO PHASE + *METAL, LIQUID + *SODIUM + ANL + FLOW THEORY AND EXPERIMENTS + FLOW, CRITICAL

5-26430
PEPPLER, W + SCHLECHTENDAHL, EG + SCHULTHEISS, GF + SMIDT, D
SODIUM BOILING AND FAST REACTOR SAFETY
KERNFORSCHUNGSZENTRUM KARLSRUHE, GERMANY
24 PAGES, 8 FIGURES, 26 REFERENCES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS, SEPTEMBER, 1967

FOR FAST SODIUM COOLED REACTOR SAFETY ANALYSIS LIQUID METAL SUPERHEAT AND COOLANT FLASHING IS VERY IMPORTANT. INVESTIGATION OF THE EJECTION MECHANISM WITH THE DIGITAL CODE BLOW SHOWS GOOD AGREEMENT WITH EXPERIMENTAL RESULTS. PRESENT KNOWLEDGE ON SODIUM SUPERHEAT IS REVIEWED AND DISCUSSED IN SOME DETAIL, ESPECIALLY TO DEMONSTRATE THE GREAT DIFFERENCES IN EXPERIMENTAL DATA, AND FROM THIS A RESEARCH PROGRAM IS ESTABLISHED. ALSO RECONDENSATION EFFECTS WITH THEIR HIGH PRESSURE PEAKS ARE INVESTIGATED. THEORETICAL AND EXPERIMENTAL RESULTS ARE PRESENTED.

AVAILABILITY - W. PEPPLER + E.G. SCHLECHTENDAHL, INSTITUT FUER REAKTORENTWICKLUNG, KERNFORSCHUNGSZENTRUM KARLSRUHE, GERMANY

*ACCIDENT, LOSS OF COOLANT + *REACTOR, FAST + *SODIUM + CONVECTIVE BOILING + EURATOM + GERMANY + THERMODYNAMICS

5-26431
LEGONIDEC + ROUVILLOIS + SEMERIA, R + LIONS, N + ROBIN, M + SIMON
EXPERIMENTAL STUDIES ON SODIUM BOILING
COMMISSARIAT A L. ENERGIE ATOMIQUE DIRECTION DES PILES ATOMIQUES, GRENOBLE
53 PAGES, 12 FIGURES, TABLE, FROM INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS

AN ANALYSIS OF ACCOUSTICAL PHENOMENA ACCOMPANYING BOILING IS CARRIED OUT TO DETECT THE COLLAPSE OF THE BUBBLES. MOST RECENT RESULTS ARE GIVEN FOR BOILING NAK AND SODIUM IN POOL FOR PRESSURES OF ABOUT 0.08 BAR AND FLUXES OF 30 TO 200 W/CM2. THE TOTAL PLUGGING OF A SUBASSEMBLY INLET HAS BEEN STUDIED EXPERIMENTALLY. SODIUM SUPERHEAT FROM 20 TO 200 C ABOVE BOILING TEMPERATURE HAVE BEEN OBSERVED IN THE MAJORITY OF CASES. THE EXPLOSIVE FORMATION OF VAPOR LEADS TO SODIUM EJECTION BEYOND THE HEATED SECTION. MECHANISMS OF THIS EXPULSION ARE ANALYZED AND SIMPLIFIED MODELS ARE PROPOSED.

AVAILABILITY - LE GONIDEC, SNECMA - SURESNES + R. SEMERIA, CEA - CEN/GRENOBLE (S.T.T.)

*CONVECTIVE BOILING + *NOISE + *SODIUM + FRANCE + HEAT TRANSFER + HEAT TRANSFER, BOILING + HEAT TRANSFER, CONVECTION + NUCLEATE BOILING

5-26432
MELUCCI, G + ROSELLI, G + TURRINI, E
PEC REACTOR COOLANT ACCIDENTS STUDY WITH PARTICULAR REGARD TO A COMPARISON BETWEEN WARD LIONARD AND ELECTRONIC AD-DC CONVERTERS FOR THE COOLING PUMP MOTORS
COMITATO NAZIONALE ENERGIA NUCLEARE, PROGRAMMA REATTORI VELOCI, BOLOGNA, ITALY
65 PAGES, 18 FIGURES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST NEUTRON REACTORS

LOSS-OF-FLOW ACCIDENTS IN THE DRIVER-ZONE COOLING CIRCUIT OF THE PEC REACTOR (A FUEL-TEST FAST REACTOR) WITH PARTICULAR REGARD TO THE POWER-SUPPLY FAILURE HAS BEEN INVESTIGATED. THE FLOW-DECAY CHARACTERISTICS IN A LOSS-OF-FLOW ACCIDENT DUE TO ELECTRICAL POWER FAILURE WERE FOUND TO DEPEND UPON THE KINETIC ENERGY OF THE CIRCULATING FLUID AND THE CHARACTERISTICS OF THE PUMP AND PUMP MOTORS. TYPES OF MOTOR POWER SUPPLIES AND THEIR TRANSIENT RESPONSE IN FAILURE ARE CONSIDERED.

AVAILABILITY G. MELUCCI, CNEN-P.R.V.-VIA MAZZINI 2-BOLOGNA-ITALIA + E. TURRINI, CNEN-C.S.N.-CASACCIA-ROMA-ITALIA

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF FLOW + *FAILURE, COMPONENT + *FAILURE, EQUIPMENT + ITALY + SODIUM

CATEGORY 5
ACCIDENT ANALYSIS

5-26448
BUHR HO + CARR AD + BALZHISER RE
TEMPERATURE PROFILES IN LIQUID METALS AND THE EFFECT OF SUPERIMPOSED FREE CONVECTION IN TURBULENT FLOW
UNIVERSITY OF CAPE TOWN, SOUTH AFRICA + UNIVERSITY OF MICHIGAN
14 PAGES, 10 FIGURES, 4 TABLES, 26 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 11(4), PAGES 641-654 (APRIL 1968)

TEMPERATURE PROFILES MEASURED IN MERCURY AND THE NAK EUTECTIC ARE REPORTED FOR VERTICAL FLOW IN PIPES UNDER CONDITIONS OF CONSTANT HEAT FLUX, AND IT IS SHOWN THAT THE MERCURY PROFILES ARE DISTORTED BY A SUPERIMPOSED FREE CONVECTION EFFECT UP TO REYNOLDS NUMBERS OF AT LEAST 50,000. A CORRELATION IS PRESENTED WHEREBY THE AMOUNT OF DISTORTION UNDER GIVEN CONDITIONS MAY BE ESTIMATED, AND THE SHAPE OF THE UNDISTORTED TEMPERATURE PROFILE MAY BE PREDICTED. THESE PROFILES ARE USED TO DETERMINE THE RATIO OF EDDY DIFFUSIVITIES AND THE NUSSELT NUMBER FOR LIQUID METALS IN THE REYNOLDS-NUMBER RANGE 30,000 TO 300,000.

*FLOW, TURBULENT + *HEAT TRANSFER, NATURAL CONVECTION + *METAL, LIQUID + *TEMPERATURE GRADIENT + FLOW DISTRIBUTION + METAL, ALKALI + NAK

5-26452
LUIKOV AV
HEAT TRANSFER BIBLIOGRAPHY--RUSSIAN WORKS
HEAT AND MASS TRANSFER INSTITUTE OF THE B.S.S.R. ACADEMY OF SCIENCE
13 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 11(4), PAGES 725-767 (APRIL 1968)

A HEAT AND MASS-TRANSFER BIBLIOGRAPHY OF RUSSIAN LITERATURE. COVERS THERMODYNAMICS, HEAT CONDUCTION, CONVECTIVE HEAT TRANSFER, RADIANT HEAT TRANSFER, TRANSFER INVOLVING PHASE CHANGE AND/OR CHEMICAL REACTION, MASS TRANSFER, SIMULTANEOUS HEAT AND MASS TRANSFER, HYDRODYNAMICS, AND THERMAL PROPERTIES.

*HEAT TRANSFER + *MASS TRANSFER + BIBLIOGRAPHY + BUBBLE + BUBBLE NUCLEATION + CONVECTIVE BOILING + HEAT TRANSFER, BOILING + HEAT TRANSFER, CONDENSATION + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + HEAT TRANSFER, GAS + HEAT TRANSFER, NATURAL CONVECTION + HEAT TRANSFER, RADIANT + HEAT TRANSFER, SUPERCRITICAL + HEAT TRANSFER, TWO PHASE + NUCLEATE BOILING + THERMODYNAMICS

5-26453
MERRIAM RL + STEIN RP + RICHARDSON BL
A LIQUID METAL HEAT-TRANSFER EXPERIMENT AND ITS RELATION TO RECENT THEORY
PURDUE UNIVERSITY, INDIANA + ARGONNE NATIONAL LABORATORY + MARQUETTE UNIVERSITY, WISC.
4 PAGES, 4 FIGURES, 9 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 11(4), PAGES 769-72 (APRIL 1968)

RECENT ANALYSES PERTAINING TO LIQUID METAL HEAT TRANSFER IN DOUBLE-PIPE HEAT EXCHANGERS HAVE INDICATED THAT SIGNIFICANT INACCURACIES IN PREDICTIONS OF OVERALL HEAT-TRANSFER RATES AND IN INTERPRETATIONS OF EXPERIMENTAL DATA--ESPECIALLY AS RELATED TO HEAT-TRANSFER COEFFICIENTS--CAN RESULT WHEN BASED UPON TRADITIONAL HEAT-EXCHANGER DESIGN RELATIONS. THE MAIN PURPOSE OF THE INVESTIGATION WAS TO VERIFY THESE ANALYTICAL RESULTS EXPERIMENTALLY FOR TURBULENT COCURRENT FLOW MERCURY-MERCURY HEAT EXCHANGERS. THIS NOTE SUMMARIZES SOME OF THE MORE IMPORTANT RESULTS OF THIS INVESTIGATION.

*HEAT TRANSFER ANALYSIS + *HEAT TRANSFER EXPERIMENT + *METAL, LIQUID + HEAT TRANSFER + HEAT TRANSFER CORRELATION

5-26461
POLOMIK EE + WILLIAMS RF
COOLANT SURFACE TURBULENCE STUDY - SEFOR REACTOR VESSEL
GENERAL ELECTRIC COMPANY, SAN JOSE
GEAP-5099 +. 53 PAGES, 1966

HALF-SCALE TEST EQUIPMENT WAS BUILT TO SIMULATE THE UPPER PLENUM OF THE SEFOR SODIUM-COOLED FAST REACTOR FOR THE PURPOSE OF EVALUATING SURFACE CONDITIONS AND GAS ENTRAINMENT TO THE COOLANT. WATER WAS USED AS THE FLOW MEDIUM. TESTS WERE CONDUCTED OVER THE FLOW RANGE OF 7 TO 210% OF REACTOR FLOW. BOTH UNIFORM AND COSINE VELOCITY PROFILES IN THE FLOW TO THE UPPER PLENUM WERE STUDIED WITH A FREE SURFACE CONDITION. THE COSINE VELOCITY DISTRIBUTIONS WERE ALSO STUDIED WITH THREE TYPES OF RADIATION SHIELDS IMMERSED AT VARIOUS DEPTHS IN THE UPPER PLENUM WATER.

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

*FLOW, TURBULENT + *SURFACE, GENERAL + CONTAINMENT, GENERAL + FLOW THEORY AND EXPERIMENTS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SEFOR (RE) + SODIUM

5-26467

CATEGORY 5
ACCIDENT ANALYSIS

5-26467 *CONTINUED*
DAYAN, Y
HEAT TRANSFER EFFICIENCY IN A FLUIDIZED BED
ISRAEL INSTITUTE OF TECHNOLOGY, HAIFA, ISRAEL
5 PAGES, 9 FIGURES, 6 REFERENCES, THE CANADIAN JOURNAL OF CHEMICAL ENGINEERING, 44(6), PAGES 330-334 (DECEMBER, 1966)

THE EQUILIBRIUM STAGE CONCEPT USED IN STAGED CONTACTING OPERATIONS WAS ADOPTED AS A MEASURE OF HEAT TRANSFER EFFICIENCY FOR A FLUIDIZED BED. A SIMPLE MODEL WAS DEVELOPED WHICH POSTULATED THAT SOLIDS FLOW THROUGH THE BED CAN BE BY PERFECT MIXING, PLUG FLOW, AND SHORT-CIRCUITING. EFFICIENCIES WERE DETERMINED EXPERIMENTALLY IN A 150 MM DIAMETER FLUIDIZED BED WITH AIR AS THE FLUIDIZING MEDIUM AND SAND AS THE SOLID. HEAT TRANSFER EFFICIENCIES GREATER THAN 100% WERE OBTAINED. THE RESULTS INDICATE THAT HEAT TRANSFER MEASUREMENTS CAN BE USED TO DEVELOP INFORMATION ON SOLIDS FLOW BEHAVIOR.

*FLUIDIZED BED + *HEAT TRANSFER + *HEAT TRANSFER EXPERIMENT + HEAT TRANSFER ANALYSIS + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION

5-26468
WILKIE, D + WHITE, L
FUEL ELEMENT HEAT TRANSFER NEAR DIMPLE BRACES
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
5 PAGES, 8 FIGURES, NUCLEAR ENGINEERING, 11(123), PAGES 596-599 (AUGUST, 1966)

IN NUCLEAR REACTORS OF THE AGR TYPE A CLUSTER OF FUEL RODS IS FORMED FROM A NUMBER OF INDIVIDUAL ELEMENTS WHICH ARE EVENLY SPACED AROUND CONCENTRIC PITCH CIRCLES, LOCATED AT THEIR ENDS BY SUPPORT GRIDS, AND FITTED WITH ANTI-BOWING BRACES AT SPECIFIED DISTANCES BETWEEN THE END SUPPORT GRIDS. OUT OF PILE EXPERIMENTS HAVE BEEN UNDERTAKEN TO EXAMINE THE EFFECT OF CLEARANCE BETWEEN A FUEL ELEMENT AND THE INSIDE SURFACE OF THE DIMPLE BRACE COLLAR ON THE DISTRIBUTION OF STANTON NUMBER ALONG THE FUEL ELEMENT. BOTH HEAT AND MASS TRANSFER EXPERIMENTS HAVE BEEN CARRIED OUT.

*FLOW, AXIAL + *FUEL ELEMENT CLUSTER + *HEAT TRANSFER, CONVECTION + HEAT TRANSFER CORRELATION + MASS TRANSFER + OUT OF PILE LOOPS AND EXPERIMENTS

5-26480
MOODY, FJ
LIQUID/VAPOR ACTION IN A VESSEL DURING BLOWDOWN
GENERAL ELECTRIC CO., SAN JOSE, CALIFORNIA
APED-5177 +. 52 PAGES, 17 FIGURES, REFERENCES, JUNE 27, 1966

VAPOR BUBBLE RISE FORMS THE BASIS FOR A THEORETICAL STUDY OF LIQUID/VAPOR ACTION IN A SATURATED SYSTEM DURING BLOWDOWN. METHODS ARE DEVELOPED AND DEMONSTRATED FOR PREDICTING TIME-AND SPACE-DEPENDENT MIXTURE PROPERTIES. GRAPHS ARE PRESENTED FOR ESTIMATING THE TIME-DEPENDENT MIXTURE LEVEL DURING STEAM, WATER, AND MIXTURE BLOWDOWNS FROM 1000 PSIA. THEORETICAL MIXTURE LEVELS ARE COMPARED WITH VAPOR BLOWDOWN EXPERIMENTS. ALTHOUGH CALCULATIONS STRONGLY DEPEND UPON BUBBLE RISE VELOCITY IN THE LIQUID, REASONABLE AGREEMENT WITH DATA IS SHOWN.

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

*ACCIDENT, LOSS OF COOLANT + *BLOWDOWN + *FLOW, TWO PHASE + BUBBLE + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER + HEAT TRANSFER, TWO PHASE

5-26482
EIBER RJ + HEIN GM + DUFFY AR + ATTERBURY TJ
INVESTIGATION OF THE INITIATION AND EXTENT OF DUCTILE PIPE RUPTURE. PROGRESS REPORT FOR MAY-DECEMBER 1966
BATTELLE MEMORIAL INSTITUTE
BMI-1793 +. 23 PAGES, 9 FIGURES, 17 REFERENCES, JANUARY 1, 1967

THE PREDICTION OF THE CRITICAL FLAW SIZE WHICH WILL TRIGGER UNSTABLE FRACTURE PROPAGATION IN REACTOR-COOLANT PIPING IS IMPORTANT TO REACTOR DESIGN. PRESENTLY, THE MAXIMUM CREDIBLE ACCIDENT ASSUMED FOR REACTOR PRIMARY-COOLANT PIPING IS A DOUBLE-ENDED RUPTURE. BECAUSE OF THE LIMITED DATA AVAILABLE, IT IS NOT POSSIBLE TO EVALUATE THE DEGREE OF SEVERITY OF THIS ASSUMPTION. HOWEVER, INFORMATION FROM THIS PROGRAM SHOULD PROVIDE CONSIDERABLE DATA IN THIS AREA. THE OBJECTIVE OF THIS PROGRAM IS TO DETERMINE WHAT SIZE DEFECTS IN TYPICAL REACTOR-COOLANT PIPING ARE REQUIRED TO PRODUCE UNSTABLE PROPAGATING FRACTURES UNDER BOILING-WATER AND PRESSURIZED-WATER REACTOR CONDITIONS. RECENTLY, THE CAPABILITY HAS BEEN DEVELOPED TO PREDICT CRITICAL FLAW SIZES IN RELATIVELY THIN-WALLED PIPING AND CYLINDRICAL PRESSURE VESSELS. PROGRESS ON THE PROGRAM DURING THE PERIOD MAY THROUGH DECEMBER, 1966, IS DISCUSSED IN THIS REPORT.

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

*FAILURE, PIPE + ACCIDENT ANALYSIS + ACCIDENT, GENERAL + ACCIDENT, LOSS OF COOLANT + ACCIDENT, STEAM LINE RUPTURE

CATEGORY 5
ACCIDENT ANALYSIS

5-26485
PREVITI G + GRILLO P + CAMPANILE A + GALIMI G + GOFFI M
FORCED CONVECTION BURN-OUT AND HYDRODYNAMIC INSTABILITY EXPERIMENTS FOR WATER AT HIGH PRESSURE. PART III. COMPARISON BETWEEN EXPERIMENTAL BURNOUT DATA AND THEORETICAL PREDICTION FOR UNIFORM AND NON-UNIFORM HEAT FLUX DISTRIBUTION
FIAT, SEZIONE ENERGIA NUCLEARE, TORINO, ITALY + SORIN, CENTRO RICERCHE NUCLEARI, SALUGGIA
EUR-3113.E +. 138 PAGES, 1966

THE INCREASE OF POWER OUTPUT FROM A PWR CORE WITH CONSTANT HOT-CHANNEL FACTORS DEPENDS LARGELY UPON A MORE ACCURATE PREDICTION OF DNB CONDITIONS. THE PURPOSE OF THE PRESENT WORK IS TO COMPARE THE EXPERIMENTAL DATA OBTAINED FOR CONDITIONS PECULIAR TO SMALL PWR CORES WITH THE PREDICTIONS OF SEVERAL CORRELATIONS CHOSEN FROM THE EXISTING ONES FOR THEIR RELIABILITY. THE DATA COVER BOTH UNIFORM AND NONUNIFORM POWER DISTRIBUTIONS AS WELL AS UNHEATED WALL EFFECT.

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

*CONVECTIVE BOILING + *FLOW, TWO PHASE + *REACTOR, PWR + EURATOM + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER + HEAT TRANSFER, BOILING + HEAT TRANSFER, TWO PHASE + HOT CHANNEL + HOT CHANNEL FACTOR

5-26486
SWAN CL
PHOTOGRAPHY OF HEATED SURFACE FLUID BEHAVIOR FOR TRANSITION BOILING AT 1000 PSIA
GENERAL ELECTRIC COMPANY, SAN JOSE
GEAP-5094 + EURAEC-1606 +. 34 PAGES, REFERENCES, JANUARY 1966

SELECTED MOTION PICTURE FRAMES ARE PRESENTED TO ILLUSTRATE THE FORCED FLOW FLUID BEHAVIOR ON A SINGLE-ROD HEATED SURFACE DURING THE CRITICAL HEAT FLUX, TRANSITION BOILING, AND FILM BOILING CONDITIONS AT 1000 PSIA. A SEQUENCE IN WHICH THE HEATED SURFACE IS VISIBLE BY SELF-INCANDESCENCE, IN THE TRANSITION BOILING REGION, IS ALSO PRESENTED. THE HEATED SURFACE FLUID BEHAVIOR, ALTHOUGH NOT VISIBLE, MAY BE INFERRED FROM THE DEVELOPMENT OF INCANDESCENT PATCHES DURING THE CYCLIC HEATING AND COOLING. BOTH A SMOOTH AND FINNED HEATED SURFACE WERE TESTED. ALTHOUGH IMPROVED HEAT TRANSFER CONDITIONS PREVAILED FOR THE FINNED SURFACE, NO VISIBLE DIFFERENCES OF THE SURFACE FLUID BEHAVIOR WERE NOTED. EVIDENCE WAS OBTAINED TO SUPPORT THE VIEW THAT THE CRITICAL HEAT FLUX OCCURS BY SEPARATION AND SUBSEQUENT BREAKUP OF A LIQUID FILM FROM THE HEATED SURFACE.

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

*CONVECTIVE BOILING + *HEAT FLUX, CRITICAL + *HEAT TRANSFER EXPERIMENT + FLOW, CONVECTION + FLOW, LAMINAR + FLOW, TURBULENT

5-26487
BAROCZY CJ
A SYSTEMATIC CORRELATION FOR TWO-PHASE PRESSURE DROP
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-11858 +. 61 PAGES, 22 FIGURES, 2 TABLES, REFERENCES, MARCH 11, 1966

A CORRELATION WHICH CONSIDERS FLUID PROPERTIES, MIXTURE QUALITY, AND MASS VELOCITY IS DESCRIBED FOR THE PREDICTION OF TWO-PHASE FRICTION PRESSURE DROP FOR BOTH SINGLE AND TWO-COMPONENT FLOW. THE CORRELATION IS BASED ON DATA FOR STEAM, WATER-AIR, AND MERCURY-NITROGEN FOR A WIDE RANGE OF QUALITY AND MASS VELOCITY. THE TWO-PHASE FRICTION MULTIPLIER IS SHOWN TO BE A FUNCTION OF LIQUID TO GAS VISCOSITY AND DENSITY RATIOS (A PROPERTY INDEX), MIXTURE QUALITY, AND MASS VELOCITY, FOR THE FOLLOWING RANGES - PROPERTY INDEX, CRITICAL POINT TO FIVE DECADES BELOW, QUALITY, 0.1% TO 100%, MASS VELOCITY, 0.25 X 10 TO THE 6TH TO 3 X 10 TO THE 6TH LB/HR-SQ FT. COMPARISON OF THE CORRELATION WITH ADDITIONAL DATA FOR WATER-AIR, STEAM, SODIUM POTASSIUM-NITROGEN, KEROSENE-AIR, DIESEL OIL-AIR, AND POTASSIUM, SHOWED GOOD AGREEMENT.

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

*FLOW CORRELATION + *FLOW, TWO PHASE + *PRESSURE DROP + FLOW THEORY AND EXPERIMENTS

5-26488
QUINN EP
PHYSICAL MODEL OF HEAT TRANSFER BEYOND THE CRITICAL HEAT FLUX
GENERAL ELECTRIC COMPANY, SAN JOSE
GEAP-5093 + EURAEC-1603 +. 41 PAGES, REFERENCES, JANUARY 1966

A PHYSICAL MODEL OF FULLY-DEVELOPED FILM BOILING, SPACE-DEPENDENT FILM BOILING, AND TRANSITION BOILING FOR HIGH-PRESSURE FORCED WATER FLOW IS ANALYZED AND COMPARED WITH EXPERIMENTAL MEASUREMENTS. AN ANALYTICAL EXPRESSION IS GIVEN FOR THE HEAT TRANSFER FROM THE WALL TO SUPERHEATED STEAM PHASE IN FILM BOILING. EMPIRICAL COEFFICIENTS ARE SHOWN FOR THE HEAT TRANSFER BETWEEN THE STEAM PHASE AND ENTRAINED DROPLETS. A RELATION IS GIVEN FOR ESTIMATING OVER-ALL HEAT TRANSFER COEFFICIENTS FOR FULLY-DEVELOPED FILM BOILING. SPATIALLY DEPENDENT FILM BOILING IS EXAMINED AND FOUND TO BE A RESULT OF BOUNDARY LAYER AND BULK-STEAM-PHASE

CATEGORY 5
ACCIDENT ANALYSIS

5-26488 *CONTINUED*
SUPERHEAT DEVELOPMENT.

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

*CONVECTIVE BOILING + *FILM BOILING + *MATHEMATICAL STUDY + FLOW, TWO PHASE + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HEAT TRANSFER COEFFICIENT

5-26489
CAMPANILE A + GALIMI G + GOFFI M
FORCED CONVECTION BURN-OUT AND HYDRODYNAMIC INSTABILITY EXPERIMENTS FOR WATER AT HIGH PRESSURE. PART II. PRESENTATION OF DATA FOR WATER FLOWING UPWARD ALONG A UNIFORMLY HEATED ROD IN A SQUARE UNHEATED DUCT
SOCIETE RICERCHE IMPIANTI NUCLEARI, SALUGGIA, ITALY
EUR-2963.E +. 28 PAGES, MAY 25, 1966

A RESEARCH PROGRAM WAS UNDERTAKEN TO INVESTIGATE THE EFFECT ON BURNOUT DUE TO A POSSIBLE INTERACTION BETWEEN HEATED AND UNHEATED WALLS. IN MOST WATER-REACTOR CORES, CLOSE CLEARANCES EXIST BETWEEN FUEL RODS AND UNHEATED WALLS. ATTENTION WAS FOCUSED ON THE SITUATION OF A CORNER ROD IN A FUEL ASSEMBLY, HAVING TWO SIDES SURROUNDED BY STRUCTURAL WALLS. OUR EXPERIMENTS DEAL WITH MEASUREMENT OF BURNOUT HEAT FLUXES ON A SQUARE ANNULAR CHANNEL CONSISTING OF A 10.2-MM-OD HEATER ROD CENTERED IN A 15-X-15-MM UNHEATED SQUARE CHANNEL, COOLED BY WATER AT HIGH PRESSURE FLOWING UPWARD.

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

*BURNOUT HEAT FLUX + *CONVECTIVE BOILING + EURATOM + FLOW, AXIAL + FUEL ELEMENT + ITALY + OUT OF PILE LOOPS AND EXPERIMENTS + REACTOR, PWR + REACTOR, WATER + WATER, GENERAL

5-26491
NATARAJAN K + RAMANI MP + VARTAK DG
APPARATUS FOR THE THERMAL CONDUCTIVITY DETERMINATION OF SOME ORGANIC COOLANTS USED IN NUCLEAR REACTORS
ATOMIC ENERGY ESTABLISHMENT, TROMBAY
AEET-245 +. 26 PAGES, 1966

THERMAL CONDUCTIVITY OF LIQUID COOLANTS IS ONE OF THE IMPORTANT PROPERTIES REQUIRED FOR THE PREDICTION OF HEAT TRANSFER. THE AVAILABLE INFORMATION ON THIS PROPERTY IS LIMITED AND VARIED. AS THE ORGANIC-COOLANT TECHNOLOGY FOR NUCLEAR REACTORS IS OF RECENT DEVELOPMENT, ONLY A FEW INVESTIGATIONS AND THAT TOO WITH MUCH DEVIATION FROM EACH OTHER, ARE FOUND IN LITERATURE. THE APPARATUS WAS EMPLOYED TO DETERMINE THE THERMAL CONDUCTIVITY OF REACTOR COOLANTS SUCH AS DOWTHERM, SANTOWAX O.M., MONOISOPROPYL, BIPHENYL, O-TERPHENYL, M-TERPHENYL, P-TERPHENYL AND SANTOWAX-R WERE DETERMINED AND VALUES COMPARED WITH THOSE AVAILABLE IN LITERATURE.

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

*EXPERIMENT, GENERAL + *THERMAL PROPERTY + HEAT TRANSFER EXPERIMENT + INDIA + REACTOR, ORGANIC COOLED

5-26534 ALSO IN CATEGORY 18
TUPPENY WH + SIDDALL WF + HSU LC
THERMAL SHOCK ANALYSIS ON REACTOR VESSELS DUE TO EMERGENCY CORE COOLING SYSTEM OPERATION
COMBUSTION ENGINEERING, INC., WINDSOR, CONN.
A-68-9-1 +. 70 PAGES, FIGURES, 30 REFERENCES, MARCH 15, 1968, DOCKET 50-309, TYPE--PWR, MFG.--CE, AE--STONE + WEBSTER

EVALUATION OF STRUCTURAL ADEQUACY OF REACTOR PRESSURE VESSELS TO SUSTAIN THERMAL SHOCK AS RESULT OF ECCS INJECTING COLD WATER INTO VESSEL TO KEEP CORE COVERED AFTER RUPTURE OF REACTOR COOLANT PIPE. REPORT OFFERS THE FOLLOWING - (1) HEAT-TRANSFER ANALYSIS TO ESTABLISH TIME-DEPENDENT METAL TEMPERATURE DISTRIBUTIONS IN VESSEL, (2) ANALYSIS OF MECHANICAL, SEISMIC, RESIDUAL, AND TRANSIENT THERMAL STRESSES, (3) FAILURE STUDY(CONSIDERING FRACTURE MECHANICS ANALYSIS AND NDT TEMPERATURE APPROACH), DUCTILE YIELDING, AND FATIGUE-DAMAGE INCREMENTS. EVIDENCE INDICATES REACTOR VESSEL IS CAPABLE OF SUSTAINING THERMAL SHOCK IMPOSED BY OPERATION OF ECCS. IRWIN MODEL ANALYSIS INDICATES FLAW SIZES 10% OF WALL THICKNESS DO NOT LEAD TO CATASTROPHIC FAILURE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON

*ACCIDENT, LOSS OF COOLANT + *PRESSURE VESSEL + *STRESS ANALYSIS + *THERMAL MECHANICAL EFFECT + BIBLIOGRAPHY + CORE REFLOODING SYSTEM + EARTHQUAKE ENGINEERING + EMERGENCY COOLING CONSIDERATIONS + HEAT TRANSFER ANALYSIS + MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + REACTOR, PWR + TEMPERATURE GRADIENT + TEMPERATURE TRANSIENT

5-26552
SCHMID J
SOLUTION OF SOME BOUNDARY PROBLEMS OF HEAT CONDUCTION FOR CYLINDRICAL BODIES PROVIDED WITH LONGITUDINAL FINS
THE NUCLEAR RESEARCH INSTITUTE OF THE CZECHOSLOVAK ACADEMY OF SCIENCES
22 PAGES, 9 FIGURES, 2 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 10(10), PAGES 1305-1326

CATEGORY 5
ACCIDENT ANALYSIS

5-26552 *CONTINUED*
(OCTOBER 1967)

DEALS WITH A SOLUTION OF THE TEMPERATURE FIELD IN CYLINDRICAL BODIES CONSISTING OF SEVERAL ANNULI PROVIDED WITH EXTERNAL OR INTERNAL LONGITUDINAL FINS IN THE SHAPE OF ANNULAR SECTORS OR PRISMS. THE PROBLEM IS ANALYSED FOR BOUNDARY CONDITIONS VARYING ALONG THE PERIPHERY AND FOR AN ARBITRARY DISTRIBUTION OF SOURCES OVER THE CROSS SECTION. PROBLEMS OF THIS TYPE ARE ENCOUNTERED IN THERMAL-ENGINEERING COMPUTATIONS OF LONGITUDINALLY FINNED NUCLEAR REACTOR FUEL ELEMENTS OR OF LONGITUDINALLY FINNED TUBES OF HEAT EXCHANGERS. THE METHOD EVOLVED IN THE PAPER CAN ALSO BE APPLIED TO PROBLEMS CONCERNING LAMINAR FLOW IN EXCHANGERS. THE METHOD CAN ALSO BE APPLIED TO PROBLEMS CONCERNING LAMINAR FLOW IN NON-CIRCULAR CHANNELS.

*CYLINDER + *FIN + *HEAT TRANSFER, CONDUCTION + *TEMPERATURE GRADIENT + FUEL ELEMENT + HEAT TRANSFER

5-26578 ALSO IN CATEGORIES 17 AND 9
MAKINO K
DETECTION OF FAILED FUEL AT JPDR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1147 +. 23 PAGES, REFERENCES, FEBRUARY, 1967

THE FAILED FUEL WAS FIRST OBSERVED IN DEC. 1964 BY AN ACTIVITY MONITOR ON THE OFF-GAS STORAGE TANK, BUT OPERATION CONTINUED UNTIL EARLY 1966 BEFORE THE RELEASE RATE EXCEEDED STACK LIMITS. LOCALIZING THE FAILED ASSEMBLY WAS ACCOMPLISHED BY ROD SWAPPING TO GIVE FLUX TITL. BY INSERTING A PIPE IN THE ASSEMBLIES AND THEN SAMPLING THE OUTLET WATER OF EACH FUEL CHANNEL UNDER LOW-POWER CONDITIONS, THE FAILED ASSEMBLY PROVED TO BE A SWAGED FUEL ASSEMBLY. ***SOME DISCUSSION OF THE FISSION-GAS-RELEASE BEHAVIOR DURING TRANSIENT CONDITIONS, AS GAS WAS RELEASED INTERMITTENTLY AT A CONSTANT RATE, BUT THE INTERVAL AND MAGNITUDE DEPENDED ON CONTROL-ROD POSITION, POWER, AND WATER LEVELS.

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

*FISSION GAS RELEASE + *INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, CLADDING + FUEL BURNUP + FUEL ELEMENT + JAPAN + OPERATING EXPERIENCE SUMMARY + PRESSURE, INTERNAL + REACTOR, BWR

5-26767 ALSO IN CATEGORY 18
CALVERT CLIFFS AMENDMENT 1
BALTIMORE GAS AND ELECTRIC CORPORATION
165 PAGES. APRIL 17, 1968. DOCKET 50-317 AND 50-318.

PROVIDES REVISED PAGES WITH MINOR CORRECTIONS AND CHANGES. COMPLETELY REPLACED IS APPENDIX 3A (ABILITY OF FUEL TO WITHSTAND EXPECTED TRANSIENTS TOWARD THE END OF THE ANTICIPATED LIFETIME, PG 3A-1 THRU -9) AND APPENDIX 3B (REACTOR THERMAL HYDRAULICS SUPPLEMENTARY DATA, PG 3B-1 THRU -4, PLUS 6 FIGURES).

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

*FUEL ELEMENT + *PERFORMANCE LIMIT + *POWER DISTRIBUTION + CALVERT CLIFFS (PWR) + DNB + FUEL BURNUP + HOT CHANNEL FACTOR + IRRADIATION TESTING + REACTOR, PWR + REPORT, PSAR

5-26771
PETERSON JR
HIGH PERFORMANCE ONCE THROUGH BOILING OF POTASSIUM IN SINGLE TUBES AT VAPOR TEMPERATURES FROM 1500 F TO 1750 F
GENERAL ELECTRIC, MISSILE AND SPACE DIVISION, CINCINNATI, OHIO
18 PAGES, 46 FIGURES, 17 TABLES, 61 REFERENCES, 1966

BOILING POTASSIUM HEAT TRANSFER RESULTS OBTAINED IN A TWO-FLUID HAYNES 25 ALLOY FACILITY ARE PRESENTED. THE SINGLE-TUBE TEST SECTION USED IS A SHELL AND TUBE HEAT EXCHANGER, APPROXIMATELY EIGHT FEET LONG, IN WHICH BOILING POTASSIUM IN VERTICAL UPFLOW IN THE TUBE IS HEATED BY SODIUM FLOWING IN THE ANNULUS. THE RESULTS INCLUDE DATA AND CORRELATIONS FOR THE CRITICAL HEAT FLUX, TRANSITION BOILING HEAT TRANSFER COEFFICIENT AND BOILING PRESSURE LOSS, AS WELL AS A FEW VALUES FOR THE SUPERHEATED VAPOR HEAT TRANSFER COEFFICIENT. POTASSIUM HEAT TRANSFER COEFFICIENTS AVERAGED OVER THE ENTIRE LENGTH OF THE TUBE IN BOILING ARE ALSO PRESENTED.

AVAILABILITY - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SCIENTIFIC AND TECHNICAL INFORMATION DIVISION, WASHINGTON, D.C. 20546

*FLOW, TWO PHASE + *HEAT TRANSFER, BOILING + *POTASSIUM + CONVECTIVE BOILING + FLOW, ANNULAR + HEAT TRANSFER EXPERIMENT

5-26789 ALSO IN CATEGORY 17
WATER LOSS ANALYSIS FOR POWER UPRATING
RHODE ISLAND ATOMIC ENERGY COMMISSION
6 PAGES, LETTER TO A BURGER, DRL, FROM A LETTER REPORTING CALCULATIONS ANALYTICALLY CORROBORATING THE CONCLUSION THE FUEL WILL NOT MELT FOLLOWING A LOSS OF POOL WATER AFTER OPERATION OF 2000 KW. DECEMBER 14, 1967. DOCKET 50-193.

CATEGORY 5
ACCIDENT ANALYSIS

5-26789 *CONTINUED*
ORIGINAL SUBMISSIONS (JULY 21, SEPT. 22, OCT. 9) WERE BASED ON LITR WATER-LOSS TESTS. AT DRL REQUEST THE FOLLOWING ANALYTICAL CALCULATIONS WERE MADE TO CORROBORATE THE CONCLUSION THAT FUEL WILL NOT MELT AFTER WATER LOSS AT 2 MW. ***TIME TO DRAIN WATER THRU A BEAM HOLE IS 30 MIN, WHEN THE HEAT RATE IS 0.06 BTU/SEC (AT THE TOP OF THE PLATES) TO CAUSE MELTING WITH A WATER TEMP. OF 240 F. IF, AS IS REASONABLE, 30% OF THE HEAT IS REMOVED BY STEAM PASSING THRU THE ELEMENTS, IT REQUIRES 0.087 BTU/SEC FOR MELTING.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *POWER UPRATING + AEC QUESTION + DECAY HEAT + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + LITR (TR) + REACTOR, POOL TYPE + REACTOR, RESEARCH

5-26791 ALSO IN CATEGORY 17
LOSS OF COOLANT ANALYSIS REVISED BY ACTUAL FLUX DISTRIBUTION
RHODE ISLAND ATOMIC ENERGY COMMISSION
5 PAGES, 2 FIGURES, LETTER TO R J SCHEMEL, DRL, FROM LETTER TO SCHEMEL FROM A. FRANCIS DIMEGLIO. JUNE 21, 1968. DOCKET 50-193.

CALCULATIONS IN OUR LETTER OF DEC. 14, 1967, HAVE BEEN REWORKED TO INCORPORATE THE ACTUAL FLUX DISTRIBUTION. RADIAL PEAKING FACTOR OF 1.41 GIVES A MAXIMUM OF 0.077 BTU/SEC FOR THE HOTTEST PLATE. CONSIDERING ALL HEAT TRANSFERRED DOWN THE FUEL PLATE INTO WATER GIVES 0.074 BTU/SEC NECESSARY FOR THE TOP OF A PLATE TO MELT. CONDUCTION DOWN THE SIDE PLATE RAISES THIS TO 0.084, AND STEAM CONVECTION RAISES THIS 0.0109 BTU/SEC (MARGIN THUS ALMOST 50%). ACTUAL HEAT GENERATION RATE IS NOT ENOUGH TO CAUSE PLATE MELTING.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + DECAY HEAT + FLUX DISTRIBUTION + FUEL ELEMENT + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + REACTOR, RESEARCH

5-27098 ALSO IN CATEGORIES 18 AND 11
SHOREHAM PSAR VOL IV
LONG ISLAND LIGHTING CO.
320 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES THE FOLLOWING APPENDICES - (A) CONSULTANTS REPORTS ON SEISMIC ANALYSES (GROUND RESPONSE, MODAL ANALYSIS OF CONTAINMENT STRUCTURE), (B) CORE THERMAL DESIGN (THERMAL MARGIN, MCHFR SENSITIVITY TO VARIOUS ASSUMPTIONS), (C) CONTROL-ROD-DRIVE DESCRIPTION, (D) JET-PUMP DEVELOPMENT PROGRAM, (E) CORE-SPRAY COOLING TEST PROGRAM, (F) PROPOSED OUTLINE OF TECHNICAL SPECIFICATIONS, AND (G) AEC GENERAL DESIGN CRITERIA COMPARISON (A LIST OF APPROPRIATE PSAR SECTIONS).

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

*AEC DESIGN CRITERIA + *ERROR ANALYSIS + *HEAT FLUX, CRITICAL + *STRUCTURAL ANALYSIS, DYNAMIC + EARTHQUAKE ENGINEERING + REACTOR, BWR + REPORT, PSAR + SHOREHAM (BWR)

5-76502 ALSO IN CATEGORY 18
REQUEST FOR LICENSE AMENDMENT
UNITED NUCLEAR CORPORATION
UNC-5216 +. 39 PAGES, 4 FIGURES, 9 TABLES, FROM AMENDMENT 6 TO LICENSE R-49 OF THE PAWLING LATTICE TEST RIG (PLATR) AND AMENDMENT 3 TO PLATR SAFETY EVALUATION REPORT - OPERATION WITH PUO2-UO2 FUEL, MAY 15, 1968. DOCKET 50-101.

DATA GIVEN TO SUPPORT REQUEST PERMITTING PLATR OPERATION WITH BOTH UO2 AND MIXED FUEL IN CENTRAL AND BUFFER REGIONS TO PERMIT LATTICE MEASUREMENTS FOR CONFIGURATION OF INTEREST TO PU RECYCLE IN THERMAL POWER REACTORS. CONTAINS REQUESTED MODIFICATION OF TECH. SPECS., NUCLEAR CHARACTERISTICS OF FUEL RODS, SAFETY ANALYSIS, AND OBSERVED DATA ON RESTRICTED PU RELEASE. DESIGN ACCIDENT IS A STEP-REACTIVITY INSERTION OF 0.0045 DELTA K/K. PU-RELEASE HAZARD IS MINIMUM. HIGHER PROMPT NEGATIVE DOPPLER EFFECT FROM MIXED FUEL INCREASES SAFETY.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR PHYSICS + *TESTING + ACCIDENT, REACTIVITY + DOPPLER EFFECT + FUEL ELEMENT + FUEL REPROCESSING + PLUTONIUM DIOXIDE + REACTOR, RESEARCH + SAFETY ANALYSIS + URANIUM DIOXIDE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25308 ALSO IN CATEGORY 17
SAXTON OPERATIONS SUMMARY
SAXTON NUCLEAR EXPERIMENTAL CORPORATION
48 PAGES, APRIL 19, 1968, DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

(OCT.) NEWLY INSTALLED SUPERHEAT LOOP OPERATED 4 DAYS, THEN, ON ITS THIRD STARTUP, FISSION PRODUCTS WERE RELEASED. 23.5-MIL ZIRCALOY-CLAD FUEL, IRRADIATED AT 22,000 PSI INTERNAL, SWELLED. (NOV.) LOOP WAS SHIPPED OUT FOR EXAMINATION. (DEC.) PH TEST ASSEMBLY SHOWED NO TEMP. CHANGE IN FUEL OR COOLANT ON A PH TRANSIENT, WHEN LOCATED IN A NONBOILING AREA. YEARLY ACTIVITY DISCHARGED WAS 22 CURIES OF XENON AND 6 OF TRITIUM. (JAN.) A ROD JAMMED, APPARENTLY DUE TO A FOREIGN OBJECT IN THE DASHPOT. PH TEST ASSEMBLY SHOWED NO SIGNIFICANT TEMPERATURE IN THE CENTER OF THE CORE.

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

*EXPANSION + *FAILURE, FUEL ELEMENT + *PH REACTIVITY EFFECT + *WASTE DISPOSAL, GAS + FAILURE, CLADDING + IN PILE LOOP + PRESSURE, INTERNAL + REACTOR, PWR + REACTOR, SUPERCRITICAL PRESSURE + REPORT, OPERATIONS SUMMARY + SAXTON (PWR) + TEST, PHYSICS

6-25353
PITTERLE TA + YAMAMOTO M
A COMPARISON OF CALCULATION AND EXPERIMENT FOR ZPR-3 ASSEMBLY 48
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC.
2 PAGES, 1 TABLE, 5 REFERENCES, ANS TRANS. 10(2), PAGES 530-31, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

DESCRIBES METHOD OF CALCULATING NEUTRON CROSS SECTIONS FOR ZPR-3 ASSEMBLY 48 USING THE MC2 MULTIGROUP CONSTANTS CODE. COMPARES K-EFF, CRITICAL MASS, MATERIAL WORTHS, REACTION RATES, AND DOPPLER REACTIVITY CHANGES, CALCULATED BY USING THESE CROSS SECTIONS WITH EXPERIMENTAL VALUES.

*REACTOR, FAST + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + CRITICAL ASSEMBLY FACILITY + CROSS SECTION + ZPR 3 (CAF)

6-25354
PITTERLE TA + GREEN DM
FAST-REACTOR DOPPLER CALCULATIONS WITH THE IDIOT CODE
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC.
2 PAGES, 1 TABLE, 3 REFERENCES, ANS TRANS. 10(2), PAGES 531-32, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

DESCRIBES METHODS USED IN IDIOT CODE FOR CALCULATING RESONANCE-AVERAGED MULTIGROUP CROSS SECTIONS AND THEIR TEMPERATURE DERIVATIVES FOR FAST-REACTOR CALCULATIONS. COMPARES RESULTS OF VARIOUS METHODS FOR CALCULATING DOPPLER COEFFICIENTS.

*COMPUTER PROGRAM + *DOPPLER COEFFICIENT + CROSS SECTION + REACTOR, FAST + THEORETICAL INVESTIGATION

6-25355
SMITH RI + DAVIS EC + WILLIAMS LD
CRITICAL EXPERIMENTS WITH PHOENIX FUEL IN AN MTR MOCKUP
BATTELLE NORTHWEST LABORATORY
1 PAGE, 1 FIGURE, 4 REFERENCES, ANS TRANS. 10(2), PAGE 537, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

THE EXPERIMENTS IN THE MTR-PHOENIX FUEL MOCKUP HAVE DETERMINED THE KINETICS PARAMETERS, CONTROL AND SHUTDOWN CAPABILITY, AND POWER DISTRIBUTIONS TO BE EXPECTED IN THE PHOENIX FUEL CORE IN MTR, FOR USE IN PLANNING THE BURNUP EXPERIMENT. IN ADDITION, DATA HAVE BEEN OBTAINED THAT PROVIDE AN EXCELLENT TEST OF THE COMPUTATIONAL METHODS CURRENTLY BEING APPLIED TO PHOENIX FUEL CORES.

COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT + MTR (TR) + PLUTONIUM + REACTOR, TEST + TEST, PHYSICS

6-25357
REACTOR STABILITY AND OPTIMAL CONTROL
7 PAGES, FIGURES, REFERENCES, ANS TRANS. 8(2), PAGES 475-481, 1965 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOVEMBER 15-18, 1965

CONVENTION SESSION PROGRAM ENTITLED REACTOR STABILITY AND OPTIMAL CONTROL CONTAINS SHORT ACCOUNTS OF PAPERS ON (1) CONDITIONS FOR PROBABILISTIC BOUNDEDNESS OF REACTORS WITH RANDOM MACROSCOPIC CROSS SECTIONS, (2) TWO CRITERIA FOR LAGRANGE STABILITY, (3) EXPERIMENTAL INTERPRETATION OF A CRITERION FOR NONLINEAR STABILITY, (4) A LIAPUNOV FUNCTION FOR THE PROMPT-JUMP APPROXIMATION IN REACTOR DYNAMICS, (5) AUTONOMOUS POWER OSCILLATIONS IN REACTORS, (6) EBR-2 DYNAMICS, (7) INPUT-OUTPUT APPROACH TO OPTIMAL CONTROL, AND (8) LIMITATIONS TO THE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25357 *CONTINUED*
APPLICABILITY OF THE RESTRICTED SPACE-TIME OPTIMAL XENON SHUTDOWN PROBLEM.

*REACTOR CONTROL + *REACTOR STABILITY + EBR 1 AND 2 (RE) + LIAPUNOVS FUNCTION + OSCILLATION + REACTOR DYNAMICS + REACTOR, AEC OWNED + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + SPACE DEPENDENT DYNAMICS

6-25358
BEYSTER JR + ANTUNEZ HM + BORGONOVI GM
INTEGRAL NEUTRON THERMALIZATION
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA
GA-8085 +. 107 PAGES, 16 FIGURES, REFERENCES, JULY 10, 1967

REPORTS THEORETICAL STUDIES OF (1) PHONON DISPERSION CURVES IN BERYLLIUM, (2) LATTICE DYNAMICS OF ZIRCONIUM HYDRIDE, (3) MULTIPLE SCATTERING IN DOUBLE-DIFFERENTIAL MEASUREMENTS, (4) NEUTRON SCATTERING BY DIPHENYL, (5) SCATTERING LAWS FOR UC AND UO2. REPORTS EXPERIMENTAL AND ANALYTICAL STUDIES OF (1) FAST-NEUTRON SPECTRA AND KINETICS IN A U-238 SPHERE, (2) RESONANCE-REGION STUDIES IN U-238 SLAB, (3) NEUTRON SPECTRA IN 77.4K BERYLLIUM AND IN DIPHENYL, (4) AUGULAR SCATTERING AND TOTAL CROSS SECTION OF BENZENE, (5) ANGULAR SCATTERING BY ZIRCONIUM HYDRIDE, AND (6) CORRECTION FOR FINITE LENGTH OF FLIGHT PATH IN SINGLE DIFFERENTIAL CROSS SECTIONS. EXPERIMENTAL FACILITIES ARE DESCRIBED.

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

*THERMALIZATION + BERYLLIUM + CROSS SECTION + HYDRIDE + NEUTRON + URANIUM CARBIDE + URANIUM OXIDE + URANIUM-238 + ZIRCONIUM

6-25359
ROHAL RG + FINNEGAN PM + CIESLA EJ
NUCLEAR DESIGN DATA FOR EXPERIMENTS TO BE CONDUCTED IN HORIZONTAL THROUGH HOLE 1 OF THE PLUM BROOK REACTOR
LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TM-X-1509 +. 29 PAGES, 16 FIGURES, 2 TABLES, 3 REFERENCES, FEBRUARY 1968

MEASUREMENTS WERE MADE IN THE HORIZONTAL THROUGH-HOLE 1 OF THE PLUM BROOK REACTOR TO DETERMINE DATA FOR EXPERIMENTS TO BE PERFORMED THEREIN. OF SAFETY INTEREST IS THE REACTIVITY WORTH OF THE MOCK FUEL ELEMENTS AND IN-PILE TUBES IN BOTH NORMAL AND ACCIDENT CONDITIONS, WHICH RANGED FROM -4 TO -40 CENTS, RESPECTIVELY.

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

ACCIDENT ANALYSIS + CRITICALITY EXPERIMENT + REACTOR, POOL TYPE + TEST, PHYSICS

6-25360
NEAL LG + ZIVI SM
THE STABILITY OF BOILING-WATER REACTORS AND LOOPS
TRW SYSTEMS, REDONDO BEACH, CALIFORNIA
14 PAGES, 8 FIGURES, 3 TABLES, NUCLEAR SCIENCE AND ENGINEERING 30(1), PAGES 25-38 (1967)

PAPER DESCRIBES A COMPARATIVE STUDY OF ANALYTICAL MODELS FOR CALCULATING THE HYDRO-DYNAMIC STABILITY OF NATURAL-CIRCULATION BOILING SYSTEMS AND EXPERIMENTAL DATA. PHYSICAL ASSUMPTIONS, METHODS OF SOLUTION, AND PREDICTING ABILITIES OF MODELS WERE EVALUATED. DIGITAL COMPUTER PROGRAMS BASED ON THE VARIOUS MODELS WERE USED TO PREDICT EXPERIMENTAL LOOP STABILITY. IN ALL MODELS, THE DYNAMICS OF THE INSTABILITY COULD BE DESCRIBED AS LINEAR FEEDBACK BETWEEN FLOW RATE AND VAPOR VOLUME. NONLINEARITIES IN THE FLOW-VOID INTERACTION WERE FOUND NOT TO BE IMPORTANT IN DETERMINING THE INSTABILITY THRESHOLD, BUT MERELY AFFECT THE LIMIT CYCLE OSCILLATION. ALL MODELS CONTAIN EMPIRICAL CORRELATIONS FOR SLIP RATIO, FRICTION, AND HEAT TRANSFER DERIVED FROM STEADY-STATE DATA.

*CIRCULATION, NATURAL + *COMPARISON, THEORY AND EXPERIENCE + *FLOW STABILITY + *HYDRODYNAMIC ANALYSIS + *REACTOR, BWR + COMPUTER, DIGITAL + FLOW, TWO PHASE + REACTOR STABILITY + TRANSFER FUNCTION

6-25361
BERMAN D + WILKINSON CD
WEIGHTED DOPPLER ANALYSIS CODE - WEDOP
GENERAL ELECTRIC COMPANY, SUNNYVALE, CALIFORNIA
GEAP-5543 +. 66 PAGES, AUGUST 1967

DESCRIBES COMPUTER CODE WEDOP, DEVELOPED TO CALCULATE THE TOTAL REACTOR DOPPLER REACTIVITY EFFECT IN A FAST REACTOR FOR (1) A CHANGE BETWEEN TWO EQUILIBRIUM REACTOR CONDITIONS OR (2) DURING THE EARLY PORTION OF A FAST POWER TRANSIENT. DETAILED FUEL TEMPERATURE DISTRIBUTION AND LOCAL DOPPLER REACTIVITY IS CALCULATED, AND LATTER IS WEIGHTED WITH AN APPROPRIATE FUNCTION TO OBTAIN TOTAL DOPPLER REACTIVITY. CODE HAS BEEN USED TO PREDICT DOPPLER EFFECTS ASSOCIATED WITH CERTAIN EXPERIMENTS TO BE CONDUCTED AT SEFOR AND WILL BE USED IN ANALYZING DATA FROM FUTURE SEFOR EXPERIMENTAL PROGRAM.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151,

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25361 *CONTINUED*
$3.00 COPY, $0.65 MICROFICHE

*COMPUTER, DIGITAL + *DOPPLER COEFFICIENT + REACTOR, FAST + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SEFOR (RE)

6-25364
RAJU SG + STONE RS
DYNAMICS OF COUPLED-CORE REACTORS
OHIO UNIVERSITY + OAK RIDGE NATIONAL LABORATORY
3 PAGES, 21 REFERENCES, NUCLEAR SAFETY 9(2), PAGES 125-127 (MAR-APR. 1968)

NUCLEAR REACTORS WITH WEAK COUPLING BETWEEN ISOLATED SEGMENTS OF THEIR CORES DIFFER FROM POINT REACTORS IN THEIR KINETIC BEHAVIOR AND SHOULD BE STUDIED AS SPATIALLY DEPENDENT SYSTEMS. A NUMBER OF INVESTIGATORS HAVE DEVELOPED SPACE- AND TIME-DEPENDENT MODELS FOR THE ANALYSIS OF COUPLED-CORE REACTORS AND HAVE FOUND SUCH REACTORS TO BE INHERENTLY LESS STABLE THAN SINGLE-CORE REACTORS. ON THE OTHER HAND, THE EXTENDED SYSTEM TENDS TO BE MORE SLUGGISH THAN THE POINT REACTOR, AND THEREFORE SAFETY ANALYSES BASED ON THE LATTER MODEL MAY BE OVERCONSERVATIVE FOR THE COUPLED-CORE SYSTEM. BECAUSE OF THE STABILITY PROBLEM, ADDITIONAL ATTENTION SHOULD BE DIRECTED TOWARD CONTROL OF SPACE-DEPENDENT REACTORS.

*COUPLED CORES + *MATHEMATICAL TREATMENT + *SPACE DEPENDENT DYNAMICS + MODEL TESTING + REACTOR CONTROL + REACTOR STABILITY

6-25365
STACEY WM
APPLICATION OF VARIATIONAL SYNTHESIS TO OPTIMAL CONTROL
KNOLLS ATOMIC POWER LABORATORY
2 PAGES, 4 REFERENCES, ANS TRANS. 10(2), PAGES 573 AND 574, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

TECHNIQUE OF VARIATIONAL SYNTHESIS IS APPLIED TO A SOLUTION FOR THE OPTIMAL REACTIVITY CONTROL OF A PAINT REACTOR MODEL, WITH TEMPERATURE FEEDBACK, SUBJECT TO A GENERAL TYPE OF OPTIMALITY FUNCTIONAL. USE IS MADE OF SPECIAL STRUCTURE OF THE INTEGRAL EQUATION FORMULATION OF THE NEUTRON DYNAMICS TO CIRCUMVENT DIFFICULT REQUIREMENT OF SOLVING A TWO PAINT BOUNDARY VALVE PROBLEM ASSOCIATED WITH DIFFERENTIAL EQUATION FORMULATION OF OPTIMAL CONTROL PROBLEM. SAMPLE CALCULATIONS GIVEN USING TWO-TERM EXPANSION APPROXIMATION OF THE CONTROL FUNCTION, FOR THE FOLLOWING CASES - (1) DETERMINE A REACTIVITY CONTROL CAUSING THE NEUTRON DENSITY TO INCREASE LINEARLY TO A PRESCRIBED FINAL VALUE IN A GIVEN TIME INTERVAL, AND (2) DETERMINE A CONTROL NECESSARY TO MINIMIZE THE TIME DERIVATIVE OF THE NEUTRON DENSITY WHILE INCREASING THE DENSITY TO A PRESCRIBED FINAL VALUE IN A GIVEN TIME INTERVAL.

MATHEMATICAL TREATMENT + REACTOR CONTROL + REACTOR KINETICS

6-25366
PODNEY WN + SMITH HP
NEUTRON KINETICS OF A CYLINDRICAL-CAVITY REACTOR
LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA
2 PAGES, 1 FIGURE, 3 REFERENCES, ANS TRANS. 10(2), PAGES 422 AND 423, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

BRIEFLY DESCRIBES A THEORETICAL ANALYSIS OF KINETICS OF A CYLINDRICAL-CAVITY REACTOR, INCLUDING DELAYED-NEUTRON EFFECTS. CONSEQUENCES OF PERTURBATIONS IN THE GAS DENSITY ARE CALCULATED. THE PROMPT-NEUTRON LIFETIME IS DETERMINED AS A FUNCTION OF CAVITY GREYNESS.

DELAYED NEUTRON + PROMPT NEUTRON LIFETIME + REACTOR KINETICS + THEORETICAL INVESTIGATION

6-25367
KIEFHABER E
REACTIVITY COEFFICIENTS OF STEAM-COOLED FAST BREEDERS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
KFK-629 + EUR-3673E + CONF-671043-8 + EURFNR-398 +. 21 PAGES, 6 FIGURES, 3 TABLES, 11 REFERENCES, OCTOBER 1967, FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS, KARLSRUHE, GERMANY

VALUES OF THE DOPPLER COEFFICIENT, STEAM-DENSITY COEFFICIENT, CHANGE IN REACTIVITY DUE TO LOSS OF COOLANT, CHANGE IN REACTIVITY DUE TO LOSS OF COOLANT, CHANGE IN REACTIVITY DUE TO FLOODING, CONVERSION RATIO, MIGRATION AREA, AND OTHER QUANTITIES ARE DETERMINED FOR 1000-MWE STEAM-COOLED FAST BREEDER REACTORS BY USING FUNDAMENTAL-MODE DIFFUSION THEORY CALCULATIONS FOR THE HOMOGENEOUS REACTOR. A PARAMETER STUDY OF EFFECTS OF CHANGES IN FUEL AND CLADDING COMPOSITION, PERCENTAGE OF D2O IN COOLANT, TYPE OF FUEL, BUCKLING, BURNUP, ETC., ON THESE COEFFICIENTS IS MADE.

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

*REACTIVITY COEFFICIENT + *REACTOR, BREEDER + *REACTOR, FAST + COOLANT COEFFICIENT + DOPPLER COEFFICIENT + FLOODING COEFFICIENT + THEORETICAL INVESTIGATION

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25368
ERBACHER F + FRISCH W + HUBSCHMANN W + RITZ L + WOITE G
THE SAFETY OF STEAM COOLED FAST REACTORS AS INFLUENCED BY THE DESIGN AND ARRANGEMENT OF THEIR COMPONENTS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
KFK-655 + EURFNR-421 + EUR 3688E +. 49 PAGES, 10 FIGURES, 8 REFERENCES, OCTOBER 1967

PRESENTS THE REASONS WHY THE DYNAMIC BEHAVIOR AND THE SAFETY OF A STEAM COOLED FAST REACTOR IS PARTICULARLY DEPENDENT ON THE DESIGN AND THE ARRANGEMENT OF THE COOLING CYCLE AND ITS COMPONENTS. POINTS OUT THAT BY A SUITABLE DESIGN ARRANGEMENT A SELF-CONTROLLED SYSTEM CAN BE OBTAINED AND THE CONSEQUENCES OF CERTAIN MAJOR ACCIDENTS GREATLY REDUCED. INDEPENDENT OF ANY SPECIFIC REACTOR DESIGN THE CRITERIA TO ACHIEVE THIS ARE DEFINED.

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

*REACTOR, FAST + ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + COOLANT COEFFICIENT + CORE MELTDOWN + REACTOR CONTROL + REACTOR STABILITY

6-25369
CLARK HK
COMPUTER CODES FOR NUCLEAR CRITICALITY SAFETY CALCULATIONS
SAVANNAH RIVER LABORATORY
DP-1121 +. 88 PAGES, 18 TABLES, 51 REFERENCES, NOVEMBER 1967

SEVERAL COMPUTER CODES FOR NUCLEAR CRITICALITY SAFETY EVALUATIONS ARE DESCRIBED ALONG WITH THEIR INPUT REQUIREMENTS. THE TWO BASIC CODES ARE A CODE FOR COMPUTING THE BUCKLING OF FISSILE MATERIAL AND A TWO-GROUP DIFFUSION THEORY CODE, WHICH USES PARAMETERS CALCULATED BY THE BUCKLING CODE, FOR COMPUTING CRITICAL SIZES. THE OTHER CODES GENERATE CROSS SECTIONS FOR THE BUCKLING CODE, MODIFY TWO-GROUP PARAMETERS FOR SPECIAL CASES, COMPUTE K-EFF, AND COMPUTE THE EFFECT OF SPECIAL SHAPES. NUMEROUS CORRELATIONS OF THE CODES WITH DATA OBTAINED IN EXPONENTIAL AND CRITICAL EXPERIMENTS ARE GIVEN.

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

*COMPUTER PROGRAM + *CRITICALITY SAFETY + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT

6-25370
BEVILACQUA F + COPPERSMITH WC + MUSICK CR
TRANSIENT BEHAVIOR OF THE HWOCR WITH A POSITIVE POWER COEFFICIENT
COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT
9 PAGES, 12 FIGURES, 3 REFERENCES, NUCLEAR APPLICATIONS 4(2), PAGES 70-78 (FEB. 1968)

THE POSITIVE COOLANT COEFFICIENT OF REACTIVITY CHARACTERISTIC OF A LARGE HEAVY-WATER-MODERATED ORGANIC-COOLED REACTOR MAY MAKE THE POWER COEFFICIENT SLIGHTLY POSITIVE. THEREFORE, THE INHERENT REACTOR RESPONSE CHARACTERISTIC OF A POSITIVE POWER COEFFICIENT WAS STUDIED DYNAMICALLY TO DETERMINE IF A PRACTICAL CONTROLLER AND SHUTDOWN SYSTEM COULD BE DESIGNED. REACTIVITY, COOLANT FLOW, AND COOLANT INLET TEMPERATURE PERTURBATIONS WERE STUDIED IN CONTROLLED AND UNCONTROLLED SITUATIONS. WITH A SMALL POSITIVE POWER COEFFICIENT THIS REACTOR CAN BE STABLY CONTROLLED WITH A SIMPLE ON-OFF DEAD BAND CONTROLLER AND A RELATIVELY UNSOPHISTICATED SHUTDOWN SYSTEM WILL PREVENT DAMAGE IF THE AUTOMATIC CONTROLLER FAILS.

*POWER COEFFICIENT + *REACTOR TRANSIENT + COOLANT COEFFICIENT + REACTIVITY COEFFICIENT + REACTOR CONTROL + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR, HWR + REACTOR, ORGANIC COOLED

6-25371
RANDLES J + JAARSMA R
SOME PROBLEMS OF STRESS WAVE PRODUCTION ENCOUNTERED IN THE STUDY OF PULSED FAST REACTOR DYNAMICS
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA, ITALY
EUR-3654E +. 47 PAGES, FIGURES, REFERENCES, SEPTEMBER 6, 1967

CONSIDERS TWO WAVE-GENERATION PROBLEMS ARISING IN PULSED FAST REACTOR DYNAMICS STUDIES - (1) THE THERMO-ELASTIC RESPONSE OF THE FUEL ELEMENT AND CLADDING DUE TO THE RAPID FUEL TEMPERATURE RISE DURING A PULSE. A THEORY DESCRIBING THIS RESPONSE FOR ANY FORM OF FUEL TEMPERATURE INPUT IS GIVEN AND THEN APPLIED TO SPECIAL CASES. THE STRESSES IN THE CLADDING ARE SHOWN TO BE GREATER THAN THOSE IN THE FUEL. (2) THE EJECTION OF THE LIQUID METAL COOLANT FROM THE CORE DURING THE HYPOTHETICAL COLLISION OF A BROKEN FRAGMENT OF THE PULSATION DEVICE. THE AMPLITUDE OF CORE COMPRESSION CAUSED BY THIS COLLISION IS STRONGLY DEPENDENT ON THE TRANSIT TIME OF ACOUSTIC WAVES (IN THE COOLANT) ALONG THE COMPRESSED LENGTH OF CORE.

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

*FUEL ELEMENT + *METAL, LIQUID + *SHOCK WAVE + *STRESS ANALYSIS + ACCIDENT ANALYSIS + CLAD + REACTOR DYNAMICS + REACTOR, FAST + THERMAL MECHANICAL EFFECT

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25372
SHA WT
STABILITY IN THE LARGE OF XENON OSCILLATIONS
WESTINGHOUSE ELECTRIC CORPORATION
1 PAGE, 2 FIGURES, 1 REFERENCE, ANS TRANS. 10(2), PAGE 572, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

SUFFICIENT CRITERIA FOR STABILITY IN THE LARGE OF XENON OSCILLATIONS ARE DERIVED FOR A ONE-ENERGY-GROUP REACTOR WITH POWER FEEDBACK AND EXTERNAL CONTROL VIA LIAPUNOVS SECOND METHOD.

LIAPUNOVS FUNCTION + REACTOR STABILITY + XENON OSCILLATION

6-25373
STACEY WM
OPTIMAL CONTROL OF SPATIAL XENON TRANSIENTS
KNOLLS ATOMIC POWER LABORATORY
2 PAGES, 1 FIGURE, 9 REFERENCES, ANS TRANS. 10(2), PAGES 572 AND 573, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

A COMPUTING ALGORITHM FOR THE OPTIMAL CONTROL OF XENON-POWER SPATIAL TRANSIENTS IN A NUCLEAR REACTOR IS DERIVED, MAKING USE OF THE DYNAMIC PROGRAMMING FORMALISM. A DIGITAL CODE, BASED ON THIS ALGORITHM, WHICH TREATS XENON-POWER SPATIAL TRANSIENTS IN A 3D REACTOR MODEL IS DESCRIBED, AND THE RESULTS OF OPTIMIZING THE CONTROL OF A PRACTICAL REACTOR MODEL FOR A PARTICULAR TRANSIENT ARE PRESENTED. THE MATHEMATICAL BASIS OF THE DYNAMIC PROGRAMMING FORMALISM IS RELATED TO THE MAXIMUM PRINCIPLE OF PONTRYAGIN AND TO THE CLASSICAL CALCULUS OF VARIATIONS.

*PONTRYAGINS PRINCIPLE + *XENON OSCILLATION + COMPUTER PROGRAM + REACTOR CONTROL + SPACE DEPENDENT DYNAMICS

6-25374 ALSO IN CATEGORY 1
PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON FAST CRITICAL EXPERIMENTS AND THEIR ANALYSIS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7320 + CONF-661019 +. 818 PAGES, FIGURES, TABLES, HELD AT ARGONNE NATIONAL LABORATORY, OCTOBER 10-13, 1966

PAPERS DIRECTLY RELEVANT TO FAST REACTOR SAFETY WERE PRESENTED IN SESSIONS IV AND V. INDIVIDUAL TITLES WERE - (1) ZPR-6 DOPPLER MEASUREMENTS AND COMPARISIONS WITH THEORY. (2) DEPENDENCE OF THE DOPPLER COEFFICIENT OF REACTIVITY FOR HEAVY ELEMENTS ON CHEMICAL FORM, SURFACE-TO-MASS RATIO, AND NEUTRON SPECTRUM. (3) DOPPLER COEFFICIENT MEASUREMENTS IN THE CRYOGENIC TEMPERATURE REGION. (4) RESULTS OF RECENT DOPPLER EXPERIMENTS IN ZPR-3. (5) INTERPRETATION OF DOPPLER COEFFICIENT MEASUREMENTS IN FAST CRITICAL ASSEMBLIES. (6) SOME THEORETICAL STUDIES CONCERNING THE INTERPRETATION OF THE DOPPLER LOOP MEASUREMENTS IN ZEBRA. (7) CALCULATION OF THE SODIUM-VOID EFFECT IN LARGE CARBIDE CORES. (8) CALCULATIONAL STUDIES OF SODIUM-VOID REACTIVITY VARIATIONS DUE TO THIN SLAB HETEROGENITIES IN FAST CRITICAL ASSEMBLIES. (9) A PRELIMINARY INVESTIGATION OF THE EFFECT OF HETEROGENEITY ON ACTIVATING DOPPLER EXPERIMENTS. (10) CALCULATION OF THE SODIUM-VOID AND DOPPLER REACTIVITY COEFFICIENTS IN FAST REACTORS AND CRITICAL ASSEMBLIES, WITH HETEROGENEITY TAKEN INTO ACCOUNT.

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

*CRITICALITY EXPERIMENT + *DOPPLER COEFFICIENT + *REACTOR, FAST + *SODIUM COEFFICIENT + COMPARISON, THEORY AND EXPERIENCE + CRITICAL ASSEMBLY FACILITY + REACTOR PHYSICS

6-25617
HAFELE, W
THE GERMAN FAST BREEDER PROGRAM
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
EURFNR-403, EUR-3678, KFK-634, CONF-671049-6 +. 15 PGS., 107 REF., FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS, KARLSRUHE, GERMANY, OCTOBER, 1967

THE STATUS OF THE GERMAN FAST BREEDER PROGRAM, PAST, PRESENT, AND FUTURE, IS PRESENTED.

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

COOLANT COEFFICIENT + CRITICALITY EXPERIMENT + GERMANY + REACTOR STABILITY + REACTOR, FAST + TRANSPORT THEORY

6-25618
BARLEON, L + BOHME, R + BOHNEL, K + EDELMANN, M + ENGELMANN, P + FIEG, G + HABERMANN, FWA + KUHN, D + MAYER, W + SEIFRITZ, W + STEGEMANN, D + VAN VELZE, PL + WALZE, H + WERLE, H
COMPARISON OF MEASUREMENTS IN SNEAK-1 AND ZPR III-41
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25618 *CONTINUED*
EURFNE-395, EUR-3570, KFK-626, CONF-6710-43-2 +. 27 PAGES, 9 FIGURES, 6 TABLES, 24 REFERENCES, FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS, KARLSRUHE, GERMANY, OCTOBER, 1967

IT IS SHOWN THAT MOST EXPERIMENTAL RESULTS OBTAINED WITH THE SNEAK CRITICAL FACILITY AGREE WITH THOSE OF THE ARGONNE ZPR III. THE APPLICATION OF THE KFK CROSS-SECTION SET FOR CALCULATIONS REDUCES THE DIFFERENCES BETWEEN EXPERIMENTS AND CALCULATIONS CONSIDERABLY, WITH THE EXCEPTION OF THE CRITICAL MASS, WHERE A DESCREPANCY OF 8% WAS ENCOUNTERED.

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

CONTROL ROD WORTH + CRITICALITY EXPERIMENT + DANGER COEFFICIENT + GERMANY + ROSSI ALPHA

6-25619
BELLENI-MORANTE A
EFFECT OF FIRST-FLIGHT NEUTRONS ON COUPLED REACTOR KINETICS BEHAVIOR
4 PAGES, 2 FIGURES, 2 TABLES, 9 REFERENCES, JOURNAL OF NUCLEAR ENERGY, 21(12), PAGES 867-870 (1967)

THE KINETIC BEHAVIOUR OF A REACTOR COMPOSED OF TWO LOOSELY COUPLED CORES WAS STUDIED. IT WAS PROVED THAT FIRST-FLIGHT NEUTRONS COMING FROM AN EXTERNAL SOURCE IN ONE OF THE TWO CORES MAY HAVE A CONSIDERABLE EFFECT ON THE TIME BEHAVIOUR OF THE OTHER CORE.

*COUPLED CORES + *MATHEMATICAL TREATMENT + REACTOR KINETICS + SOURCE, NEUTRON

6-25620
KASTENBERG WE
ON THE STABILITY OF A REACTOR WITH POSITIVE FEEDBACK
UCLA
1 PAGE, 1 FIGURE, 2 REFERENCES, ANS TRANSACTIONS 10(2), PAGE 567 (NOVEMBER 1967), 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, NOVEMBER 5-9, 1967

THE STABILITY OF A REACTOR GOVERNED BY THE ONE-VELOCITY DIFFUSION EQUATION WITH POSITIVE FEEDBACK IS INVESTIGATED, USING THE METHOD OF COMPARISON FUNCTIONS.

*MATHEMATICAL TREATMENT + *REACTOR STABILITY + SPACE DEPENDENT DYNAMICS

6-25622
SCHOENEBERG, K
STABILITY TESTS ON BOILING WATER REACTORS
ALLGEMEINE ELEKTRICITAETS-GESELLSCHAFT, FRANKFURT, WEST GERMANY
EURAEC-1899 + EUR-3391 +. 3 PAGES, FROM THE UNITED STATES-EURATOM JOINT RESEARCH AND DEVELOPMENT PROGRAM QUARTERLY REPORT NO. 10, APRIL 1-JUNE 30, 1967

EVALUATION OF MEASUREMENTS MADE ON A FOUR-ROD CLUSTER GEOMETRY, INCLUDING STATIONARY-MIXTURE DENSITY MEASUREMENTS, FREQUENCY-RESPONSE-CURVE MEASUREMENTS, AND COMPARISONS WITH RING-GAP GEOMETRY.

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

*REACTOR STABILITY + *REACTOR, BWR + COMPARISON, THEORY AND EXPERIENCE + FLOW, TWO PHASE + HEAT TRANSFER, BOILING + TRANSFER FUNCTION

6-25623
BREHM RL
ESTIMATES OF DOPPLER COEFFICIENTS FOR IN-CORE THERMIONIC REACTOR MATERIALS
UNIVERSITY OF ARIZONA
2 PAGES, 1 TABLE, ANS TRANS. 10(2), PAGES 560-1, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

THE DETAILED THEORETICAL CALCULATION OF DOPPLER COEFFICIENTS FOR FAST REACTORS IS WELL KNOWN TO BE A RELATIVELY DIFFICULT AND INTRICATE TASK. A TECHNIQUE IS PRESENTED IN WHICH, FOR THERMIONIC REACTOR STABILITY STUDIES OF A GENERAL NATURE, THESE DETAILED CALCULATIONS CAN BE CIRCUMVENTED BY UTILIZING AVAILABLE EXPERIMENTAL DATA DIRECTLY. IN ADDITION TO BEING RAPID AND SIMPLE TO APPLY, THIS CORRELATION TECHNIQUE ALSO INCORPORATES MEASURED TEMPERATURE DEPENDENCIES INTO THE DOPPLER COEFFICIENTS INSTEAD OF RELYING ON THE THEORETICAL VALUES WHICH HAVE IN SOME CASES BEEN EXPERIMENTALLY SHOWN TO BE IN ERROR.

CRITICALITY EXPERIMENT + DOPPLER COEFFICIENT + DOPPLER EFFECT + REACTOR STABILITY

6-25624
CHERRY BH
THE ROLE OF SODIUM TEMPERATURE COEFFICIENT IN LMFBR REACTIVITY TRANSIENTS
UNITED NUCLEAR CORPORATION

6-25624 *CONTINUED*
1 PAGE, 2 TABLES, 4 REFERENCES, ANS TRANS. 10(2), PAGE 526, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

STUDIES OF THE IMPORTANCE OF SODIUM COOLANT COEFFICIENTS UNDER CONDITIONS OF RAMP REACTIVITY INSERTION ARE PRESENTED FOR HELIUM-BONDED (UPU)O2 AND HELIUM- AND SODIUM-BONDED (UPU)C. THE CALCULATIONS WERE PERFORMED USING A COUPLED KINETICS HEAT-TRANSFER CODE, SCARE. IT IS SHOWN THAT IT IS NOT POSSIBLE TO PROPOSE CRITERIA FOR SODIUM COEFFICIENTS FOR LMFBR SYSTEMS IN GENERAL. RATHER, THE CRITERIA SHOULD RELATE TO THE ACCEPTABILITY OF TRANSIENT RESULTS FOR A SPECIFIC REACTOR DESIGN.

COOLANT COEFFICIENT + DESTRUCTIVE TRANSIENT + DOPPLER COEFFICIENT + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR TRANSIENT + SODIUM COEFFICIENT

6-25625
SCHNURER H
GARIGLIANO STABILITY ANALYSIS
INSTITUT FUER MESS-U. REGLUNGSTECHNIK, TECHNISCHE HOSCHULE MUCHEN, GERMANY
MRR 39 +. 40 PAGES, 88 FIGURES, 9 TABLES, 16 REFERENCES, DECEMBER 1967, IN GERMAN

DESCRIBES WORK DONE AT GENERAL ELECTRIC COMPANY, SAN JOSE, DURING THE PERIOD OF MAY 14 TO JULY 27, 1967. THE COMPUTATION OF THE CLOSED AND OPEN-LOOP TRANSFER FUNCTIONS IS DESCRIBED. AN ERROR ANALYSIS SHOWS GOOD ACCURACY FOR THE CLOSED-LOOP RESULTS IN THE FREQUENCY RANGE FROM 0.2 TO 4.0 HZ. BODE PLOTS AND NYQUIST STABILITY CRITERIA ARE DISCUSSED. DIGITAL AND ANALOG METHODS ARE COMPARED. TWO ANALYTICAL MODELS (STA AND FABLE) ARE DESCRIBED AND COMPARED WITH EXPERIMENTAL RESULTS. A NOISE ANALYSIS IS PRESENTED.

AVAILABILITY-INSTITUT FUER MESS-U. REGLUNGSTECHNIK, TECHNISCHE HOSCHYLE MUCHEN, GERMANY

GARIGLIANO (BWR) + NOISE ANALYSIS + REACTOR KINETICS + TRANSFER FUNCTION

6-25626
BUHL AR
EXPERIMENTAL INVESTIGATION OF SPATIAL EFFECTS ON THE NEUTRON FLUCTUATION SPECTRA OF A LARGE NUCLEAR REACTOR
UNIVERSITY OF TENNESSEE
TID-23946 +. 141 PAGES, 28 FIGURES, 6 TABLES, DECEMBER 1967

DESCRIBES AN EXPERIMENTAL INVESTIGATION OF THE SPATIAL DEPENDENCE OF NEUTRON-POPULATION FLUCTUATIONS IN A LARGE REACTOR. THE RESULTS ARE COMPARED WITH EXISTING FLUCTUATION-ANALYSIS TECHNIQUES (NOISE THEORY). DISSERTATION.

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

NOISE ANALYSIS + SPACE DEPENDENT DYNAMICS

6-25627
YASINSKY JB
COMBINED SPACE-TIME SINTHESIS WITH AXIALLY DISCONTINUOUS TRIAL FUNCTIONS. LWBR-LSBR DEVELOPMENT PROGRAM
BETTIS ATOMIC POWER LAB., PITTSBURGH
WAPD-TM-736 +. 71 PAGES, OCTOBER 1967

A SYNTHESIS APPROXIMATION MODEL IS DEVELOPED FOR THE SOLUTION OF DETAILED THREE-DIMENSIONAL SPACE-TIME GROUP DIFFUSION PROBLEMS. THE PROPOSED METHOD USES TWO-DIMENSIONAL SPATIAL TRIAL FUNCTIONS THAT EXHIBIT A STEP-WISE DISCONTINUOUS BEHAVIOR IN THE AXIAL DIMENSION. THIS FEATURE PERMITS SWITCHING OF TRIAL FUNCTIONS AT SPECIFIED AXIAL LOCATIONS. AN EXPLICITY TREATMENT OF MOVABLE FUEL REGIONS IS INCORPORATED INTO THE MODEL. THE SYNTHESIS EQUATIONS ARE DERIVED AND A DETAILED DESCRIPTION OF THE CALCULATION OF THE NECESSARY INTEGRALS AND MATRIX ELEMENTS IS PRESENTED. STATIC NUMERICAL EXAMPLES ARE PRESENTED WHICH ILLUSTRATE THE SELECTION OF TRIAL FUNCTIONS AND THE POTENTIAL ACCURACY OF THE COMBINED SPACE-TIME SYNTHESIS MODEL.

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

DYNAMICS, NONLINEAR + REACTOR KINETICS + SPACE DEPENDENT DYNAMICS + THEORETICAL INVESTIGATION

6-25628
TURNER WJ + PIPER RH
CALCULATION OF THE EFFECT OF FUEL PARTICLE SIZE ON REACTOR DYNAMICS
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/E-167 +. 15 PAGES, 10 FIGURES, 2 TABLES, NOVEMBER 1966

THE EFFECT OF FUEL-PARTICLE SIZE ON THE DYNAMIC BEHAVIOUR OF A 500-MW BERYLLIA-MODERATED REACTOR FUELED WITH OXIDE PARTICLES OF DIAMETER 2 TO 500 MICRONS DISPERSED IN BERYLLIA IS DISCUSSED. NEGATIVE FEEDBACK OF REACTIVITY PROPORTIONAL TO THE REACTOR POWER OCCURS BECAUSE OF THE VERY SMALL THERMAL TIME CONSTANT OF THE FUEL PARTICLES. FOR LARGE FUEL PARTICLES, THE FEEDBACK CONSIDERABLY REDUCES THE PEAK POWER AND THE ENERGY RELEASE FOLLOWING A REACTIVITY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25628 *CONTINUED*
ACCIDENT.

AVAILABILITY - AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS

FUEL COEFFICIENT + REACTOR DYNAMICS

6-25629
LE BARRE F
INTERPRETATION OF POWER BURSTS IN A SWIMMING POOL REACTOR WHEN THE COOLING SYSTEM IS STOPPED
CENTRE D-ETUDES NUCLEAIRES DE CADARACHE, FRANCE
CEA-R-3202 +. 40 PAGES, 11 FIGURES, 5 REFERENCES, OCTOBER 1967, IN FRENCH

A REACTIVITY FEEDBACK MODEL CONCERNING SWIMMING-POOL REACTORS WITH NO COOLANT FLOW THROUGH THE CORE IS PRESENTED. THIS CALCULATION METHOD CAN BE USED TO ANALYZE, UP TO A CERTAIN EXTENT, THE EXPERIMENTAL DATA OBTAINED FROM POWER BURSTS RESULTING FROM A REACTIVITY STEP.

AVAILABILITY - LA DOCUMENTATION FRANCAISE, 31 QUAI VOLTAIRE, 75, PARIS (7E), FRANCE

REACTOR DYNAMICS + REACTOR KINETICS + REACTOR TRANSIENT

6-25630
GOLINELLI C + TELLIER H
NEUTRONIC STUDY OF A LIGHT WATER CORE REFLECTED WITH HEAVY WATER
COMMISSARIAT A L ENERGIC ATOMIQUE, SACLAY
CEA-R-3318 +. 104 PAGES, 45 FIGURES, 15 TABLES, 13 REFERENCES, SEPTEMBER 1967

FOR THE DESIGN OF THE HIGH FLUX REACTOR WITH EXTRACTED BEAMS, WE HAVE PERFORMED AN EXPERIMENTAL STUDY ON A LIGHT WATER AND HIGHLY ENRICHED URANIUM CORE SURROUNDED BY A THICK HEAVY WATER REFLECTOR. THIS STUDY WAS MADE WITH A CRITICAL FACILITY SPECIALLY DESIGNED. THE PRIMARY ANALYSIS OF THE EXPERIMENTAL RESULTS GIVES GENERALLY A SATISFACTORY AGREEMENT WITH CALCULATIONS AND SHOWS THAT IN SOME CASES BETTER HYPOTHESES SHOULD BE TAKEN.

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

CONTROL ROD CALIBRATION + CRITICALITY EXPERIMENT + REACTIVITY COEFFICIENT + REACTOR DYNAMICS + REACTOR KINETICS + TEMPERATURE COEFFICIENT

6-25690
SHIGEHIRO AN
KINETICS OF SODIUM-COOLED FAST REACTOR
UNIVERSITY OF TOKYO
9 PAGES, 16 FIGURES, 2 TABLES, 30 REFERENCES, NIPPON GENSHIRYSKU GAKKAISHI VOL. 9, PAGES 202-11 (APRIL 1967) IN JAPANESE

IN THE PROGRAM NOW UNDER WAY FOR DEVELOPING A SODIUM-COOLED FAST REACTOR, RESEARCH ON KINETICS IS RECOGNIZED TO BE VERY IMPORTANT FOR ESTABLISHING THE DESIGN AND SAFETY CRITERIA. THIS REVIEW DESCRIBES THE KINETICS PROBLEMS TO BE SOLVED IN IMPORTANT DOMAINS SUCH AS - (1) REACTIVITY COEFFICIENTS, (2) EXAMPLES OF EXPERIMENT AND ANALYSIS THEREOF FOR A SMALL FAST REACTOR, (3) THEORETICAL ANALYSIS OF STABILITY AND ACCIDENTS IN A LARGE FAST REACTOR, (4) KINETICS OF A MODULAR FAST REACTOR.

DOPPLER COEFFICIENT + REACTIVITY COEFFICIENT + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR STABILITY + REACTOR, FAST + REACTOR, LMCR + REVIEW + SODIUM COEFFICIENT + TRANSFER FUNCTION

6-25691
STABILITY EXPERIMENTS FOR BOILING WATER REACTORS. QUARTERLY REPORT NO. 9
ALLGEMEINE ELEKTRICITAETS-GESELLSCHAFT
EURAEC-1834 + EUR-3357 +. 42 PAGES, FIGURES, TABLES, MARCH 1967

THIS REPORT IS ONE OF A SERIES COVERING THE FOLLOWING TOPICS - MEASUREMENT OF FREQUENCY SPECTRA FROM ROD-CLUSTER EXPERIMENTS, EXPERIMENTAL DETERMINATION OF HEAT TRANSFER COEFFICIENTS, MEASUREMENT OFDYNAMIC CHARACTERISTICS AND COMPARISON WITH THEORY.

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

COMPARISON, THEORY AND EXPERIENCE + FREQUENCY SPECTRA + HEAT TRANSFER COEFFICIENT + HEAT TRANSFER, BOILING + REACTOR DYNAMICS

6-25692
WEHMEYER DB + MAENE NG + WOLFE GE + YEH CS
PHYSICS CALCULATIONS FOR THE FERMI MIXED-OXIDE CORE
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC. + CENTRE D ETUDE DE L ENERGIE NUCLEAIRE, MOL, BELGIUM + COMBUSTION ENGINEERING, INC.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25692 *CONTINUED*
2 PAGES, 1 TABLE, 1 REFERENCE, ANS TRANS. 10(2), PAGES 532-533, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

CALCULATIONS FOR A MIXED PLUTONIUM-URANIUM OXIDE CORE FOR FERMI INCLUDES SODIUM AND DOPPLER COEFFICIENTS.

DOPPLER COEFFICIENT + FERMI (LMFBR) + PLUTONIUM DIOXIDE + REACTOR, LMCR + REACTOR, LMFBR + SODIUM COEFFICIENT + URANIUM DIOXIDE

6-25693
GANDINI A + SALVATORES M + SENA G + DAL BONO I
PERTURBATION ANALYSIS OF FAST REACTORS BY THE CIAP AND GLOBPERT CODES USING IMPROVED PERTURBATION METHODS
COMITATO NAZIONALE PER 1 ENERGIA NUCLEARE, ROME, ITALY
RT/FI-(67)16 + CONF-661019-11 +. 25 PAGES, REFERENCES, FROM INTERNATIONAL CONFERENCE ON FAST CRITICAL EXPERIMENTS AND THEIR ANALYSIS, ARGONNE, ILL.

THE APPLICATION OF PERTURBATION METHODS TO THE CALCULATION OF DOPPLER AND SODIUM-VOID COEFFICIENTS IS PRESENTED

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

*PERTURBATION METHOD + COMPUTER PROGRAM + DOPPLER COEFFICIENT + REACTOR, FAST + SODIUM COEFFICIENT + VOID COEFFICIENT

6-25695 ALSO IN CATEGORY 13
RICHEY CR
THEORETICAL ANALYSES OF HOMOGENEOUS PLUTONIUM CRITICAL EXPERIMENTS
BATTELLE MEMORIAL INSTITUTE
8 PAGES, 5 FIGURES, 6 TABLES, NUCLEAR SCIENCE AND ENGINEERING 31(1), PAGES 32-39 (JANUARY 1968)

A COMPUTATIONAL ANALYSIS WAS MADE FOR THE LARGE NUMBER OF AVAILABLE CRITICAL EXPERIMENTS WITH HYDROGENEOUS MIXTURES. THE CALCULATIONS WERE MADE USING BOTH MULTIGROUP S-SUB-4 AND DIFFUSION THEORY WITH 18 ENERGY GROUPS OBTAINED WITH THE GAMTEC-II CODE. RESONANCE CAPTURE BY PU-240 WAS TREATED IN THE NR AND NRIA APPROXIMATIONS. RATHER GOOD AGREEMENT WAS FOUND BETWEEN EXPERIMENT AND THEORY. THE RESULTS ARE GIVEN AS A PARAMETRIC SURVEY FOR PU DENSITIES RANGING FROM 0.015 TO 1.0 G/CC. THE CALCULATED MINIMUM CRITICAL MASS OF PU-239 IS 547 G FOR WATER-REFLECTED AQUEOUS PU(NO3)4 SOLUTIONS AND 531 G FOR SIMILAR MIXTURES OF PU-239 AND WATER.

*CRITICALITY EXPERIMENT + *MATHEMATICAL TREATMENT + *PLUTONIUM + COMPARISON, THEORY AND EXPERIENCE + MODERATOR + WATER, GENERAL

6-25696 ALSO IN CATEGORY 17
FAST REACTOR SAFETY
4 PAGES, 2 FIGURES, NUCLEAR ENGINEERING 12(138), PAGES 839-42 (NOVEMBER 1967)

BRIEF REVIEW OF THE CONFERENCE ON THE SAFETY OF FAST BREEDER REACTORS, AIX-EN-PROVENCE, FRANCE, SEPTEMBER 19 TO 22, 1967.

*REACTOR, BREEDER + *REACTOR, FAST + *SAFETY REVIEW + REACTOR, POWER

6-25697 ALSO IN CATEGORY 13
CLARK HK
COMPUTATIONAL TECHNIQUES AND RESOURCES
SAVANNAH RIVER LABORATORY
DP-MS-66-70 + CONF-661206-6 +. 20 PAGES, 16 REFERENCES, FROM AMERICAN NUCLEAR SOCIETY, NATIONAL TOPICAL MEETING, NUCLEAR CRITICALITY SAFETY, LAS VEGAS, NEVADA, OCTOBER 3, 1966

THE TYPES OF PROBLEMS ENCOUNTERED IN NUCLEAR CRITICALITY SAFETY ARE DISCUSSED, ALONG WITH THE REQUIREMENTS OF A COMPUTATIONAL TECHNIQUE, AND APPROXIMATIONS FOR SIMPLIFYING COMPUTATIONS.

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

*CRITICALITY SAFETY + *MATHEMATICAL TREATMENT + *RADIOCHEMICAL PLANT SAFETY + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + CRITICALITY EXPERIMENT + CROSS SECTION

6-25698
KAUFMAN NC
GRIPE II - A COMPUTER PROGRAM FOR THE ANALYSIS OF DATA FROM A PULSED-NEUTRON EXPERIMENT
IDAHO NUCLEAR CORPORATION
IN-1085 +. 72 PAGES, 1 FIGURE, 3 TABLES, 16 REFERENCES, SEPTEMBER 1967

GRIPE II, WRITTEN IN FORTRAN IV FOR USE ON THE IBM-7040 COMPUTER, IS A PROGRAM FOR THE ANALYSIS OF EXPERIMENTAL DATA TAKEN IN PULSED-NEUTRON EXPERIMENTS. IT MAY BE USED FOR

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25698 *CONTINUED*
EXPERIMENTS IN EITHER A CRITICAL OR SUBCRITICAL REACTOR AND ALSO FOR DATA WITH ONE OR TWO EXPONENTIAL DECAYS. THE PROGRAM FEATURES A COMPLETE ERROR ANALYSIS INCLUDING THE SIGNIFICANT BUT OFTEN NEGLECTED COVARIANCE TERMS, X-Y PLOTS OF THE DATA WITH COMPUTED CURVES INCLUDED, AND ROUTINES TO DETECT AND REDUCE THE INFLUENCE OF ANY BIAS IN THE EXPERIMENTAL DATA. A VALUE FOR THE REACTIVITY OF A SUBCRITICAL SYSTEM IS CALCULATED USING BOTH THE EXTRAPOLATED-AREA-RATIO METHOD AND THE GARELIS-RUSSELL METHOD.

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

COMPUTER PROGRAM + ERROR ANALYSIS + MEASUREMENT, GENERAL + PULSED NEUTRON TECHNIQUE + REACTIVITY, EXCESS + SHUTDOWN MARGIN

6-25700
TILL CE + LEWIS RA + POND RB
DOPPLER COEFFICIENT TEMPERATURE DEPENDENCE AND THE EFFECT OF SODIUM-VOIDING
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
1 PAGE, 1 TABLE, ANS TRANS. 10(1), PAGE 335, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

MEASUREMENTS OF THE DOPPLER EFFECT INDICATE THAT CALCULATIONS HAVE SERIOUSLY OVERESTIMATED THE EFFECT OF SODIUM REMOVAL ON THE REDUCTION OF THE DOPPLER EFFECT. TEMPERATURE AND SPECTRUM EFFECTS ON THE DOPPLER COEFFICIENT WERE EVALUATED.

DOPPLER COEFFICIENT + DOPPLER EFFECT + MEASUREMENT, REACTIVITY + REACTOR KINETICS + SODIUM COEFFICIENT

6-25701
BUHL AR + HANAUER SH + BAUMANN NP
EXPERIMENTAL INVESTIGATION OF SPATIAL EFFECTS ON THE POWER SPECTRA OF A LARGE REACTOR
UNIVERSITY OF TENNESSEE + SAVANNAH RIVER LABORATORY
2 PAGES, 1 FIGURE, 5 REFERENCES, ANS TRANS. 10(1), PAGES 288-89, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

THE EFFECT OF DETECTOR LOCATION FOR NOISE-ANALYSIS MEASUREMENTS WAS EVALUATED FOR BOTH SINGLE-DETECTOR AND TWO-DETECTOR TECHNIQUES.

MEASUREMENT, NOISE + NOISE ANALYSIS

6-25702
TRINKO JR + HANAUER SH + ROUX OP + DE LORENZO JT
REACTOR NOISE ANALYSIS USING A PULSE-TYPE DETECTOR
UNIVERSITY OF TENNESSEE + OAK RIDGE NATIONAL LABORATORY
2 PAGES, 1 TABLE, 7 REFERENCES, ANS TRANS. 10(1), PAGES 286-87, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

A PULSE-DETECTOR SYSTEM OF MAKING NOISE-ANALYSIS MEASUREMENTS WAS EVALUATED AND FOUND TO BE EQUIVALENT TO THE CURRENT SYSTEM, BUT WITH DIFFERENT ADVANTAGES AND LIMITATIONS.

MEASUREMENT, NOISE + NOISE ANALYSIS

6-25703
ROUX OP + KRYTER RC
TWO-DETECTOR CROSS CORRELATION FOR ON-LINE SHUTDOWN MARGIN MEASUREMENTS IN POWER REACTORS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
2 PAGES, 1 FIGURE, 4 REFERENCES, ANS TRANS. 10(1), PAGES 284-85, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

THE TWO-DETECTOR CROSS-CORRELATION TECHNIQUE WAS CONCLUDED TO BE A USEFUL OPERATIONAL TOOL FOR ON-LINE SHUTDOWN MARGIN MEASUREMENTS ONLY IF THE DETECTORS CAN BE LOCATED CLOSE TO THE CORE, INSIDE THE PRESSURE VESSEL.

MEASUREMENT, REACTIVITY + SHUTDOWN MARGIN

6-25704
LEWIS RA + TILL EF + GROH EG + LESAGE L + MARSHALL JE
VERIFICATION OF DOPPLER MEASUREMENTS IN ZONED FAST CRITICAL ASSEMBLIES
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
2 PAGES, 1 TABLE, 4 REFERENCES, ANS TRANS. 10(1), PAGES 273-74, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

A ZONED-MOCKUP OF A FAST REACTOR CORE WAS FOUND TO BE ADEQUATE FOR THE MEASUREMENT OF DOPPLER COEFFICIENTS.

DOPPLER COEFFICIENT + DOPPLER EFFECT + MEASUREMENT, REACTIVITY + REACTOR KINETICS + REACTOR, FAST

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25705
KRYTER RC + FRY DN + ROUX DP
TWO-DETECTOR CROSS CORRELATION FOR SHUTDOWN MARGIN MEASUREMENTS IN GAMMA FLUXES
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
2 PAGES, 1 TABLE, 3 REFERENCES, ANS TRANS. 10(1), PAGES 283-84, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

A TWO-DETECTOR TECHNIQUE FOR DETERMINING SHUTDOWN MARGIN OF A REACTOR BY NOISE ANALYSIS IS SHOWN TO BE SUPERIOR TO A ONE-DETECTOR METHOD.

MEASUREMENT, REACTIVITY + NOISE + NOISE ANALYSIS + SHUTDOWN MARGIN

6-25706
TRAVELLI A
CALCULATION OF THE SODIUM-VOID EFFECT BY FLUX SYNTHESIS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
2 PAGES, 1 FIGURE, 8 REFERENCES, ANS TRANS. 10(1), PAGES 275-76, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

A METHOD OF CALCULATIONG THE SODIUM VOID EFFECT BY FLUX SYNTHESIS WAS FOUND TO BE IN GOOD AGREEMENT WITH A TWO-DIMENSIONAL CALCULATION.

ANALYTICAL MODEL + REACTOR DYNAMICS + SODIUM COEFFICIENT

6-25707
LEWIS RA
ANALYSIS OF SMALL-SAMPLE DOPPLER-EFFECT MEASUREMENTS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
1 PAGE, 4 REFERENCES, ANS TRANS. 10(1), PAGE 274, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

AN ANALYSIS OF REACTIVITY DOPPLER EFFECT MEASUREMENT OF U-238, U-235, AND PLUTONIUM IS GIVEN.

DOPPLER EFFECT + PLUTONIUM + REACTOR KINETICS + URANIUM-238

6-25708
WEINREICH WA + BUSLIK AJ
VARIATIONAL CALCULATION OF COMPLEX MODES OF XENON SPATIAL OSCILLATION
BROOKHAVEN NATIONAL LABORATORY
2 PAGES, 4 REFERENCES, ANS TRANS. 10(1), PAGES 257-58, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

DESCRIBES A VARIATIONAL CALCULATION OF THE COMPLEX NATURAL MODES OF XENON OSCILLATION (P-MODES). WHEN USED IN CONJUNCTION WITH A SINGLE MU-MODE TRIAL FUNCTION, AN IMPROVEMENT IN THE USUAL MU-MODE FORMALISM IS PRODUCED.

ANALYTICAL MODEL + REACTOR DYNAMICS + XENON OSCILLATION

6-25709
RAJAGOPAL V
DYNAMIC MEASUREMENTS IN PWR POWER PLANTS
WESTINGHOUSE ELECTRIC, ATOMIC POWER DIVISION
2 PAGES, 1 TABLE, ANS TRANS. 10(1), PAGE 217-218, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

DYNAMIC MEASUREMENTS BY THE METHODS OF NOISE ANALYSIS AND TRANSFER FUNCTIONS WERE MADE IN THE SAXTON, YANKEE, AND TRINO PLANTS. SPACE-DEPENDENT MEASUREMENTS USING IN-CORE DETECTORS WERE MADE AT SAXTON.

MEASUREMENT, GENERAL + NOISE ANALYSIS + REACTOR DYNAMICS + REACTOR, PWR + SAXTON (PWR) + TRANSFER FUNCTION + YANKEE (PWR)

6-25710
ENGLAND TR + DEREMER RK + HARTFIELD GL
PRACTICAL MODEL FOR ANALYSIS OF REACTOR XENON STABILITY INCLUDING PLANT AND TEMPERATURE FEEDBACK
BROOKHAVEN NATIONAL LABORATORY
1 PAGE, 1 FIGURE, 5 REFERENCES, ANS TRANS. 10(1), PAGE 255, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

A PRACTICAL QUANTITATIVE ANALYSIS MODEL HAS BEEN DEVELOPED WHICH ACCOUNTS FOR ALL OF THE MAJOR FACTORS AFFECTING XENON-POWER SPATIAL STABILITY IN REACTORS - SIZE, THERMAL FLUX SPECTRUM AND

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25710 *CONTINUED*
LEVEL, HETEROGENEITIES, TOTAL MASS-135 YIELD AND FRACTION OF TOTAL DIRECTLY YIELDING XENON-135, AND ALL FEEDBACKS ALTERING LOCAL K-ING DURING POWER OSCILLATIONS.

ANALYTICAL MODEL + REACTOR DYNAMICS + XENON + XENON OSCILLATION

6-25711
HARTFIELD GL + DEREMER RK + ENGLAND TR
STABILITY CHARACTERISTICS OF LARGE SEED-BLANKET REACTORS
BROOKHAVEN NATIONAL LABORATORY
2 PAGES, 1 FIGURE, 1 TABLE, 3 REFERENCES, ANS TRANS. 10(1), PAGES 255-56, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

USING MODAL AND NODAL TECHNIQUES, THE SPATIAL STABILITY OF SEED-BLANKET REACTORS TO XENON OSCILLATIONS WAS SHOWN TO BE SENSITIVE TO FUEL AND MODERATOR TEMPERATURE COEFFICIENTS, THE POWER DISTRIBUTION, THE SPACING BETWEEN SEED, AND THE BLANKET REACTIVITY.

ANALYTICAL MODEL + MODERATOR COEFFICIENT + REACTOR DYNAMICS + REACTOR, LARGE SEED BLANKET + TEMPERATURE COEFFICIENT + XENON + XENON OSCILLATION

6-25712
KASTENBERG WE + CHAMBRE PL
ON SPACE-TIME ANALYSIS OF NONLINEAR REACTOR SYSTEMS
UCLA, CALIFORNIA + UNIVERSITY OF CALIFORNIA, BERKELEY
1 PAGE, 2 REFERENCES, ANS TRANS. 10(1), PAGE 250, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

THE BEHAVIOR OF NEUTRON DISTRIBUTIONS GOVERNED BY THE ONE-VELOCITY, NONLINEAR DIFFUSION EQUATION APPROXIMATION TO NEUTRON TRANSPORT THEORY IS STUDIED BY THE METHOD OF COMPARISON FUNCTIONS. THIS FORMULATION LEADS TO STABILITY ANALYSIS FOR ARBITRARY FEEDBACK EFFECTS AS WELL AS APPROXIMATE SOLUTIONS, WITH ERROR BOUNDS, FOR THE ENSUING TRANSIENTS.

ANALYTICAL MODEL + REACTOR DYNAMICS + SPACE DEPENDENT DYNAMICS

6-25713
MOORE MN + PEREZ RB
THE DETERMINATION OF THE PHASE OF THE TRANSFER FUNCTION USING INHERENT NOISE
SAN FERNANDO VALLEY STATE COLLEGE + UNIVERSITY OF FLORIDA
1 PAGE, 2 REFERENCES, ANS TRANS. 10(1), PAGE 217, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

THE AMPLITUDE AND PHASE OF THE ZERO-POWER TRANSFER FUNCTION WERE SHOWN TO SATISFY THE RELATIONS DEVELOPED IN THIS ANALYSIS.

NOISE ANALYSIS + REACTOR DYNAMICS + TRANSFER FUNCTION

6-25714
COATS RL
NEUTRONIC DECOUPLING OF FAST-BURST REACTORS
SANDIA CORPORATION
2 PAGES, 1 FIGURE, 4 REFERENCES, ANS TRANS. 10(1), PAGES 243-244, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

THE NEUTRONIC COUPLING OF MODERATING EXPERIMENTS AFFECTED THE SIZE OF THE BURST IN A FAST-BURST REACTOR. CADMIUM AND BORAL SHROUDS WERE EFFECTIVE DECOUPLERS.

ANALYTICAL MODEL + BORON + CADMIUM + MODERATOR + REACTOR KINETICS + REACTOR, FAST BURST

6-25715
CANOSA J
SPATIAL DISTRIBUTION OF THE ENERGY RELEASED IN A POWER EXCURSION
GENERAL ELECTRIC, VALLECITOS
2 PAGES, 3 REFERENCES, ANS TRANS. 10(1), PAGES 247-48, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

AN ANALYTICAL METHOD FOR DETERMINING THE SPATIAL DISTRIBUTION OF THE ENERGY RELEASED IN A NUCLEAR REACTOR AS A RESULT OF A POWER EXCURSION IS PRESENTED.

ANALYTICAL MODEL + EXCURSION, LARGE + REACTOR TRANSIENT + SPACE DEPENDENT DYNAMICS

6-25716
KERLIN TW + BALL SJ

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25716 *CONTINUED*
POWER-DEPENDENT FREQUENCY RESPONSE MEASUREMENTS ON THE MOLTEN-SALT REACTOR EXPERIMENT
UNIVERSITY OF TENNESSEE, KNOXVILLE + OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
1 PAGE, 7 REFERENCES, ANS TRANS. 10(1), PAGE 219, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

DYNAMIC BEHAVIOR OF THE MOLTEN SALT REACTOR EXPERIMENT WAS PREDICTED AND THEN MEASURED. FREQUENCY-RESPONSE MEASUREMENTS WERE MADE OVER THE OPERATING POWER RANGE. THE AGREEMENT BETWEEN THEORY AND EXPERIMENT WAS GOOD.

COMPARISON, THEORY AND EXPERIENCE + FREQUENCY SPECTRA + MSRE (RE) + REACTOR DYNAMICS + REACTOR, MOLTEN SALT

6-25717
LIPINSKI TP + MULCAHEY TP + MICHELS C
EBWR-PU TRANSFER FUNCTIONS
ARGONNE NATIONAL LABORATORY
2 PAGES, 1 FIGURE, 1 REFERENCE, ANS TRANS. 10(1), PAGE 218-219, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

TRANSFER FUNCTIONS WERE MEASURED ON THE EBWR FUELED WITH PLUTONIUM AT POWERS UP TO 38 MW.

EBWR (BWR) + PLUTONIUM + REACTOR DYNAMICS + TRANSFER FUNCTION

6-25727 ALSO IN CATEGORY 17
DE-AMMONIATION GIVES TWICE EXPECTED REACTIVITY GAIN
YANKEE ATOMIC ELECTRIC COMPANY
7 PAGES, 2 FIGURES FROM YANKEE NUCLEAR POWER STATION, OPERATION REPORT NO. 87, MARCH 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

MAIN-COOLANT AMMONIA AVERAGED 12 PPM UNTIL MARCH 15 (FEED STOPPED), AND RADIOLYSIS DECREASED IT TO 2. ON MARCH 18 A MIXED-BED ION EXCHANGER REDUCED IT TO NEGLIGIBLE LEVELS. A 0.39% DK/K REACTIVITY LOSS RESULTED (TWICE THE GAIN ON AMMONIATION IN NOV. 67), SUPPORTING THE THEORY OF SLOW REACTIVITY GAINS SINCE JULY 1967. ***VESSEL-HEAD STUDS WERE REMOVED WITH DIFFICULTY. VIBRATION TESTS OF MAIN PUMPS SHOWED NO. 1 DIFFERENT. IT IS BEING INSPECTED. PRESSURIZER INTERNAL SURFACES PHOTOGRAPHED AND DYE-CHECKED. RADIATION LEVELS WERE 1 TO 1.5 R/HR.

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

*CHEMICAL SHIM + *EXAMINATION + *PH REACTIVITY EFFECT + *PRESSURIZER + COOLANT CHEMISTRY + FUEL BURNUP + POISON, SOLUBLE + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PWR + REPORT, OPERATIONS + SURFACE, GENERAL + TEST, NONDESTRUCTIVE + YANKEE (PWR)

6-25736 ALSO IN CATEGORY 17
INITIAL TESTING OF THE LA CROSSE BOILING WATER REACTOR
ALLIS-CHALMERS
ACNP-67533 +. 67 PAGES, FIGURES, TABLES, DECEMBER 1967, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

COMPILED FROM MONTHLY OPERATING REPORTS 1-5 (WITH LITTLE ADDITION). SECTIONS INCLUDE (1) INITIAL CRITICALITY, 6 PAGES, (2) LOADING TO FULL CORE, 5 PAGES, (3) CONTROL-ROD CALIBRATION, 8 PAGES, (4) SHUTDOWN MARGIN, 6 PAGES, (5) EXCESS-REACTIVITY MEASUREMENT, 12 PAGES, (6) FLUX DISTRIBUTION AND POWER-LEVEL DETERMINATION, 19 PAGES, (7) INSTALLATION OF SECOND NEUTRON SOURCE, 2 PAGES.

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

*CRITICALITY EXPERIMENT + LACROSSE (BWR) + REACTOR STARTUP TESTING + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

6-25739
FARLANE DR + NEAL NM + MENELEY DA + SANATHANAN CK
THEORETICAL STUDIES OF THE RESPONSE OF FAST REACTORS DURING SODIUM BOILING ACCIDENTS
ARGONNE NATIONAL LABORATORY
18 PAGES, 13 FIGURES, 2 TABLES, 16 REFERENCES, BULLETIN D INFORMATIONS SCIENTIFIQUES ET TECHNIQUES NO. 122, PAGES 35-52 (JANUARY 1968), IN FRENCH

DESCRIBES A CALCULATIONAL METHOD FOR THE TRANSIENT PHENOMENA WHICH CAN TAKE PLACE DURING COOLANT BOILING IN A REACTOR CORE. IT IS THUS POSSIBLE TO STUDY THE WEAK OVERPOWER TRANSIENTS ORIGINATING FROM THE REACTIVITY ADDITION OR THOSE ORIGINATING FROM THE COOLANT FLOW SHUT DOWN. THE MODEL SHOULD ALSO PERMIT THE FORMULATION AND ANALYSIS OF TRANSIENT BOILING EXPERIMENTS WHICH SHOULD SUPPLY STILL MISSING DATA. THE CALCULATIONS APPLY PARTICULARLY TO CERAMICS FUELED AND SODIUM COOLED FAST BREEDER POWER REACTORS.

ANALYTICAL MODEL + REACTOR TRANSIENT + REACTOR, FAST + SODIUM COEFFICIENT + VOID FRACTION

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25740
BRAESS D + KUSTERS H + THURNAY K
IMPROVEMENT IN SECOND EXCURSION CALCULATIONS
KEMFORSCHUNGSZENTRUM, KARLSRUHE
23 PAGES, 8 FIGURES, 2 TABLES, 25 REFERENCES, BULLETIN D INFORMATIONS SCIENTIFIQUES ET TECHNIQUES NO. 122, PAGES 61-83 (JANUARY 1968) IN FRENCH

THE CALCULATION OF SECOND EXCURSIONS IS PERFORMED WITH A FORMALISM DEVELOPED BY BETHE AND TAIT, IMPROVED BY TAKING INTO ACCOUNT EFFECTS OF DELAYED NEUTRONS AND DOPPLER FEEDBACK AND APPLIED TO CYLINDRICAL CORES. THE PARAMETERS OF THE EQUATION OF STATE IN THE CALCULATIONS OF EXCURSIONS ARE ESTIMATED BY THE KINETIC THEORY OF GASES FOLLOWING THE MODEL PROPOSED BY H. EYRING. THE CRITICAL DATA AND THE THERMODYNAMIC FUNCTIONS ARE OBTAINED BY AN APPROXIMATE PARTITION FUNCTION. THE RESULTS OBTAINED BY THE USE OF AXIAL AND SPHERICAL GEOMETRIES ARE COMPARED. THE IMPORTANCE OF A DELAYED DOPPLER FEEDBACK ON THE QUANTITY OF ENERGY RELEASED IS ALSO ESTIMATED.

ANALYTICAL MODEL + DELAYED NEUTRON + DOPPLER EFFECT + EXCURSION, LARGE + REACTOR TRANSIENT + REACTOR, POWER

6-25741
BRAESS D + FORELICH R + JANSEN A + KUSTERS H + SCHROETER KE
THE CALCULATION OF LARGE FAST REACTORS
KERNFORSCHUNGSZENTRUM KARLSRUHE
KFK-620 + EUR-3689E + EURENR-416 +. 28 PAGES, 5 FIGURES, 5 TABLES, 36 REFERENCES, AUGUST 1967

THE PROCEDURES USED IN KARLSRUHE FOR CALCULATING FAST REACTORS ARE PRESENTED. THESE INCLUDE DETERMINATION OF REACTIVITY COEFFICIENTS AND CALCULATION OF SECOND CRITICALITY.

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

ACCIDENT, FUEL SLUMP + ACCIDENT, LOSS OF COOLANT + ANALYTICAL MODEL + DOPPLER COEFFICIENT + REACTIVITY COEFFICIENT + REACTOR, FAST

6-25742
ABAGYAN LP + GOLULEV VI + GOLYAEV ND + ZVONAREV AV + KOLEGANOV YF + NIKOLAEV MN + ORLOV MY
INVESTIGATION OF THE DOPPLER EFFECT IN U-238 IN A SHIELD MADE OF URANIUM OXIDE OF THE REACTOR BR-1
ANL-TRANS-540 + CONF-671043-13 +. 14 PAGES, PRESENTED AT THE IAEA SYMPOSIUM ON THE PHYSICS AND SAFETY PROBLEMS OF FAST REACTORS, KARLSRUHE, GERMAN FEDERAL REPUBLIC, OCTOBER 30-NOVEMBER 3, 1967

THE DETERMINATION OF THE DOPPLER EFFECT IN U-238 IS DESCRIBED.

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

COPPLER COEFFICIENT + MEASUREMENT, GENERAL + REACTOR, FAST + URANIUM-238

6-25743 ALSO IN CATEGORY 9 .
GERHARDSTEIN LH
MODEL DEVELOPMENT CONSIDERATIONS IN THE SIMULATION OF FAST NUCLEAR POWER PLANTS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-1443 + CONF-671032-1 +. 23 PAGES, FROM NORTHWEST SIMULATION COUNCIL MEETING, RICHLAND, WASHINGTON, OCTOBER 12, 1967

AN ANALYTICAL MODEL OF THE FFTF REACTOR WAS DEVELOPED FOR A HYBRID COMPUTER. THE NEUTRON KINETICS EQUATIONS ARE REPRESENTED EXACTLY BY AN ANALOG COMPUTER CIRCUIT. THE MODEL WILL BE USED IN HAZARDS, STABILITY, AND CONTROL ANALYSIS.

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

ANALYTICAL MODEL + CONTROL, GENERAL + FFTF (TR) + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR STABILITY + REACTOR, FAST + REACTOR, TEST

6-25744
GYFTOPOULOS EP
METHODS FOR MEASUREMENTS OF REACTOR DYNAMIC CHARACTERISTICS
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CONF-670602 +. ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 216, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

TRANSFER FUNCTION AND IMPULSE METHODS FOR MEASURING REACTOR DYNAMIC CHARACTERISTICS ARE REVIEWED. THESE METHODS YIELD INFORMATION ABOUT SUBCRITICALITY, TRANSIENT RESPONSE, AND INTEGRAL FEEDBACK COEFFICIENTS, AND CAN BE USED TO EVALUATE THE SUSCEPTIBILITY OF THE REACTOR TO FLUX TILTING.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25744 *CONTINUED*
MEASUREMENT, GENERAL + REACTOR DYNAMICS + REACTOR STABILITY + TRANSFER FUNCTION

6-25745
HOLLAND LK + NIEMI RO + YOUNGBORG LH
NUCLEAR BOILER DYNAMIC ANALYSIS AND TESTING
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
CONF-670602 +. ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 216, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967

REACTOR-DYNAMICS MEASUREMENTS WERE MADE BY THE ROD-OSCILLATION TECHNIQUE AT FREQUENCIES BETWEEN 0.1 AND 10 CPS, AND COMPARED WITH ANALYTICAL PREDICTIONS.

MEASUREMENT, GENERAL + REACTOR DYNAMICS + TRANSFER FUNCTION

6-25746
HARRISON LJ + LIIMATAINEN RC + TESTA FJ
PHOTOGRAPHIC STUDIES OF UO2 PELLET FUEL RODS IN WATER SUBJECTED TO NUCLEAR TRANSIENTS IN TREAT
ARGONNE NATIONAL LABORATORY, ILLINOIS
CONF-670602 +. ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 127, (JUNE 1967), PAPER PRESENTED AT THE 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIFORNIA, JUNE 11-15, 1967.

HIGH-SPEED MOTION PICTURES WERE TAKEN OF STAINLESS-STEEL AND ZIRCALOY-2-CLAD, URANIUM OXIDE PELLET, SIMULATED FUEL RODS, SUBJECTED TO SEVERE NUCLEAR TRANSIENTS. THE FISSION ENERGY RANGED FROM 160 TO 450 CAL/G OF URANIUM OXIDE, WITH CORRESPONDING PERIODS FROM 238 TO 80 MSEC. SOME OF THE RESULTS WERE - (1) A WATERLOGGED FUEL ROD DID NOT FAIL FROM OVER-PRESSURIZATION, (2) MOLTEN URANIUM OXIDE WAS CONTAINED IN ZIRCALOY-2 ABOVE ITS MELTING POINT, (3) FUEL-ROD FRAGMENTATION AT HIGH ENERGY INPUT OCCURRED IN 0.01 SEC.

DESTRUCTIVE TRANSIENT + FUEL INTEGRITY + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + TREAT (PRR)

6-25839 ALSO IN CATEGORY 9
PEDERSEN K + MURPHY G
MEASUREMENT OF SHUTDOWN MARGIN
UNIVERSITY OF PUERTO RICO + IOWA STATE UNIVERSITY
11 PAGES, 7 FIGURES, 1 TABLE, 4 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1), PAGES 46-56 (FEBRUARY 1968)

A METHOD WAS DEVELOPED AND INVESTIGATED FOR DIRECTLY MEASURING THE SHUTDOWN MARGIN IN A REACTOR OPERATING AT A SUBCRITICAL STEADY STATE. MEASUREMENTS WERE MADE ON THE IOWA STATE UNIVERSITY UTR-10 REACTOR WITH CONDITIONS RANGING FROM ALMOST CRITICAL TO FULLY SHUT DOWN. IT WAS THE PURPOSE OF THIS INVESTIGATION TO EXPLORE A METHOD WHEREBY THE REACTOR TRANSFER FUNCTION MEASURED IN A REGION OF A REACTOR COULD BE USED TO MEASURE DIRECTLY ITS NEGATIVE REACTIVITY.

*REACTOR CONTROL + *SHUTDOWN MARGIN + COMPARISON, REACTOR CHARACTERISTICS + COMPARISON, THEORY AND EXPERIENCE + REACTIVITY EFFECT + REACTOR KINETICS + REACTOR, RESEARCH + TRANSFER FUNCTION

6-25840 ALSO IN CATEGORY 9
TABAK D
A DIRECT AND NONLINEAR PROGRAMMING APPROACH TO THE OPTIMAL NUCLEAR REACTOR SHUTDOWN CONTROL
GENERAL ELECTRIC COMPANY, PHILADELPHIA, PA.
3 PAGES, 19 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1) PAGES 57-59 (FEBRUARY 1968)

THE PROBLEM OF OPTIMAL SHUTDOWN CONTROL OF NUCLEAR REACTORS FOR XENON POISONING IS ATTACKED HERE USING A DIFFERENT APPROACH, AS COMPARED WITH PREVIOUS WORK. THE MINIMAX PROBLEM IS FIRST SOLVED USING DIRECT DIFFERENTIATION. THEN, A MODIFIED TIME OPTIMAL PROBLEM IS FORMULATED AND SOLVED, USING NONLINEAR PROGRAMMING, THEREBY BYPASSING THE DIFFICULTIES CREATED BY DYNAMIC PROGRAMMING AND THE MAXIMUM PRINCIPLE APPROACHES USED PREVIOUSLY. RESULTS OF COMPUTATIONAL EXAMPLES, USING THE NEW METHOD, ARE PRESENTED AND COMPARED WITH THE PREVIOUS ONES.

*REACTOR CONTROL + SHUTDOWN MARGIN + THEORETICAL INVESTIGATION

6-25841 ALSO IN CATEGORY 9
TABAK D
OPTIMIZATION OF NUCLEAR REACTOR FUEL RECYCLE VIA LINEAR AND QUADRATIC PROGRAMMING
GENERAL ELECTRIC COMPANY, PHILA., PA.
5 PAGES, 3 FIGURES, 2 TABLES, 5 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 60-64 (FEBRUARY 1968)

THE POSSIBILITY OF APPLYING LINEAR OR QUADRATIC PROGRAMMING TO THE PROBLEM OF OPTIMIZING REACTOR FUEL RECYCLE IS INVESTIGATED. IT IS DEMONSTRATED THAT THE METHODS MENTIONED MAY BE APPLIED SUCCESSFULLY TO A SIMPLIFIED MODEL OF A NUCLEAR REACTOR. AN APPROPRIATE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25841 *CONTINUED*
REPRESENTATION OF THE FUEL RECYCLE AS A FEEDBACK CONTROL SYSTEM IS PROPOSED. AN ITERATIVE ALGORITHM TO ESTABLISH THE REFUELING TIMES, WHICH ARE UNKNOWN A PRIORI, IS FORMULATED AND IMPLEMENTED TO SOME SPECIFIC EXAMPLES. THE CONVERGENCE OF THE ALGORITHM PROPOSED IN THIS PAPER HAS BEEN ESTABLISHED NUMERICALLY.

REACTOR CONTROL + REACTOR KINETICS + REFUELING + THEORETICAL INVESTIGATION

6-25844 ALSO IN CATEGORY 9
DE VOLPI A + PECINA R + FREESE CH + ROLNICKI E + TRAVIS D + LARSEN G
EXTENDED CAPABILITY FOR FAST NEUTRON HODOSCOPE USED AT TREAT
ARGONNE NATIONAL LABORATORY
10 PAGES, 9 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 77-86 (FEBRUARY 1968)

THE FAST NEUTRON HODOSCOPE USED AT TREAT REACTOR FOR FUEL MELTDOWN STUDIES HAS BEEN IMPROVED TO PERMIT COUNT RATES ABOVE 10 TO THE 6TH/SEC IN EACH CHANNEL. ALSO A DIGITAL READOUT SYSTEM, BASED ON INTEGRATED CIRCUIT SCALERS, HAS BEEN INTRODUCED. PEAK INSTANTANEOUS DATA RATE CAPABILITY, NOW ABOUT 10 TO THE 7TH/SEC, CAN BE EXPANDED TO 10 TO THE 9TH/SEC.

*FUEL MELTDOWN + *INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + DATA PROCESSING + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, PULSE + INSTRUMENTATION, RECORDER + REACTOR, BREEDER + REACTOR, FAST + TREAT (PRR)

6-25846 ALSO IN CATEGORY 9
LIDOFSKY LJ
PROGRAMS AND SYSTEMS FOR ON-LINE COMPUTERS IN LOW ENERGY NUCLEAR PHYSICS
COLUMBIA UNIVERSITY, NEW YORK
10 PAGES, 3 FIGURES, 23 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 93-102 (FEBRUARY 1968)

SOME PROGRAMMING APPROACHES ARE DISCUSSED WHICH ARE IN USE OR ARE UNDER DEVELOPMENT FOR HANDLING ALL OR SOME FEATURES OF EXPERIMENTAL NUCLEAR PROCEDURES. THESE ARE REVIEWED AND COMPARED RATHER THAN DESCRIBED IN ANY GREAT DETAIL.

*COMPUTER PROGRAM + COMPUTER, DIGITAL + DATA PROCESSING + REVIEW

6-25847 ALSO IN CATEGORY 9
BIRNBAUM J + GELERNTER H
PROGRAMMING FOR AN ADVANCED NUCLEAR PHYSICS DATA ACQUISITION SYSTEM
IBM WATSON RESEARCH CENTER, NEW YORK + STATE UNIVERSITY OF NEW YORK AT STONY BROOK
8 PAGES, 1 REFERENCE, IEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 109-116 (FEBRUARY 1968)

EXPERIENCE IN THE DESIGN AND OPERATION OF A PREVIOUSLY REPORTED HARDWARE-SOFTWARE COMPUTER-BASED ON-LINE NUCLEAR PHYSICS DATA ACQUISITION SYSTEM IS DESCRIBED. MAJOR EMPHASIS IS PLACED UPON THE STRUCTURE OF THE PROGRAMMING SYSTEM, WHICH EMBODIES DATA ACQUISITION, DISPLAY, CONTROL, AND ANALYSIS FACILITIES, AND A SUPERVISOR CAPABLE OF COORDINATING THE PARALLEL OPERATION OF MULTIPLE TASKS. BASIC CONCEPTS, RATHER THAN DETAILS, ARE STRESSED THROUGHOUT.

*COMPUTER PROGRAM + COMPUTER, DIGITAL + DATA PROCESSING

6-25848 ALSO IN CATEGORY 9
YOUNG MH + BURRUS WR
A TRUE GAMMA-RADIATION SPECTROMETER
LOUISIANA STATE UNIVERSITY + OAK RIDGE NATIONAL LABORATORY
3 PAGES, 6 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 142-144 (FEBRUARY 1968)

A TRUE GAMMA-RADIATION SPECTROMETER IS DESCRIBED WHICH UTILIZES A STANDARD 3 BY 3 INCH DIAMETER NAI(T1) SCINTILLATION DETECTOR AND OUTPUTS THE GAMMA SPECTRUM (IN PHOTONS) WITH ALL SPURIOUS PEAKS AND TAILS CORRECTED. A SMALL DIGITAL COMPUTER IS UTILIZED TO ACCUMULATE THE PULSE-HEIGHT DISTRIBUTION AND SIMULTANEOUSLY PERFORM A DIGITAL FILTERING OPERATION IN REAL TIME.

*SPECTROMETRY, GAMMA + INSTRUMENTATION, NUCLEAR

6-25857 ALSO IN CATEGORIES 17 AND 9
SELECTED PEACH BOTTOM OPERATING EXPERIENCE
GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.
GA-8153 +. 60 PAGES, 32 FIGURES, 8 TABLES, 40-MW(E) PROTOTYPE HIGH-TEMPERATURE GAS-COOLED REACTOR POSTCONSTRUCTION RESEARCH AND DEVELOPMENT PROGRAM, QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JULY 31, 1967, AUGUST 30, 1967

(PAGE 10-14) POWER CALIBRATION TEST, (PAGE 14-21) PLANT CONTROL CONFIRMATION TEST, (PAGE 21-29) DYNAMIC VERIFICATION OF NUCLEAR STEAM SUPPLY SYSTEM, (PAGE 30-35) POWER COEFFICIENT TEST WITH VARIABLE FLOW AND POWER, (PAGE 35-37) XENON BUILDUP AND DECAY, (PAGE 37-40) VERIFICATION OF CORE HEAT-TRANSFER COEFFICIENT, (PAGE 43-44) SHIELDING SURVEY AT 100 PERCENT

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25857 *CONTINUED*
POWER, (PAGE 45-48) HELIUM-PURIFICATION-SYSTEM PERFORMANCE, (PAGE 48-51) MAIN-COOLANT-SYSTEM PARTICULATE MATTER, (PAGE 53-59) GASEOUS ACTIVITY DETERMINATIONS (IN MAIN COOLANT AND FUEL-ELEMENT PURGE SYSTEMS).

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

CONTROLLER + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + R AND D PROGRAM + REACTOR POWER + REACTOR STARTUP TESTING + REACTOR, HTGR + REPORT, OPERATIONS + TEST, SYSTEM OPERABILITY

6-25874 ALSO IN CATEGORIES 12 AND 13
LLOYD RC + CLAYTON ED + CHALMERS JH
CRITICALITY OF ARRAYS OF 233U SOLUTION
BATTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON + AUTHORITY HEALTH AND SAFETY BRANCH, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, WARRINGTON, LANCASHIRE, ENGLAND
6 PAGES, 6 FIGURES, 4 TABLES, 10 REFERENCES, NUCLEAR APPLICATIONS, 4(3), PAGES 136-141 (MARCH 1968)

THE RESULTS OF NEUTRON MULTIPLICATION MEASUREMENTS PERFORMED WITH ARRAYS OF 233U SOLUTION APPLY TO CRITICALITY SAFETY CONSIDERATIONS IN LANDLING SOLUTIONS AT A CONCENTRATION OF = 330 G 233U/LITER AND ARE USEFUL IN CHECKING COMPUTATIONAL METHODS. THE MEASUREMENTS WERE MADE WITH 17.3 KG 233U IN BOTH REFLECTED AND UNREFLECTED ARRAYS. CRITICAL NUMBERS OF BOTTLES WERE DETERMINED AS A FUNCTION OF SPACING, AND THE EFFECT OF ADDING MODERATING MATERIAL BETWEEN THE BOTTLES COMPRISING AN ARRAY WAS ALSO EXAMINED. MONTE CARLO CALCULATIONS WERE FOUND TO REPRODUCE THE EXPERIMENTAL DATA REASONABLY WELL, WITH K-EFF BEING COMPUTED TO WITHIN ABOUT 0.03 OF UNITY FOR THOSE CASES COMPARED.

*CRITICALITY EXPERIMENT + *URANIUM-233 + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY SAFETY + FUEL REPROCESSING + MONTE CARLO + TRANSPORTATION AND HANDLING

6-25875
PERRY AM
INFLUENCE OF NEUTRON DATA IN THE DESIGN OF OTHER TYPES OF POWER REACTORS
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-TM-2157 + CONF-680307-26 +. 24 PAGES, 5 FIGURES, 5 TABLES, 10 REFERENCES, MARCH 8, 1968

THE EFFECTS OF CROSS-SECTION UNCERTAINTIES ON ESTIMATES OF BREEDING PERFORMANCE AND OF POWER COST FOR A MOLTEN-SALT BREEDER REACTOR ARE SHOWN TO BE SMALL. UNCERTAINTY IN BREEDING RATIO DUE TO CROSS-SECTION UNCERTAINTIES IS LESS THAN +-0.02, AND THE UNCERTAINTY IN POWER COSTS IS LESS THAN +-0.03 MILLS/KWHR(E). SIMILARLY SMALL EFFECTS ARE SHOWN FOR THE HIGH-TEMPERATURE GAS-COOLED REACTOR. THE NEED FOR FURTHER REFINEMENTS IN NUCLEAR DATA IS RELATED PRIMARILY TO THE CALCULATION OF TEMPERATURE COEFFICIENTS OF REACTIVITY.

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

CROSS SECTION + REACTIVITY COEFFICIENT + REACTOR, HTGR + REACTOR, MOLTEN SALT + TEMPERATURE COEFFICIENT + TEMPERATURE REACTIVITY EFFECT

6-25876
YIFTAH S + GITTER L + ILAMED Y
SODIUM VOID AND DOPPLER COEFFICIENTS FOR FAST POWER REACTORS
ISRAEL ATOMIC ENERGY COMMISSION, SOREQ NUCLEAR RESEARCH CENTER
IA-1057 +. 51 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1965

CALCULATIONS WERE MADE IN ORDER TO STUDY THE SODIUM VOID AND DOPPLER EFFECTS IN A SERIES OF FAST REACTORS WHICH DIFFER IN VOLUME OF CORE, TYPE OF PLUTONIUM FUEL, AND COMPOSITION OF FUEL. THE SODIUM-VOID AND DOPPLER COEFFICIENTS WERE OBTAINED FROM CRITICALITY FACTORS COMPUTED FOR 486 SYSTEMS WITH THE AID OF MULTIGROUP DIFFUSION THEORY FOR SPHERICAL SYSTEMS.

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

DOPPLER COEFFICIENT + PLUTONIUM + REACTOR, FAST + REACTOR, LMCR + SODIUM COEFFICIENT + VOID COEFFICIENT

6-25877
OUTLINE OF CRITICAL EXPERIMENT AND CHARACTERISTIC TEST OF JRR-4
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1139 +. 26 PAGES, REFERENCES, APRIL 1967

JAPAN RESEARCH REACTOR-4 (JRR-4) IS A SWIMMING POOL TYPE REACTOR, 1,000KW IN THERMAL POWER WITH LIGHT WATER AS THE COOLANT AND MODERATOR. THE FUEL ELEMENTS CONSIST OF PLANES OF AN ALLOY OF 90% ENRICHED URANIUM-235 AND ALUMINUM. THE JRR-4 IS INTENDED MAINLY FOR THE STUDY OF SHIELDING. THE JRR-4 IS NOW IN OPERATION FOR THE MOCK UP TESTS OF SHIELDING OF THE FIRST NUCLEAR SHIP. THIS PAPER REPORTS THE OUTLINE OF CRITICAL EXPERIMENT AND CHARACTERISTIC TESTS OF JRR-4. THE TEST INCLUDES CONTROL RODS CALIBRATION, THERMAL FLUX MEASUREMENT, MASS, VOID AND TEMPERATURE COEFFICIENT MEASUREMENT, POWER UP AND FULL POWER TEST, ETC. ,

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

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25877 *CONTINUED*
CONTROL ROD CALIBRATION + CRITICALITY EXPERIMENT + JAPAN + MEASUREMENT, REACTIVITY + REACTOR, POOL TYPE + REACTOR, RESEARCH + TEMPERATURE COEFFICIENT

6-25878
LEVITT LB
SAFE - A THREE DIMENSIONAL MONTE CARLO CODE FOR NUCLEAR SAFETY STUDIES
ATOMICS INTERNATIONAL, INC.
NAA-SR-MEMO-12490 +. 17 PAGES, 6 FIGURES, TABLE, REFERENCES, JULY 28, 1967

THE SAFE CODE IS A 3-DIMENSIONAL MONTE CARLO CODE SPECIFICALLY DESIGNED TO HANDLE CRITICALITY PROBLEMS ARISING FROM THE FLOODING OF STORED OR PACKAGED FUEL ELEMENTS. ITS FEATURES INCLUDE THE USE OF THREE CARTESIAN COORDINATE SYSTEMS AND A SPECIAL GEOMETRIC TREATMENT OF PARTIAL FLOODING. THE HWOCR-SAFE CODE IS AN OFFSHOOT OF THE SAFE CODE SPECIFICALLY DESIGNED AS A THERMAL REACTOR ANALYSIS DESIGN TOOL FOR HWOCR TYPE LATTICE CONFIGURATIONS. COMPARISONS WITH MULTIGROUP TRANSPORT CALCULATION FOR REACTOR DESIGN PURPOSES.

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

*COMPUTER PROGRAM + *MONTE CARLO + CRITICALITY SAFETY + REACTOR, HWR + REACTOR, ORGANIC COOLED

6-25879
GREEN RE
REACTIVITY EFFECT OF MODERATOR VOIDS IN A CANDU LATTICE
ATOMIC ENERGY OF CANADA, CHALK RIVER
AECL-3002 +. 26 PAGES, 9 FIGURES, 3 TABLES, 3 REFERENCES, JANUARY 1968

EXPERIMENTS HAVE BEEN DONE IN ZED-2 TO DETERMINE THE REACTIVITY EFFECT OF VOIDS IN THE MODERATOR OF A CANDU-TYPE LATTICE. FROM MEASUREMENTS WITH A SMALL VOID LOCATED AT VARIOUS POSITIONS IN THE LATTICE, IT WAS POSSIBLE TO SEPARATE THE FLUX-DEPENDENT AND GRADIENT-DEPENDENT EFFECTS AND TO DERIVE CONSTANTS THAT MAY BE USED TO DETERMINE THE REACTIVITY EFFECT OF A SIMILAR VOID IN CANDU.

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

*MODERATOR COEFFICIENT + *VOID COEFFICIENT + CANDU (HWR) + REACTIVITY EFFECT + REACTOR, HWR

6-25893 ALSO IN CATEGORIES 17 AND 7
SEMIANNUAL PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1967. SAXTON PLUTONIUM PROGRAM
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH
WCAP-3385-14 + EURAEC-1955 +. 30 PAGES, FIGURES, TABLES, 10 REFERENCES, MARCH 1968

(PAGES 3-1 THRU 3-16) - REBUF CODE WAS MODIFIED FOR AN INITIAL PLUTONIUM CONTENT AND CHECKED AGAINST LEOPARD RUNS. CRITICAL BORON CONCENTRATION VS BURNUP IS BEING CALCULATED BY THE FOLLOW CODE. EXTENSIVE REEVALUATION OF FUEL-BURNUP CODES ESTABLISHED THAT THE DIFFERENCE BETWEEN LEOPARD (PU AND U FISSION YIELDS THE SAME) AND CINDER IS 35 PPM OF BORON, AND THAT LEOPARD-PDQ3 AGREES WITH OBSERVED BORON, THUS CINDER OVERESTIMATES FP POISIONING. A REVISED DEPLETION ANALYSIS WAS BEGUN WITH A LEOPARD-PDQ7 - HARMONY SEQUENCE. (PGS. 4-1 AND-2) - FISSION GASES RELEASED FROM TWO TYPICAL PU)2-UO2 RODS WERE MEASURED AS FOLLOWS - (PELLET) 2.1% OBSERVED, 1.5% PREDICTED. (VIPAC) 10.8% OBSERVED, 9% PREDICTED BY FIGHT CODE.

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

*COMPUTER PROGRAM + *FUEL BURNUP + COMPARISON, THEORY AND EXPERIENCE + FISSION GAS RELEASE + FUEL ELEMENT + FUEL, PELLET TYPE + FUEL, POWDER TYPE + INITIAL CONDITIONS + PLUTONIUM DIOXIDE + R AND D PROGRAM + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + SAXTON (PWR) + URANIUM DIOXIDE

6-25919 ALSO IN CATEGORY 17
WEST GB
THE INFLUENCE OF THERMALIZATION MODELS ON THE REACTIVITY AND TEMPERATURE COEFFICIENT OF ZIRCONIUM HYDRIDE REACTORS
GULF GENERAL ATOMIC INC.
GA-6847 +. 27 PAGES, 7 FIGURES, 4 TABLES, 12 REFERENCES, DECEMBER 7, 1965, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOVEMBER 1965

THE MODELS ANALYZED ARE A FREE GAS MODEL AND TWO VERSIONS OF THE EINSTEIN OSCILLATOR. ONE USES A DISCRETE VALVE FOR ENERGY EXCHANGE AND THE OTHER INCORPORATES A FREQUENCY DISTRIBUTION. RESULTS SHOW REACTIVITY VARIATIONS OF UP TO 2% FOR TRIGA CORES AND 0.3% FOR SNAP CORES. TEMPERATURE COEFFICIENTS SHOWED VARIATIONS OF UP TO 50% IN BOTH SYSTEMS.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*ANALYTICAL MODEL + *REACTIVITY EFFECT + *TEMPERATURE COEFFICIENT + *THEORETICAL INVESTIGATION + *THERMALIZATION + DOPPLER COEFFICIENT + HYDRIDE + NEUTRON + REACTOR, RESEARCH + SNAP, GENERAL (SR) + TRIGA (RR) + URANIUM HYDRIDE + ZIRCONIUM

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-25942 ALSO IN CATEGORY 17
CHANGE 30 - REFLECTOR CHANGES AT WNYRC PULSTAR
USAEC, DIVISION OF REACTOR LICENSING.
6 PAGES, MAY 23, 1968, LETTER TO R. F. LUMB FROM D. J. SKOVHOLT, DOCKET 50-57

ALLOWS OPTIONAL USE OF EXISTING LEAD REFLECTOR IN FRONT OF THERMAL COLUMN, AND ALUMINUM AND GRAPHITE REFLECTOR ELEMENTS. PDQ CALCULATIONS FOR GRAPHITE REFLECTED CORE SHOW FLUX PEAKS IN CORE LESS THAN FOR WATER-REFLECTED CASE, CONFIRMED BY FLUX PLOT. PDQ CALCULATIONS ALSO SHOW DOPPLER COEFFICIENT NOT SIGNIFICANTLY CHANGED IF GRAPHITE OR ALUMINUM REFLECTED, BUT A REPORT OF MEASUREMENT REQUIRED. ***MAXIMUM REACTIVITY VALUES ARE +1.17% DK/K FOR LOSS OF 1 ALUMINUM SLAB, +1.40% DK/K FOR ADDITION OF LEAD NOSEPIECE, +1.76% DK/K FOR ADDITION OF 1 GRAPHITE SLAB.

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

*BEAM HOLE + *REFLECTOR + ALUMINUM + DOPPLER COEFFICIENT + FLUX DISTRIBUTION + GRAPHITE + LEAD + PULSTAR (RR) + REACTIVITY EFFECT + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

6-25947 ALSO IN CATEGORY 17
ALTERNATE REFLECTOR MATERIALS SAFETY ANALYSIS
WESTERN NEW YORK NUCLEAR RESEARCH CENTER, BUFFALO, NEW YORK
5 PAGES, 2 FIGURES, LETTER TO D.J. SKOVHOLT FROM W.F. HALL, MAY 3, 1968, DOCKET NO. 50-57

REACTIVITY EFFECT OF A SLAB REFLECTOR WOULD BE 1.17% (REMOVAL OF AL SLAB), 1.40% (INSERTION OF GRAPHITE SLAB), EACH LESS THAN THE 3.8% MCA. ***PDQ CALCULATION SHOWS PREVIOUS PEAK RADIAL FLUX (IN PERIPHERY) REDUCED 36%, AND NEW PEAK PIN IS ADJACENT TO CONTROL-ROD WATER GAP, A RISE OF 13% BUT STILL LESS THAN PREVIOUS PEAK. ACTUAL CHANGE IS LESS BECAUSE THERE IS STILL SOME WATER IN REFLECTOR. ***PULSING WITH A 3-IN. AL-SLAB REFLECTOR SHOWS NO MEASURABLE DOPPLER EFFECT. PDQ RESONANCE FLUX DISTRIBUTION (GRAPH) SHOWS THAT AL HARDENS FLUX MORE THAN GRAPHITE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*DOPPLER COEFFICIENT + *REACTIVITY EFFECT + *REFLECTOR + ALUMINUM + FLUX DISTRIBUTION + GRAPHITE + PULSTAR (RR) + REACTOR, PULSED + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

6-25999 ALSO IN CATEGORY 17
DRESDEN 1 REACTOR PHYSICS TESTS
COMMONWEALTH EDISON COMPANY
4 PAGES, PAGES 17,37,45, AND 58 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL, JANUARY 23, 1968

(PAGE 17) ON THE JANUARY SHUTDOWN, SECONDARY STEAM VALVES WERE CLOSED, AND LOAD DROPPED FROM 140 MWE TO 81, WITH NO CHANGE IN PRIMARY STEAM FLOW. POWER WAS REDUCED TO 58 MWE BY ROD INSERTION AND INCREASED SECONDARY STEAM FLOW. AND, ON THE TURBINE TRIP, PRESSURE INCREASED 2 PSI AND THEN DROPPED 10, STEAM FLOW DROPPED 24.3%, ROSE 42%, DROPPED BACK TO CONTROL, AND POWER-LEVEL INDICATORS ROSE 20% AND DROPPED 34%. (PAGE 58) A LOAD DROP OF 15 MWE BY REDUCING SEC. STEAM FLOW CAUSED A FURTHER DROP OF 5 MWE IN 2 HR, RETURNING TO 140 MWE IN 4 HR. IN-CORE INSTRUMENTS SHOWED AXIAL POWER PEAK SHIFTED UPWARD (BY 12% AT MOST) AND RETURNED IN 14 HR, THEN STARTED TO SHIFT DOWN. (PAGE 45) SEVERAL FUEL REARRANGEMENTS WERE REQUIRED TO GIVE EQUAL SHUTDOWN MARGIN ON ALL SIDES OF THE PERIPHERY. NO MULTIPLICATION WAS OBSERVED WHEN 3 CENTRAL RODS WERE REMOVED. WITH THE REACTOR CRITICAL WITH 31 RODS OUT, INSERTION OF ONE OR MORE CONTROL RODS IN THE CENTER OF THE CORE HAD LITTLE OR NO EFFECT ON THE CRITICAL STATE. (PAGE 37) TEMP. COEFFICIENT TURNED NEGATIVE AT SOME TEMPERATURE BELOW 113 F.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON

*ACCIDENT, LOAD REJECTION + *MEASUREMENT, SUBCRITICALITY + *TEMPERATURE COEFFICIENT + *XENON OSCILLATION + CONTROL ROD WORTH + DRESDEN 1 (BWR) + FLUX DISTRIBUTION + REACTOR STABILITY + REACTOR, BWR + REFUELING + REPORT, OPERATIONS SUMMARY + TEST, PHYSICS + TEST, PLANT RESPONSE

6-26127
BUFFONI G + LOIZZO P + LOPEX S + PETILLI M
BURNUP OF PRESSURIZED OR BOILING WATER REACTORS
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME
RT/FI-(67)28 + CONF-670645 +. 175 PAGES, TABLES, FROM SYMPOSIUM ON ADVANCES OF REACTOR THEORY, KARLSRUHE, GERMANY, 1967

DESCRIBES THEORY AND OPERATION OF FORTRAN COMPUTER CODE BOLERO FOR CALCULATING THE FLUX PROFILE IN A LARGE BOILING OR PRESSURIZED-WATER REACTOR, TAKING INTO ACCOUNT CONTROL-ROD MOVEMENTS OR CONTROL POISONS, FUEL BURNUP, AND NEUTRON-ENERGY-SPECTRUM VARIATIONS DUE TO BURNUP. COMPARES CALCULATED TO EXPERIMENTAL RESULTS FOR CRITICAL EXPERIMENTS (THE VERCELLES PWR AND THE GARIGLIANO BWR). DESCRIBES CODE OPERATION, INPUT, OUTPUT, AND TEST CASES.

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

*COMPUTER PROGRAM + *REACTOR PHYSICS + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT + REACTOR, BWR + REACTOR, PWR

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-26144
OTTER JM
TRIX-2--AN ADVANCED ANALYTIC CALCULATION OF RESONANCE INTEGRALS AND DOPPLER COEFFICIENTS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-12509(VOL.1) +. 47 PAGES, 3 TABLES, 24 REFERENCES, PART 1. THEORY, SEPTEMBER 15, 1967

THE THEORY UNDERLYING THE TRIX-2 CODE IS DESCRIBED, AND THE EQUATIONS ARE GIVEN. A NEW TECHNIQUE FOR REMOVING THE FLAT-FLUX APPROXIMATION FOR LUMPED ABSORBERS EFFICIENTLY IS ALSO DESCRIBED. THE CODE PROVIDES CALCULATIONS OF SELF-SHIELDING OF LOW-ENERGY CROSS SECTIONS, DANCOFF SHADOWING IN LATTICES, FISSION WIDTHS FROM CHANNEL FISSION THEORY, AND ADJUSTMENTS TO WELL-KNOWN EXPERIMENTAL CONTROLS, AS WELL AS INTERMEDIATE SCATTERING OF ALL ELEMENTS. THE CODE CAN PROVIDE IN A SINGLE CALCULATION, MULTIGROUP RESONANCE INTEGRALS AND DOPPLER COEFFICIENTS FOR MOST REACTOR DESIGNS.

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

COMPUTER PROGRAM + CROSS SECTION + DOPPLER COEFFICIENT + REACTOR PHYSICS + THEORETICAL INVESTIGATION

6-26145
MUSSO B
ANALYTICAL STUDY OF DYNAMICS OF A COMPACT NUCLEAR FAST SYSTEM
CENTRO DI STUDI NUCLEARI DELLA CASACCIA, CNEN, ROMA
6 PAGES, 7 FIGURES, 5 REFERENCES, ENERGIA NUCLEARE 15(3), PAGES 198-203 (MARCH 1968)

AN APPROXIMATE ANALYTICAL SOLUTION OF THE REACTOR DYNAMICS EQUATIONS INCLUDING THE TEMPERATURE FEEDBACK IS GIVEN UNDER THE GENERAL CONDITIONS OF EXTERNAL REACTIVITY INSERTION, PROVIDED THE SYSTEM DOES NOT REACH PROMPT-CRITICALITY. THIS METHOD IS APPLIED TO THE EVALUATION OF TRANSIENTS FOR THE TAPIRO FAST SOURCE REACTOR AND THE RESULTS ARE COMPARED WITH THOSE OBTAINED BY MORE SOPHISTICATED ANALOG COMPUTATIONS. THEIR GOOD AGREEMENT SHOWS THAT THIS METHOD CAN BE USED FOR PRELIMINARY ANALYSIS, IN SPITE OF ITS ROUGH BASIC ASSUMPTIONS. CALCULATIONS ARE VERY SIMPLE, AND SIGNIFICANT RESULTS CAN BE OBTAINED BY EITHER A DESK-COMPUTER OR A SLIDE RULE.

COMPARISON, THEORY AND EXPERIENCE + REACTOR DYNAMICS + REACTOR PHYSICS + REACTOR TRANSIENT + REACTOR, FAST + THEORETICAL INVESTIGATION

6-26146 ALSO IN CATEGORIES 5 AND 8
DICKERMAN CE
REVIEW OF NUCLEAR SAFETY EXPERIMENTS ON FAST REACTOR CORE BEHAVIOR
ARGONNE NATIONAL LABORATORY
7 PAGES, 3 FIGURES, 37 REFERENCES, NUCLEAR SAFETY 9(3), PAGES 210-217 (JUNE 1968)

AN EXPERIMENTAL INVESTIGATION WAS MADE ON THE BEHAVIOR DURING ACCIDENTS OF SODIUM-BONDED METALLIC FUEL PINS. MODELS WERE DEVELOPED TO DESCRIBE FAILURE OF METALLIC FUEL PINS (EBR-II, MARK I) IN BOTH FLOWING AND STAGNANT SODIUM, ALTHOUGH THE PREFAILURE AXIAL MOVEMENT OF MOLTEN FUEL CANNOT BE DESCRIBED QUANTITATIVELY. THE FIRST INVESTIGATIONS OF POSTFAILURE MOVEMENT OF COOLANT AND FUEL WERE PERFORMED WITH CLUSTERS OF FUEL PINS. ALTHOUGH LARGE-SCALE SECONDARY MOVEMENTS WERE DEMONSTRATED IN TREAT, MUCH MORE WORK IS NECESSARY TO CHARACTERIZE THEM PROPERLY, INCLUDING DETERMINING EFFECTS OF BLANKETS, LARGER CLUSTERS, AND PROPAGATION PHENOMENA.

FUEL MELTDOWN + REACTOR, FAST + REACTOR, SAFETY RESEARCH + SODIUM + TREAT (PRR)

6-26414
BAUMANN NP + CRANDALL JL + OLSON RL + ONEILL GF + PELLARIN DJ + VANDERVELDE VD
LATTICE EXPERIMENTS WITH SIMULATED BURNED-UP FUEL FOR D2O POWER REACTORS
SAVANNAH RIVER LABORATORY, AIKEN, SOUTH CAROLINA
DP-1122 +. 75 PAGES, 20 FIGURES, 25 TABLES, 23 REFERENCES, FEBRUARY, 1968

THE CHANGES IN LATTICE PHYSICS PARAMETERS ACCOMPANYING FUEL BURNUP IN NATURAL-URANIUM-FUELED D2O POWER REACTORS WERE STUDIED BY MEASURING BUCKLINGS AND NEUTRON REACTION RATES FOR D2O-MODERATED LATTICES OF UO2 ROD CLUSTERS CONTAINING FIVE DIFFERENT CONCENTRATIONS OF 235U AND THE PLUTONIUM ISOTOPES. BOTH 19- AND 31-ROD CLUSTERS WITH D2O, GAS, AND ORGANIC COOLANTS WERE USED AT TRIANGULAR LATTICE PITCHES OF 9.33 AND 12.12 INCHES. MEASUREMENTS DETERMINED THE CHANGES IN BUCKLING INDUCED BY UNIFORM LATTICE HEATING, THERMAL NEUTRON DISTRIBUTIONS, THERMAL NEUTRON SPECTRAL INDICES, RESONANCE NEUTRON CAPTURE IN 238U, FAST FISSIONS IN 238U, ALL FISSIONS IN 235U, AND 238U CAPTURE TO 235U FISSION RATIOS. THESE RESULTS AGREED WELL WITH CALCULATIONS BY THE HAMMER CODE.

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

BUCKLING + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT + FLUX DISTRIBUTION + REACTOR PHYSICS + REACTOR, HWR + URANIUM

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-26436 ALSO IN CATEGORY 9
SHEFF JR
FLUCTUATION MEASUREMENT OF REACTOR POWER
PACIFIC NORTHWEST LABORATORY
2 PAGES, 1 FIGURE, 3 REFERENCES, ANS TRANS. 10(2), PAGES 287-88, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

IT IS SHOWN THAT THE METHOD OF SUYUKI FOR MEASURING REACTOR POWER THROUGH USE OF NEUTRON FLUCTUATIONS IS STILL VALID TO A GOOD APPROXIMATION WHEN REINTERPRETED IN TERMS OF A SPACE-DEPENDENT THEORY. THE METHOD IS MOST ACCURATE FOR SMALL SYSTEMS AND BECOMES LESS ACCURATE FOR INCREASING REACTOR SIZE OR FOR DETECTOR POSITIONS NEARING THE OUTER BOUNDARIES. PRELIMINARY INDICATIONS ARE THAT SIMILAR RESULTS ARE OBTAINED IN THE REFLECTED THREE-SLAB CASE.

*REACTOR POWER + FLUCTUATION + NEUTRON + NOISE ANALYSIS + THEORETICAL INVESTIGATION

6-26438 ALSO IN CATEGORY 9
SWANICK BH + GRAUPE D
ANALYSIS OF ON-LINE IDENTIFICATION AND CONTROL OF A NUCLEAR REACTOR
THE UNIVERSITY OF LIVERPOOL
14 PAGES, 19 FIGURES, 17 REFERENCES, THE JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY 7(1), PAGES 100-13 (JANUARY 1968)

THE CONCEPTS OF ON-LINE CONTROL TO AN IDEALIZED REACTOR SYSTEM ARE ILLUSTRATED, AND THE CONTROL PRINCIPLES ARE OUTLINED. THE SYSTEM WAS TESTED ON THE UNIVERSITIES RESEARCH REACTOR AND AIMED AT PROVIDING MORE EFFICIENT, ECONOMIC AND RELIABLE OPERATION. A KDF-9 COMPUTER WAS USED FOR MODEL AND SIMULATION TESTS.

*CONTROLLER + *REACTOR CONTROL + ANALYTICAL MODEL + COMPARISON, THEORY AND EXPERIENCE + CONTROL SYSTEM + REACTOR PHYSICS + REACTOR, RESEARCH + UNITED KINGDOM

6-26484
MASSIMO L
BACCHUS--A BURN-UP CODE FOR CONTINUOUS CHARGE-DISCHARGE FUEL CYCLES
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA, ITALY
EUR-3076.E +. 10 PAGES, 1966

THE BACCHUS CODE WAS DEVELOPED TO CALCULATE CONTINUOUS CHARGE-DISCHARGE FUEL CYCLES IN VARIOUS REACTOR TYPES WITH DIFFERENT FUELS, INCLUDING CASES WHERE THE NEUTRON SPECTRUM IS STRONGLY DISTORTED AS FOR INSTANCE WITH PU FUEL IN UNDERMODERATED REACTORS. BECAUSE OF THIS REASON THE SPECTRUM CALCULATION IS PERFORMED WITH 68 FAST AND 96 THERMAL GROUPS ACCORDING TO THE METHODS DEVELOPED BY GENERAL ATOMIC. THE FINE STRUCTURE OF THE FLUX IN THE CELL CAN BE TAKEN INTO ACCOUNT WITH PREVIOUSLY CALCULATED CONCENTRATION-DEPENDENT SELF-SHIELDING FACTORS. THE CODE CAN DEAL WITH FUEL REPROCESSING AND SEED AND BREED CONCEPTS. UP TO 50 ISOTOPES CAN BE TREATED SEPARATELY IN THE BURN-UP EQUATIONS. THE MOST IMPORTANT FEATURE OF THIS CODE IS THE POSSIBILITY OF CONSIDERING SELF-SHIELDING VARIATIONS DURING THE FUEL ELEMENT LIFE-TIME. THIS MADE DIFFICULT AN ANALYTICAL SOLUTION OF THE BURN-UP EQUATIONS SO THAT A NUMERICAL SOLUTION BY FINITE-DIFFERENCE APPROXIMATION HAS BEEN USED. TYPICAL RESULTS ARE DISCUSSED FOR THE CASE OF PU-TH FUEL CYCLES IN HTGR REACTORS, WITH PARTICULAR ATTENTION TO THE EFFECTS OF SELF-SHIELDING VARIATION.

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

*COMPUTER PROGRAM + *FUEL BURNUP + *FUEL REPROCESSING + EURATOM + REACTOR KINETICS + REACTOR PHYSICS

6-26540 ALSO IN CATEGORY 18
STEVENS DW
A STATISTICAL ANALYSIS OF THE EFFECTS OF REGIONAL FUEL LOADING TOLERANCES ON FLUX TILTING IN THE FORT ST. VRAIN HTGR
GULF GENERAL ATOMIC, INC., SAN DIEGO, CALIF.
GA-8115 +. 66 PAGES, FIGURES, TABLES, 2 REFERENCES, DECEMBER 15, 1967

ONE FUEL-LOADING TOLERANCE IS +- 1% OF TOTAL U AND TH LOADS IN A REFUELING REGION. STATISTICAL STUDY WAS CONDUCTED TO DETERMINE FUEL UNIFORMITY REQUIREMENTS AND NEUTRONIC CONSEQUENCES (IN TERMS OF FLUX TILTING) OF FUEL DISTRIBUTION JUST MEETING THESE RESTRICTIONS. NORMAL FUEL DISTRIBUTION WITH STANDARD DEVIATION OF 0.2% FOR BOTH U AND TH GIVES PROBABILITY OF LESS THAN 0.001 FOR MAXIMUM FLUX TILT TO EXCEED 2.25%. TECHNIQUES USED - (1) SETTING VALUE OF X AND DETERMINING PROBABILITY FUEL REGION EXCEEDS CERTAIN % U FOR VARIOUS SIGMA VALUES, (2) DETERMINING PROBABILITIES FOR ALL POSSIBLE COMBINATIONS OF DEFECTIVE (DEFECT EQUALS LOADING GREATER THAN X%) AND ACCEPTABLE REGIONS, (3) U AND TH REGIONAL LOADINGS WERE SIMULATED BY MEANS OF MONTE CARLO TECHNIQUE.

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

*FLUX TILT + *MATHEMATICAL TREATMENT + *STATISTICAL ANALYSIS + ANALYTICAL MODEL + FAILURE, FABRICATION ERROR + FT. ST. VRAIN (HTGR) + FUEL ELEMENT + MONTE CARLO + REACTOR, HTGR

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-26576 ALSO IN CATEGORY 17
PRESSURIZED WATER REACTOR PH-REACTIVITY EFFECT, QUARTERLY PROGRESS REPORT FOR PERIOD ENDING SEPTEMBER 1967
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PENNSYLVANIA
WCAP-3696-5 + EURAEC-1926 +. 41 PAGES, 17 FIGURES, OCTOBER, 1967

PROGRESS REPORT. AN INSTRUMENTED 3-BY-3 ASSEMBLY AND A REACTIVITY OSCILLATOR WERE RECEIVED AT SAXTON. LENGTHY DISCUSSION GIVEN OF FABRICATION METHODS FOR STAINLESS-STEEL-CLAD UO2 CERMET FUEL FOR THE INSTRUMENTED ASSEMBLY.

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

*PH REACTIVITY EFFECT + *R AND D PROGRAM + CLAD + EURATOM + FABRICATION + FUEL ELEMENT + OSCILLATOR, REACTIVITY + REACTOR, PWR + SAXTON (PWR) + STEEL, STAINLESS

6-26577 ALSO IN CATEGORY 17
PROGRAMME OF RESEARCH ON THE TRINO VERCELLESE NUCLEAR POWER PLANT FOR THE DEVELOPMENT OF CLOSED-CYCLE WATER REACTOR TECHNOLOGY
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY
EUR-3657 +. 81 PAGES, CONTRACT 071-66-6 TEEI, ANNUAL REPORT, JUNE 1, 1966-JUNE 30, 1967, SEPTEMBER 22, 1967

TESTS ON PH VARIATION REVEALED (1) EFFECT IS HALF THAT OBSERVED IN YANKEE, (2) CORRELATION EXISTS WITH POWER LEVEL AND TEMP. DISTRIBUTION, (3) SOME INCONSISTENCIES EXIST. SURFACE BOILING TESTS REVEALED A STRONG NOISE RESONANCE AT 5 C/SEC. LOWERING PH REDUCES PEAK AT 10 C/SEC AND AMPLIFICATION OF 13 C/SEC. OTHER TOPICS - POWER-DENSITY MEASUREMENTS, REVIEW OF COOLANT FLOW RATE AND DISTRIBUTION, AND EVALUATION OF CORE AND STEAM-GENERATOR PERFORMANCE LIMITS.

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

*BOILING + *NOISE ANALYSIS + *PH REACTIVITY EFFECT + FLOW DISTRIBUTION + ITALY + PERFORMANCE LIMIT + R AND D PROGRAM + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + STEAM GENERATOR + TRINO (PWR) + YANKEE (PWR)

6-26595 ALSO IN CATEGORY 17
SELECTED EXPERIENCES AT GUNDREMMINGEN
KERNKRAFTWERK RWE-BAYERNWERK G.C.B.H., GUNDREMMINGEN (WEST GERMANY)
AEC-TR-6911 +. 47 PAGES, FROM THE MONTHLY TECHNICAL REPORT (ON GENDREMMINGEN NUCLEAR POWER PLANT) JANUARY, 1967

PROGRESS REPORT. POWER TESTS AT 250 MWE WERE COMPLETED. NEITHER CIRCUIT-BREAKER OPENING NOR TURBINE TRIP CAUSES SHUT DOWN BECAUSE THE REACTOR GOES SMOOTHLY TO BYPASS OPERATION. TO AVOID SCRAM, ONE CIRCULATION PUMP HAS TO BE DROPPED WHEN THE CIRCUIT BREAKER OPENS. ***A CIRCUIT BREAKER AND ONE 6-KV PUMP MOTOR WERE DAMAGED DURING TESTS IN WHICH 6-KV MOTORS WERE REPEATEDLY SWITCHED ON AND OFF.

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

*ELECTRIC POWER, GENERAL + *TEST, PLANT RESPONSE + ACCIDENT, LOAD REJECTION + DAMAGE + FAILURE, INSTRUMENT + GERMANY + PUMP + REACTOR, BWR + REPORT, OPERATIONS

6-26597 ALSO IN CATEGORY 17
PROGRESS REPORT OF NORA PROJECT JULY 1-SEPTEMBER 30, 1967
INSTITUTT FOR ATOMENERGI, KJELLER (NORWAY)
IAEA-3498-20 + NC-94 +. 25 PAGES, REFERENCES, OCTOBER, 1967

PROGRESS REPORT. TOPICS - REACTOR OPERATION, SIMULATION OF NORA BARE CORE FOR NOISE MEASUREMENTS (BY ADDING STEEL RODS AROUND THE CORE). BEYOND A CERTAIN ROD THICKNESS, CALCULATIONS INDICATE AN UNEXPECTED INCREASE IN REACTIVITY DUE TO FAST-NEUTRON REFLECTION.

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

*REACTIVITY EFFECT + *REFLECTOR + *STEEL + NOISE ANALYSIS + NORWAY + REACTOR, POOL TYPE + REPORT, OPERATIONS

6-26785 ALSO IN CATEGORY 17
TECHNICAL SPECIFICATION CHANGES
MANHATTEN COLLEGE
6 PAGES, 1 FIGURE, 1 TABLE, LETTER TO D. SKOVHOLT, DRL, TAKEN FROM A LETTER TO D. DKOVHOLT FROM GABRIEL KANE. JUNE 19, 1968. DOCKET 50-199.

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-26785 *CONTINUED*
(I, EFFECTIVENESS OF SOLID NEUTRON-ABSORBING ROD) - USE OF SUBCRITICAL MULTIPLICATION AND ROD-DROP TESTS SHOWS THAT THE SOLID ABSORBER IS AS EFFECTIVE OR SLIGHTLY LESS EFFECTIVE THAN THE SHIM ROD. EVEN IN THE LEAST EFFECTIVE POSITION, REACTOR IS SUBCRITICAL WITH BOTH CONTROL RODS OUT, ABSORBER ROD IN. DATA GIVEN. (II, MODIFICATION OF REACTOR PLATFORM TRAP DOOR) - THE 0.25-IN.-THICK 53-X-27-IN. STEEL DOOR IS DIFFICULT TO OPEN. WE REQUEST A CHANGE TO PERMIT US TO DIVIDE THIS DOOR INTO TWO EQUAL PARTS.

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

*MEASUREMENT, SUBCRITICALITY + *SHUTDOWN SYSTEM, SECONDARY + AGN (TNG) + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-25446 ALSO IN CATEGORY 15
AMADESI P + CERVELLATI A
SEPARATION AND MEASUREMENT OF FISSION NOBLE GASES BY GAS CHROMATOGRAPHY
COMITATO NAZIONALE PER L ENERGIA NUCLEARE
10 PAGES, 7 FIGURES, 1 TABLE, 8 REFERENCES, PAGES 529 THRU 538, FROM COLLOQUE INTERNATIONAL SUR LA POLLUTION RADIOACTIVE DES MILIEUX GAZEUS (RADIOACTIVE POLLUTION OF GASEUS MEDIA) BOOK II. SACLAY, NOVEMBER 12-16, 1963

MEASUREMENT OF FISSION RARE GASES, KRYPTON AND XENON, RELEASED BY 20% U-235 ENRICHED FUEL OF A RESEARCH REACTOR ARE DESCRIBED. BY USING THE METHOD OF GAS RADIOCHROMATOGRAPHY, A GREAT SENSITIVITY OF MEASUREMENTS IS ATTAINED AND IT IS POSSIBLE TO DETECT APPROXIMATELY 2 TO 3 X 10(-4TH) MICROCURIE/CC SAMPLES. IT IS POSSIBLE TO IMPROVE THE MEASUREMENT SENSITIVITY WITHOUT REDUCING THE SIMPLICITY AND RAPIDITY OF THE METHOD WHICH CAN BE USED FOR THE CONTROL OF RADIOACTIVE GASES IN THE IRRADIATED FUEL PROCESSING PLANTS.

AVAILABILITY - PRESSES UNIVERSITAIRES DE FRANCE, 108, BOULEVARD SAINT-GERMAIN, PARIS VI, FRANCE

*CHROMATOGRAPHY + *COUNTER + *KRYPTON + *MEASUREMENT, GENERAL + *XENON + FISSION GAS RELEASE

7-25893 ALSO IN CATEGORIES 17 AND 6
SEMIANNUAL PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1967. SAXTON PLUTONIUM PROGRAM
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH
WCAP-3385-14 + EURAEC-1955 +. 30 PAGES, FIGURES, TABLES, 10 REFERENCES, MARCH 1968

(PAGES 3-1 THRU 3-16) - REBUF CODE WAS MODIFIED FOR AN INITIAL PLUTONIUM CONTENT AND CHECKED AGAINST LEOPARD RUNS. CRITICAL BORON CONCENTRATION VS BURNUP IS BEING CALCULATED BY THE FOLLOW CODE. EXTENSIVE REEVALUATION OF FUEL-BURNUP CODES ESTABLISHED THAT THE DIFFERENCE BETWEEN LEOPARD (PU AND U FISSION YIELDS THE SAME) AND CINDER IS 35 PPM OF BORON, AND THAT LEOPARD-PDQ3 AGREES WITH OBSERVED BORON, THUS CINDER OVERESTIMATES FP POISIONING. A REVISED DEPLETION ANALYSIS WAS BEGUN WITH A LEOPARD-PDQ7 - HARMONY SEQUENCE. (PGS. 4-1 AND-2) - FISSION GASES RELEASED FROM TWO TYPICAL PU)2-UO2 RODS WERE MEASURED AS FOLLOWS - (PELLET) 2.1% OBSERVED, 1.5% PREDICTED. (VIPAC) 10.8% OBSERVED, 9% PREDICTED BY FIGHT CODE.

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

*COMPUTER PROGRAM + *FUEL BURNUP + COMPARISON, THEORY AND EXPERIENCE + FISSION GAS RELEASE + FUEL ELEMENT + FUEL, PELLET TYPE + FUEL, POWDER TYPE + INITIAL CONDITIONS + PLUTONIUM DIOXIDE + R AND D PROGRAM + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + SAXTON (PWR) + URANIUM DIOXIDE

7-25991 ALSO IN CATEGORY 17
ZEBROSKI EL
VENTED FUEL SYSTEM
U.S. PATENT 3,356,585 +. 5 PAGES, 1 FIGURES, DECEMBER 5, 1967

DESCRIBES A VENT FOR A FUEL ELEMENT PERMITTING DELAY OF GASEOUS AND VOLATILE FISSION PRODUCTS UNTIL SUBSTANTIAL PORTION OF RADIOACTIVE PRECURSORS HAVE DECAYED, AND CONTROL OF RELEASE OF LONG-LIVED FISSION PRODUCTS. DELAY IS ACHIEVED BY MAKING GAS FLOW THROUGH PLURALITY OF POROUS MEMBERS AND THROUGH A CONTROLLED LEAK OR VALVE AT A RATE ABOUT PROPORTIONAL TO INTERNAL PRESSURE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*PATENT + FISSION PRODUCT RETENTION + FUEL ELEMENT

7-26102 ALSO IN CATEGORY 18
ATTACHMENT C, ADDITION OF SILICON CARBIDE LAYER TO FUEL PARTICLE COATINGS
PUBLIC SERVICE COMPANY OF COLORADO
9 PAGES, PAGES C-1 THRU C-9 OF AMENDMENT 9 TO THE FORT ST. VRAIN CONSTRUCTION PERMIT APPLICATION, JANUARY 19L,, DOCKET 506867, TYPE--HTGR, MFG--G.A., AE--G.A.

SILICON CARBIDE IS SUPERIOR TO PYROLYTIC CARBON AS BARRIER TO TRANSMISSION OF METALLIC FISSION PRODUCTS SR, BA, CS, CE, RB, EU, AND SM, ENHANCING INHERENT SAFETY AND MAINTAINABILITY OF REACTOR. ATTACHMENT DISCUSSES ENHANCEMENT OF RETENTION CHARACTERISTICS, CHANGES IN FUEL-PARTICLE PARAMETERS, EFFECT ON CORE NUCLEAR CHARACTERISTICS, EFFECT ON NUCLEAR DESIGN AND ACCIDENT ANALYSIS, SHUTDOWN-MARGIN CHANGES, REDUCTION IN COOLANT-BORNE ACTIVITY LEVEL, EFFECT ON REACTIVITY ACCIDENTS, TRANSIENT RESPONSE, MCA, MHA. PRESENTS REVISED ANSWER TO AEC QUESTIONS III.12 (POTENTIALLY RELEASABLE ACTIVITY DUE TO SUDDEN DEPRESSURIZATION), IX.16, AND IX.17 (BONE DOSES FROM PLATEOUT AND PRIMARY-COOLANT-ACTIVITY RELEASE).

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

*CARBIDE + *COATED PARTICLE + *DESIGN STUDY + *FISSION PRODUCT RETENTION + *FUEL, PELLET TYPE + *SILICON + ACCIDENT ANALYSIS + ACCIDENT, HYPOTHETICAL + ACCIDENT, MAXIMUM CREDIBLE (MCA) + COATING + DOSE + DOSE CALCULATION, INTERNAL + FISSION PRODUCT RELEASE, GENERAL + FT. ST. VRAIN (HTGR) + OFF SITE + REACTIVITY EFFECT + REACTOR TRANSIENT + REACTOR, HTGR + REPORT, PSAR + SHUTDOWN MARGIN

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-26557
HEASLET MA + WARMING RF
RADIATIVE TRANSPORT IN AN ABSORBING PLANAR MEDIUM II. PREDICTIONS OF RADIATIVE SOURCE FUNCTIONS
AMES RESEARCH CENTER, NASA, CALIF.
15 PAGES, 1 FIGURE, 3 TABLES, 19 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 10(10), PAGES 1413-27 (OCTOBER 1967)

AN ACCURATE SOLUTION OF THE SOURCE FUNCTION FOR RADIATIVE HEAT TRANSFER THROUGH A NONISOTHERMAL ABSORBING AND EMITTING GREY GAS BETWEEN HEATED PLATES IS GIVEN IN TERMS OF TABULATED FUNCTIONS. THE PREDICTION IS BASED ON AN APPROXIMATE FORMULA ORIGINALLY PROPOSED BY YAMAMOTO FOR A GREY GAS ATMOSPHERE AND IS EXTENDED TO ALLOW FOR THE PRESENCE OF A UNIFORM INDEPENDENT INTERNAL SOURCE OF ENERGY RELEASE. THE RESULTS OF THIS PAPER IN CONJUNCTION WITH AN EARLIER PAPER SUFFICE TO CALCULATE THE MOST IMPORTANT PHYSICAL QUANTITIES WITH REMARKABLE ACCURACY AND SIMPLICITY.

*HEAT TRANSFER, GAS + *HEAT TRANSFER, RADIANT + *MATHEMATICAL STUDY + HEAT TRANSFER + HEAT TRANSFER ANALYSIS

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-25179 ALSO IN CATEGORY 5
IVINS RO + TEVEBAUGH AD + BINGLE JD
REACTOR SAFETY
ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
ANL-7375 +. 189 PAGES, FIGURES, TABLES, REFERENCES, OCT. 1967, ARGONNE NATIONAL LABORATORY. CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT, JANUARY-JUNE 1967

THE ANL REACTOR SAFETY PROGRAM IS NOW CONCENTRATED TO (1) STUDIES RELATING TO THERMAL (WATER-COOLED) REACTORS, AND (2) STUDIES RELATING TO FAST (SODIUM-COOLED) REACTORS. ITEM-1 EFFORTS ARE DIRECTED TO ANALYTICAL STUDIES CONSIDERING THE METAL-WATER REACTION, CORE HEATUP, AND FUEL FAILURE IN LOSS-OF-COOLANT AND NUCLEAR EXCURSION ACCIDENTS, AND TO EXPERIMENTAL STUDIES CONSIDERING THE MELTDOWN AND COOLING OF ZIRCALOY-2 CLAD UO2 FUEL RODS UNDER LOSS-OF-COOLANT AND NUCLEAR EXCURSION ACCIDENT CONDITIONS. ITEM-2 EFFORTS ARE DIRECTED TO STUDIES OF THE HIGH-TEMPERATURE PHYSICAL AND TRANSPORT PROPERTIES OF FAST-REACTOR FUEL MATERIALS, ENERGY TRANSFER FROM HIGH TEMPERATURE FUEL MATERIALS TO LIQUID SODIUM, AND SODIUM-AIR REACTION.

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

*ACCIDENT, LOSS OF COOLANT + *ACCIDENT, REACTIVITY + *ANALYTICAL MODEL + *CHEMICAL REACTION + *FUEL MELTDOWN + *HEAT TRANSFER EXPERIMENT + *PROPERTY, PHYSICAL + *SODIUM + *URANIUM DIOXIDE + *ZIRCALOY + ACCIDENT MODEL + AIR + ANL + COMPUTER PROGRAM + CORE SPRAY + EMERGENCY COOLING CONSIDERATIONS + HEAT TRANSFER ANALYSIS + HEAT TRANSFER, BOILING + IN PILE EXPERIMENT + OXIDATION + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + STEAM + TREAT (PRR)

8-25614 ALSO IN CATEGORY 17
TICHLER P + BAKER L + ISLER R + METZ D
INVESTIGATING COMMITTEE REPORT OF THE NITRATE RESIN BED ACCIDENT AT THE BROOKHAVEN HIGH FLUX BEAM REACTOR
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNCL-12460 +. 28 PAGES, 13 FIGURES, AUGUST 11, 1965

PRIOR TO INITIAL REACTOR OPERATION, THE ANION EXCHANGE COLUMN EXPLODED ON JULY 23, 1965, DURING RE-NITRIFICATION OF ALIPHATIC AMINE RESIN DUOLITE A30B WITH 2N HNO3. CONCLUSIONS - (1) INADEQUATE MIXING IN A 55-GAL DRUM RESULTED IN USE OF ACID STRONGER THAN 2N, WHILE 0.1 N WOULD HAVE BEEN ADEQUATE FOR REGENERATION. (2) ALIPHATIC-BASED RESIN SHOULD NOT BE TREATED WITH NITRIC ACID. (3) COMPRESSED GAS SHOULD NOT BE USED TO TRANSFER HAZARDOUS MATERIALS (DANGER OF OVERPRESSURE).

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

*COOLANT PURIFICATION SYSTEM + *EXPLOSION + *RESIN + ACCIDENT ANALYSIS + BNL + FAILURE, OPERATOR ERROR + HFBR (RR) + INCIDENT, HUMAN ERROR + ION EXCHANGE + REACTOR, FLUX TRAP + REACTOR, HWR + REACTOR, RESEARCH

8-26146 ALSO IN CATEGORIES 5 AND 6
DICKERMAN CE
REVIEW OF NUCLEAR SAFETY EXPERIMENTS ON FAST REACTOR CORE BEHAVIOR
ARGONNE NATIONAL LABORATORY
7 PAGES, 3 FIGURES, 37 REFERENCES, NUCLEAR SAFETY 9(3), PAGES 210-217 (JUNE 1968)

AN EXPERIMENTAL INVESTIGATION WAS MADE ON THE BEHAVIOR DURING ACCIDENTS OF SODIUM-BONDED METALLIC FUEL PINS. MODELS WERE DEVELOPED TO DESCRIBE FAILURE OF METALLIC FUEL PINS (EBR-II, MARK I) IN BOTH FLOWING AND STAGNANT SODIUM, ALTHOUGH THE PREFAILURE AXIAL MOVEMENT OF MOLTEN FUEL CANNOT BE DESCRIBED QUANTITATIVELY. THE FIRST INVESTIGATIONS OF POSTFAILURE MOVEMENT OF COOLANT AND FUEL WERE PERFORMED WITH CLUSTERS OF FUEL PINS. ALTHOUGH LARGE-SCALE SECONDARY MOVEMENTS WERE DEMONSTRATED IN TREAT, MUCH MORE WORK IS NECESSARY TO CHARACTERIZE THEM PROPERLY, INCLUDING DETERMINING EFFECTS OF BLANKETS, LARGER CLUSTERS, AND PROPAGATION PHENOMENA.

FUEL MELTDOWN + REACTOR, FAST + REACTOR, SAFETY RESEARCH + SODIUM + TREAT (PRR)

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-22274 ALSO IN CATEGORY 18
RESPONSE TO QUESTION IX.4-MIGRATION OF BORON IN CORE DURING HEATUP ACCIDENT
PUBLIC SERVICE COMPANY OF COLORADO
15 PAGES, 4 FIGURES, 12 REFERENCES, 4 TABLES, ATTACHMENT A, PAGE IX.4.D-1 THRU 15 OF AMENDMENT 6 TO FT ST VRAIN CONSTRUCTION PERMIT APPLICATION. OCT 30, 1967. DOCKET 50-267. TYPE--HTGR, MFG--G.A., AE--G.A.

APPENDIX IX.4.D REVISES BORON-RELEASE CALCULATIONS TO TAKE ACCOUNT OF FINAL REDUCTION OF THE EXPERIMENTALLY OBTAINED DIFFUSION-COEFFICIENT DATA. THE FINAL VALUES ARE SUCH THAT VAPOR TRANSPORT RATHER THAN DIFFUSION IS THE RATE-LIMITING PROCESS FOR THE CONTROL-ROD BORON. ONLY 38% OF THE CONTROL-ROD BORON AND 2% OF THE SHUTDOWN BORON ARE LOST FROM THE HOTTEST ZONE, AND CONDENSE IN THE CORE. THIS INFORMATION SUPERSEDES THE CALCULATION INCLUDED IN ANSWER IX.4 OF AMEND. 3.

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

*BORON + *CONTROL ROD BURNUP + *DIFFUSION + *TRANSPORT PROPERTY + ACCIDENT, LOSS OF FLOW + AEC QUESTION + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR + SHUTDOWN MARGIN

9-24445
NOISE ANALYSIS MEASUREMENT DURING RISE TO POWER IN PEACH BOTTOM
GENERAL ATOMIC INCORPORATED
GAMD-7908 +. 18 PAGES, 16 FIGURES, FEBRUARY 7, 1968

A SERIES OF MEASUREMENTS WAS MADE AT EIGHT POWER LEVELS DURING THERISE TO FULL POWER IN THE PEACH BOTTOM HTGR TO DETERMINE THE PRESENCE OF ANY RESONANT CONDITIONS AFFECTING CORE REACTIVITY. ANY CYCLIC MOVEMENT OF CORE COMPONENTS, HELIUM FLOW, OR PRESSURE VARIATIONS COULD BE DETECTED BY FREQUENCY ANALYSIS OF REACTOR POWER.

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

FREQUENCY SPECTRA + MEASUREMENT, NOISE + NOISE ANALYSIS + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR + RESONANCE OVERLAP + VIBRATION ANALYSIS

9-25187 ALSO IN CATEGORY 17
LACROSSE AMENDMENT 3 - STEAM LEAK DETECTION
DAIRYLAND POWER COOPERATIVE, LA CROSSE, WISCONSIN
5 PAGES, APRIL 16, 1968, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

MAJOR LEAKS WOULD BE INDICATED IN THE CONTROL ROOM BY MONITORS ON REACTOR WATER LEVEL, PRESSURE, FEEDWATER FLOW, AND RADIATION MONITORS. SMALL LEAKS WOULD BE FOUND BY VISUAL/AUDIBLE INDICATION OR BY DAILY AIR SAMPLES AND SMEARS. THESE LATTER DEPEND ON COOLANT ACTIVITY. A SIMPLE CALCULATION SHOWS THAT THE DAILY HIGH-VOLUME AIR SAMPLE CAN DETECT A LEAK OF 0.6 CC/MIN.

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

*INSTRUMENTATION, GENERAL + *LEAK + *MAIN COOLING SYSTEM + LACROSSE (BWR) + MATHEMATICAL TREATMENT + REACTOR, BWR

9-25199 ALSO IN CATEGORY 17
MORRIS PA
YANKEE CHANGE 83 - MINIATURE FISSION CHAMBERS IN FLUX WIRE THIMBLE
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO YANKEE ATOMIC ELECTRIC CO., 1 PAGE, APRIL 23, 1968, DOCKET NO. 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

APPLICATION DATED APRIL 11, 1968, REQUESTED APPROVAL OF 4 STATIONARY SS-CLAD MINIATURE FISSION CHAMBERS AT MID-CORE IN FLUX-WIRE POSITIONS THAT ARE PRESENTLY INOPERABLE. SINCE THESE WILL NOT REPLACE EXISTING IN-CORE INSTRUMENTS, AND THE ADDITIONAL MATERIAL IS TOO SMALL TO AFFECT CORE CHARACTERISTICS, THE PROPOSED CHANGE DOES NOT PRESENT HAZARDS NOT DESCRIBED OR IMPLICIT IN THE HAZARDS-SUMMARY REPORT.

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

*INSTRUMENTATION, IN CORE + CHAMBER, FISSION + REACTOR, PWR + TECHNICAL SPECIFICATIONS + YANKEE (PWR)

9-25205
STUCKI FF
A HIGH-SPEED FERRIMAGNETIC MICROTRANSDUCER
LOCKHEED PALO ALTO RESEARCH LABORATORY
6 PAGES, 14 FIGURES, 10 REFERENCES, PAGES 15A.1 THRU 15A.6 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25205 *CONTINUED*
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

A HIGH-SPEED, SQUARE-LOOP, FERRIMAGNETIC TRANSDUCER IS BRIEFLY DESCRIBED. IT IS COMPATIBLE WITH THE HIGH-SPEED CAPABILITIES OF DATA PROCESSING AND TRANSMISSION EQUIPMENT. IT HAS SHOWN NO CHANGE IN CHARACTERISTICS FOR EXPOSURES UP TO 10(18TH) R AND HAS BEEN SUCCESSFULLY APPLIED IN STRESS MONITORING FROM 0 TO 20,000 PSI FOR TEMPERATURES FROM -55 TO +120 C. IT IS USEFUL TO +400 C WITH ABOUT A 16% LINEAR DROP IN OUTPUT AT 400 C OVER THAT AT 50.

AVAILABILITY -- THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, PRESSURE + DIRECT ENERGY CONVERSION DEVICES + HIGH TEMPERATURE + INSTRUMENTATION, COMPONENT + SOLID STATE DEVICE + STRESS + TEST, INSTRUMENT RESPONSE

9-25206
HASKOVEC JS + TOMASEK J + BURDYCH
TRANSDUCER WITH CAPACITANCE INPUT AND POWER ELECTRICAL OUTPUT
STATE RESEARCH INSTITUTE OF ELECTRICAL ENGINEERING, BECHOVICE, CZECHOSLOVAKIA
3 PAGES, 7 FIGURES, PAGES 15B.1 THRU 15B.3 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

THE PRINCIPLE OF THE DISCONTINUOUSLY OPERATING TRANSDUCER IS DESCRIBED. THE INPUT SIGNAL OF THE PICKUP CIRCUIT IS THE CHANGE OF CAPACITY OF THE 10 PF, AND THE OUTPUT SIGNAL IS A VOLTAGE PULSE. POWER SUPPLIED INTO THE LOAD IS ABOUT 0.1 WATT.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, PULSE + DIRECT ENERGY CONVERSION DEVICES + INSTRUMENTATION, COMPONENT

9-25208 ALSO IN CATEGORY 10
VITEK V + JOSEFUS J
STATISTICAL METHODS IN THE AUTOMATION OF THE OPERATION CONTROL OF POWER SYSTEMS
CESKOSLOVENSKA AKADEMIE VED
9 PAGES, 10 FIGURES, 1 TABLE, 4 REFERENCES, PAGES 21G.1 THRU 21G.9 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

CONSIDERS TWO PARTICULAR CASES OF USING STATISTICAL METHODS FOR SOLVING PROBLEMS OF AUTOMATION OF OPERATION CONTROL OF POWER SYSTEMS. THE METHOD PERMITS DETERMINING THE FREQUENCY BIAS OF POWER SYSTEMS AND THE DISPERSIONS OF RANDOM CHANGES IN THEIR LOADING, FROM MEASUREMENT AND PROCESSING OF THE RANDOM CHANGES IN THE FREQUENCY AND FLOW OF TIE-LINE POWER.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*CONTROL SYSTEM + *ELECTRIC POWER, GENERAL + POWER DISTRIBUTION + STATISTICAL ANALYSIS + STATISTICAL CORRELATION

9-25209
SUMNER A
OPTIMAL IDENTIFICATION OF SOME PARAMETERS OF A NUCLEAR REACTOR DYNAMICAL SYSTEM
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
4 PAGES, 5 FIGURES, 7 REFERENCES, PAGES 26A.1 THRU 26A.4 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

IN DESIGNING A CONTROL SYSTEM FOR AN INDUSTRIAL PLANT SUCH AS A NUCLEAR BOILER, IT IS CONVENIENT TO HAVE A MODEL OF THE PLANT IN THE FORM OF A SET OF ORDINARY DIFFERENTIAL EQUATIONS RELATING THE STATE VARIABLES OF THE SYSTEM. A METHOD IS PRESENTED FOR IDENTIFYING THE PARAMETERS. IT USES THE GOODNESS OF FIT BETWEEN MODEL AND PLANT IMPULSE RESPONSES AS A CRITERION ON WHICH THE ESTIMATES ARE BASED. APPLICATION OF THE METHOD IS ILLUSTRATED.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, CONTROL + *TEST, PLANT RESPONSE + ANALYTICAL MODEL + REACTOR CONTROL + SIMULATION + THEORETICAL INVESTIGATION

9-25210 ALSO IN CATEGORY 4
SHEN CN + LIU TC
DISTRIBUTED PARAMETER TYPE OF CONTROL FOR A BILINEAR SYSTEM WITH REFERENCE TO CONTROL OF A NUCLEAR REACTOR
RENSSELAER POLYTECHNICA INSTITUTE, TROY, NEW YORK
10 PAGES, 2 FIGURES, 16 REFERENCES, PAGES 26B.1 THRU 26B.10 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

A BILINEAR SYSTEM OCCURS IN CONTROLLING PHYSICAL PROCESSES SUCH AS A NUCLEAR REACTOR. ATTEMPTS ARE MADE TO CONTROL THE BILINEAR SYSTEM IN BOTH THE TIME AND SPACE DOMAINS. TWO CONSECUTIVE OPTIMIZATION PROCEDURES ARE APPLIED FOR ACHIEVING THIS. THE BANG-BANG CONTROL IS USED FOR SELECTING THE REFERENCE VARIABLES. THE OPTIMUM FEEDBACK CONTROL IS EMPLOYED TO ADJUST THE SYSTEM TO APPROXIMATELY FOLLOW THE REFERENCE VARIABLES UNDER ARBITRARY STARTING CONDITIONS AND DISTURBANCES.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25210 *CONTINUED*
AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, CONTROL + MATHEMATICAL TREATMENT + NUCLEAR ROCKET + REACTOR, SPACE + SPACE DEPENDENT DYNAMICS + THEORETICAL INVESTIGATION

9-25211
KLIGER I
AN AUTOMATIC CONTROL OF A NUCLEAR REACTOR FOR MINIMAL TIME RESPONSE
ARGONNE NATIONAL LABORATORY
8 PAGES, FIGURES, 4 REFERENCES, PAGES 26C.1 THRU 26C.8 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF THE AUTOMATIC CONTROL, LONDON, 1966

THE SYNTHESIS OF AN AUTOMATIC CONTROL SYSTEM FOR MINIMAL TIME RESPONSE IS CONCERNED WITH THE PROBLEM OF SPECIFYING THE INPUT EXCESS REACTIVITY TO A NUCLEAR REACTOR SUCH THAT ITS POWER LEVEL IS CHANGED FROM ONE EQUILIBRIUM STATE TO ANOTHER IN MINIMUM TIME. DUE TO SAFETY CONSIDERATIONS, THE INPUT REACTIVITY IS LIMITED BY ITS MAGNITUDE AND CANNOT EXCEED A CERTAIN GIVEN VALUE.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*REACTOR CONTROL + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-25212
MOINEREAU P + MORIN R
THE TREATMENT OF DATA IN THE FRENCH POWER STATIONS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
11 PAGES, 5 FIGURES, PAGES 26D.1 THRU 26D.11 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

THE DEVELOPMENT OF THE FRENCH NUCLEAR-POWER-STATION PROGRAM WAS ACCOMPANIED BY A PARALLEL DEVELOPMENT OF DATA-HANDLING TECHNIQUES AND OF OPERATIONAL CONTROL. LIMITED INITIALLY TO PERIODIC INSPECTION AND RECORDING OF MEASUREMENTS, THE TREATMENT OF DATA HAS EVOLVED TOWARDS TAKING CHARGE OF THE AUTOMATIC CONTROLS AND THE COMPLETE MANAGEMENT OF THE POWER STATION.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*COMPUTER CONTROL + *DATA PROCESSING + FRANCE + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + OPERATING EXPERIENCE + REACTOR, POWER

9-25213
WESTCOTT JH + MAYNE DQ + BRYANT GF + MITTER SK
OPTIMAL TECHNIQUES FOR ON-LINE CONTROL
IMPERIAL COLLEGE, LONDON, ENGLAND
11 PAGES, 11 FIGURES, 25 REFERENCES, PAGES 29B.1 THRU 29B.11 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

IT IS NOW WIDELY REALIZED THAT THE FORMULATION OF AN OPTIMAL SOLUTION TO A CONTROL PROBLEM DOES NOT AUTOMATICALLY LEAD TO A PRACTICAL SOLUTION. EXPERIENCE HAS SHOWN THAT THE CONSTRUCTION OF PRACTICAL SOLUTIONS TO PROBLEMS IN PROCESS CONTROL AND OPTIMIZATION IS NOT STRAIGHTFORWARD. THERE IS A NEED FOR CONSIDERABLE INGENUITY AND SKILL AT APPROXIMATION IN GOING FROM THE ONE TO THE OTHER. A NUMBER OF CONTRIBUTIONS ARE GIVEN IN THIS AREA, WHICH ADD TO THE CATALOG OF TECHNIQUES RENDURING OPTIMAL ON-LINE CONTROL A PRACTICAL PROPOSITION.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, CONTROL + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-25214
DE BOER JH + COOL JC
A PNEUMATIC LOW PRESSURE LOGIC ELEMENT WITH MEMBRANES
TECHNISCHE HOGSCHOOL, DELFT, NETHERLANDS
4 PAGES, 4 FIGURES, 3 REFERENCES, PAGES 31A.1 THRU 31A.4 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

DESCRIPTION, PERFORMANCE, AND SPECIFICATIONS ARE GIVEN FOR A LOW-PRESSURE PNEUMATIC LOGIC ELEMENT. THE PROTOTYPE OPERATED SATISFACTORILY WITH A PRESSURE-GAIN SUFFICIENT FOR RELIABLE FUNCTION. THE ELEMENT CAN BE MOUNTED IN ALL POSITIONS. AS THE ELEMENT CONSUMES AIR ONLY DURING SWITCHING, AIR CONSUMPTION IS EXTREMELY SMALL.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, FLUIDICS + INSTRUMENTATION, COMPONENT

9-25215

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25215 *CONTINUED*
DE BOER JH + COOL JC
A PNEUMATIC LOGIC ELEMENT WHICH GIVES ANY TWO-VALUED VALUED FUNCTION OF THREE TWO-VALUED INPUT
TECHNOLOGICAL UNIVERSITY, DELFT, THE NETHERLANDS
4 PAGES, 7 FIGURES, 6 TABLES, PAGES 31B.1 THRU 31B.4 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

PURE FLUID-JET PNEUMATIC ELEMENTS ARE FINDING MORE USES IN AUTOMATIC-CONTROL CIRCUITRY. A UNIVERSAL ELEMENT IS DESCRIBED AS A FULL BINARY ADDER.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, FLUIDICS + INSTRUMENTATION, COMPONENT

9-25216
LESKIEWICZ JH
A CASCADE JET LOGICAL ELEMENT
3 PAGES, 7 FIGURES, 7 REFERENCES, PAGES 31C.1 THRU 31C.3 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

THE PRINCIPLE OF A CASCADE-JET LOGICAL ELEMENT IS PRESENTED. IN A CHAMBER OF THIS ELEMENT, A SET OF FREE JETS INTERACT EACH UPON THE OTHER. THIS INTERACTION IS APPLIED TO THE SYNTHESIS OF MULTIPLE-PARAMETER LOGICAL FUNCTIONS WHICH CAN BE MODELED BY SUITABLY ARRANGING THE CONNECTIONS TO THE ELEMENT. THE ELEMENT CAN FUNCTION AS A PNEUMATIC OR A HYDRAULIC ELEMENT. ATTENTION HAS BEEN PAID TO MINIATURIZATION TO FACILITATE CONSTRUCTION OF COMPLEX LOGICAL SYSTEMS.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, FLUIDICS + INSTRUMENTATION, COMPONENT

9-25217
CHABRIER HP + PIQUET M
THE APPLICATION OF A PNEUMATIC LOGIC SYSTEM TO THE CHEMICAL AND METALLURGICAL INDUSTRIES
7 PAGES, 10 FIGURES, PAGES 31D.1 THRU 31D.7 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

ADVANTAGES OF USING PNEUMATIC LOGIC SYSTEMS ARE DISCUSSED, USING SEVERAL APPLICATION ILLUSTRATIONS FROM THE PROCESS INDUSTRIES.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, FLUIDICS + CONTROL SYSTEM + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROCESS

9-25218
OPITZ H
PNEUMATIC COMPUTER USING STATISTICAL DATA PROCESSING IN MASS PRODUCTION
14 PAGES, 14 FIGURES, PAGES 31E.1 THRU 31E.14 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

APPLICATION OF PNEUMATIC AUTOMATIC CONTROLS AND COMPUTING DEVICES ARE BEING CARRIED OUT BY PROCESSING INDUSTRIES BECAUSE OF THE SIMPLE OPERATION, THE HIGH DEGREE OF PRECISION IN MEASURING, AND THE RELIABLE REPEATABILITY OF THE ELEMENTS. A PNEUMATIC COMPUTER WAS INVESTIGATED UNDER ACTUAL OPERATING CONDITIONS. THE COMPUTER FUNCTIONED WITH A RELIABILITY OF APPROXIMATELY S EQUAL TO 1%. THIS FIGURE DEPENDS ON THE DEGREE OF LEAKAGE IN THE DIFFERENCE-STORAGE ELEMENTS AND THE COMPARISON BETWEEN THE NOMINAL AND ACTUAL VALUES. PNEUMATIC COMPONENTS FOR THE COMPUTER ARE CHARACTERIZED BY THEIR SINGLE CONSTRUCTION, HIGH DEGREE OF RELIABILITY, AND LOW COST.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*CONTROL, COMPUTER + *INSTRUMENTATION, FLUIDICS + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROCESS + RELIABILITY, COMPONENT

9-25219
BOOTHE WA + RINGWALL CG + KELLEY LR
A FLUID AMPLIFIER TECHNIQUE FOR SPEED GOVERNING USING CARRIER FREQUENCY MODULATION
GENERAL ELECTRIC COMPANY, SCHENECTADY, NEW YORK
11 PAGES, 18 FIGURES, PAGES 31G.1 THRU 31G.11 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

DESCRIBES ONE FORM OF THE APPLICATION OF FLUID-AMPLIFIER FREQUENCY-MODULATION TECHNIQUE. A SYSTEM HAVING THE DESIRED STEADY-STATE AND DYNAMIC CHARACTERISTICS IS SHOWN, AND A REASONABLE CORRELATION IS DEMONSTRATED BETWEEN ACTUAL DYNAMIC TEST RESULTS AND PREDICTIONS BASED ON A SIMPLE APPROXIMATE ANALYSIS. THE FM SIGNAL TRANSMISSION IS TOLERANT OF LEAKS, NOISE, AND VARIATIONS IN FLUID-AMPLIFIER CHARACTERISTICS. SINCE IT IS POSSIBLE TO SENSE MANY CONTROL-SYSTEM PARAMETERS (SPEED, TEMPERATURE, PRESSURE, POSITION) BY FLUID SENSORS HAVING A FREQUENCY OUTPUT, THE TECHNIQUE CAN BE APPLIED TO THEIR CONTROL WITH EQUAL FACILITY.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25219 *CONTINUED*
AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

COMPARISON, THEORY AND EXPERIENCE + INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, CONTROL + INSTRUMENTATION, FLUIDICS + INSTRUMENTATION, PROCESS + TRANSFER FUNCTION

9-25220
GAVRILOV MA + KRISHTAL VZ + OSTIANU VM
THE SYNTHESIS OF RELIABLE RELAY NETWORKS INSENSITIVE TO ASYMMETRICAL FAILURES OF INTERNAL ELEMENTS AND INPUTS
16 PAGES, 5 FIGURES, 6 REFERENCES, PAGES 42A.1 THRU 42A.16 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

ONE OF THE MAJOR DIRECTIONS IN TACKLING THE PROBLEM OF CONSTRUCTING RELIABLE RELAY NETWORKS IS DISPOSITION (ENCODING) OF INTERNAL STATES BY MEANS OF ERROR-CORRECTING CODES. RESULTS ARE PRESENTED OF A SOLUTION FOR DESIGNING AN ERROR-CORRECTING CODE INSENSITIVE TO THE RELAY NETWORK.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, RELAY + *RELIABILITY, COMPONENT + MATHEMATICAL TREATMENT + RELIABILITY ANALYSIS + THEORETICAL INVESTIGATION

9-25221
ZUBOVA AF
ON RELIABILITY OF AUTOMATIC CONTROL SYSTEMS COMPRISING STANDBY UNITS
5 PAGES, 6 FIGURES, 3 REFERENCES, PAGES 42B.1 THRU 42B.5 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

PROPOSES A NEW METHOD FOR DEFINING THE PROBABILITY OF NO-FAILURE OPERATION FOR A SYSTEM CONTAINING ONE OPERATING UNIT AND M STANDBY UNITS. IT IS ASSUMED THAT THE DISTRIBUTION FUNCTIONS OF RESTORING DURATION ARE ARBITRARY TIME FUNCTIONS. THE EASE OF REDUNDANCY IS OUTLINED IN DETAIL.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*CONTROL SYSTEM + *RELIABILITY, SYSTEM + MATHEMATICAL TREATMENT + REDUNDANCE + RELIABILITY ANALYSIS

9-25222
DOMANITSKI SM + OZERNOY VM
COMPUTING RELIABILITY OF REDUNDANT CONTROL SYSTEMS WITH REPAIR
14 PAGES, 6 FIGURES, 3 REFERENCES, PAGES 42C.1 THRU 42C.14 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

PRESENTS A PROCEDURE FOR RELIABILITY AND AVAILABILITY DETERMINATION FOR REDUNDANT SYSTEMS WITH REPAIR, THE PERFORMANCE BEING DESCRIBED BY THE HOMOGENEOUS MARKOVIAN PROCESS WITH CONTINUOUS TIME AND A FINITE SET OF STATES. THE PROCEDURE IS APPLIED TO COMPUTING RELIABILITY OF THE STRUCTURES WITH THREE FUNCTIONAL BLOCKS AND ONE OR THREE MAJOR ELEMENTS.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*CONTROL SYSTEM + *RELIABILITY, SYSTEM + MAINTENANCE AND REPAIR + MATHEMATICAL TREATMENT + REDUNDANCE

9-25223
LAWRENCE LA + KEATS AB
DIGITAL METHODS APPLIED TO REDUNDANT AUTO-CONTROLLERS FOR PLANT
18 PAGES, 11 FIGURES, 9 REFERENCES, PAGES 42D.1 THRU 42D.18 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

DISCUSSES SIGNIFICANT FEATURES OF A MAJORITY-FORCE REDUNDANT AUTOCONTROL SYSTEM. FAILED SUBSYSTEMS ARE PREVENTED FROM DISTURBING THE PLANT CONTROLLED VARIABLE, BY A SIGNIFICANT AMOUNT, BY BEING OVERPOWERED BY THE CORRECTLY FUNCTIONING SUBSYSTEMS. SOME EARLIER DEVELOPMENTS WHICH LEAD TO THE REALIZATION OF AN ANALOG MAJORITY-FORCE SYSTEM FOR A NUCLEAR REACTOR ARE DISCUSSED, AND SOME OF THE PRACTICAL DETAILS ARE RECALLED.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*INSTRUMENTATION, CONTROL + CONTROL SYSTEM + REACTOR CONTROL + REDUNDANCE + RELIABILITY, SYSTEM

9-25224
VOLKOV AF + VEDESHENKOV VA + ZENKIN VD
AUTOMATIC FAILURE DIAGNOSIS IN THE CONTROL COMPUTERS
13 PAGES, 6 FIGURES, 7 REFERENCES, PAGES 42E.1 THRU 42E.13 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25224 *CONTINUED*
DESIGN PROBLEMS ARE DISCUSSED FOR THE AUTOMATIC FAILURE-DETECTION SYSTEM OF DIGITAL COMPUTERS. THE DESIGN OF THE DIGITAL CONTROL COMPUTER IN THE FLEXIBLE FORM MAKES IT POSSIBLE TO OVERCOME THE MAIN DIFFICULTY IN PROGRAMMING AUTOMATIC DETECTION OF FAILURES. THE DIFFICULTY IS THAT THE MAIN ERRORS LEAD TO DISTORTION OF THE RESULTS OF DIAGNOSIS. THE DIAGNOSIS CARRIED OUT IN THE MICRO-CONTROL OPERATING CONDITIONS ENSURES THE RESOLVING CAPACITY OF THE DETECTION PROCESS UP TO SEPARATE FUNCTIONAL ELEMENTS (TRIGGER, AMPLIFIER, GATE, ETC.).

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON, SW1, ENGLAND, $81.00 A SET

*COMPUTER CONTROL + *INSTRUMENTATION, ABNORMAL INDICATION + COMPUTER, DIGITAL + FAILURE, COMPONENT + TEST, INSTRUMENT RESPONSE

9-25265 ALSO IN CATEGORIES 12 AND 11
STEELE CC
FAST FLUX TEST FACILITY OVERALL CONCEPTUAL SYSTEMS DESIGN DESCRIPTION
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-500 +. 75 PAGES, JULY 7, 1967

CONCEPTUAL-DESIGN REPORT COVERING ALL PARTS OF THE FACILITY. INCLUDES BOTH A SUMMARY DESCRIPTION AND DETAILED DESCRIPTION. SOME TYPICAL SYSTEMS COVERED ARE - UTILITIES, FIRE PROTECTION, HEATING AND VENTILATING, REACTOR CONTAINMENT, CONTROL, WASTE, ETC.

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

*DESIGN STUDY + *FFTF (TR) + CONTAINMENT DESIGN + ELECTRIC POWER, GENERAL + FUEL HANDLING + INSTRUMENTATION, GENERAL + IRRADIATION FACILITY + MAINTENANCE AND REPAIR + OPERATION + PIPING + REACTOR, FAST + REACTOR, TEST + VENTILATION SYSTEM + WASTE HANDLING

9-25268 ALSO IN CATEGORY 12
BOYD CL + SHADEL FH + WESTSIK JH
FAST FLUX TEST FACILITY REFERENCE CONCEPT. PROGRESS REPORT
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-470 +. 214 PAGES, FIGURES, TABLES, AUGUST 1967

DISCUSSES REACTOR DESIGN, FUEL-SUBASSEMBLY DESIGN, FUEL-HANDLING SYSTEM, REACTOR HEAT-TRANSPORT SYSTEM, SODIUM AND INERT-GAS SERVICE SYSTEMS, INSTRUMENTATION AND CONTROLS, IRRADIATION-TESTING FACILITIES STRUCTURES AND UTILITIES, EXAMINATION FACILITIES, NUCLEAR-PROOF-TEST FACILITY, AND OPERATION AND MAINTENANCE FUNCTIONS.

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

*FFTF (TR) + *REACTOR TEST FACILITY + DESIGN CRITERIA + FUEL HANDLING + HEAT TRANSFER + INSTRUMENTATION, GENERAL + IRRADIATION FACILITY + MAINTENANCE AND REPAIR + OPERATION + REACTOR COOLANT + REACTOR, FAST + REACTOR, TEST + SODIUM

9-25271
AUSTIN RC + KANOUS LE + STARKWEATHER JD
A TASK FORCE APPROACH TO CONTROL ROOM PLANNING
THE DETROIT EDISON COMPANY
12 PAGES, 11 FIGURES, PRESENTED AT THE AMERICAN POWER CONFERENCE, 30TH ANNUAL MEETING, SHERMAN HOUSE, CHICAGO, ILL., APRIL 23-25, 1968

PROBLEM-SOLVING TASK FORCE, A TECHNIQUE COMMONLY USED IN MANAGEMENT PRACTICE, IS APPLIED TO CONTROL-SYSTEM ENGINEERING. IT WAS CHOSEN OVER TRADITIONAL METHODS TO ENSURE THE MAXIMUM COORDINATED CONTRIBUTION FROM A GROUP WHICH REPRESENTED THE EXPERTISE OF ENGINEERING DESIGN, CONTROLS AND INSTRUMENTATION ENGINEERING, PLANT TECHNICAL AND MAINTENANCE ENGINEERING, HUMAN FACTORS ENGINEERING, AND UNIT OPERATIONS. THE GROUP CONSIDERED THE PROBLEMS OF OPERATING AND MAINTAINING A LARGE MODERN BOILER-TURBINE-GENERATING UNIT AND MADE RECOMMENDATIONS TO MANAGEMENT CONCERNING THE TYPE OF CONTROLS TO BE USED, THE DISPLAYS REQUIRED, AND THE DETAILED LAYOUT OF THE CONTROL CENTER, PANELS, AND ANY OTHER EQUIPMENT ASSOCIATED WITH IT.

AVAILABILITY - RICHARD C. AUSTIN, THE DETROIT EDISON CO.

*CONTROL PANEL/ROOM + *INSTRUMENTATION, CONTROL + DESIGN CRITERIA + INSTRUMENTATION, GENERAL + SYSTEM DESCRIPTION

9-25305 ALSO IN CATEGORY 17
RECOVERY OF BOLT HEAD FROM JAMMED BIG ROCK POINT CONTROL ROD DRIVE
CONSUMERS POWER COMPANY
2 PAGES, APRIL 23, 1968, LETTER TO P. A. MORRIS FROM R. L. HAUETER, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER TO DRL, APRIL 23) ON STARTUP APRIL 6 (FOLLOWING A TWO-DAY SHUTDOWN TO REINSTALL THE NO. 2 RECIRCULATION PUMP) ROD DRIVE B-4 WOULD NOT WITHDRAW FROM THE FULL-IN POSITION. AFTER SEVERAL ATTEMPTS, THE ROD BROKE LOOSE BUT APPEARED NORMAL. THE DRIVE WAS REMOVED, AND A

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25305 *CONTINUED*
HALF-INCH SS BOLT HEAD FOUND IN IT. THE BOLT HEAD READ ONLY 14 MR, AND ONLY 0.4 MR (MOSTLY ZN-65) AFTER DECONTAMINATION. THERE WAS NO EVIDENCE THAT IT CAME FROM REACTOR INTERVALS, AND PROBABLY CAME FROM EARLY TEST WORK WHERE TORQUE WRENCHES BROKE OFF INITIALLY INSTALLED UPPER-GRID BOLTS PRIOR TO INSTALLATION OF NEW ONES.

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

*CORE COMPONENTS + *FAILURE, SCRAM MECHANISM + BIG ROCK POINT (BWR) + FAILURE, INSTALLATION ERROR + OBSTRUCTION + OPERATING EXPERIENCE + REACTOR, BWR

9-25306 ALSO IN CATEGORY 17
REMOVAL OF THE TRIGA ROTARY SPECIMEN RACK
UNIVERSITY OF ILLINOIS
3 PAGES, APRIL 29, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM G. P. BECK, DOCKET 50-151

THE PREVIOUS THREE BREAKDOWNS WERE FIXED WITHOUT REMOVAL FROM THE CORE. THIS DIFFICULTY IS IN THE MAIN HOUSING. THE RACK HAS NOW BEEN LIFTED 5 FT ABOVE THE CORE AND LEFT IN THE POOL TO DECAY FOR FINAL PREPARATIONS FOR CONTROL-ROD AND CORE-SUPERSTRUCTURE REMOVAL. ***CONTROL-ROD POSITIONS AND FUEL TEMPERATURES WERE MEASURED AT LOW AND HIGH POWER BEFORE BEING REMOVED. AFTER REMOVAL, REACTOR POWER WAS INCREASED UNTIL CONTROL-ROD POSITION AND FUEL TEMPERATURE WERE THE SAME AS BEFORE AT 100 KW, AND THE ION CHAMBERS MOVED TO INDICATE 100 KW. ***THE CHANGE INCREASED REACTIVITY $0.05 AND REDUCED THE ION-CHAMBER READINGS 50%.

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

*INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, POWER RANGE + *IRRADIATION FACILITY + *MAINTENANCE AND REPAIR + *REACTIVITY EFFECT + FAILURE, EQUIPMENT + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR POWER + REACTOR, RESEARCH + TRIGA (RR)

9-25307 ALSO IN CATEGORY 17
RELAY FAILURE CAUSES CONTROL ROD WITHDRAWAL
UNIVERSITY OF MISSOURI AT ROLLA
4 PAGES, APRIL 25, 1968, LETTER TO P. A. MORRIS FROM D. RAY EDWARDS, DOCKET 50-123

ON MARCH 5, 1968, DURING A ROUTINE SHUTDOWN WITH ALL RODS BEING DRIVEN IN BY GANG MOVEMENT, ROD 1 SUDDENLY STOPPED. THE OPERATOR PUT THE GANG-SWITCH IN NEUTRAL, THINKING THAT THE ROD HAD JAMMED, BUT ROD 1 STARTED MOVING OUT. PUTTING THE RODS IN INSERT STOPPED THE WITHDRAWAL. ***THE ARMATURE SPRING ON RELAY K-9 HAD COME LOOSE, ALLOWING CLOSURE OF THE WITHDRAW CONTACTS, SO THE ROD WOULD WITHDRAW WHENEVER THERE WAS NO INSERT REQUEST (DIAGRAM INCLUDED). NO CHANGE IS RECOMMENDED, ALTHOUGH REDESIGN WILL BE STUDIED. SCRAM ABILITY NOT IMPAIRED.

*ACCIDENT, CONTROL ROD WITHDRAWAL + *CONTROL ROD DRIVE + *FAILURE, COMPONENT + INSTRUMENTATION, RELAY + OPERATING EXPERIENCE + REACTOR, RESEARCH

9-25309 ALSO IN CATEGORY 17
PROPOSED CHANGE 2--SAFETY CHANNEL SETPOINT CHANGE
UNIVERSITY OF CALIFORNIA, BERKELEY
2 PAGES, APRIL 18, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM HANS MARK, DOCKET 50-224

REQUESTS INCREASE IN (GAMMA) SAFETY-CHANNEL SETPOINT FROM 110 TO 130% BECAUSE VARIOUS ROD-BANK POSITIONS CHANGE ITS READING BETWEEN 77 AND 95 WHEN THE POWER IS HELD AT 1 MW. BY THE LINEAR POWER CHANNEL. SPECIFICATION OF A UNIQUE BALANCED BANK IS NOT PRACTICAL FOR THE VARIOUS OPERATIONAL MODES. REQUIRING THE OPERATOR TO ADJUST SCRAM SETTING IS IMPRACTICAL. SAFETY ANALYSIS SHOWS PEAK FUEL TEMP. AT 1.3 MW IS 385 C, RATHER THAN 350 C AT 1 MW. NO CONCLUSION OF THE SAR WILL BE AFFECTED BY A SHORT INTERVAL AT 1.3 MW.

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

*INSTRUMENTATION, POWER RANGE + *SET POINT + CONTROL ROD PROGRAM + FLUX DISTRIBUTION + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (RR)

9-25310 ALSO IN CATEGORY 17
MODIFICATION OF AGN 201 SCRAM CIRCUIT
GEORGIA INSTITUTE OF TECHNOLOGY
3 PAGES, APRIL 25, 1968, LETTER TO D. J. SKOVHOLT FROM F. W. CHAMBERS, JR., DOCKET 50-276

REPORTS ADDITION OF DIODES IN THE COIL CIRCUITS OF RELAYS K8 THRU K11 SO THAT THE -90-V SCRAM SIGNAL WOULD NOT BE DISSIPATED AND WOULD CUT OFF V5.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR SAFETY SYSTEM + AGN (TNG) + FAILURE, SCRAM MECHANISM + REACTOR, TRAINING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25311 ALSO IN CATEGORY 17
ANNUAL REPORT 4 ON INSPECTION OF SHIM RODS
TEXAS A AND M UNIVERSITY
2 PAGES, APRIL 25, 1968, LETTER TO P. A. MORRIS FROM J. D. RANDALL, DOCKET 50-128

THE FOURTH ANNUAL INSPECTION (FOR JAN. 1967 THRU APRIL 15, 1968) SHOWED NO CRACKS ANYWHERE, WITH VISUAL INSPECTION OVER THE ENTIRE LENGTH FROM 1 FOOT AWAY.

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

*CONTROL ROD BURNUP + *EXAMINATION + ALLOY + BORON + CONTROL ROD, SHIM SAFETY + REACTOR, POOL TYPE + STEEL, STAINLESS

9-25319
TIMMERMANN P
ANALYSIS OF FAILURE DATA FOR ELECTRONIC EQUIPMENT AT RISO FOR THE PERIOD 1960-1965
DANISH ATOMIC ENERGY COMMISSION, RISOE RESEARCH ESTABLISHMENT
RISO-165 +. 14 PAGES, 12 TABLES, 1 REFERENCE, OCTOBER 1967

AN ANALYSIS IS MADE OF ELECTRONICS FAULTS FOR THE FIVE-YEAR PERIOD 1960-1965. THE DATA ARE PRESENTED FROM THE POINT OF VIEW OF RELIABILITY PREDICTION AND NOT AS A FEEDBACK FOR A MORE RELIABLE DESIGN.

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

*INSTRUMENTATION, COMPONENT + *RELIABILITY, COMPONENT + DATA PROCESSING + DENMARK + FAILURE, INSTRUMENT + VALVE

9-25321
FUJISAWA T + KOSHII H + WATANABE K
COMPUTER CONTROL OF THE STARTUP OF A NUCLEAR REACTOR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1152 +. 17 PAGES, REFERENCES, 1968

DESCRIBES THE DEPENDENCE OF THE CRITICAL LOOP GAIN AND INTEGRAL SQUARE ERROR ON THE SAMPLING-RATE OF THE CONTROL SYSTEM. THE EFFECT OF REACTIVITY CHANGE-RATES IS ALSO DESCRIBED FOR REALIZING THE OPTIMUM STARTUP CONTROL OF A REACTOR. AN EXPERIMENT WAS MADE ON THE COMPUTER CONTROL OF THE STARTUP OF THE JRR-1 REACTOR FOR VARIOUS SET VALUES OF REACTOR PERIODS, POWER LEVELS AND SAMPLING-RATES. TESTS OF REACTIVITY INSERTION AS DISTURBANCE WERE SUCCESSFULLY CONDUCTED IN THE EXPERIMENT TO SHOW THE SUFFICIENT STABILITY AND APPLICABILITY OF THE DIRECT DIGITAL CONTROL SYSTEM.

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

*COMPUTER CONTROL + *REACTOR CONTROL + COMPARISON, THEORY AND EXPERIENCE + CONTROL SYSTEM + JAPAN + REACTOR, RESEARCH

9-25322
FLETCHER WD
DESCRIPTION AND EVALUATION OF THE BORON CONCENTRATION METER UTILIZED AT THE SENA (FRANCO-BELGE) REACTOR PLANT
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-3690-4 + EURAEC-1972 +. 19 PAGES, 8 FIGURES, JANUARY 1968

A COMPREHENSIVE REVIEW OF THE OPERATIONAL CHARACTERISTICS OF THE SENA BORON METER WAS MADE AND GENERAL APPLICABILITY TO NUCLEAR POWER PLANTS ASSESSED. THE METER IS COMMERCIALLY AVAILABLE, BUT CERTAIN TECHNIQUES WERE DEVELOPED BY SENA TO ADAPT THE METER FOR ANALYSIS OF BORON IN A SAMPLE STREAM FROM THE REACTOR COOLANT SYSTEM. THE METHOD IS COLORIMETRIC, UTILIZING THE SPECIFIC REACTION OF PHTHALEIN VIOLET WITH AQUEOUS BORIC ACID SOLUTIONS.

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

*INSTRUMENTATION, COOLANT QUALITY + BORON + DESIGN STUDY + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, ABNORMAL INDICATION + TEST, INSTRUMENT RESPONSE

9-25376
POPPER GF + WIEGAND DE + GLASS MC
SUMMARY REVIEW OF FLOWMETERS SUITABLE FOR MEASURING SODIUM FLOW AT TEMPERATURES UP TO 1200 F IN THE FAST FLUX TEST FACILITY (FFTF)
ARGONNE NATIONAL LAB., ILL.
ANL-7340 +. 32 PAGES, 3 FIGURES, 1 TABLE, 56 REFERENCES, DECEMBER 1967

PRESENTS A REVIEW AND EVALUATION OF PUBLISHED INFORMATION (AS OF MARCH 1967) ON VARIOUS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25376 *CONTINUED*
FLOW-MONITORING DEVICES AND CONCEPTS IN TERMS OF THEIR AVAILABILITY AND/OR CORRESPONDING AREAS OF RESEARCH AND DEVELOPMENT ESSENTIAL TO THEIR POTENTIAL UTILITY IN THE FFTF CORE ENVIRONMENT.

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

*INSTRUMENTATION, FLOW + *REVIEW + BIBLIOGRAPHY + FFTF (TR) + HIGH TEMPERATURE + METAL, LIQUID + REACTOR, FAST + REACTOR, TEST + SODIUM

9-25377
AARSET B
CALIBRATION TECHNIQUES AND DATA HANDLING EQUIPMENT FOR INSTRUMENTED FUEL ASSEMBLIES IN HBWR
INSTITUTT FOR ATOMENERGI, HALDEN (NORWAY). OECD HALDEN REAKTOR PROSJEKT
HPR-79 +. 63 PAGES, 23 FIGURES, 20 REFERENCES, DEC. 1967

DESCRIBES THE CALIBRATION TECHNIQUES AND DATA-HANDLING EQUIPMENT DEVELOPED AT THE HALDEN BOILING HEAVY WATER REACTOR DURING CALIBRATION OF THE INSTRUMENTATION ON MORE THAN 40 TEST FUEL ASSEMBLIES.

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

*DATA PROCESSING + *INSTRUMENTATION CALIBRATION + INSTRUMENTATION, FLOW + INSTRUMENTATION, IN CORE + INSTRUMENTATION, POWER RANGE + INSTRUMENTATION, PROCESS + INSTRUMENTATION, TEMPERATURE + NORWAY + TEST, INSTRUMENT RESPONSE

9-25390
NOWAK TJ
RELIABILITY PHYSICS FOR MICROELECTRONICS
NORTH AMERICAN ROCKWELL CORP.
7 PAGES, 16 REFERENCES, ANNUAL SYMPOSIUM ON RELIABILITY, PAGES 193-200, JAN. 16-18, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 82 (MAY 1968)

STATE OF THE ART OF RELIABILITY PHYSICS FOR MICROELECTRONICS IS REVIEWED, AND A NUMBER OF SUGGESTIONS ARE MADE TO BRING RELIABILITY CONCEPTS UP TO DATE, INCLUDING A SUGGESTION THAT RELIABILITY ENGINEERS MUST BECOME MATERIALS ORIENTED. THE FAILURE-MECHANISM APPROACH TO RELIABILITY IS CONSIDERED TO PROVIDE A UNIFIED RATIONALE AMONG RELIABILITY PARAMETERS, DEVICE PARAMETERS, MATERIAL-PROPERTY PARAMETERS, AND THE CHANGE PROCESS KINETICS. IT IS RECOMMENDED THAT GREATER USE BE MADE OF STEP-STRESS TESTING, SENSORS, PIN-TO-PIN MEASUREMENTS, AND DEVICES THAT SURVIVED DIFFICULT MISSIONS.

*RELIABILITY ANALYSIS + INSTRUMENTATION, COMPONENT + MATERIAL + SOLID STATE DEVICE

9-25391
HAUSRATH DA + FLEMING DC
REDUCING FAILURE RATE PREDICTION UNCERTAINTIES
NORTH AMERICAN ROCKWELL CORP.
10 PAGES, 25 REFERENCES, ANNUAL SYMPOSIUM ON RELIABILITY, PAGES 226-235 (JAN 16-18 1968) ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 78 (MAY 1968)

DIFFERENT PUBLISHED FAILURE RATES FOR A GIVEN ELECTRONIC PART ARE USED TO REDUCE THE UNCERTAINTY OF PREDICTING THE RELIABILITY OF ELECTRONIC PARTS. THE PREDICTION METHOD ACCOUNTS FOR VARIOUS FACTORS THAT AFFECT FAILURE RATES AND DESCRIBES THE DEPENDENCY OF FAILURE RATES ON BOTH DESIGN MATURITY AND EQUIPMENT AGE. INTEGRATED CIRCUIT DATA USED IN THE MINUTEMAN-2 ELECTRONIC EQUIPMENT PROVIDE THE BASIS FOR THE PREDICTION MODEL.

INSTRUMENTATION, COMPONENT + RELIABILITY, COMPONENT + SOLID STATE DEVICE

9-25392
HERR EA
THE TEG--A TEST ELEMENT FOR THE CONTROL OF QUALITY AND RELIABILITY OF INTEGRATED CIRCUITS
GENERAL ELECTRIC COMPANY
16 PAGES, ANNUAL SYMPOSIUM ON RELIABILITY, PAGES 201-216 (JAN. 16-18, 1968), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 73 (MAY 1968)

A PROGRAM STATISTICALLY DESIGNED TO ENCOMPASS THE ENTIRE PRODUCTION CYCLE OF INTEGRATED CIRCUITS LED TO THE GENERATION OF INSTRUCTIONS FOR A PROCUREMENT SPECIFICATION THAT USES A TEST ELEMENT GROUP (TEG) TO MONITOR THE QUALITY AND RELIABILITY OF INTEGRATED CIRCUITS FABRICATED WITH DIODE ISOLATION. THE TEG TECHNIQUE WAS FOUND USEFUL IN ANALYZING THE CHEMICAL AND PHYSICAL MECHANISMS OF FAILURE, AND DECREASING FAILURE-IN-TIME MODELS DEVELOPED FOR BOTH LINEAR AND LOGIC CIRCUITS SUPPORT A BURN-IN EFFECTIVENESS HYPOTHESIS. THE USE OF TEG IN PROCESS CONTROL IS SHOWN GRAPHICALLY, AND SEVERAL STEP-STRESS FLOW CHARTS ARE INCLUDED.

*QUALITY CONTROL + *RELIABILITY, COMPONENT + INSTRUMENTATION, COMPONENT + SOLID STATE DEVICE + TEST, INSTRUMENT RESPONSE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25393
LA CAPRA J
TO BURN-IN OR NOT TO BURN-IN
RADIATION, INC.
7 PAGES, 8 REFERENCES, IEEE CONFERENCE ON ELECTRONIC RELIABILITY, 7TH, PAGES 1-2 THRU 1-8 (MAY 20, 1966) ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 73 (MAY 1968)

PRESENTS THE UNDERLYING DISTRIBUTION THEORY AND MATHEMATICAL TECHNIQUES FOR ASSESSING THE AMOUNT OF RELIABILITY IMPROVEMENT THAT CAN BE EXPECTED AFTER BURN-IN FOR A SPECIFIED PERIOD UNDER SIMULATED END-USE CONDITIONS. RESULTS ARE INCLUDED FOR SOME LOG-NORMAL AND WEIBULL LIFE-DENSITY FUNCTIONS. INCLUDED ARE THE RELIABILITY FUNCTION AFTER A BURN-IN, THE RATIO OF THIS RESULT TO THE RELIABILITY FUNCTION WITHOUT BURN-IN, AND THE PORTION OF THE ORIGINAL POPULATION THAT IS EXPECTED TO SURVIVE BURN-IN.

*RELIABILITY, COMPONENT + INSTRUMENTATION, COMPONENT + TEST, NONDESTRUCTIVE

9-25394
CHERNEY RW
RELIABILITY PREDICTION IN DESIGN OF MICROELECTRONIC AEROSPACE SYSTEMS
NORTH AMERICAN AVIATION, INC.
15 PAGES, IEEE CONF. ON ELECTRONIC RELIABILITY VOL 7, PAGES 23-2 THRU 23-26 (MAY 20, 1966), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 76 (MAY 1968)

SHOWS THAT MUCH EXISTING DATA ARE USABLE IN THE MICROELECTRONIC-RELIABILITY-PREDICTION AND DESIGN-APPLICATION PROBLEM BY INFERENCE FROM APPLICABLE FAILURE-MECHANISM KNOWLEDGE GAINED IN COMPONENT TEST AND EVALUATION HISTORY. FACTORS OF OVERSTRESS PROBABILITY FOR FAIL-SAFE DESIGN CRITERIA ARE CONSIDERED. MATHEMATICAL PREDICTION MODELS AND ACTUAL SYSTEMS ACHIEVEMENTS CORRELATING WITH RELIABILITY PREDICTIONS REPRESENTING A PRACTICAL METHOD HAVE IMPLEMENTED THIS APPROACH AND ARE SHOWN FOR SUCH EQUIPMENTS AS THE MINUTEMAN GUIDANCE COMPUTER. SYSTEMS CONSIDERED INVOLVE INTEGRATED CIRCUITS, THIN-FILM CIRCUITS, AND METAL-OXIDE-SEMICONDUCTOR FIELD-EFFECT TRANSISTORS.

RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + SOLID STATE DEVICE

9-25395
GOTTFRIED P
HINTS AND KINKS
BOOZ-ALLEN APPLIED RESEARCH, INC.
1 PAGE, IEEE NEWSLETTER, RELIABILITY GROUP VOL. 13, PAGE 4 (JAN. 1968), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 67 (MAY 1968)

MANAGEMENT, METHODS, AND MATHEMATICS ASPECTS OF RELIABILITY ARE DESCRIBED, AND THEIR INTERRELATIONSHIPS ARE NOTED. AS IN OTHER FIELDS, MANAGEMENT IN RELIABILITY IS CONCERNED WITH KEEPING REQUIREMENTS AND RESOURCES UNDER CONTROL. THE METHODS ARE THE ENGINEERING PROCEDURES THAT DETERMINE EQUIPMENT LIFE AND INTEGRITY, WHILE THE MATHEMATICS ASPECT PROVIDES THE MEANS OF ESTIMATING THE CONSEQUENCES OF IMPLEMENTING SPECIFIC METHODS AND, PERHAPS, MANAGEMENT DECISIONS.

ADMINISTRATIVE CONTROL + RELIABILITY ANALYSIS

9-25396
SLAVIN MB + TSIKERMAN LY
PROPERTIES OF A METHOD OF ESTIMATING RELIABILITY IN AUTOMATIC CONTROL SYSTEMS
5 PAGES, AUTOMATION AND REMOT CONTROL VOL 26, PAGES 2203-2207 (MAY 1966), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 74 (MAY 1968)

DISCUSSES A METHOD FOR ASSESSING THE RELIABILITY OF AUTOMATIC CONTROL SYSTEMS, WHICH TAKES INTO ACCOUNT THE PROPERTIES OF THE CONTROLLED PLANT. THE ERROR PROBABILITY IN CONTROL IS TAKEN AS THE RELIABILITY CRITERION. THE SIZE OF THE ERROR DEPENDS ON THE PARAMETERS OF THE TIME DISTRIBUTION TO THE OCCURRENCE OF BOTH A HIDDEN FAILURE AND AN INADMISSIBLE DEVIATION OF THE CONTROL PARAMETER IN AN AUTOMATIC CONTROL SYSTEM. EXPRESSIONS ARE DERIVED FOR DETERMINING THE ERROR PROBABILITY IN CONTROL FOR AN EXPONENTIAL AND A NORMAL TIME DISTRIBUTION TO SYSTEM FAILURE, AND ALSO FOR A WEIBULL DISTRIBUTION.

CONTROL SYSTEM + ERROR ANALYSIS + RELIABILITY ANALYSIS

9-25398
LIPSON C
A STATISTICAL INTERPRETATION OF RELIABILITY
3 PAGES, METAL PROGRESS VOL. 93, PAGES 70-72, FEBRUARY 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 74 (MAY 1968)

THE USE OF STATISTICAL METHODS, PARTICULARLY PROBABILITY CURVES, FOR DETERMINING RELIABILITY IS DISCUSSED, AND SOME HYPOTHETICAL AND REAL-DATA CURVES FOR PROBABILITY PREDICTION ARE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25398 *CONTINUED*
PRESENTED. THE FALLACY IN DESIGNING FOR AVERAGE LIFE IS STRESSED, ALTHOUGH IT IS NOTED THAT REINFORCING DESIGN WITH EMPIRICAL SAFETY FACTORS PERMITS DESIGNERS TO LIVE WITH THE AVERAGE-LIFE CONCEPT. DATA PLOTTED FOR BALL BEARINGS TESTED AT 475,000 PSI ARE USED TO SHOW HOW RELIABILITY CURVES CAN BE PUT TO PRACTICAL USE.

RELIABILITY ANALYSIS + STATISTICAL ANALYSIS

9-25408 ALSO IN CATEGORY 17
FOGARTY DJ + ORTEGA OJ
SAN ONOFRE STARTUP
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.
3 PAGES, POWER ENGINEERING, 72(4), PAGE 38-40, (APRIL 1968)

STARTUP PROBLEMS EXPERIENCED AT SAN ONOFRE CAN BE DIVIDED AMONG FIVE CATEGORIES - (1) ORGANIZATION, (2) EQUIPMENT OR SYSTEM SEASONING, (3) QUALITY CONTROL, (4) OPERATIONS, AND (5) DESIGN. QUALITY-CONTROL SLIP-UPS WERE DISCOVERED IN A CONTROL-ROD-DRIVE MECHANISM AND OTHER SYSTEMS, COLLECTIVELY RESULTING IN THREE-WEEK DELAY OF PHASE-I TESTING. NUCLEAR-INSTRUMENTATION DEBUGGING WAS A TEDIOUS EXERCISE, WITH NOISE AND COMPONENT FAILURE THE MOST PREVALENT PROBLEMS. HOWEVER, FIRST-OF-A-KIND DESIGN PROBLEMS CAUSED THE BULK OF THE DELAYS.

*OPERATING EXPERIENCE + FAILURE, GENERAL + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, TESTING + QUALITY CONTROL + REACTOR, PWR + SAN ONOFRE (PWR) + STAFFING, TRAINING, QUALIFICATION + TEST, INSTRUMENT RESPONSE

9-25409
THOMAS HB
ULTRA-HIGH-TEMPERATURE THERMOCOUPLES
THERMO ELECTRIC CO.
2 PAGES, 3 FIGURES, 2 TABLES, INSTRUMENTS AND CONTROL SYSTEMS, 41(4), PAGE 91 AND 92, (MAY 1968)

THE CONTINUALLY INCREASING TEMPERATURES OF INTEREST IN RESEARCH AND OPERATIONAL PROCESSES NECESSITATE SPECIAL CONSIDERATION OF MEASUREMENT METHODS AND MATERIALS. GUIDELINES FOR THE USE OF THERMOCOUPLES AT 1500 C AND ABOVE ARE TABULATED.

HIGH TEMPERATURE + INSTRUMENTATION, TEMPERATURE + MEASUREMENT, TEMPERATURE

9-25410
CORDWELL WA
USEFUL TECHNIQUES FOR ANALYZING CAPACITOR TRANSIENTS IN A RADIATION ENVIRONMENT
INTERNATIONAL BUSINESS MACHINES CORPORATION, FEDERAL SYSTEMS DIVISION, ELECTRONICS SYSTEMS CENTER, OWEGO, NEW YORK
4 PAGES, 5 FIGURES, 1 TABLE, 5 REFERENCES, IEEE TRANSACTIONS ON NUCLEAR SCIENCE, NS-15(2), PAGE 30-33, (APRIL 1968)

SOME USEFUL TECHNIQUES OF EVALUATING THE RADIATION-INDUCED TRANSIENT RESPONSE OF CIRCUITS EMPLOYING CAPACITORS BY USING TRANSIENT CIRCUIT ANALYSIS PROGRAMS ARE DISCUSSED. ANALYSIS METHODS TO RELATE THE CAPACITORS RADIATION-INDUCED CURRENT GENERATOR TO THE BASIC PARAMETERS, D(T), KP, KD, AND TAU-D, USING EXISTING CIRCUIT-ANALYSIS PROGRAMS, ARE GIVEN. AN EXPRESSION RELATING THE CHANGE IN VOLTAGE RESULTING FROM AN ABSORBED DOSE FOR AN ARBITRARY BURST SHAPE IS ALSO DERIVED.

*INSTRUMENTATION, COMPONENT + *RADIATION EFFECT + RESPONSE TIME + THEORETICAL INVESTIGATION

9-25460 ALSO IN CATEGORY 10
SIMULATORS FOR TRAINING IN THE ELECTRIC POWER INDUSTRY
CURTISS-WRIGHT CORPORATION
17 PAGES, 1968, BOOKLET PUT OUT BY CURTISS-WRIGHT CORP., ELECTRONICS DIVISION

A SIMPLE BOOKLET INDICATING CURTISS-WRIGHT CORP. EXPERIENCE WITH SIMULATORS - DIGITAL AND ANALOG. LISTS SCOPE OF SIMILATION FOR A BIOLER-OPERATION-PROCEDURES TRAINER. PROPOSES A POWER STATION SIMULATOR FOR TRAINING OPERATORS. BRIEF INDICATION OF DESIGN APPROACH, EQUIPMENT, CAPABILITY, AND ADVANTAGES.

AVAILABILITY - CURTISS-WRIGHT CORPORATION, ELECTRONIC DIVISION

*SIMULATION + *STAFFING, TRAINING, QUALIFICATION + COMPUTER, ANALOG + COMPUTER, DIGITAL + ELECTRIC POWER, GENERAL + OPERATION + REACTOR, POWER + STEAM GENERATOR

9-25461 ALSO IN CATEGORY 10
POWER STATION PROCEDURE TRAINER
CURTISS-WRIGHT CORPORATION, EAST PATERSON, NEW JERSEY
4 PAGES, PAMPHLET PUT OUT BY THE CURTISS-WRIGHT CORPORATION, 1968

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25461 *CONTINUED*
A PAMPHLET BRIEFLY DESCRIBING THE CURTISS-WRIGHT CORP. TRAINER DESIGNED FOR CLASSROOM USE. ELEMENTS OF CONTROL OF A SUPERHEAT AND REHEAT FURNACE THAT ARE SIMULATED ARE FUEL, AIRFLOW, FEED WATER, TEMPERATURE AND PRESSURE FOR ANY VALUE OF STEAM FLOW. INCLUDES ANNUNCIATOR POINTS FOR STARTUP AND MONITORING OF IMPORTANT FURNACE CONDITIONS. INSTRUCTORS CONSOLE PERMITS CLEARING STEPS OF PROCEDURE AND INSERTION OF MALFUNCTIONS.

AVAILABILITY - CURTISS-WRIGHT CORPORATION, ELECTRONICS DIVISION, 35 MARKET ST., EAST PATERSON, NEW JERSEY

*OPERATION + *SIMULATION + *STAFFING, TRAINING, QUALIFICATION + COMPUTER, DIGITAL + ELECTRIC POWER, GENERAL + REACTOR, POWER

9-25464
CAPACITOR FAILURE
USAEC DIVISION OF OPERATIONAL SAFETY
SERIOUS ACCIDENTS ISSUE NO. 287, 4 PAGES, APRIL 22, 1968

CAPACITORS WERE BEING TESTED TO DETERMINE THE NUMBER OF CHARGE-DISCHARGE CYCLES TO FAILURE. THE BANK CONSISTED OF SIX 170-MICROFAROD 10-KV CAPACITORS IN PARALLEL. AFTER 5500 CYCLES, ONE CAPACITOR SHORTED AND RECEIVED THE STORED ENERGY OF THE ENTIRE BANK - 50,000 JOULES. TOP OF STEEL CASE AND CHARGING LEADS WERE BLOWN OFF, WHICH REQUIRED ON INTERNAL PRESSURE OF 1,000 PSI. ATTACHMENT CONTAINS GUIDELINES FOR SAFEGUARDING AGAINST SUCH ACCIDENTS. HAZARDS INCLUDE SHOCK, ARC, EXPLOSION, AND FIRE. EIGHTEEN SAFETY CONSIDERATIONS GIVEN.

AVAILABILITY - AEC DIVISION OF PUBLIC INFORMATION

*EXPLOSION + *FAILURE, COMPONENT + *TEST, DESTRUCTIVE + ELECTRIC ARC + FIRE + INSTRUMENTATION, GENERAL + PRESSURE, INTERNAL + SAFETY PRINCIPLES AND PHILOSOPHY

9-25586
BUNCH WL + WOOD MR
INITIAL OPERATING CHARACTERISTICS OF REGENERATING IN-CORE NEUTRON CHAMBERS
PACIFIC NORTHWEST LABORATORY
BNWL-14 +. 18 PAGES, 9 FIGURES, JANUARY 1965

DESCRIBES INITIAL OPERATING CHARACTERISTICS OF A CONTINUOUS NEUTRON-FLUX IN-CORE MONITOR. A PROPOSED TECHNIQUE FOR EXTENDING THE USEFUL LIFE OF THE DETECTOR IS THE USE OF REGENERATING MATERIAL INCORPORATING FERTILE ATOMS TOGETHER WITH THE FISSILE ATOMS THAT GENERATE A SIGNAL PROPORTIONAL TO THE FLUX LEVEL. USING A DEMONSTRATED TECHNIQUE TO DETERMINE THE OPTIMUM MIXTURE OF ISOTOPES, A PAIR OF IONIZATION CHAMBERS WAS DESIGNED AND FABRICATED WITH A REGENERATING COATING OF U-234 AND U-235. THE CHAMBERS WERE TESTED IN THE HANFORD KW REACTOR.

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

*CHAMBER, NEUTRON + *INSTRUMENTATION, IN CORE + DESIGN STUDY + HANFORD SITE + IN CORE MEASUREMENT + IRRADIATION TESTING + TEST, INSTRUMENT RESPONSE

9-25587
FRENCH RL
THE IDENTIFICATION OF FAILED FUEL ELEMENTS IN MULTICHANNEL IRRADIATION RIGS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH
3 PAGES, 4 REFERENCES, JOURNAL OF NUCLEAR ENERGY 22(5), PAGES 325 27 (1960)

IT IS COMMON TO INSTALL RATHER RUDIMENTARY GROSS BETA OR GAMMA MONITORS TO DETECT FUEL ELEMENT FAILURES IN FUEL IRRADIATION RIGS OPERATING WITH SELF-CONTAINED COOLANT CIRCUITS. HOWEVER, FOR RIGS WHICH POSSESS MORE THAN ONE CHANNEL, IT DOES NOT APPEAR TO BE ALWAYS REALIZED THAT WHILST SUCH GROSS RADIATION DETECTORS MIGHT ADEQUATELY INDICATE THE PRESENCE OF A FAILURE, THEY CANNOT ALWAYS IDENTIFY THE CHANNEL CONTAINING THE FAILURE--EVEN IF ARRANGEMENTS EXIST FOR SAMPLING COOLANT DIRECTLY FROM THE OUTLET OF INDIVIDUAL CHANNELS.

INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + IRRADIATION TESTING + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-25588
COFFIN LD + SIMMONS SJ + KOSOROK JR + HAINES CR + ROBERTS WC
COMPUTER PROGRAMS FOR OPERATION OF THE HIGH TEMPERATURE LATTICE TEST REACTOR (HTLTR)
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-651(VOL. 1 AND 2) +. 633 PAGES, 14 FIGURES, 28 TABLES, REFERENCES, DECEMBER 1967

A DIGITAL COMPUTER WAS INTERFACED WITH A REACTOR MEASUREMENT AND CONTROL SYSTEM. DESCRIPTIONS GIVEN FOR ALL THE COMPUTER PROGRAMS WHICH ARE AN INTEGRAL PART OF THAT SYSTEM AND WHICH ALLOW THE OPERATION OF THE REACTOR AND ASSOCIATED EQUIPMENT. PROGRAM FUNCTIONS, DETAILED CODING DESCRIPTIONS, AND LISTINGS ARE INCLUDED. IN ADDITION, PROGRAM INTEGRATION AND TECHNIQUES FOR UPDATING THE SYSTEM ARE DESCRIBED.

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

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25588 *CONTINUED*
*COMPUTER CONTROL + *COMPUTER PROGRAM + COMPUTER, DIGITAL + CONTROL SYSTEM + DATA PROCESSING + HIGH TEMPERATURE + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, CONTROL + REACTOR, TEST

9-25590
MOINEREAU P
USE OF NUMERICAL COMPUTERS FOR MONITORING AND OPERATING NUCLEAR REACTORS
5 PAGES, 2 FIGURES, TABLES, ATOMPRAXIS 14 (4/5), PAGES 165-169 (1968) IN GERMAN

WE EXAMINED THE FUNCTIONS THAT ARE USUALLY COMPUTER-PROCESSED IN A REACTOR AND THE ORGANIZATION OF THE CORRESPONDING DATA-PROCESSING SYSTEM. THE MOST IMPORTANT CONCLUSIONS OF THE CURRENT EXPERIMENTS ARE OUTLINED.

*REACTOR CONTROL + ANALYTICAL TECHNIQUE, GENERAL + COMPUTER CONTROL + DATA PROCESSING

9-25591
JASCHEK H
SIMULATION AND CONTROL OF NUCLEAR POWER PLANTS WITH NATURAL CIRCULATION BOILING WATER REACTORS
4 PAGES, 9 FIGURES, 11 REFERENCES, ATOMPRAXIS 14 (4/5), PAGES 161-164, (1968) IN GERMAN

IN ORDER TO OBTAIN AN INSIGHT INTO THE DYNAMIC BEHAVIOUR OF THE SYSTEM, A MATHEMATICAL MODEL IS FIRST FORMED AND THEN TESTED WITH A COMPUTER. THE MATHEMATICAL MODEL IS SYNTHESIZED NOT ONLY FOR THE REACTOR BUT ALSO FOR THE PIPELINES, VALVES, AND THE TURBINE. A DIGITAL COMPUTER (APACHE PROGRAM) WAS USED IN ORDER TO GENERATE A CORRECT AND SYSTEMATIC PATCHING OF THE ANALOG COMPUTER. THE ANALOG COMPUTER OFFERS AN INSIGHT INTO THE DYNAMICS OF THE NONREGULATED AND THE REGULATED SYSTEM.

*DESIGN STUDY + *REACTOR CONTROL + ANALYTICAL MODEL + GERMANY + REACTOR, BWR + SIMULATION + THEORETICAL INVESTIGATION

9-25592
NEUENHAHN P
SIMULATION AND CONTROLLING OF A SODIUM-COOLED THERMAL REACTOR
4 PAGES, 7 FIGURES, 5 REFERENCES, ATOMPRAXIS 14 (4/5), PAGES 157-160 (1968) IN GERMAN

THE PAPER DESCRIBES THE SIMULATION OF A SODIUM-COOLED THERMAL REACTOR WITH AN ANALOG COMPUTER. THE REACTOR IS INHERENTLY UNSTABLE. IN CONTROLLING THIS REACTOR WITH AN ON-OFF CONTROLLER SOME PROBLEMS ARISE, WHICH ARE DESCRIBED.

*REACTOR CONTROL + COMPUTER, ANALOG + CONTROLLER + GERMANY + REACTOR, MOLTEN SALT + SIMULATION + SODIUM

9-25653 ALSO IN CATEGORY 17
ELIMINATION OF PERIOD RECORDING
TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS
1 PAGE, PAGE 10 OF AMENDMENT 1 TO THE TEXAS A AND M NUCLEAR SCIENCE CENTER SAR, APRIL 3, 1968, DOCKET 50-128

IT HAS BEEN DIFFICULT TO MODIFY (AS ON SAR PAGE 74) A SINGLE RECORDER TO SELECTIVELY RECORD REACTOR PERIOD OR FUEL TEMPERATURE. SINCE 1962, RECORDED PERIOD HAS NOT PROVIDED US WITH USEFUL INFORMATION. THEREFORE THE PERIOD WILL NOT BE RECORDED, STILL BEING INDICATED BY A METER ON THE LOG-N AMPLIFIER.

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

*INSTRUMENTATION, RECORDER + *PERIOD METER + ELECTRICAL CONDUCTION + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + REPORT, SAR + TRIGA (RR)

9-25670
WALKER CS
CONFERENCE ON INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS
OAK RIDGE NATIONAL LABORATORY
7 PAGES, 1 TABLE, 1 REFERENCE, NUCLEAR SAFETY 9(3), PAGES 218-225 (MAY-JUNE 1968)

A CONFERENCE ON THE POSSIBLE CONTRIBUTION OF INCIPIENT FAILURE DETECTION TO THE SAFETY AND RELIABILITY OF NUCLEAR POWER PLANTS WAS HELD IN GATLINBURG, TENN., OCT. 30-NOV. 1, 1967. PARTICIPANTS WERE FROM THE FIELDS OF REACTOR INSTRUMENTATION, NUCLEAR PLANT DESIGN, NUCLEAR PLANT OPERATION, NONDESTRUCTIVE TESTING, AND DISCIPLINES OUTSIDE THE NUCLEAR FIELD. THE PAPERS AND DISCUSSIONS COVERED ON-LINE TESTING, METHODOLOGY OF TESTING, SYMPTOMATIC EXAMINATION OF REACTOR CORE BEHAVIOR, METHODS TO DETECT INCIPIENT FAILURES IN REACTOR PRIMARY SYSTEMS, METHODS TO DETECT INCIPIENT FAILURES IN NONNUCLEAR APPLICATIONS, AND HISTORIES OF REACTOR INCIDENTS.

*PLANT PROTECTIVE SYSTEM + *REACTOR SAFETY SYSTEM + *TEST, SYSTEM OPERABILITY + FAILURE, GENERAL + INSTRUMENTATION, COINCIDENT + INSTRUMENTATION, PROTECTIVE + RELIABILITY, SYSTEM + TEST, NONDESTRUCTIVE + TEST, ON LINE + TESTING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25671 ALSO IN CATEGORY 10
KENT MF
THE MANUFACTURERS ROLE IN SYSTEM RELIABILITY
GENERAL ELECTRIC COMPANY
6 PAGES, AN ADDRESS AT THE ANNUAL MEETING OF THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23, 1968

A NONTECHNICAL AFTER-DINNER SPEECH ABOUT THE MANUFACTURERS RESPONSIBILITY TO PROVIDE A DEPENDABLE PRODUCT AT A REASONABLE PRICE.

AVAILABILITY - M. F. KENT, VICE PRESIDENT AND GENERAL MANAGER, POWER GENERATION SALES DIVISION, GENERAL ELECTRIC COMPANY

ECONOMICS + ENGINEERED SAFETY FEATURE + REDUNDANCE + RELIABILITY, SYSTEM

9-25672
SVECHINSKII VB
ESTIMATING THE RELIABILITY OF STRUCTURALLY DUPLICATED DISCRETE AUTOMATA
2 PAGES, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGES 45 AND 46 (1966) TRANSLATED FROM IZVESTIA V.U.Z, ELEKTROMEKHANIKA 9, PAGES 200-08, NO. 2 (FEBRUARY 1966)

THE ERRORS TO WHICH ELEMENTS OF DISCRETE AUTOMATA ARE SUBJECTED NECESSITATE THE AVAILABILITY OF QUANTATIVE ESTIMATES OF AUTOMATION RELIABILITY. THEY HAVE ALSO LED TO THE DEVELOPMENT OF METHODS FOR SYNTHESIZING AUTOMATA WITH PRESCRIBED RELIABILITY FROM ELEMENTS WITH LIMITED RELIABILITY.

*RELIABILITY ANALYSIS + INSTRUMENTATION, COMPONENT + REDUNDANCE + RELIABILITY, COMPONENT + USSR

9-25673
GILBO EP + CHELPANOV IB
OPTIMAL NONLINEAR INSTANTANEOUS CONVERSION OF SIGNALS FROM SEVERAL INSTRUMENTS WITH ALLOWANCE FOR LACK OF OPERATING RELIABILITY
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 46 (1966) TRANSLATED FROM AVTOMATIKA I TELEMEKHANIKA NO. 2, PAGES 70-75 (FEBRUARY 1966)

THE AUTHORS DETERMINE THE NONLINEAR CHARACTERISTIC OF A DEVICE THAT IS OPTIMAL WITH RESPECT TO MINIMIZATION OF ERROR DISPERSION AND IS USED FOR CONVERSION OF DATA DELIVERED BY SEVERAL NON-IDEAL DEVICES. IT IS ASSUMED THAT THE DISTRIBUTIONS OF THE RANDOM ERRORS ARE KNOWN FOR NORMAL INSTRUMENT OPERATION, AS WELL AS FOR FAILURE. IT IS SHOWN FOR THE CASE OF THREE DEVICES THAT THE DERIVED CHARACTERISTIC ASSURES AVERAGING OF RELIABLE DATA AND DISCARDING OF UNRELIABLE DATA. THE RELIABILITY THRESHOLD IS DETERMINED BY THE A PRIORI PROBABILITY OF DEVICE FAILURE.

*TEST, INSTRUMENT RESPONSE + INSTRUMENTATION, GENERAL + RELIABILITY, COMPONENT + USSR

9-25675
RAKHVAL SKII VM
ACCELERATION OF THE SIMULATION PROCESS IN ESTIMATING THE EFFECTIVENESS AND RELIABILITY OF COMPLEX SYSTEM BY THE METHOD OF STATISTICAL TRIALS
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 48 (1966) TRANSLATED FROM IZVESTIA AKAD. NAUK, TEKHNICHESKAIA KIBERNETIKA NO. 1, PAGES 41-44 (JAN.-FEB. 1966)

METHODS OF ACCELERATING THE SIMULATION PROCESS IN EVALUATING THE EFFICIENCY AND RELIABILITY OF COMPLEX SYSTEMS ARE CONSIDERED. THE PROPOSED METHODS ENSURE HIGH COMPUTATIONAL ACCURACY FOR ADMISSIBLE AMOUNTS OF MACHINE TIME (OF THE ORDER OF SEVERAL HOURS FOR HIGH-SPEED COMPUTERS) IN THE EVALUATION OF HIGH-RELIABILITY SYSTEMS.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + SIMULATION + STATISTICAL ANALYSIS + USSR

9-25676
SHCHERBAKOV OV
ESTIMATING THE RELIABILITY OF SERIES SYSTEMS WITH RESTORATION
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 48 (1966) TRANSLATED FROM IZVESTIA AKAD. NAUK, TEKHNICHESKAIA KIBERNETIKA NO. 1, PAGES 46-50 (JAN.-FEB. 1966)

THE AUTHOR CONSIDERS THE PROBLEM OF DETERMINING THE RELIABILITY CHARACTERISTICS OF SERIES SYSTEMS WHOSE ELEMENTS CAN BE RESTORED. FORMULAS ARE GIVEN FOR PERFORMING THE REQUIRED COMPUTATIONS.

*RELIABILITY, SYSTEM + MATHEMATICAL TREATMENT + USSR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25677
SARITSKII VS
DETERMINING THE PROBABILITY OF RELIABLE SYSTEM OPERATION OVER A GIVEN TIME INTERVAL
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 48 (1966) TRANSLATED FROM IZVESTIA AKAD. NAUK, TEKHNICHESKAIA KIBERNETIKA NO. 1, PAGES 51-54 (JAN.-FEB. 1966)

THE AUTHOR CONSIDERS THE PROBLEM OF DETERMINING THE PROBABILITY THAT A RANDOM FUNCTION U(T) WHOSE CORRELATION FUNCTION WILL NOT EXCEED THE LIMITS ENSURING NORMAL SYSTEM OPERATION DURING A TIME T. FORMULAS, CURVES, AND TABLES ARE GIVEN. THEY MAY BE USED TO OBTAIN APPROXIMATE SOLUTION OF THIS PROBLEM, THUS OBVIATING THE NEED FOR CUMBERSOME COMPUTATIONS.

*RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT + USSR

9-25678
GUREVICH AM
ON THE RELIABILITY OF LOGICAL CONTROL SYSTEMS OF THE CYCLICAL TYPE WITH PERIODIC OPERATIONAL CHECKS
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 49 (1966) TRANSLATED FROM IZVESTIA AKAD. NAUK, TEKHNICHESKAIA KIBERNETIKA NO. 1, PAGES 56-63 (JAN.-FEB. 1966)

THE RELIABILITY OF CYCLICAL LOGIC CONTROL SYSTEMS WITH A LIMITED NUMBER OF OPERATING STATES IS CONSIDERED. FORMULAS ARE GIVEN FOR THE UPPER AND LOWER BOUNDS OF THE PROBABILITY OF FAILURE-FREE SYSTEM OPERATION.

*RELIABILITY, SYSTEM + CONTROL SYSTEM + TEST, ON LINE + USSR

9-25679
KORCHAGINA EP
COMPUTING THE RELIABILITY PARAMETERS OF SYSTEMS WITH RESTORABLE ELEMENTS
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 49 (1966) TRANSLATED FROM RADIOTEKHNIKA 21, PAGES 1-7, NO. 1 (JAN. 1966)

THE OPERATING TIME TILL FAILURE AND THE MEAN SYSTEM RESTORATION TIME ARE DETERMINED FOR A SYSTEM WITH RESTORABLE ELEMENTS. SIMPLE EXPRESSIONS ARE OBTAINED FOR COMPUTING THESE PARAMETERS FOR ANY NUMBER OF OPERATION AND STANDBY ELEMENTS. EXAMPLES ARE USED TO ILLUSTRATE APPLICATION OF THE DERIVED EXPRESSIONS FOR THE DESIGN OF VARIOUS CIRCUITS.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + USSR

9-25680
BEBIASHVILI SL + NAMICHEISHVILI OM
ON ESTIMATING THE RELIABILITY VALUE OF COMPLEX SYSTEMS
2 PAGES, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGES 49-50 (1966) TRANSLATED FROM RADIOTEKHNIKA 21, PAGES 73-76, NO. 1 (JANUARY 1966)

AS DUPLICATION METHODS ARE USED TO INCREASE THE RELIABILITY AND SERVICE LIFE OF EQUIPMENT, ADDITIONAL EXPENDITURES INEVITABLY ARISE. THE AMORTIZATION PERIODS AND DESIRABILITY OF SUCH EXPENDITURES MUST BE EVALUATED (I.E., THE PROBLEM OF OPTIMUM DUPLICATION MUST BE FACED). THE AUTHORS TREAT A COMPLEX SYSTEM CONSISTING OF N INDEPENDENT SERIES-CONNECTED ELEMENTS. THEY ASSOCIATE EACH ELEMENT WITH A FAILURE PROBABILITY.

ECONOMICS + REDUNDANCE + RELIABILITY ANALYSIS + USSR

9-25681 ALSO IN CATEGORY 17
GUBINSKII A + KOLESNIKOV N
ACHIEVEMENTS OF ENGINEERING PSYCHOLOGY--THE PRACTICAL DESIGN OF INFORMATION AND CONTROL SYSTEMS
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 50 (1966) TRANSLATED FROM AVTOMETRIA NO. 6, PAGES 116-117 (NOV.-DEC. 1965)

A SCIENTIFIC AND TECHNICAL CONFERENCE WAS HELD IN LENINGRAD BETWEEN MAY 12 AND 14, 1965, ENTITLED, ENGINEERING PSYCHOLOGY IN INSTRUMENT DESIGN (CONSIDERING HUMAN PSYCHOLOGICAL FACTORS IN THE DEVELOPMENT OF MONITORING AND CONTROL SYSTEMS). THE AIM WAS TO BRING TOGETHER ACTIVITIES OF SPECIALISTS IN THESE TWO AREAS FOR MUTUAL ACQUAINTANCE WITH PROBLEMS AND ACHIEVEMENTS, AND FOR THE DEVELOPMENT OF COMMON VIEWPOINTS AND METHODS FOR FURTHER COOPERATIVE EFFORT.

CONTROL SYSTEM + EQUIPMENT DESIGN + INSTRUMENTATION, GENERAL + THEORETICAL INVESTIGATION + USSR

9-25682
WOLFE RA + STUBBINS WF
A NEUTRON SPECTROMETER EMPLOYING CHARGED-PARTICLE COLLIMATION TO IMPROVE RESOLUTION
MONSANTO RESEARCH CORPORATION, MIAMISBURG, OHIO + UNIVERSITY OF CINCINNATI

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25682 *CONTINUED*
7 PAGES, 12 FIGURES, 6 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS 60(3), PAGES 246-52 (APRIL 1, 1968)

TWO DIFFERENT EXPERIMENTAL NEUTRON SPECTROMETERS WERE DEVELOPED USING CHARGED-PARTICLE COLLIMATION TO IMPROVE THE ENERGY RESOLUTION IN NEUTRON DETECTION BY SOLID-STATE DETECTORS. THE USE OF CHARGED-PARTICLE COLLIMATION PROVIDED A SIGNIFICANT IMPROVEMENT OF ABOUT 30% IN DETECTOR RESOLUTION FOR THERMAL NEUTRONS, ALTHOUGH THE COUNTING EFFICIENCY WAS REDUCED TO ABOUT 85% OF THAT EFFICIENCY BEFORE COLLIMATION. THIS STUDY REVEALED THAT BY SEPARATING THE TWO SILICON SURFACE-BARRIER DETECTORS, CHARGED-PARTICLE COLLIMATION IS ACHIEVED.

*SPECTROMETRY, NEUTRON + EQUIPMENT DESIGN + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, NUCLEAR + SOLID STATE DEVICE + TEST, INSTRUMENT RESPONSE

9-25683
CIALELLA CM + DEVANNEY JA
A COMBINATION NEUTRON AND GAMMA RAY SPECTROMETER
BALLISTIC RESEARCH LABORATORIES, ABERDEEN PROVING GROUND, MARYLAND
9 PAGES, 14 FIGURES, 13 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS 60(3), PAGES 269-77 (APRIL 1, 1968)

AN INSTRUMENT WAS DEVELOPED TO MEASURE NEUTRON AND GAMMA RAY SPECTRA SIMULTANEOUSLY IN A MIXED RADIATION FIELD. THE METHOD UTILIZES A SINGLE STILBENE SCINTILLATION CRYSTAL WITH A PULSE-SHAPED DISCRIMINATION CIRCUIT. THE SYSTEM ROUTES PULSES DUE TO ELECTRONS TO ONE OUTPUT AND THOSE DUE TO PROTONS TO ANOTHER OUTPUT. THE SPECTRA ARE THUS INDEPENDENTLY ACCUMULATED AND ANALYZED. THE RESPONSE OF THE SPECTROMETER TO NEUTRONS AND GAMMA RAYS IS INCLUDED.

*SPECTROMETRY, GAMMA + *SPECTROMETRY, NEUTRON + INSTRUMENTATION, NUCLEAR + TEST, INSTRUMENT RESPONSE

9-25684
FUKUDA K + OKABE S + SATO Y
A NEUTRON DETECTION SYSTEM FOR THE STUDY OF THE (GAMMA, N) REACTION WITH A LINEAR ELECTRON ACCELERATOR
RADIATION CENTER OF OSAKA PREFECTURE, JAPAN
4 PAGES, 5 FIGURES, 4 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS 60(3), PAGES 297-300 (APRIL 1, 1968)

A NEUTRON DETECTION SYSTEM WAS DESIGNED TO MEASURE PHOTONEUTRONS PRODUCED BY A LINEAR ELECTRON ACCELERATOR UNDER AN INTENSE X-RAY BURST. IT CONSISTS OF COUNTERS, A PARAFFIN SCATTERER, AND SOME SHIELDING. THE UNIFORMITY OF THE EFFICIENCY OF THE DETECTION SYSTEM IS EXPERIMENTALLY VERIFIED FROM THERMAL NEUTRON ENERGY UP TO ABOUT 5 MEV. THE NEUTRON YIELD CURVE NEAR THE THRESHOLD OF C-13(ALPHA,N)C-12 REACTION WAS OBSERVED WITH THIS DETECTION SYSTEM.

*INSTRUMENTATION, NUCLEAR + ACCELERATOR + NEUTRON + TEST, INSTRUMENT RESPONSE

9-25685
BRODI SM + VLASENKO ON
RELIABILITY OF SYSTEMS WITH A VARIABLE UTILIZATION MODE
6 PAGES, 4 REFERENCES, ENGINEERING CYBERNETICS VOL. 1, PAGES 30-35 (JAN.-FEB. 1967)

A SEMI-MARKOV PROCESS IS CONSTRUCTED FOR DESCRIBING THE FUNCTIONING OF SYSTEMS OPERATING IN TWO PERIODICALLY ALTERNATING MODES. THE RELIABILITY CHARACTERISTICS (THE AVERAGE TIME AND PROBABILITY OF TROUBLE-FREE OPERATION) OF SUCH SYSTEMS ARE DEFINED. EXPRESSIONS ARE OBTAINED WHICH PERMIT DETERMINATION OF THE AVERAGE TIME AND PROBABILITY OF TROUBLE-FREE OPERATION OF THE ENTIRE SYSTEMS WITHOUT CALCULATING THE RELIABILITY CHARACTERISTICS OF EACH OF THE MODES.

INSTRUMENTATION, COMPONENT + MATHEMATICAL TREATMENT + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + USSR

9-25686
SLEPOV YA
RELIABILITY OF REPAIRABLE MULTIACTION DEVICES
4 PAGES, 1 REFERENCE, ENGINEERING CYBERNETICS VOL. 1, PAGES 35-38 (JAN.-FEB. 1967)

EXPRESSIONS ARE DERIVED FOR THE DEFINITION OF THE PREPAREDNESS FUNCTION AND THE UNCONDITIONAL PROBABILITY OF TROUBLE-FREE OPERATION IN THE TIME INTERVAL (T, T PLUS TAU) FOR ANY LAW OF DISTRIBUTION OF THE TIME OF TROUBLE-FREE OPERATION AND REPAIR TIME. SOME SPECIAL CASES OF THE EXPRESSIONS OBTAINED ARE INVESTIGATED.

MATHEMATICAL TREATMENT + RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + USSR

9-25687
ISAYEV LK + MAMED-ZADE NA
RELIABILITY OPTIMIZATION OF A REDUNDANT SYSTEM
3 PAGES, 3 REFERENCES, ENGINEERING CYBERNETICS VOL. 1, PAGES 38-40 (JAN.-FEB. 1967)

GIVES A GENERAL PROCEDURE FOR SOLVING THE PROBLEM OF THE MAXIMUM RELIABILITY OF A REDUNDANT SYSTEM FOR ONE RESTRICTION (OF THE VOLUME, WEIGHT, OR COST TYPE) ON THE REDUNDANCY INTRODUCED INTO THE SYSTEM FOR THE CASE OF INTEGRAL REDUNDANCY OF AN INDEPENDENT SEQUENTIAL SYSTEM.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25687 *CONTINUED*
*RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, SYSTEM + USSR

9-25688
MALEV VV
CHARACTERISTIC OF THE PROBABILITY DISTRIBUTION OF CORRECT OPERATION OF EMERGENCY SYSTEMS
7 PAGES, 3 FIGURES, 3 REFERENCES, ENGINEERING CYBERNETICS VOL. 1, PAGES 46-53 (JAN.-FEB. 1967)

COUNTEREMERGENCY AUTOMATION SYSTEMS ARE DESIGNED TO PREVENT THE DEVELOPMENT OF AN EMERGENCY SHOULD ONE OCCUR IN AN OBJECT. EXPRESSIONS ARE PRESENTED FOR THE AVERAGE TIME AND THE TIME DISPERSION OF EMERGENCY-FREE OPERATION OF EMERGENCY SYSTEMS. THEY CONSIST OF AN ARBITRARY NUMBER OF SINGLE-TYPE OPERATING AND RESERVE DEVICES WITH A POISSON-DISTRIBUTION LAW OF FAILURES.

*PLANT PROTECTIVE SYSTEM + *REACTOR SAFETY SYSTEM + *THEORETICAL INVESTIGATION + RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + USSR

9-25721 ALSO IN CATEGORIES 17 AND 10
REPORT ON CABLE FAILURES - 1968 - SAN ONOFRE UNIT 1
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY.
165 PAGES, 16 FIGURES, 10 TABLES OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

FIRES FEB. 7, AND MAR. 12 SHOWED THAT THE AWG6 WIRE FOR THE 480 PRESSURIZER HEATERS WAS BOTH THERMALLY OVERLOADED AND IN AN OVERFILLED CABLE TRAY, THUS OPERATING ABOVE THE 90 C DESIGN. HEAVY MECHANICAL LOADING RESULTED IN PHASE-TO-PHASE CONNECTION BETWEEN TWO SEPARATE HEATER CIRCUITS SUCH THAT CURRENT CONTINUED TO FLOW BELOW THE FUSE-BLOWOUT POINT. ***IN THE MAR. 12 COOLDOWN, BORIC ACID WAS INJECTED BY THE TRANSFER PUMP BECAUSE THE INJECTION-PUMP POWER WAS LOST. FOUR HOURS AFTER COOLDOWN STARTED, IT WAS HALTED WHEN BORON CONCENTRATION WAS FOUND REDUCING RATHER THAN INCREASING. BORIC ACID CRYSTALS WERE BLOCKING THE TRANSFER PUMP, WHILE MAKEUP-PUMP OPERATION WAS UNIMPEDED. ***A 6-MONTH SHUTDOWN TO MAKE $1.5 MILLION REPAIRS RESULTED.

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

*ACCIDENT ANALYSIS + *ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + *POISON, SOLUBLE + CONTAINMENT PENETRATION, ELECTRICAL + FAILURE, DESIGN ERROR + INDEPENDENCE + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY

9-25724 ALSO IN CATEGORY 17
SECTION 7.1.5 - BORIC ACID CRYSTALLIZATION STUDY - SAN ONOFRE
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
3 PAGES, 1 FIGURE, PAGE 1-3 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

TESTS SIMULATING BORIC-ACID-TRANSFER THE SYSTEM THAT PLUGGED ON MAR. 12 REVEALED THAT BORIC ACID CRYSTALS IN STAGNANT SYSTEM NEAR SATURATION DO NOT DISSOLVE, THUS FORMING PRECIPATION SITES WHEN HEAT IS LOST. THUS, INJECTION OF CRYSTALS BY STARTING A PUMP OR BY REAPPLYING HEAT TO CRYSTALS ON THE WALLS (BREAKING THEM OFF) RESULTS IN CRYSTALS BEING CARRIED TO ACCUMULATE IN A RESTRICTION IN THE LINE. EXPERIMENTS DEMONSTRATE SEVERE PACKING TENDENCY OF CRYSTALS ONCE FORMED IN A PIPE, GIVING A VERY HIGH CHANCE OF PLUGGING. WITH CRYSTALS IN THE SUCTION LINE FOLLOWED BY A LOSS OF HEAT TRACING, RAPID CRYSTAL DEPOSITION MAY EXIST EVEN AT TEMPERATURE ABOVE 150 F.

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

*OPERATING EXPERIENCE + *POISON, SOLUBLE + BORON + DEPOSITION + INCIDENT, EQUIPMENT + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY + TEST, PLANT RESPONSE

9-25731 ALSO IN CATEGORY 17
SEVENTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR
ALLIS-CHALMERS
ACNP-68501 +. 25 PAGES, FIGURES, TABLES, JANUARY 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR WAS OPERATED FOR 102 HR, INCLUDING 60 FOR CHECKING SYSTEM PERFORMANCE AND 40 FOR ATTAINMENT OF NORMAL OPERATING CONDITIONS AT 577 F. TOTAL TEMPERATURE DEFECT FROM 80 TO 410 F WAS $5.01, AND FROM 410 TO 575 WAS $5.71. ***ADJUSTMENT OF THE ROTOVALVES WAS NECESSARY AS THEY JAMMED WHEN THE COOLANT WAS BELOW 350 F. VARIOUS CONTROL-ROD-DRIVE MALFUNCTIONS OCCURRED.

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

*CONTROL ROD DRIVE + *FAILURE, COMPONENT + *TEMPERATURE REACTIVITY EFFECT + LACROSSE (BWR) + REACTOR, BWR + REPORT, OPERATIONS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25733 ALSO IN CATEGORY 17.
LA CROSSE INITIAL POWER ESCALATION
ALLIS-CHALMERS
ACNP-68504 +. 29 PAGES, FIGURES, TABLES FROM NINTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR, MARCH 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

HEAT BALANCE AT 320, 760, AND 1250 PSIG FOR SEVERAL ROD POSITIONS INDICATES POWER-RANGE-INSTRUMENT CALIBRATION (MW/MILLIAMP) DECREASES AS PRESSURE INCREASES OR AS ROD BANK WITHDRAWS. THE CHANGE IS A FACTOR OF 5 - FROM 18 IN. AND 320 PSIG TO 27 IN. AND 1250 PSIG. FINALLY THE REACTOR WAS BROUGHT TO 25% (39 MWTH), BUT HEAT BALANCES SHOWED 43.8 (TURBINE WATER FLOW) AND 34 MWTH (STEAM OR FEEDWATER FLOW). A -$0.004/PSI PRESSURE COEFFICIENT WAS INFERRED. CONTROL-ROD DRIVES OPERATED SATISFACTORILY. ***ON THREE OCCASIONS, ALL ROD INSERTS STOPPED RAPID POWER INCREASES FROM FEEDWATER CHANGES (THE SPEED CONTROL WAS STICKY), WITH A TIME DELAY BETWEEN THE OPERATORS SIGNAL AND PUMP RESPONSE. ***ON THE FIRST ATTEMPT TO ROLL THE TURBINE WITH REACTOR STEAM, CONDUCTIVITY RAPIDLY INCREASED. REMNANTS OF THE CLEANING SOLUTION FOR THE FEEDWATER SYSTEM HAD COLLECTED IN THE REHEATER SHELL. THE RESULTANT DISSOLVED IRON FOULED THE FULL-FLOW DEDS RAPIDLY.

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

CONTROLLER + COOLANT QUALITY + FAILURE, OPERATOR ERROR + FLUX DISTRIBUTION + INSTRUMENTATION, ABNORMAL INDICATION + LACROSSE (BWR) + REACTIVITY EFFECT, PRESSURE + REACTOR POWER + REACTOR STARTUP EXPERIENCE + REACTOR, PWR + REFLECTOR + REPORT, OPERATIONS

9-25743 ALSO IN CATEGORY 6
GERHARDSTEIN LH
MODEL DEVELOPMENT CONSIDERATIONS IN THE SIMULATION OF FAST NUCLEAR POWER PLANTS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-1443 + CONF-671032-1 +. 23 PAGES, FROM NORTHWEST SIMULATION COUNCIL MEETING, RICHLAND, WASHINGTON, OCTOBER 12, 1967

AN ANALYTICAL MODEL OF THE FFTF REACTOR WAS DEVELOPED FOR A HYBRID COMPUTER. THE NEUTRON KINETICS EQUATIONS ARE REPRESENTED EXACTLY BY AN ANALOG COMPUTER CIRCUIT. THE MODEL WILL BE USED IN HAZARDS, STABILITY, AND CONTROL ANALYSIS.

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

ANALYTICAL MODEL + CONTROL, GENERAL + FFTF (TR) + REACTOR DYNAMICS + REACTOR KINETICS + REACTOR STABILITY + REACTOR, FAST + REACTOR, TEST

9-25833
TODT WH
A GAMMA COMPENSATED NEUTRON IONIZATION CHAMBER DETECTOR FOR THE NERVA REACTOR
WESTINGHOUSE ELECTRIC CORP., ELMIRA, NEW YORK
6 PAGES, 14 FIGURES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 9-14 (FEBRUARY 1968)

A COMPENSATED IONIZATION CHAMBER WAS DEVELOPED FOR USE IN THE NERVA PROGRAM AS A NEUTRON FLUX DETECTOR FOR REACTOR CONTROL. THE CHAMBER WAS DESIGNED TO WITHSTAND THE EXTREMES OF RADIATION, TEMPERATURE, SHOCK, AND VIBRATION ASSOCIATED WITH THE NERVA REACTOR.

CHAMBER, ION + CHAMBER, NEUTRON + FLUX, INTEGRATED + INSTRUMENTATION, NUCLEAR + NUCLEAR ROCKET + TEST, INSTRUMENT RESPONSE

9-25834
THOMAS HA + MCBRIDE AC
GAMMA DISCRIMINATION AND SENSITIVITIES OF AVERAGING AND RMS TYPE DETECTOR CIRCUITS FOR CAMPBELLING CHANNELS
JOHN JAY HOPKINS LABORATORY, SAN DIEGO, CALIF.
7 PAGES, 5 FIGURES, 7 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 15-21 (FEBRUARY 1968)

EXPERIMENTS ARE DESCRIBED IN WHICH THE PERFORMANCE FOR A LINEAR-TYPE DETECTOR CIRCUIT IS COMPARED WITH A MEAN-SQUARE-TYPE DETECTOR CIRCUIT FOR CAMPBELL MEASUREMENTS. THE NEED FOR PULSE OVERLAP IS DEMONSTRATED FOR THE LINEAR DETECTOR. APPLICATION OF COUNTING AND CAMPBELLING TECHNIQUES TO A SINGLE TEN-DECADE LOG CHANNEL IS DESCRIBED ALONG WITH AN ELECTRONIC COMBINING CIRCUIT FOR PRODUCING A SINGLE CONTINUOUS OUTPUT OF SUCH A CHANNEL.

*INSTRUMENTATION, CAMPBELLING + GAMMA + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, LOGARITHMIC + INSTRUMENTATION, NUCLEAR

9-25835
POPPER GF + HARRER JM
THE PERFORMANCE OF A COUNTING-MEAN-SQUARE VOLTAGE CHANNEL IN THE EBR-II
ARGONNE NATIONAL LABORATORY
6 PAGES, 4 FIGURES, 3 TABLES, 13 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 22-27

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25835 *CONTINUED*
(FEBRUARY 1968)

A WIDE-RANGE NEUTRON-FLUX-MONITORING TEST CHANNEL BASED ON COUNTING AND MEAN-SQUARE VOLTAGE TECHNIQUES HAS BEEN INSTALLED AT THE EBR-II. THE MEASURED RESPONSES TO NEUTRON FLUX ARE PRESENTED AND COMPARED TO THOSE PREDICTED. DATA TAKEN WHILE THE REACTOR IS ON AN ESSENTIALLY CONSTANT PERIOD DURING TYPICAL RE-STARTS ARE SHOWN. THE GAMMA DISCRIMINATION RATIO FOR THIS SYSTEM HAS BEEN DETERMINED AND IS DISCUSSED.

*INSTRUMENTATION, WIDE RANGE + COUNTER + EBR 1 AND 2 (RE) + FLUX, INTEGRATED + NEUTRON + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR

9-25836
WIEGAND DE
SUMMARY OF AN ANALYSIS OF THE EDDY-CURRENT FLOWMETER
ARGONNE NATIONAL LABORATORY
9 PAGES, 15 FIGURES, 2 TABLES, 7 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1), PAGES 28-36 (FEBRUARY 1968)

THE EDDY-CURRENT FLOWMETER SEEMS WELL ADAPTED TO MEASUREMENTS IN HIGH-TEMPERATURE LIQUID-METAL SYSTEMS WHERE DETERIORATION OF THE PROPERTIES OF PERMANENT MAGNETS AND OTHER FERRO-MAGNETIC PARTS OR BEARING PROBLEMS MAY SERIOUSLY DEGRADE THE PERFORMANCE OF OTHER TYPES. IT IS SHOWN ANALYTICALLY THAT VELOCITY-PROFILE ERRORS AND TEMPERATURE ERRORS CAN BE MINIMIZED BY SELECTING A SUITABLE OPERATING FREQUENCY.

*INSTRUMENTATION, FLOW + DESIGN STUDY + HIGH TEMPERATURE + METAL, LIQUID

9-25837
GLASS MC + POPPER GF
THE CALIBRATION AND STABILITY OF A 1200 F PERMANENT MAGNET
ARGONNE NATIONAL LABORATORY
4 PAGES, 3 FIGURES, 3 TABLES, 1 REFERENCE, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1), PAGES 37-40 (FEBRUARY 1968)

A PREVIOUSLY DESCRIBED PERMANENT-MAGNET IN-CORE FLOWMETER FOR USE IN SODIUM-COOLED REACTORS HAS BEEN FABRICATED AND INSTALLED IN THE ARGONNE NATIONAL LABORATORY (ANL) SODIUM FLOWMETER CALIBRATION LOOP. THE CALIBRATION TEST FACILITY AND PROCEDURES ARE DESCRIBED AND A TYPICAL FAMILY OF FLOWMETER CALIBRATION CURVES ARE PRESENTED. THE MEASURED SENSITIVITY IS COMPARED TO THAT THEORETICALLY PREDICTED AND THE DISCREPANCIES ARE DISCUSSED. LONG-TERM PERFORMANCE OF THE FLOWMETER IS DISCUSSED.

*INSTRUMENTATION, FLOW + DESIGN STUDY + HIGH TEMPERATURE + INSTRUMENTATION, IN CORE + METAL, LIQUID + SODIUM

9-25838
ROES JB
A DEWPOINT DEVICE FOR HTGR COOLANT
GENERAL DYNAMICS, GENERAL ATOMIC DIVISION, SAN DIEGO
5 PAGES, 5 FIGURES, 6 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, VOL NS-15(1), PAGES 41-45 (FEBRUARY 1968)

AN OPTICAL DEWPOINT DETECTOR HAS BEEN DEVELOPED THAT CAN BE USED EITHER AS A DEWPOINT MONITOR OR AS A DEWPOINT TRIP DEVICE. THE INSTRUMENT IS TYPICALLY 1 SEC IN THE DEWPOINT RANGE OF 27 F TO 128 F (100 TO 3000 PPM). AS A DEWPOINT MONITOR, THE MIRROR TEMPERATURE CAN BE CHANGED AT A RATE OF 1 F/SEC, IN THE RANGE OF -87 F TO +128 F (0.1 TO 3000 PPM). THE MOISTURE DETECTOR HEAD IS DESIGNED TO OPERATE AT THE FULL COOLANT PRESSURE OF 700 PSIA. THE DEVELOPMENT HAS RESULTED IN THE REALIZATION OF A RUGGED RELIABLE DEVICE THAT IS EXPECTED TO SATISFY THE MOISTURE DETECTION REQUIREMENTS FOR THE HTGR

*INSTRUMENTATION, COMPONENT + *WATER VAPOR + INSTRUMENTATION, GENERAL + INSTRUMENTATION, IN CORE + REACTOR, GCR

9-25839 ALSO IN CATEGORY 6
PEDERSEN K + MURPHY G
MEASUREMENT OF SHUTDOWN MARGIN
UNIVERSITY OF PUERTO RICO + IOWA STATE UNIVERSITY
11 PAGES, 7 FIGURES, 1 TABLE, 4 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1), PAGES 46-56 (FEBRUARY 1968)

A METHOD WAS DEVELOPED AND INVESTIGATED FOR DIRECTLY MEASURING THE SHUTDOWN MARGIN IN A REACTOR OPERATING AT A SUBCRITICAL STEADY STATE. MEASUREMENTS WERE MADE ON THE IOWA STATE UNIVERSITY UTR-10 REACTOR WITH CONDITIONS RANGING FROM ALMOST CRITICAL TO FULLY SHUT DOWN. IT WAS THE PURPOSE OF THIS INVESTIGATION TO EXPLORE A METHOD WHEREBY THE REACTOR TRANSFER FUNCTION MEASURED IN A REGION OF A REACTOR COULD BE USED TO MEASURE DIRECTLY ITS NEGATIVE REACTIVITY.

*REACTOR CONTROL + *SHUTDOWN MARGIN + COMPARISON, REACTOR CHARACTERISTICS + COMPARISON, THEORY AND EXPERIENCE + REACTIVITY EFFECT + REACTOR KINETICS + REACTOR, RESEARCH + TRANSFER FUNCTION

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25840 ALSO IN CATEGORY 6
TABAK D
A DIRECT AND NONLINEAR PROGRAMMING APPROACH TO THE OPTIMAL NUCLEAR REACTOR SHUTDOWN CONTROL
GENERAL ELECTRIC COMPANY, PHILADELPHIA, PA.
3 PAGES, 19 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE, NS-15(1) PAGES 57-59 (FEBRUARY 1968)

THE PROBLEM OF OPTIMAL SHUTDOWN CONTROL OF NUCLEAR REACTORS FOR XENON POISONING IS ATTACKED HERE USING A DIFFERENT APPROACH, AS COMPARED WITH PREVIOUS WORK. THE MINIMAX PROBLEM IS FIRST SOLVED USING DIRECT DIFFERENTIATION. THEN, A MODIFIED TIME OPTIMAL PROBLEM IS FORMULATED AND SOLVED, USING NONLINEAR PROGRAMMING, THEREBY BYPASSING THE DIFFICULTIES CREATED BY DYNAMIC PROGRAMMING AND THE MAXIMUM PRINCIPLE APPROACHES USED PREVIOUSLY. RESULTS OF COMPUTATIONAL EXAMPLES, USING THE NEW METHOD, ARE PRESENTED AND COMPARED WITH THE PREVIOUS ONES.

*REACTOR CONTROL + SHUTDOWN MARGIN + THEORETICAL INVESTIGATION

9-25841 ALSO IN CATEGORY 6
TABAK D
OPTIMIZATION OF NUCLEAR REACTOR FUEL RECYCLE VIA LINEAR AND QUADRATIC PROGRAMMING
GENERAL ELECTRIC COMPANY, PHILA., PA.
5 PAGES, 3 FIGURES, 2 TABLES, 5 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 60-64 (FEBRUARY 1968)

THE POSSIBILITY OF APPLYING LINEAR OR QUADRATIC PROGRAMMING TO THE PROBLEM OF OPTIMIZING REACTOR FUEL RECYCLE IS INVESTIGATED. IT IS DEMONSTRATED THAT THE METHODS MENTIONED MAY BE APPLIED SUCCESSFULLY TO A SIMPLIFIED MODEL OF A NUCLEAR REACTOR. AN APPROPRIATE REPRESENTATION OF THE FUEL RECYCLE AS A FEEDBACK CONTROL SYSTEM IS PROPOSED. AN ITERATIVE ALGORITHM TO ESTABLISH THE REFUELING TIMES, WHICH ARE UNKNOWN A PRIORI, IS FORMULATED AND IMPLEMENTED TO SOME SPECIFIC EXAMPLES. THE CONVERGENCE OF THE ALGORITHM PROPOSED IN THIS PAPER HAS BEEN ESTABLISHED NUMERICALLY.

REACTOR CONTROL + REACTOR KINETICS + REFUELING + THEORETICAL INVESTIGATION

9-25842
PRICE HJ + MOHLER RR
COMPUTATION OF OPTIMAL CONTROLS FOR A NUCLEAR ROCKET REACTOR
UNIVERSITY OF NEW MEXICO, ALBUQUERQUE, NEW MEXICO
9 PAGES, 7 FIGURES, 2 TABLES, 5 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 65-73 (FEBRUARY 1968)

COMPUTATIONS OF THE OPTIMAL CONTROL FOR A NUCLEAR ROCKET ARE CONSIDERED. THE NUMERICAL PROCEDURE IS BASED ON THE ITERATIVE SEQUENCE OF LINEAR PROGRAMMING PROBLEMS. IN THIS CONTEXT THE DISTINCTION BETWEEN STATE AND CONTROL LOSES MUCH OF ITS SIGNIFICANCE, AND INEQUALITY CONSTRAINTS, WHICH FORM AN INTEGRAL PART OF LINEAR PROGRAMMING, ARE AS EASILY APPLIED TO THE STATE AS TO THE CONTROL. THE FACT THAT EACH ITERATE SATISFIES ALL INEQUALITY CONSTRAINTS ELIMINATES THE INSTABILITY PROBLEMS ASSOCIATED WITH THE REACTOR.

NUCLEAR ROCKET + REACTOR CONTROL + THEORETICAL INVESTIGATION

9-25843
WOYSKI JS
INHERENT CONTROL OF NUCLEAR PROPULSION REACTORS
DOUGLAS AIRCRAFT COMPANY, SANTA MONICA, CALIF.
3 PAGES, 5 FIGURES, 6 REFERENCES, IEEE TRANS. OF NUCLEAR SCIENCE, NS-15(1), PAGES 74-76 (FEBRUARY 1968)

RECENT DEVELOPMENTS IN THE CONTROL OF NUCLEAR PROPULSION REACTORS ARE DISCUSSED. ANALOG SIMULATION STUDIES OF ENGINE PERFORMANCE HAVE EMPHASIZED (1) THE USE OF HYDROGEN PROPELLANT MODERATING QUALITIES FOR REACTOR POWER CONTROL, INSTEAD OF NEUTRON ABSORPTION IN THE CONTROL DRUMS, AND (2) THE USE OF REACTOR TEMPERATURE AS THE POWER REFERENCE, INSTEAD OF NEUTRON DENSITY. THE CONCEPT OF INHERENT CONTROL BASED ON THESE TWO FACTORS RESULTS IN A SMOOTHER CONTROL FUNCTION AND IN A SIMPLE AND RELIABLE CONTROL SYSTEM.

*CONTROL SYSTEM + *REACTOR CONTROL + NUCLEAR ROCKET + REACTOR, SPACE

9-25844 ALSO IN CATEGORY 6
DE VOLPI A + PECINA R + FREESE CH + ROLNICKI E + TRAVIS D + LARSEN G
EXTENDED CAPABILITY FOR FAST NEUTRON HODOSCOPE USED AT TREAT
ARGONNE NATIONAL LABORATORY
10 PAGES, 9 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 77-86 (FEBRUARY 1968)

THE FAST NEUTRON HODOSCOPE USED AT TREAT REACTOR FOR FUEL MELTDOWN STUDIES HAS BEEN IMPROVED TO PERMIT COUNT RATES ABOVE 10 TO THE 6TH/SEC IN EACH CHANNEL. ALSO A DIGITAL READOUT SYSTEM, BASED ON INTEGRATED CIRCUIT SCALERS, HAS BEEN INTRODUCED. PEAK INSTANTANEOUS DATA RATE CAPABILITY, NOW ABOUT 10 TO THE 7TH/SEC, CAN BE EXPANDED TO 10 TO THE 9TH/SEC.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25844 *CONTINUED*
*FUEL MELTDOWN + *INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + DATA PROCESSING + INSTRUMENTATION, NUCLEAR + INSTRUMENTATION, PULSE + INSTRUMENTATION, RECORDER + REACTOR, BREEDER + REACTOR, FAST + TREAT (PRR)

9-25845
TAKUMI K + TAGUCHI T
DIGITAL COMPUTER CONTROL OF A RESEARCH REACTOR
CENTRAL RESEARCH LABORATORY, HITACHI LTD., TOKYO
6 PAGES, 9 FIGURES, 5 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 87-92 (FEBRUARY 1968)

THIS REPORT DESCRIBES A FEASIBILITY EXPERIMENT FOR A FULLY AUTOMATIC OPERATION OF HITACHI TRAINING REACTOR, EMPLOYING AN DIGITAL COMPUTER CONTROL SYSTEM. THE SYSTEM CONSISTS OF A SMALL CONTROL COMPUTER (2K WORDS), AN INPUT-OUTPUT PERIPHERALS 3 BF3 COUNTERS AND A CONTROL ROD MECHANISM DRIVEN BY A PULSE MOTOR.

*COMPUTER CONTROL + COMPUTER, DIGITAL + JAPAN + REACTOR, RESEARCH

9-25846 ALSO IN CATEGORY 6
LIDOFSKY LJ
PROGRAMS AND SYSTEMS FOR ON-LINE COMPUTERS IN LOW ENERGY NUCLEAR PHYSICS
COLUMBIA UNIVERSITY, NEW YORK
10 PAGES, 3 FIGURES, 23 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 93-102 (FEBRUARY 1968)

SOME PROGRAMMING APPROACHES ARE DISCUSSED WHICH ARE IN USE OR ARE UNDER DEVELOPMENT FOR HANDLING ALL OR SOME FEATURES OF EXPERIMENTAL NUCLEAR PROCEDURES. THESE ARE REVIEWED AND COMPARED RATHER THAN DESCRIBED IN ANY GREAT DETAIL.

*COMPUTER PROGRAM + COMPUTER, DIGITAL + DATA PROCESSING + REVIEW

9-25847 ALSO IN CATEGORY 6
BIRNBAUM J + GELERNTER H
PROGRAMMING FOR AN ADVANCED NUCLEAR PHYSICS DATA ACQUISITION SYSTEM
IBM WATSON RESEARCH CENTER, NEW YORK + STATE UNIVERSITY OF NEW YORK AT STONY BROOK
8 PAGES, 1 REFERENCE, IEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 109-116 (FEBRUARY 1968)

EXPERIENCE IN THE DESIGN AND OPERATION OF A PREVIOUSLY REPORTED HARDWARE-SOFTWARE COMPUTER-BASED ON-LINE NUCLEAR PHYSICS DATA ACQUISITION SYSTEM IS DESCRIBED. MAJOR EMPHASIS IS PLACED UPON THE STRUCTURE OF THE PROGRAMMING SYSTEM, WHICH EMBODIES DATA ACQUISITION, DISPLAY, CONTROL, AND ANALYSIS FACILITIES, AND A SUPERVISOR CAPABLE OF COORDINATING THE PARALLEL OPERATION OF MULTIPLE TASKS. BASIC CONCEPTS, RATHER THAN DETAILS, ARE STRESSED THROUGHOUT.

*COMPUTER PROGRAM + COMPUTER, DIGITAL + DATA PROCESSING

9-25848 ALSO IN CATEGORY 6
YOUNG MH + BURRUS WR
A TRUE GAMMA-RADIATION SPECTROMETER
LOUISIANA STATE UNIVERSITY + OAK RIDGE NATIONAL LABORATORY
3 PAGES, 6 FIGURES, 3 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 142-144 (FEBRUARY 1968)

A TRUE GAMMA-RADIATION SPECTROMETER IS DESCRIBED WHICH UTILIZES A STANDARD 3 BY 3 INCH DIAMETER NAI(T1) SCINTILLATION DETECTOR AND OUTPUTS THE GAMMA SPECTRUM (IN PHOTONS) WITH ALL SPURIOUS PEAKS AND TAILS CORRECTED. A SMALL DIGITAL COMPUTER IS UTILIZED TO ACCUMULATE THE PULSE-HEIGHT DISTRIBUTION AND SIMULTANEOUSLY PERFORM A DIGITAL FILTERING OPERATION IN REAL TIME.

*SPECTROMETRY, GAMMA + INSTRUMENTATION, NUCLEAR

9-25849 ALSO IN CATEGORIES 15 AND 16
BRISTOW Q + THOMPSON CJ
A COMPUTER P.H.A. SYSTEM FOR REAL TIME OFF LINE ANALYSIS OF SPECTRA FROM AN AERIAL SURVEY FOR RADIOACTIVE MATERIALS
ATOMIC ENERGY OF CANADA LIMITED, OTTAWA, CANADA
7 PAGES, 9 FIGURES, 4 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 150-6 (FEBRUARY 1968)

A SYSTEM FOR REAL TIME PULSE HEIGHT ANALYSIS OF GAMMA RAY SPECTRA RECORDED ON MAGNETIC TAPE IN AN AIRCRAFT IS DESCRIBED. A PULSE HEIGHT TO WIDTH CONVERTER IS USED TO RECORD PULSES, WHOSE ORIGINAL AMPLITUDES ARE PROPORTIONAL TO THE GAMMA RAY ENERGIES, ON MAGNETIC TAPE. THE STORED PULSE WIDTHS ARE SUBSEQUENTLY FED INTO A DIGITAL EQUIPMENT CORPORATION PDP-9 COMPUTER VIA AN INTERFACE WHICH DIGITIZES THE WIDTHS USING HIGH SPEED INTEGRATED CIRCUIT COUNTING LOGIC.

GAMMA + INSTRUMENTATION, METEOROLOGICAL + MONITOR, RADIATION, GROUND SURFACE + SPECTROMETRY, GAMMA

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25850 ALSO IN CATEGORIES 14 AND 15
PHELPS PL
GAMMA-RAY SPECTROMETERS FOR THE ASSAY OF COMPLEX MIXTURES OF LOW CONCENTRATION OF RADIONUCLIDES IN ENVIRONMENTAL AND BIOLOGICAL MATERIALS
LAWRENCE RADIATION LABORATORY, LIVERMORE, CALIF.
7 PAGES, 15 FIGURES, 7 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 376-82 (FEBRUARY 1968)

A SERIES OF GAMMA-RAY SPECTROMETERS WERE DEVELOPED TO ASSAY RADIONUCLIDES IN BIOLOGICAL MATERIALS. THESE SPECTROMETERS INCORPORATED FEATURES THAT FACILITATE ACHIEVING THESE REQUIREMENTS. SAMPLES UP TO 8.5 CM IN DIAMETER AND 2.5 CM THICK ARE NOW ROUTINELY ANALYZED.

*SPECTROMETRY, GAMMA + DOSIMETRY, GENERAL + INSTRUMENTATION, COMPONENT + MONITOR, RADIATION, SAMPLING + SOLID STATE DEVICE

9-25851 ALSO IN CATEGORY 10
D ARMINIO G + AXELSON BH + AGNES L + HULLEY JR
ELECTRICAL FEATURES OF THE SELNI ENRICO FERMI ATOMIC POWER PLANT
SOCIETA ELETTRONUCLEARE ITALIANA, MILAN + WESTINGHOUSE ELECTRIC CORPORATION + GIBBS + HILL, INC.
9 PAGES, 6 FIGURES, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS VOL. 83, PAGES 93-101 (FEBRUARY 1964)

SUMMARIZES THE REACTOR AND ITS AUXILIARIES. THE ELECTRICAL SYSTEMS GENERALLY FOLLOW UNIT SYSTEM PRINCIPLES. DEPARTURES IN SOME RESPECTS WERE DICTATED BY THE USE OF ONE REACTOR AS A HEAT SOURCE AND TWO TURBINE-GENERATORS, AND BY NUCLEAR SAFETY CONSIDERATIONS. THE SYSTEMS ARE BRIEFLY DESCRIBED, AND DESIGN FEATURES RELATED TO REACTOR OPERATIONS AND SAFETY ARE DISCUSSED.

*ELECTRIC POWER, GENERAL + *REACTOR SAFETY SYSTEM + CONTROL ROD DRIVE + ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, NORMAL + ELECTRIC POWER, VITAL + ITALY + REACTOR CONTROL + REACTOR, PWR

9-25857 ALSO IN CATEGORIES 17 AND 6
SELECTED PEACH BOTTOM OPERATING EXPERIENCE
GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.
GA-8153 +. 60 PAGES, 32 FIGURES, 8 TABLES, 40-MW(E) PROTOTYPE HIGH-TEMPERATURE GAS-COOLED REACTOR POSTCONSTRUCTION RESEARCH AND DEVELOPMENT PROGRAM, QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JULY 31, 1967, AUGUST 30, 1967

(PAGE 10-14) POWER CALIBRATION TEST, (PAGE 14-21) PLANT CONTROL CONFIRMATION TEST, (PAGE 21-29) DYNAMIC VERIFICATION OF NUCLEAR STEAM SUPPLY SYSTEM, (PAGE 30-35) POWER COEFFICIENT TEST WITH VARIABLE FLOW AND POWER, (PAGE 35-37) XENON BUILDUP AND DECAY, (PAGE 37-40) VERIFICATION OF CORE HEAT-TRANSFER COEFFICIENT, (PAGE 43-44) SHIELDING SURVEY AT 100 PERCENT POWER, (PAGE 45-48) HELIUM-PURIFICATION-SYSTEM PERFORMANCE, (PAGE 48-51) MAIN-COOLANT-SYSTEM PARTICULATE MATTER, (PAGE 53-59) GASEOUS ACTIVITY DETERMINATIONS (IN MAIN COOLANT AND FUEL-ELEMENT PURGE SYSTEMS).

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

CONTROLLER + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + R AND D PROGRAM + REACTOR POWER + REACTOR STARTUP TESTING + REACTOR, HTGR + REPORT, OPERATIONS + TEST, SYSTEM OPERABILITY

9-25872
ZHERBIN KS + PERVUZVANSKIY AA
EFFICIENCY OF REPAIRABLE CONTROL SYSTEMS
7 PAGES, 3 FIGURES, 8 REFERENCES, ENGINEERING CYBERNETICS, NO. 2, PAGES 36-42 (1967)

EVALUATES AUTOMATIC CONTROL SYSTEM EFFICIENCY BY COMPARING THE GIVEN SYSTEM TO THE OPTIMAL AND TO THE IDEALLY FUNCTIONING SYSTEM. THE MATHEMATICAL EXPECTATION OF THE CRITICAL FUNCTIONAL, THE EFFICIENCY INDEX, OF THE AUTOMATIC CONTROL SYSTEM IS USED UNDER THE CONDITIONS OF INCOMPLETE RELIABILITY. EXPRESSIONS ARE OBTAINED FOR THE EFFICIENCY INDEX OF ONE CLASS OF SELF-ADJUSTING SYSTEMS FOR THE CASE OF FAILURES OF THE SELF-ADJUSTING NETWORK OF A DISCONNECTING TYPE.

*CONTROL SYSTEM + *RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT + QUALITY CONTROL + RELIABILITY, SYSTEM + THEORETICAL INVESTIGATION

9-25873
BEBIASHVILI SL + NAMICHEYSHVILI OM + KHUSKIVADZE AP
THE AVERAGE TIME OF TROUBLE-FREE OPERATION OF A COMPLEX SYSTEM
7 PAGES, 2 REFERENCES, ENGINEERING CYBERNETICS, NO. 2., PAGES 59-65 (1967)

PRESENTS CALCULATIONS FOR THE AVERAGE TIME OF TROUBLE-FREE OPERATION FOR A COMPLEX SYSTEM. CONSIDERATIONS ARE GIVEN TO PREVENTIVE MAINTENANCE AND TO THE FUNCTIONAL IMPORTANCE OF THE SYSTEM COMPONENTS WITH AN EXPONENTIAL LAW OF THEIR BEING TROUBLE FREE. UNDER THE ASSUMPTIONS THAT THE AVERAGE TIME OF TROUBLE-FREE OPERATION OF THE SYSTEM IS GIVEN AND CONDITIONS ARE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25873 *CONTINUED*
ENSURED FOR MAXIMUM EFFICIENCY, THE PROBLEM OF DETERMINING THE AVERAGE TIME TO FAILURE FOR THE INDIVIDUAL COMPONENTS IS SOLVED.

*CONTROL SYSTEM + *RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT + RELIABILITY, COMPONENT + RELIABILITY, SYSTEM + THEORETICAL INVESTIGATION

9-25895
LEVIN VI
ONE METHOD FOR ANALYZING THE RELIABILITY OF FINITE AUTOMATA
5 PAGES, AVTOMATIKA I TELEMEKHANIKA NO. 4, PAGES 114-18 (APRIL 1966), ABSTRACT IN AUTOMATION EXPRESS 8(4), PAGE 24 (1966)

CERTAIN TESTS FOR THE RELIABILITY OF FINITE-CONTROL SYSTEMS ARE CONSIDERED. A SIMPLE APPROXIMATION METHOD IS PROPOSED FOR ANALYZING THE RELIABILITY OF CONTROL SYSTEMS SYNTHESIZED FROM ELEMENTS SUBJECT TO MALFUNCTION. IN ADDITION TO FAILURES, THE METHOD ALSO TAKES INTO ACCOUNT INPUT ERRORS AND THE BLOCK DIAGRAM OF THE AUTOMATIC CONTROL SYSTEM.

*CONTROL SYSTEM + RELIABILITY, SYSTEM + TEST, INSTRUMENT RESPONSE + USSR

9-25896
BEZNOSOV GP + ZELENTOSOV BP
A FREQUENCY METHOD FOR ANALYZING RELIABILITY OF SYSTEMS WITH RESTORATION THAT CONSISTS OF SIMILAR ELEMENTS
6 PAGES, IZVESTIA SIBIRSKOVO OTDEL. AKAD. NAUK, SERIA TEKH. NAUK NO. 1, PAGES 106-11 (JAN-APRIL 1966), ABSTRACT IN AUTOMATION EXPRESS 8(4) PAGE 44 (1966)

A FREQUENCY METHOD IS USED TO DETERMINE SUCH CHARACTERISTICS AS THE MEAN TIME BETWEEN FAILURES, THE MEAN RESTORATION TIME, THE FREQUENCY OF SYSTEM FAILURES, AND THE LIMITING PROBABILITIES OF SYSTEM STATE.

*RELIABILITY ANALYSIS + *RELIABILITY, SYSTEM + FAILURE, INSTRUMENT + FREQUENCY SPECTRA + INSTRUMENTATION, COINCIDENT

9-25936 ALSO IN CATEGORY 17
TABOR WH
CONTROL ROD DRIVE PROBLEMS AT BSR
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2158 +. 25 PAGES, 1 FIGURE, 10 TABLES, FEBRUARY 28, 1968, FROM THE BULK SHIELDING FACILITY QUARTERLY REPORT, OCTOBER-DECEMBER OF 1967

A CONTROL-ROD-CLUTCH SWITCH FAILED DUE TO ACCUMULATED RUST BETWEEN THE MAGNET AND SWITCH ACTUATOR. AFTER CLEANING, A URETHANE SOLUTION WAS PAINTED ON THE SWITCH TO PREVENT CORROSION AND SHORTING OF THE SWITCH. BUT, EXCESS SOLUTION CAUSED THE SWITCH TO STICK, AND THE DRIVE UNIT HAD TO BE REMOVED AGAIN FOR CLEANING OF THE SWITCH. SPAT SWITCH FAILED ON ROD 6, AND THE GUIDE TUBE WAS REPLACED. SIX ROD DROPS OCCURRED DUE TO A DIRTY SWITCH, WATER IN THE UPPER SECTION OF A LIFT TUBE, AND A FAULTY MAGNET AMPLIFIER.

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

*FAILURE, INSTRUMENT + BSR (RR) + COATING, SURFACE + CONTROL ROD DRIVE + CORROSION + FAILURE, MAINTENANCE ERROR + INSTRUMENTATION, SWITCH + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, SPURIOUS

9-25986 ALSO IN CATEGORY 17
COSTNER RA + CRAMER EN + SCOTT RL
REACTOR OPERATOR STUDY HANDBOOK VOLUME V - INSTRUMENTATION AND CONTROLS
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2034, VOL. V +. 251 PAGES, 74 FIGURES, JUNE 1968

A SELF-TEACHING (PROGRAMMED INSTRUCTION) MANUAL COVERING (1) PRINCIPLES OF ELECTRICITY (WITH DEFINITION OF TERMS), AND COMPONENTS SUCH AS RESISTORS, TRANSFORMERS, ETC., (2) RADIATION-DETECTION INSTRUMENTS, (3) PHILOSOPHY OF REACTOR CONTROL, (4) CONTROL INSTRUMENTATION, (5) INSTRUMENT BEHAVIOR DURING AN ORDERLY REACTOR STARTUP, AND (6) PROCESS INSTRUMENTATION. EACH SECTION INCLUDES A LIST OF QUESTIONS FOR SELF-TESTING.

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

*INSTRUMENTATION, GENERAL + *PROCEDURES AND MANUALS + *STAFFING, TRAINING, QUALIFICATION + CONTROL SYSTEM + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, PROCESS + REACTOR, RESEARCH + SAFETY PRINCIPLES AND PHILOSOPHY

9-25995 ALSO IN CATEGORY 17
HAWTHORNE JR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-25995 *CONTINUED*
METALLURGICAL FAILURE ANALYSIS OF PM-3A REACTOR CONTROL ROD LIFTING KNOB
NAVAL RESEARCH LABORATORY
NRL-MR-1788 +. 24 PAGES, 7 FIGURES, 1 TABLE, JUNE 14, 1967

PRESENTS DETAILED OBSERVATIONS OF MATERIAL USED IN LIFTING KNOB. THE KNOB WAS MADE FROM 300-SERIES STAINLESS STEEL, NOT FROM 17-4 PH AS HAD BEEN SPECIFIED. RESULTS GIVEN FOR COMPOSITION ANALYSIS, MICROSTRUCTURAL EXAMINATION, AND HARDNESS SURVEY.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VA. 20545

*FAILURE, FABRICATION ERROR + COMPONENTS, MISCELLANEOUS + CONTROL ROD + EXAMINATION + FAILURE, SCRAM MECHANISM + MATERIAL + PM 3A (PWR) + QUALITY CONTROL + REACTOR, MILITARY + REACTOR, PWR + STEEL, STAINLESS

9-25998 ALSO IN CATEGORY 17
DRESDEN 1 CONTROL ROD DRIVE PROBLEMS
COMMONWEALTH EDISON COMPANY
10 PAGES, PAGES 8 THRU 17 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, JANUARY 23, 1968, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL

ELEVEN CONTROL-ROD DRIVES WERE REPLACED IN JANUARY BECAUSE OF PREVIOUS ABNORMALITIES (LONG INSERTION TIMES, JAMMING DUE TO FOREIGN MATERIAL IN DRIVES, WORN SEALS). LATER, 11 DIFFERENT RODS DISPLAYED ABNORMALITIES, DRIFTING OUT (4) OR DRIVING IN (1) WITHOUT SIGNAL, NOT DRIVING IN (2) OR NOT DRIVING OUT (1) WITH SIGNAL, AND POSITION INDICATOR SHOWING FULLY OUT WHILE INSTRUMENTATION SHOWING FULLY IN.

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

*CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM + DRESDEN 1 (BWR) + OPERATING EXPERIENCE + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

9-26002 ALSO IN CATEGORY 17
RELIANCE ON A SINGLE INFORMATION SOURCE LEADS TO OPERATING ERROR
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-4 +. 3 PAGES, AEC BULLETIN, OPERATING EXPERIENCE, REACTOR SAFETY, MAY 20, 1968

THE FUEL CENTERLINE TEMPERATURE IN THE CENTRAL PRESSURE TUBE WAS TO BE LIMITED TO 2790 C (UO2-PUO2 FUEL) BY LIMITING CENTRAL TUBE POWER TO 18.6 KW/FT (BY LIMITING AVERAGE POWER IN THE 6 SURROUNDING PRESSURE TUBES). THE REACTOR WAS BROUGHT TO 8 MW AND THEN INCREASED STEPWISE TO 45 MW (80% DESIRED). LINEAR-FLUX MONITORS READ HIGHER THAN EXPECTED AND INDICATED FLOW WAS 8,200 GPM RATHER THAN EXPECTED 10,600. A PARTIALLY OPEN BYPASS VALVE AROUND THE FLOWMETER WAS CAUSING AN ERRONEOUSLY LOW POWER-CALCULATOR READING. ***RISE TO POWER IS NOW IN SMALLER STEPS, WITH HEAT BALANCES GUIDED BY FLUX LEVELS AS WELL AS THERMAL POWER CALCULATOR.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*FAILURE, MAINTENANCE ERROR + *INSTRUMENTATION, FLOW + *INSTRUMENTATION, POWER RANGE + CENTERLINE MELTING + CONTROLLER + FAILURE, ADMINISTRATIVE CONTROL + IRRADIATION TESTING + OPERATING EXPERIENCE + REACTOR POWER + REACTOR, AEC OWNED + REACTOR, PRESSURE TUBE

9-26004 ALSO IN CATEGORY 17
INADVERTENT DISARMING OF SAFETY CIRCUIT INSTRUMENTATION
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE-68-6 +. 2 PAGES, USAEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 23, 1968

DURING THE STARTUP TESTING PHASE AT A PWR, AN INSTRUMENTATION TEST SIGNAL (INDICATING PRIMARY COOLANT TEMPERATURE OF 570 F) CAUSED THE STEAM-DUMP VALVES TO OPEN WHEN THE CONDENSER LOW-VACUUM TRIP WAS UNBLOCKED WHILE ESTABLISHING A VACUUM IN THE MAIN CONDENSER. THE EXCESSIVE COOLING (90 F IN 5 MIN) COULD HAVE BEEN A 1% REACTIVITY INCREASE LATE IN CORE LIFETIME. THE EXCESSIVE STEAM FLOW PRODUCED A STEAM/FEEDWATER MISMATCH SCRAM. ***PROTECTIVE CIRCUITRY SHOULD BE DESIGNED SO TEST DEVICES ARE READILY VISIBLE, AND CHECK SHEETS SHOULD INCLUDE A CHECK THAT ALL VALVE POSITIONS AND BYPASS MECHAMISMS ARE RETURNED TO NORMAL.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*INSTRUMENTATION, TESTING + *REACTOR STARTUP TESTING + FAILURE, MAINTENANCE ERROR + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TEMPERATURE + REACTOR, PWR + SCRAM, REAL + TURBINE

9-26068 ALSO IN CATEGORY 17
NBSR ROD DROP FAILURE
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.
6 PAGES, LETTER TO P.A. MORRIS FROM R.S. CARTER, MAY 10, 1968, DOCKET NO. 50-184

ON MAY 2, 1968, THE NO. 4 SHIM ROD FAILED TO DROP TO THE FULL-INSERT POSITION. INSPECTION SHOWED GALLING OF THE LOWER-SPRING-RETAINER ASSEMBLY. THE ASSEMBLY HAD BEEN ACCIDENTALLY DRIVEN INTO A FIXED MECHANICAL STOP DURING A CHECKOUT OF POSITION INDICATION. MAINTENANCE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-26068 *CONTINUED*
HAD BEEN PERFORMED, AND THE COMPONENTS HAD POSSIBLY BEEN REASSEMBLED IN A DIFFERENT ORIENTATION, WHICH WOULD AGGRAVATE GALLING. THE BALL SCREW AND SPRING RETAINER ASSEMBLY WERE REPLACED. NO SIMILAR INCIDENTS HAVE OCCURRED OR BEEN INDICATED IN OTHER UNITS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM + CP 5 (RR) + DAMAGE + FAILURE, MAINTENANCE ERROR + FAILURE, OPERATOR ERROR + NBS + OPERATING EXPERIENCE + REACTOR, HWR + REACTOR, RESEARCH

9-26074 ALSO IN CATEGORY 5
LEBL, P
EMERGENCY COOLING OF NUCLEAR POWER REACTOR USING NATURAL CIRCULATION OF THE COOLANT
POWER ENGINEERING INSTITUTE, PRAGUE
12 PAGES, JAD. ENERG., 13, PAGES 41-53 (FEBRUARY, 1967) IN CZECH

THE POSSIBILITY OF USING A NATURAL CIRCULATION OF THE COOLING SYSTEM FOR REACTOR COOLING FOLLOWING AN EMERGENCY SHUT-DOWN IS DISCUSSED. SUCH AN EMERGENCY COOLING SYSTEM DOES NOT RELY ON OUTSIDE POWER FOR GAS-BLOWN COOLING. THE CALCULATIONS OF THE NATURAL GAS CIRCULATION STATIC IN THE PRIMARY LOOP WERE APPLIED FOR THE CASE OF EMERGENCY REACTOR COOLING WITH ACCESS TO GAS BLOWERS. A SERIES OF PROBLEMS RELATED TO THE NATURAL GAS CIRCULATION IN THE REACTOR PRIMARY LOOP ARE ANALYZED. SPECIAL PROBLEMS INVOLVING PREPARATIONS FOR THE TESTS AND MEASUREMENTS NECESSARY FOR THE START UP OF A POWER PLANT AND PARTICULARLY EXPERIMENTAL EMERGENCY REACTOR SHUT-DOWN ARE DISCUSSED.

*EMERGENCY COOLING CONSIDERATIONS + *HEAT TRANSFER, GAS + *HEAT TRANSFER, NATURAL CONVECTION + REACTOR, GCR + THERMAL MECHANICAL EFFECT

9-26134
WRIGHT LW
AN OVERVIEW OF ELECTRONIC PART FAILURE ANALYSIS EXPERIENCE
CALIFORNIA INSTITUTE OF TECHNOLOGY, PASADENA
5 PAGES, 11 FIGURES, IEEE TRANSACTIONS ON RELIABILITY R-17(1), PAGES 5-9 (MARCH 1968)

FAILURE-ANALYSIS EXPERIENCE HAS SHOWN THE VAST MAJORITY OF ELECTRONIC PART FAILURES RESULT FROM RELATIVELY STRAIGHTFORWARD QUALITY DEFECTS AND MISUSE. WITHIN THE FRAMEWORK OF THIS EXPERIENCE, IT IS ESTIMATED THAT THE NUMBER OF PART FAILURES RESULTING FROM THESE SIMPLE CAUSES IS AT LEAST 100% GREATER THAN THAT DUE TO MORE SUBTLE TIME/ENVIRONMENT DEPENDENT FAILURE MECHANISMS. THEREFORE, EVEN FIRST-ORDER FAILURE ANALYSIS WITHOUT RESORT TO SOPHISTICATED FACILITIES AND TECHNIQUES CAN PROVIDE SUBSTANTIAL INFORMATION ABOUT THE CAUSE OF EQUIPMENT MALFUNCTION.

*RELIABILITY, COMPONENT + FAILURE, COMPONENT + FAILURE, INSTRUMENT + INSTRUMENTATION, COMPONENT + SOLID STATE DEVICE + TEST, PHYSICS

9-26135
SMITH JS + VACCARO J
PHYSICAL BASIS FOR EVALUATING THE RELIABILITY OF P-N JUNCTION DEVICES
7 PAGES, 3 FIGURES, 1 TABLE, 13 REFERENCES, IEEE TRANSACTIONS ON RELIABILITY R-17(1), PAGES 20-27 (MARCH 1968)

THE MEASUREMENT AND PREDICTION OF THE RELIABILITY OF SEMICONDUCTOR DEVICES IS BECOMING INCREASINGLY MORE DEPENDENT UPON AN UNDERSTANDING OF DEVICE PHYSICS IS. HOWEVER, CURRENT KNOWLEDGE INADEQUATE FOR MANY PRACTICAL PURPOSES. THIS PAPER REVIEWS THE PRESENT STATUS OF P-N JUNCTION THEORY, ITS RELEVANCE TO DEVICE DEGRADATION, AND THE EXPERIMENTAL TECHNIQUES AVAILABLE FOR MEASURING INTRINSIC DEVICE PROPERTIES. LIMITATIONS IN THE THEORY AND ADDITIONAL DEVELOPMENT REQUIRED TO MEET THE NEEDS OF DEVICE RELIABILITY EVALUATION AND PREDICTION ARE CONSIDERED. THE ROLE OF MODELING IN EVALUATING DEVICE RELIABILITY IS DISCUSSED.

*RELIABILITY, COMPONENT + FAILURE, COMPONENT + FAILURE, INSTRUMENT + INSTRUMENTATION, COMPONENT + SOLID STATE DEVICE + TEST, COMPONENT + TEST, PHYSICS

9-26136
SHIOMI H
APPLICATION OF CUMULATIVE DEGRADATION MODEL TO ACCELERATION LIFE TEST
7 PAGES, 8 FIGURES, 2 TABLES, 10 REFERENCES, IEEE TRANSACTIONS ON RELIABILITY R-17(1), PAGES 27-33 (MARCH 1968)

A GENERAL DEGRADATICN MODEL WHICH INCLUDES CONVENTIONAL ACCELERATION TESTS SUCH AS FIXED, PROGRESSIVE, AND STEP-STRESS EXPERIMENTS IS DERIVED FROM THE REACTION THEORY UNDER THE ASSUMPTION OF LINEAR DEGRADATION ACCUMULATION. ITS APPLICATION TO THE ACCELERATION TEST IS DISCUSSED.

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + TEST, COMPONENT + TEST, PHYSICS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-26137
SLAVIN MB + L LA TSIKERMAN
CERTAIN CHARACTERISTICS OF A METHOD FOR ESTIMATING THE RELIABILITY OF AUTOMATIC MONITORING SYSTEMS
5 PAGES, AVTOMATIKA I TELEMEKHANIKA 26(12), PAGES 2281-85, DECEMBER 1965, ABSTRACT IN AUTOMATION EXPRESS, ISSUE 4, 8(1), PAGE 26, (1966)

A METHOD IS CONSIDERED FOR ESTIMATING THE RELIABILITY OF AUTOMATIC MONITORING SYSTEMS WITH ALLOWANCE FOR THE CHARACTERISTICS OF THE MONITORED PLANT. THE CRITERION FOR ESTIMATING RELIABILITY IS CHOSEN TO BE THE MONITORING-ERROR PROBABILITY WHOSE MAGNITUDE DEPENDS ON (A) THE PARAMETERS OF THE TIME DISTRIBUTION FOR OCCURRENCE OF A NONOBVIOUS MALFUNCTION IN THE AUTOMATIC MONITORING SYSTEM, (B) ON THE PARAMETERS OF THE TIME DISTRIBUTION FOR APPEARANCE OF AN UNACCEPTABLE DEVIATION IN MONITORED PARAMETER, AND (C) ON THE FREQUENCY WITH WHICH THE AUTOMATIC CONTROL SYSTEM IS CHECKED.

*CONTROL SYSTEM + *RELIABILITY, SYSTEM + INSTRUMENTATION, CONTROL + MATHEMATICAL TREATMENT + PROBABILITY

9-26138
BORISENOK IT + BALAKIN BM
CONTROL SYSTEM WITH UNLOADED REDUNDANCY
1 PAGE, AUTOMATION EXPRESS, ISSUE 4, VOL. 8(1), PAGE 36, (1966)

A CONTROL SYSTEM WITH REDUNDANCY IS CONSIDERED FOR WHICH SOME OF THE REDUNDANT ACTUATING ELEMENTS ARE LOADED, WHILE SOME ARE NOT. PROPOSES A METHOD FOR DETECTING A SYSTEM MALFUNCTION AND ACTIVATING THE STANDBY UNLOADED ACTUATING ELEMENTS SO AS TO ENSURE NORMAL OPERATION OF THE CONTROL SYSTEM.

*CONTROL SYSTEM + *REDUNDANCE + INSTRUMENTATION, CONTROL + THEORETICAL INVESTIGATION + USSR

9-26140
RUDERMAN SI
SYSTEM RELIABILITY FOR RANDOM UTILIZATION
3 PAGES, IZVESTIA AKAD. NAUK, TEKHNICHESKAIA KIBERNETIKA NO. 6, PAGES 38-40 (NOV.-DEC. 1965), ABSTRACT IN AUTOMATION EXPRESS ISSUE 4, VOL. 8(1), PAGE 37 (1966)

SYSTEM OPERATING-TIME CHARACTERISTICS ARE COMPUTED, WITH ALLOWANCE FOR THE UTILIZATION MODE. PROBABILITY CHARACTERISTICS ARE DETERMINED FOR THE FAILURE-FREE OPERATING TIME, WITH ALLOWANCE FOR THE FACT THAT THE SYSTEM MAY NOT BE IN THE OPERATING STATE AT ALL TIMES.

*RELIABILITY, SYSTEM + CONTROL SYSTEM + MATHEMATICAL TREATMENT + PROBABILITY + THEORETICAL INVESTIGATION + USSR

9-26141
USHAKOV IA
APPROXIMATE SOLUTION OF AN OPTIMAL-REDUNDANCY PROBLEM
3 PAGES, RADIOTEKHNIKA 20, PAGES 65-67, NO. 12 (DECEMBER 1965), ABSTRACT IN AUTOMATION EXPRESS ISSUE 4, VOL 8(1), PAGE 37 (1966)

A SIMPLE APPROXIMATE SOLUTION IS GIVEN FOR AN OPTIMAL-REDUNDANCE PROBLEM, APPLICABLE TO MOST PRACTICAL CASES. VARIOUS RESTRICTING FACTORS SUCH AS WEIGHT, SIZE, COST, ETC., ARE CONSIDERED. SYSTEMS CONSIDERED ARE THOSE FOR WHICH MALFUNCTIONING ELEMENTS CAN NOT BE RESTORED TO SERVICE DURING OPERATION.

*CONTROL SYSTEM + REDUNDANCE + THEORETICAL INVESTIGATION + USSR

9-26142
KOROLIUK VS + TOMUSIAK AA
DESCRIPTION OF REDUNDANT-SYSTEM FUNCTIONING BY SEMI-MARKOV PROCESSES
5 PAGES, KIBERNETIKA NO. 5, PAGES 55-59 (SEPT.-OCT. 1965), ABSTRACT IN AUTOMATION EXPRESS ISSUE 4, VOL. 8(1), PAGE 38 (1966)

SEMI-MARKOV PROCESSES ARE FORMULATED FOR VARIOUS REDUNDANT SYSTEMS CONSISTING OF OPERATING, STANDBY, AND RESTORING DEVICES. SYSTEM CONTINUOUS OPERATING TIME AND THE BUSY PERIOD FOR RESTORING DEVICES AND DETERMINED.

*CONTROL SYSTEM + INSTRUMENTATION, CONTROL + MATHEMATICAL TREATMENT + PROBABILITY + REDUNDANCE + USSR

9-26143
ZELENTSOV BP + SAMOSHIN AV
ANALYZING RELIABILITY OF SYSTEMS WHOSE ELEMENTS HAVE TWO TYPES OF MALFUNCTION
IZVESTIA SIBIRSKOVO OTDEL. AKAD. NAUK, SERIA TEKHNICHESKIKH NAUK 3, PAGES 42-48, (SEPT.-DEC. 1965), ABSTRACT IN AUTOMATION EXPRESS ISSUE 4, VOL. 8(1), PAGE 42 (1966)

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-26143 *CONTINUED*
A METHOD FOR DETERMINING THE MEAN TIME TILL FAILURE FOR SYSTEMS WITH ELEMENTS HAVING TWO TYPES OF MALFUNCTION. THIS CHARACTERISTIC PERMITS PREVENTIVE MAINTENANCE TO BE PERFORMED IN TIME TO AVOID SYSTEM FAILURE.

*RELIABILITY, SYSTEM + MAINTENANCE AND REPAIR + MATHEMATICAL TREATMENT + PROBABILITY + REDUNDANCE + THEORETICAL INVESTIGATION + USSR

9-26268
HOLMES-SIEDLE AG
THE PHYSICS OF FAILURE OF MIS DEVICES UNDER RADIATION
ASTRO-ELECTRONICS DIVISION OF RCA, PRINCETON, N. J.
11 PAGES, 13 FIGURES, 42 REFERENCES, IEEE TRANSACTIONS ON RELIABILITY R-17(1), PAGES 34-44 (MARCH 1968)

UNLIKE THE SOLAR CELL AND THE NPN TRANSISTOR, THE METAL-OXIDE SEMICONDUCTOR (MOS) DEVICE DOES NOT SUSTAIN A DEGRADATION AS THE PRINCIPAL EFFECT OF EXPOSURE TO NUCLEAR RADIATION. INSTEAD IT UNDERGOES A CHANGE OF OPERATING REGION, A PARALLEL SHIFT OF THE CHARACTERISTIC CURVE OF THE DEVICE. OTHER CHANGES ARE VARIATIONS IN THE SHAPE OF THE CHARACTERISTIC CURVE AND INCREASED LEAKAGE CURRENT.

*RADIATION EFFECT + *RELIABILITY, COMPONENT + FAILURE, COMPONENT + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, COMPONENT + IRRADIATION TESTING + SOLID STATE DEVICE + TEST, PHYSICS

9-26433
ROES JB
ON THE CHOICE OF A MOISTURE DETECTOR FOR HTGR COOLANT LOOPS
GENERAL DYNAMICS CORP., SAN DIEGO
GAMD-5109 +. 31 PAGES, 5 FIGURES, 4 TABLES, 29 REFERENCES, JULY 29, 1964

THE REQUIREMENTS FOR A MOISTURE-DETECTION SYSTEM FOR HTGR REACTORS IS REVIEWED, AND A SURVEY OF MOISTURE-DETECTION TECHNIQUES IS PRESENTED. THE AVAILABLE SCHEMES ARE ANALYZED AND A RECOMMENDATION IS MADE THAT A SUITABLE OPTICAL DEWPOINT BE DEVELOPED.

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

*INSTRUMENTATION, COMPONENT + *INSTRUMENTATION, COOLANT QUALITY + *WATER VAPOR + DESIGN STUDY + INSTRUMENTATION, INDICATOR + LEAK + REVIEW + STEAM

9-26434
HSU C + BAILEY RE
OPTIMAL CONTROL OF SPATIALLY DEPENDENT NUCLEAR REACTORS
ARGONNE NATIONAL LABORATORY + PURDUE UNIVERSITY
2 PAGES, 4 REFERENCES, ANS TRANS. 10(2), PAGES 253-54, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

PONTRYAGINS THEOREM IS USED TO SOLVE FOR THE OPTIMAL CONTROL OF SPATIALLY DEPENDENT REACTORS. THIS APPROACH ALLOWS THE SOLUTION OF THIS TYPE CONTROL PROBLEM IN A GENERAL MANNER AND WITHOUT THE DANGER OF LOSING THE INSIGHT OF THE PHYSICAL SIGNIFICANCE OF THE SYSTEM.

*CONTROL SYSTEM + *REACTOR CONTROL + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-26435
ROSZTOCZY ZR
OPTIMAL XENON SHUTDOWN CONTROL OF THE NUCLEAR REACTORS
2 PAGES, 4 REFERENCES, ANS TRANS. 10(2), PAGES 256-57, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

SIMPLE ANALYTIC SOLUTIONS ARE FOUND FOR THE OPTIMAL CONTROL OF XENON POISONING WHEN A HIGH-FLUX THERMAL REACTOR IS SHUT DOWN. THE MINIMUM-POWER-LOSS PROBLEM IS IDENTICAL TO THE TIME-OPTIMAL AND MINIMUM-XENON-PEAK PROBLEMS.

*REACTOR CONTROL + CONTROL, GENERAL + MATHEMATICAL TREATMENT + REACTOR, THERMAL + XENON

9-26436 ALSO IN CATEGORY 6
SHEFF JR
FLUCTUATION MEASUREMENT OF REACTOR POWER
PACIFIC NORTHWEST LABORATORY
2 PAGES, 1 FIGURE, 3 REFERENCES, ANS TRANS. 10(2), PAGES 287-88, 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

IT IS SHOWN THAT THE METHOD OF SUYUKI FOR MEASURING REACTOR POWER THROUGH USE OF NEUTRON FLUCTUATIONS IS STILL VALID TO A GOOD APPROXIMATION WHEN REINTERPRETED IN TERMS OF A SPACE-DEPENDENT THEORY. THE METHOD IS MOST ACCURATE FOR SMALL SYSTEMS AND BECOMES LESS ACCURATE FOR INCREASING REACTOR SIZE OR FOR DETECTOR POSITIONS NEARING THE OUTER BOUNDARIES.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-26436 *CONTINUED*
PRELIMINARY INDICATIONS ARE THAT SIMILAR RESULTS ARE OBTAINED IN THE REFLECTED THREE-SLAB CASE.

*REACTOR POWER + FLUCTUATION + NEUTRON + NOISE ANALYSIS + THEORETICAL INVESTIGATION

9-26438 ALSO IN CATEGORY 6
SWANICK BH + GRAUPE D
ANALYSIS OF ON-LINE IDENTIFICATION AND CONTROL OF A NUCLEAR REACTOR
THE UNIVERSITY OF LIVERPOOL
14 PAGES, 19 FIGURES, 17 REFERENCES, THE JOURNAL OF THE BRITISH NUCLEAR ENERGY SOCIETY 7(1), PAGES 100-13 (JANUARY 1968)

THE CONCEPTS OF ON-LINE CONTROL TO AN IDEALIZED REACTOR SYSTEM ARE ILLUSTRATED, AND THE CONTROL PRINCIPLES ARE OUTLINED. THE SYSTEM WAS TESTED ON THE UNIVERSITIES RESEARCH REACTOR AND AIMED AT PROVIDING MORE EFFICIENT, ECONOMIC AND RELIABLE OPERATION. A KDF-9 COMPUTER WAS USED FOR MODEL AND SIMULATION TESTS.

*CONTROLLER + *REACTOR CONTROL + ANALYTICAL MODEL + COMPARISON, THEORY AND EXPERIENCE + CONTROL SYSTEM + REACTOR PHYSICS + REACTOR, RESEARCH + UNITED KINGDOM

9-26439
MONTEITH OB
PRELIMINARY RELIABILITY ANALYSIS FOR FFTF SAFETY CIRCUITS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-661 +. 29 PAGES, 2 FIGURES, 2 TABLES, 5 REFERENCES, MARCH 1968

A PRELIMINARY RELIABILITY PREDICTION FOR THE FAST FLUX TEST FACILITY REACTOR SAFETY SYSTEM IS REPORTED. THE SYSTEM IS ANALYZED FOR TWO FAILURE MODES - FAILURES THAT CAUSE SPURIOUS RESPONSES (REACTOR SCRAMS) AND FAILURES THAT RESULT IN THE INABILITY TO RESPOND TO UNSAFE CONDITIONS. RESULTS ARE PRELIMINARY BECAUSE THE SYSTEM IS A CONCEPTUAL VERSION AND COMPONENTS HAVE NOT BEEN SPECIFIED.

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

*REACTOR SAFETY SYSTEM + *RELIABILITY ANALYSIS + ANALYTICAL MODEL + COMPUTER PROGRAM + FFTF (TR) + MATHEMATICAL TREATMENT + REACTOR, FAST + REACTOR, TEST + THEORETICAL INVESTIGATION

9-26441
SPRINGER MD + THOMPSON WE
BAYESIAN CONFIDENCE LIMITS FOR RELIABILITY OF REDUNDANT SYSTEMS WHEN TESTS ARE TERMINATED AT FIRST FAILURE
8 PAGES, 1 FIGURE, 2 TABLES, 17 REFERENCES, TECHNOMETRICS 10(1), PAGES 29-36 (FEBRUARY 1968)

EXACT BAYESIAN CONFIDENCE LIMITS ARE DERIVED FOR THE RELIABILITY OF A REDUNDANT SYSTEM OF EXPONENTIAL SUBSYSTEMS, WHEN SUBSYSTEM TESTS ARE TERMINATED AT FIRST FAILURE. THE APPLICATION IS CONCEIVED FOR THE TREATMENT OF A REDUNDANT SYSTEM HAVING EXTREMELY HIGH RELIABILITY, AND ALLOWS A MONOMIAL FAMILY OF PRIOR DENSITY FUNCTIONS WHICH IS CONJUGATE WHEN TESTS ARE TERMINATED AT FIRST FAILURE. THE POSTERIOR PROBABILITY DENSITY FUNCTION OF SYSTEM RELIABILITY IS DERIVED USING THE MELLIN INTEGRAL TRANSFORM. THE INVERSION IS ACCOMPLISHED BY THE METHOD OF RESIDUES. FROM THE DENSITY FUNCTION THE DISTRIBUTION FUNCTION IS OBTAINED WHICH YIELDS CONFIDENCE LIMITS ON RELIABILITY BY NUMERICAL INVERSION.

*RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, SYSTEM + STATISTICAL ANALYSIS + TESTING

9-26469
MAGLADRY, R
HYDROGEN DIFFUSION REACTOR CONTROL
U.S. PATENT 3,351,534+. 3 PAGES, JUNE 12, 1964

A HYDROGEN FLOW SYSTEM FOR REACTOR CONTROL IS DESCRIBED. THE REACTOR CONTROL SYSTEM CONSISTS OF AN EXTERNAL HYDROGEN SOURCE WITH REVERSIBLE FLOW CONTROL AND A HYDRIDE MATERIAL LOCATED IN THE CORE ZONE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. (25 CENTS/COPY)

*CONTROL SYSTEM + *HYDRIDE + *REACTOR CONTROL + PATENT + SERVOMECHANISM + UNITED STATES

9-26509
WEISS DW + BUTLER DM
APPLIED RELIABILITY ANALYSIS, PART II
15 PAGES, 9 FIGURES, 1 REFERENCES, JOURNAL OF THE ELECTRONICS DIVISION, AMERICAN SOCIETY FOR QUALITY CONTROL 5(4), PAGES 3-17 (OCTOBER 1967)

SUMMERIZES SOME OF THE VALUES OF PROBLEMS ASSOCIATED WITH RELIABILITY ANALYSIS DURING THE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-26509 *CONTINUED*
DESIGN, DEVELOPMENT, AND OPERATIONAL PHASES OF SYSTEM EVOLUTION. PROBLEMS RELATED TO SYSTEM RELIABILITY MODELING AND COMPUTATION ARE PRESENTED TO INDICATE SOME OF THE MODELING METHODS AND THEIR POTENTIAL VALUE. THE RELIABILITY GROWTH PROCESS DURING THE SYSTEM-DEVELOPMENT PHASE IS DISCUSSED ALONG WITH METHODS OF MEASURING THE GROWTH.

*RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, SYSTEM

9-26510
WEISS DW + BUTLER DM
APPLIED RELIABILITY ANALYSIS, PART I
5 PAGES, 3 FIGURES, JOURNAL OF THE ELECTRONICS DIVISION, AMERICAN SOCIETY FOR QUALITY CONTROL 5(3), PAGES 27-31 (JULY 1967)

SUMMARIZES SOME OF THE VALUES OF PROBLEMS ASSOCIATED WITH RELIABILITY ANALYSIS DURING THE DESIGN, DEVELOPMENT, AND OPERATIONAL PHASES OF SYSTEM EVOLUTION. PROBLEMS RELATED TO SYSTEM RELIABILITY MODELING AND COMPUTATION ARE PRESENTED TO INDICATE SOME OF THE MODELING METHODS AND THEIR POTENTIAL VALUE. THE RELIABILITY GROWTH PROCESS DURING THE SYSTEM-DEVELOPMENT PHASE IS DISCUSSED ALONG WITH METHODS OF MEASURING THIS GROWTH.

*RELIABILITY ANALYSIS + REDUNDANCE + RELIABILITY, SYSTEM

9-26513 ALSO IN CATEGORY 10
VERBER F
FURTHER DEVELOPMENTS IN CONTAINMENT-BUILDING ELECTRICAL PENETRATIONS
8 PAGES, 13 FIGURES, 1 TABLE, 6 REFERENCES, REACTOR AND FUEL-PROCESSING TECHNOLOGY 11(1), PAGES 5-12 (WINTER 1967-1968)

REVIEWS SOME ELECTRICAL PENETRATION PROBLEMS AND SOLUTIONS EXPERIENCED DURING PLANT OPERATIONS AT FERMI AND AT PEACH BOTTOM. DESCRIBES FIRE-PROTECTION MODIFICATIONS TO THE PENETRATIONS AND TO THE ELECTRICAL DESIGN AT PEACH BOTTOM AFTER A FIRE. ALSO PRESENTS RECENT DEVELOPMENTS IN THE DESIGN OF THE DRESDEN-2 ELECTRICAL PENETRATION SYSTEM AND ASSEMBLIES.

*CONTAINMENT PENETRATION, ELECTRICAL + DESIGN CRITERIA + DRESDEN 2 (BWR) + ELECTRICAL CONDUCTION + EQUIPMENT DESIGN + FERMI (LMFBR) + FIRE + INSTRUMENTATION, COMPONENT + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + REACTOR, BWR + REACTOR, HTGR + REACTOR, LMFBR

9-26578 ALSO IN CATEGORIES 17 AND 5
MAKINO K
DETECTION OF FAILED FUEL AT JPDR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1147 +. 23 PAGES, REFERENCES, FEBRUARY, 1967

THE FAILED FUEL WAS FIRST OBSERVED IN DEC. 1964 BY AN ACTIVITY MONITOR ON THE OFF-GAS STORAGE TANK, BUT OPERATION CONTINUED UNTIL EARLY 1966 BEFORE THE RELEASE RATE EXCEEDED STACK LIMITS. LOCALIZING THE FAILED ASSEMBLY WAS ACCOMPLISHED BY ROD SWAPPING TO GIVE FLUX TITL. BY INSERTING A PIPE IN THE ASSEMBLIES AND THEN SAMPLING THE OUTLET WATER OF EACH FUEL CHANNEL UNDER LOW-POWER CONDITIONS, THE FAILED ASSEMBLY PROVED TO BE A SWAGED FUEL ASSEMBLY. ***SOME DISCUSSION OF THE FISSION-GAS-RELEASE BEHAVIOR DURING TRANSIENT CONDITIONS, AS GAS WAS RELEASED INTERMITTENTLY AT A CONSTANT RATE, BUT THE INTERVAL AND MAGNITUDE DEPENDED ON CONTROL-ROD POSITION, POWER, AND WATER LEVELS.

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

*FISSION GAS RELEASE + *INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, CLADDING + FUEL BURNUP + FUEL ELEMENT + JAPAN + OPERATING EXPERIENCE SUMMARY + PRESSURE, INTERNAL + REACTOR, BWR

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25203 ALSO IN CATEGORIES 18 AND 12
RUSSELVILLE AMENDMENT 1
ARKANSAS POWER AND LIGHT CO.
153 PAGES, FIGURES, TABLES, REFERENCES, FEB. 14, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES TO CORRECT ERRORS AND PRESENT INFORMATION ON CHANGES IN DESIGN WHICH HAVE BEEN INFORMALLY REQUESTED BY DRL STAFF, PRINCIPALLY WITH RESPECT TO THE EMERGENCY CORE-COOLING SYSTEM AND ELECTRICAL SYSTEMS. ALSO INCLUDES NEW APPENDIX 2-F, A SAFETY INVESTIGATION OF DARDANELLE LOCK AND DAM.

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

AEC QUESTION + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

10-25207
PENESCU C + IONESCU V
COMPLEX OPTIMIZATION OF POWER SYSTEMS BY MEANS OF FREQUENCY-VOLTAGE REGULATION
TOKYO INSTITUTE OF TECHNOLOGY
10 PAGES, 5 TABLES, 7 REFERENCES, PAGES 21C.1 THRU 21C.10 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

THE COMPLEX OPTIMIZATION OF POWER SYSTEMS MEANS THE ESTABLISHMENT OF BOTH REAL AND REACTIVE LOADING FOR EACH GENERATING UNIT, CORRESPONDING TO AN ECONOMIC MINIMUM OF EXPENSES NEEDED FOR THE PRODUCTION OF ELECTRIC POWER. THIS METHOD IS BASED ON THE CORRELATIONS BETWEEN THE OPERATION OF THE AUTOMATIC FREQUENCY CONTROL AND OF THE AUTOMATIC VOLTAGE CONTROL. THE METHOD OF THE MIXED CONTROL FREQUENCY-VOLTAGE ALLOWS THROUGH THE MODIFICATION OF THE VOLTAGE LEVEL IN THE GENERATING BUSES THE ENSURING OF THE OPTIMUM ALLOCATION OF REACTIVE POWER GENERATION.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*ELECTRIC POWER, NORMAL + ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, GENERAL + MATHEMATICAL TREATMENT + POWER DISTRIBUTION + THEORETICAL INVESTIGATION

10-25208 ALSO IN CATEGORY 9
VITEK V + JOSEFUS J
STATISTICAL METHODS IN THE AUTOMATION OF THE OPERATION CONTROL OF POWER SYSTEMS
CESKOSLOVENSKA AKADEMIE VED
9 PAGES, 10 FIGURES, 1 TABLE, 4 REFERENCES, PAGES 21G.1 THRU 21G.9 OF PROCEEDINGS OF THE THIRD CONGRESS OF THE INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, LONDON, 1966

CONSIDERS TWO PARTICULAR CASES OF USING STATISTICAL METHODS FOR SOLVING PROBLEMS OF AUTOMATION OF OPERATION CONTROL OF POWER SYSTEMS. THE METHOD PERMITS DETERMINING THE FREQUENCY BIAS OF POWER SYSTEMS AND THE DISPERSIONS OF RANDOM CHANGES IN THEIR LOADING, FROM MEASUREMENT AND PROCESSING OF THE RANDOM CHANGES IN THE FREQUENCY AND FLOW OF TIE-LINE POWER.

AVAILABILITY - THE INSTITUTION OF MECHANICAL ENGINEERS, 1 BIRDCAGE WALK, LONDON SW1, ENGLAND, $81.00 A SET

*CONTROL SYSTEM + *ELECTRIC POWER, GENERAL + POWER DISTRIBUTION + STATISTICAL ANALYSIS + STATISTICAL CORRELATION

10-25272
SLEMMER WE
PLANNING FOR SYSTEM RELIABILITY
CONSULTING POWER SYSTEM ENGINEER, EBASCO SERVICES INCORPORATED
10 PAGES, 5 FIGURES, PRESENTED AT THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 24, 1968

SYSTEM PLANNING IS AN ALL-INCLUSIVE FUNCTION. IT CONSIDERS ALL PARTS OF THE SYSTEM FROM THE RAW ENERGY SUPPLY TO THE ULTIMATE ELECTRIC SERVICE. IT ALSO CONSIDERS THE OPERATION OF THE SYSTEM UNDER BOTH NORMAL AND EMERGENCY CONDITIONS. SYSTEM PLANNING SHOULD ENSURE RELIABILITY AT MINIMUM PRACTICAL COST WHICH INVOLVES TWO FACTORS. THE FIRST IS ENSURING THAT SUFFICIENT CAPACITY IS AVAILABLE IN ALL PARTS OF THE SYSTEM WHEN NEEDED TO MEET LOAD REQUIREMENTS. THE SECOND IS COORDINATION OF RELIABILITY AMONG SYSTEM COMPONENTS, PRODUCTION, TRANSMISSION, AND THE DISTRIBUTION SYSTEM.

AVAILABILITY - W. E. SLEMMER, CONSULTING POWER SYSTEM ENGINEER, EBASCO SERVICES INCORPORATED

*ELECTRIC POWER, GENERAL + *RELIABILITY, SYSTEM + ECONOMICS + ELECTRIC POWER, AUXILIARY

10-25397
REGULY Z

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25397 *CONTINUED*
RELIABILITY INVESTIGATIONS OF ELECTRIC DISTRIBUTION NETWORKS
POLYTECHNICAL UNIVERSITY, BUDAPEST, HUNGARY
25 PAGES, 11 REFERENCES, PERIODICA POLYTECHNICA--ELECTRICAL ENGINEERING, VOL 10, PAGES 99-123 (1966), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(5), PAGE 74 (MAY 1968)

MATHEMATICAL CONCEPTS AND OPERATIONS USED FOR INVESTIGATING RELIABILITY OF ELECTRIC DISTRIBUTION NETWORKS ARE PRESENTED. USING SET THEORY AND PROBABILITY ARITHMETIC, IT IS SHOWN THAT A GENERAL METHOD CAN BE EVOLVED FOR THE NUMERICAL EVALUATION OF THE RELIABILITY OF WIDELY VARYING NETWORK CONFIGURATIONS AS WELL AS FOR DETERMINING THE MAINTENANCE OUTAGE RATES. INCLUDED IN THE MATHEMATICAL SURVEY ARE THE DERIVATION OF APPLIED BASIC CONCEPTS OF SET THEORY AND FUNDAMENTAL CONCEPTS OF PROBABILITY THEORY.

ELECTRIC POWER, GENERAL + RELIABILITY, SYSTEM

10-25460 ALSO IN CATEGORY 9
SIMULATORS FOR TRAINING IN THE ELECTRIC POWER INDUSTRY
CURTISS-WRIGHT CORPORATION
17 PAGES, 1968, BOOKLET PUT OUT BY CURTISS-WRIGHT CORP., ELECTRONICS DIVISION

A SIMPLE BOOKLET INDICATING CURTISS-WRIGHT CORP. EXPERIENCE WITH SIMULATORS - DIGITAL AND ANALOG. LISTS SCOPE OF SIMILATION FOR A BIOLER-OPERATION-PROCEDURES TRAINER. PROPOSES A POWER STATION SIMULATOR FOR TRAINING OPERATORS. BRIEF INDICATION OF DESIGN APPROACH, EQUIPMENT, CAPABILITY, AND ADVANTAGES.

AVAILABILITY - CURTISS-WRIGHT CORPORATION, ELECTRONIC DIVISION

*SIMULATION + *STAFFING, TRAINING, QUALIFICATION + COMPUTER, ANALOG + COMPUTER, DIGITAL + ELECTRIC POWER, GENERAL + OPERATION + REACTOR, POWER + STEAM GENERATOR

10-25461 ALSO IN CATEGORY 9
POWER STATION PROCEDURE TRAINER
CURTISS-WRIGHT CORPORATION, EAST PATERSON, NEW JERSEY
4 PAGES, PAMPHLET PUT OUT BY THE CURTISS-WRIGHT CORPORATION, 1968

A PAMPHLET BRIEFLY DESCRIBING THE CURTISS-WRIGHT CORP. TRAINER DESIGNED FOR CLASSROOM USE. ELEMENTS OF CONTROL OF A SUPERHEAT AND REHEAT FURNACE THAT ARE SIMULATED ARE FUEL, AIRFLOW, FEED WATER, TEMPERATURE AND PRESSURE FOR ANY VALUE OF STEAM FLOW. INCLUDES ANNUNCIATOR POINTS FOR STARTUP AND MONITORING OF IMPORTANT FURNACE CONDITIONS. INSTRUCTORS CONSOLE PERMITS CLEARING STEPS OF PROCEDURE AND INSERTION OF MALFUNCTIONS.

AVAILABILITY - CURTISS-WRIGHT CORPORATION, ELECTRONICS DIVISION, 35 MARKET ST., EAST PATERSON, NEW JERSEY

*OPERATION + *SIMULATION + *STAFFING, TRAINING, QUALIFICATION + COMPUTER, DIGITAL + ELECTRIC POWER, GENERAL + REACTOR, POWER

10-25646 ALSO IN CATEGORY 18
AMENDMENT 5 SECTION 3 - ADDITIONAL INFORMATION ON PARALLEL OPERATION OF DIESEL GENERATORS
TENNESSEE VALLEY AUTHORITY
6 PAGES, PAGES 3.1-1 THRU 3.6-1 OF AMENDMENT 5, BROWNS FERRY NUCLEAR POWER STATION, UNIT 3, DESIGN AND ANALYSIS REPORT, APRIL 18, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

PARALLELING WOULD BE NECESSARY 1 HR AFTER A LOSS OF OFF-SITE POWER TO START BIG MOTORS FOR THE RHR PUMPS AND TO CARRY OTHER LONG-TERM LOADS. A SINGLE DIESEL CANNOT CARRY OTHER LONG-TERM LOADS. A SINGLE DIESEL CANNOT CARRY CORE-SPRAY PUMPS AND WITHSTAND STARTING TORQUE OF RHR PUMP MOTORS. TIME MARGIN TO MELT CLADDING, ASSUMING THAT DIESEL POWER IS LOST AN HOUR AFTER ACCIDENT, IS 18 MIN FLOODED AND 13 MIN WITH CORE-SPRAY COOLING.

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

*ACCIDENT, LOSS OF POWER + *GENERATOR, ENGINE + AEC QUESTION + BROWNS FERRY (BWR) + CORE SPRAY + EMERGENCY POWER, ELECTRIC + OPERATION + REACTOR, BWR + REPORT, PSAR + SHARED COMPONENTS

10-25671 ALSO IN CATEGORY 9
KENT MF
THE MANUFACTURERS ROLE IN SYSTEM RELIABILITY
GENERAL ELECTRIC COMPANY
6 PAGES, AN ADDRESS AT THE ANNUAL MEETING OF THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23, 1968

A NONTECHNICAL AFTER-DINNER SPEECH ABOUT THE MANUFACTURERS RESPONSIBILITY TO PROVIDE A DEPENDABLE PRODUCT AT A REASONABLE PRICE.

AVAILABILITY - M. F. KENT, VICE PRESIDENT AND GENERAL MANAGER, POWER GENERATION SALES DIVISION, GENERAL ELECTRIC COMPANY

ECONOMICS + ENGINEERED SAFETY FEATURE + REDUNDANCE + RELIABILITY, SYSTEM

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25689
MALLARD SA + THOMAS VC
A METHOD FOR CALCULATING TRANSMISSION SYSTEM RELIABILITY
PACIFIC GAS AND ELECTRIC COMPANY, NEWARK, NEW JERSEY
11 PAGES, 6 FIGURES, 5 TABLES, 8 REFERENCES, IEEE TRANS. ON POWER APPARATUS AND SYSTEMS, PAS-87(3), PAGES 824-834 (MARCH 1968)

A METHOD APPLYING PROBABILITY TECHNIQUES IS PRESENTED FOR ANALYZING THE RELIABILITY OF A TRANSMISSION SYSTEM. THE METHOD CONSIDERS GENERATION AND TRANSMISSION EQUIPMENT PERFORMANCE, WEATHER CONDITIONS, LOAD CYCLES, GENERATION DISPATCH, INTERCONNECTIONS, AND THE EFFECT OF SCHEDULED OUTAGES. TO DATE, A MATHEMATICAL MODEL HAS BEEN DEVELOPED TO SIMULATE THE OPERATION OF A TRANSMISSION SYSTEM AND TO EVALUATE RELIABILITY. THIS MODEL HAS BEEN APPLIED TO STUDY SEVERAL SPECIFIC PORTIONS OF A SYSTEM.

*ELECTRIC POWER, AUXILIARY + *RELIABILITY ANALYSIS + ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL

10-25719 ALSO IN CATEGORIES 18 AND 12
MILLSTONE POINT FINAL SAFETY ANALYSIS REPORT. VOLUME 2
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
350 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

INCLUDES THE FOLLOWING - (1) SECTION VI, ENGINEERED SAFEGUARDS - FAILURE-RATE DATA USED TO COMPUTE ECCS AVAILABILITY AS 0.99969. (2) SECTION VII, I AND C. (3) SECTION VIII, ELECTRICAL SYSTEM - A 12-MW GAS TURBINE (FOR PEAKING POWER) ALSO SUPPLIED BUSES 3 AND 4, BACKING UP THE SINGLE DIESEL. (4) SECTION IX, RADIOACTIVE WASTE, (5) SECTION X, AUXILIARY SYSTEMS. (6) SECTION XI, TURBINE, INCLUDING MALFUNCTION BEHAVIOR. (7) SECTION XII, STRUCTURAL DESIGN.

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

*EMERGENCY COOLING CONSIDERATIONS + *GENERATOR, ENGINE + *RELIABILITY, SYSTEM + ELECTRIC POWER, SHUTDOWN + MILLSTONE POINT (BWR) + REACTOR, BWR + REPORT, SAR

10-25721 ALSO IN CATEGORIES 17 AND 9
REPORT ON CABLE FAILURES - 1968 - SAN ONOFRE UNIT 1
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
165 PAGES, 16 FIGURES, 10 TABLES OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

FIRES FEB. 7, AND MAR. 12 SHOWED THAT THE AWG6 WIRE FOR THE 480 PRESSURIZER HEATERS WAS BOTH THERMALLY OVERLOADED AND IN AN OVERFILLED CABLE TRAY, THUS OPERATING ABOVE THE 90 C DESIGN. HEAVY MECHANICAL LOADING RESULTED IN PHASE-TO-PHASE CONNECTION BETWEEN TWO SEPARATE HEATER CIRCUITS SUCH THAT CURRENT CONTINUED TO FLOW BELOW THE FUSE-BLOWOUT POINT. ***IN THE MAR. 12 COOLDOWN, BORIC ACID WAS INJECTED BY THE TRANSFER PUMP BECAUSE THE INJECTION-PUMP POWER WAS LOST. FOUR HOURS AFTER COOLDOWN STARTED, IT WAS HALTED WHEN BORON CONCENTRATION WAS FOUND REDUCING RATHER THAN INCREASING. BORIC ACID CRYSTALS WERE BLOCKING THE TRANSFER PUMP, WHILE MAKEUP-PUMP OPERATION WAS UNIMPEDED. ***A 6-MONTH SHUTDOWN TO MAKE $1.5 MILLION REPAIRS RESULTED.

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

*ACCIDENT ANALYSIS + *ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + *POISON, SOLUBLE + CONTAINMENT PENETRATION, ELECTRICAL + FAILURE, DESIGN ERROR + INDEPENDENCE + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY

10-25722 ALSO IN CATEGORY 17
SECTION 4 - SAFETY EVALUATION AND CORRECTIVE ACTION OF SAN ONOFRE CABLE FAILURE - 1968
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
29 PAGES, PAGES 4-1 THRU 4-29 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

POWER OR CONTROL WAS LOST FOR 6 EQUIPMENT ITEMS, 7 ENGINEERED SAFEGUARD ITEMS, AS WELL AS 17 OTHER ITEMS DUE TO LOSS OF 480-V BUS 2, AND THE LATTER LOSS REQUIRED SHUTDOWN AT 1 A.M. COOLDOWN AND BORON ADDITION SHOWED NO INCREASE IN SOURCE-RANGE INSTRUMENTS, BUT A SAMPLE AT 430 A.M. SHOWED BORON DILUTION FROM 1911 PPM TO 1638. MINIMUM SHUTDOWN MARGIN WAS 2.8%. ***A FLOWMETER WAS ADDED TO THE TRANSFER PUMP, ADDITIONAL INSULATION AND HEATING FOR THE BORIC ACID TANKS AND LINES, ADDITIONAL BREAKERS TO ISOLATE BUSES FROM DIESELS, SEPARATION OF AND RELOCATION OF CABLES FOR VARIOUS SYSTEMS, PYRALARM UNITS ADDED IN CABLE RUNS, ADDITIONAL TRAINING ON REVISED OPERATING INSTRUCTIONS, AND USE OF 3-WIRE INSTEAD OF SINGLE-WIRE CABLES.

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

*FIRE + *INCIDENT, EQUIPMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + DILUTION + ELECTRIC POWER, SHUTDOWN + ELECTRICAL CONDUCTION + INDEPENDENCE + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY + STAFFING, TRAINING, QUALIFICATION

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25723 ALSO IN CATEGORY 17
SECTION 5 - ELECTRICAL SYSTEM INVESTIGATION AND CORRECTIVE ACTION OF SAN ONOFRE CABLE FAILURES - 1968
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
14 PAGES, 2 FIGURES, PAGES 5-1 THRU 5-14 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

(FEB. 7) AWG6 WIRE IN THE PRESSURIZER-HEATER CIRCUITS WAS OVERHEATED IN THE RESTRICTED VENTILATION COWLINGS AT THE CONTAINMENT PENETRATIONS. MOISTURE COULD HAVE ENTERED THE SILICONE-RUBBER SEALS, LEADING TO ELECTRICAL BREAKDOWN. HEAT FROM FIRE DECOMPOSED INSULATION, EXPELLING THE OUTSIDE BULKHEAD FROM THE CANISTER. (MAR. 12) AGAIN, ALL THE HEATERS HAD BEEN IN SERVICE 9 HR AT 46 AMP AND FAILED IN THE BOTTOM OF A TRAY LOADED WITH TWICE THE PERCENTAGE OF CABLES (40) ALLOWED BY DESIGN CRITERIA, AT A SPOT WHERE CABLE-TO-TRAY TIES WERE MADE WITH WIRE (TRANSFORMER ACTION OVERHEATING). ***TESTS DUPLICATING FIRES, DESIGN CRITERIA, AND OTHER ANALYSES INCLUDED (ALSO SECT. 7 - DETAILS IN APPENDIXES.)

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

*ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + ACCIDENT ANALYSIS + DESIGN CRITERIA + ELECTRIC POWER, SHUTDOWN + FAILURE, DESIGN ERROR + FAILURE, INSTALLATION ERROR + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR)

10-25725 ALSO IN CATEGORY 17
SECTION 7.2-.4 CABLE TRAY THERMAL ANALYSIS AND DESIGN BASIS
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
22 PAGES, 5 TABLES, OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

DESIGN BASIS (3 PG), MATERIAL SPECIFICATION 225-63 FOR 600-V RUBBER-LIKE INSULATED CONTROL CABLES (20 PG). WORST POSSIBLE LOADING WITH A TIGHT BUNDLE OF POWER CABLE SURROUNDED BY CONTROL CABLE LAYER IS SOLVED TO OBTAIN AN EQUATION TO OBTAIN ALLOWABLE HEAT SOURCE. OF THE EIGHT SWITCHGEAR-ROOM 1-CABLE TRAYS, ONLY 1 WAS BELOW 100 C AT CENTER, AND ONE WAS AT 190. WITH THE REVISED INSTALLATION, ONLY ONE IS ABOVE 90 C.

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

*ELECTRICAL CONDUCTION + *TEMPERATURE GRADIENT + *THERMAL ANALYSIS + ANALYTICAL MODEL + ELECTRIC POWER, SHUTDOWN + INCIDENT, EQUIPMENT + REACTOR, PWR + SAN ONOFRE (PWR)

10-25851 ALSO IN CATEGORY 9
D ARMINIO G + AXELSON BH + AGNES L + HULLEY JR
ELECTRICAL FEATURES OF THE SELNI ENRICO FERMI ATOMIC POWER PLANT
SOCIETA ELETTRONUCLEARE ITALIANA, MILAN + WESTINGHOUSE ELECTRIC CORPORATION + GIBBS + HILL, INC.
9 PAGES, 6 FIGURES, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS VOL. 83, PAGES 93-101 (FEBRUARY 1964)

SUMMARIZES THE REACTOR AND ITS AUXILIARIES. THE ELECTRICAL SYSTEMS GENERALLY FOLLOW UNIT SYSTEM PRINCIPLES. DEPARTURES IN SOME RESPECTS WERE DICTATED BY THE USE OF ONE REACTOR AS A HEAT SOURCE AND TWO TURBINE-GENERATORS, AND BY NUCLEAR SAFETY CONSIDERATIONS. THE SYSTEMS ARE BRIEFLY DESCRIBED, AND DESIGN FEATURES RELATED TO REACTOR OPERATIONS AND SAFETY ARE DISCUSSED.

*ELECTRIC POWER, GENERAL + *REACTOR SAFETY SYSTEM + CONTROL ROD DRIVE + ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, NORMAL + ELECTRIC POWER, VITAL + ITALY + REACTOR CONTROL + REACTOR, PWR

10-25852
DESIENO CF + STINE LL
A PROBABILITY OF METHOD FOR DETERMINING THE RELIABILITY OF ELECTRIC POWER SYSTEMS
AMERICAN ELECTRIC POWER SERVICE CORP., NEW YORK + STANFORD UNIVERSITY, STANFORD, CALIF.
8 PAGES, 8 FIGURES, 2 REFERENCES, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS, VOL 83, PAGES 174-181 (FEBRUARY 1964)

THE MECHANICS OF COMPONENT FAILURE AND REPAIR ARE DISCUSSED, AND IT IS SHOWN 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, GENERAL + *RELIABILITY ANALYSIS + ANALYTICAL TECHNIQUE, GENERAL + THEORETICAL INVESTIGATION

10-25853
TODD ZG
A PROBABILITY METHOD FOR TRANSMISSION AND DISTRIBUTION OUTAGE CALCULATIONS
INDIANAPOLIS POWER AND LIGHT COMPANY, INDIANAPOLIS, IND.
7 PAGES, 8 FIGURES, 2 TABLES, 4 REFERENCES, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS, VOL 83, PAGES

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25853 *CONTINUED*
695-701 (JULY 1964)

PROBABILITY ARITHMETIC IS APPLIED TO HISTORIC FAILURE RATES OF COMPONENTS TO EVALUATE THE EXPECTED OUTAGE FREQUENCIES AND DURATIONS AT ANY POINT IN AN ELECTRIC SYSTEM. CALCULATIONS REVEAL THE PORTION OF TIME THAT A NUMBER OF ITEMS WILL BE SUBJECTED TO SIMULTANEOUS OCCURRENCES. IN TURN, THESE CAN BE RELATED TO SIMULTANEOUS CONDITIONS THAT MUST PREVAIL FOR POWER TO FLOW IN SERIES AND PARALLEL COMBINATIONS OF SYSTEM COMPONENTS.

*ELECTRIC POWER, GENERAL + *RELIABILITY ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + OPERATING EXPERIENCE

10-25854
GAVER DP + MONTMEAT FE + PATTON AD
POWER SYSTEM RELIABILITY AND METHODS OF CALCULATION
WESTINGHOUSE ELECTRIC CORPORATION + PUBLIC SERVICE ELECTRIC AND GAS COMPANY
11 PAGES, 9 FIGURES, 2 TABLES, 7 REFERENCES, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS VOL. 83, PAGES 727-37 (JULY 1964)

THE PROBABILITY METHODS PRESENTED WILL PERMIT IMPORTANT MEASURES OF RELIABILITY IN GENERAL POWER-SYSTEM NETWORKS TO BE CALCULATED FROM BASIC SYSTEM-COMPONENT DATA. THUS, THE RELIABILITY OF ALTERNATIVE PROPOSED SYSTEMS CAN BE COMPARED TO DISCOVER THE SYSTEM WHICH YIELDS THE HIGHEST RELIABILITY OR DESIRED LEVEL OF RELIABILITY AT LOWEST COST. IMPORTANT FEATURES OF THE METHOD INCLUDE THE ABILITY TO CONSIDER FAILURE BUNCHING CAUSED BY STORMS AND OUTAGES AS A RESULT OF COMPONENT OVERLOADING IN PARALLEL SYSTEMS.

*ELECTRIC POWER, GENERAL + *RELIABILITY ANALYSIS + ANALYTICAL TECHNIQUE, GENERAL + ECONOMICS + OPERATING EXPERIENCE + REDUNDANCE + RELIABILITY, SYSTEM

10-25855
WATCHORN CW
A REVIEW OF SOME BASIC CHARACTERISTICS OF PROBABILITY METHODS AS RELATED TO POWER SYSTEM PROBLEMS
PENNSYLVANIA POWER AND LIGHT COMPANY, ALLENTOWN, PA.
7 PAGES, 7 FIGURES, 1 TABLE, 1 REFERENCE, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS VOL. 83, PAGES 737-43 (JULY 1964)

THIS PAPER PRESENTS SOME BASIC CONCEPTS OF THE PHYSICAL SIGNIFICANCE OF VARIOUS ASPECTS OF PROBABILITY METHODS AS APPLIED TO POWER-SYSTEMS GENERATING-CAPACITY PROBLEMS. IT ALSO DISCUSSES THE PHYSICAL MEANING AND INTERRELATION OF VARIOUS STANDARDS OF SERVICE RELIABILITY AND THE DETERMINATION OF THE INSTALLED CAPACITY BENEFITS OF AN INTERCONNECTION BY MEANS OF THE APPLICATION OF PROBABILITY METHODS.

*ELECTRIC POWER, GENERAL + *RELIABILITY ANALYSIS + ELECTRIC POWER, AUXILIARY + ELECTRIC POWER, NORMAL + RELIABILITY, SYSTEM + REVIEW

10-25856
MONTMEAT FE + PATTON AD + ZEMKOSKI J + CUMMING DJ
POWER SYSTEM RELIABILITY II--APPLICATIONS AND A COMPUTER PROGRAM
PUBLIC SERVICE ELECTRIC AND GAS COMPANY + WESTINGHOUSE ELECTRIC CORPORATION
8 PAGES, 10 FIGURES, 2 TABLES, 1 REFERENCE, IEEE TRANSACTIONS POWER APPARATUS AND SYSTEMS VOL. PAS-84, PAGES 636-43 (JULY 1965)

DESCRIBES THE APPLICATIONS OF RELIABILITY CALCULATION TECHNIQUES, PRESENTED IN A COMPANION PAPER, TO ACTUAL POWER-SYSTEM NETWORKS. A DIGITAL COMPUTER PROGRAM TO FACILITATE RELIABILITY CALCULATIONS IS DESCRIBED, AND A COMPARISON OF CALCULATED AND OBSERVED RELIABILITY ON AN ACTUAL SYSTEM IS PRESENTED.

*ELECTRIC POWER, GENERAL + *RELIABILITY ANALYSIS + ANALYTICAL TECHNIQUE, GENERAL + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + OPERATING EXPERIENCE + RELIABILITY, SYSTEM

10-25888
KLASSEN CW
AIR AND WATER POLLUTION--ARE WE MAKING PROGRESS
ILLINOIS AIR POLLUTION CONTROL BOARD, AND ILLINOIS SANITARY WATER BOARD
15 PAGES, PRESENTED AT AMERICAN POWER CONFERENCE, APRIL 24, 1968, CHICAGO, ILLINOIS

LECTURE PRESENTED AT THE AMERICAN POWER CONFERENCE APRIL 24, 1968, CONCERNING THE FOLLOWING SUBJECTS ON AIR AND WATER POLLUTION -

1. STANDARDS,
2. LEGISLATION,
3. FEDERAL-STATE-INTERSTATE RELATIONS,
4. RESEARCH,
5. ROLE OF NEWS MEDIA,
6. STATE AND POTENTIAL POLLUTION RELATIONS,
7. STREAM WATER QUALITY,
8. AMBIENT AIR QUALITY,
9. ENFORCEMENT PROCEDURES (COURTS),
10. RESPONSIBILITY REALIZATION BY INDUSTRY.

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-25888 *CONTINUED*
AVAILABILITY - C. W. KLASSEN, TECHNICAL SECRETARY, ILLINOIS AIR POLLUTION CONTROL BOARD, AND ILLINOIS SANITARY WATER BOARD

ATMOSPHERIC POLLUTION + CODES AND STANDARDS + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, LIQUID + WATER POLLUTION

10-26081 ALSO IN CATEGORY 18
MAINE YANKEE PSAR AMENDMENT 10
MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE
150 PAGES, FIGURES, TABLES, MAY 22, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES AND ANSWERS TO 29 DRL QUESTIONS OF MAR. 20 AND APRIL 23, 1968. (ATTACHMENT 1) - COMPARISON OF PROTECTIVE INSTRUMENTATION FOR MAINE YANKEE AND FT. CALHOUN. (ATTACHMENT 2) - PROTECTION OF CABLE AND SWITCHGEAR FROM FIRE AND MECHANICAL DAMAGE.

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

*COMPARISON, REACTOR CHARACTERISTICS + *FIRE + AEC QUESTION + ELECTRICAL CONDUCTION + MAINE YANKEE (PWR) + PLANT PROTECTIVE SYSTEM + REACTOR, PWR + REPORT, PSAR

10-26513 ALSO IN CATEGORY 9
VERBER F
FURTHER DEVELOPMENTS IN CONTAINMENT-BUILDING ELECTRICAL PENETRATIONS
8 PAGES, 13 FIGURES, 1 TABLE, 6 REFERENCES, REACTOR AND FUEL-PROCESSING TECHNOLOGY 11(1), PAGES 5-12 (WINTER 1967-1968)

REVIEWS SOME ELECTRICAL PENETRATION PROBLEMS AND SOLUTIONS EXPERIENCED DURING PLANT OPERATIONS AT FERMI AND AT PEACH BOTTOM. DESCRIBES FIRE-PROTECTION MODIFICATIONS TO THE PENETRATIONS AND TO THE ELECTRICAL DESIGN AT PEACH BOTTOM AFTER A FIRE. ALSO PRESENTS RECENT DEVELOPMENTS IN THE DESIGN OF THE DRESDEN-2 ELECTRICAL PENETRATION SYSTEM AND ASSEMBLIES.

*CONTAINMENT PENETRATION, ELECTRICAL + DESIGN CRITERIA + DRESDEN 2 (BWR) + ELECTRICAL CONDUCTION + EQUIPMENT DESIGN + FERMI (LMFBR) + FIRE + INSTRUMENTATION, COMPONENT + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + REACTOR, BWR + REACTOR, HTGR + REACTOR, LMFBR

10-26594 ALSO IN CATEGORY 17
QUARTERLY REPORT NO. 20 (ON SENA REACTOR PROJECT) APRIL 1-JUNE 30, 1967
SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES, CHOOZ-LEZ-GIVET (FRANCE)
AEC-TR-6912 +. 17 PAGES

A 6-WEEK OUTAGE OCCURRED BECAUSE OF FRACTURED VANES ON THE HP STAGE OF TURBINE, APPARENTLY DUE TO RESONANCE. OTHER INCIDENTS WERE - (1) FAULTY OPENING OF ALTERNATOR EXCITER SWITCH, (2) DEFECT IN POLE 4 LINE CONTACTOR, (3) HIGH CONCENTRATION OF CHLORIDE IN SECONDARY WATER CIRCUIT DUE TO OPERATOR ERROR IN VALVING, AND (4) CONTAMINATION OF SEVERAL ROOMS BY EFFLUENT FROM WASTE PROCESS SYSTEM BECAUSE OF IMPROPERLY DESIGNED DRAIN LINES.

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

*FAILURE, EQUIPMENT + BELGIUM + BUILDING + CHLORIDE + CONTAMINATION + FAILURE, DESIGN ERROR + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR + FRANCE + HEAT SINK + INSTRUMENTATION, SWITCH + REACTOR, PWR + REPORT, OPERATIONS + TURBINE BLADE, VIBRATION

10-26792 ALSO IN CATEGORY 17
ELECTRICAL SYSTEM, THERMAL LOADING TESTS ON CABLE TRAY 39C3
SOUTHERN CALIFORNIA EDISON
25 PAGES, 9 FIGURES, 4 TABLES, LETTER TO P. A. MORRIS, DRL, FROM A LETTER TO P. A. MORRIS FROM R. M. COE. JUNE 14, 1968. DOCKET 50-206. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDES MINOR CORRECTIONS MADE FOR REPORT ON CABLE FAILURES, 4 SINGLE LINE DRAWINGS ON 4-KV AND 480-V ELECTRICAL SYSTEMS, AND TWO TEST REPORTS. (MAY 17) - PRIOR TESTS WERE REPEATED WITH NEW CABLE, TO AVOID AIR SPACES CAUSED BY DISTORTION. 25 THERMOCOUPLES WERE SPACED AT 5 LOCATIONS ALONG THE 15-FT SECTION. MAXIMUM TEMPERATURE DURING 585-MIN RUN WAS 159 C IN THE PRESSURIZER HEATER CABLE. RATING IS 90C. (MAY 31) - PREVIOUS TEST REPEATED WITH PRESSURIZER HEATER CABLE NOT ENERGIZED, AS A CONSERVATIVE SIMULATION OF FUTURE TRAY. MAXIMUM TEMPERATURE WAS ONLY 41 C.

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

*ELECTRIC POWER, NORMAL + *ELECTRICAL CONDUCTION + *MEASUREMENT, TEMPERATURE + FAILURE, INSTALLATION ERROR + FIRE + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-12639 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 INCOMPATABILITY 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) + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON LINE + TEST, PROOF

11-22275 ALSO IN CATEGORY 18
RESPONSE TO QUESTION V19-SPECIFICATIONS FOR FABRICATION, INSPECTION AND TESTING OF CONTAINMENT LINER
PUBLIC SERVICE COMPANY OF COLORADO
3 PAGES, PAGE V.19-1 THRU 3, ATTACHMENT A OF AMENDMENT 6 TO FT ST VRAIN CONSTRUCTION PERMIT APPLICATION. OCT 30, 1967. DOCKET 50-267. TYPE--HTGR, MFG--G.E., AE--G.A.

OUTLINE THE LINER ERECTION AND LEAKAGE TESTING PROCEDURES TO BE USED DURING CONSTRUCTION. ***(ANSWER REVISED TO CONFORM WITH ANSWER IN AMEND. 6, E.24, WHICH SPECIFIES THE MANNER, EXTENT, AND STANDARDS FOR LEAK TESTING.)

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

*CONTAINMENT LINER + *TEST, LEAK RATE + AEC QUESTION + CONTAINMENT CONSTRUCTION + CONTAINMENT PENETRATION, GENERAL + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR

11-24677
FIRST MW + BULBA E
FLOATING ROOF CONTAINMENT VESSEL. PROGRESS REPORT, SEPTEMBER 1966--AUGUST 1967
HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MASS.
HUX-3807-1 +. 3 PAGES, AUGUST 1967

CONSTRUCTION OF A 500 CU.FT. PILOT SCALE VESSEL WAS COMPLETED. THE RELATIVE DRAG FORCES PRODUCED BY THE ASCENDING ROOF WERE MEASURED BY THE EQUIVALENT STATIC PRESSURE IN THE VESSELS. THE TRANSIENT AND DYNAMIC DRAG FORCES THAT HAVE BEEN OBSERVED FOLLOWED, IN A GENERAL WAY, THE DATA OF THE PRE-PILOT MODEL (5.5 CU.FT.). A STILL UNRESOLVED PROBLEM IS THE SELECTION OF A SUITABLE SEALANT-LUBRICANT FOR USE IN A PERMANENT CONTAINMENT INSTALLATION. AIR-TIGHTNESS WAS PRESERVED DURING ROOF ASCENT AT DIFFERENT VELOCITIES.

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

*CONTAINMENT RESEARCH AND DEVELOPMENT + *CONTAINMENT, EXPANDING VOLUME + *PRESSURE TRANSIENT

11-25185 ALSO IN CATEGORY 18
AMENDMENT 9 TO THREE MILE ISLAND CONSTRUCTION PERMIT APPLICATION
METROPOLITAN EDISON CO.
8 PAGES, 4 FIGURES, MARCH 6, 1968, DOCKET NO. 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

REVISES THE FEB. 23, 1968, SUBMISSION ON HYPOTHETICAL AIRCRAFT INCIDENT, APPARENTLY TO INCLUDE RESULTS OF A DYNAMIC ELASTIC ANALYSIS ALONG WITH THE GROSSLY CONSERVATIVE PLASTIC-RESPONSE ANALYSIS. RUPTURE OF ALL FOUR STEAM LINES WILL NOT INCREASE THE OFF-SITE DOSE CALCULATED FOR A STEAM-LINE RUPTURE (0.88 REM, THYROID).

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

*AIRCRAFT + *CONTAINMENT DESIGN + *MISSILE GENERATION AND PROTECTION + ACCIDENT, STEAM LINE RUPTURE + REACTOR, PWR + REPORT, PSAR + STRUCTURAL ANALYSIS, DYNAMIC + THREE MILE ISLAND (PWR)

11-25190 ALSO IN CATEGORIES 18 AND 5
ZION 1 AND 2 AMENDMENT 7
COMMONWEALTH EDISON CO.
59 PAGES, FIGURES, TABLES, APRIL 17, 1968, DOCKET NO. 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

CONSISTS OF REVISED PSAR PAGES (RELATED TO CONTAINMENT SPRAY AND ADDITIVES FOR IODINE REMOVAL, AND TO CORE-MELTDOWN ANALYSIS) AND 9 ANSWERS TO QUESTIONS ASKED AT AN APRIL 5, 1968, MEETING

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25190 *CONTINUED*
WITH DRL.

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

*ADDITIVE + *CONTAINMENT SPRAY + *CORE MELTDOWN + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + ZION 1 AND 2 (PWR)

11-25200 ALSO IN CATEGORIES 17 AND 15
MORRIS PA
INDIAN POINT 1 CHANGE 34 - ENTERING CONTAINMENT AT FULL POWER
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO W. C. BEATTIE, CONSOLIDATED EDISON CO., 4 PAGES, APRIL 23, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED.

ALLOWS ENTRY INTO CONTAINMENT (AS REQUIRED) AT POWER FOR INSPECTION, SPECIAL RADIATION SURVEYS, OR MINOR OPERATIONS. REQUIRES OBSERVANCE OF 10 CFR 20 DOSE LIMITS, NO MORE THAN 4 INSPECTORS AT A TIME AND ALWAYS IN GROUPS OF TWO OR MORE, AND COMMUNICATION WITH CONTROL ROOM. SPECIFIES THAT AFTER EACH EGRESS SOAP-BUBBLE TEST OF DOOR GASKETS WITH CONTAINMENT PRESSURE AT LEAST 5 IN. OF WATER HIGHER THAN ATMOSPHERIC. REFERS TO PREVIOUS SUCCESSFUL ENTRIES FOR SPECIAL PURPOSES.

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

CONTAINMENT, GENERAL + INDIAN POINT 1 (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

11-25257 ALSO IN CATEGORIES 12 AND 5
DIETZ KA
QUARTERLY TECHNICAL REPORT ENGINEERING AND TEST BRANCH. JULY 1967 - SEPTEMBER 1967
PHILLIPS PETROLEUM COMPANY
IDO-17241 +. 38 PAGES, 25 FIGURES, 15 TABLES, 19 REFERENCES, FEB. 1968

LOFT PROGRAM EXTENDED TO INCLUDE TESTING OF EMERGENCY CORE-COOLING SYSTEMS. STUDIES INDICATE THAT MODIFIED CORE CAN BE ADEQUATELY CONTROLLED WITH OPEN-LATTICE CRUCIFORM RODS. POWER DISTRIBUTIONS AND CRITICAL ROD POSITIONS WERE CALCULATED FOR 100, 400, AND 800 HR OF OPERATION AT 50 MW. I-131 AND -135 RELEASE TO FUEL-ROD PLENUM WERE CALCULATED FOR HOTTEST AND AVERAGE PINS. METHOD DISCUSSED FOR ESTIMATING EFFICIENCY OF A CONTAINMENT SPRAY DROP FOR COLLECTING AIRBORNE MATTER BY IMPACTION AND DIFFUSION. DROP SIZE MOST USEFUL FOR I REMOVAL IS 200 TO 500 MICRONS.

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

ADDITIVE + AEROSOL + CONTAINMENT SPRAY + CORE REFLOODING SYSTEM + CORE SPRAY + DROPLET + FISSION PRODUCT, AIRBORNE + FISSION PRODUCT, IODINE + LOFT (S-RR) + MATHEMATICAL STUDY + MODIFICATION, SYSTEM OR EQUIPMENT + PARTICLE SIZE + POWER DISTRIBUTION + R AND D PROGRAM + REACTOR CONTROL + REACTOR, SAFETY RESEARCH + SCRUBBER + TESTING

11-25265 ALSO IN CATEGORIES 12 AND 9
STEELE CC
FAST FLUX TEST FACILITY OVERALL CONCEPTUAL SYSTEMS DESIGN DESCRIPTION
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-500 +. 75 PAGES, JULY 7, 1967

CONCEPTUAL-DESIGN REPORT COVERING ALL PARTS OF THE FACILITY. INCLUDES BOTH A SUMMARY DESCRIPTION AND DETAILED DESCRIPTION. SOME TYPICAL SYSTEMS COVERED ARE - UTILITIES, FIRE PROTECTION, HEATING AND VENTILATING, REACTOR CONTAINMENT, CONTROL, WASTE, ETC.

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

*DESIGN STUDY + *FFTF (TR) + CONTAINMENT DESIGN + ELECTRIC POWER, GENERAL + FUEL HANDLING + INSTRUMENTATION, GENERAL + IRRADIATION FACILITY + MAINTENANCE AND REPAIR + OPERATION + PIPING + REACTOR, FAST + REACTOR, TEST + VENTILATION SYSTEM + WASTE HANDLING

11-25273
WILSHAW TR + RAU CA + TETELMAN AS
A GENERAL MODEL TO PREDICT THE ELASTIC PLASTIC STRESS DISTRIBUTION AND FRACTURE STRENGTH OF NOTCHED BARS IN PLANE STRAIN BENDING
STANFORD UNIVERSITY, STANFORD, CALIFORNIA
SU-DMS-REPORT-67-9 +. 25 PAGES, 12 FIGURES, 33 REFERENCES, PRESENTED AT THE NATIONAL FRACTURE MECHANICS CONFERENCE, LEHIGH UNIVERSITY, JUNE 1967

IN THIS REPORT, AN APPROXIMATE ELASTIC-PLASTIC STRESS ANALYSIS OF A NOTCHED BEAM IS USED TO DEDUCE A STRESS CONDITION FOR FRACTURE. THE CALCULATION ASSUMES A ROUND NOTCH ROOT AND A PLASTIC ZONE AHEAD OF THE NOTCH ROOT WITHIN WHICH THE PRINCIPAL STRESS DIRECTIONS ARE RADIAL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25273 *CONTINUED*
AND CIRCUMFERENTIAL. THE EXTENT OF THE PLASTIC ZONE IS A FUNCTION OF THE APPLIED LOAD, AND THE MAXIMUM TENSILE STRESS OCCURS AT THE ELASTIC-PLASTIC INTERFACE. THIS MAXIMUM TENSILE STRESS IS CALCULATED FROM TEST RESULTS AND IS FOUND TO HAVE A CONSTANT VALUE AT FRACTURE, BELOW A CERTAIN TEMPERATURE.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VIRGINIA 22314

BRITTLE FRACTURE + EMBRITTLEMENT + FAILURE, PRESSURE VESSEL + FERRITIC STEEL + FLAW + FRACTURE TOUGHNESS + NDT DATA + PLASTICITY + PRESSURE VESSEL + STEEL + STRESS + STRESS ANALYSIS

11-25287
LANKARD DR + FONDRIEST FF + SNYDER MJ
HEAT RESISTANT CONCRETE FOR PRESTRESSED-CONCRETE-PRESSURE-VESSEL (PCPV) REACTORS
BATTELLE MEMORIAL INST., COLUMBUS, OHIO
BMI-X-10220 + EURAEC-1969 +. 26 PAGES, 16 REFERENCES, JANUARY 1, 1968

THE OBJECTIVES OF THIS PROGRAM ARE TO ESTABLISH REALISTIC TEMPERATURE LIMITATIONS FOR A CONVENTIONAL, STRUCTURAL-GRADE CONCRETE AND TO DETERMINE HOW THIS LIMIT MAY BE EXTENDED BY VARIOUS MODIFICATIONS OF THE CONCRETE. MEASUREMENTS OF THE COMPRESSIVE STRENGTH, MODULUS OF ELASTICITY, AND EVAPORABLE AND NONEVAPORABLE WATER CONTENTS OF UNSEALED CEMENT AND CONCRETE SPECIMENS EXPOSED TO TEMPERATURES OF 175, 250, 375, AND 500 F FOR EXTENDED PERIODS WERE COMPLETED. HEAT TREATMENT WAS BEGUN OF BEAM SPECIMENS FOR USE IN AN INVESTIGATION OF THE EFFECTS OF EXPOSURE TO TEMPERATURES UP TO 500F ON THE FLEXURAL STRENGTH OF UNSEALED CONCRETE. A TEST CHAMBER WAS BUILT TO PROVIDE FOR THE TRANSMISSION OF A COMPRESSIVE LOAD TO A CONCRETE SPECIMEN WHILE PROVIDING CONTAINMENT OF THE FREE WATER IN THE CONCRETE AT TEMPERATURES UP TO 500 F. CALIBRATION AND CHECKOUT RUNS WITH THE TEST CHAMBER WERE INITIATED.

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

*CONCRETE, PRESTRESSED + *HEAT TREATMENT + *TESTING + CREEP BEHAVIOR + ELASTICITY + PRESSURE VESSEL

11-25288
FRACTURE MECHANICS EVALUATION OF REACTOR VESSEL STEELS. QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1967
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
WCAP-3677-6 +. EURAEC-1953 +. 18 PAGES, 3 FIGURES, 6 TABLES, JANUARY 1968

PROGRESS DURING THE PERIOD WAS AS FOLLOWS - (1) THE FIRST SERIES OF IRRADIATION CAPSULES, CONTAINING ALL MATERIAL EXCEPT THE 12-INCH PLATE MATERIAL IS STILL BEING IRRADIATED IN THE BABCOCK AND WILCOX TEST REACTOR. FAILURE OF HEATERS IN ONE CAPSULE WAS COMPENSATED BY CHANGING CAPSULE LOCATIONS. (2) THE 12-INCH PLATE WAS RECEIVED AND IS BEING SECTIONED IN PREPARATION FOR SPECIMEN MACHINING. (3) PRE-IRRADIATION TESTING OF ALL MATERIAL EXCEPT THE 12-INCH PLATE WAS COMPLETED.

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

*BRITTLE FRACTURE + *FRACTURE TOUGHNESS + *STEEL + EMBRITTLEMENT + IRRADIATION TESTING + MATERIAL + NDT DATA + PRESSURE VESSEL + RADIATION EFFECT

11-25289
BAKER AL + MONCRIEFF ML + DAVIDSON I + WATERS TC + BARRETT NT
AN INVESTIGATION INTO THE STRUCTURAL BEHAVIOUR AND SAFETY OF A SPHERICAL PRESTRESSED CONCRETE PRESSURE VESSEL, PART 1-5
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY
TRG-REPORT 1204 (PTS. 1-5) +. 388 PAGES, FIGURES, TABLES, REFERENCES, 1966

DESCRIBES THE DESIGN, CONSTRUCTION, INSTRUMENTATION AND TESTING OF A 1/11.5 SCALE MODEL OF A REACTOR PRESSURE VESSEL, AND THE ASSOCIATED CONTROL TESTS. THE PROTOTYPE VESSEL DESIGNED BY THE UKAEA, WAS OF THE TYPE KNOWN AS A SIX-PANEL RIBBED SPHERE. THE VESSEL WAS SUBJECTED TO THE DESIGN PRESSURE AND A TEMPERATURE CROSS-FALL THAT WAS MORE THAN FOUR TIMES THE DESIGN VALUE. THE CRACKS THAT APPEARED WERE NOT OF EXCESSIVE WIDTH, AND CLOSED WHEN THE LOAD WAS REMOVED. THE RUBBER LINING FAILED DURING THE FINAL COLD PRESSURE TEST, ON THE APPEARANCE OF A SHEAR FAILURE AT THE RIB-PANEL JUNCTION, WHEN THE LOAD FACTOR WAS 1.9. THE MARGIN BETWEEN DISTRESS AND THIS FAILURE WAS 150 PSI, AND IT SEEMS PROBABLE THAT AN ADEQUATE BUT SMALLER MARGIN EXISTED BETWEEN LINING FAILURE AND FRACTURE OF THE CABLES.

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

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + *TEST, PRESSURE VESSEL + COMPUTER PROGRAM + CONTAINMENT CONSTRUCTION + DESIGN CRITERIA + FAILURE, PRESSURE VESSEL + INSTRUMENTATION, TESTING + PRESSURE, INTERNAL + SPHERE + TEMPERATURE TRANSIENT

11-25290 ALSO IN CATEGORY 18
BEASLEY EG

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25290 *CONTINUED*
SUMMARY OF DESIGN OF EGCR REACTOR COOLANT SYSTEM
TENNESSEE VALLEY AUTHORITY, OAK RIDGE
TID-22738 +. 7 PAGES, JULY 19, 1965

THE PURPOSE OF THIS PAPER IS TO SUMMARIZE THE DESIGN AND STRESS ANALYSIS OF THE PRESSURE-CONTAINING COMPONENTS OF THE EGCR REACTOR COOLANT SYSTEM. THE ANALYTICAL AND EXPERIMENTAL WORK HAS REQUIRED MANY YEARS OF EFFORT. THE REFERENCES WHICH FOLLOW TOTAL SEVERAL THOUSAND PAGES OF DOCUMENTED ANALYSIS AND DATA. THIS SUMMARY IS BEING MADE TO EMPHASIZE THE EXTENT AND THOROUGHNESS OF THE NUMEROUS INVESTIGATIONS REGARDING THE STRENGTH AND INTEGRITY OF THE EGCR REACTOR COOLANT SYSTEM.

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

*DESIGN CRITERIA + *EGCR (AGR) + *PIPING + *PRESSURE VESSEL + CODES AND STANDARDS + MEASUREMENT, STRAIN GAGE + REACTOR, GCR + STRESS ANALYSIS

11-25291
CORUM JM + WHITE RN + SMITH JE
MORTAR MODELS OF PRESTRESSED CONCRETE REACTOR VESSELS
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3595 + CONF-680203-2 +. 36 PAGES, 24 FIGURES, 5 REFERENCES, FROM AMERICAN SOCIETY OF CIVIL ENGINEERS TRANSPORTATION CONFERENCE, SAN DIEGO, CALIFORNIA

THE RESULTS OF THE TEST OF A SMALL SCALE MODEL OF A PRESTRESSED CONCRETE REACTOR VESSEL ARE PRESENTED. MODEL DESIGN AND FABRICATION TECHNIQUES ARE DISCUSSED, AND THE TEST RESULTS ARE COMPARED TO FINITE-ELEMENT-ANALYSIS PREDICTIONS FOR BOTH ELASTIC AND SHORT-TERM CREEP BEHAVIOR. THE TEST REPORTED IS THE FIRST OF A SERIES IN A MODEL-STUDY PROGRAM BEING CARRIED OUT TO DETERMINE TO WHAT EXTENT SMALL MORTAR MODELS AND MODELS OF ELASTIC MATERIALS, SUCH AS EPOXY, CAN BE USED TO INVESTIGATE THE STRESS DISTRIBUTIONS AND THE CRACKING AND ULTIMATE FAILURE MODE OF PRESTRESSED CONCRETE REACTOR VESSELS OR OF VARIOUS COMPONENTS OF THESE VESSELS, SUCH AS PENETRATION AND ANCHOR REGIONS.

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

*CONCRETE, PRESTRESSED + *MODEL TESTING + *PRESSURE VESSEL + CREEP BEHAVIOR + FAILURE, PRESSURE VESSEL + STRESS ANALYSIS

11-25292 ALSO IN CATEGORIES 1 AND 18
SAFETY STANDARDS, CRITERIA, AND GUIDES FOR THE DESIGN, LOCATION, CONSTRUCTION, AND OPERATION OF REACTORS. III. TECHNICAL SAFETY GUIDE. REACTOR CONTAINMENT LEAKAGE TESTING AND SURVEILLANCE REQUIREMENTS
U.S. ATOMIC ENERGY COMMISSION, DIVISION OF SAFETY STANDARDS
TID-24085 +. 14 PAGES, DECEMBER 15, 1966

IN RECOGNITION OF THE NEED TO PROVIDE EVIDENCE, DURING SERVICE, OF THE CAPABILITY OF A CONTAINMENT SYSTEM TO PERFORM ITS INTENDED SAFETY FUNCTION, A PROGRAM OF TESTING AND SURVEILLANCE IS OUTLINED. BECAUSE THE LEAKAGE RATE OF CONTAINMENT SYSTEM IS A PRACTICAL MEASURE OF ITS READINESS TO FULFILL THE CONTAINMENT FUNCTION, THE INTEGRATED LEAKAGE-RATE TEST IS CONSIDERED A PRINCIPAL AND ESSENTIAL TEST.

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

*CONTAINMENT INTEGRITY + *CONTAINMENT, GENERAL + *SURVEILLANCE PROGRAM + *TEST, LEAK RATE + CONTAINMENT ABSOLUTE MEASURING SYSTEM + CONTAINMENT PENETRATION, GENERAL + CONTAINMENT REFERENCE MEASURING SYSTEM + ENGINEERED SAFETY FEATURE

11-25293
WITTENBROCK NG
FAST FLUX TEST FACILITY CRITERIA FOR CONTAINMENT
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-607 +. 27 PAGES, DECEMBER 1967

RECOMMENDATIONS ARE MADE AS TO WHICH FFTF SYSTEMS SHOULD HAVE CONVENTIONAL TOTAL CONTAINMENT AND WHICH SYSTEMS REQUIRE ONLY VENTILATION CONTROL WITH DISCHARGE THRU A STACK.

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

*CONTAINMENT ANALYSIS + *CONTAINMENT, PRESSURE VENTING + *DESIGN CRITERIA + *FFTF (TR) + REACTOR, FAST + REACTOR, TEST

11-25294
DRAGOUMIS P + WEEMS SJ + LYMAN WG
ICE CONDENSER REACTOR CONTAINMENT SYSTEM
AMERICAN ELECTRIC POWER SERVICE CORP. + MPR ASSOCIATES, INC. + WESTINGHOUSE ELECTRIC CORPORATION

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25294 *CONTINUED*
13 PAGES, 7 FIGURES, AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 1968

THE GENERAL APPROACH CHOSEN FOR IMPROVING THE CONTAINMENT CAPABILITY IS TO PROVIDE A LARGE STATIC HEAT SINK INSIDE THE CONTAINMENT, CAPABLE OF RAPIDLY ABSORBING PART OR ALL OF THE ENERGY RELEASED FROM THE REACTOR SYSTEM. IF THE ENERGY ABSORBTION IS RAPID ENOUGH, THEN THE PEAK PRESSURE REACHED DURING A RAPID ENERGY RELEASE IS REDUCED. THE INITIAL STUDIES FOUND ICE TO BE THE IDEAL HEAT SINK MATERIAL. IT CAN BE CAST INTO ANY SHAPE, PROVIDING LARGE HEAT TRANSFER SURFACES. IT HAS A HIGH LATENT HEAT OF FUSION AND A LOW MELTING POINT, THUS PROVIDING ENERGY ABSORPTION WHILE MAINTAINING A CONSTANT, LOW TEMPERATURE HEAT SINK. THE ICE CAN BE ARRANGE IN A HEAT-EXCHANGER GEOMETRY WHICH HAS FLOW PASSAGES THROUGHOUT SO THAT ONLY THE LOW-INERTIA FORCES FOR STEAM AND AIR FLOWS ARE INVOLVED.

AVAILABILITY - PAUL DRAGOUMIS, AMERICAN ELECTRIC POWER SERVICE CORPORATION

*CONTAINMENT RESEARCH AND DEVELOPMENT + *CONTAINMENT, ICE CONDENSER + *DESIGN CRITERIA + CONTAINMENT ANALYSIS + COOK 1 AND 2 (PWR) + REACTOR, PWR + TEST, BENCH + TEST, COMPONENT + THERMAL INSULATION

11-25295
JENSEN RJ + PARKINSON GL + WEBB RS + VIOLETTE JB
THE MONTICELLO STATION WITH FIELD CONSTRUCTION OF THE REACTOR VESSEL
NORTHERN STATES POWER COMPANY + BECHTEL CORPORATION + CHICAGO BRIDGE AND IRON COMPANY + GENERAL ELECTRIC COMPANY, SAN JOSE
37 PAGES, 22 FIGURES, PRESENTED AT THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 1968

THE PRESSURE VESSEL BEING SITE-ASSEMBLED AT MONTICELLO, MINNESOTA, MEETS, AS A MINIMUM, ALL THE REQUIREMENTS OF THE ASME CODE FOR SECTION-III CLASS-A PRESSURE VESSELS AND THE GENERAL ELECTRIC COMPANY SPECIFICATIONS. THE VESSEL WILL BE CODE STAMPED. AS WITH SHOP-BUILT VESSELS, THE QUALITY OF THIS STRUCTURE WILL MEET ALL APPLICABLE REQUIREMENTS WITHOUT ANY COMPROMISE OF QUALITY. THIS PAPER DISCUSSES CONSTRUCTION EXPENSES WITH THE VESSEL.

*CONTAINMENT CONSTRUCTION + *CONTAINMENT, PRESSURE SUPPRESSION + *MONTICELLO (BWR) + *SITE ASSEMBLY + DESIGN CRITERIA + QUALITY CONTROL + REACTOR, BWR + STEEL + WELDING

11-25296
BURNS WJ + KENNEDY WJ + WEINZIMMER F
SHOREHAM NUCLEAR POWER STATION WITH CONCRETE CONTAINMENT
LONG ISLAND LIGHTING COMPANY + STONE AND WEBSTER ENGINEERING + GENERAL ELECTRIC
16 PAGES, 4 FIGURES, 1 TABLE, PRESENTED AT THE 30TH ANNUAL MEETING AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 25, 1968

COMPOSITE CONCRETE PRESSURE-SUPPRESSION CONTAINMENT WILL BE USED FOR THE SHOREHAM NUCLEAR POWER STATION. THIS NEW CONTAINMENT DESIGN WAS PROPOSED BECAUSE IT HAS FOUR DISTINCT ADVANTAGES OVER THE TORUS AND LIGHT BULB ARRANGEMENT. FIRST, A STEEL LINED REINFORCED OR PRESTRESSED CONCRETE CONTAINMENT HAS IMPROVED SAFETY CHARACTERISTICS. THE POSSIBILITY OF GROSS FAILURE OF THE CONTAINMENT FROM OVERPRESSURE IS EXTREMELY REMOTE. THERE IS NO KNOWN MECHANISM THAT COULD CAUSE CATASTROPHIC FAILURE OF A CONCRETE VESSEL THROUGH PROPAGATION OF MEMBRANE CRACKING. SECOND, ADDED FLEXIBILITY IS ALLOWED IN THE CONSTRUCTION SCHEDULING, PARTICULARLY IN THE CRITICAL EARLY PART OF THE SCHEDULE. THIRD, IT IS ANTICIPATED THAT A SUBSTANTIAL COST SAVING WILL RESULT. FOURTH, IT MAKES BETTER USE OF THE CONSTRUCTION LABOR AVAILABLE, IN THAT LESS SKILLED CRAFTS ARE REQUIRED.

AVAILABILITY - W. J. BURNS, MANAGER OF MECHANICAL AND CIVIL ENGINEERING, LONG ISLAND LIGHTING COMPANY

*CONCRETE + *CONTAINMENT, PRESSURE SUPPRESSION + *DESIGN CRITERIA + *SHOREHAM (BWR) + CODES AND STANDARDS + LEAK RATE + REACTOR, BWR + STEEL LINER

11-25297
WALKER RF + NORTHUP TE
FORT ST. VRAIN PRESTRESSED CONCRETE REACTOR VESSEL
PUBLIC SERVICE COMPANY OF COLORADO + GULF GENERAL ATOMIC INCORPORATED
GA-8623 +. 19 PAGES, 5 FIGURES, 3 TABLES, PRESENTED AT AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23-25, 1968

CONSTRUCTION OF A 300-MW(E) HIGH-TEMPERATURE GAS-COOLED REACTOR (HTGR) PLANT FOR THE PUBLIC SERVICE COMPANY OF COLORADO IS PLANNED TO START IN THE SPRING OF 1968. ENGINEERING AND CONSTRUCTION ASPECTS OF THE PRIMARY REACTOR VESSEL FOR THIS PLANT ARE PRESENTED IN THIS PAPER. THIS VESSEL IS UNIQUE IN THAT IT WILL BE THE FIRST PRESTRESSED CONCRETE REACTOR VESSEL (PCRV) DESIGNED AND BUILT IN THE U.S.A.

AVAILABILITY - R. F. WALKER, PUBLIC SERVICE COMPANY OF COLORADO, DENVER, COLORADO

*CONCRETE, PRESTRESSED + *DESIGN CRITERIA + *FT. ST. VRAIN (HTGR) + *PRESSURE VESSEL + CONTAINMENT CONSTRUCTION + REACTOR, HTGR

11-25313 ALSO IN CATEGORY 17
FATIGUE DATA ON REPLACEMENT REACTOR VESSEL STUD

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25313 *CONTINUED*
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
1 PAGE, APRIL 25, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM W. P. JOHNSON, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

IN REPLY TO PHONE INQUIRY APRIL 23 REGARDING PROPOSED CHANGE 84, THE SLEEVE REDUCES THE LIGAMENT BETWEEN BOLT HOLES FROM 2.453 TO 2.328 IN., WHICH CALCULATIONS SHOW HAS A NEGLIGIBLE EFFICIENCY EFFECT. FATIGUE ANALYSIS OF THE SMALLER-DIAMETER STUD SHOWS THERE IS NO APPRECIABLE REDUCTION IN ALLOWABLE NUMBER OF THERMAL CYCLES, DESPITE AN INCREASE FROM 27,000 TO 31,000 PSI STRESS. A SPARE 4.75-IN. STUD WILL ALTERNATE SERVICE, AND THEY WILL BE ULTRASONICALLY INSPECTED.

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

*FAILURE, EQUIPMENT + *PRESSURE VESSEL + FAILURE, FATIGUE + REACTOR, PWR + TECHNICAL SPECIFICATIONS + TEST, NONDESTRUCTIVE + YANKEE (PWR)

11-25344 ALSO IN CATEGORIES 18 AND 12
OYSTER CREEK 2 (PWR) PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY
175 PAGES, FIGURES, TABLES, REFERENCES FROM OYSTER CREEK NUCLEAR STATION - UNIT 2, VOLUME 2, MARCH 1968, DOCKET 50-320

CHAPTERS - (4) REACTOR COOLANT SYSTEM, (5) CONTAINMENT SYSTEM (7 APPENDIXES ON STRUCTURAL DESIGN AND TESTS), (6) ENGINEERED SAFETY FEATURES (WATER INJECTION, CONTAINMENT AIR COOLING AND IODINE REMOVAL, WATER LEAKAGE FROM ENGINEERED SAFETY FEATURES OUTSIDE CONTAINMENT), (7) INSTRUMENTATION AND CONTROL, AND (8) ELECTRICAL SYSTEMS.

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

CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + OYSTER CREEK 2 (PWR) + REACTOR, PWR + REPORT, PSAR

11-25385 ALSO IN CATEGORY 18
SALEM PSAR AMENDMENT 8
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
60 PAGES, TABLES, FIGURES, MAY 6, 1968, DOCKETS 50-272/311, TYPE--PWR, MFG.--WEST, AE--PUBLIC SERVICE OF N. J.

PROVIDES REVISED PSAR PAGES AND RESPONDS TO AEC QUESTIONS OF APRIL 9, 1968, REGARDING CONTAINMENT-DESIGN DETAILS.

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

CONTAINMENT CONSTRUCTION + REACTOR, PWR + REPORT, PSAR + SALEM 1 AND 2 (PWR)

11-25399 ALSO IN CATEGORY 18
ACRS REPORT ON THREE MILE ISLAND
U. S. ATOMIC ENERGY COMMISSION
2 PAGES, APRIL 6, 1968, LETTER TO G. T. SEABORG FROM C. W. ZABEL, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

FURTHER REVIEW ON THE QUESTION OF AIRPLANES STRIKING THE STATION (AMENDMENTS 8-10). CONCLUDES THAT THE APPLICANT HAS UNDERTAKEN TO PROVIDE CAPABILITY OF WITHSTANDING AIRCRAFT STRIKE LOADINGS, THUS PLANT MAY BE BUILT.

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

*AIRCRAFT + *CONTAINMENT DESIGN + *MISSILE GENERATION AND PROTECTION + ACRS + REACTOR, PWR + REPORT, PSAR + THREE MILE ISLAND (PWR)

11-25400 ALSO IN CATEGORY 18
AEC QUESTIONS FOR RUSSELLVILLE (PWR)
USAEC, DIVISION OF REACTOR LICENSING
19 PAGES, MAY 6, 1968, LETTER TO J. D. PHILLIPS FROM P. A. MORRIS,DOCKET 50-313

LETTER TRANSMITS 93 QUESTIONS OR REQUESTS FOR INFORMATION ON CONTAINMENT STRUCTURE, PLUS 13 QUESTIONS OR REQUESTS FOR INFORMATION ON EARTHQUAKE OR TORNADO-RELATED CONTAINMENT DESIGN.

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

*CONTAINMENT DESIGN + *DESTRUCTIVE WIND + *EARTHQUAKE ENGINEERING + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25522 ALSO IN CATEGORY 17
VELEZ GA
CONTAINMENT BUILDING LEAK TEST
PUERTO RICO WATER RESOURCES AUTHORITY, BONUS NUCLEAR POWER PLANT
PRWRA-20 + WRA-B-67-21 +. 42 PAGES, 6 FIGURES, 5 TABLES, NOV. 1967

DATA AND RESULTS OF TESTS ARE GIVEN FOR TWO METHODS USED (A REFERENCE-VESSEL METHOD AND A TEMPERATURE METHOD). LEAK RATE BY REFERENCE-VESSEL METHOD IS 0.187% OF BUILDING VOLUME PER DAY. THE TEMPERATURE METHOD YIELDED ERRATIC DATA BECAUSE AIR AT TOP OF BUILDING IS STAGNANT AND HEATS UP DURING DAY TO OVER 100 F, THEN COOLS AT NIGHT. APPENDIX CONTAINS SAMPLE CALCULATIONS, STATISTICAL EVALUATION OF DATA, LISTING OF BUILDING PENETRATIONS AND RESULTS OF SOAP BUBBLE TESTS, AND TABLES OF DATA COLLECTED.

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

*CONTAINMENT PENETRATION, GENERAL + *CONTAINMENT, LOW PRESSURE + *TEST, LEAK RATE + BONUS (ISR) + CONTAINMENT ABSOLUTE MEASURING SYSTEM + REACTOR, INTERNAL SUPERHEAT

11-25523 ALSO IN CATEGORY 17
BONUS EXPERIENCE WITH FUEL ELEMENT SCALE
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
10 PAGES, 2 TABLES, BONUS NUCLEAR POWER PLANT, DRL MONTHLY REPORT NO. 11, NOVEMBER 1967

REACTOR DID NOT OPERATE DURING NOV. DATA INDICATES PRIMARY-WATER-IMPURITY CONCENTRATION IS HIGHEST AFTER A LONG SHUTDOWN (DUE TO CORROSION PRODUCTS FROM THE COPPER-ALLOY TUBES OF FEEDWATER HEATERS). FUEL-ELEMENT INSPECTION BY G.E. INDICATE (APED-5392) FLOW REDUCTION HAS BEEN CAUSED BY CRUD DEPOSITS (COPPER OXIDE, 75 TO 86%, FROM FEEDWATER HEATERS) IN COOLANT-ENTRY FLOW HOLES, CAUSING A 35-55% REDUCTION OF FLOW AREA ON INDIVIDUAL ELEMENTS. HEATERS TO BE FILLED WITH 220-PPM HYDRAZINE SOLUTION DURING SHUTDOWN TO REDUCE CORROSION. CONTAINMENT LEAK-TEST DATA SHOWS LEAK RATE OF 0.014%/DAY.

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

*CORROSION + *FLOW BLOCKAGE + *FUEL ELEMENT + *HEAT EXCHANGER + *SURFACE FILM DEPOSIT + BONUS (ISR) + CONTAINMENT, LOW PRESSURE + COOLANT CHEMISTRY + COPPER + OPERATING EXPERIENCE + OXIDE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TEST, LEAK RATE

11-25527 ALSO IN CATEGORY 5
CRANE AT
MISSILE ANALYSIS N. S. SAVANNAH CONTAINMENT
UNITED NUCLEAR CORPORATION
UNC-5197 +. 11 PAGES, 3 FIGURES, DECEMBER 12, 1967

ANALYSIS MADE IN ACCORDANCE WITH ORNL-NSIC-5 (VOL. 1 OF U.S. REACTOR CONTAINMENT TECHNOLOGY). MOST DANGEROUS MISSILE IS MAIN COOLANT VALVE WITH 3-IN.-DIAM STEM. KINETIC ENERGY IS 41,000 FT-LB. PENETRATION ENERGY REQUIRED IS 157,000 FT-LB. EMPIRICAL EQUATION, VALID FOR RANGES TESTED, IS GIVEN TO CALCULATE VESSEL PENETRATION ENERGY. MISSILE FROM DOUBLE-CONNECTED PIPE SECTION IS NOT CREDIBLE. MISSILE FROM SINGLE-CONNECTED PIPE SECTION CREDIBLE, BUT NONE EXIST WITH DIRECT ACCESS TO CONTAINMENT WALLS. STREAM-PROPELLED MISSILES DO NOT ATTAIN PENETRATION ENERGY.

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

*ANALYTICAL TECHNIQUE, GENERAL + *CONTAINMENT, HIGH PRESSURE + *INTEGRITY + *MISSILE GENERATION AND PROTECTION + ACCIDENT, LOSS OF COOLANT + MATHEMATICAL TREATMENT + NS SAVANNAH (PWR) + REACTOR, MARITIME + REACTOR, PWR

11-25583 ALSO IN CATEGORIES 12 AND 2
WADE GE
ESADA-GE SAFETY DEVELOPMENT PROGRAM
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
15 PAGES, 10 FIGURES, APRIL 15, 1968, PAPER PRESENTED FOR AMERICAN INSTITUTE OF CHEMICAL ENGINEERING IN THE REACTOR SAFETY PROGRAM, TAMPA, FLORIDA, MAY 21, 1968

EMPIRE STATE ATOMIC DEVELOPMENT ASSOCIATES, INC. (ESADA) AND THE ATOMIC POWER EQUIPMENT DEPARTMENT OF GENERAL ELECTRIC COMPANY ARE STUDYING SOME OF THE CONSIDERATIONS THAT MAY BE IMPORTANT FOR METROPOLITAN SITING OF NUCLEAR REACTORS. THE GENERAL OBJECTIVES OF THIS PROGRAM ARE - TO DEVELOP A BETTER UNDERSTANDING OF POSTULATED ACCIDENTS, TO DEMONSTRATE THE PERFORMANCE AND RELIABILITY OF ENGINEERED SAFEGUARDS, AND TO IMPROVE PUBLIC ACCEPTANCE OF NUCLEAR POWER PLANTS.

AVAILABILITY - G. E. WADE, PROJECT ENGINEER, GENERAL ELECTRIC COMPANY, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA 95123

*CONTAINMENT SPRAY + *CORE SPRAY + *SITING, REACTOR + *TESTING + ACCIDENT, HYPOTHETICAL + EMERGENCY COOLING CONSIDERATIONS + ENGINEERED SAFETY FEATURE + EXCURSION, LARGE + FISSION PRODUCT RELEASE, GENERAL + SPRAY, GENERAL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25718 ALSO IN CATEGORIES 18 AND 16
MILLSTONE FINAL SAFETY ANALYSIS REPORT. VOLUME I
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
275 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

EXPECTED READY FOR FUEL LOADING IN MARCH 1969. REPORT FOR 2011 MWTH RATHER THAN PREVIOUS 1730, AND THE MAXIMUM OFF-SITE THYROID DOSE WAS CALCULATED AS FOLLOWS - ROD DROPOUT (0.2 MRAD), FUEL-ELEMENT-DROPPAGE (13 MRAD), STEAM-LINE RUPTURE (280 MRAD), AND LOSS OF COOLANT (0.43 MRAD). SECTION II - ON-SITE METEOROLOGY COMPILED AUGUST 65-67 INDICATES FUMIGATION INLAND AVERAGES 25%, BEING 51.4% JUNE-AUGUST. SECTION III - REACTOR CORE. SECTION IV - REACTOR COOLANT SYSTEM, INCLUDES AN ISOLATION CONDENSER INSTEAD OF RELIEF TO SUPPRESSION POOL. SECTION V - CONTAINMENT INERT ATMOSPHERE WILL NOT BE NEEDED BECAUSE EMERGENCY CORE-COOLING SYSTEM PREVENTS SIGNIFICANT METAL-WATER REACTION.

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

*CONTAINMENT ATMOSPHERE, INERT + *LAPSE RATE, STABLE + DOSE + MILLSTONE POINT (BWR) + OFF SITE + REACTOR, BWR + REPORT, SAR + WIND STATISTICS

11-25860 ALSO IN CATEGORY 17
SPECIFICATION FOR PM TYPE NUCLEAR REACTOR CORES (TYPE 2 DESIGN)
HITTMAN ASSOCIATES, INC., BALTIMORE, MD.
NYO-10743 +. 91 PAGES, JANUARY 1967

CONTAINS, AMONG OTHER ITEMS, MANUFACTURING, QUALITY ASSURANCE, AND PRODUCT REQUIREMENTS FOR MATERIALS, FUEL ELEMENTS, BURNABLE-POISON ELEMENTS, CONTROL-ROD ASSEMBLY, CORE-BUNDLE ASSEMBLY, SOURCE TUBE, WELDED STRUCTURAL ASSEMBLY, AND CORE ASSEMBLY. FUEL ELEMENTS ARE TUBULAR, UO2-SS CORE, SS CLAD. BURNABLE-POISON ELEMENTS CONSIST OF B4C-ZR2 PELLETS IN STAINLESS-STEEL TUBES. CONTROL ROD HAS CORE OF EUROPIUM TITANATE DISPERSED IN STAINLESS STEEL MATRIX, STAINLESS-STEEL CLAD. SOURCE IS PO-BE IN STAINLESS-STEEL TUBE.

*CODES AND STANDARDS + *QUALITY CONTROL + BORON + CARBIDE + CONTROL ROD FABRICATION + CORE COMPONENTS + FABRICATION + FUEL ELEMENT + FUEL, PELLET TYPE + MATERIAL + PM 2A (PWR) + POISON, BURNABLE + REACTOR, MILITARY + REACTOR, PWR + SOURCE, NEUTRON + STEEL, STAINLESS + URANIUM OXIDE

11-25950
NOBLE JH
SUBATMOSPHERIC CONTAINMENT
STONE AND WEBSTER ENGINEERING CORPORATION, BOSTON
5 PAGES, 2 FIGURES, 1 TABLE, NUCLEAR ENGINEERING AND DESIGN 6(5), PAGES 489-93 (DECEMBER 1967)

A REACTOR CONTAINMENT CONCEPT IS PROPOSED IN WHICH THE REACTOR SYSTEM IS CONTAINED IN A DRY CONTAINER WHICH NORMALLY IS MAINTAINED AT SUBATMOSPHERIC PRESSURE. FOLLOWING A LOSS-OF-COOLANT INCIDENT, THE CONTAINMENT PRESSURE IS RETURNED TO SUBATMOSPHERIC BY THE USE OF REDUNDANT SPRAY COOLING SYSTEMS. SUBATMOSPHERIC CONTAINMENT IS A DEPARTURE FROM PREVIOUSLY PROPOSED CONTAINMENTS IN THAT PREVIOUS DESIGNS HAVE REMAINED ABOVE ATMOSPHERIC PRESSURE INDEFINITELY FOLLOWING THE HYPOTHETICAL INCIDENT, WITH SUBSEQUENT MINIMIZATION OF ALL BIOLOGICAL EFFECTS DUE TO THE INCIDENT. CHARCOAL AND PARTICULATE FILTERS, CHEMICAL SPRAYS, OR OTHER FISSION PRODUCT REMOVAL DEVICES IN THE CONTAINMENT ARE NOT REQUIRED.

*CONTAINMENT SPRAY + *CONTAINMENT, HIGH PRESSURE + *PRESSURE, SUBATMOSPHERIC + CONTAINMENT AIR COOLING + ENGINEERED SAFETY FEATURE + TEMPERATURE GRADIENT

11-25960
ADLER FM
METHOD AND MEANS FOR CONSTRUCTION PRESSURE VESSELS
BRITISH PATENT 1,084,432 +. 12 PAGES, FIGURES, SEPTEMBER 20, 1967

A METHOD IS DESCRIBED FOR THE CONSTRUCTION OF PRESTRESSED CYLINDRICAL SHELLS ADAPTED FOR USE IN PRESSURE VESSELS. A STACK OF AT LEAST TWO ANNULAR MEMBERS IS WOUND WITH CABLES AROUND THEIR PERIPHERY. THE SEGMENTS OF THE MEMBERS ARE FORCED APART BY JACKS TO PUT THE CABLES IN TENSION. THE SEGMENTS ARE SECURED BY THE CABLES. THE JACKS ARE LOCATED IN THE GAP BETWEEN THE SEGMENTS OF THE SHELL AND THE GAPS ARE FILLED WITH REINFORCED CONCRETE WHEN THE JACKS ARE REMOVED. A GAS-PROOF LINING SUCH AS POLYVINYL CHLORIDE IS USED ON THE INTERNAL WALL OF THE VESSEL AND THE VESSEL IS SUBJECTED TO TEST PRESSURE WHILE AN EXTERNAL SKIN OF REINFORCED CONCRETE IS FORMED. THE TEST PRESSURE IS RELEASED WHEN THE SKIN IS COMPLETED CAUSING THE VESSEL TO CONTRACT PUTTING THE EXTERNAL SKIN INTO COMPRESSION OR PRESTRESS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTH HAMPTON BUILDING, LONDON, $0.49 COPY

*CONCRETE, PRESTRESSED + *CONTAINMENT CONSTRUCTION + *PRESSURE VESSEL

11-25961

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25961 *CONTINUED*
BELL FR + ARTHUR IP
METHOD AND APPARATUS FOR CONTAINING RADIOACTIVE FLUID
U.S. PATENT 3,356,580 +. 4 PAGES, 4 FIGURES, REFERENCES, DECEMBER 5, 1967

A METHOD OF CONTAINING A RADIOACTIVE COOLANT PROVIDING INNER AND OUTER SEALING MEANS FOR EACH PENETRATION OPENING INTO THE PRESSURE VESSEL, AND CONTINUOUSLY MAINTAINING PRESSURE IN AN INTERMEDIATE REGION HIGHER THAN THE OPERATING PRESSURE OF THE FLUID COOLANT IN THE NUCLEAR REACTOR. THE HIGHER PRESSURE IS CONTINUOUSLY MAINTAINED BY DIVERTING FLUID FROM THE COOLANT, REMOVING ANY RADIOACTIVE PARTICLES, INCREASING THE PRESSURE OF THE DIVERTED FLUID, AND SUPPLYING HIGHER PRESSURE FLUID TO THE INTERMEDIATE REGIONS.

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

*CONTAINMENT PENETRATION, PIPE + *CONTAINMENT, MULTIPLE + *PRESSURE VESSEL + LEAK + SEAL

11-25962
FRIIS RW + HENCH JE
PRESSURE VESSEL THERMAL INSULATION
U.S. PATENT 3,357,890 +. 5 PAGES, 4 FIGURES, 1 TABLE, REFERENCES, DECEMBER 12, 1967

DESCRIBED IS A THERMAL BARRIER STRUCTURE FOR PREVENTING OVERHEATING OF A CONCRETE NUCLEAR REACTOR PRESSURE VESSEL SITUATION BETWEEN THE CORE AND VESSEL WALL IN WHICH SPACED APART LAMINAE PROJECT UPWARDLY AT AN ANGLE TO THE FLOW OF HEAT FROM THE CORE TO THE VESSEL WALL. COOLANT MAY BE ARRANGED TO FLOW BETWEEN THE LAMINAE IN A DIRECTION COUNTER TO THE DIRECTION OF FLOW OF HEAT FROM THE CORE OR TO REMAIN STATIC AND ACT IN EITHER CASE AS A THERMAL INSULATION BETWEEN LAMINAE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, $0.25 COPY

*CONCRETE + *THERMAL INSULATION + PRESSURE VESSEL

11-25963
MINIMAL GAS PRODUCING LOW DETONATION RATE EXPLOSIVE AND DETONATION SOURCES
UNITED STATES ATOMIC ENERGY COMMISSION
BRITISH PATENT 1,079,583 +. 9 PAGES, 2 FIGURES, 4 TABLES, AUGUST 16, 1967

EXPLOSIVES DESIGNED TO SIMULATE REACTOR RUNAWAYS INCORPORATE MINOR PROPORTIONS OF HIGH EXPLOSIVES SUCH AS PETN, HMX, RDX, OR TETRYL, WITH PERCHLORATES OR B, AND LEAF, FLAKE, OR PLATELET AL. THE EXPLOSIVE IS CHARACTERIZED BY A LOW DETONATION RATE, MINIMAL GAS PRODUCTION, AND LARGE AMOUNTS OF SOLID AND LIQUID BY-PRODUCTS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTH HAMPTON BUILDING, LONDON, $0.49 COPY

*EXCURSION, LARGE + *EXPLOSIVE, CONVENTIONAL + *SIMULATION + PRESSURE VESSEL

11-25964
HANEVIK A + VIDEM K
EVALUATION OF THE IRRADIATION DAMAGE IN THE HBWR PRESSURE VESSEL MATERIALS
INSTITUTT FOR ATOMENERGI, HALDEN (NORWAY)
HPR-91 +. 37 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 1967

THE IRRADIATION-INDUCED CHANGES IN IMPACT PROPERTIES OF THE MILD STEEL COMPONENTS IN THE HALDEN BOILING WATER REACTOR (HBWR) PRESSURE VESSEL WERE INVESTIGATED BY IRRADIATION OF CHARPY V-NOTCH SPECIMENS BOTH AT ORNL AND IN THE HBWR. RESULTS INDICATED THAT THE COMPOUND PLATE IN THE VESSEL WALL IS MORE IRRADIATION SENSITIVE THAN THE FLANGE, LID, OR WELD MATERIALS. THE NEUTRON SPECTRUM IN THE HBWR HAS BEEN CALCULATED BY THREE DIFFERENT COMPUTER CODES. FOR SPECIMENS IRRADIATED NEAR THE VESSEL WALL, BETTER CORRELATIONS BETWEEN NEUTRON DOSE AND DAMAGE IS FOUND BY USE OF A MULTIGROUP TREATMENT RATHER THAN BY A SIMPLE SQUARE-ROOT LAW WHICH TAKES INTO CONSIDERATION ONLY NEUTRONS WITH ENERGIES ABOVE 1 MEV. SAFETY AGAINST BRITTLE FRACTURE IS AT PRESENT SECURED BY KEEPING THE VESSEL ABOVE NDT + 60 F DURING SHUTDOWN CONDITIONS BECAUSE OF UNKNOWN RESIDUAL STRESSES.

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

*HBWR (BWR) + *IRRADIATION TESTING + *NDT DATA + BRITTLE FRACTURE + PRESSURE VESSEL + STEEL + STRESS

11-25965
INVESTIGATION OF EMBRITTLEMENT OF REACTOR VESSEL STEELS THROUGH PLASTIC FATIGUE. QUARTERLY REPORT NO. 10, APRIL 1-JUNE 30, 1966.
CENTRE NATIONAL DE RECHERCHES METALLURGIQUES, LIEGE (BELGIUM)
EUREAC-1799 + EUR-3339 +. 5 PAGES, TABLES, DECEMBER 1966

DURING THE PERIOD THE FOLLOWING MEASUREMENTS WERE MADE - (1) PROPERTIES OF PLASTIC FATIGUE UP TO BREAKING POINT IN TWO STEELS ZA AND ZD, (2) EVOLUTION OF THE BENDING MOMENT AS A FUNCTION OF PLASTIC FATIGUE AT 300 C (STEEL ZA), (3) PLASTIC FATIGUE EMBRITTLEMENT AT 300 C OF A FORGED ZS STEEL.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25965 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION SPRINGFIELD, VIRGINIA 22151
$3.00 COPY, $0.65 MICROFICHE

*EMBRITTLEMENT + *STEEL + *TEST, DESTRUCTIVE + FAILURE, FATIGUE + PLASTICITY + PRESSURE VESSEL

11-25966
COLMAR RJ
A PRELIMINARY EMPIRICAL APPROACH TO ESTIMATING REACTOR VESSEL DAMAGE RESULTING FROM A SEVERE NUCLEAR EXCURSION
GENERAL ELECTRIC CO., SUNNYVALE, CALIF. ADVANCED PRODUCTS OPERATION
GEAP-5163 +. 29 PAGES, JANUARY 1967

A PRELIMINARY FORMULATION OF A METHOD USED FOR EVALUATING POTENTIAL VESSEL DAMAGE FOR LIQUID-MODERATED REACTORS FOLLOWING A SEVERE NUCLEAR EXCURSION IS DISCUSSED. IN CONTRAST, THE TNT RATIONALE, INTRINSICALLY A GAS-LIQUID PHENOMENON, IS SHOWN TO BE GROSSLY INAPPROPRIATE AS A RELIABLE SIMULANT OF LIQUID-MODERATED REACTORS. IN THE PROPOSED TECHNIQUE, EXPERIMENTAL EVIDENCE FROM LIQUID-VAPOR TRANSIENT EFFECTS IS USED TO EVALUATE CERTAIN EMPIRICAL VESSEL-DAMAGE FACTORS NUMERICALLY. THE PRINCIPAL FACTORS EVALUATED ARE THE FRACTION OF THE TOTAL ENERGY RELEASE THAT IS DELIVERED TO THE VESSEL F-SUB-E AND THE ENERGY-DEPOSITION-DEPTH, HEFF. CONTEMPORARY DATA ARE UTILIZED IN A PRELIMINARY SURVEY TO EVALUATE THESE FACTORS. THE GROSS INDICATIONS AFFORDED BY AVAILABLE DATA ARE THAT THE MECHANICAL ENERGY THAT THE PRESSURE VESSELS ABSORBS IS IN THE ORDER OF TWO VESSEL DIAMETERS (H-SUB-EFF), PROVIDED THE WATER DEPTH OVER THE CORE (OR PRESSURE SOURCE) EXCEEDS THIS VALUE.

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

*COMPARISON, THEORY AND EXPERIENCE + *CONTAINMENT, SHOCK GENERATION AND PROTECTION + *SIMULATION + EXCURSION, LARGE + EXPLOSIVE, CONVENTIONAL + PRESSURE VESSEL + REACTOR, WATER

11-25967
MEINHARDT G + WEBER D
THE REACTOR PRESSURE-VESSEL FOR THE NUCLEAR RESEARCH SHIP OTTO HAHN
6 PAGES, 10 FIGURES, 4 TABLES, KERNTECHNIK 8, PAGES 396-401 (AUG.-SEPT. 1966) IN GERMAN

THE FABRICATION OF THE PRESSURE VESSELS FOR THE OTTO HAHN IS DISCUSSED. A DISCUSSION OF THE CONCENTRATION AND THE CHARACTERISTIC CALCULATION CONDITIONS, WITH SPECIAL REGARD TO THE SHIP-BUILDING REQUIREMENTS, IS PRESENTED. THE FINE-GRAINED STRUCTURAL STEEL (15 MNMONIV 53) USED FOR THE FORGED CONSTRUCTION HAS HIGH-TEMPERATURE STRENGTH AND GOOD IMPACT RESISTANCE. DURING THE FABRICATION OF THE VESSEL, PARTICULAR ATTENTION WAS DIRECTED TO WELDING, PLATING, AND CUTTING. THE SMALLER NOZZLES WERE WELDED BY A NEW PROCEDURE IN FORM OF A FERRITE OUTER PLATING. HIGH-QUALITY MACHINE TOOLS WERE USED TO SATISFY THE REQUIRED TOLERANCES.

*CONTAINMENT, HIGH PRESSURE + *REACTOR, MARITIME + CONTAINMENT CONSTRUCTION + CONTAINMENT PENETRATION, GENERAL + GERMANY + NOZZLE + QUALITY CONTROL + STEEL + WELDING

11-25969
POITEVIN P
PRESTRESSED CONCRETE CONTAINERS OF THE G2 SNF G3 REACTORS
COMPAGNIE INDUSTRIELLE DE TRAVAUX (ENTREPRISES SCHNEIDER) S.A.
ORNL-TR-1691 +. 7 PAGES, MARCH 1967

THE TEMPERATURE AND DEFORMATION OF THE CONCRETE ARE OBSERVED BY AN ASSEMBLY OF THERMAL PROBES AND VIBRATING-FILAMENT STRAIN GAUGES. THE SAFETY DEVICES WHICH ARE INSTALLED LIMIT THE ACCIDENTAL PRESSURE INCREASE TO 10%, BUT THE RISK OF HEATING REMAINS. HOWEVER, WITH THE MEASURES ADOPTED, HEATING OF THE CABLES, WHICH ARE INSULATED FROM THE CONCRETE AND PLACED ON THE PERIPHERY OF THE CONTAINER, IS PRACTICALLY RULED OUT. TESTS WITH TWO MOCKUPS ON A 1/10 SCALE SHOWED THAT THE BEHAVIOR OF THE CONTAINERS REMAINED PERFECTLY NORMAL AND PRACTICALLY ELASTIC UP TO 30 KG/SQ.CM, WITH THE RUPTURE PRESSURE BY BURSTING OF THE ENDS BEING 65 AND 70 KG/SQ. CM.

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

*CONCRETE, PRESTRESSED + *MEASUREMENT, STRAIN GAGE + *THERMAL CONSIDERATION + CORROSION + MOCKUP + PRESSURE VESSEL + REACTOR, GCR + STEEL

11-25970
POITEVIN P
CONTAINERS OF THE G2 AND G3 REACTORS. PROTECTION OF PRESTRESSING CABLES
COMPAGNIE INDUSTRIELLE DE TRAVAUX (ENTERPRISES SCHNEIDER) S.A.
ORNL-TR-1690 +. 3 PAGES, MARCH 1966

THESE ARE HIGH-STRENGTH CABLES OF 1200-TON USEFUL LOAD. AN ESTABLISHED CONDITION WAS THAT EACH CABLE SHOULD BE DEMOUNTABLE AND REPLACEABLE. THE CABLES THUS REMAIN FREE WITH RESPECT TO THE CONCRETE, WHETHER THEY ARE EXTERNAL AS HOOP CABLES OR WHETHER THEY ARE INACCESSIBLE BECAUSE THEY ARE PLACED AND TENSIONED IN THE 250 MM CHANNELS MADE IN THE CONCRETE OF THE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-25970 *CONTINUED*
STRUCTURE, AS THE LONGITUDINAL CABLES L AND THE TRANSVERSE CABLES T. CABLES C REST ON THE CYLINDRICAL BODY OF THE STRUCTURE BY SLIDE BLOCKS CAST FROM SPHERICAL GRAPHITE. THEY ARE PROTECTED BY SEVERAL LAYERS OF A BITUMINOUS COATING. L AND T CABLES OF 5 MM FORM A BUNDLE OF ABOUT 170 MM DIAMETER. A PERIODIC SWEEP WITH DRIED AIR SHOULD MAINTAIN THE ATMOSPHERE THERE AT A RELATIVE HUMIDITY OF ABOUT 30-40% TO PREVENT CORROSION.

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

*CONCRETE, PRESTRESSED + *CORROSION + *STEEL + PRESSURE VESSEL + REACTOR, GCR

11-25990
WOODROW J
STABILITY OF FUEL ROD IN A NARROW ANNULAR COOLANT CHANNEL AGAINST THERMAL BUCKLING
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
AERE-R-5601 +. 18 PAGES, 5 REFERENCES, SEPTEMBER 25, 1967

IF A FUEL ELEMENT WHICH IS SIMPLY SUPPORTED AT ITS ENDS BECOMES SLIGHTLY BOWED, THE CONVEX SIDE BEING NEAREST THE WALL OF THE COOLANT TUBE BECOMES HOTTER THAN THE CONCAVE SIDE. THE TEMPERATURE GRADIENT PRODUCES ADDITIONAL BOWING, AND, AT SOME CRITICAL VALUE, THE EFFECT BECOMES CUMULATIVE. AN ANALYSIS OF THERMAL STABILITY OF A SMALL TRANSVERSE DISTORTION IS GIVEN. A THIRD-ORDER DIFFERENTIAL EQUATION GOVERNING BOWING IS OBTAINED. A TRANSCENDENTAL CHARACTERISTIC EQUATION IS FOUND WHICH ENABLES CRITICAL REACTOR OUTPUT TO BE DETERMINED. FUEL ELEMENTS RIGIDLY HELD AT UPSTREAM END AND FREE AT OTHER ARE INHERENTLY STABLE AGAINST THERMAL BUCKLING.

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

*FUEL ELEMENT BOWING + *MATHEMATICAL TREATMENT + BUCKLING + EQUATION, GENERAL + HOT SPOT + REACTOR, GCR + REACTOR, WATER + THERMAL MECHANICAL EFFECT

11-25992 ALSO IN CATEGORY 18
JAMROG AR
APPARATUS FOR CONTROLLING THE ATMOSPHERE OVER A NUCLEAR REACTOR
U.S. PATENT 3,282,793 +. 4 PAGES, 2 FIGURES, NOVEMBER 1, 1966

APPARATUS FOR PROVIDING AIR ATMOSPHERE DIRECTLY OVER A REACTOR INSIDE LARGER ARGON-FILLED CHAMBER COMPRISED OF AXIALLY COLLAPSIBLE BELLOWS WITH ONE END SEALED TO REACTOR AND OTHER END TO OPENING IN TOP OF CHAMBER. BELLOWS PROTECTS CONTROL-ROD ELECTRICAL CONNECTIONS AND PERMITS DIRECT-CONTACT-MAINTENANCE CONTROL-ROD DRIVES. REACTOR COVER CAN BE RAISED, COLLAPSING BELLOWS, FOR REPLACEMENT OF FUEL ELEMENTS.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*CONTAINMENT DESIGN + *PATENT + CONTAINMENT ATMOSPHERE, INERT + CONTAINMENT PENETRATION, ELECTRICAL + CONTAINMENT STRUCTURE + CONTAINMENT, GENERAL + CONTROL ROD DRIVE + MAINTENANCE AND REPAIR + REACTOR, LMCR

11-26069 ALSO IN CATEGORY 18
ACRS REPORT ON FT. ST. VRAIN
USAEC, DIVISION OF REACTOR LICENSING
6 PAGES, LETTER TO L.R. PATTERSON FROM P.A. MORRIS, MAY 28, 1968, DOCKET NO. 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

ACRS CONCLUDED THAT FT. ST. VRAIN UNIT CAN BE CONSTRUCTED AT PROPOSED SITE WITH REASONABLE ASSURANCE --- ETC., BUT BELIEVES THAT (1) PCRV CONSTRUCTION PROCEDURES, (2) QUALITY-CONTROL GROUPS REPRESENTING PSC AND GGA NOT BEING RESPONSIBLE TO CONSTRUCTION GROUPS, (3) PRESTRESSING SYSTEM CORROSION PROTECTION, (4) CIRCULATOR PERFORMANCE, (5) THERMAL INSULATION, AND (6) STEAM GENERATOR LEAKAGE ARE CRITICAL ITEMS REQUIRING PARTICULAR ATTENTION. OKRENT BELIEVES DESIGN IS VULNERABLE TO VESSEL FAILURE BECAUSE OF SINGLE (PCRV) STRUCTURE, BUT, BECAUSE OF SITE CHARACTERISTICS, MODERATE POWER LEVEL, CONSERVATIVE DESIGN, AND SINGLE UNIT, IT IS ACCEPTABLE. HENDRIE BELIEVES REACTOR SHOULD BE CONTAINED IN ANOTHER BUILDING, DOES NOT AGREE THAT PRESENT DESIGN PROVIDES BOTH PRIMARY AND SECONDARY CONTAINMENT ADEQUATELY.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

ACRS + CONCRETE, PRESTRESSED + CONSTRUCTION PERMIT PROCESS + CONTAINMENT, MULTIPLE + FT. ST. VRAIN (HTGR) + PRESSURE VESSEL + QUALITY CONTROL + R AND D PROGRAM + REACTOR, HTGR + SITING, REACTOR + STEAM GENERATOR + THERMAL INSULATION

11-26078 ALSO IN CATEGORY 5
ARMISTEAD RA
TURBULENCE-INDUCED HEAT-TRANSFER FLUCTUATIONS IN PIPE FLOW OF WATER USING
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-TM-1602 +. 232 PAGES, 49 FIGURES, MAY 1967

IT IS GENERALLY RECOGNIZED THAT THE WALL LAYER OR LAMINAR SUBLAYER IS THE CONTROLLING REGION

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-26078 *CONTINUED*
IN THE TRANSFER OF HEAT AND MASS BETWEEN A SOLID BOUNDARY AND A TURBULENT FLUID. IT IS MORE KNOWN THAT THE LAMINAR SUBLAYER, RATHER THAN BEING RELATIVELY FREE OF TURBULENT FLUCTUATIONS, AS HAS BEEN POSTULATED IN THE PAST, HAS AN UNSTEADY CHARACTER WHICH GIVES RISE TO FLUCTUATIONS IN THE RATE AT WHICH HEAT AND MASS ARE TRANSFERRED BETWEEN THE WALL AND THE FLUID. THE PRACTICAL MOTIVATION FOR THIS STUDY WAS THE KNOWLEDGE, BASED ON EXPERIMENTAL EVIDENCE, THAT SURFACE TEMPERATURE FLUCTUATIONS CAN CAUSE FATIGUE-TYPE FAILURE AND ACCELERATED SURFACED CORROSION. A SUBLAYER FLOW MODEL, BASED ON RANDOM EDDY PENETRATION, WAS POSTULATED TO EXPLAIN THE TURBULENCE-INDUCED FLUCTUATIONS IN THE RATE OF HEAT TRANSFER FROM THE WALL SENSORS. SUGGESTIONS ARE INCLUDED FOR MODIFICATION OF THE MODEL.

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

*FLOW THEORY AND EXPERIMENTS + *FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + FAILURE, FATIGUE + FLOW, TUBE + HEAT TRANSFER, CONVECTION

11-26112 ALSO IN CATEGORY 18
AMENDMENT 2 TO NC STATE PULSTAR PSAR
NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA
29 PAGES, 8 FIGURES, FROM THE N.C.S.U. PULSTAR SAFETY ANALYSIS REPORT, DOCKET NO. 50-297

AMENDMENT 2 CONSISTS OF ADDITIONS AND CHANGES TO PSAR AS A RESULT OF COMPLETION OF DETAILED DESIGN. AMENDMENT 2 TRANSMITS (BUT DOES NOT INCLUDE) SUPPLEMENTS 1 AND 2 AS REPLIES TO DRL QUESTIONS OF FEB. 20 AND APRIL 11, 1968. ***MAJOR CHANGE APPEARS TO BE IN SECT. 5.3 (CONFINEMENT VENTILATION SYSTEM).

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

*CONTAINMENT, PRESSURE VENTING + AEC QUESTION + PULSTAR (RR) + REACTOR, PULSED + REACTOR, RESEARCH + REPORT, PSAR

11-26400
BURDEKIN FM + STONE DE
THE CRACK OPENING DISPLACEMENT APPROACH TO FRACTURE MECHANICS IN YIELDING MATERIALS
8 PAGES, 10 FIGURES, 18 REFERENCES, JOURNAL OF STRAIN ANALYSIS, 1(2), PAGES 145-153 (1966)

AN ESTIMATE OF THE CRACK-OPENING DISPLACEMENT IS OBTAINED BY SUPERIMPOSING TWO ELASTIC SOLUTIONS. A LINE OF YIELDING IS ASSUMED TO EXTEND AHEAD OF THE CRACK, THUS EFFECTIVELY LENGTHENING IT. THE FIRST ANALYSIS APPLIES A UNIFORM BOUNDARY STRESS TO A SHEET CONTAINING THE EFFECTIVELY LENGTHENED CRACK. THE SECOND ANALYSIS APPLIES THE YIELD STRESS IN TENSION TO THE ARTIFICIAL PORTION OF THE CRACK. THE LENGTH OF THE LINE OF YIELDING IS DETERMINED BY THE CONDITION THAT THE STRESS SINGULARITY AT THE ARTIFICIAL CRACK TIP MUST VANISH. EXPERIMENTAL DATA ARE COMPARED WITH THE THEORY, AND EXPERIMENTAL TECHNIQUES ARE DISCUSSED.

*BRITTLE FRACTURE + *FRACTURE TOUGHNESS + *PRESSURE VESSEL + ELASTICITY + EMBRITTLEMENT + FAILURE, PRESSURE VESSEL + FLAW + STEEL + STRESS + STRESS ANALYSIS + STRUCTURAL INTEGRITY

11-26505 ALSO IN CATEGORY 18
VENTILATION SYSTEM MODIFICATION
DIVISION OF REACTOR LICENSING, AEC
8 PAGES, LETTER TO M. J. LYDON FROM D. J. SKOVHOLT, AMENDMENT 1 TO CONSTRUCTION PERMIT OF LOWELL TECH. INSTITUTE, DOCKET 50-223.

SAFETY EVALUATION AND AUTHORIZATION GIVEN FOR (1) ELIMINATION OF THE 2500-CU.FT AIR TRAP BETWEEN ISOLATION AND EXHAUST VALVES, (2) REPLACING COUNTER-WEIGHTED BY PASS DAMPER ON MAIN VENTILATION SYSTEM WITH AN AUTOMATIC, ELECTRICALLY OPERATED, BUTTERFLY VALVE, AND (3) ELIMINATE BATTERY BANK THAT WOULD OPERATE EMERGENCY EXHAUST FAN IN EVENT OF FAILURE OF BOTH PUBLIC AND EMERGENCY POWER.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *VENTILATION SYSTEM + CONTAINMENT PENETRATION, CLOSURE OF + ELECTRIC POWER, VITAL + REACTOR, RESEARCH + SAFETY EVALUATION + VALVE

11-27098 ALSO IN CATEGORIES 18 AND 5
SHOREHAM PSAR VOL IV
LONG ISLAND LIGHTING CO.
320 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES THE FOLLOWING APPENDICES - (A) CONSULTANTS REPORTS ON SEISMIC ANALYSES (GROUND RESPONSE, MODAL ANALYSIS OF CONTAINMENT STRUCTURE), (B) CORE THERMAL DESIGN (THERMAL MARGIN, MCHFR SENSITIVITY TO VARIOUS ASSUMPTIONS), (C) CONTROL-ROD-DRIVE DESCRIPTION, (D) JET-PUMP DEVELOPMENT PROGRAM, (E) CORE-SPRAY COOLING TEST PROGRAM, (F) PROPOSED OUTLINE OF TECHNICAL SPECIFICATIONS, AND (G) AEC GENERAL DESIGN CRITERIA COMPARISON (A LIST OF APPROPRIATE PSAR SECTIONS).

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-27098 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, $3.00 COPY, $0.65 MICROFICHE

*AEC DESIGN CRITERIA + *ERROR ANALYSIS + *HEAT FLUX, CRITICAL + *STRUCTURAL ANALYSIS, DYNAMIC + EARTHQUAKE ENGINEERING + REACTOR, BWR + REPORT, PSAR + SHOREHAM (BWR)

11-27100 ALSO IN CATEGORIES 18 AND 12
SHOREHAM PSAR VOL II
LONG ISLAND LIGHTING CO.
375 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES CHAP. V CONTAINMENT, VI - ENGINEERED SAFEGUARDS, AND VII - INSTRUMENTATION AND CONTROL. PRESSURE-SUPPRESSION CONTAINMENT IS NOW IN THE SHAPE OF AN INVERTED CONE (INSTEAD OF LIGHT BULB) OF REINFORCED CONCRETE, WITH THE POOL BEING IN THE ENTIRE BASE. COMPUTER CODE LOCTVS USED IN PRESSURE TRANSIENT DESIGN. CONTAINMENT CAN BE FLOODED ABOVE REACTOR CORE AFTER LOSS OF COOLANT. PLANT STABILITY ANALYSIS SYNOPSIZED (FOR COOLANT CHANNEL HYDRODYNAMICS, REACTIVITY, SPATIAL XENON, AND TOTAL SYSTEM). TURBINE BYPASS VALVES WILL PASS 25% OF FULL FLOW. A LOAD REJECTION WILL CAUSE A SCRAM.

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

*BYPASS + *COMPUTER PROGRAM + *CONTAINMENT, PRESSURE SUPPRESSION + *PRESSURE TRANSIENT + *REPORT, PSAR + *TURBINE + ACCIDENT, LOAD REJECTION + REACTOR STABILITY + REACTOR, BWR + SHOREHAM (BWR) + XENON OSCILLATION

CATEGORY 12
PLANT SAFETY FEATURES

12-25202 ALSO IN CATEGORY 17
PETERSON PH
ADDENDUM F TO HUMBOLDT BAY PROPOSED CHANGE 22 - CONTROL ROD THIMBLE SUPPORT STRUCTURE
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIF.
LETTER TO DIVISION OF REACTOR LICENSING, 8 PAGES, 2 FIGURES, 1 TABLE, APRIL 18, 1968, DOCKET NO. 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

PLANS FOR THE CONTROL-ROD-THIMBLE SUPPORT STRUCTURE WERE IN ADDENDUM 8, DATED OCT. 28, 1966. THIS WAS INSTALLED OCT. 1967 AFTER ON-SITE REVIEW COMMITTEE FINDING THAT IT DID NOT REQUIRE PRIOR AEC APPROVAL. ON FEB. 7, 1968, DRL ASKED SEVEN SPECIFIC QUESTIONS ON THE DESIGN ANALYSIS OF THE STRUCTURE REGARDING (1, 2) RATIONALE ON WHICH THE IMPACT FACTOR OF 2.03 WAS CHOSEN AND HOW THIS IS USED, (3) OTHER APPLIED LOADS, (4) DEFLECTION LIMITS, (5) FAILURE-MODE ANALYSIS, (6) TRANSMISSION OF BEARING LOADS TO THE REMAINING HOUSINGS, AND (7) PREOPERATIONAL TESTING.

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

*ACCIDENT, CONTROL ROD EJECTION + *ENGINEERED SAFETY FEATURE + AEC QUESTION + HUMBOLT BAY (BWR) + REACTOR, BWR + SAFETY REVIEW + STRUCTURAL ANALYSIS, DYNAMIC

12-25203 ALSO IN CATEGORIES 18 AND 10
RUSSELVILLE AMENDMENT 1
ARKANSAS POWER AND LIGHT CO.
153 PAGES, FIGURES, TABLES, REFERENCES, FEB. 14, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES TO CORRECT ERRORS AND PRESENT INFORMATION ON CHANGES IN DESIGN WHICH HAVE BEEN INFORMALLY REQUESTED BY DRL STAFF, PRINCIPALLY WITH RESPECT TO THE EMERGENCY CORE-COOLING SYSTEM AND ELECTRICAL SYSTEMS. ALSO INCLUDES NEW APPENDIX 2-F, A SAFETY INVESTIGATION OF DARDANELLE LOCK AND DAM.

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

AEC QUESTION + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

12-25257 ALSO IN CATEGORIES 5 AND 11
DIETZ KA
QUARTERLY TECHNICAL REPORT ENGINEERING AND TEST BRANCH. JULY 1967 - SEPTEMBER 1967
PHILLIPS PETROLEUM COMPANY
IDO-17241 +. 38 PAGES, 25 FIGURES, 15 TABLES, 19 REFERENCES, FEB. 1968

LOFT PROGRAM EXTENDED TO INCLUDE TESTING OF EMERGENCY CORE-COOLING SYSTEMS. STUDIES INDICATE THAT MODIFIED CORE CAN BE ADEQUATELY CONTROLLED WITH OPEN-LATTICE CRUCIFORM RODS. POWER DISTRIBUTIONS AND CRITICAL ROD POSITIONS WERE CALCULATED FOR 100, 400, AND 800 HR OF OPERATION AT 50 MW. I-131 AND -135 RELEASE TO FUEL-ROD PLENUM WERE CALCULATED FOR HOTTEST AND AVERAGE PINS. METHOD DISCUSSED FOR ESTIMATING EFFICIENCY OF A CONTAINMENT SPRAY DROP FOR COLLECTING AIRBORNE MATTER BY IMPACTION AND DIFFUSION. DROP SIZE MOST USEFUL FOR I REMOVAL IS 200 TO 500 MICRONS.

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

ADDITIVE + AEROSOL + CONTAINMENT SPRAY + CORE REFLOODING SYSTEM + CORE SPRAY + DROPLET + FISSION PRODUCT, AIRBORNE + FISSION PRODUCT, IODINE + LOFT (S-RR) + MATHEMATICAL STUDY + MODIFICATION, SYSTEM OR EQUIPMENT + PARTICLE SIZE + POWER DISTRIBUTION + R AND D PROGRAM + REACTOR CONTROL + REACTOR, SAFETY RESEARCH + SCRUBBER + TESTING

12-25265 ALSO IN CATEGORIES 9 AND 11
STEELE CC
FAST FLUX TEST FACILITY OVERALL CONCEPTUAL SYSTEMS DESIGN DESCRIPTION
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-500 +. 75 PAGES, JULY 7, 1967

CONCEPTUAL-DESIGN REPORT COVERING ALL PARTS OF THE FACILITY. INCLUDES BOTH A SUMMARY DESCRIPTION AND DETAILED DESCRIPTION. SOME TYPICAL SYSTEMS COVERED ARE - UTILITIES, FIRE PROTECTION, HEATING AND VENTILATING, REACTOR CONTAINMENT, CONTROL, WASTE, ETC.

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

*DESIGN STUDY + *FFTF (TR) + CONTAINMENT DESIGN + ELECTRIC POWER, GENERAL + FUEL HANDLING + INSTRUMENTATION, GENERAL + IRRADIATION FACILITY + MAINTENANCE AND REPAIR + OPERATION + PIPING + REACTOR, FAST + REACTOR, TEST + VENTILATION SYSTEM + WASTE HANDLING

CATEGORY 12
PLANT SAFETY FEATURES

12-25266 ALSO IN CATEGORY 13
KETZLACH N
NUCLEAR SAFETY SRE CORE III FUEL ELEMENT STORAGE
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-12472 +. 7 PAGES, MAY 17, 1967

THE NUCLEAR SAFETY OF A SINGLE-PLANE ARRAY OF SRE CORE-III FUEL ELEMENTS, SPACED ON 12-INCH CENTERS, HAS BEEN EVALUATED. THE ARRAY IS LESS THAN 45% OF CRITICAL, BASED ON THE MASS/UNIT-AREA PRINCIPLE FOR THE FUEL ROD SIZES OF INTEREST. THIS IS INDEPENDENT OF THE DEGREE OF WATER FLOODING. A FULLY FLOODED ARRAY OF THE ASSEMBLY OF ELEMENTS SPACED AS STATED ABOVE WOULD HAVE A K-EFF OF LESS THAN 0.6. AN UNMODERATED ASSEMBLY OF FUEL OF THE GIVEN ENRICHMENT HAVING A NEUTRON-REFLECTION EQUIVALENT TO WATER WOULD REQUIRE AT LEAST THREE TIMES AS MUCH FUEL FOR CRITICALITY, INDEPENDENT OF SPACING BETWEEN ELEMENTS OR THE THICKNESS OF WATER REFLECTOR.

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

*FUEL REPROCESSING + *FUEL STORAGE + FUEL ELEMENT + REACTOR, LMCR + SRE (RE) + STORAGE CONTAINER + URANIUM CARBIDE

12-25268 ALSO IN CATEGORY 9
BOYD CL + SHADEL FH + WESTSIK JH
FAST FLUX TEST FACILITY REFERENCE CONCEPT. PROGRESS REPORT
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-470 +. 214 PAGES, FIGURES, TABLES, AUGUST 1967

DISCUSSES REACTOR DESIGN, FUEL-SUBASSEMBLY DESIGN, FUEL-HANDLING SYSTEM, REACTOR HEAT-TRANSPORT SYSTEM, SODIUM AND INERT-GAS SERVICE SYSTEMS, INSTRUMENTATION AND CONTROLS, IRRADIATION-TESTING FACILITIES STRUCTURES AND UTILITIES, EXAMINATION FACILITIES, NUCLEAR-PROOF-TEST FACILITY, AND OPERATION AND MAINTENANCE FUNCTIONS.

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

*FFTF (TR) + *REACTOR TEST FACILITY + DESIGN CRITERIA + FUEL HANDLING + HEAT TRANSFER + INSTRUMENTATION, GENERAL + IRRADIATION FACILITY + MAINTENANCE AND REPAIR + OPERATION + REACTOR COOLANT + REACTOR, FAST + REACTOR, TEST + SODIUM

12-25270 ALSO IN CATEGORY 13
PROTECTIVE COATINGS (PAINTS) FOR THE NUCLEAR INDUSTRY
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS
57 PAGES, 1 FIGURE, TABLES, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, 1967, SUBMITTED FOR FINAL APPROVAL TO THE UNITED STATES OF AMERICA STANDARDS INSTITUTE, NEW YORK, N.Y.

THIS PROJECTED STANDARD IS THE RESULT OF THE COMBINED NUCLEAR EXPERIENCE (23 YEARS) WITH PROTECTIVE COATINGS. PRESENTED IN SUMMARY FORM THAT PERMITS A BROAD APPLICATION THROUGHOUT THE NUCLEAR COMPLEX. READER DOES NOT REQUIRE PAST EXPERIENCE IN NUCLEAR OR ENGINEERING DISCIPLINES.

*ENRICHMENT FACILITY + *FABRICATION + *FUEL CONVERSION + *FUEL ELEMENT + *FUEL REPROCESSING + *ORE CONVERSION + *RADIOISOTOPE + *REACTOR, GENERAL + *TRANSPORTATION AND HANDLING + COATING + COATING, SURFACE + CODES AND STANDARDS + CONTAMINATION + DECONTAMINATION + METAL + SURFACE, GENERAL + TESTING

12-25286 ALSO IN CATEGORY 17
JOHNSON JL
INHALATION OF AIRBORNE URANIUM ORE DUST
WESTERN NUCLEAR, INC., JEFFREY CITY, WYO., 82310
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 22, (MAY 13, 1968)

(LETTER, MARCH 12) BETWEEN DEC. 13, 1967, AND FEB. 6, 1968, TWO CRUSHER OPERATORS WERE EXPOSED TO AIR CONCENTRATIONS 1.05-1.70 MPC FOR NATURAL URANIUM. THIS WAS DUE TO ORE-DRYING OPERATIONS REQUIRED ONLY IN WINTER. A DIFFERENT HANDLING METHOD HAS LOWERED AIRBORNE LEVELS. OVERTIME WORK WILL BE IN ANOTHER JOB. IF INDIVIDUAL EXPOSURE APPROACHES MPC, THAT PERSON WILL BE ROTATED TO ANOTHER JOB. BASED ON 160 HR IN A 28-DAY PERIOD, EXPOSURES WERE BELOW THE TIME-WEIGHTED MPC. HOWEVER, A RECENT COMPLIANCE INSPECTION POINTED OUT THE EXCESSIVE OVERTIME WORKED.

*INHALATION + *URANIUM, NATURAL + ADMINISTRATIVE CONTROL + MILLING + PERSONNEL EXPOSURE, RADIATION

12-25344 ALSO IN CATEGORIES 18 AND 11
OYSTER CREEK 2 (PWR) PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY

CATEGORY 12
PLANT SAFETY FEATURES

12-25344 *CONTINUED*
175 PAGES, FIGURES, TABLES, REFERENCES FROM OYSTER CREEK NUCLEAR STATION - UNIT 2, VOLUME 2, MARCH 1968, DOCKET 50-320

CHAPTERS - (4) REACTOR COOLANT SYSTEM, (5) CONTAINMENT SYSTEM (7 APPENDIXES ON STRUCTURAL DESIGN AND TESTS), (6) ENGINEERED SAFETY FEATURES (WATER INJECTION, CONTAINMENT AIR COOLING AND IODINE REMOVAL, WATER LEAKAGE FROM ENGINEERED SAFETY FEATURES OUTSIDE CONTAINMENT), (7) INSTRUMENTATION AND CONTROL, AND (8) ELECTRICAL SYSTEMS.

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

CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + OYSTER CREEK 2 (PWR) + REACTOR, PWR + REPORT, PSAR

12-25404 ALSO IN CATEGORY 13
SAWAI S + UENO M
JRR-2 IRRADIATED FUEL STORAGE FACILITY
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1153 +. 18 PAGES, FIGURES, SEPT. 1967

THE JRR-2 (JAPAN RESEARCH REACTOR-2, CP-5 TYPE) IRRADIATED-FUEL STORAGE FACILITY HAS BEEN USED FOR OVER 7 YEARS, AND MANY PROBLEMS AND TROUBLES HAVE ARISEN UNTIL NOW. WE HAVE MADE EFFORTS TO OVERCOME THEM AND AT THE PRESENT TIME MANY OF THEM WERE SOLVED. THIS IRRADIATED-FUEL STORAGE FACILITY AND THE EXPERIENCES ARE DESCRIBED IN THIS REPORT. THE TROUBLES AND PROBLEMS ENCOUNTERED, SUCH AS THE POOL LINING, FUEL STORAGE RACK, HANDLING TOOLS AND SO ON, AS WELL AS THE OPERATION DATA ON THE WATER QUALITY OF THE POOL ARE ALSO REPORTED.

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

*REACTOR, GENERAL + *REACTOR, RESEARCH + EQUIPMENT, GENERAL + FAILURE, EQUIPMENT + FUEL STORAGE + JAPAN + OPERATING EXPERIENCE + WATER TREATMENT

12-25583 ALSO IN CATEGORIES 2 AND 11
WADE GE
ESADA-GE SAFETY DEVELOPMENT PROGRAM
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
15 PAGES, 10 FIGURES, APRIL 15, 1968, PAPER PRESENTED FOR AMERICAN INSTITUTE OF CHEMICAL ENGINEERING IN THE REACTOR SAFETY PROGRAM, TAMPA, FLORIDA, MAY 21, 1968

EMPIRE STATE ATOMIC DEVELOPMENT ASSOCIATES, INC. (ESADA) AND THE ATOMIC POWER EQUIPMENT DEPARTMENT OF GENERAL ELECTRIC COMPANY ARE STUDYING SOME OF THE CONSIDERATIONS THAT MAY BE IMPORTANT FOR METROPOLITAN SITING OF NUCLEAR REACTORS. THE GENERAL OBJECTIVES OF THIS PROGRAM ARE - TO DEVELOP A BETTER UNDERSTANDING OF POSTULATED ACCIDENTS, TO DEMONSTRATE THE PERFORMANCE AND RELIABILITY OF ENGINEERED SAFEGUARDS, AND TO IMPROVE PUBLIC ACCEPTANCE OF NUCLEAR POWER PLANTS.

AVAILABILITY - G. E. WADE, PROJECT ENGINEER, GENERAL ELECTRIC COMPANY, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA 95123

*CONTAINMENT SPRAY + *CORE SPRAY + *SITING, REACTOR + *TESTING + ACCIDENT, HYPOTHETICAL + EMERGENCY COOLING CONSIDERATIONS + ENGINEERED SAFETY FEATURE + EXCURSION, LARGE + FISSION PRODUCT RELEASE, GENERAL + SPRAY, GENERAL

12-25584 ALSO IN CATEGORY 13
LINDAUER RB
MSRE DESIGN AND OPERATIONS REPORT - PART VII. FUEL HANDLING AND PROCESSING PLANT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-907(REV.) +. 65 PAGES, FIGURES, TABLES, 7 REFERENCES, DECEMBER 28, 1967

REPORT COVERS CHANGES IN EQUIPMENT AND OPERATING PLANS AS FOLLOWS - (1) USE OF FUEL SALT CONTAINING 230 KG OF 33% ENRICHED URANIUM INSTEAD OF 60 KG OF 93%, (2) TO PROCESS FUEL AFTER 30 DAYS INSTEAD OF 90 DAYS DECAY, (3) FILTER SALT AFTER FLUORINATION BEFORE RETURNING IT TO REACTOR CYCLE. PROCESS AND EQUIPMENT DESCRIPTION GIVEN. SAFETY ANALYSIS OF PILOT PLANT FOR MAXIMUM CREDIBLE ACCIDENT OF GAS LEAK DURING FLUORINATION WITH BASIS FOR CALCULATIONS. PREVIOUS REPORTS IN SERIES LISTED.

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

*FUEL REPROCESSING + *REACTOR, GENERAL + DESIGN STUDY + EQUIPMENT, GENERAL + EXPERIMENT, GENERAL + FLUORINE + INSTRUMENTATION, GENERAL + MOLTEN FUEL + MSRE (RE) + ORNL + REACTOR, MOLTEN SALT + SAFETY REVIEW + URANIUM + WASTE TREATMENT, GAS

12-25719 ALSO IN CATEGORIES 18 AND 10
MILLSTONE POINT FINAL SAFETY ANALYSIS REPORT. VOLUME 2
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
350 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

CATEGORY 12
PLANT SAFETY FEATURES

12-25719 *CONTINUED*
INCLUDES THE FOLLOWING - (1) SECTION VI, ENGINEERED SAFEGUARDS - FAILURE-RATE DATA USED TO COMPUTE ECCS AVAILABILITY AS 0.99969. (2) SECTION VII, I AND C. (3) SECTION VIII, ELECTRICAL SYSTEM - A 12-MW GAS TURBINE (FOR PEAKING POWER) ALSO SUPPLIED BUSES 3 AND 4, BACKING UP THE SINGLE DIESEL. (4) SECTION IX, RADIOACTIVE WASTE, (5) SECTION X, AUXILIARY SYSTEMS. (6) SECTION XI, TURBINE, INCLUDING MALFUNCTION BEHAVIOR. (7) SECTION XII, STRUCTURAL DESIGN.

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

*EMERGENCY COOLING CONSIDERATIONS + *GENERATOR, ENGINE + *RELIABILITY, SYSTEM + ELECTRIC POWER, SHUTDOWN + MILLSTONE POINT (BWR) + REACTOR, BWR + REPORT, SAR

12-25876 ALSO IN CATEGORIES 6 AND 13
LLOYD RC + CLAYTON ED + CHALMERS JH
CRITICALITY OF ARRAYS OF 233U SOLUTION
BATTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON + AUTHORITY HEALTH AND SAFETY BRANCH, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, WARRINGTON, LANCASHIRE, ENGLAND
6 PAGES, 6 FIGURES, 4 TABLES, 10 REFERENCES, NUCLEAR APPLICATIONS, 4(3), PAGES 136-141 (MARCH 1968)

THE RESULTS OF NEUTRON MULTIPLICATION MEASUREMENTS PERFORMED WITH ARRAYS OF 233U SOLUTION APPLY TO CRITICALITY SAFETY CONSIDERATIONS IN LANDLING SOLUTIONS AT A CONCENTRATION OF = 330 G 233U/LITER AND ARE USEFUL IN CHECKING COMPUTATIONAL METHODS. THE MEASUREMENTS WERE MADE WITH 17.3 KG 233U IN BOTH REFLECTED AND UNREFLECTED ARRAYS. CRITICAL NUMBERS OF BOTTLES WERE DETERMINED AS A FUNCTION OF SPACING, AND THE EFFECT OF ADDING MODERATING MATERIAL BETWEEN THE BOTTLES COMPRISING AN ARRAY WAS ALSO EXAMINED. MONTE CARLO CALCULATIONS WERE FOUND TO REPRODUCE THE EXPERIMENTAL DATA REASONABLY WELL, WITH K-EFF BEING COMPUTED TO WITHIN ABOUT 0.03 OF UNITY FOR THOSE CASES COMPARED.

*CRITICALITY EXPERIMENT + *URANIUM-233 + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY SAFETY + FUEL REPROCESSING + MONTE CARLO + TRANSPORTATION AND HANDLING

12-25939 ALSO IN CATEGORY 17
HADDAM NECK PROPOSED CHANGE 6 INFORMATION
CONNECTICUT YANKEE ATOMIC POWER COMPANY
11 PAGES, FIGURES, APRIL 4, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM WM. WEBSTER, DOCKET 50-213, TYPE--PWR + MFG--WEST., AE--STONE + WEBSTER

IN RESPONSE TO DRL QUESTIONS ON USE OF LEAKING HIGH-PRESSURE PUMPS DURING A LOSS OF COOLANT, PROVIDES GRAPHS TO SHOW (FOR A 4-IN.-DIA BREAK) PRESSURE DECREASES BELOW RHR PUMPS SHUT OFF HEAD (165 PSI) IN 0.5 HR. THUS THIS HIGH PRESSURE PUMP WOULD BE NEEDED ONLY FOR BREAKS LESS THAN 4 IN., AND THEN THERE WOULD BE NO CLAD PERFORATION. THUS (NORMAL) LEAKAGE OF 2 GPM WOULD GIVE A 0.25-R DOSE, GROUND RELEASE. ENCLOSED IS CRANE PACKING COMPANY LETTER STATING THAT 2-8 LITERS/HR SEAL LEAKAGE IS ABNORMAL, AND SUGGESTED TECHNICAL SPECIFICATIONS SECTION 3.14 ALLOWING 6 LITERS/HR LEAKAGE FROM RHR SYSTEM WITHOUT SHUTDOWN.

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

*LEAK + *PUMP + *SHUTDOWN COOLING SYSTEM + ACCIDENT, LOSS OF COOLANT + DOSE + HADDAM NECK (PWR) + OFF SITE + REACTOR, PWR + TECHNICAL SPECIFICATIONS

12-25983
FRAME AG + PARKER HF + STACEY J + RILEY PL
FUEL HANDLING APPARATUS FOR NUCLEAR REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY
BRITISH PATENT 1,087,865 +. 5 PAGES, 4 FIGURES, OCTOBER 18, 1967

THE DESIGN FOR A REACTOR LOADING AND UNLOADING MACHINE IS PRESENTED. THE MACHINE CONSISTS OF A RADIAL ARM WHICH SWEEPS THROUGH AN ARC BELOW THE CORE AND A TILLER OPERATING OPPOSITE THE RADIAL ARM ABOVE THE CORE. AS THE RADIAL ARM WITHDRAWS A FUEL ELEMENT, THE TILLER ABOVE THE ARM INSERTS A KEY IN THE VACANT FUEL LATTICE OPENING.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

*FUEL HANDLING MACHINE + *PATENT + EQUIPMENT DESIGN + UNITED KINGDOM

12-25984
JAMES, BT
THE INSTALLED TRITIUM MONITORING SYSTEM IN THE DIDO AND PLUTO REACTOR HALLS
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-M-1929 +. 4 PAGES, 12 FIGURES, 4 REFERENCES, DECEMBER 1967

DESCRIBES NEW EQUIPMENT INSTALLED IN THE DIDO AND PLUTO REACTOR HALLS FOR THE MONITORING OF TRITIATED WATER IN AIR. EACH UNIT OF THE INSTALLATION IS PROVIDED WITH TWELVE REMOTE SAMPLING POINTS, REMOTE INDICATION AND WARNING FACILITIES, AND THE SYSTEM IS FREE FROM INTERFERENCE FROM HIGH GAMMA RADIATION FIELDS. TWO STANDARD 1844A RADIOACTIVE GAS MONITORS ARE USED IN EACH UNIT, AND THE SYSTEM HAS PROVED ADEQUATE FOR ALL OPERATIONAL MONITORING

CATEGORY 12
PLANT SAFETY FEATURES

12-25984 *CONTINUED*
REQUIREMENTS. REMOTE MONITORING IN THE EVENT OF EVACUATION FROM THE REACTOR BUILDINGS IS PROVIDED.

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

*DIDO (TR) + *MONITOR, RADIATION, GAS + *PLUTO (TR) + *TRITIUM + EQUIPMENT DESIGN + HARWELL + REACTOR, TEST + UNITED KINGDOM

12-26087 ALSO IN CATEGORY 17
INTERNAL EXPOSURE OF CHEMIST TO TRITIUM
NEW ENGLAND NUCLEAR CORP., ALBANY ST., BOSTON, MASS.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19, (JUNE 17, 1968)

(LETTER, MAY 8) ON APRIL 4, A JUNIOR CHEMIST WAS SYNTHESIZING AN ORGANIC COMPOUND CONTAINING TRITIUM IN A HOOD UNDER VACUUM WITH A GAS CHROMATOGRAPH. HE RECEIVED A CALCULATED INTERNAL WHOLE-BODY EXPOSURE OF 662 MREM FROM TRITIUM AND CARBON-14. EXPOSURE WAS FROM MULTIPLE CAUSES - (1) LOOSENING OF FAN BELTS, (2) PLACING HEAD IN THE HOOD, (3) POSSIBLE FATIGUE OF RUBBER TUBING AND LEAKS. A NEW FACE DESIGN FOR HOOD WILL PREVENT ENTRY OF HEAD. RUBBER TUBING WILL BE CHANGED OFTENER. CHROMATOGRAPH EXIT PORTS WILL BE DIRECTED TO THE SIDE OF HOOD RATHER THAN TO PORT.

*INHALATION + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE + *VENTILATION SYSTEM + FAILURE, OPERATOR ERROR + GLOVE BOX + TRITIUM

12-26442 ALSO IN CATEGORY 17
REPORT ON FAILURE OF THE SHUTDOWN VALVES TO OPEN
ALLIS-CHALMERS MANUFACTURING CO.
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGE 11 (JUNE 24, 1968), DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

(LETTER, JUNE 8) REACTOR WAS AT 25% POWER WHEN THE SHUTDOWN CONDENSER STEAM INLET VALVES AND ONE CONDENSATE RETURN VALVE FAILED TO OPEN WHEN THE MAIN STEAM ISOLATION VALVE WAS CLOSED FOR TEST 215. FEEDWATER SYSTEM PREVENTED THE PRESSURE TRANSIENT. ***VALVE PACKING WAS TIGHT BUT DID NOT PREVENT OPENING. THE CONDENSATE VALVE HAD A TEASPOONFUL OF WELD BEADS, INCLUDING ONE PARTICLE JAMMED BETWEEN PLUG AND SEAT. IN THE STEAM INLET VALVES, A DIFFERENTIAL PRESSURE IS DEVELOPED (DUE TO UNEQUAL PATH LENGTHS FOR STEAM TO FOLLOW IN PASSING THROUGH VALVE BODY AND THROUGH TWO OPENINGS 180 DEG APART) WHICH CAUSES THE PLUG TO RUB AGAINST THE SEAT WHEN OPENING. SEAT CAGE OPENINGS WILL BE INSTALLED WITH HOLES 90 DEG FROM VALVE INLET, AND HIGHER.

*CONTAINMENT PENETRATION, CLOSURE OF + *SHUTDOWN COOLING SYSTEM + *TEST, PLANT RESPONSE + *VALVE + FAILURE, INSTALLATION ERROR + FAILURE, SIMULTANEOUS + LACROSSE (BWR) + MAIN COOLING SYSTEM + OBSTRUCTION + REACTOR STARTUP TESTING + REACTOR, BWR + WELDING

12-26506 ALSO IN CATEGORY 18
POST LOSS OF COOLANT ACCIDENT PROTECTION
COMMONWEALTH EDISON COMPANY
2 PAGES, OF AMENDMENT 9 TO ZION 1 AND 2 APPLICATION FOR CONSTRUCTION PERMIT, DOCKET 50-295 AND 304. JUNE 12, 1968, TYPE--PWR, MFG--WEST.,AE--SGT + LUNDY

CONSISTS OF NEW PAGES FOR PSAR, PROVIDING CONCEPTUAL DESCRIPTION OF AN ADDITIONAL SAFEGUARD (POST LOSS-OF-COOLANT ACCIDENT PROTECTION PREVIOUSLY DISCUSSED WITH ACRS). SYSTEM ENSURES PRESERVATION OF CORE HEAT-TRANSFER GEOMETRY IF FUTURE DEVELOPMENTS SHOW ECCS OPERATION COULD RESULT IN UNACCEPTABLE THERMAL SHOCK TO REACTOR VESSEL. PLANT DESIGN TO BE SUCH THAT INSTALLATION CAN BE MADE AT LATER DATE. CONSISTS OF STANDPIPE OVER INSTRUMENT PASSAGEWAY TO RETURN WATER IN CAVITY TO LEVEL ABOVE CORE, TANKS, PIPING PUMPS, ETC., TO PUMP WATER FROM CONTAINMENT FLOOR TO CAVITY, AND REDUNDANT PUMPING EQUIPMENT FOR PUMPING FROM REFUELING WATER STORAGE TANK TO HOT LEGS OF COOLANT LOOP.

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

*CORE REFLOODING SYSTEM + *SHUTDOWN COOLING SYSTEM + *SYSTEM DESCRIPTION + ACCIDENT, LOSS OF COOLANT + ACRS + COOLING, SHUTDOWN + ENGINEERED SAFETY FEATURE + PRESSURE VESSEL + REACTOR, PWR + REPORT, PSAR + THERMAL MECHANICAL EFFECT + ZION 1 AND 2 (PWR)

12-27100 ALSO IN CATEGORIES 18 AND 11
SHOREHAM PSAR VOL II
LONG ISLAND LIGHTING CO.
375 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES CHAP. V - CONTAINMENT, VI - ENGINEERED SAFEGUARDS, AND VII - INSTRUMENTATION AND CONTROL. PRESSURE-SUPPRESSION CONTAINMENT IS NOW IN THE SHAPE OF AN INVERTED CONE (INSTEAD OF LIGHT BULB) OF REINFORCED CONCRETE, WITH THE POOL BEING IN THE ENTIRE BASE. COMPUTER CODE LOCTVS USED IN PRESSURE TRANSIENT DESIGN. CONTAINMENT CAN BE FLOODED ABOVE REACTOR CORE AFTER LOSS OF COOLANT. PLANT STABILITY ANALYSIS SYNOPSIZED (FOR COOLANT CHANNEL HYDRODYNAMICS, REACTIVITY, SPATIAL XENON, AND TOTAL SYSTEM). TURBINE BYPASS VALVES WILL PASS

CATEGORY 12
PLANT SAFETY FEATURES

12-27100 *CONTINUED*
25% OF FULL FLOW. A LOAD REJECTION WILL CAUSE A SCRAM.

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

*BYPASS + *COMPUTER PROGRAM + *CONTAINMENT, PRESSURE SUPPRESSION + *PRESSURE TRANSIENT + *REPORT, PSAR + *TURBINE + ACCIDENT, LOAD REJECTION + REACTOR STABILITY + REACTOR, BWR + SHOREHAM (BWR) + XENON OSCILLATION

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25266 ALSO IN CATEGORY 12
KETZLACH N
NUCLEAR SAFETY SRE CORE III FUEL ELEMENT STORAGE
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-12472 +. 7 PAGES, MAY 17, 1967

THE NUCLEAR SAFETY OF A SINGLE-PLANE ARRAY OF SRE CORE-III FUEL ELEMENTS, SPACED ON 12-INCH CENTERS, HAS BEEN EVALUATED. THE ARRAY IS LESS THAN 45% OF CRITICAL, BASED ON THE MASS/UNIT-AREA PRINCIPLE FOR THE FUEL ROD SIZES OF INTEREST. THIS IS INDEPENDENT OF THE DEGREE OF WATER FLOODING. A FULLY FLOODED ARRAY OF THE ASSEMBLY OF ELEMENTS SPACED AS STATED ABOVE WOULD HAVE A K-EFF OF LESS THAN 0.6. AN UNMODERATED ASSEMBLY OF FUEL OF THE GIVEN ENRICHMENT HAVING A NEUTRON-REFLECTION EQUIVALENT TO WATER WOULD REQUIRE AT LEAST THREE TIMES AS MUCH FUEL FOR CRITICALITY, INDEPENDENT OF SPACING BETWEEN ELEMENTS OR THE THICKNESS OF WATER REFLECTOR.

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

*FUEL REPROCESSING + *FUEL STORAGE + FUEL ELEMENT + REACTOR, LMCR + SRE (RE) + STORAGE CONTAINER + URANIUM CARBIDE

13-25270 ALSO IN CATEGORY 12
PROTECTIVE COATINGS (PAINTS) FOR THE NUCLEAR INDUSTRY
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS
57 PAGES, 1 FIGURE, TABLES, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, 1967, SUBMITTED FOR FINAL APPROVAL TO THE UNITED STATES OF AMERICA STANDARDS INSTITUTE, NEW YORK, N.Y.

THIS PROJECTED STANDARD IS THE RESULT OF THE COMBINED NUCLEAR EXPERIENCE (23 YEARS) WITH PROTECTIVE COATINGS. PRESENTED IN SUMMARY FORM THAT PERMITS A BROAD APPLICATION THROUGHOUT THE NUCLEAR COMPLEX. READER DOES NOT REQUIRE PAST EXPERIENCE IN NUCLEAR OR ENGINEERING DISCIPLINES.

*ENRICHMENT FACILITY + *FABRICATION + *FUEL CONVERSION + *FUEL ELEMENT + *FUEL REPROCESSING + *ORE CONVERSION + *RADIOISOTOPE + *REACTOR, GENERAL + *TRANSPORTATION AND HANDLING + COATING + COATING, SURFACE + CODES AND STANDARDS + CONTAMINATION + DECONTAMINATION + METAL + SURFACE, GENERAL + TESTING

13-25346 ALSO IN CATEGORY 17
AEC COMPLIANCE ISSUES CEASE AND DESIST ORDER FOR NUMEC APOLLO PLANT
NUCLEAR MATERIALS AND EQUIPMENT CORP.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGES 10-12 (MAY 20, 1968)

(LETTER, MAY 10) NUMEC FILED JAN. 31, 1968, LICENSE-AMENDMENT APPLICATION FOR CP-2 (CONVERSION) AND CF-4 (CERAMIC FABRICATION) AREAS. A COMPLIANCE INSPECTION APRIL 30 TO MAY 2, 1968, REVEALED THAT UNLICENSED OPERATIONS IN THESE AREAS BEGAN MAR. 4 AND MAR. 25. (REPLY, TWX) OPERATIONS DISCONTINUED. WE TAKE STRONG EXCEPTION TO ALLEGATION OF WILFUL NONCOMPLIANCE. MANAGER SAYS THAT OUR PRESENT LICENSE COVERS THESE OPERATIONS AND THAT CHANGES WERE PRIMARILY ENCLOSURES TO CONTROL AIRBORNE ACTIVITY AND WERE MADE ACCORDING TO SNM-145. LICENSE SUBMISSIONS WERE FOR INFORMATION BECAUSE AEC SUGGESTED THAT ALL CHANGES BE SUBMITTED TO DML FOR CASE-BY-CASE DETERMINATION IF THEY WERE NECESSARY AMENDMENTS. TALKS WITH DML LEFT HIM WITH THE IMPRESSION THAT THE MATTERS WERE PERFUNCTORY AND NO LICENSING PROBLEMS WERE INVOLVED. MANAGER WILL NOW SPECIFICALLY INQUIRE WITH EACH SUBMISSION WHETHER THE ITEM REQUIRES A LICENSE AMENDMENT, AND WILL NOT AUTHORIZE OPERATION UNTIL HE GETS WRITTEN REPLY.

*AIRBORNE RELEASE + *SPECIAL NUCLEAR MATERIAL + FABRICATION FACILITY + FAILURE, ADMINISTRATIVE CONTROL + FUEL ELEMENT + INSPECTION AND COMPLIANCE + OPERATING LICENSE PROCESS

13-25404 ALSO IN CATEGORY 12
SAWAI S + UENO M
JRR-2 IRRADIATED FUEL STORAGE FACILITY
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1153 +. 18 PAGES, FIGURES, SEPT. 1967

THE JRR-2 (JAPAN RESEARCH REACTOR-2, CP-5 TYPE) IRRADIATED-FUEL STORAGE FACILITY HAS BEEN USED FOR OVER 7 YEARS, AND MANY PROBLEMS AND TROUBLES HAVE ARISEN UNTIL NOW. WE HAVE MADE EFFORTS TO OVERCOME THEM AND AT THE PRESENT TIME MANY OF THEM WERE SOLVED. THIS IRRADIATED-FUEL STORAGE FACILITY AND THE EXPERIENCES ARE DESCRIBED IN THIS REPORT. THE TROUBLES AND PROBLEMS ENCOUNTERED, SUCH AS THE POOL LINING, FUEL STORAGE RACK, HANDLING TOOLS AND SO ON, AS WELL AS THE OPERATION DATA ON THE WATER QUALITY OF THE POOL ARE ALSO REPORTED.

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

*REACTOR, GENERAL + *REACTOR, RESEARCH + EQUIPMENT, GENERAL + FAILURE, EQUIPMENT + FUEL STORAGE + JAPAN + OPERATING EXPERIENCE + WATER TREATMENT

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25405
BROWN MG
RELATION OF DESIGN PARAMETERS, PLANT CAPACITY, AND PROCESSING COSTS IN CO-60 STERILIZATION PLANTS
ATOMIC ENERGY OF CANADA LIMITED, COMMERCIAL PRODUCTS DIVISION, OTTAWA
7 PAGES, 6 FIGURES, 1 TABLE, ISOTOPES AND RADIATION TECHNOLOGY, 5(3), PAGE 235-241, (APRIL 1968)

THE MAIN FEATURES OF THREE SIZES OF CO-60 STERILIZATION PLANTS, DESIGNED TO PROVIDE A COMPLETE RANGE OF CAPACITIES FOR RADIATION STERILIZATION OF MEDICAL PRODUCTS, ARE DESCRIBED. THE SMALLEST PLANT HAS A CAPACITY OF UP TO 50 THOUSAND CU FT OF MEDICAL PRODUCTS PER YEAR. THE INTERMEDIATE, UP TO 500 THOUSAND CU FT. THE LARGEST, OVER 1 MILLION CU FT. THE RELATIONS BETWEEN CAPITAL COSTS, PRODUCTION RATE, EFFICIENCY, AND UNIT PROCESSING COSTS FOR EACH SIZE OF PLANT ARE DISCUSSED, AND THE METHOD FOR SELECTING THE BEST SIZE OF PLANT FOR A PARTICULAR NEED IS OUTLINED.

*RADIOCHEMICAL PROCESSING + *RADIOISOTOPE + COBALT + COMPARISON, FACILITIES + DESIGN STUDY + ECONOMIC STUDY

13-25406
ZALLENT H + DIXON TR
DESIGN AND FABRICATION OF A LOW-BACKGROUND-RADIATION SHIELD
NATIONAL SCIENCE FOUNDATION, WASHINGTON, D. C. + E. I. DU PONT DE NEMOURS AND CO., INC., CAMDEN, SOUTH CAROLINA
2 PAGES, 2 FIGURES, ISOTOPES AND RADIATION TECHNOLOGY, 5(3), PAGE 207 AND 208, (APRIL 1968)

DESCRIBES THE DESIGN AND FABRICATION DETAILS OF AN EASILY CONSTRUCTED LEAD SHIELD FOR A SCINTILLATION COUNTER. THE SHIELD, WHICH HOUSES THE SCINTILLATION DETECTOR IN A HORIZONTAL POSITION, FEATURES A BALL-BEARING STEEL-ROD TRACK SUSPENSION BY WHICH THE HEAVY SHIELD DOOR CAN BE OPENED OR CLOSED EASILY BY FINGERTIP PRESSURE. THE BODY OF THE SHIELD IS MADE UP OF CAST AND MACHINED LEAD RINGS TO PERMIT EASY CONSTRUCTION AS WELL AS RELOCATION WITHOUT THE USE OF A HOIST.

*RADIOISOTOPE + COUNTER + DESIGN CRITERIA + LEAD + SHIELDING

13-25407
ROSS CP
COBALT-60 FOR POWER SOURCES
SAVANNAH RIVER LABORATORY, E. I. DU PONT DE NEMOURS AND CO., INC., AIKEN, SOUTH CAROLINA
10 PAGES, 12 FIGURES, 6 TABLES, 20 REFERENCES, ISOTOPES AND RADIATION TECHNOLOGY, 5(3), PAGE 185-193, (APRIL 1968)

THE STATUS OF THE PROGRAM AT SAVANNAH RIVER LABORATORY FOR THE DEVELOPMENT OF CO-60 AS A RADIOISOTOPIC POWER SOURCE IS REVIEWED. THIS PAPER, WHICH DISCUSSES INTEREST IN AND USE OF CO-60 AS A POWER SOURCE, INCLUDES COVERAGE OF APPLICATIONS, PROPERTIES, SHIELDING AND CONTAINMENT, PRODUCTION AND COST, AND CAPSULE-MATERIAL SELECTION, FABRICATION, AND TESTING.

*ENERGY SOURCE + *RADIOISOTOPE + *SOURCE, RADIATION + BIBLIOGRAPHY + COBALT + CONTAINMENT, SOURCE + FABRICATION + SHIELDING + TESTING

13-25584 ALSO IN CATEGORY 12
LINDAUER RB
MSRE DESIGN AND OPERATIONS REPORT - PART VII, FUEL HANDLING AND PROCESSING PLANT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-TM-907(REV.) +. 65 PAGES, FIGURES, TABLES, 7 REFERENCES, DECEMBER 28, 1967

REPORT COVERS CHANGES IN EQUIPMENT AND OPERATING PLANS AS FOLLOWS - (1) USE OF FUEL SALT CONTAINING 230 KG OF 33% ENRICHED URANIUM INSTEAD OF 60 KG OF 93%, (2) TO PROCESS FUEL AFTER 30 DAYS INSTEAD OF 90 DAYS DECAY, (3) FILTER SALT AFTER FLUORINATION BEFORE RETURNING IT TO REACTOR CYCLE. PROCESS AND EQUIPMENT DESCRIPTION GIVEN. SAFETY ANALYSIS OF PILOT PLANT FOR MAXIMUM CREDIBLE ACCIDENT OF GAS LEAK DURING FLUORINATION WITH BASIS FOR CALCULATIONS. PREVIOUS REPORTS IN SERIES LISTED.

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

*FUEL REPROCESSING + *REACTOR, GENERAL + DESIGN STUDY + EQUIPMENT, GENERAL + EXPERIMENT, GENERAL + FLUORINE + INSTRUMENTATION, GENERAL + MOLTEN FUEL + MSRE (RE) + ORNL + REACTOR, MOLTEN SALT + SAFETY REVIEW + URANIUM + WASTE TREATMENT, GAS

13-25585
MORRISON WG
CRITICALITY ASPECTS OF THE REVISED ZIRCONIUM DISSOLUTION SYSTEM AT THE IDAHO CHEMICAL PROCESSING PLANT
IDAHO NUCLEAR CORPORATION, IDAHO FALLS
IN-1173 +. 31 PAGES, 5 FIGURES, 6 TABLES, 16 REFERENCES, FEB. 1968

SOLUBLE NEUTRON POISON WAS USED IN A PIONEERING ACHIEVEMENT AT THE IDAHO CHEMICAL PROCESSING

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25585 *CONTINUED*
PLANT AS THE PRIMARY NUCLEAR SAFETY CONTROL FOR ROUTINE PROCESSING OF IRRADIATED REACTOR FUEL. EXTENSIVE CALCULATIONS BASED ON CAREFULLY CONTROLLED EXPERIMENTS ESTABLISHED CONCENTRATION LIMITS FOR THE SOLUBLE BORIC ACID POISON. SPECIAL SAFETY CIRCUITS AND RIGIDLY ENFORCED OPERATING PROCEDURES WERE USED TO MAINTAIN NUCLEAR SAFETY AT A LEVEL COMMENSURATE WITH THE HIGH STANDARDS USED THROUGHOUT THE PLANT. THIS INNOVATION PERMITTED SAFE USE OF LARGE NONGEOMETRICALLY SAFE DISSOLUTION EQUIPMENT FOR SEMICONTINUOUS PROCESSING OF ENRICHED URANIUM-ZIRCONIUM FUEL WITH A RESULTANT TENFOLD INCREASE IN ZIRCONIUM FUEL PROCESSING CAPACITY. BRIEF DESCRIPTION OF PROCESS FOR RECOVERING ZIRCONIUM FUELS GIVEN.

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

*FUEL REPROCESSING + BORON + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY EXPERIMENT + DISSOLUTION + IDAHO FALLS + POISON, SOLUBLE + SOLVENT EXTRACTION PROCESS + ZIRCONIUM

13-25621 ALSO IN CATEGORY 1
BROWN, CL + LAWRENCE, LA
FFTF CRITICALITY SAFETY SYSTEM 72-- UNDERWATER EXAMINATION FACILITY CONCEPTUAL DESIGN EVALUATION
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-595 +. 7 PAGES, 2 REFERENCES, OCTOBER, 1967

GUIDELINES FOR CRITICALITY SAFETY IN THE UNDERWATER CELL EXAMINATION FACILITY ARE RECOMMENDED. INCLUDED ARE FUEL-BUNDLE-DISASSEMBLY OPERATIONS AND SUBSEQUENT TRANSFER, HANDLING, EXAMINATION, AND PACKAGING OPERATION.

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

*CRITICALITY SAFETY + *FUEL HANDLING + FFTF (TR) + FUEL STORAGE + PROCEDURES AND MANUALS + REACTOR, FAST + REACTOR, TEST

13-25694
ERNST BB + TUCK G
CRITICAL MASSES OF SPHERICAL AND HEMISPHERICAL STEEL-MODERATED, OIL-REFLECTED ENRICHED URANIUM ASSEMBLIES
DOW CHEMICAL COMPANY, GOLDEN, COLO.
RFP-1025 +. 8 PAGES, FIGURES, TABLES, NOVEMBER 6, 1967

CRITICAL MASSES WERE EXPERIMENTALLY DETERMINED FOR STEEL-MODERATED, OIL-REFLECTED, SPHERICAL AND HEMISPHERICAL, ENRICHED URANIUM ASSEMBLIES HAVING INSIDE RADII FROM 0.0 TO 12.0 CENTIMETERS.

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

CRITICAL MASS + CRITICALITY EXPERIMENT + MODERATOR + STEEL + URANIUM

13-25695 ALSO IN CATEGORY 6
RICHEY CR
THEORETICAL ANALYSES OF HOMOGENEOUS PLUTONIUM CRITICAL EXPERIMENTS
BATTELLE MEMORIAL INSTITUTE
8 PAGES, 5 FIGURES, 6 TABLES, NUCLEAR SCIENCE AND ENGINEERING 31(1), PAGES 32-39 (JANUARY 1968)

A COMPUTATIONAL ANALYSIS WAS MADE FOR THE LARGE NUMBER OF AVAILABLE CRITICAL EXPERIMENTS WITH HYDROGENEOUS MIXTURES. THE CALCULATIONS WERE MADE USING BOTH MULTIGROUP S-SUB-4 AND DIFFUSION THEORY WITH 18 ENERGY GROUPS OBTAINED WITH THE GAMTEC-II CODE. RESONANCE CAPTURE BY PU-240 WAS TREATED IN THE NR AND NRIA APPROXIMATIONS. RATHER GOOD AGREEMENT WAS FOUND BETWEEN EXPERIMENT AND THEORY. THE RESULTS ARE GIVEN AS A PARAMETRIC SURVEY FOR PU DENSITIES RANGING FROM 0.015 TO 1.0 G/CC. THE CALCULATED MINIMUM CRITICAL MASS OF PU-239 IS 547 G FOR WATER-REFLECTED AQUEOUS PU(NO3)4 SOLUTIONS AND 531 G FOR SIMILAR MIXTURES OF PU-239 AND WATER.

*CRITICALITY EXPERIMENT + *MATHEMATICAL TREATMENT + *PLUTONIUM + COMPARISON, THEORY AND EXPERIENCE + MODERATOR + WATER, GENERAL

13-25697 ALSO IN CATEGORY 6
CLARK HK
COMPUTATIONAL TECHNIQUES AND RESOURCES
SAVANNAH RIVER LABORATORY
DP-MS-66-70 + CONF-661206-6 +. 20 PAGES, 16 REFERENCES, FROM AMERICAN NUCLEAR SOCIETY, NATIONAL TOPICAL MEETING, NUCLEAR CRITICALITY SAFETY, LAS VEGAS, NEVADA, OCTOBER 3, 1966

THE TYPES OF PROBLEMS ENCOUNTERED IN NUCLEAR CRITICALITY SAFETY ARE DISCUSSED, ALONG WITH THE REQUIREMENTS OF A COMPUTATIONAL TECHNIQUE, AND APPROXIMATIONS FOR SIMPLIFYING COMPUTATIONS.

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

*CRITICALITY SAFETY + *MATHEMATICAL TREATMENT + *RADIOCHEMICAL PLANT SAFETY +

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-25697 *CONTINUED*
COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + CRITICALITY EXPERIMENT + CROSS SECTION

13-25874 ALSO IN CATEGORIES 6 AND 12
LLOYD RC + CLAYTON ED + CHALMERS JH
CRITICALITY OF ARRAYS OF 233U SOLUTION
BATTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON + AUTHORITY HEALTH AND SAFETY BRANCH, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, WARRINGTON, LANCASHIRE, ENGLAND
6 PAGES, 6 FIGURES, 4 TABLES, 10 REFERENCES, NUCLEAR APPLICATIONS, 4(3), PAGES 136-141 (MARCH 1968)

THE RESULTS OF NEUTRON MULTIPLICATION MEASUREMENTS PERFORMED WITH ARRAYS OF 233U SOLUTION APPLY TO CRITICALITY SAFETY CONSIDERATIONS IN LANDLING SOLUTIONS AT A CONCENTRATION OF = 330 G 233U/LITER AND ARE USEFUL IN CHECKING COMPUTATIONAL METHODS. THE MEASUREMENTS WERE MADE WITH 17.3 KG 233U IN BOTH REFLECTED AND UNREFLECTED ARRAYS. CRITICAL NUMBERS OF BOTTLES WERE DETERMINED AS A FUNCTION OF SPACING, AND THE EFFECT OF ADDING MODERATING MATERIAL BETWEEN THE BOTTLES COMPRISING AN ARRAY WAS ALSO EXAMINED. MONTE CARLO CALCULATIONS WERE FOUND TO REPRODUCE THE EXPERIMENTAL DATA REASONABLY WELL, WITH K-EFF BEING COMPUTED TO WITHIN ABOUT 0.03 OF UNITY FOR THOSE CASES COMPARED.

*CRITICALITY EXPERIMENT + *URANIUM-233 + COMPARISON, THEORY AND EXPERIENCE + CRITICALITY SAFETY + FUEL REPROCESSING + MONTE CARLO + TRANSPORTATION AND HANDLING

13-25985
KING LJ
SAFETY ANALYSIS FOR THE TRANSURANIUM PROCESSING PLANT, BUILDING 7920
OAK RIDGE NATIONAL LABORATORY
ORNL-3954 +. 180 PAGES, FIGURES, TABLES, APRIL 1968

PRESENTS A SAFETY ANALYSIS OF THE TRANSURANIUM PROCESSING PLANT AND THE PROPOSED OPERATIONS AND PROCEDURES. TOPICS COVERED - (1) DESCRIPTION OF THE BUILDING AND BUILDING SERVICES, WITH SPECIAL EMPHASIS ON PROVISIONS FOR CONTAINMENT OF HAZARDOUS MATERIALS, (2) PROCESSES AND EQUIPMENT, (3) OPERATING SAFEGUARDS, (4) CONTROL OF PERSONNEL EXPOSURE, (5) OPERATIONS WITH TRANSURANIUM ELEMENTS IN THE DEVELOPMENT LABORATORIES, INCLUDING LABORATORY HAZARDS AND SAFEGUARDS, (6) RADIATION AND CONTAMINATION CONTROLS, (7) PROCESS SAFEGUARDS, (8) WASTE.

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

*RADIOCHEMICAL PROCESSING + *RADIOISOTOPE + *TRANSURANIUM PROGRAM + EQUIPMENT, GENERAL + HAZARDS ANALYSIS + ORNL + RADIATION PROTECTION, ORGANIZATION + RADIATION SAFETY AND CONTROL + RADIOCHEMICAL PLANT SAFETY + SAFETY PRINCIPLES AND PHILOSOPHY + SAFETY REVIEW + WASTE TREATMENT, GENERAL

13-26085 ALSO IN CATEGORIES 17 AND 15
NONCOMPLIANCE CITATION OF INTERNATIONAL CHEMICAL AND NUCLEAR CORP.
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., NORTH LAKE ST., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16 AND 17, (JUNE 17, 1968)

(LETTER, APRIL 10) A JAN. 1968 INSPECTION OF THE PITTSBURGH FACILITY GAVE 5 ITEMS OF NONCOMPLIANCE - (1) LOSS OF 30 MILLICURIES OF SN-113 WAS NOT REPORTED TO RAD-PROTECTION OFFICER, (2) STACK SURVEYS FROM SEPT. 67 WERE INADEQUATE TO DETERMINE I-125 RELEASES FROM LAB 4A, CHARCOAL FILTERS BEING STORED UNANALYZED, (3) SURVEYS WERE INADEQUATE TO DETERMINE LAB AIRBORNE ACTIVITY, (4,5) RECORDS OF CONTAMINATION SURVEYS AND BY-PRODUCT DISPOSAL WERE INADEQUATE. CHEMICAL HOODS ALSO HAVE INADEQUATE FACE VELOCITY. THE STACK PROBE IS PERPENDICULAR TO AIR FLOW, AND RELATIVE VELOCITIES NOT ACCOUNTED FOR. COMPLIANCE LETTER OF MAR. 10, 1967, TO THE THEN NS AND E CO. INDICATED INADEQUATE PERSONNEL SAFETY TRAINING AND INADEQUATE MANAGEMENT CONTROL. PRESENT INSPECTION REVEALS THAT COMPANY RADIATION-SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY. WE DO NOT BELIEVE YOUR HP STAFF IS ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION SAFETY PROGRAM.

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *RADIOISOTOPE + GLOVE BOX + HEALTH PHYSICS TRAINING + MONITOR, RADIATION, STACK + RADIATION SAFETY AND CONTROL + STAFFING, TRAINING, QUALIFICATION + SURVEILLANCE PROGRAM + VENTILATION SYSTEM

13-26088 ALSO IN CATEGORY 17
URBON WG
OVEREXPOSURES IN DECONTAMINATION AND IN FILTER REPAIRS
NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19 AND 20, (JUNE 17, 1968)

(LETTER, APRIL 29) - EMPLOYEE RECEIVED 3.27 REMS WHOLE-BODY IN FIRST QUARTER 1968, 1.27 WHILE DIRECTING REMOVAL OF A COLLAPSED DISSOLVER OFF-GAS FILTER. FILTERS WILL NOW HAVE A DOWNSTREAM SUPPORT SO THEY CAN BE PLACED IN THE SHIELDED REMOVAL CASK AS A UNIT. (LETTER, MAY 6) - EMPLOYEE RECEIVED 21.55 REMS EXTREMITY EXPOSURE IN FIRST QUARTER 1968, ABOUT HALF HIGHLY LOCALIZED. AFTER EQUIPMENT REPAIR, A FINGER DOSIMETER READ 10.3 RADS. THE PRE-SURVEY GAVE EXTREMITY RADIATION LEVELS OF 590-650 MILLIRADS/HR. THE POST-SURVEY FOUND THREE SMALL HIGH-RADIATION AREAS, ONE 3 R/HR. MORE CLEANUP, REVISED PROCEDURES, AND A SAFETY FACTOR OF 2 FOR DOSE ESTIMATION ARE NOW USED.

CATEGORY 13
RADIOCHEMICAL PLANT SAFETY

13-26088 *CONTINUED*
*PERSONNEL EXPOSURE, RADIATION + DECONTAMINATION + FILTER, DAMAGED + FUEL REPROCESSING + MAINTENANCE AND REPAIR + NFS + RADIATION SAFETY AND CONTROL

13-26447 ALSO IN CATEGORIES 17 AND 1
DETAILED REPLY TO COMPLIANCE LETTER OF APRIL 1, 1968
U.S. RADIUM CORPORATION, MORRISTOWN, NEW JERSEY
8 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 19-26 (JUNE 24, 1968)

(LETTER TO COMPLIANCE, APRIL 30) PROVIDES PLANS FOR NEW FACILITIES FOR OCCUPANCY LATE 68 OR EARLY 69. DISCUSSES EACH OF 7 CITATION ITEMS IN DEPTH AND POINTS OUT GENERAL PROBLEM AREAS CURRENTLY BEING RESOLVED. (1-3) REORGANIZATION AND REASSIGNMENT OF RESPONSIBILITY AND PERSONNEL UPGRADING. (5-6) NEW RADIATION MONITORING AND MEASUREMENT EQUIPMENT. (7-9) OPERATING PROCEDURES HAVE BEEN UPDATED, AND REVIEW COMMITTEE MEETS OFTNER. ***CONTRIBUTING FACTORS WERE ERRONEOUS IDEAS OF ECONOMY, GIVING INADEQUATE AMOUNTS OF EQUIPMENT BROUGHT TO LIGHT BY THE EMERGENCY, A FALSE IDEA THAT THE AMERICIUM CONTAMINATION WAS DUE TO RADIUM (FROM RADIUM EQUIPMENT MOVED IN IN 1949). MOST PROBLEMS WERE TRACED TO COMPLETE DEGREDATION OF TECHNIQUES WHICH HAD TAKEN PLACE OVER PAST YEARS (RATHER THAN TO EQUIPMENT).

*INSPECTION AND COMPLIANCE + AMERICIUM + CONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + INCIDENT, NONREACTOR + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + RADIUM

13-26498 ALSO IN CATEGORIES 17 AND 14
RUNION TC
AEC OPINION THAT BUTTERMILK CREEK IN RESTRICTED AREA IS A PUBLIC STREAM
NUCLEAR FUEL SERVICES, INC., WHEATON PLAZA BLDG., WHEATON, MD.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 15 AND 16, (JULY 8, 1968) DOCKET NO. 50-201

(JUNE 25 REPLY TO DML LETTER OF MAY 31). DISCHARGES TO CATTARAUGUS CREEK FROM OCT. 67 THRU MAR. 68 AVERAGED 11% MPC AND DID NOT EXCEED 30%. THIS IS NOT EXCESSIVE RELEASE TO THE WATERSHED. LEGALLY, BUTTERMILK CREEK IS NOT A PUBLIC STREAM, AND NFS HAS TAKEN STEPS (FENCING AND POSTING) TO EXCLUDE THE PUBLIC. WE HAVE NOT TAKEN SPECIAL STEPS TO EXCLUDE INDIVIDUALS FROM TAKING PRIVATE SAMPLES TO ASCERTAIN COMPLIANCE. THE CREEK RADIATION LEVEL IS HIGHER (DUE TO VERY SMALL SIZE) THAN ALLOWED IN AN UNRESTRICTED AREA. NFS WOULD TAKE FURTHER STEPS TO EXCLUDE PUBLIC OR TO BYPASS THE CREEK IF 10 CFR 20 IS NOT BEING AMENDED TO FURTHER REDUCE DISCHARGE LIMITS. NFS IS CONSIDERING ION EXCHANGE, CHEMICAL TREATMENT, EVAPORATION, AND FLOCCULATION TO REDUCE DISCHARGES.

*WASTE DISPOSAL, RIVER + *WASTE TREATMENT, GENERAL + FUEL REPROCESSING + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + SITING, CHEMICAL PROCESS PLANT + WASTE DISPOSAL, LIQUID

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25258 ALSO IN CATEGORIES 5 AND 17
BINFORD FT + WEBSTER CC
THE LOW INTENSITY TESTING REACTOR--SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1924 +. 79 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1968

GAUSSIAN-PLUME MODEL USED TO ANALYZE CONSEQUENCES OF EXCURSION, POWER INCREASE BEYOND COOLING CAPACITY, LOSS OF COOLANT, FLOW BLOCKAGE, AND EXPERIMENT FAILURES. MAXIMUM HYPOTHETICAL ACCIDENT IS CATASTROPHIC FAILURE OF REACTOR VESSEL WITH RAPID LOSS OF COOLING WATER. SOME MELTING POSSIBLE, BUT EXPERIMENTAL DATA INDICATES CLAD TEMPERATURES BELOW MELTING FOR 3-MW OPERATION. IODINE DOSE FROM STACK RELEASE FOR INFINITE EXPOSURE IS ABOUT 3 REMS. DIRECT DOSE 1 M FROM BUILDING IS 160 REMS/MIN. NO SERIOUS OFF-SITE CONSEQUENCES. APPENDIXES CONTAIN OPERATING SAFETY LIMITS AND THERMAL ANALYSIS OF CORE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + AIRBORNE RELEASE + DOSE + GAUSSIAN PLUME FORMULA + LITR (TR) + REACTOR, TEST + REPORT, SAR + STACK + TECHNICAL SPECIFICATIONS + THERMAL ANALYSIS

14-25263 ALSO IN CATEGORIES 5 AND 17
BINFORD FT
THE OAK RIDGE RESEARCH REACTOR -- SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4169(VOL.II) +. 69 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968

ANALYSIS BASED ON 45 MW, ALTHOUGH PRESENT LEVEL IS 30. DESCRIBES MODIFICATIONS REQUIRED FOR POWER UPRATING. GAUSSIAN-PLUME FORMULA USED FOR STACK RELEASE. MAX. HYPOTHETICAL ACCIDENT ASSUMES 100% CORE MELTDOWN. FILTER DECONTAMINATION FACTOR OF ONLY 5.3 (NORMALLY 100) REQUIRED TO MAINTAIN PEAK DOSE FROM STACK RELEASE BELOW LIMIT. EXTERNAL DOSE ONE METER FROM BUILDING IS 300 REMS/MIN. NO CREDIBLE ACCIDENT WOULD RELEASE SIGNIFICANT ENERGY. THREE PAGES GIVE HISTORY OF OPERATING DIFFICULTIES. APPENDIXES CONTAIN CORE THERMAL ANALYSIS AND ANALOG ANALYSIS OF STARTUP ACCIDENT AND REACTOR RESPONSE FROM PRIMARY-PUMP FAILURE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF FLOW + AIRBORNE RELEASE + CORE MELTDOWN + DOSE + FAILURE, GENERAL + FILTER EFFICIENCY + GAUSSIAN PLUME FORMULA + OPERATING EXPERIENCE SUMMARY + ORR (RR) + POWER UPRATING + REACTOR, RESEARCH + REPORT, SAR + STACK + THERMAL ANALYSIS

14-25284 ALSO IN CATEGORY 17
NON COMPLIANCE AT LONG ISLAND NUCLEAR SERVICE CORP.
LONG ISLAND NUCLEAR SERVICE CORP., STATION ROAD, BELLPORT, N. Y. 11713
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21, (MAY 13, 1968)

(LETTER, MARCH 13) AFTER A NOV. AND DEC. 1967 INSPECTION, CITATION WAS ISSUED FOR (1) INCOMPLETE PERSONNEL MONITORING RECORDS FOR 2 EMPLOYEES, (2) WASTE PICKUPS OF LICENSED MATERIAL WERE NOT RECEIVED BY THE SPECIFIED PERSONNEL. OTHER ITEMS WERE - (A) POCKET DOSIMETERS NOT WORN, (B) SURVEY INSTRUMENTS NOT CALIBRATED OR RECORDS MAINTAINED, (C) SURVEYS OF WASTE CONTAINER NOT MADE. YOUR APPLICATION FOR REMOVAL OF LICENSE 31-8360-1 IS CURRENTLY BEING EVALUATED BY DML.

*WASTE MANAGEMENT + FAILURE, ADMINISTRATIVE CONTROL + INSPECTION AND COMPLIANCE + RADIATION SAFETY AND CONTROL

14-25298 ALSO IN CATEGORY 18
SURRY AMENDMENT 11
VIRGINIA ELECTRIC AND POWER COMPANY
21 PAGES, FIGURES, AMENDMENT 11 TO THE SURRY LICENSE APPLICATIONS, MARCH 18, 1968, DOCKET 50-280, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES ANSWERS TO 6 AEC QUESTIONS AND REVISES UNRELATED PSAR SECTION 11.2.2.3 (GASEOUS WASTE DISPOSAL SYSTEM).

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR) + WASTE DISPOSAL, GAS

14-25323
HANEY WA
ATOMIC ENERGY AND THE IHD
BATTELLE MEMORIAL INSTITUTE, RICHLAND, WASHINGTON

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25323 *CONTINUED*
3 PAGES, REFERENCES, TRANS. AMER. GEOPHYS. UNION, 48, PAGES 877-79 (SEPT. 1967)

THE AREAS IN WHICH ATOMIC ENERGY AND HYDROLOGY HAVE SUPPORTED AND BENEFITTED EACH OTHER ARE DISCUSSED. INCLUDED ARE THE FOLLOWING - IN-WELL MEASUREMENTS WITH RADIOISOTOPES TO DETERMINE LOCAL DIRECTION AND WATER FLOW RATE IN THE SATURATED ZONE, WATER FLOW THROUGH SOILS, BEHAVIOR OF RADIONUCLIDES IN THE COLUMBIA RIVER (WHICH ALSO YIELDS INFORMATION ON BOTTOM DISTRIBUTION AND MOVEMENT OF SEDIMENTS), WATER SCOURING, RETRANSPORT, AND WATER-QUALITY MODELS MADE FROM COMPREHENSIVE STUDIES OF THE TEMPERATURE REGIME OF THE COLUMBIA RIVER.

*HYDROLOGICAL CONSIDERATION, GENERAL + *SURFACE WATER, GENERAL + *UNITED STATES + *USAEC

14-25324
SZABO BJ + KOCZY FF + OSTLUND G
RADIUM AND RADIOCARBON IN CARIBBEAN WATERS
UNIVERSITY OF MIAMI
10 PAGES, 5 FIGURES, 2 TABLES, 20 REFERENCES, EARTH PLANET, SCI. LETT., 3(1), PAGES 51-61 (SEPT. 1967)

THE MEASUREMENTS OF VERTICAL AND A REAL DISTRIBUTION OF RADIOCARBON, RADIUM-226, AND OXYGEN INDICATE THAT THE DEEP WATER (DEEPER THAN 1500 M) OF THE COLOMBIAN AND VENEZUELAN BASINS ARE NOT PRESENTLY RENEWED. THE RENEWAL TIME OF DEEP WATER IN THESE BASINS IS ESTIMATED BETWEEN 50 AND 400 YEARS.

*CARBON + *OCEAN AND SEA + *RADIUM + *SURFACE WATER, NUCLIDE OCCURRENCE + SAMPLING + SURVEILLANCE PROGRAM

14-25326 ALSO IN CATEGORY 15
BENGTSSON LG
TIME VARIATION OF CS-137 AND POTASSIUM IN HUMANS FROM SOUTHERN SWEDEN
LUND UNIVERSITY, SWEDEN
24 PAGES, 13 FIGURES, 4 TABLES, REFERENCES, ACTA RADIOL., THER., PHYS., BIOL. 6, PAGES 259-82 (AUGUST 1967)

THE K AND CS-137 CONTENT OF 57 PERSONS WERE FOLLOWED FROM FEBRUARY 1964 TO SEPT. 1966. EACH PERSON WAS MEASURED THREE TIMES ANNUALLY. THE POTASSIUM CONCENTRATION DID NOT INCREASE WITH AGE FOR BOYS AGED 13 TO 16 YEARS BUT DECREASED FASTER THAN EXPECTED FOR GIRLS. IT WAS POSSIBLE TO DEMONSTRATE AGE DIFFERENCES IN THE CURVES GIVING CS-137 BURDEN VERSUS TIME. CURVES CALCULATED ON THE BASIS OF MILK DATA FOR CS-137 DESCRIBED THE TIME VARIATIONS QUITE WELL IF THE BIOLOGIC HALF-TIME FOR CS-137 WAS ASSUMED TO BE 100 PLUS OR MINUS 30 D FOR MEN, 80 PLUS OR MINUS 25 D FOR WOMEN, 55 PLUS OR MINUS 20 D FOR 14-YEAR-OLD BOYS AND 55 PLUS OR MINUS FOR 14-YEAR-OLD GIRLS.

BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + CESIUM + DIETARY HABIT + DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL + FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + POPULATION EXPOSURE + POTASSIUM + SWEDEN

14-25329
BRADSHAW RL + EMPSON FM + BOEGLY WJ + KUBOTA H + PARKER FL + STRUXNESS EG
PROPERTIES OF SALT IMPORTANT IN RADIOACTIVE WASTE DISPOSAL
OAK RIDGE NATIONAL LABORATORY
15 PAGES, 5 FIGURES, 4 TABLES, REFERENCES, THE GEOLOGICAL SOCIETY OF AMERICA, INC., SPECIAL PAPER 88, PAGES 643-658, 1968

TESTS RELATING TO ULTIMATE DISPOSAL OF HIGHLY RADIOACTIVE POWER REACTOR WASTES IN SALT MINES HAVE BEEN MADE. A NUMBER OF LABORATORY AND FIELD TESTS HAVE BEEN CONDUCTED ON PROPERTIES OF SALT WHICH ARE IMPORTANT IN THE DESIGN AND OPERATION OF A WASTE-DISPOSAL FACILITY. IN SITU HEAT-TRANSFER PROPERTIES ARE SUFFICIENTLY CLOSE TO THE VALUES DETERMINED IN THE LABORATORY THAT CONFIDENCE CAN BE PLACED IN THEORETICAL HEAT-TRANSFER CALCULATIONS. RADIATION EXPOSURE DOSES OF 5 X 10(8TH) R PRODUCE SOME CHANGES IN STRUCTURAL PROPERTIES, BUT THE EFFECT ON MINE STABILITY SHOULD BE NEGLIGIBLE. ROCK SALT IS APPROXIMATELY EQUIVALENT TO CONCRETE AS A GAMMA-RADIATION SHIELD. ELEVATED TEMPERATURES WILL CAUSE ACCELERATED CREEP, BUT THE EXACT EFFECTS ON STRUCTURAL STABILITY CANNOT YET BE PREDICTED ACCURATELY.

*CREEP BEHAVIOR + *HEAT TRANSFER EXPERIMENT + *RADIATION EFFECT + *WASTE DISPOSAL, SALT + GAMMA EMITTER + GEOLOGICAL CONSIDERATION, SALT STRUCTURE + SHIELDING + STRESS STRAIN DATA

14-25334
JOHNSON V + CUTSHALL N + OSTERBERG C
RETENTION OF ZN-65 BY COLUMBIA RIVER SEDIMENT
OREGON STATE UNIV., CORVALLIS
4 PAGES, 2 FIGURES, 2 TABLES, 9 REFERENCES, WATER RESOUR. RES., 3, PAGE 99-102, (MARCH 31, 1967)

CATIONIC ZN-65 IN EFFLUENT WATERS FROM NUCLEAR REACTORS AT HANFORD, WASHINGTON, BECOMES PREDOMINANTLY ASSOCIATED WITH PARTICLES IN THE COLUMBIA RIVER. SEDIMENTATION CARRIES ZN-65 AND OTHER PARTICLE-SORBED RADIONUCLIDES INTO BOTTOM DEPOSITS. TWO TYPES OF RETENTION WERE STUDIED BY OBSERVING THE FRACTIONS OF RADIONUCLIDES DISPLACED BY SEA WATER AND BY SOLUTIONS OF CERTAIN FIRST-TRANSITION-SERIES METALS. THE FIRST TYPE OF INTERACTION IS CATION EXCHANGE, THE SECOND IS AN EXCHANGE PHENOMENON WITH THE NATURE OF THE METAL ION PLAYING A MAJOR ROLE. LESS ZN-65 WAS DISPLACED FROM THE SEDIMENTS BY THE INTERACTION OF SEA WATER THAN COULD BE REMOVED BY LEACHING WITH SOLUTIONS OF CERTAIN FIRST TRANSITION SERIES METALS.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25334 *CONTINUED*
*EFFLUENT + *PARTICLE, RADIOACTIVE + *RIVER, COLUMBIA + *SORPTION + *ZINC + HANFORD SITE + ION EXCHANGE + REACTOR, PRODUCTION + SEDIMENT

14-25335
DUKE TW
POSSIBLE ROUTES OF ZN-65 FROM AN EXPERIMENTAL ESTUARINE ENVIRONMENT TO MAN
BUREAU OF COMMERCIAL FISHERIES RADIOBIOLOGICAL LAB., BEAUFORT, N. C.
7 PAGES, 1 FIGURE, 4 TABLES, 13 REFERENCES, J. WATER POLLUT. CONTR. FED., 39, PAGE 536-542, (APRIL 1967)

ZINC-65 OCCURS IN ESTUARINE ENVIRONMENTS AS FALLOUT FROM NUCLEAR DETONATIONS AND AS WASTES FROM NUCLEAR REACTORS. IT IS CONCENTRATED BY ORGANISMS USED AS SEAFOOD BY MAN AND BY ORGANISMS THAT SERVE AS FOOD FOR SEAFOOD SPECIES. THEREFORE, THE MOVEMENT OF ZN-65 IN THE ESTAURINE ENVIRONMENT WAS STUDIED TO DETERMINE THE ROUTES AND RATES BY WHICH IT COULD BE RETURNED TO MAN AND THE ORGANISMS THAT COULD BE USED AS INDICATORS OF THE PRESENCE OF ZN-65 IN THIS ENVIRONMENT.

*BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *WATER POLLUTION + *ZINC + NUCLEAR DETONATION + REACTOR, POWER

14-25336
BALEK J + RALKOVA J
COMMUNICATION ON THE GROUND WATER COMPONENT OF RIVER DISCHARGE AND ITS RELATIONSHIP TO HYDROGEOLOGY
INST. OF HYDRODYNAMICS, PRAGUE
3 PAGES, 1 FIGURE, J. INST. WATER ENG., 19, PAGE 486-488, (OCT. 1965)

MEASUREMENTS OF FALLOUT RADIONUCLIDES WERE MADE BY BETA ASSAY IN THE COURSE OF INVESTIGATING A SIMPLE APPROXIMATE METHOD OF SEPARATING GROUND-WATER FLOW FROM INTERFLOW AND SURFACE RUNOFF BY UTILIZING THE LOW-LEVEL RADIO-ACTIVITY PRESENT IN NATURAL WATERS.

*FALLOUT + *HYDROLOGICAL CONSIDERATION, GENERAL + *RAINOUT + *SURFACE WATER, NUCLIDE OCCURRENCE + ADSORPTION + BETA EMITTER + MEASUREMENT, REACTIVITY + RADIOISOTOPE + SOIL + WATER POLLUTION

14-25340 ALSO IN CATEGORY 15
SANTOS AA
ESTIMATION OF RADIATION DAMAGE IN THE ANALYSIS OF RISK OF NUCLEAR INSTALLATIONS
JUNTA DE ENERGIA NUCLEAR, MADRID
9 PAGES, ENERG. NUCL. (MADRID), 11, PAGE 121-129, (MARCH-APRIL 1967), (IN SPANISH)

THE EQUATIONS DERIVED PREVIOUSLY MAKE IT POSSIBLE TO ESTIMATE THE CONTAMINATION PRODUCED NEAR NUCLEAR INSTALLATIONS BECAUSE OF THE ESCAPE OF FISSION PRODUCTS OR ACTIVATION. THE EXPRESSIONS USED TO EVALUATE THE EXTERNAL DOSE CAUSED BY BETA AND GAMMA RADIATION AND RESULTING FROM CONTAMINATION OF THE SOIL ARE DISCUSSED. THE DOSE RESULTING FROM CONTAMINATION OF THE SOIL ARE DISCUSSED. THE DOSE RECEIVED BY SPECIFIC ORGANS (THYROIDS, BONE, LUNGS, AND THE VARIOUS PARTS OF THE DIGESTIVE TRACTS) BY INHALATION OF RADIOACTIVE SUBSTANCES ARE EVALUATED AND THE RESULTS ARE TABULATED. THE PHYSIOLOGICAL DATA NECESSARY TO APPLY THE EQUATIONS DESCRIBED ARE DISCUSSED.

*DOSE CALCULATION, EXTERNAL + *FISSION PRODUCT RELEASE, GENERAL + *NUCLEAR INCIDENT DOSIMETER + *RADIATION DAMAGE + *RADIATION MODEL + BARIUM + BETA EMITTER + BIOLOGICAL CONCENTRATION, MAN + CERIUM + CONTAMINATION + GAMMA + HAZARDS ANALYSIS + INGESTION + INHALATION + IODINE + MATHEMATICAL TREATMENT + SOIL + STRONTIUM

14-25379 ALSO IN CATEGORY 15
ALLKOFER OC + FOX JM + HAUSER H
ANALYSIS OF THE ALPHA-EMITTING RADIONUCLIDES FROM RADIOACTIVE FALLOUT BY ALPHA-SPECTROSCOPY
UNIV., KIEL.
6 PAGES, ATOMKERNENERGIE, 13, PAGE 39-44, (1968), (IN GERMAN)

THE RATIO OF THE ALPHA ACTIVITY COMPARED WITH THE TOTAL BETA ACTIVITY OF THE FALLOUT WAS 0.47%. 89% OF THIS VALUE WERE CAUSED BY PLUTONIUM, WHEREAS 11% CAME FROM THE TRANSPLUTONIUM ELEMENTS. MORE THAN 96.5% OF THE PLUTONIUM FRACTION CONSIST OF PU-239 AND PU-240 IN A NOT-KNOWN RATIO, BUT BOTH OF THE SAME ORDER. THERE ARE 3.5% AT MAXIMUM OF PU-241 WITHIN THE PLUTONIUM FRACTION. BY FAR THE MAJOR PART OF THE TRANSPLUTONIUM FRACTION IS REPRESENTED BY AM-241. SAMPLES TAKEN FROM THE SURFACE OF JETS CONTAINED NATURAL PO-241. ITS ACTIVITY WAS ABOUT FOUR TIMES HIGHER THAN THE TOTAL ARTIFICIAL ALPHA-ACTIVITY. COMPARING THE RESULT FROM THE NUCLEAR TEST EXPLOSION MIKE WITH THE RESULTS OF THESE MEASUREMENTS, AN AVERAGE VALUE CAN BE DEDUCED OF THE INTEGRAL NEUTRON FLUX BY 1 X 10(24TH) N/SQ. CM BEING PRODUCED BY EVERY TEST WITHIN THE MEGATON RANGE OF THE PERIOD 1961/62.

*FALLOUT + *PLUTONIUM + *RADIOCHEMICAL ANALYSIS + ALPHA EMITTER + BETA EMITTER + GERMANY + MEASUREMENT, REACTIVITY + NEUTRON + SPECTROMETRY, ALPHA

14-25381
THE FINAL STORAGE OF RADIOACTIVE RESIDUALS IN THE FEDERAL REPUBLIC OF GERMANY

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25381 *CONTINUED*
3 PAGES, AT. STOM, 13, PAGE 80-82, (MAY-JUNE 1967), (IN GERMAN)

THE INCREASING NUMBER OF RESEARCH AND POWER REACTORS IN THE FEDERAL REPUBLIC IS MAKING THE PROBLEM OF COLLECTION AND SAFE DISPOSAL OF THE ACTIVE WASTE PRODUCTS ACUTE. ONE SOLUTION FOR LOW-ACTIVITY RATES IS STORAGE IN CAVERNS. THE SALT MINE AT WOLFENBUTTEL USED FOR SUCH STORAGE IS BRIEFLY DESCRIBED.

GERMANY + REACTOR, POWER + WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, SALT + WASTE DISPOSAL, SOLID + WASTE STORAGE

14-25382 ALSO IN CATEGORY 15
RADIOLOGICAL HEALTH NEWS
STATE OF CALIFORNIA, DEPT. OF PUBLIC HEALTH, BUREAU OF RADIOLOGICAL HEALTH, 2151 BERKELEY WAY, BERKELEY, CALIFORNIA 94704
22 PAGES, 1 FIGURE, 9 TABLES, RADIOLOGICAL HEALTH NEWS, 7(1), (JANUARY 1968)

CALIFORNIAS ENVIRONMENTAL SAMPLING PROGRAM FOR AN APPROXIMATE THREE-MONTH PERIOD IS GIVEN. COVERS SAMPLINGS OF AIR, RAIN, DOMESTIC WATER, SEWAGE, MILK, SOIL, DIET, AND SNOW. SPECIAL STUDIES ARE INCLUDED ALSO. RESULTS ARE PRESENTED IN TABULAR FORM.

AIRBORNE RELEASE + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + FALLOUT + GROSS BETA + PARTICULATE + RAINOUT + REACTOR, POWER + SOIL, NUCLIDE OCCURRENCE + STRONTIUM + WATER, DRINKING

14-25384
ELIASON JR
EATH SCIENCES WASTE DISPOSAL INVESTIGATIONS, JANUARY-JUNE 1967
BATTELLE-NORTHWEST, RICHLAND, WASH. PACIFIC NORTHWEST LAB.
BNWL-687 +. 18 PAGES, JUNE 1967

THE HANFORD PROJECT HAS OVER 500 WELLS WHICH ARE USED FOR THE SURVEILLANCE OF RADIONUCLIDES IN THE GROUND THAT RESULTS FROM WASTE DISPOSAL. WELLS ARE LOCATED AT DISPOSAL SITES TO MONITOR THE MIGRATION OF RADIONUCLIDES IN THE SOIL AND TO DETERMINE WHEN A DISPOSAL FACILITY IS TO BE ABANDONED. OUTSIDE OF THE IMMEDIATE DISPOSAL AREAS, WELLS ARE SAMPLED TO DETERMINE THE MOVEMENT OF CONTAMINANTS IN THE GROUND-WATER ZONE. THE MOVEMENT OF WASTES IN UNCONFINED GROUND WATER AQUIFERS IS FOLLOWED BY ROUTINE SAMPLING, AND THE CONFINED AQUIFERS IN THE AREA ARE SAMPLED FREQUENTLY WHERE POSSIBLE. THIS REPORT IS PREPARED SEMIANNUALLY TO GIVE AN EVALUATION OF GROUND-WATER CONTAMINATION THAT RESULTS FROM DISPOSAL OF PLANT EFFLUENTS.

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

*GROUND WATER, NUCLIDE OCCURRENCE + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + *WASTE DISPOSAL, GENERAL + CESIUM + CONTAMINATION + GROSS BETA + HANFORD SITE + SAMPLING + STRONTIUM

14-25452
MEYER F
STUDIES ON THE OPERATIONS PROBLEMS OF NUCLEAR POWER PLANTS
12 PAGES, NEUE TECH. 9, PAGES 180-191 (OCTOBER 1967) (IN GERMAN)

THE NUCLEAR POWER STATION KAHL HAS BEEN OPERATING SINCE JUNE 1961. THE EQUIPMENT FOR PURIFICATION AND TREATMENT OF RADIOACTIVE WASTE WATER HAS BEEN PROVEN. THE AMOUNT OF RADIOACTIVE PRODUCTS ORIGINATED DURING OPERATION OF THE PLANT IS SURPRISINGLY SMALL. OPERATIONAL DIFFICULTIES CONCERNING THE WASTE DISPOSAL PLANT HAVE NOT OCCURRED. THE PUBLIC REGULATIONS REGARDING THE RELEASE OF RADIOACTIVITIES HAVE BEEN EASILY OBSERVED WITHOUT EXCEPTION.

*GERMANY + *WASTE MANAGEMENT + *WASTE TREATMENT, GENERAL + REACTOR, BWR + WASTE DISPOSAL, GENERAL

14-25575 ALSO IN CATEGORY 15
BRILL WA
SUMMARY OF IRON-55 CONTAMINATION IN THE ENVIRONMENT AND LEVELS IN HUMANS
U. S. PUBLIC HEALTH SERVICE
7 PAGES, 9 FIGURES, 4 TABLES, 19 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 195-201, (APRIL 1968)

LEVELS OF IRON-55 IN THE ENVIRONMENT AND IN FOOD SOURCES ARE SUMMARIZED. THE AVERAGE BODY BURDENS AND RESULTING DOSES TO THE ERYTHROCYTES OF SELECTED ALASKAN ESKIMOS AND RESIDENTS OF THE STATES OF WASHINGTON, NEW YORK, AND NEW JERSEY ARE COMPARED. CONSIDERING THE ERYTHROCYTES AS THE CRITICAL ORGAN, THE DOSE RATE FROM 1 PCI IRON-55/MG STABLE IRON IS 0.095 MRAD/YR. A BODY BURDEN OF 8 NCI, THE AVERAGE FOR RICHLAND, WASH., RESIDENTS, YIELDS A YEARLY DOSE OF 0.19 MRAD, WHILE 1,100 NCI, THE AVERAGE BODY BURDEN FOR ESKIMOS ON FISH DIETS, YIELDS A YEARLY DOSE OF 26 MRAD.

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *IRON + *MANGANESE + DEPOSITION + DOSIMETRY, GENERAL + ENVIRONMENTAL CONDITION + FALLOUT + INGESTION + NUCLEAR DETONATION + PRECIPITATION

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25576 ALSO IN CATEGORY 15
SECTION I. MILK AND FOOD
1 PAGE, 6 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 203, (APRIL 1968)

IN THE DETERMINATION OF THE INTERNAL EXPOSURE TO MAN FROM ENVIRONMENTAL RADIATION SOURCES, PRIMARY INTEREST CENTERS ON RADIONUCLIDES IN THE DIET. FEDERAL AND STATE AGENCIES ARE INVOLVED IN EFFORTS TO MONITOR CONTINUOUSLY THE DIETARY INTAKE OF RADIONUCLIDES. DIFFICULTIES IN OBTAINING SPECIFIC DIETARY DATA IMPEDE THIS APPROACH. AN ALTERNATE METHOD ENTAILS THE USE OF INDICATOR FOODS TO ARRIVE AT AN ESTIMATE OF THE TOTAL DIETARY RADIONUCLIDE INTAKE.

BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + FEDERAL RADIATION COUNCIL + RADIATION SAFETY AND CONTROL + SAMPLING + SURVEILLANCE PROGRAM

14-25577 ALSO IN CATEGORY 15
SECTION II. WATER
U. S. PUBLIC HEALTH SERVICE
4 PAGES, 2 FIGURES, 2 TABLES, 13 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 221-224, (APRIL 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.

*FEDERAL RADIATION COUNCIL + *SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + *WATER, DRINKING + CESIUM + GROSS ALPHA + GROSS BETA + RADIATION SAFETY AND CONTROL + STRONTIUM + WATER POLLUTION

14-25578 ALSO IN CATEGORY 15
SECTION III. AIR AND DEPOSITION - RADIOACTIVITY IN AIRBORNE PARTICULATES AND PRECIPITATION
8 PAGES, 5 FIGURES, 6 TABLES, 7 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 225-232, (APRIL 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.

*FALLOUT + *GROSS BETA + *MONITOR, RADIATION, ENVIRONMENTAL + *SURVEILLANCE PROGRAM + AIRBORNE RELEASE + ENVIRONMENTAL CONDITION + FEDERAL RADIATION COUNCIL + PARTICULATE + PRECIPITATION + RADIATION SAFETY AND CONTROL + SAMPLING

14-25580 ALSO IN CATEGORY 15
DE RUIG WG
PROSPECTS FOR THE MANUFACTURE OF CHEESE FIT FOR HUMAN CONSUMPTION FROM MILK CONTAMINATED WITH RADIOACTIVE NUCLEAR FISSION PRODUCTS
8 PAGES, 1 FIGURE, 5 TABLES, 22 REFERENCES, NETH. MILK DAIRY JOURNAL 20, PAGES 188-195 (1966)

IN CASE OF ATMOSPHERIC NUCLEAR EXPLOSIONS, MILK AND MILK PRODUCTS COULD BE HEAVILY CONTAMINATED WITH RADIOACTIVE FISSION PRODUCTS, OF WHICH SR-90 IS THE MOST DANGEROUS FOR HUMAN BEINGS. METHODS ARE DESCRIBED FOR MANUFACTURING A FAIRLY ACCEPTABLE WHOLE CHEESE WITH A LOW CONTAMINATION-LEVEL.

*BIOLOGICAL CONCENTRATION, MILK + *DECONTAMINATION + *FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + CALCIUM + CESIUM + CONTAMINATION + IODINE + NUCLEAR DETONATION + STRONTIUM

14-25582
FENIMORE JW + HORTON JH
INFLUENCE OF HIGH LEVEL WASTE SALTS ON MOVEMENT OF STRONTIUM AND CESIUM IN SAVANNAH RIVER PLANT SOIL
SAVANNAH RIVER LABORATORY
DP-1124 +. 22 PAGES, 18 FIGURES, 14 REFERENCES, JANUARY 1968

WHEN THE HIGHLY SALTED WASTE SOLUTION WAS INJECTED INTO SMALL COLUMNS OF SRP SOIL AND DILUTED WITH GROUNDWATER, THE PERMEABILITY OF THE SOIL WAS REDUCED DUE TO DISPERSAL OF CLAY AGGREGATES BY SODIUM IONS. AS A RESULT OF THE REDUCED PERMEABILITY, STRONTIUM MOVED THROUGH THE COLUMN AT A MUCH LOWER RATE. CESIUM IS RETAINED BY SRP SOIL BECAUSE OF FIXATION IN MICA MINERALS. THIS FIXATION WAS GREATLY INCREASED BY SODIUM ION IN THE WASTE. STRONTIUM WAS READILY LEACHED FROM THE WASTE-SOIL MIXTURE BY DILUTE SOLUTIONS OF ACID OR SALTS, BUT CESIUM WAS NOT READILY LEACHED BY ANY SOLUTION TESTED.

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

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-25582 *CONTINUED*
*DILUTION + *LEAK + *SOIL + *TRANSPORT PROPERTY + *WASTE STORAGE + CESIUM + GROUND WATER, GENERAL + GROUND WATER, NUCLIDE OCCURRENCE + SODIUM + STRONTIUM

14-25662
PLATT AM
RESEARCH AND DEVELOPMENT ACTIVITIES FIXATION OF RADIOACTIVE RESIDUES. QUARTERLY PROGRESS REPORT, JULY-OCTOBER 1967
PACIFIC NORTHWEST LABORATORY
BNWL-677 +. 30 PAGES, 5 FIGURES, 8 TABLES, MARCH 1968

A SALT-STORAGE EXPERIMENT, INVOLVING STORAGE OF WASTE POTS IN ENVIRONMENTAL TEST PODS FILLED WITH SALT, WAS PROPOSED FOR SSET. THE EXPERIMENT WAS PROPOSED TO SUPPLEMENT THE DATA AND TECHNOLOGY THAT RESULTED FROM THE ORNL-CONDUCTED PROJECT SALT VAULT PROGRAM AIMED AT DEMONSTRATING WASTE DISPOSAL IN SALT MINES. DESIGN CRITERIA FOR, AND CONCEPTUAL DESIGN OF, SALT-STORAGE PODS WERE DEVELOPED IN CONJUNCTION WITH ORNL.

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

*DESIGN CRITERIA + *THERMAL CONSIDERATION + *WASTE DISPOSAL, SALT + BATTELLE NORTHWEST + ORNL + R AND D PROGRAM

14-25726 ALSO IN CATEGORY 17
TURBINE CONDENSER TUBE FAILURES, WASTE DISCHARGE
YANKEE ATOMIC ELECTRIC COMPANY
8 PAGES, 2 FIGURES FROM YANKEE NUCLEAR POWER STATION OPERATION REPORT NO. 85, JANUARY 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ON JAN. 22, STEAM-GENERATOR-BLOWDOWN CHLORIDE CONTENT RAPIDLY INCREASED FROM 0.05 TO 0.60 PPM. LOAD WAS REDUCED, MAIN CONDENSER WEST WATER BOX ENTERED, AND THREE TUBES WERE PLUGGED. ON JAN. 25, BOX WAS AGAIN ENTERED BUT NO PLUGGING NEEDED. ***CONTROL RODS AND THROTTLE VALVES WERE EXERCISED. PRESSURIZER RADIOLYTIC GAS FRACTIONS ARE REPORTED WITH AMMONIATED UNBORATED WATER. ***SUMMARY OF 1967 WASTE DISCHARGE SHOWS - (LIQUID) 54.1 MILLICURIES BETA-GAMMA AND 1589.54 CURIES TRITIUM, (GAS) 2.31 B-G AND 15.07 OF TRITIUM. SHIPPED WASTE CONSISTED OF 4 CASKS (37,000 CURIES) AND 52 FUEL ELEMENTS (64,950,000 CURIES).

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

CHLORINE + FAILURE, TUBING + PRESSURIZER + RADIOLYTIC GAS + REACTOR, PWR + REPORT, OPERATIONS + TURBINE + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + YANKEE (PWR)

14-25850 ALSO IN CATEGORIES 9 AND 15
PHELPS PL
GAMMA-RAY SPECTROMETERS FOR THE ASSAY OF COMPLEX MIXTURES OF LOW CONCENTRATION OF RADIONUCLIDES IN ENVIRONMENTAL AND BIOLOGICAL MATERIALS
LAWRENCE RADIATION LABORATORY, LIVERMORE, CALIF.
7 PAGES, 15 FIGURES, 7 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 376-82 (FEBRUARY 1968)

A SERIES OF GAMMA-RAY SPECTROMETERS WERE DEVELOPED TO ASSAY RADIONUCLIDES IN BIOLOGICAL MATERIALS. THESE SPECTROMETERS INCORPORATED FEATURES THAT FACILITATE ACHIEVING THESE REQUIREMENTS. SAMPLES UP TO 8.5 CM IN DIAMETER AND 2.5 CM THICK ARE NOW ROUTINELY ANALYZED.

*SPECTROMETRY, GAMMA + DOSIMETRY, GENERAL + INSTRUMENTATION, COMPONENT + MONITOR, RADIATION, SAMPLING + SOLID STATE DEVICE

14-25996 ALSO IN CATEGORY 17
FERMI REPORTS CORROSION FAILURE OF LOW LEVEL WASTE PIPES
POWER REACTOR DEVELOPMENT COMPANY, DETROIT, MICHIGAN
3 PAGES, LETTER TO P.A. MORRIS FROM W.J. MCCARTHY, JUNE 4, 1968, DOCKET NO. 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

ON APRIL 30, A 2-IN.-DIA. CARBON-STEEL GAS-WASTE PIPE WAS FOUND CORRODED THROUGH, 4 FT BELOW GROUND. THE TWO GAS PIPES ARE IN AN 8-IN.-DIA. CARBON-STEEL CONTAINMENT PIPE DEEP UNDER GROUND. THE 8-IN.-DIA. PIPE IS BADLY CORRODED AND MUST BE PERMANENTLY REPAIRED. THE 2-IN. PIPE WAS UNPROTECTED WHERE IT LEFT THE 8-IN. ONE, BUT THE NEW 2-IN. PIPE IS NOW COVERED WITH BITUMASTIC. ***A LIQUID-WASTE PIPE WAS FOUND CORRODED THROUGH IN SEVERAL SPOTS DUE TO LOCAL BITUMASTIC FAILURE. ***SINCE NOV. 1966, THESE PIPES HAVE CARRIED ONLY LOW-LEVEL WASTE. THE FAR-BLDG. LIQUID-WASTE PIPE (SS IN A CARBON-STEEL CONTAINMENT PIPE) WILL BE INSPECTED.

AVAILABILITY - PUBLIC DOCUMENT ROOM

*CORROSION + *FAILURE, PIPE + FERMI (LMFBR) + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR + REACTOR, LMFBR + REACTOR, POWER + WASTE HANDLING

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-26174 ALSO IN CATEGORY 15
RADIOIODINE FALLOUT OVER THE MIDWEST IN MAY
3 PAGES, 1 FIGURE, 1 TABLE, 13 REFERENCES, SCIENCE, 160(3823), PAGE 64-66, (1966)

HIGH CONCENTRATIONS OF RADIOIODINE IN MILK, FOUND PREFERENTIALLY OVER THE MIDWESTERN UNITED STATES AFTER ATMOSPHERIC NUCLEAR TESTS IN MAY 1962, 1965, AND 1966, CAN BEST BE EXPLAINED BY HIGH-REACHING INTENSE THUNDERSTORMS THAT SCAVENGE PASSING RADIOACTIVITY FROM THE UPPER TROPOSPHERE AND LOWER STRATOSPHERE.

*BIOLOGICAL CONCENTRATION, MILK + *FALLOUT + *IODINE + *RAINOUT + METEOROLOGY + NUCLEAR DETONATION + STRATOSPHERE + TROPOSPHERE + UNITED STATES

14-26177 ALSO IN CATEGORY 15
COWSER KE
CONSEQUENCES OF ACTIVITY RELEASE - WASTE MANAGEMENT AT NUCLEAR POWER STATIONS
OAK RIDGE NATIONAL LAB., TENN.
10 PAGES, 2 FIGURES, 1 TABLE, 20 REFERENCES, NUCLEAR SAFETY, 9(3), PAGE 239-248, (JUNE 1968)

THE MANAGEMENT OF WASTES PRODUCED AT NUCLEAR POWER PLANTS MAY BECOME AN INCREASINGLY SIGNIFICANT PROBLEM IN AN ECONOMY THAT IS EXPECTED TO GROW TO 50 TIMES ITS PRESENT SIZE WITHIN THE NEXT 13 YEARS. AS A PRELIMINARY STEP IN ASSESSING FUTURE IMPLICATIONS, REVIEWS WERE MADE OF THE OPERATING EXPERIENCE IN WASTE MANAGEMENT AT ARBITRARILY SELECTED NUCLEAR POWER STATIONS. ALL HAVE OPERATED WELL WITHIN THE LIMITS AUTHORIZED FOR RELEASE OF RADIOACTIVE WASTES TO THE ENVIRONMENT. THE CONCENTRATION OF TRITIUM IN THE RECENT ANALYSES GIVE EVIDENCE THAT 5 TO 20 CURIES HAS BEEN RELEASED ANNUALLY AT EACH OF THE BOILING-WATER-REACTOR STATIONS, AND ABOUT 500 AND 1300CURIES HAVE BEEN DISCHARGED ANNUALLY AT INDIAN POINT AND YANKEE, RESPECTIVELY. IN ALL CASES, TRITIUM HAS BEEN RELEASED AT MUCH LESS THAN 1% OF ITS LIMIT. IT IS CONCLUDED THAT WASTE-MANAGEMENT PRACTICES AT LIGHT-WATER POWER-REACTOR STATIONS HAVE BEEN QUITE ADEQUATE.

*RADIATION SAFETY AND CONTROL + *TRITIUM + *WASTE DISPOSAL, SOLID + *WASTE MANAGEMENT + ENVIRONMENTAL CONDITION + RADIOACTIVITY RELEASE + REACTOR POWER

14-26498 ALSO IN CATEGORIES 17 AND 13
RUNION TC
AEC OPINION THAT BUTTERMILK CREEK IN RESTRICTED AREA IS A PUBLIC STREAM
NUCLEAR FUEL SERVICES, INC., WHEATON PLAZA BLDG., WHEATON, MD.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 15 AND 16, (JULY 8, 1968) DOCKET NO. 50-201

(JUNE 25 REPLY TO DML LETTER OF MAY 31). DISCHARGES TO CATTARAUGUS CREEK FROM OCT. 67 THRU MAR. 68 AVERAGED 11% MPC AND DID NOT EXCEED 30%. THIS IS NOT EXCESSIVE RELEASE TO THE WATERSHED. LEGALLY, BUTTERMILK CREEK IS NOT A PUBLIC STREAM, AND NFS HAS TAKEN STEPS (FENCING AND POSTING) TO EXCLUDE THE PUBLIC. WE HAVE NOT TAKEN SPECIAL STEPS TO EXCLUDE INDIVIDUALS FROM TAKING PRIVATE SAMPLES TO ASCERTAIN COMPLIANCE. THE CREEK RADIATION LEVEL IS HIGHER (DUE TO VERY SMALL SIZE) THAN ALLOWED IN AN UNRESTRICTED AREA. NFS WOULD TAKE FURTHER STEPS TO EXCLUDE PUBLIC OR TO BYPASS THE CREEK IF 10 CFR 20 IS NOT BEING AMENDED TO FURTHER REDUCE DISCHARGE LIMITS. NFS IS CONSIDERING ION EXCHANGE, CHEMICAL TREATMENT, EVAPORATION, AND FLOCCULATION TO REDUCE DISCHARGES.

*WASTE DISPOSAL, RIVER + *WASTE TREATMENT, GENERAL + FUEL REPROCESSING + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + SITING, CHEMICAL PROCESS PLANT + WASTE DISPOSAL, LIQUID

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25200 ALSO IN CATEGORIES 17 AND 11
MORRIS PA
INDIAN POINT 1 CHANGE 34 - ENTERING CONTAINMENT AT FULL POWER
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO W. C. BEATTIE, CONSOLIDATED EDISON CO., 4 PAGES, APRIL 23, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED.

ALLOWS ENTRY INTO CONTAINMENT (AS REQUIRED) AT POWER FOR INSPECTION, SPECIAL RADIATION SURVEYS, OR MINOR OPERATIONS. REQUIRES OBSERVANCE OF 10 CFR 20 DOSE LIMITS, NO MORE THAN 4 INSPECTORS AT A TIME AND ALWAYS IN GROUPS OF TWO OR MORE, AND COMMUNICATION WITH CONTROL ROOM. SPECIFIES THAT AFTER EACH EGRESS SOAP-BUBBLE TEST OF DOOR GASKETS WITH CONTAINMENT PRESSURE AT LEAST 5 IN. OF WATER HIGHER THAN ATMOSPHERIC. REFERS TO PREVIOUS SUCCESSFUL ENTRIES FOR SPECIAL PURPOSES.

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

CONTAINMENT, GENERAL + INDIAN POINT 1 (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

15-25276 ALSO IN CATEGORY 17
A SUMMARY OF INDUSTRIAL ACCIDENTS IN USAEC FACILITIES 1965-1966
USAEC, DIVISION OF OPERATIONAL SAFETY
TID-5360(SUPPL.6) +. 49 PAGES, DECEMBER 1967

111 OCCURRENCES (EXPOSURES ABOVE QUARTERLY LIMIT OR LOSSES GREATER THAN $5000) LISTED. HIGHEST EXPOSURE WAS 50 REMS (AT AN ACCELERATOR), AND HIGHEST LOSS WAS $1.45 MILLION (HARVARD ACCELERATOR FIRE). OF THE 14 DEATHS, 8 WERE FROM FALLS OR FALLING OBJECTS, 3 FROM ELECTROCUTION, 2 FROM BURNS OR EXPLOSIONS (INCLUDING 1 FROM BURNING RECORDING TAPES PRIOR TO DISPOSAL IN A WASTE PIT), AND 2 FROM AUTO ACCIDENTS. THE ONLY SERIOUS REACTOR ACCIDENT (PRTR FUEL FAILURE) COST $0.895 MILLION (SECOND HIGHEST COST) BUT PRODUCED NO EXPOSURES ABOVE NORMAL LIMITS.

AVAILABILITY - SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402, $0.35 COPY

*INCIDENT COMPILATION + ACCELERATOR + FIRE + FUEL MELTDOWN + INCIDENT, FATALITY + INCIDENT, NONNUCLEAR + INCINERATION + INDUSTRIAL SAFETY + PRTR (TR) + REACTOR, POWER

15-25278 ALSO IN CATEGORY 1
REPORT OF ADJUDICATED AND/OR APPROVED RADIATION WORKMEN(S) COMPENSATION CLAIM
U.S. ATOMIC ENERGY COMMISSION
15 PAGES OF FORM AEC-725

THIS FORM (AEC-725) HAS BEEN PREPARED FOR USED BY APPROPRIATE STATE AGENCIES IN ANALYZING ADJUDICATED OR APPROVED SETTLEMENTS OF COMPENSATION CLAIMS BY WORKMEN ALLEGING RADIATION-INDUCED INJURY OR DISABILITY. IN THE EVENT INFORMATION PERTINENT TO THE SETTLEMENT OF A CLAIM IS NOT COVERED BY THE FORM, SUCH INFORMATION SHOULD BE REPORTED ON A SEPARATE PAGE(S) AND ATTACHED AS AN ADDENDUM TO THE FORM. NO PUBLIC DISCLOSURE OF THE INFORMATION INCLUDED IN THIS FORM WILL BE MADE WHICH WILL IDENTIFY THE INDIVIDUAL OR EMPLOYER.

AVAILABILITY - U.S. ATOMIC ENERGY COMMISSION

*INSURANCE + *LIABILITY + *RADIATION DAMAGE + *RADIATION EXPOSURE, RECORD KEEPING + *REGULATION, AEC + *REGULATION, STATE

15-25280 ALSO IN CATEGORY 17
NON COMPLIANCE CITATION CORRESPONDENCE, ABBOTT LABORATORIES
ABBOTT LABORATORIES + DIVISION OF COMPLIANCE
7 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 14-20, (MAY 13, 1968)

COMPLIANCE CITATION, MARCH 22, FOR (1) NOT CONSULTING HP DURING CONTAMINATION OF DEC. 13, 1967 (EMPLOYEE LEFT PLANT STILL CONTAMINATED), (2) FOR OVEREXPOSURE OF 2 MEN ABOVE 3 REMS/QUARTER, (3) FOR NOT WEARING WRIST BADGES AT ALL TIMES, AS NOTED DURING INSPECTION OF JAN. 68. ALSO LACK OF FORMAL RADIATION-SAFETY TRAINING, INADEQUATE FACE VELOCITY OF FUME HOODS, AND FREQUENT IODINE CONTENT OF THYROIDS, INDICATING LACK OF MANAGEMENT CONTROL. (REPLY, APRIL 5) DISCUSSES EACH ITEM, INDICATING SPECIFIC ADMINISTRATIVE CONTROLS AND GUIDELINES ESTABLISHED FOR INTERNAL REPORTING. TRAINING OUTLINE GIVEN. A 400-CHANNEL ANALYSER WAS BOUGHT FOR MEASURING INTERNAL DEPOSITS IN WORKERS.

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *RADIOISOTOPE + CONTAMINATION + PERSONNEL EXPOSURE, RADIATION + STAFFING, TRAINING, QUALIFICATION + VENTILATION SYSTEM

15-25282 ALSO IN CATEGORY 17
NON COMPLIANCE AT INTERNATIONAL CHEMICAL AND NUCLEAR CORP.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25282 *CONTINUED*
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 19 AND 20, (MAY 13, 1968)

(LETTER TO IC AND N CORP., APRIL 10) AFTER A JAN. 1968 INSPECTION OF THE PGH., PA., FACILITY, CITATIONS FOR (1) NOT INFORMING RAD. OFFICER OF LOSS OF 30 MILLICURIES OF TIN-113, (2) CHARCOAL FILTERS MONITORING STACK DISCHARGE SEPT.-DEC. 1967 WERE STORED RATHER THAN ANALYZED, (3) BREATHING-ZONE SAMPLES WERE NOT TAKEN, (4-5) RECORDS OF SURVEYS AND WASTE DISPOSAL NOT KEPT. PREVIOUS LETTER OF MAR. 10, 1967, TO COMPANY (THEN KNOWN AS NUCLEAR SCIENCE AND ENGR. CO.) OUTLINED ITS INADEQUATE MANAGEMENT CONTROL OVER SAFETY. (REPLY MAY 3, 1967, OUTLINED A PROGRAM.) JAN. 1968 INSPECTION SHOWED SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY, AND WE DO NOT BELIEVE HP STAFF ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION-SAFETY PROGRAM.

*FAILURE, ADMINISTRATIVE CONTROL + *RADIATION SAFETY AND CONTROL + HEALTH PHYSICS TRAINING + MONITOR, RADIATION, STACK + RADIOISOTOPE

15-25326 ALSO IN CATEGORY 14
BENGTSSON LG
TIME VARIATION OF CS-137 AND POTASSIUM IN HUMANS FROM SOUTHERN SWEDEN
LUND UNIVERSITY, SWEDEN
24 PAGES, 13 FIGURES, 4 TABLES, REFERENCES, ACTA RADIOL., THER., PHYS., BIOL. 6, PAGES 259-82 (AUGUST 1967)

THE K AND CS-137 CONTENT OF 57 PERSONS WERE FOLLOWED FROM FEBRUARY 1964 TO SEPT. 1966. EACH PERSON WAS MEASURED THREE TIMES ANNUALLY. THE POTASSIUM CONCENTRATION DID NOT INCREASE WITH AGE FOR BOYS AGED 13 TO 16 YEARS BUT DECREASED FASTER THAN EXPECTED FOR GIRLS. IT WAS POSSIBLE TO DEMONSTRATE AGE DIFFERENCES IN THE CURVES GIVING CS-137 BURDEN VERSUS TIME. CURVES CALCULATED ON THE BASIS OF MILK DATA FOR CS-137 DESCRIBED THE TIME VARIATIONS QUITE WELL IF THE BIOLOGIC HALF-TIME FOR CS-137 WAS ASSUMED TO BE 100 PLUS OR MINUS 30 D FOR MEN, 80 PLUS OR MINUS 25 D FOR WOMEN, 55 PLUS OR MINUS 20 D FOR 14-YEAR-OLD BOYS AND 55 PLUS OR MINUS FOR 14-YEAR-OLD GIRLS.

BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + CESIUM + DIETARY HABIT + DOSE CALCULATION, INTERNAL + DOSE MEASUREMENT, INTERNAL + FALLOUT + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + POPULATION EXPOSURE + POTASSIUM + SWEDEN

15-25327
MORGAN KZ
YOU OF THE MEDICAL PROFESSION COULD AND SHOULD TAKE A FAR GREATER ROLE IN REDUCING UNNECESSARY PATIENT X-RAY EXPOSURE
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3658 +. 3 PAGES, 1968

THERE IS MUCH EVIDENCE THAT IONIZING RADIATION DELIVERED TO MAN PRODUCES SOME IRREVERSIBLE SOMATIC AND GENETIC DAMAGE. IT IS ACCUMULATIVE WITH THE X-RAY EXPOSURE AND MAY LEAD TO AN EARLY DEATH OR SERIOUS DAMAGE, SUCH AS LUEKEMIA. IT IS POINTED OUT THAT DIAGNOSTIC X-RAY EXPOSURE USE SHOULD BE LIMITED TO TECHNOLOGISTS WHO HAVE ADEQUATE EDUCATION, TRAINING, AND CERTIFICATION. THEY SHOULD USE THE BEST X-RAY EQUIPMENT AND GET THE MAXIMUM DIAGNOSTIC INFORMATION WITH A MINIMUM OF X-RAY EXPOSURE. IT IS FELT THAT THE DIAGNOSTIC DOSE PRESENTLY USED COULD BE CUT TO 10% OF ITS PRESENT VALUE.

AVAILABILITY - K. Z. MORGAN, DIRECTOR, HEALTH PHYSICS DIVISION, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENNESSEE

*CONGRESSIONAL ACTIVITY + *HEALTH PHYSICS TRAINING + *RADIOLOGY + *X-RAY + ICRP + POPULATION EXPOSURE + RADIATION DAMAGE + RADIOBIOLOGY

15-25328
WILLIAMS KD + COOPER JF + MOORE RT + HLIBERG AW
REDUCTION OF RADIATION EXPOSURE IN NUCLEAR MEDICINE
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE
PHS-PUBL.-999-RH-30 +. 153 PAGES, PROCEEDINGS OF A SYMPOSIUM HELD AT THE KELLOGG CENTER FOR CONTINUING EDUCATION, UNIVERSITY OF MICHIGAN, AUGUST 7-9, 1967

REPRESENTATIVES FROM THE NUCLEAR MEDICAL COMMUNITY, INDUSTRY, AND GOVERNMENTAL AGENCIES ATTENDED A 3-DAY SYMPOSIUM, AUGUST 7-9, 1967, COSPONSORED BY THE NATIONAL CENTER FOR RADIOLOGICAL HEALTH AND MICHIGAN STATE UNIVERSITY. FORMAL PRESENTATIONS, DISCUSSION SESSIONS, AND WORK-GROUP REPORTS ARE INCLUDED IN THE PROCEEDINGS. THE PARTICIPANTS EVALUATED THE NEED FOR REDUCING RADIATION EXPOSURE FROM NUCLEAR MEDICAL PROCEDURES, FORMULATED MEANS THAT MIGHT BE EMPLOYED TO USE MOST EFFICIENTLY THE ADMINISTERED AMOUNT OF RADIOPHARMACEUTICALS, AND CONCLUDED POSSIBLE SOLUTIONS TO PROBLEM AREAS IN NUCLEAR MEDICINE.

AVAILABILITY - OFFICE OF INFORMATION, NATIONAL CENTER FOR RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE, U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE, ROCKVILLE, MARYLAND 20852

BIOLOGICAL CONCENTRATION, MAN + DOSE + DOSIMETRY, GENERAL + HEALTH PHYSICS TRAINING + INSTRUMENTATION, RADIATION MONITORING + RADIATION DAMAGE + RADIATION INJURY, TREATMENT OF + RADIATION SAFETY AND CONTROL + RADIOBIOLOGY + RADIOISOTOPE + RADIOLOGY + USAEC + X-RAY

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25337
RADIATION EXPOSURE TO GONADS STUDIES
3 PAGES, J. AMER. MED. ASS., 199, PAGE 31-33, (FEB. 13, 1967)

DATA RELATING TO DIAGNOSTIC RADIATION DOSES TO THE GONADS RECEIVED IN THE UNITED STATES ARE BRIEFLY REVIEWED. DIAGNOSTIC EXAMINATIONS ACCOUNTED FOR ABOUT 1/3 OF THE RADIATION ABSORBED BY THE REPRODUCTIVE ORGANS OF AMERICANS DURING 1964. THE FIGURE OF 55 MRAD OF ABSORBED RADIATION IS LOWER THAN MOST PREVIOUS ESTIMATES. THIS AMOUNT OF MAN-MADE RADIATION IS ADDED TO THE 120 MRAD OF NATURAL BACKGROUND RADIATION RECEIVED ANNUALLY IN MOST PARTS OF THE COUNTRY. THERE IS NO INDICATION OF MAJOR EXCESSES IN RADIATION EXPOSURE FOR DIAGNOSTIC PURPOSES. HOWEVER, BY REDUCING THE SIZE OF THE BEAM USED AND BY CAREFULLY LIMITING AREAS OF THE BODY EXPOSED DURING ROUTINE X RAY EXAMINATIONS, IT SHOULD BE POSSIBLE TO REDUCE THE ANNUAL GENETIC DOSE IN SPITE OF THE INCREASED USE OF X RAYS IN MEDICINE.

*BIOLOGICAL CONCENTRATION, MAN + *RADIOLOGY + *X-RAY + POPULATION EXPOSURE + RADIATION DAMAGE + RADIATION SAFETY AND CONTROL

15-25339
TOTH A
DETERMINATION OF THE COUNTING EFFICIENCY IN CASES OF RADIATION MEASUREMENT OF THE WIDESPREAD SOLID ALPHA SOURCES
13 PAGES, 2 FIGURES, 1 TABLE, 18 REFERENCES, ACTA PHYSICA ACADEMIAE SCIENTIARUM HUNGARICAE, 23, PAGE 349-361, (1967)

THE DEPENDENCE OF ALPHA-COUNTING EFFICIENCY ON ENERGY, SOURCE THICKNESS, AND INSTRUMENT CONSTANT ARE DESCRIBED IN A MORE COMPREHENSIVE MANNER THAN IN FORMER PUBLICATIONS. THE EFFICIENCY VALUE CALCULATED THEORETICALLY IS ALSO SUPPORTED BY EXPERIMENT.

*ALPHA EMITTER + *COUNTER + *DOSE MEASUREMENT, EXTERNAL + *INSTRUMENTATION, RADIATION MONITORING + *MATHEMATICAL TREATMENT + RADIATION SAFETY AND CONTROL + SOURCE, RADIATION

15-25340 ALSO IN CATEGORY 14
SANTOS AA
ESTIMATION OF RADIATION DAMAGE IN THE ANALYSIS OF RISK OF NUCLEAR INSTALLATIONS
JUNTA DE ENERGIA NUCLEAR, MADRID
9 PAGES, ENERG. NUCL. (MADRID), 11, PAGE 121-129, (MARCH-APRIL 1967), (IN SPANISH)

THE EQUATIONS DERIVED PREVIOUSLY MAKE IT POSSIBLE TO ESTIMATE THE CONTAMINATION PRODUCED NEAR NUCLEAR INSTALLATIONS BECAUSE OF THE ESCAPE OF FISSION PRODUCTS OR ACTIVATION. THE EXPRESSIONS USED TO EVALUATE THE EXTERNAL DOSE CAUSED BY BETA AND GAMMA RADIATION AND RESULTING FROM CONTAMINATION OF THE SOIL ARE DISCUSSED. THE DOSE RESULTING FROM CONTAMINATION OF THE SOIL ARE DISCUSSED. THE DOSE RECEIVED BY SPECIFIC ORGANS (THYROIDS, BONE, LUNGS, AND THE VARIOUS PARTS OF THE DIGESTIVE TRACTS) BY INHALATION OF RADIOACTIVE SUBSTANCES ARE EVALUATED AND THE RESULTS ARE TABULATED. THE PHYSIOLOGICAL DATA NECESSARY TO APPLY THE EQUATIONS DESCRIBED ARE DISCUSSED.

*DOSE CALCULATION, EXTERNAL + *FISSION PRODUCT RELEASE, GENERAL + *NUCLEAR INCIDENT DOSIMETER + *RADIATION DAMAGE + *RADIATION MODEL + BARIUM + BETA EMITTER + BIOLOGICAL CONCENTRATION, MAN + CERIUM + CONTAMINATION + GAMMA + HAZARDS ANALYSIS + INGESTION + INHALATION + IODINE + MATHEMATICAL TREATMENT + SOIL + STRONTIUM

15-25348 ALSO IN CATEGORY 17
FLETCHER FR
DELIBERATE EXPOSURE OF RADIOGRAPHY FILM BADGE
CRANE COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGE 16-17 (MAY 20, 1968)

(LETTER, MARCH 15, INCLUDING A HEALTH PHYSICS ASSOCIATES LTD. REPORT) A FILM BADGE FOR THE WEEK OF FEB. 19-23, 1968, RECORDS A PARTIAL EXPOSURE TO THE FILM OF 36.25 R, AT 100 KEV. THE ROUND, SHARP FIELD WAS DUPLICATED BY HOLDING A BADGE AT THE TUBE BEAM PORT OF THE 250-KVP X-RAY MACHINE. THE EMPLOYEE WAS ABSENT WED. OF THAT WEEK. FURTHER QUESTIONING MAY ARRIVE AT THE ANSWER. OUR OPINION IS THAT THE BADGE WAS DELIBERATELY EXPOSED. OUR RECOMMENDATION IS TO LOCK UP ALL BADGES NOT IN USE.

*RADIOGRAPHY + FAILURE, OPERATOR ERROR + PERSONNEL EXPOSURE, RADIATION + PERSONNEL PROTECTIVE DEVICE + X-RAY

15-25379 ALSO IN CATEGORY 14
ALLKOFER OC + FOX JM + HAUSER H
ANALYSIS OF THE ALPHA-EMITTING RADIONUCLIDES FROM RADIOACTIVE FALLOUT BY ALPHA-SPECTROSCOPY
UNIV., KIEL.
6 PAGES, ATOMKERNENERGIE, 13, PAGE 39-44, (1968), (IN GERMAN)

THE RATIO OF THE ALPHA ACTIVITY COMPARED WITH THE TOTAL BETA ACTIVITY OF THE FALLOUT WAS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25379 *CONTINUED*
0.47%. 89% OF THIS VALUE WERE CAUSED BY PLUTONIUM, WHEREAS 11% CAME FROM THE TRANSPLUTONIUM ELEMENTS. MORE THAN 96.5% OF THE PLUTONIUM FRACTION CONSIST OF PU-239 AND PU-240 IN A NOT-KNOWN RATIO, BUT BOTH OF THE SAME ORDER. THERE ARE 3.5% AT MAXIMUM OF PU-241 WITHIN THE PLUTONIUM FRACTION. BY FAR THE MAJOR PART OF THE TRANSPLUTONIUM FRACTION IS REPRESENTED BY AM-241. SAMPLES TAKEN FROM THE SURFACE OF JETS CONTAINED NATURAL PO-241. ITS ACTIVITY WAS ABOUT FOUR TIMES HIGHER THAN THE TOTAL ARTIFICIAL ALPHA-ACTIVITY. COMPARING THE RESULT FROM THE NUCLEAR TEST EXPLOSION MIKE WITH THE RESULTS OF THESE MEASUREMENTS, AN AVERAGE VALUE CAN BE DEDUCED OF THE INTEGRAL NEUTRON FLUX BY 1 X 10(24TH) N/SQ. CM BEING PRODUCED BY EVERY TEST WITHIN THE MEGATON RANGE OF THE PERIOD 1961/62.

*FALLOUT + *PLUTONIUM + *RADIOCHEMICAL ANALYSIS + ALPHA EMITTER + BETA EMITTER + GERMANY + MEASUREMENT, REACTIVITY + NEUTRON + SPECTROMETRY, ALPHA

15-25380
DE ROBIEN E
HANDLING OF INFORMATION ON RADIATION PROTECTION
CENTRE D-ETUDES NUCLEAIRES, GRENOBLE, FRANCE
7 PAGES, ENERG. NUCL. (PARIS), 9, PAGE 323-329, (AUG.-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 ARE 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 OVERDOSAGE, 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.

DOSE MEASUREMENT, EXTERNAL + FRANCE + INSTRUMENTATION, RADIATION MONITORING + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, PERSONNEL + MONITORING SYSTEM, RADIATION + RADIATION SAFETY AND CONTROL

15-25382 ALSO IN CATEGORY 14
RADIOLOGICAL HEALTH NEWS
STATE OF CALIFORNIA, DEPT. OF PUBLIC HEALTH, BUREAU OF RADIOLOGICAL HEALTH, 2151 BERKELEY WAY, BERKELEY, CALIFORNIA 94704
22 PAGES, 1 FIGURE, 9 TABLES, RADIOLOGICAL HEALTH NEWS, 7(1), (JANUARY 1968)

CALIFORNIAS ENVIRONMENTAL SAMPLING PROGRAM FOR AN APPROXIMATE THREE-MONTH PERIOD IS GIVEN. COVERS SAMPLINGS OF AIR, RAIN, DOMESTIC WATER, SEWAGE, MILK, SOIL, DIET, AND SNOW. SPECIAL STUDIES ARE INCLUDED ALSO. RESULTS ARE PRESENTED IN TABULAR FORM.

AIRBORNE RELEASE + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + FALLOUT + GROSS BETA + PARTICULATE + RAINOUT + REACTOR, POWER + SOIL, NUCLIDE OCCURRENCE + STRONTIUM + WATER, DRINKING

15-25388
HULL AP + GILMARTIN JT + SMITH ME
EVALUATION OF FISSION PRODUCT AND ACTIVATION ISOTOPES IN A REACTOR STACK EFFLUENT AND IN THE NEARBY ENVIRONMENT
BROOKHAVEN NATIONAL LAB., UPTON, N. Y.
BNL-12169 +. 18 PAGES, 1966

PRESENTS A DETAILED ANALYSIS OF THE SAMPLING OF EFFLUENT AND THE VARIOUS METHODS OF FILTERING THE STACK EFFLUENT OVER A CONSIDERABLY LENGTHY PERIOD OF TIME FOR A REACTOR. THE RESULTS OF THE VARIOUS FILTER METHODS ARE GIVEN.

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

BNL + DEPOSITION + EFFLUENT + ENVIRONMENTAL CONDITION + FILTER + FISSION PRODUCT RELEASE, GENERAL + HAZARDS ANALYSIS + RADIATION SAFETY AND CONTROL + REACTOR, GRAPHITE MODERATED + STACK

15-25389
A RELEASE TO PROFESSIONAL JOURNALS
U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE
2 PAGES, FOR RELEASE TO PROFESSIONAL JOURNALS, WEDNESDAY, MAY 8, 1968

A SOCIETY OF NUCLEAR MEDICINE COMMITTEE HAS COMPLETED THE FIRST OF A SERIES OF REFERENCE PUBLICATIONS ON THE LATEST METHODS AND DATA FOR CALCULATING RADIATION DOSES ABSORBED BY PATIENTS FROM RADIOACTIVE PHARMACEUTICALS USED IN DIAGNOSIS. THE FIRST PUBLICATION, ISSUED AS A SUPPLEMENT TO THE FEB. ISSUE OF THE JOURNAL OF NUCLEAR MEDICINE, ESTABLISHES THE INFORMATIONAL BASIS FOR USING METHODS OF ABSORBED RADIATION DOSES TO BE RECOMMENDED BY THE COMMITTEE IN FUTURE REFERENCES. IT CONTAINS (1) MATHEMATICAL PROCEDURES FOR CALCULATING ABSORBED DOSES FOR BIOLOGICALLY DISTRIBUTED RADIOPHARMACEUTICALS, (2) TABLES OF BUILDUP AND RELATED DATA DESCRIBING PHOTON ENERGY DEPOSITION IN A WATER MEDIUM, AND (3) INFORMATION ON THE USE OF ABSORBED FRACTIONS IN MEASURING ABSORBED PHOTON DOSES.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25389 *CONTINUED*
AVAILABILITY - U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, NATIONAL CENTER FOR RADIOLOGICAL HEALTH, ROCKVILLE, MARYLAND 20852

*DOSE CALCULATION, INTERNAL + *RADIATION SAFETY AND CONTROL + *RADIOLOGY + BIOLOGICAL CONCENTRATION, MAN + BIOMEDICAL + DEPOSITION

15-25411
RAABE OG
THE ADSORPTION OF RADON DAUGHTERS TO SOME POLYDISPERSE SUBMICRON POLYSTYRENE AEROSOLS
FISSION PRODUCT INHALATION LABORATORIES, LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE, NEW MEXICO
22 PAGES, 10 FIGURES, 4 TABLES, 63 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 397-416, (MAY 1968)

THE ADSORPTION OF RADIOACTIVE MATERIALS BY AEROSOLS IS AN IMPORTANT CONSIDERATION WHEN ASSESSING THE HAZARD ASSOCIATED WITH THE INHALATION OF RADIOACTIVE MATERIALS. THE ADSORPTION OF RADON DAUGHTERS BY AEROSOLS IS OF PARTICULAR INTEREST SINCE IT IS PROBABLE THAT RADON DAUGHTERS ATTACHED TO AEROSOLS REPRESENT THE PRIMARY HAZARD IN URANIUM MINING. THE RESULTS SHOWED THAT THE RELATIVE QUANTITY OF ADSORBED RADON DAUGHTERS ON DIFFERENT SIZE AEROSOL PARTICLES UP TO 0.5 MICRON IN DIAMETER WAS PROPORTIONAL TO THE SURFACE AREA OF THE PARTICLES.

*ADSORPTION + *BIOLOGICAL CONCENTRATION, MAN + *INHALATION + *RADIUM + *RADON + AEROSOL, RADIOACTIVE + HAZARDS ANALYSIS + MINING + URANIUM

15-25412
HAVLIK B + GRAFOVA J + NYCOVA B
RADIUM-226 LIBERATION FROM URANIUM ORE PROCESSING MILL WASTE SOLIDS AND URANIUM ROCKS INTO SURFACE STREAMS-I. THE EFFECT OF DIFFERENT PH OF SURFACE WATERS
INSTITUTE OF HYGIENE, PRAGUE 10, SROBAROVA 48, CZECHOSLOVAKIA
6 PAGES, 4 FIGURES, 1 TABLE, 10 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 417-422, (MAY 1968)

INTENSIVE URANIUM ORE MINING AND PROCESSING CAUSE INCREASING CONTAMINATION OF SURFACE WATERS WITH NATURAL RADIOACTIVITY NOT ONLY OF A PERTINENT RESIDING REGION, BUT OFTEN OF LARGE AREAS. MOST OF THE RADIOACTIVE WASTES PENETRATING INTO SURFACE WATERS (MINE WATERS, EFFLUENTS FROM URANIUM ORE PROCESSING MILLS, WASH DOWN FROM DUMPS AND OVERBURDENS) CONTAIN RADIOACTIVE ISOTOPES BOUND BEFORE ALL TO SEDIMENTING MATTER. THIS PAPER PRESENTS THE RESULTS OF EXPERIMENTAL STUDIES OF THE DEPENDENCE OF RADIUM RELEASE BOUND IN RADIUM ORE AND SEDIMENTS ON DIFFERENT CONCENTRATIONS OF HYDROGEN IONS IN SURFACE WATERS.

*RADIOISOTOPE + *RADIUM + *SEDIMENT + *SURFACE WATER, NUCLIDE OCCURRENCE + *URANIUM + CONTAMINATION + EFFLUENT + MINING + WATER POLLUTION

15-25413
HAVLIK B + NYCOVA B + GRAFOVA J
RADIUM-226 LIBERATION FROM URANIUM ORE PROCESSING MILL WASTE SOLIDS AND URANIUM ROCKS INTO SURFACE STREAMS-II. THE EFFECT OF DIFFERENT CHEMICAL COMPOSITION OF SURFACE WATER
INSTITUTE OF HYGIENE, PRAGUE 10, SROBAROVA 48, CZECHOSLOVAKIA
8 PAGES, 5 FIGURES, 2 TABLES, 6 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 423-430, (MAY 1968)

THE CONTROL OF THE RADIOACTIVITY LEVEL OF SURFACE WATER CONTAMINATED BY RADIOACTIVE WASTE FROM URANIUM ORE MINING AND PROCESSING REVEALED HIGHER CONCENTRATION OF DISSOLVED RADIUM IN PLACES SEVERAL KILOMETRES FAR FROM THE PLACE OF THE OUTLET OF THE WASTES THAN IN THE OUTLET ITSELF. AFTER THE FINDING THAT THE PH OF SURFACE WATERS DOES NOT PLAY THE MAIN ROLE IN RELEASING RADIUM FROM THE SEDIMENTS, WE EXPERIMENTALLY STUDIED THE INFLUENCE OF INORGANIC SALTS CONCENTRATION.

*POTASSIUM + *RADIUM + *SEDIMENT + *SODIUM + *SURFACE WATER, NUCLIDE OCCURRENCE + *URANIUM + MINING

15-25415
OLSON DG
A DIRECT CALIBRATION USING GAMMA SPECTROMETRY FOR MEASURING RADIOACTIVITY IN HUMANS
HEALTH SERVICES LABORATORY, U.S. ATOMIC ENERGY COMMISSION, IDAHO FALLS, IDAHO
9 PAGES, 6 FIGURES, 4 TABLES, 10 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 439-447, (MAY 1968)

PERHAPS THE MAJOR PROBLEM ENCOUNTERED IN MEASURING RADIOACTIVITY IN HUMANS IS THE FUNDAMENTAL CALIBRATION OF THE INSTRUMENT. IN THIS PAPER, 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. ALTHOUGH THE TECHNIQUE CAN BE APPLIED TO ANY GAMMA EMITTER, THE RELIABILITY OF THE METHOD IS SHOWN BY THE RESULTS OF ADMINISTERING K-40, K-42, AR-41, MN-54, CS-132, CS-137 TO HUMAN VOLUNTEERS AND MEASURING THE RESPONSE. THE PROPOSED PROCEDURE GAVE A SMALLER ERROR THAN THE CONVENTIONAL EMPIRICAL METHOD.

ADSORPTION + DOSE CALCULATION, INTERNAL + INSTRUMENTATION, RADIATION MONITORING + IODINE + MATHEMATICAL TREATMENT + MEASUREMENT, REACTIVITY + SOURCE, RADIATION + SPECTROMETRY, GAMMA + THEORETICAL INVESTIGATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25416
DUDLEY RA + HAIM AB
ASSAY OF SKELETALLY DEPOSITED STRONTIUM-90 IN HUMANS BY MEASUREMENT OF BREMSSTRAHLUNG
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA
11 PAGES, 4 FIGURES, 3 TABLES, 12 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 449-459, (MAY 1968)

AN EVALUATION IS PRESENTED OF THE ACCURACY AND SENSITIVITY WITH WHICH SKELETALLY DEPOSITED SR-90 CAN BE ASSAYED IN HUMANS BY MEASUREMENT OF BREMSSTRAHLUNG WITH WHOLE-BODY COUNTERS OF VARIOUS DESIGNS. THE YIELD OF BREMSSTRAHLUNG FROM SKELETAL DEPOSITS OF SR-90 AND EQUILIBRATED Y-90 CAN BE DUPLICATED WITHIN ABOUT 10 PCT. USING SR-90 SOURCES IN APPROPRIATE SMALL PLASTER OF PARIS AND LUCITE ABSORBERS. UNDER A PARTICULAR SET OF MEASUREMENT CONDITIONS THE ASSAY OF SR-90 AT THE NANOCURIE LEVEL IN NORMAL PEOPLE HAS BEEN FOUND TO SHOW A STANDARD DEVIATION OF ABOUT PLUS OR MINUS 15 NCI. THIS ERROR RESULTS MAINLY FROM UNCERTAINTIES IN SEPARATING THE BREMSSTRAHLUNG COMPONENT OF THE RADIATION SPECTRUM FROM ALL OTHER COMPONENTS.

*COUNTER, WHOLE BODY + *DOSE + *MEASUREMENT, REACTIVITY + *STRONTIUM + *TRACER, GENERAL + BIOLOGICAL CONCENTRATION, MAN + CALCIUM + GAMMA EMITTER + SOURCE, RADIATION

15-25417
EAKINS JD + GOMM PJ
THE DETERMINATION OF GROSS ALPHA ACTIVITY IN URINE BY ADSORPTION ON GLASS FIBRE FILTER PAPER
HEALTH PHYSICS AND MEDICAL DIVISION, BUILDING 36A, A.E.R.E. HARWELL, DIDCOT, BERKSHIRE
13 PAGES, 6 FIGURES, 4 TABLES, 12 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 461-472, (MAY 1968)

DESCRIBES WORK CARRIED OUT TO DETERMINE THE OPTIMUM CONDITIONS FOR MAXIMUM SURFACE ADSORPTION OF A NUMBER OF ALPHA EMITTING RADIOELEMENTS ON GLASS FIBRE FILTER PAPER. THE EFFECT OF VALENCY, PH AND PRESENCE OF PYROPHOSPHATE IS DISCUSSED AND A NEW TECHNIQUE FOR THE DETERMINATION OF GROSS ALPHA ACTIVITY IN URINE IS GIVEN BASED ON SURFACE ADSORPTION. OVERALL RECOVERIES OF THORIUM, PROTACTINIUM, NEPTUNIUM, PLUTONIUM, AMERICIUM AND CURIUM ARE ABOUT 80% USING THIS PROCEDURE. THE ADVANTAGES OF SURFACE ADSORPTION OVER CONVENTIONAL ION EXCHANGE ARE DISCUSSED AND THE DEVELOPMENT OF OTHER PROCEDURES BASED ON THIS PRINCIPLE IS SUGGESTED.

*ADSORPTION SURFACE + *FILTER, FIBERGLASS + *GROSS ALPHA + BIOLOGICAL CONCENTRATION, MAN + ION EXCHANGE

15-25418
TANAKA E + IWADATE S + MIWA H
A HIGH-SENSITIVITY CONTINUOUS PLUTONIUM AIR MONITOR
NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES, 9-1, 4-CHOME, CHIBA-SHI, JAPAN
10 PAGES, 6 FIGURES, 14 REFERENCES, HEALTH PHYSICS, 14(5), PAGE 473-482, (MAY 1968)

A PU-239 AIR MONITOR BASED ON THE COMBINED PRINCIPLE OF ALPHA SPECTROMETRY AND BETA-ALPHA DELAYED COINCIDENCE METHOD HAS BEEN DEVELOPED. AIR IS SAMPLED ON A FIXED FILTER PAPER (MILLIPORE AA) AND ITS ALPHA AND BETA ACTIVITIES ARE CONTINUOUSLY MONITORED WITH A CSI(TL) SCINTILLATOR 50 MM IN DIA. AND 2 MM THICK. ALPHA PULSES ARE DISCRIMINATED AGAINST BETA PULSES BY MEANS OF PULSE-SHAPE DISCRIMINATION TECHNIQUE, AND ALPHA PULSES DUE TO PU-239 ARE FURTHER SELECTED BY PULSE-HEIGHT ANALYSIS. THE CONTRIBUTION OF RADON DAUGHTERS TO THE PU CHANNEL IS COMPENSATED BY SUBTRACTING A CONSTANT RATIO OF THE BETA-ALPHA COINCIDENCE RATE DUE TO RAC-RAC, AND THE CONTRIBUTION OF THORON DAUGHTERS IS CANCELLED BY SUBTRACTING A CONSTANT FRACTION OF THE COUNT RATE OF HIGH-ENERGY ALPHA PARTICLES FROM THORIUM C-PRIME.

*FILTER, MILLIPORE + *MONITOR, RADIATION, AIR + *PLUTONIUM + BETA EMITTER + INSTRUMENTATION, RADIATION MONITORING + RADIATION SAFETY AND CONTROL + SPECTROMETRY, ALPHA + STATISTICAL ANALYSIS

15-25446 ALSO IN CATEGORY 7
AMADESI P + CERVELLATI A
SEPARATION AND MEASUREMENT OF FISSION NOBLE GASES BY GAS CHROMATOGRAPHY
COMITATO NAZIONALE PER L ENERGIA NUCLEARE
10 PAGES, 7 FIGURES, 1 TABLE, 8 REFERENCES, PAGES 529 THRU 538, FROM COLLOQUE INTERNATIONAL SUR LA POLLUTION RADIOACTIVE DES MILIEUX GAZEUS (RADIOACTIVE POLLUTION OF GASEUS MEDIA) BOOK II. SACLAY, NOVEMBER 12-16, 1963

MEASUREMENT OF FISSION RARE GASES, KRYPTON AND XENON, RELEASED BY 20% U-235 ENRICHED FUEL OF A RESEARCH REACTOR ARE DESCRIBED. BY USING THE METHOD OF GAS RADIOCHROMATOGRAPHY, A GREAT SENSITIVITY OF MEASUREMENTS IS ATTAINED AND IT IS POSSIBLE TO DETECT APPROXIMATELY 2 TO 3 X 10(-4TH) MICROCURIE/CC SAMPLES. IT IS POSSIBLE TO IMPROVE THE MEASUREMENT SENSITIVITY WITHOUT REDUCING THE SIMPLICITY AND RAPIDITY OF THE METHOD WHICH CAN BE USED FOR THE CONTROL OF RADIOACTIVE GASES IN THE IRRADIATED FUEL PROCESSING PLANTS.

AVAILABILITY - PRESSES UNIVERSITAIRES DE FRANCE, 108, BOULEVARD SAINT-GERMAIN, PARIS VI, FRANCE

*CHROMATOGRAPHY + *COUNTER + *KRYPTON + *MEASUREMENT, GENERAL + *XENON + FISSION GAS RELEASE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25575 ALSO IN CATEGORY 14
BRILL WA
SUMMARY OF IRON-55 CONTAMINATION IN THE ENVIRONMENT AND LEVELS IN HUMANS
U. S. PUBLIC HEALTH SERVICE
7 PAGES, 9 FIGURES, 4 TABLES, 19 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 195-201, (APRIL 1968)

LEVELS OF IRON-55 IN THE ENVIRONMENT AND IN FOOD SOURCES ARE SUMMARIZED. THE AVERAGE BODY BURDENS AND RESULTING DOSES TO THE ERYTHROCYTES OF SELECTED ALASKAN ESKIMOS AND RESIDENTS OF THE STATES OF WASHINGTON, NEW YORK, AND NEW JERSEY ARE COMPARED. CONSIDERING THE ERYTHROCYTES AS THE CRITICAL ORGAN, THE DOSE RATE FROM 1 PCI IRON-55/MG STABLE IRON IS 0.095 MRAD/YR. A BODY BURDEN OF 8 NCI, THE AVERAGE FOR RICHLAND, WASH., RESIDENTS, YIELDS A YEARLY DOSE OF 0.19 MRAD, WHILE 1,100 NCI, THE AVERAGE BODY BURDEN FOR ESKIMOS ON FISH DIETS, YIELDS A YEARLY DOSE OF 26 MRAD.

*BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *IRON + *MANGANESE + DEPOSITION + DOSIMETRY, GENERAL + ENVIRONMENTAL CONDITION + FALLOUT + INGESTION + NUCLEAR DETONATION + PRECIPITATION

15-25576 ALSO IN CATEGORY 14
SECTION I. MILK AND FOOD
1 PAGE, 6 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 203, (APRIL 1968)

IN THE DETERMINATION OF THE INTERNAL EXPOSURE TO MAN FROM ENVIRONMENTAL RADIATION SOURCES, PRIMARY INTEREST CENTERS ON RADIONUCLIDES IN THE DIET. FEDERAL AND STATE AGENCIES ARE INVOLVED IN EFFORTS TO MONITOR CONTINUOUSLY THE DIETARY INTAKE OF RADIONUCLIDES. DIFFICULTIES IN OBTAINING SPECIFIC DIETARY DATA IMPEDE THIS APPROACH. AN ALTERNATE METHOD ENTAILS THE USE OF INDICATOR FOODS TO ARRIVE AT AN ESTIMATE OF THE TOTAL DIETARY RADIONUCLIDE INTAKE.

BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, MILK + DIETARY HABIT + FEDERAL RADIATION COUNCIL + RADIATION SAFETY AND CONTROL + SAMPLING + SURVEILLANCE PROGRAM

15-25577 ALSO IN CATEGORY 14
SECTION II. WATER
U. S. PUBLIC HEALTH SERVICE
4 PAGES, 2 FIGURES, 2 TABLES, 13 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 221-224, (APRIL 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.

*FEDERAL RADIATION COUNCIL + *SURFACE WATER, NUCLIDE OCCURRENCE + *SURVEILLANCE PROGRAM + *WATER, DRINKING + CESIUM + GROSS ALPHA + GROSS BETA + RADIATION SAFETY AND CONTROL + STRONTIUM + WATER POLLUTION

15-25578 ALSO IN CATEGORY 14
SECTION III. AIR AND DEPOSITION - RADIOACTIVITY IN AIRBORNE PARTICULATES AND PRECIPITATION
8 PAGES, 5 FIGURES, 6 TABLES, 7 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 9(4), PAGE 225-232, (APRIL 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.

*FALLOUT + *GROSS BETA + *MONITOR, RADIATION, ENVIRONMENTAL + *SURVEILLANCE PROGRAM + AIRBORNE RELEASE + ENVIRONMENTAL CONDITION + FEDERAL RADIATION COUNCIL + PARTICULATE + PRECIPITATION + RADIATION SAFETY AND CONTROL + SAMPLING

15-25579
MOHRLE VG
MEDICAL CONSIDERATIONS AND GUIDE LINES ON PERSONNEL DECONTAMINATION AND DECORPORATION. II. DECORPORATION
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
7 PAGES, 9 FIGURES, 1 TABLE, 9 REFERENCES, ATOMPRAXIS 14(4/5), PAGES 201-207, (APRIL-MAY 1968) (IN GERMAN)

THIS SECOND PART OF THE PAPER IN ITS INTRODUCTION DEALS WITH APPROPRIATE CONTROL OF INCORPORATION, MENTIONING IN GREATER DETAIL THE MECHANISM OF INCORPORATION AND THE THERAPEUTIC POSSIBILITIES OF DECORPORATION INTENSIFICATION. THE PAPER IS CONCLUDED BY A SCHEMATIC SUMMARY OF POSSIBILITIES OF TREATMENT IN CASE OF INCORPORATION OF SOME MAJOR NUCLIDES.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25579 *CONTINUED*
*BIOLOGICAL CONCENTRATION, MAN + *CONTAMINATION + *DECONTAMINATION + *RADIATION DAMAGE + *RADIATION INJURY, TREATMENT OF

15-25580 ALSO IN CATEGORY 14
DE RUIG WG
PROSPECTS FOR THE MANUFACTURE OF CHEESE FIT FOR HUMAN CONSUMPTION FROM MILK CONTAMINATED WITH RADIOACTIVE NUCLEAR FISSION PRODUCTS
8 PAGES, 1 FIGURE, 5 TABLES, 22 REFERENCES, NETH. MILK DAIRY JOURNAL 20, PAGES 188-195 (1966)

IN CASE OF ATMOSPHERIC NUCLEAR EXPLOSIONS, MILK AND MILK PRODUCTS COULD BE HEAVILY CONTAMINATED WITH RADIOACTIVE FISSION PRODUCTS, OF WHICH SR-90 IS THE MOST DANGEROUS FOR HUMAN BEINGS. METHODS ARE DESCRIBED FOR MANUFACTURING A FAIRLY ACCEPTABLE WHOLE CHEESE WITH A LOW CONTAMINATION-LEVEL.

*BIOLOGICAL CONCENTRATION, MILK + *DECONTAMINATION + *FALLOUT + BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + CALCIUM + CESIUM + CONTAMINATION + IODINE + NUCLEAR DETONATION + STRONTIUM

15-25581
ANDERSON HF + SHEEHAN WE
ENVIRONMENTAL MONITORING REPORT - JULY 1967 AND 1967 SUMMARY
MOUND LABORATORIES, MIAMISBURG, OHIO
MLM-1464 +. 46 PAGES, 3 FIGURES, 11 TABLES, JANUARY 15, 1968

THE CONCENTRATION OF RADIOACTIVE MATERIALS DETECTED IN THE ENVIRONMENT SURROUNDING MOUND LABORATORY, MIAMISBURG, OHIO, IS PRESENTED FOR THE SECOND HALF OF 1967, AND A SUMMARY IS PRESENTED FOR THE ENTIRE YEAR. THE AVERAGE CONCENTRATION OF RADIONUCLIDES FROM MOUND LABORATORY IN THE GREAT MIAMI RIVER AND IN THE ENVIRONMENTAL AIR (AVERAGE OF ALL ZONES) WAS WITHIN THE STANDARDS SPECIFIED BY THE USAEC.

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

*MONITOR, RADIATION, ENVIRONMENTAL + *PLUTONIUM + *POLONIUM + *TRITIUM + AIRBORNE RELEASE + CONTAMINATION + RADIATION SAFETY AND CONTROL

15-25589 ALSO IN CATEGORY 19
COATS, GI
RADIONUCLIDE STANDARDIZATION. A BIBLIOGRAPHY, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
U.S. PUBLIC HEALTH SERVICE
PHS-PUBL-999-RH-25 +. 31 PAGES, 12 REFERENCES, APRIL, 1967

CONTAINS REFERENCES ON ABSOLUTE COUNTING (23), COINCIDENCE TECHNIQUE, FORMULA AND CORRECTIONS (41), CALIBRATION BY BETA AND 4 PI BETA METHODS (89), BETA-GAMMA COINCIDENCE (32), GAMMA-GAMMA COINCIDENCE AND GAMMA COUNTING (27), X-RAY-GAMMA COINCIDENCE (17), ALPHA-GAMMA COINCIDENCE (7), LIQUID SCINTILLATION COUNTERS (14), ION CHAMBERS AND CALORIMETERS (9), COINCIDENCE CIRCUITS (48), DEAD TIME AND STATISTICS (32), THIN FILMS (21), SAMPLE PREPARATIONS, BACK SCATTERING, AND SELF-ABSORPTION (30), MAINTENANCE AND STORAGE OF STANDARDS (9), INTERCOMPARISON OF SOLUTIONS (7), AND GENERAL REFERENCES (12).

AVAILABILITY - PUBLIC INQUIRIES BRANCH, PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D. C. 20201

*BIBLIOGRAPHY + *CHAMBER, ION + *INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, COINCIDENT + *STATISTICAL ANALYSIS + COUNTER

15-25593
FULL-SCALE SYSTEM FOR REMOVAL OF RADIOSTRONTIUM FROM MILK
U.S. PUBLIC HEALTH SERVICE
PHS-PUBL-999-RH-28 +. 98 PAGES, FIGURES, TABLES, 19 REFERENCES, FROM THE PROCEEDINGS OF SEMINAR, OCTOBER, 1967

A SEMINAR WAS HELD SIMULTANEOUSLY WITH A DEMONSTRATION OF A FULL-SCALE SYSTEM FOR REMOVING RADIOSTRONTIUM FROM MILK AT THE PRODUCERS CREAMERY COMPANY, LEBANON, MO. THE REMOVAL RATE OF THE PROCESS WAS BETTER THAN 90 PERCENT. THE TASTE OF THE TREATED MILK COMPARED FAVORABLY WITH REGULAR MILK. NUTRITIONAL VALUES WERE ALTERED SOMEWHAT, BUT ANIMAL FEEDING STUDIES SHOWED NO DELETERIOUS EFFECTS ON GROWTH OR GENERAL HEALTH AS A RESULT OF KNOWN CHANGES IN THE PROCESSED MILK. THE SYSTEM INCLUDED STORAGE TANKS, ION EXCHANGE RESIN COLUMNS, A HIGH-TEMPERATURE SHORT-TIME PASTEURIZER, TIME AND STEP CONTROLLERS, AND PH CONTROLS.

AVAILABILITY - OFFICE OF INFORMATION, NATIONAL CENTER FOR RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, ROCKVILLE, MD. 20852

*BIOLOGICAL CONCENTRATION, MILK + *DESIGN CRITERIA + *ION EXCHANGE + *OPERATION + *RESIN + *STRONTIUM + CONTAMINATION + DECONTAMINATION + DIETARY HABIT + IODINE + RADIATION SAFETY AND CONTROL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25611
STOUTE JR
MONITORING THE OFF-SITE GASEOUS RELEASES AT R.C.N. RESEARCH ESTABLISHMENT
REACTOR CENTRUM NEDERLAND
3 PAGES, PAGES 255-257; FROM COLLOQUE INTERNATIONAL SUR LA POLLUTION RADIOACTIVE DES MILIEUX GAZEUX (RADIOACTIVE POLLUTION OF GASEOUS MEDIA). BOOK I. SACLAY, NOVEMBER 12-16, 1963

A POSSIBLE LEADING PRINCIPLE WITH MONITORING GASEOUS EFFUENTS IS MEASURING AT POINTS WHERE THE CONTAMINATION IS AS LITTLE DILUTED AS POSSIBLE. THIS PRINCIPLE IS FOLLOWED AT R.C.N. RESEARCH ESTABLISHMENT (PETTEN, THE NETHERLANDS). THE WORKING OUT OF PRINCIPLE FOR GASEOUS DISCHARGES OF REACTOR, CHEMISTRY-BUILDING, AND DISMANTLING HOT LAB. IS SHOWN.

AVAILABILITY - PRESSES UNIVERSITAIRES DE FRANCE, 108, BOULEVARD SAINT-GERMAIN, PARIS, VI, FRANCE

DILUTION + EFFLUENT + FILTER + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + MAXIMUM PERMISSIBLE DOSE (MPD) + MONITOR, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, GAS + NETHERLANDS

15-25635
VENNART J
THE QUALITY FACTOR FOR LOW-ENERGY BETA-EMITTERS
RADIOLOGICAL PROTECTION SERVICE, BELMONT, SUTTON, SURREY, ENGLAND
8 PAGES, 3 TABLES, 27 REFERENCES, HEALTH PHYSICS 14(6), PAGES 541-548 (1968)

THE EXPERIMENTAL EVIDENCE FOR THE RBE OF BETA-PARTICLES FROM TRITIATED WATER IS REVIEWED. REPORTED VALUES ARE IN THE RANGE 1-2. THIS VARIATION IS NOT REMARKABLE IN VIEW OF THE DIFFERENT END POINTS USED BUT IT IS ALSO DUE TO EXPERIMENTAL ERRORS, TO DIFFERENT VIEWS CONCERNING THE SPATIAL DISTRIBUTION OF THE DOSE, TO THE QUALITY OF THE REFERENCE RADIATION AND TO DOSE RATE. THE RESULTS ARE REVIEWED IN RELATION TO RECOMMENDATIONS OF I.C.R.P. CONCERNING QF AND IT IS CONCLUDED THAT A VALUE OF QF DIFFERENT FROM UNITY FOR EITHER TRITIUM OR OTHER BETA-EMITTERS IS HARDLY JUSTIFIED.

*DOSE + *ICRP + *RADIOLOGY + *TRITIUM + BETA EMITTER + ENERGY LEVEL + RADIATION SAFETY AND CONTROL

15-25636
LOVAAS AI + HURSH JB
RADIUM-226 AND LEAD-210 IN HUMAN TEETH AND BONES
UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY
7 PAGES, 2 FIGURES, 3 TABLES, 19 REFERENCES, HEALTH PHYSICS 14(6), PAGES 549-555 (1968)

REPORTS A STUDY ON THE SUITABILITY OF USING MEASUREMENTS OF CERTAIN ISOTOPES IN TEETH TO ESTIMATE LEVELS OF THE SAME ISOTOPES IN BONE. HUMAN TOOTH, JAW, TIBIA SHAFT, CALVARIUM, FEMUR HEAD, AND RIB FROM THIRTEEN AUTOPSIES WERE ANALYZED FOR RA-226, PB-210 AND STABLE CALCIUM. REGRESSION ANALYSIS USING OUR DATA AS A CALIBRATION SET LED TO THE PREDICTION THAT IN FUTURE SAMPLING WHEN TOOTH IS MEASURED AT OR ABOVE THE PRESENTLY REPORTED MEAN LEVEL FOR RA-226, THE MEAN BONE VALUE WILL LIE WITHIN APPROXIMATELY PLUS OR MINUS 50% OF THE TOOTH VALUE AT THE 95% CONFICENCE LEVEL. LEAD-210 LEVEL PREDICTED FOR BONE IS SUBJECT TO LARGER ERROR AND IS MORE DEPENDENT ON THE BONE TYPE TO WHICH THE TOOTH LEVEL IS REFERRED.

*DOSE + *LEAD + *RADIOBIOLOGY + *RADIUM + *STATISTICAL CORRELATION + BIOLOGICAL CONCENTRATION, MAN + DOSE MEASUREMENT, INTERNAL + RADIOACTIVITY RELEASE

15-25638
ANNUAL REPORT ON RESEARCH PROJECT - RADIOLOGICAL RESEARCH
COLUMBIA UNIVERSITY, NEW YORK
NYO-2740-5 +. 303 PAGES, FIGURES, TABLES, JANUARY 1, 1968

THESE DOSIMETRY STUDIES WERE MADE TO INVESTIGATE ASSUMPTIONS USED TO CALCULATE THE NEUTRON DOSES GIVEN MAIZE SEEDS. 3(E OF THESE ASSUMPTIONS WAS THAT THE TISSUE KERMA RATE IN FREE AIR VARIES INVERSELY AS THE SQUARE OF THE DISTANCE FROM THE NEUTRON SOURCE TO THE CENTER LINE OF THE TEST SPECIMEN. THE EXPERIMENTAL DATA INDICATED THAT THIS ASSUMPTION COULD HAVE INTRODUCED ERRORS OF ABOUT 20% IN THE CALCULATED SEED DOSES. THESE DIFFERENCES MAY HAVE BEEN DUE TO NEUTRON SCATTER FROM NEARBY WOODEN SUPPORTING STRUCTURES AND THE EFFECTS OF FINITE CHAMBER SIZE AND FINITE SOURCE SIZE. TO CLARIFY THIS PROBLEM ADDITIONAL MEASUREMENTS OF TISSUE DOSE AS A FUNCTION OF THE DISTANCE FROM THE NEUTRON SOURCE TO THE DOSIMETER ARE PLANNED FOR THE NEAR FUTURE.

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

*DOSIMETRY, GENERAL + *RADIOLOGY + BIOMEDICAL + FAST NEUTRON + MONITOR, RADIATION, BACKGROUND + R AND D PROGRAM + RADIOBIOLOGY + REACTOR, POWER

15-25728 ALSO IN CATEGORIES 18 AND 17
INFORMATION REQUESTED ON GINNA RADIATION EMERGENCY PLANS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25728 *CONTINUED*
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO F. E. DRAKE, JR. FROM P. A. MORRIS, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + GINNA (PWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, PWR

15-25729 ALSO IN CATEGORIES 18 AND 17
INFORMATION REQUESTED ON NINE MILE POINT EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, MAY 27, 1968, LETTER TO M. H. PRATT FROM P. A. MORRIS, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + NINE MILE POINT (BWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, BWR

15-25730 ALSO IN CATEGORIES 18 AND 17
INFORMATION REQUESTED ON SEFOR EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO K. P. COHEN FROM P. A. MORRIS, DOCKET 50-231

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + OPERATING LICENSE PROCESS + RADIATION INJURY, TREATMENT OF + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SEFOR (RE)

15-25849 ALSO IN CATEGORIES 9 AND 16
BRISTOW Q + THOMPSON CJ
A COMPUTER P.H.A. SYSTEM FOR REAL TIME OFF LINE ANALYSIS OF SPECTRA FROM AN AERIAL SURVEY FOR RADIOACTIVE MATERIALS
ATOMIC ENERGY OF CANADA LIMITED, OTTAWA, CANADA
7 PAGES, 9 FIGURES, 4 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 150-6 (FEBRUARY 1968)

A SYSTEM FOR REAL TIME PULSE HEIGHT ANALYSIS OF GAMMA RAY SPECTRA RECORDED ON MAGNETIC TAPE IN AN AIRCRAFT IS DESCRIBED. A PULSE HEIGHT TO WIDTH CONVERTER IS USED TO RECORD PULSES, WHOSE ORIGINAL AMPLITUDES ARE PROPORTIONAL TO THE GAMMA RAY ENERGIES, ON MAGNETIC TAPE. THE STORED PULSE WIDTHS ARE SUBSEQUENTLY FED INTO A DIGITAL EQUIPMENT CORPORATION PDP-9 COMPUTER VIA AN INTERFACE WHICH DIGITIZES THE WIDTHS USING HIGH SPEED INTEGRATED CIRCUIT COUNTING LOGIC.

GAMMA + INSTRUMENTATION, METEOROLOGICAL + MONITOR, RADIATION, GROUND SURFACE + SPECTROMETRY, GAMMA

15-25850 ALSO IN CATEGORIES 9 AND 14
PHELPS PL
GAMMA-RAY SPECTROMETERS FOR THE ASSAY OF COMPLEX MIXTURES OF LOW CONCENTRATION OF RADIONUCLIDES IN ENVIRONMENTAL AND BIOLOGICAL MATERIALS
LAWRENCE RADIATION LABORATORY, LIVERMORE, CALIF.
7 PAGES, 15 FIGURES, 7 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 376-82 (FEBRUARY 1968)

A SERIES OF GAMMA-RAY SPECTROMETERS WERE DEVELOPED TO ASSAY RADIONUCLIDES IN BIOLOGICAL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-25850 *CONTINUED*
MATERIALS. THESE SPECTROMETERS INCORPORATED FEATURES THAT FACILITATE ACHIEVING THESE REQUIREMENTS. SAMPLES UP TO 8.5 CM IN DIAMETER AND 2.5 CM THICK ARE NOW ROUTINELY ANALYZED.

*SPECTROMETRY, GAMMA + DOSIMETRY, GENERAL + INSTRUMENTATION, COMPONENT + MONITOR, RADIATION, SAMPLING + SOLID STATE DEVICE

15-25889 ALSO IN CATEGORY 16
DATA ON ENVIRONMENTAL RADIOACTIVITY COLLECTED IN ITALY (JULY-DECEMBER 1966)
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME ITALY
PROT.-SAN.-12-67 +. 196 PAGES, FIGURES, TABLES, APRIL, 1967

DATA ON THE GROSS BETA RADIOACTIVITY IN THE AIR AT GROUND LEVEL AND IN PRECIPITATION AT SELECTED SITES IN ITALY. DATA ON THE STRONTIUM AND CESIUM CONTENT IN SAMPLES OF MILK.

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

*ITALY + *MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, MILK + CESIUM + FALLOUT + RAINOUT + STRONTIUM + WASHOUT

15-25890 ALSO IN CATEGORY 16
DATA ON ENVIRONMENTAL RADIOACTIVITY COLLECTED IN ITALY (JANUARY-JUNE, 1966)
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME, ITALY
PROT-SAN-01-67 +. 197 PAGES, FIGURES, TABLES, MARCH, 1967

DATA ON THE GROSS BETA RADIOACTIVITY IN THE AIR AT GROUND LEVEL AND IN PRECIPITATION AT SELECTED SITES IN ITALY. DATA ON THE STRONTIUM AND CESIUM CONTENT IN SAMPLES OF MILK.

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

*ITALY + *MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, MILK + CESIUM + FALLOUT + RAINOUT + STRONTIUM + WASHOUT

15-25898 ALSO IN CATEGORIES 17 AND 1
US NUCLEAR CORP DENIED LICENSE RENEWAL FOR PU-BE SOURCE FABRICATION
UNITED STATES ATOMIC ENERGY COMMISSION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(24), PAGE 4-7,(JUNE 12, 1968)

(JUNE 1 NOTICE OF DENIAL.) REQUIRES DISPOSAL OF PLUTONIUM AND DECONTAMINATION/DISMANTLING OF FACILITY LICENSED ORIGINALLY APRIL 6, 1967. CITED IN APPENDIX A ARE 3 ITEMS OF NONCOMPLIANCE REVEALED IN A MAY 24, 1967, INSPECTION, 3 ON JUNE 5, 2 ON JULY 11, 3 ON DEC. 14-15, AND 6 DURING THE JAN.-MAR. 1968 INVESTIGATION OF A JAN. 18, 1968 INCIDENT (CUTTING INTO A 35-CURIE PU-BE SOURCE IN AN OPEN MACHINE SHOP UNAUTHORIZED FOR SNM OPERATIONS). (THE 15 ITEMS APPARENTLY ESTABLISH A REPETITIVE PATTERN OF INADEQUATE AIRBORNE-PU SURVEYS, PLUS OTHER INADEQUATE RECORD KEEPING AND INADEQUATE HEALTH PHYSICS CAPABILITY).

*HEALTH PHYSICS TRAINING + *INSPECTION AND COMPLIANCE + *OPERATING LICENSE PROCESS + *SOURCE, NEUTRON + *SPECIAL NUCLEAR MATERIAL + APPLICATION FOR AEC LICENSE + FAILURE, ADMINISTRATIVE CONTROL + LICENSING STATUS OF NUCLEAR PROJECTS + PLUTONIUM + RADIATION SAFETY AND CONTROL + RADIOISOTOPE

15-25937 ALSO IN CATEGORY 17
SURVEY OF ENVIRONMENTAL RADIOACTIVITY IN THE VICINITY OF INDIAN POINT STATION - AUG.-JAN. 1968
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
7 PAGES, 7 TABLES, ATTACHED TO LETTER TO P.A. MORRIS FROM L.E. MCCORMACK, MAY 24, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

THE ENVIRONMENTAL SURVEY PROGRAM WAS CONTINUED THROUGH THE PERIOD (8/1/67-1/31/68) TO ENSURE THAT ACTUAL STATION RELEASES DO NOT EXCEED EITHER THE LIMITS PRESCRIBED IN THE STATION AEC LICENSE DPR-5 OR THOSE PRESCRIBED IN 10CFR20. THE RESULTS OF THE MEASUREMENTS INDICATE ONLY MINOR VARIATIONS IN THE BACKGROUND RADIOACTIVITY ATTRIBUTED PREVIOUSLY TO CHANGES IN FALLOUT LEVELS DUE TO NUCLEAR WEAPONS DEBRIS.

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

*FALLOUT + *INDIAN POINT 1 (PWR) + *SURVEY, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, ENVIRONMENTAL + NUCLEAR EXPLOSION DEBRIS + POPULATION EXPOSURE + REACTOR, PWR

15-26062 ALSO IN CATEGORY 18
SUPPLEMENTARY INFORMATION ON LIQUID WASTE MONITORING
BOSTON EDISON COMPANY
1 PAGE, PAGE 1-7 OF PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

GROSS-GAMMA MONITOR ON RADWASTE DISCHARGE LINE INDICATES, RECORDS, AND ALARMS ON LOCAL CONTROL PANEL THE RADIOACTIVITY CONCENTRATION IN DISCHARGE LINE, AND EFFLUENT SAMPLING STATION IN

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-26062 *CONTINUED*
CIRCULATING-WATER DISCHARGE LINE CONTINUOUSLY ACCUMULATES SAMPLE FOR PERIODIC ANALYSIS. LIQUID-WASTE SYSTEM IS THEREFORE MONITORED BEFORE, DURING, AND AFTER DISCHARGE BY SEPARATE AND DIFFERENT METHODS.

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

*MONITOR, RADIATION, LIQUID + *WASTE DISPOSAL, LIQUID + GAMMA + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + SAMPLING

15-26084 ALSO IN CATEGORY 17
FREDERICKSON RL
EXPOSURE TO EXCESSIVE AIRBORNE I-131
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16, (JUNE 17, 1968)

(LETTER, MAY 3) DURING THE WEEK OF APRIL 1-7, THE EXPOSURE WAS TO 81 MPC-HR OF I-131, NEARLY ALL DURING A 1/2-HR THYROXINE PREPARATION. THERE WAS NO INHALATION BECAUSE WORKER WORE A FACE MASK. IN FACT, HIS THYROID BURDEN DROPPED FROM 26% TO 15% OF PERMISSIBLE. UNLESS WE CAN SOLVE THIS PROBLEM SOON, WE WILL REQUEST AN EXEMPTION FROM 10 CFR 20.103(C)(1), FOR THIS ONE OPERATION. WE FIND THAT THE ACTIVITY BECOMES AIRBORNE WHEN THE PREPARATION IS REMOVED FROM THE FUME HOOD FOR ASSAY. WE WILL TRY A CONTAINMENT BAG FOR THE VIAL. PROGRESS IS SLOW BECAUSE OF THE SPORADIC NATURE OF THE PROBLEM.

*AIRBORNE RELEASE + *PERSONNEL PROTECTIVE DEVICE + *RADIOISOTOPE + FISSION PRODUCT, IODINE + INHALATION

15-26085 ALSO IN CATEGORIES 17 AND 13
NONCOMPLIANCE CITATION OF INTERNATIONAL CHEMICAL AND NUCLEAR CORP.
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., NORTH LAKE ST., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16 AND 17, (JUNE 17, 1968)

(LETTER, APRIL 10) A JAN. 1968 INSPECTION OF THE PITTSBURGH FACILITY GAVE 5 ITEMS OF NONCOMPLIANCE - (1) LOSS OF 30 MILLICURIES OF SN-113 WAS NOT REPORTED TO RAD-PROTECTION OFFICER, (2) STACK SURVEYS FROM SEPT. 67 WERE INADEQUATE TO DETERMINE I-125 RELEASES FROM LAB 4A, CHARCOAL FILTERS BEING STORED UNANALYZED, (3) SURVEYS WERE INADEQUATE TO DETERMINE LAB AIRBORNE ACTIVITY, (4,5) RECORDS OF CONTAMINATION SURVEYS AND BY-PRODUCT DISPOSAL WERE INADEQUATE. CHEMICAL HOODS ALSO HAVE INADEQUATE FACE VELOCITY. THE STACK PROBE IS PERPENDICULAR TO AIR FLOW, AND RELATIVE VELOCITIES NOT ACCOUNTED FOR. COMPLIANCE LETTER OF MAR. 10, 1967, TO THE THEN NS AND E CO. INDICATED INADEQUATE PERSONNEL SAFETY TRAINING AND INADEQUATE MANAGEMENT CONTROL. PRESENT INSPECTION REVEALS THAT COMPANY RADIATION-SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY. WE DO NOT BELIEVE YOUR HP STAFF IS ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION SAFETY PROGRAM.

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *RADIOISOTOPE + GLOVE BOX + HEALTH PHYSICS TRAINING + MONITOR, RADIATION, STACK + RADIATION SAFETY AND CONTROL + STAFFING, TRAINING, QUALIFICATION + SURVEILLANCE PROGRAM + VENTILATION SYSTEM

15-26164 ALSO IN CATEGORY 17
HNPF ENVIRONMENTAL MONITORING PROGRAM
CONSUMERS PUBLIC POWER DISTRICT
12 PAGES, 10 TABLES, TWENTH-FOURTH QUARTERLY REPORT, APRIL, MAY, JUNE 1967, DOCKET NO. 115-3, TYPE--PWR, MFG--B+W, AE--CON ED

PRESENTS DATA FROM ENVIRONMENTAL SAMPLES ACCUMULATED DURING APRIL, MAY, AND JUNE 1967. BRIEF DISCUSSIONS ARE GIVEN ON SAMPLING TECHNIQUES, ANALYTICAL CRITERIA, AND COUNTING CRITERIA.

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

*ANALYTICAL TECHNIQUE, GENERAL + *HALLAM (LMR) + *MONITOR, RADIATION, ENVIRONMENTAL + *SAMPLING + AIR + COUNTER + EFFLUENT + GROSS ALPHA + GROSS BETA + REACTOR, LMCR + SEDIMENT + WATER, GENERAL

15-26174 ALSO IN CATEGORY 14
RADIOIODINE FALLOUT OVER THE MIDWEST IN MAY
3 PAGES, 1 FIGURE, 1 TABLE, 13 REFERENCES, SCIENCE, 160(3023), PAGE 64 66, (1966)

HIGH CONCENTRATIONS OF RADIOIODINE IN MILK, FOUND PREFERENTIALLY OVER THE MIDWESTERN UNITED STATES AFTER ATMOSPHERIC NUCLEAR TESTS IN MAY 1962, 1965, AND 1966, CAN BEST BE EXPLAINED BY HIGH-REACHING INTENSE THUNDERSTORMS THAT SCAVENGE PASSING RADIOACTIVITY FROM THE UPPER TROPOSPHERE AND LOWER STRATOSPHERE.

*BIOLOGICAL CONCENTRATION, MILK + *FALLOUT + *IODINE + *RAINOUT + METEOROLOGY + NUCLEAR DETONATION + STRATOSPHERE + TROPOSPHERE + UNITED STATES

15-26177 ALSO IN CATEGORY 14

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-26177 *CONTINUED*
COWSER KE
CONSEQUENCES OF ACTIVITY RELEASE - WASTE MANAGEMENT AT NUCLEAR POWER STATIONS
OAK RIDGE NATIONAL LAB., TENN.
10 PAGES, 2 FIGURES, 1 TABLE, 20 REFERENCES, NUCLEAR SAFETY, 9(3), PAGE 239-248, (JUNE 1968)

THE MANAGEMENT OF WASTES PRODUCED AT NUCLEAR POWER PLANTS MAY BECOME AN INCREASINGLY SIGNIFICANT PROBLEM IN AN ECONOMY THAT IS EXPECTED TO GROW TO 50 TIMES ITS PRESENT SIZE WITHIN THE NEXT 13 YEARS. AS A PRELIMINARY STEP IN ASSESSING FUTURE IMPLICATIONS, REVIEWS WERE MADE OF THE OPERATING EXPERIENCE IN WASTE MANAGEMENT AT ARBITRARILY SELECTED NUCLEAR POWER STATIONS. ALL HAVE OPERATED WELL WITHIN THE LIMITS AUTHORIZED FOR RELEASE OF RADIOACTIVE WASTES TO THE ENVIRONMENT. THE CONCENTRATION OF TRITIUM IN THE RECENT ANALYSES GIVE EVIDENCE THAT 5 TO 20 CURIES HAS BEEN RELEASED ANNUALLY AT EACH OF THE BOILING-WATER-REACTOR STATIONS, AND ABOUT 500 AND 1300CURIES HAVE BEEN DISCHARGED ANNUALLY AT INDIAN POINT AND YANKEE, RESPECTIVELY. IN ALL CASES, TRITIUM HAS BEEN RELEASED AT MUCH LESS THAN 1% OF ITS LIMIT. IT IS CONCLUDED THAT WASTE-MANAGEMENT PRACTICES AT LIGHT-WATER POWER-REACTOR STATIONS HAVE BEEN QUITE ADEQUATE.

*RADIATION SAFETY AND CONTROL + *TRITIUM + *WASTE DISPOSAL, SOLID + *WASTE MANAGEMENT + ENVIRONMENTAL CONDITION + RADIOACTIVITY RELEASE + REACTOR POWER

15-26180
CHRISTENSEN P
MANGANESE-ACTIVATED LITHIUM BORATE AS A THERMOLUMINESCENT DOSIMETRY MATERIAL
DANISH ATOMIC ENERGY COMMISSION, RISOE RESEARCH ESTABLISHMENT
RISO-161 +. 29 PAGES, 13 FIGURES, 6 TABLES, 17 REFERENCES, OCTOBER 1967

THE GENERAL THERMOLUMINESCENCE PROPERTIES OF LI2B4O7/MN, PREPARED BY FUSION OF LI2B4O7 AND MNCL2/4H2O, WERE INVESTIGATED. IT IS CONCLUDED THAT LI2B4O7/MN, A RATHER INEXPENSIVE, PROMISING LUMINOPHOR WITH ATTRACTIVE DOSIMETRY PROPERTIES SUCH AS ENERGY-INDEPENDENT RESPONSE, INDIFFERENCE TO LARGE PRE-IRRADIATION DOSES AS WELL AS PREVIOUS ANNEALING, AND ONLY SLIGHT FADING, MIGHT BE A FAVORABLE ALTERNATIVE TO LIF AS A DOSIMETRY MATERIAL.

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

*COBALT + *DOSIMETRY, THERMOLUMINESCENCE + *MANGANESE + DENMARK + MONITOR, RADIATION, PERSONNEL + PERSONNEL PROTECTIVE DEVICE + RADIATION SAFETY AND CONTROL

15-26181
SHLEIEN B + WALL MA + LUTZ D
ESTIMATION OF RADIATION DOSES TO THE RESPIRATORY TRACT FROM INHALATION OF AIRBORNE RADIOACTIVITY
NORTHEASTERN RADIOLOGICAL HEALTH LABORATORY, U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WINCHESTER, MASS
6 PAGES, 6 TABLES, 14 REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 2(6), PAGE 438-443, (JUNE 1968)

A GRADED FILTRATION SAMPLER DEVELOPED TO ESTIMATE THE RESPIRATORY DEPOSITION OF AIRBORNE FALLOUT PROVIDES INFORMATION WHICH WHEN USED WITH A SUITABLE LUNG MODEL PERMITS ESTIMATION OF THE RADIATION DOSE TO THE NASOPHARYNGEAL, TRACHEOBRONCHIAL, AND PULMONARY REGIONS OF THE ADULT RESPIRATORY TRACT. DOSES TO THE RESPIRATORY TRACT FROM THE LEVELS OF AIRBORNE FRESH FISSION PRODUCTS ENCOUNTERED IN THIS STUDY ARE LOW WHEN COMPARED WITH NONOCCUPATIONAL RADIATION DOSES DUE TO INHALED RADON AND ITS SHORT-LIVED DAUGHTERS. THIS APPROACH TO ESTIMATION OF RESPIRATORY DOSES IS APPLICABLE TO MONITORING OF NUCLEAR FACILITIES FOR AIRBORNE PARTICULATE HAZARDS EVALUATION.

*AIRBORNE RELEASE + *DOSE MEASUREMENT, EXTERNAL + *DOSE MEASUREMENT, INTERNAL + *MONITOR, RADIATION, ENVIRONMENTAL + FALLOUT + FILTER + INHALATION + RADIATION SAFETY AND CONTROL + SAMPLING

15-26203 ALSO IN CATEGORY 17
HALLAM ENVIRONMENTAL SURVEY PROGRAM-APRIL 67 THROUGH MARCH 68
CONSUMERS PUBLIC POWER DISTRICT, HALLAM, NEBRASKA
12 PAGES, LETTER TO P.A. MORRIS FROM R.E. BUNTAIN, JUNE 3, 1968, DOCKET NO. 115-3, TYPE--LMR, MFG--A.I., AE--BECHTEL

A SET OF NUMBERS (GROSS ALPHA AND GROSS BETA) FOR AIR-SAMPLE DATA AT PLANT SITE AND AT CITY OF HALLAM, AND FROM PLANT RAW-WATER SUPPLY AND RETENTION PONDS AND SOIL.

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

*GROSS BETA + *GROSS GAMMA + *MONITOR, RADIATION, ENVIRONMENTAL + *SAMPLING + AIR + EFFLUENT + HALLAM (LMR) + REACTOR, LMCR + SEDIMENT + SOIL + WATER, GENERAL

15-26270 ALSO IN CATEGORY 1
A REPORT ON IONIZING RADIATION RECORD KEEPING
WOODWARD AND FONDILLER, NEW YORK, N.Y.
123 PAGES, 3 FIGURES, 38 REFERENCES, FROM STUDIES IN WORKMENS COMPENSATION AND RADIATION INJURY, JULY, 1966

UP TO NOW THE MAIN PURPOSE OF STATUTORY PROVISIONS GOVERNING RECORDS HAS BEEN TO ENSURE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-26270 *CONTINUED*
COMPLIANCE WITH SAFETY STANDARDS. THIS STUDY DISCLOSES A SERIOUS LACK OF ADHERANCE TO UNIFORMLY SATISFACTORY STANDARDS REGARDING THE ADEQUACY OF RECORDS FOR THE COMPENSATION OF DISABLED WORKERS. THIS REFLECTS EQUALLY RESPECTABLE OPINIONS ABOUT EVERY ASPECT OF RECORD-KEEPING EXCEPT ACKNOWLEDGMENT OF NEED. THE REPORT SUGGESTS ESTABLISHMENT OF A PANEL OF EXPERTS TO EVALUATE DOSE-EFFECT RELATIONS ON A CONTINUING BASIS AND TO RECOMMEND CAUSES OF EXPOSURE TO BE RECORDED AND REPORTED FOR REFERENCE IN CLAIMS ADJUDICATION AND EXPERIENCE ANALYSIS.

AVAILABILITY - U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C., $0.40

*RADIATION EXPOSURE, RECORD KEEPING + DOSIMETRY, GENERAL + MONITOR, RADIATION, PERSONNEL + RADIATION EFFECT + RADIATION SAFETY AND CONTROL

15-26271 ALSO IN CATEGORY 1
RADIATION PROTECTION STANDARDS FOR RADIOLUMINOUS TIMEPIECES. RECOMMENDATIONS DRAWN UP BY A JOINT GROUP OF EXPERTS OF THE EUROPEAN NUCLEAR ENERGY AGENCY AND THE INTERNATIONAL ATOMIC ENERGY AGENCY
INTERNATIONAL ATOMIC ENERGY AGENCY
STI/PUB/167 +. 37 PAGES, 9 TABLES, REFERENCES, 1967

THE ACTIVITY PRESENT IN A TIMEPIECE WITH A RADIOLUMINOUS DIAL MUST BE AS LOW AS PRACTICABLE AND, IN ANY EVENT, LOWER THAN THE AMOUNT OF RADIONUCLIDE WHICH WOULD CAUSE THE CRITICAL ORGAN TO RECEIVE THE MAXIMUM PERMISSIBLE DOSE IN CASE OF ACCIDENTAL CONTAMINATION IN THE MOST UNFAVOURABLE CONDITIONS. UNDER NORMAL CONDITIONS OF USE, THE DOSE RESULTING FROM THE PRESENCE OF RADIONUCLIDES IN PIECES SHOULD ONLY CONSTITUTE A MINOR FRACTION OF THE MAXIMUM PERMISSIBLE DOSE FOR EXPOSURE OF INDIVIDUAL MEMBERS OF THE POPULATION. THIS REDUCED THE RADIOISOTOPES ELIGIBLE FOR USE IN THE MANUFACTURE OF LUMINOUS TIMEPIECES - BOTH FROM THE HEALTH AND FROM THE CURRENT TECHNICAL STANDPOINT - TO A VERY SMALL NUMBER (TRITIUM, PROMETHIUM-147 AND RADIUM-226).

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

*CODES AND STANDARDS + *DOSIMETRY, RADIOPHOTOLUMINESCENCE + *IAEA + *RADIOISOTOPE + *REGULATION, IAEA

15-26395 ALSO IN CATEGORY 17
SOURCE DAMAGED - STARTS LEAKING
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA
1 PAGE, LETTER TO AEC DIVISION OF MATERIALS LICENSING FROM J. W. STAIGER, MARCH 22, 1967

ON MARCH 8, 1967, A 4-CURIE IRIDIUM-192 SOURCE WAS DAMAGED AND STARTED LEAKING. THE SOURCE WAS ATTACHED TO A ROD USED TO PUSH IT THROUGH TWO CYLINDRICAL LEAD VALVES INTO A VAN DE GRAAFF ACCELERATOR TANK. IN RETRACTING THE SOURCE INTO ITS LEAD SHIELD, IT WAS WITHDRAWN ONLY PARTIALLY, AND, IN CLOSING A VALVE, THE SOURCE WAS CLIPPED OFF, ALLOWING POWDERED IRIDIUM TO LEAK INTO THE SPACE BETWEEN SHIELD AND STEEL CASING. UNIT WRAPPED IN POLYETHYLENE BAGS FOR DISPOSAL.

*CONTAMINATION + *DAMAGE + *FAILURE, OPERATOR ERROR + *SOURCE, RADIATION + RADIOGRAPHY

15-26445 ALSO IN CATEGORIES 17 AND 3
STATE OF MASSACHUSETTS INQUIRY ON LEAKING SHIPPING CONTAINER IN BOSTON
DIVISION OF COMPLIANCE + STATE OF MASSACHUSETTS
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 16 AND 17 (JUNE 24, 1968)

(LETTER FROM MASS. GOVERNOR, MARCH 68) - COOPERATIVE EFFORTS OF FEDERAL, STATE, AND LOCAL OFFICIALS AVERTED ANY SERIOUS DANGER IN GREATER BOSTON AREA FROM LEAKING SHIPPING CONTAINER. REQUEST AEC REVIEW SHIPPING-CONTAINER DESIGN AND INSTRUCTIONS FOR HANDLING IN TRANSIT. (APRIL 16 REPLY FROM G.T. SEABORG) - ENCLOSES COMPLIANCE INVESTIGATION REPORT SUMMARY. DEPT. OF TRANSPORTATION SUSPENDED THE CASK PERMIT. AEC AND FEDERAL AGENCIES HAVE DEVELOPED IMPROVED STANDARDS AND REQUIREMENTS (10 CFR 71, AUG. 66). IN 20 YEARS, MANY HUNDRED THOUSAND SHIPMENTS HAVE BEEN MADE WITH AN OUTSTANDING RECORD OF SAFETY.

*ACCIDENT, TRANSPORTATION + *CASK OPERATING EXPERIENCE + *RADIOISOTOPE + INCIDENT, NONREACTOR + INSPECTION AND COMPLIANCE + RADIOLOGICAL ASSISTANCE + REGULATION, AEC + SHIPPING CONTAINER

15-26446 ALSO IN CATEGORIES 17 AND 3
SUMMARY OF INVESTIGATION BY DIVISION OF COMPLIANCE OF AN INCIDENT INVOLVING THE SPREAD OF CONTAMINATION IN THE BOSTON MASS. AREA
DIVISION OF COMPLIANCE, AEC
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 17 AND 18 (JUNE 24, 1968)

16 QUARTZ AMPOULES (CONTAINING 4 CURIES OF I-131, CS-134, RB-86, AND S-35) WERE SHIPPED IN A CONTAINER FROM GETR ON FEBRUARY 31, 1968, AND DELIVERED TO NENC IN BOSTON FEBRUARY 26. CONTAMINATION AND WATER DRIPPING FROM CASK DRAIN PLUG WERE FOUND. APPARENTLY WATER IN THE CASK FROZE AND CRUSHED THE SAMPLES, AFTER BEING LOADED ON D AND J TRUCK FEBRUARY 24 AND PARKED OUTDOORS. ***A RESIDENCE WAS CONTAMINATED 20 MRADS/HR. A SHOE COMPANY WAS CONTAMINATED TO 50 MRADS/HR. FEATURE ARTICLE APPEARED IN MARCH 3 BOSTON HERALD TRAVELER.

*ACCIDENT ANALYSIS + *ACCIDENT, TRANSPORTATION + *FAILURE, OPERATOR ERROR + *INSPECTION AND COMPLIANCE +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-26446 *CONTINUED*
CASK OPERATING EXPERIENCE + GETR (TR) + INCIDENT, HUMAN ERROR + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + RADIOISOTOPE + RADIOLOGICAL ASSISTANCE + REACTOR, RESEARCH + SHIPPING CONTAINER + TRANSPORTATION AND HANDLING

15-26477 ALSO IN CATEGORY 4
COLEMAN JR + PEREZ LJ
RADIOLOGICAL SAFETY STUDIES OF SPACE NUCLEAR SYSTEMS. FOURTH QUARTERLY AND FINAL REPORT
NUS CORP., WASHINGTON, D. C.
SC-CR-67-2729 +. 270 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1967

DESCRIBES PROGRESS ON THE DEVELOPMENT AND APPLICATION OF DOSE MODELS FOR REENTRY OF RADIOISOTOPE FUELED SPACE POWER UNITS.

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

*AEROSPACE SAFETY + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + *RADIATION MODEL + DOSE + ENVIRONMENTAL CONDITION + INGESTION + INHALATION + REACTOR, SPACE + SNAP, GENERAL (SR)

15-26492
PEIRSON DH
RADIATION PHYSICS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-PR/HPM-12 +. 16 PAGES, FIGURES, 2 TABLES, FEBRUARY 1968, PAGES 9-24 OF HEALTH PHYSICS AND MEDICAL DIV. PROGRESS REPORT, JAN.-DEC. 1967

THIS WORK IS ORIENTED TOWARD THE DEVELOPMENT OF NEUTRON DOSIMETRY FOR RADIOLOGICAL PROTECTION, AND THE UNDERSTANDING OF THE UNDERLYING PHYSICS OF THE PHENOMENA OF DOSE DISTRIBUTION AND RELATIVE BIOLOGICAL EFFECTIVENESS, WHICH ARE THE BASES OF PROTECTION NORMS FOR NEUTRON RADIATION.

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

*DOSIMETRY, GENERAL + *FALLOUT + *SPECTROMETRY, GAMMA + COUNTER + DATA PROCESSING + DEPOSITION + MONITOR, RADIATION, BACKGROUND + MONITOR, RADIATION, ENVIRONMENTAL + SOLID STATE DEVICE + STRATOSPHERE + TROPOSPHERE + X-RAY

15-26493
LISTER BA
HUMAN BIOLOGY AND BIOMEDICAL RESEARCH
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-PR/HPM-12 +. 8 PAGES, PAGES 38-45, HEALTH PHYSICS AND MEDICAL DIV. PROGRESS REPORT, JAN.-DEC. 1967

REPORTS PROGRESS IN RESEARCH, AND DEALS WITH RETENTION AND METABOLISM OF INHALED METHYL IODIDE AND IODINE VAPORS. EFFORTS ARE BEING MADE TO OBTAIN BASIC INFORMATION ON THE DEPOSITION OF PARTICLES IN VARIOUS REGIONS OF THE HUMAN RESPIRATORY TRACT AND THEIR SUBSEQUENT CLEARANCE.

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

*AEROSOL, RADIOACTIVE + *DEPOSITION + *INHALATION + BIOLOGICAL CONCENTRATION, MAN + IODINE + IRON + PLUTONIUM + R AND D PROGRAM + TRITIUM

15-26494
JOHNSTON JE
BETA GAMMA DOOR-POST MONITOR
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AERE-PR/HPM-12 +. 1 PAGE, PAGE 47 OF HEALTH PHYSICS AND MEDICAL DIVISION PROGRESS REPORT, JANUARY - DECEMBER 1967, FEBRUARY 1968

THIS IS A DESIGN STUDY OF DOOR-POST TYPE MONITORING SYSTEMS FOR DETECTING CONTAMINATION ON PERSONNEL. THE FINAL VERSION CONSISTS OF AN ARRAY OF TWELVE COUNTERS. ELEVEN OF THESE ARE MOUNTED VERTICALLY AND ONE IS IN A FOOT PLINTH FOR CHECKING THE SOLES OF SHOES. THE USER STANDS ON THE PLINTH AND ROTATES SLOWLY, CLOSE TO THE DETECTOR ARRAY, FOR 10 SECONDS. THE APPROXIMATE LOCATION OF ANY CONTAMINATION ON THE BODY IS INDICATED.

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

*INSTRUMENTATION, RADIATION MONITORING + *MONITOR, RADIATION, PERSONNEL + *RADIATION SAFETY AND CONTROL + CONTAMINATION + COUNTER + DESIGN CRITERIA

15-26495

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-26495 *CONTINUED*
HOLMES A
THE DETERMINATION OF RADIONUCLIDES IN MATERIALS OF BIOLOGICAL ORIGIN
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
AERE-R-5474 +. 218 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF A SYMPOSIUM HELD AT A.E.R.E., HARWELL, 20TH AND 21ST APRIL 1967

IN THE UNITED KINGDOM, THE SURVEILLANCE OF FISSION PRODUCT LEVELS IN FOODSTUFFS AND IN THE HUMAN BODY CONTINUES HOWEVER, ALBEIT ON AN APPROPRIATELY REDUCED SCALE. IN ADDITION, MONITORING OF CONTAMINATION LEVELS IN THE ENVIRONS OF ESTABLISHMENTS OF THE UKAEA AND OF THE NUCLEAR POWER STATIONS OF THE CEGB AND SSEB IS CARRIED OUT. THE MINISTRY OF AGRICULTURE, FISHERIES AND FOOD MAINTAINS AN INDEPENDENT SURVEY OF RADIOACTIVITY IN THE MARINE ENVIRONMENT AND, WITH THE INTRODUCTION OF NUCLEAR POWERED SUBMARINES, THE ROYAL NAVY HAS INSTITUTED ITS OWN MONITORING PROGRAMME. THIS REPORT CONTAINS PREPRINTS OF THE PAPERS PRESENTED AT THIS SYMPOSIUM, TOGETHER WITH AN EDITED SUMMARY OF THE DISCUSSION ARISING FROM THE PAPERS.

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

*BIOLOGICAL CONCENTRATION, MAN + *MONITOR, RADIATION, ENVIRONMENTAL + *RADIATION SAFETY AND CONTROL + ADSORPTION + AMERICIUM + BETA EMITTER + CARBON + COUNTER + FILTER + GROSS ALPHA + NEPTUNIUM + PLUTONIUM + RADIOCHEMICAL ANALYSIS + URANIUM

15-26497 ALSO IN CATEGORIES 17 AND 1
DUNLOP WW
SATISFACTORY OPERATION OF SAN ONOFRE AND HUMBOLDT BAY
CALIFORNIA PUBLIC UTILITIES COMMISSION, SAN FRANCISCO, CALIF. + DIVISION OF COMPLIANCE, WASHINGTON, D. C.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(27), PAGE 17 AND 17, (JULY 1, 1968), DOCKET NO. 50-155 AND 50-206, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER, MAY 1, TO AEC COMPLIANCE, CALIFORNIA) - ARE SAN ONOFRE AND HUMBOLDT BAY COMPLYING WITH RADIATION SAFETY REQUIREMENTS. (REPLY, JUNE 20) - COMPLIANCE IS DETERMINED BY PERIODIC ON-SITE INSPECTION, WITH PARTICULAR ATTENTION TO (1) PERFORMANCE OF PLANT EQUIPMENT, (2) ABNORMAL EVENTS, (3) PLANT ORGANIZATION AND PROCEDURES, (4) PERSONNEL RADIATION EXPOSURES, (5) CONTAMINATION CONTROL, (6) WASTE RELEASE, AND (7) ENVIRONMENTAL MONITORING. ON THE BASIS OF INSPECTIONS TO DATE, WE FIND THESE TWO LICENSEES SATISFACTORILY OPERATING THEIR STATIONS WITHIN AEC REGULATIONS AND LICENSE CONDITIONS.

*INSPECTION AND COMPLIANCE + *STATE PROGRAM + HUMBOLT BAY (BWR) + INCIDENT, GENERAL + MONITORING PROGRAM, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL + REACTOR, BWR + REACTOR, PWR + SAN ONOFRE (PWR)

15-26574 ALSO IN CATEGORY 17
AEC PLANS TRAINING SEMINARS FOR NUCLEAR FACILITY PHYSICIANS
U.S. ATOMIC ENERGY COMMISSION
AEC PRESS RELEASE L-137, 2 PAGES, JUNE 20, 1968

SEMINARS (INTENDED FOR THOSE RESPONSIBLE FOR MEDICAL SUPPORT AT NUCLEAR FACILITIES OR AT LOCAL HOSPITALS WHICH HAVE AGREED TO PROVIDE CARE) WILL BE HELD JULY 8 THRU 10, 1968, IN RICHLAND, WASH., AND ON THE EAST COAST IN FALL OF 1968. SESSIONS INCLUDE DIAGNOSIS AND CARE OF RADIATION INJURY AND ILLNESS, CARE AND ADMISSION OF PERSONS CONTAMINATED INTERNALLY OR EXTERNALLY, AND CONTROLS TO MINIMIZE SPREAD OF CONTAMINATION. ***INQUIRE OF DR. W.T. DORAN, DIV. OF OPERATIONAL SAFETY, WASHINGTON, D. C., 20545.

AVAILABILITY - AEC, DIVISION OF PUBLIC INFORMATION

*RADIATION INJURY, TREATMENT OF + *STAFFING, TRAINING, QUALIFICATION + HEALTH PHYSICS TRAINING + RADIOLOGICAL ASSISTANCE + REACTOR, BWR + REACTOR, POWER + REACTOR, PWR

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-25316
GOUPIL J
METHOD OF TESTING RAINFALL TO DETERMINE ITS RADIOACTIVITY OF RAINFALL AND APPARATUS FOR PERFORMING THE METHOD
COMMISSARIAT A L ENERGIE ATOMIQUE
BRITISH PATENT 1,085, 183 +. 4 PAGES, 2 FIGURES, SEPTEMBER 1967

DESCRIBES AN APPARATUS WHICH MEASURES THE BETA AND GAMMA RADIOACTIVITIES IN RAIN FALLING AT RATES UP TO 40 LITERS/HR/SQ. METER.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTION BUILDING, LONDON, W.C., 2, ENGLAND 49 CENTS/COPY

*MEASUREMENT, REACTIVITY + *PRECIPITATION + AEROSOL, RADIOACTIVE + INSTRUMENTATION, METEOROLOGICAL + PATENT + UNITED KINGDOM

16-25318
AIR POLLUTION ABSTRACTS
WARREN SPRINGS LABORATORY
72 PAGES, FEBRUARY 1968, GREAT BRITAIN MINISTRY OF TECHNOLOGY

LIST OF AIR POLLUTION ABSTRACTS UNDER THE FOLLOWING HEADINGS

1. GENERAL,
2. EMISSIONS AND SOURCES,
3. IDENTIFICATION AND MEASUREMENTS,
4. DISTRIBUTION (SURVEYS, CHIMNEY HEIGHTS, METEOROLOGY),
5. EFFECTS ON HUMANS, ANIMALS, VEGETATION, ETC.,
6. ADMINISTRATION (PROGRAMMES, STANDARDS, LEGISLATION),
7. METHODS AND EQUIPMENT FOR ABATEMENT,
8. MISCELLANEOUS.

AVAILABILITY - GREAT BRITAIN MINISTRY OF TECHNOLOGY, WARREN SPRING LABORATORY, GUNNELS WOOD ROAD, STEVENAGE, HERTS.

*ATMOSPHERIC POLLUTION + ADMINISTRATIVE CONTROL + BIBLIOGRAPHY + METEOROLOGY + SURVEY, GENERAL + UNITED KINGDOM

16-25604
LE QUINIO R + HUGON J
RESULTS OF FULL SCALE ATMOSPHERIC DIFFUSION EXPERIMENTS
COMMISSARIAT A L ENERGIE ATOMIQUE, FRANCE
8 PAGES, 6 FIGURES, 4 TABLES, 4 REFERENCES, PAGES 141-148, FROM COLLOQUE INTERNATIONAL SUR LA POLLUTION RADIOACTIVE DES MILIEUX GAZEUX (RADIOACTIVE POLLUTION OF GASEOUS MEDIA). BOOK I. SACLAY, NOVEMBER 13-16, 1963

ATMOSPHERIC-DIFFUSION-MEASUREMENT STUDIES WERE MADE AT SIX FRENCH SITES IN 1962 AND 1963, USING THE SAME METHOD. FIRST RESULTS SHOW A BETTER DISPERSION THAN EXPECTED, WHICH SEEMS TO BE CAUSED IN PART BY THE TIME OF SAMPLING (FROM HALF TO ONE HOUR) AND IN PART BY THE UNEVENNESS OF THE SITES. A FEW DEPOSITION RATES AND WASHING COEFFICIENTS WERE MEASURED AND CONFIRMED SOME PREVIOUS RESULTS BUT CANCELLED THE NOTION OF POSSIBLE-MAXIMUM-DEPOSITION CALCULATION.

AVAILABILITY - PRESSES UNIVERSITAIRES DE FRANCE, 108, BOULEVARD SAINT-GERMAIN, PARIS, VI, FRANCE

*ATMOSPHERIC DIFFUSION EXPERIMENT + *FRANCE + CONCENTRATION, MAXIMUM + DEPOSITION + DISPERSION + WASHOUT

16-25613
GILL GC + OLSSON LE + SELA J + SUDA M
ACCURACY OF WIND MEASUREMENTS ON TOWERS OR STACKS
UNIVERSITY OF MICHIGAN, ANN ARBOR
10 PAGES, 14 FIGURES, 1 TABLE, REFERENCES, BULL. AM METEORL SOC 48(9), PAGES 665-74 (SEPTEMBER 1967)

TO DETERMINE THE PROBABLE ERRORS IN MEASUREMENTS OF WIND SPEED AND DIRECTION AROUND TOWERS AND STACKS, QUARTER-SCALE MODELS HAVE BEEN TESTED IN A LARGE WIND TUNNEL. DATA ON CHANGES IN WIND SPEED AND DIRECTION WERE OBTAINED BY USING SMOKE, VERY SMALL WIND VANES, AND A SCALE-MODEL PROPELLER ANEMOMETER. RECOMMENDATIONS FOR LOCATING WIND SENSORS IN THE WIND FIELD RELATIVE TO THE SUPPORTING STRUCTURE ARE GIVEN. GUIDELINES ARE SUGGESTED REGARDING PROBABLE ERRORS IN MEASUREMENTS AROUND DIFFERENT STRUCTURES.

*STACK + *TURBULENCE, MECHANICAL + *WIND TUNNEL EXPERIMENT + MEASUREMENT, GENERAL + WIND PROFILE

16-25663
STERN AC
AIR POLLUTION. VOLUME I

CATEGORY 16.
METEOROLOGICAL CONSIDERATIONS

16-25663 *CONTINUED*
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D.C.
674 PAGES, REFERENCES, ACADEMIC PRESS, NEW YORK - LONDON, 1968

VOLUME 1 OF 3 VOLUMES. VOLUME 1 COVERS THREE MAJOR AREAS - THE NATURE OF AIR POLLUTION, THE MECHANISM OF ITS DISPERSAL BY METEOROLOGICAL FACTORS AND FROM STACKS, AND ITS EFFECT UPON PLANTS, ANIMALS, HUMANS, MATERIALS, AND VISIBILITY.

AVAILABILITY - ACADEMIC PRESS INC., 111 FIFTH AVENUE, NEW YORK, NEW YORK 10003

ATMOSPHERIC CHEMISTRY + ATMOSPHERIC DIFFUSION + ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION + ATMOSPHERIC STABILITY + BIBLIOGRAPHY + PLUME BEHAVIOR, GENERAL

16-25664
AIR POLLUTION
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D. C.
186 PAGES, REFERENCES, 1968, FROM AIR POLLUTION, VOLUME I, PAGES 1-186, ACADEMIC PRESS

TOPICS COVERED ARE -
1. CLASSIFICATION AND EXTENT OF AIR POLLUTION PROBLEMS,
2. GASEOUS POLLUTANTS IN THE AIR
3. NONVIABLE PARTICLES IN THE AIR,
4. VIABLE PARTICLES IN THE AIR,
5. SOURCES OF RADIOACTIVE POLLUTION,
6. ATMOSPHERIC REACTIONS AND SCAVENGING PROCESSES.

*ATMOSPHERIC CHEMISTRY + *PARTICLE SIZE DISTRIBUTION + AEROSOL, BIOLOGICAL + ATMOSPHERIC POLLUTION + BIBLIOGRAPHY + CHEMICAL PROPERTY + SULFUR DIOXIDE + WASTE DISPOSAL, ATMOSPHERIC

16-25665
WANTA RC
METEOROLOGY AND AIR POLLUTION
39 PAGES, REFERENCES, 1968, PAGES 187-226 FROM AIR POLLUTION, VOLUME I, ACADEMIC PRESS

REVIEWS THE FOLLOWING TOPICS -
1. VERTICAL TEMPERATURE STRUCTURE,
2. WIND STRUCTURE,
3. TOPOGRAPHIC EFFECTS,
4. APPLICATION TO AIR POLLUTION PROBLEMS,
5. NONTURBULENT DISPERSAL,
6. MATHEMATICAL MODELS OF URBAN AIR POLLUTION.

*ATMOSPHERIC STABILITY + *MODEL TESTING + *TURBULENCE, STATISTICS + *WIND PROFILE + BIBLIOGRAPHY + FALLOUT + METEOROLOGY + PRECIPITATION

16-25666
STROM GH
ATMOSPHERIC DISPERSION OF STACK EFFLUENTS
48 PAGES, REFERENCES, 1968, PAGES 227-274 FROM AIR POLLUTION, VOLUME I, ACADEMIC PRESS

REVIEW OF ATMOSPHERIC DISPERSION OF STACK EFFLUENTS -
1. CONCENTRATION DISTRIBUTION AND GEOMETRY OF PLUMES,
2. EFFECTS OF BUILDINGS AND TOPOGRAPHY,
3. ANALYTICAL METHODS FOR PREDICTION OF PLUME CHARACTERISTICS,
4. EXPERIMENTAL METHODS FOR THE PREDICTION OF PLUME CHARACTERISTICS.

*CONCENTRATION, GROUND LEVEL + *SOURCE, ELEVATED + *SUTTON DIFFUSION FORMULA + ATMOSPHERIC DIFFUSION + BIBLIOGRAPHY + BUOYANT RISE + DEPOSITION + DOWNWASH + GAUSSIAN PLUME FORMULA + HEIGHT OF RISE + PLUME BEHAVIOR, GENERAL + STACK + WIND TUNNEL EXPERIMENT

16-25667
MCCORMICK RA
AIR POLLUTION CLIMATOLOGY
46 PAGES, REFERENCES, 1968, PAGES 275-320 FROM AIR POLLUTION, VOLUME I, ACADEMIC PRESS

REVIEW OF AIR-POLLUTION CLIMATOLOGY, WITH THE FOLLOWING SUBSECTIONS -
1. SOURCES OF DATA,
2. REPRESENTATIVENESS OF AEROMETRIC DATA,
3. WEATHER ELEMENTS, TEMPERATURE, VENTILATION-TRANSPORT AND DIFFUSION OF AIR POLLUTANTS, SOLAR RADIATION, VISIBILITY, MOISTURE,
4. AIR QUALITY - URBAN AIR POLLUTION, BACKGROUND AIR POLLUTION.

*ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION + BIBLIOGRAPHY + HUMIDITY + MIXING DEPTH +

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-25667 *CONTINUED*
WIND STATISTICS

16-25718 ALSO IN CATEGORIES 18 AND 11
MILLSTONE FINAL SAFETY ANALYSIS REPORT. VOLUME I
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
275 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

EXPECTED READY FOR FUEL LOADING IN MARCH 1969. REPORT FOR 2011 MWTH RATHER THAN PREVIOUS 1730, AND THE MAXIMUM OFF-SITE THYROID DOSE WAS CALCULATED AS FOLLOWS - ROD DROPOUT (0.2 MRAD), FUEL-ELEMENT-DROPPAGE (13 MRAD), STEAM-LINE RUPTURE (280 MRAD), AND LOSS OF COOLANT (0.43 MRAD). SECTION II - ON-SITE METEOROLOGY COMPILED AUGUST 65-67 INDICATES FUMIGATION INLAND AVERAGES 25%, BEING 51.4% JUNE-AUGUST. SECTION III - REACTOR CORE. SECTION IV - REACTOR COOLANT SYSTEM, INCLUDES AN ISOLATION CONDENSER INSTEAD OF RELIEF TO SUPPRESSION POOL. SECTION V - CONTAINMENT INERT ATMOSPHERE WILL NOT BE NEEDED BECAUSE EMERGENCY CORE-COOLING SYSTEM PREVENTS SIGNIFICANT METAL-WATER REACTION.

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

*CONTAINMENT ATMOSPHERE, INERT + *LAPSE RATE, STABLE + DOSE + MILLSTONE POINT (BWR) + OFF SITE + REACTOR, BWR + REPORT, SAR + WIND STATISTICS

16-25849 ALSO IN CATEGORIES 9 AND 15
BRISTOW Q + THOMPSON CJ
A COMPUTER P.H.A. SYSTEM FOR REAL TIME OFF LINE ANALYSIS OF SPECTRA FROM AN AERIAL SURVEY FOR RADIOACTIVE MATERIALS
ATOMIC ENERGY OF CANADA LIMITED, OTTAWA, CANADA
7 PAGES, 9 FIGURES, 4 REFERENCES, IEEE TRANS. ON NUCLEAR SCIENCE NS-15(1), PAGES 150-6 (FEBRUARY 1968)

A SYSTEM FOR REAL TIME PULSE HEIGHT ANALYSIS OF GAMMA RAY SPECTRA RECORDED ON MAGNETIC TAPE IN AN AIRCRAFT IS DESCRIBED. A PULSE HEIGHT TO WIDTH CONVERTER IS USED TO RECORD PULSES, WHOSE ORIGINAL AMPLITUDES ARE PROPORTIONAL TO THE GAMMA RAY ENERGIES, ON MAGNETIC TAPE. THE STORED PULSE WIDTHS ARE SUBSEQUENTLY FED INTO A DIGITAL EQUIPMENT CORPORATION PDP-9 COMPUTER VIA AN INTERFACE WHICH DIGITIZES THE WIDTHS USING HIGH SPEED INTEGRATED CIRCUIT COUNTING LOGIC.

GAMMA + INSTRUMENTATION, METEOROLOGICAL + MONITOR, RADIATION, GROUND SURFACE + SPECTROMETRY, GAMMA

16-25886 ALSO IN CATEGORY 18
BELL STATION PSAR VOLUME II
NEW YORK STATE ELECTRIC AND GAS CORPORATION
400 PAGES, FIGURES, TABLES, REFERENCES, DOCKET 50-319, MARCH 1968

SECTIONS INCLUDE THE FOLLOWING - (VII, I AND C) A 10-PAGE DISCUSSION OF PLANT STABILITY ANALYSIS SUPPLEMENTS THE USUAL DESCRIPTION. (VIII, STATION ELECTRIC POWER) A 115-KV LINE TO THE TWO-UNIT MILLIKEN STATION ADJACENT, TWO 345-KV LINES, 3 DIESELS AND 2 BATTERY BANKS. (IX, RADWASTE). (X, AUXILIARY SYSTEMS). (XI, POWER CONVERSION) A NEW FEATURES IS THE POWDEX HEATER-DRAIN DEMINERALIZER. DEEP INLET PIPE WILL ALLOW CONDENSER TEMPERATURE RISE OF 20 F YET KEEP TEMPERATURE AT SURFACE CONDITIONS. (XII, STRUCTURES AND SHIELDING). (XIII, OPERATIONS) (XIV, SAFETY AND ACCIDENT ANALYSIS) SINCE THE GROUND LEVEL RISES GOING INLAND, OFF-SITE DOSES ARE CALCULATED ASSUMING GROUNDLEVEL RELEASE DESPITE THE 300-METER STACK. MAXIMUM DOSE IS REFUELING ACCIDENT (19 MREM WHOLE BODY AND 320 MREM THYROID).

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

*REACTOR STABILITY + *THERMAL POLLUTION + *TOPOGRAPHY + ACCIDENT, REFUELING + BELL (BWR) + COOLANT PURIFICATION SYSTEM + DOSE + ELECTRIC POWER, VITAL + LAKE + OFF SITE + REACTOR, BWR + REPORT, PSAR

16-25889 ALSO IN CATEGORY 15
DATA ON ENVIRONMENTAL RADIOACTIVITY COLLECTED IN ITALY (JULY-DECEMBER 1966)
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME ITALY
PROT.-SAN.-12-67 +. 196 PAGES, FIGURES, TABLES, APRIL, 1967

DATA ON THE GROSS BETA RADIOACTIVITY IN THE AIR AT GROUND LEVEL AND IN PRECIPITATION AT SELECTED SITES IN ITALY. DATA ON THE STRONTIUM AND CESIUM CONTENT IN SAMPLES OF MILK.

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

*ITALY + *MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, MILK + CESIUM + FALLOUT + RAINOUT + STRONTIUM + WASHOUT

16-25890 ALSO IN CATEGORY 15
DATA ON ENVIRONMENTAL RADIOACTIVITY COLLECTED IN ITALY (JANUARY-JUNE, 1966)
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME, ITALY

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-25890 *CONTINUED*
PROT-SAN-01-67 +. 197 PAGES, FIGURES, TABLES, MARCH, 1967

DATA ON THE GROSS BETA RADIOACTIVITY IN THE AIR AT GROUND LEVEL AND IN PRECIPITATION AT SELECTED SITES IN ITALY. DATA ON THE STRONTIUM AND CESIUM CONTENT IN SAMPLES OF MILK.

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

*ITALY + *MONITORING PROGRAM, ENVIRONMENTAL + BIOLOGICAL CONCENTRATION, MILK + CESIUM + FALLOUT + RAINOUT + STRONTIUM + WASHOUT

16-25891
PROCEEDINGS. THE THIRD NATIONAL CONFERENCE ON AIR POLLUTION, WASHINGTON, D.C. DECEMBER 12-14, 1966
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE - PUBLIC HEALTH SERVICE, WASHINGTON D.C.
667 PAGES, FIGURES, TABLES, PUBLIC HEALTH SERVICE PUBLICATION NO. 1649, DECEMBER, 1966

TOPICS COVERED AT THE THIRD NATIONAL CONFERENCE ON AIR POLLUTION -
1. MOTOR VEHICLES,
2. HEAT AND POWER GENERATION,
3. INDUSTRIAL OPERATION,
4. SOLID WASTE DISPOSAL,
5. STATE AND INTERSTATE AIR POLLUTION CONTROL PROGRAMS,
6. LOCAL AND REGIONAL AIR POLLUTION CONTROL PROGRAMS,
7. ROLE OF THE FEDERAL GOVERNMENT IN AIR POLLUTION CONTROL,
8. ECONOMIC AND SOCIAL ASPECTS OF AIR POLLUTION CONTROL.

AVAILABILITY - U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON D.C., $4.25

*ATMOSPHERIC POLLUTION + *CODES AND STANDARDS + ECONOMICS + REGULATION, GENERAL + REVIEW + WASTE DISPOSAL, ATMOSPHERIC

16-25892
SMITH, ME
REDUCTION OF AMBIENT AIR CONCENTRATIONS OF POLLUTANTS BY DISPERSION FROM HIGH STACKS
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
9 PAGES, 5 FIGURES, 2 TABLES, 10 REFERENCES, FROM THE THIRD NATIONAL CONFERENCE ON AIR POLLUTION, PAGE 151-160, DECEMBER, 1966

REVIEW OF THE APPLICATION OF HIGH STACKS AS A MEANS OF REDUCING GROUND-LEVEL CONCENTRATIONS. SHOWS THE EFFECTS OF INVERSIONS AND TOPOGRAPHY ON PLUME BEHAVIOR.

AVAILABILITY - U.S. GOVERNMENT PRINT OFFICE, WASHINGTON, D.C.

*CONCENTRATION, GROUND LEVEL + *PLUME BEHAVIOR, GENERAL + *STACK + ATMOSPHERIC STABILITY + BUOYANT RISE + DOWNWASH

16-26128
LENSCHOW DH + JOHNSON WB
CONCURRENT AIRPLANE AND BALLOON MEASUREMENTS OF ATMOSPHERIC BOUNDARY-LAYER STRUCTURE OVER A FOREST
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, COLO. + ATMOSPHERIC TURBULENCE AND DIFFUSION LABORATORY, OAK RIDGE, TENN.
11 PAGES, 8 FIGURES, 1 TABLE, REFERENCES, JOURNAL OF APPLIED METEOROLOGY 7(1), PAGES 79-89 (FEBRUARY 1968)

AIRPLANE MEASUREMENTS IN THE PLANETARY BOUNDARY LAYER WERE OBTAINED IN CONJUNCTION WITH SIMULTANEOUS PILOT-BALLOON OBSERVATIONS OF MEAN WIND PROFILES UP TO A HEIGHT OF 2000 M AND SUPPORTING SURFACE-LAYER MEASUREMENTS. A STRONG DEPENDENCE OF HORIZONTAL AND VERTICAL VELOCITY VARIANCES UPON STABILITY IS FOUND, AND VELOCITY SPECTRA FOR STABLE AND UNSTABLE CONDITIONS ARE QUITE DIFFERENT. A CLEAR DISTINCTION BETWEEN THE EDDY SIZES RESPONSIBLE FOR MOMENTUM TRANSPORT IN NEAR-NEUTRAL AND UNSTABLE SITUATIONS IS SHOWN BY THE CO-SPECTRAL DENSITIES OF HORIZONTAL AND VERTICAL VELOCITIES. AN APPROXIMATE BALANCE OF THE EDDY-ENERGY BUDGET IS POSSIBLE WHEN ALLOWANCE IS MADE FOR THE BANDWIDTH RESTRICTIONS ON THE VERTICAL FLUX MEASUREMENTS.

*BOUNDARY LAYER + *METEOROLOGY + *TURBULENCE, STATISTICS + *WIND PROFILE + ATMOSPHERIC STABILITY + EXPERIMENT, GENERAL + WIND STATISTICS

16-26129
GRAHAM IR
AN ANALYSIS OF TURBULENCE STATISTICS AT FORT WAYNE, INDIANA
METEOROLOGICAL SERVICE OF CANADA, TORONTO
4 PAGES, 2 FIGURES, 3 TABLES, 1 REFERENCE, JOURNAL OF APPLIED METEOROLOGY 7(1), PAGES 90-93 (FEBRUARY 1968)

PUBLISHED MEASUREMENTS OF WIND SPEED, WIND DIRECTION, AND TURBULENCE LEVELS MADE AT FORT WAYNE, IND., PROVIDE A BASIS FOR AN ANALYSIS OF MESOSCALE VARIATIONS OVER THE FORT WAYNE AREA. AVERAGE VALUES OF DATA FROM VECTOR VANE AND CLIMET INSTRUMENTS AT SURFACE AND TOWER LOCATIONS ARE PRESENTED. PARTICULAR ATTENTION IS PAID TO A COMPARISON OF RURAL AND URBAN VALUES. ISOPLETHS OF STANDARD DEVIATION OF AZIMUTH ANGLE ARE DRAWN ON A MAP OF THE FORT

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-26129 *CONTINUED*
WAYNE AREA.

EXPERIMENT, GENERAL + INSTRUMENTATION, METEOROLOGICAL + TURBULENCE, MECHANICAL + TURBULENCE, STATISTICS + WIND STATISTICS

16-26130
SINGER IA
STEADINESS OF THE WIND
BROOKHAVEN NATIONAL LABORATORY
6 PAGES, 8 FIGURES, 2 TABLES, 2 REFERENCES, JOURNAL OF APPLIED METEOROLOGY 6(6), PAGES 1033-38 (DECEMBER 1967)

IN THIS PAPER, A TRIGONOMETRIC TRANSFORMATION IS USED TO LINEARIZE THE VARIATION OF CONSTANCY WITH THE MEAN ANGULAR RANGE OF DIRECTION. THIS FUNCTION, CALLED THE STEADINESS S, IS THEN COMPUTED FOR VARIOUS TIME INTERVALS, AND BY USE OF EXTREME-VALUE THEORY THE RECURRENCE INTERVAL OF VARIOUS MEAN WIND DIRECTION RANGES CAN BE PREDICTED. THIS PROVIDES AN IMPORTANT PROBABILITY STATEMENT FOR AIR POLLUTION EVALUATIONS. FIVE YEARS OF DATA AT BROOKHAVEN NATIONAL LABORATORY HAVE BEEN ANALYZED FOR THE FOLLOWING HOURLY INTERVALS - 2, 4, 12, 24, 48, 96, 192, 384, AND 720. THE RECURRENCE INTERVALS OF S WITH THEIR ASSOCIATED METEOROLOGICAL CONDITIONS ARE PRESENTED FOR THESE PERIODS AND COMPARED WITH SIMILAR STUDIES OF DATA FROM OTHER STATIONS.

*WIND STATISTICS + BOUNDARY LAYER + METEOROLOGY + SITE CLIMATOLOGY + STATISTICAL ANALYSIS

16-26131
HOLZWORTH GC
MIXING DEPTHS, WIND SPEEDS AND AIR POLLUTION POTENTIAL FOR SELECTED LOCATIONS IN THE UNITED STATES
AIR RESOURCES FIELD RESEARCH OFFICE, ESSA, CINCINNATI
5 PAGES, 7 FIGURES, 2 TABLES, 2 REFERENCES, JOURNAL OF APPLIED METEOROLOGY 6(6), PAGES 1039-44 (DECEMBER 1967)

DAILY ESTIMATES OF MORNING AND AFTERNOON MIXING DEPTHS AND AVERAGE WIND SPEEDS THROUGH THE MIXING LAYERS WERE CALCULATED AND SUMMARIZED FOR SEVEN LOCATIONS IN SEVERAL CLIMATIC REGIONS OF THE CONTIGUOUS UNITED STATES. MONTHLY AVERAGES OF MORNING AND AFTERNOON MIXING DEPTH AND WIND SPEED ARE PRESENTED GRAPHICALLY. THE FREQUENCY OF OCCURRENCE OF VARIOUS COMBINATIONS OF MIXING DEPTH AND WIND SPEED CLASSES WERE USED IN AN URBAN DIFFUSION MODEL TO CALCULATE THEORETICAL VALUES OF RELATIVE POLLUTANT CONCENTRATION FOR FOUR MAJOR CITIES. THESE RELATIVE POLLUTANT CONCENTRATIONS, WHICH ALSO DEPEND UPON CITY SIZE, ARE COMPARED AMONG THE CITIES ON THE BASES OF THEIR CURRENT SIZES AND A COMMON SIZE.

*METEOROLOGY + *MIXING DEPTH + ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION + ATMOSPHERIC STABILITY + SURVEY, GENERAL + WIND STATISTICS

16-26132
HINO M
MAXIMUM GROUND-LEVEL CONCENTRATION AND SAMPLING TIME
CENTRAL RESEARCH INSTITUTE OF ELECTRIC POWER INDUSTRY, TOKYO, JAPAN
17 PAGES, FIGURES, TABLES, REFERENCES, ATMOSPHERIC ENVIRONMENT 2(2), PAGES 149-165 (MARCH 1968)

FIELD EXPERIMENTS ON ATMOSPHERIC DIFFUSION OF SMOKE FROM HIGH STACKS OF THERMAL ELECTRIC POWER STATIONS WERE PERFORMED AT THREE DIFFERENT LOCATIONS. CONCENTRATION DISTRIBUTION OF EFFLUENT WAS DETERMINED BY SAMPLING COBALT SULPHATE PARTICLES AND FREON-12 GAS INJECTED INTO THE STACKS AS TRACER MATERIAL. EXPERIMENTAL DATA GIVE SUPPORT TO THE MINUS 1/2 POWER LAW. FINALLY, THE DATA ON DIFFUSION SUMMARIZED FROM OTHER PAPERS, TOGETHER WITH THE AUTHOR(S) DATA ARE REPLOTTED TO SHOW THAT THE ABOVE-MENTIONED RELATION FITS MOST OF THE DATA FOR SAMPLING TIME RANGING FROM 10 MIN UP TO 5 HR.

*ATMOSPHERIC DIFFUSION EXPERIMENT + *CONCENTRATION, PEAK TO AVERAGE + *SOURCE, ELEVATED + CONCENTRATION, MAXIMUM + JAPAN + PLUME BEHAVIOR, GENERAL

16-26133
YORDANOV D
ON SOME ASYMPTOTIC FORMULAE DESCRIBING DIFFUSION IN THE SURFACE LAYER OF THE ATMOSPHERE
GEOPHYSICAL INSTITUTE, BULGARIAN ACADEMY OF SCIENCES, SOFIA, BULGARIA
14 PAGES, 4 FIGURES, 2 TABLES, REFERENCES, ATMOSPHERIC ENVIRONMENT 2(2), PAGES 167-180 (MARCH 1968)

THE VERTICAL DIFFUSION IS DESCRIBED BY THE SEMI-EMPIRICAL EQUATION OF DIFFUSION USING AS DIFFUSION COEFFICIENT MODEL THE RESULTS FROM THE SIMILARITY THEORY OF MONIN AND OBUKHOV (1954). THE DIFFUSION COEFFICIENT IN THE DYNAMIC SUBLAYER PLUS THE TRANSITION ZONE IS APPROXIMATED BY AN ARBITRARY POWER FUNCTION OF THE HEIGHT. IN THE THERMAL SUBLAYER IT IS APPROXIMATED BY A CONSTANT IN THE CASE OF STABLE STRATIFICATION, AND MINUS Z TO THE 4/3 POWER IN THE CASE OF UNSTABLE STRATIFICATION. HORIZONTAL DIFFUSION IS DESCRIBED STATISTICALLY. THE INVESTIGATION OF THE ASYMPTOTIC REPRESENTATIONS OF THE SOLUTIONS OBTAINED GIVES AN OPPORTUNITY TO ESTIMATE THE RANGE OF APPLICABILITY OF THE FORMULAE OF BOZANQUET AND PEARSON (1936), ROBERTS (1923), LAIKHTMAN (1961), AND OTHERS.

ATMOSPHERIC STABILITY + BOUNDARY LAYER + DIFFUSION COEFFICIENT + K THEORY + MATHEMATICAL STUDY +

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-26133 *CONTINUED*
METEOROLOGY + THEORETICAL INVESTIGATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-12639 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 INCOMPATABILITY 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) + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + REACTOR, PWR + TEST, ON LINE + TEST, PROOF

17-24662
CASHWELL RJ
REPORT ON REFUELING THE UNIVERSITY OF WISCONSIN NUCLEAR REACTOR
UNIVERSITY OF WISCONSIN
NUCLEAR ENGINEERING MEMO NO. 4 +. 45 PAGES, 28 FIGURES, MARCH 1968

THE FLAT-PLATE CORE, OPERATED INTERMITTENTLY AT 250 KW FOR THREE YEARS, WAS UNLOADED, ALLOWED TO DECAY, AND SHIPPED FOR REPROCESSING. RADIATION LEVEL OF FUEL ELEMENT WAS 12 R/HR AT 1 METER IN AIR AFTER 90 DAYS DECAY. MODIFICATIONS WERE MADE TO PERMIT LOADING WITH TRIGA CORE TO OPERATE AT 1 MW. LOADING, TESTING AND RESULTS DESCRIBED IN DETAIL. DURING POWER CALIBRATION, IT WAS FOUND THAT COMPENSATED ION-CHAMBER READINGS DECREASED 25% WHEN ROD-BANK POSITION CHANGED FROM 12 TO 16 IN. CHAMBERS TO BE MOVED TO BELOW CORE CENTER LINE. MOST STRIKING IMPROVEMENT WAS THAT ROD-DROP MEASUREMENTS REQUIRED 4.5 MIN WITH TRIGA CORE, COMPARED WITH 31 MIN FOR MTR CORE, WITH SIMILAR ADVANTAGES FOR OTHER STARTUP-SHUTDOWN CYCLES.

AVAILABILITY - R. J. CASHWELL, NUCLEAR ENGINEERING DEPARTMENT, UNIVERSITY OF WISCONSIN

*MODIFICATION, SYSTEM OR EQUIPMENT + *REFUELING + DOSE MEASUREMENT, EXTERNAL + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR STARTUP TESTING + REACTOR, RESEARCH + REACTOR, TRAINING + TRIGA (RR)

17-25186
SKOVHOLT DJ
OMAHA VA HOSPITAL TRIGA AMENDMENT 5
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO K. W. BROWN, VETERANS ADMINISTRATION HOSPITAL, 12 PAGES, 2 TABLES, APRIL 19, 1968, DOCKET NO. 50-131

AMENDMENT 5 TO THE OPERATING LICENSE IS AN UPDATED LICENSE PLUS TECHNICAL SPECIFICATIONS FOR THIS 18-KW, STEADY-STATE-ONLY, TANK-TYPE TRIGA I. THE ENCLOSED ONE-PAGE SAFETY EVALUATION ONLY ASSERTS THAT THESE TECH. SPECS. DO NOT ELIMINATE ANY SIGNIFICANT LIMITATIONS IN EFFECT.

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

*TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + TRIGA (RR)

17-25187 ALSO IN CATEGORY 9
LACROSSE AMENDMENT 3 - STEAM LEAK DETECTION
DAIRYLAND POWER COOPERATIVE, LA CROSSE, WISCONSIN
5 PAGES, APRIL 16, 1968, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

MAJOR LEAKS WOULD BE INDICATED IN THE CONTROL ROOM BY MONITORS ON REACTOR WATER LEVEL, PRESSURE, FEEDWATER FLOW, AND RADIATION MONITORS. SMALL LEAKS WOULD BE FOUND BY VISUAL/AUDIBLE INDICATION OR BY DAILY AIR SAMPLES AND SMEARS. THESE LATTER DEPEND ON COOLANT ACTIVITY. A SIMPLE CALCULATION SHOWS THAT THE DAILY HIGH-VOLUME AIR SAMPLE CAN DETECT A LEAK OF 0.5 CC/MIN.

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

*INSTRUMENTATION, GENERAL + *LEAK + *MAIN COOLING SYSTEM + LACROSSE (BWR) + MATHEMATICAL TREATMENT + REACTOR, BWR

17-25199 ALSO IN CATEGORY 9
MORRIS PA
YANKEE CHANGE 83 - MINIATURE FISSION CHAMBERS IN FLUX WIRE THIMBLE
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25199 *CONTINUED*
LETTER TO YANKEE ATOMIC ELECTRIC CO., 1 PAGE, APRIL 23, 1968, DOCKET NO. 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

APPLICATION DATED APRIL 11, 1968, REQUESTED APPROVAL OF 4 STATIONARY SS-CLAD MINIATURE FISSION CHAMBERS AT MID-CORE IN FLUX-WIRE POSITIONS THAT ARE PRESENTLY INOPERABLE. SINCE THESE WILL NOT REPLACE EXISTING IN-CORE INSTRUMENTS, AND THE ADDITIONAL MATERIAL IS TOO SMALL TO AFFECT CORE CHARACTERISTICS, THE PROPOSED CHANGE DOES NOT PRESENT HAZARDS NOT DESCRIBED OR IMPLICIT IN THE HAZARDS-SUMMARY REPORT.

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

*INSTRUMENTATION, IN CORE + CHAMBER, FISSION + REACTOR, PWR + TECHNICAL SPECIFICATIONS + YANKEE (PWR)

17-25200 ALSO IN CATEGORIES 11 AND 15
MORRIS PA
INDIAN POINT 1 CHANGE 34 - ENTERING CONTAINMENT AT FULL POWER
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO W. C. BEATTIE, CONSOLIDATED EDISON CO., 4 PAGES, APRIL 23, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED.

ALLOWS ENTRY INTO CONTAINMENT (AS REQUIRED) AT POWER FOR INSPECTION, SPECIAL RADIATION SURVEYS, OR MINOR OPERATIONS. REQUIRES OBSERVANCE OF 10 CFR 20 DOSE LIMITS, NO MORE THAN 4 INSPECTORS AT A TIME AND ALWAYS IN GROUPS OF TWO OR MORE, AND COMMUNICATION WITH CONTROL ROOM. SPECIFIES THAT AFTER EACH EGRESS SOAP-BUBBLE TEST OF DOOR GASKETS WITH CONTAINMENT PRESSURE AT LEAST 5 IN. OF WATER HIGHER THAN ATMOSPHERIC. REFERS TO PREVIOUS SUCCESSFUL ENTRIES FOR SPECIAL PURPOSES.

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

CONTAINMENT, GENERAL + INDIAN POINT 1 (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-25201 ALSO IN CATEGORY 2
PETERSON RH
HUMBOLDT BAY EMERGENCY PLAN APPENDIX IV, TESTING FOLLOWING AN EARTHQUAKE
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIF.
LETTER TO P. A. MORRIS, DIVISION OF REACTOR LICENSING, 3 PAGES, APRIL 18, 1968, DOCKET NO- 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

PROVIDES THAT SITUATION SHALL BE EVALUATED BY SENIOR SUPERVISORY PERSONNEL AFTER A SEVERE EARTHQUAKE (ONE THAT CAUSES PLANT SHUTDOWN). PROVIDES A SET OF INSPECTIONS FOLLOWING A MODERATE EARTHQUAKE (THAT WHICH IS FELT), AND REQUIRES SHIFT FOREMAN TO NOTIFY SUPERVISION IF ABNORMALITIES ARE FOUND. ENGINEERED SAFETY FEATURES WILL BE CHECKED, AS WELL AS WATER LEVELS AND BUILDING LEAK RATE. IN ADDITION, AFTER A SEVERE EARTHQUAKE, ISOLATION VALVES, POISON-INJECTION VALVES, PROTECTION CHANNELS, AND EMERGENCY-POWER-TRANSFER SCHEME WILL BE TESTED.

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

*EARTHQUAKE + *EMERGENCY PROCEDURE + *TEST, INSTRUMENT RESPONSE + EXAMINATION + HUMBOLT BAY (BWR) + PROCEDURES AND MANUALS + REACTOR, BWR

17-25202 ALSO IN CATEGORY 12
PETERSON PH
ADDENDUM F TO HUMBOLDT BAY PROPOSED CHANGE 22 - CONTROL ROD THIMBLE SUPPORT STRUCTURE
PACIFIC GAS AND ELECTRIC CO., SAN FRANCISCO, CALIF.
LETTER TO DIVISION OF REACTOR LICENSING, 8 PAGES, 2 FIGURES, 1 TABLE, APRIL 18, 1968, DOCKET NO. 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

PLANS FOR THE CONTROL-ROD-THIMBLE SUPPORT STRUCTURE WERE IN ADDENDUM B, DATED OCT. 28, 1966. THIS WAS INSTALLED OCT. 1967 AFTER ON-SITE REVIEW COMMITTEE FINDING THAT IT DID NOT REQUIRE PRIOR AEC APPROVAL. ON FEB. 7, 1968, DRL ASKED SEVEN SPECIFIC QUESTIONS ON THE DESIGN ANALYSIS OF THE STRUCTURE REGARDING (1, 2) RATIONALE ON WHICH THE IMPACT FACTOR OF 2.03 WAS CHOSEN AND HOW THIS IS USED, (3) OTHER APPLIED LOADS, (4) DEFLECTION LIMITS, (5) FAILURE-MODE ANALYSIS, (6) TRANSMISSION OF BEARING LOADS TO THE REMAINING HOUSINGS, AND (7) PREOPERATIONAL TESTING.

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

*ACCIDENT, CONTROL ROD EJECTION + *ENGINEERED SAFETY FEATURE + AEC QUESTION + HUMBOLT BAY (BWR) + REACTOR, BWR + SAFETY REVIEW + STRUCTURAL ANALYSIS, DYNAMIC

17-25255 ALSO IN CATEGORY 5
GROSSMANN SR + GOTTSCHALK VB
SAFETY ANALYSIS REPORT FOR FRAN PROMPT BURST MACHINE
PHILLIPS PETROLEUM COMPANY
IDO-17231(ADDENDUM) +. 15 PAGES, 3 FIGURES, 2 TABLES, FEB. 1968

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25255 *CONTINUED*
CONTAINS OPERATING PROCEDURES AND RESULTS OF STUDY ON ERRORS NEEDED TO PRODUCE BURST EXCEEDING LIMIT OF 5.6 X 10(16TH). FLOWSHEET SHOWS WHERE ERRORS COULD OCCUR AND HOW DETECTED. CALCULATIONS AND RESULTS GIVEN SHOWING SENSITIVITY OF BURST YIELD AND RADIATION DOSES TO REACTIVITY INSERTIONS. FOR REACTIVITY INSERTION ABOVE PROMPT CRITICAL OF 0.80$, YIELD IS 7 X 10(18TH), CLOUD GAMMA DOSE IS 45 MILLIREMS, AND THYROID DOSE IS 200 MILLIREMS AT 10,000 METERS FROM REACTOR.

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

*ACCIDENT, REACTIVITY + *FAILURE MODE ANALYSIS + ACCIDENT ANALYSIS + DOSE + NRTS + OFF SITE + REACTIVITY EFFECT, ANOMALOUS + REACTOR, FAST BURST + REPORT, SAR

17-25258 ALSO IN CATEGORIES 5 AND 14
BINFORD FT + WEBSTER CC
THE LOW INTENSITY TESTING REACTOR--SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1924 +. 79 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1968

GAUSSIAN-PLUME MODEL USED TO ANALYZE CONSEQUENCES OF EXCURSION, POWER INCREASE BEYOND COOLING CAPACITY, LOSS OF COOLANT, FLOW BLOCKAGE, AND EXPERIMENT FAILURES. MAXIMUM HYPOTHETICAL ACCIDENT IS CATASTROPHIC FAILURE OF REACTOR VESSEL WITH RAPID LOSS OF COOLING WATER. SOME MELTING POSSIBLE, BUT EXPERIMENTAL DATA INDICATES CLAD TEMPERATURES BELOW MELTING FOR 3-MW OPERATION. IODINE DOSE FROM STACK RELEASE FOR INFINITE EXPOSURE IS ABOUT 3 REMS. DIRECT DOSE 1 M FROM BUILDING IS 160 REMS/MIN. NO SERIOUS OFF-SITE CONSEQUENCES. APPENDIXES CONTAIN OPERATING SAFETY LIMITS AND THERMAL ANALYSIS OF CORE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF COOLANT + AIRBORNE RELEASE + DOSE + GAUSSIAN PLUME FORMULA + LITR (TR) + REACTOR, TEST + REPORT, SAR + STACK + TECHNICAL SPECIFICATIONS + THERMAL ANALYSIS

17-25261 ALSO IN CATEGORY 18
DRAGOUMIS P + CRAWFORD WD + TRIBBLE JE
CONSIDERATIONS IN THE PURCHASE OF REPLACEMENT FUEL FOR WATER REACTORS
CONSOLIDATED EDISON CO. OF NEW YORK, INC., NEW YORK, N. Y. + AMERICAN ELECTRIC POWER SERVICE CORP., NEW YORK, N. Y. + YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
10 PAGES, APRIL 24, 1968, PAPER PRESENTED BEFORE THE 1968 ANNUAL MEETING OF THE AMERICAN POWER CONFERENCE, APRIL 24, 1968, SPONSORED BY ILLINOIS INSTITUTE OF TECHNOLOGY

DISADVANTAGES TO UTILITIES IN THE PURCHASE OF FULLY FABRICATED ELEMENTS AND RESELLING SPENT ELEMENTS BACK TO MANUFACTURER ARE - (1) COST MAY BE MORE THAN IF SOME PARTS WERE SUBMITTED TO OPEN-MARKET BIDDING, (2) BY-PRODUCTS OF SPENT FUEL LOST TO UTILITY, (3) VENDORS BENEFIT BY DISPOSAL OF PU, AND (4) UTILITIES AVOID DEVELOPMENT OF TECHNICAL COMPETENCE IN ALL PHASES OF FUEL CYCLE. WARRANTIES ARE DISCUSSED IN DETAIL. FUEL-COST WARRANTIES MORE BENEFICIAL TO SUPPLIER THAN TO OPERATOR, AND THEY ALSO PERMIT SUPPLIER A MEASURE OF CONTROL OVER REACTOR OPERATION. FUEL-PURCHASE METHODS ARE GIVEN WHICH PROVIDE MORE BENEFIT TO UTILITIES.

AVAILABILITY - W. DONHAM CRAWFORD, ADMINISTRATIVE VICE PRESIDENT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., NEW YORK, N. Y.

*ECONOMICS + *FABRICATION + *FUEL ELEMENT + ELECTRIC POWER, GENERAL + REACTOR, POWER + REFUELING

17-25263 ALSO IN CATEGORIES 5 AND 14
BINFORD FT
THE OAK RIDGE RESEARCH REACTOR -- SAFETY ANALYSIS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4169(VOL.II) +. 69 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968

ANALYSIS BASED ON 45 MW, ALTHOUGH PRESENT LEVEL IS 30. DESCRIBES MODIFICATIONS REQUIRED FOR POWER UPRATING. GAUSSIAN-PLUME FORMULA USED FOR STACK RELEASE. MAX. HYPOTHETICAL ACCIDENT ASSUMES 100% CORE MELTDOWN. FILTER DECONTAMINATION FACTOR OF ONLY 5.3 (NORMALLY 100) REQUIRED TO MAINTAIN PEAK DOSE FROM STACK RELEASE BELOW LIMIT. EXTERNAL DOSE ONE METER FROM BUILDING IS 300 REMS/MIN. NO CREDIBLE ACCIDENT WOULD RELEASE SIGNIFICANT ENERGY. THREE PAGES GIVE HISTORY OF OPERATING DIFFICULTIES. APPENDIXES CONTAIN CORE THERMAL ANALYSIS AND ANALOG ANALYSIS OF STARTUP ACCIDENT AND REACTOR RESPONSE FROM PRIMARY-PUMP FAILURE.

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

*ACCIDENT ANALYSIS + ACCIDENT, LOSS OF FLOW + AIRBORNE RELEASE + CORE MELTDOWN + DOSE + FAILURE, GENERAL + FILTER EFFICIENCY + GAUSSIAN PLUME FORMULA + OPERATING EXPERIENCE SUMMARY + ORR (RR) + POWER UPRATING + REACTOR, RESEARCH + REPORT, SAR + STACK + THERMAL ANALYSIS

17-25276 ALSO IN CATEGORY 15
A SUMMARY OF INDUSTRIAL ACCIDENTS IN USAEC FACILITIES 1965-1966

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25276 *CONTINUED*
USAEC, DIVISION OF OPERATIONAL SAFETY
TID-5360(SUPPL.6) +. 49 PAGES, DECEMBER 1967

111 OCCURRENCES (EXPOSURES ABOVE QUARTERLY LIMIT OR LOSSES GREATER THAN $5000) LISTED. HIGHEST EXPOSURE WAS 50 REMS (AT AN ACCELERATOR), AND HIGHEST LOSS WAS $1.45 MILLION (HARVARD ACCELERATOR FIRE). OF THE 14 DEATHS, 8 WERE FROM FALLS OR FALLING OBJECTS, 3 FROM ELECTROCUTION, 2 FROM BURNS OR EXPLOSIONS (INCLUDING 1 FROM BURNING RECORDING TAPES PRIOR TO DISPOSAL IN A WASTE PIT), AND 2 FROM AUTO ACCIDENTS. THE ONLY SERIOUS REACTOR ACCIDENT (PRTR FUEL FAILURE) COST $0.895 MILLION (SECOND HIGHEST COST) BUT PRODUCED NO EXPOSURES ABOVE NORMAL LIMITS.

AVAILABILITY - SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402, $0.35 COPY

*INCIDENT COMPILATION + ACCELERATOR + FIRE + FUEL MELTDOWN + INCIDENT, FATALITY + INCIDENT, NONNUCLEAR + INCINERATION + INDUSTRIAL SAFETY + PRTR (TR) + REACTOR, POWER

17-25277
STUDY OF PROBLEMS OF SELECTING AND TRAINING PERSONNEL TO OPERATE THE COMMUNITY(S) NUCLEAR POWER PLANTS
SOCIETE EUROPEENNE D ASSISTANCE ET DE CONSEIL, NEUILLY-SUR-SEINE, FRANCE
EUR-3662 +. 544 PAGES, FIGURES, TABLES, DECEMBER 1967, IN FRENCH

(IN FRENCH) A SURVEY IN 5 COUNTRIES (BELGIUM, FRANCE, ITALY, HOLLAND, GERMANY) OF PEOPLE IN CHARGE OF POWER REACTORS AND OF TRAINING/SELECTING PERSONNEL. DESCRIBES PRESENT TRAINING AND ANALYZES TRAINING METHODS AND FACILITIES. COMPARES JOBS AND SELECTION/TRAINING PROCESSES. OUTLINES TRENDS FOR NEXT 10 YEARS. SUGGESTS A SCHOOLING POWER PLANT, PREPARATION OF PROGRAMMED COURSES, DEVELOPMENT OF AN OBJECTIVE SELECTION SYSTEM.

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

*EURATOM + *REVIEW + *STAFFING, TRAINING, QUALIFICATION + BELGIUM + FRANCE + GERMANY + ITALY + NETHERLANDS + REACTOR, POWER

17-25279
FREDERICKSON RL
OVEREXPOSURE TO EXCESSIVE AIR CONCENTRATION OF I-131
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(20), PAGE 13 AND 14, (MAY 13, 1968)

(LETTER TO DIV. OF COMPLIANCE, APRIL 1) DURING A TWO-WEEK PERIOD, FEB. 26-MAR. 11, AN EMPLOYEE WAS EXPOSED FOR 1.5 HR AT 63 MPC AND FOR 20 MIN AT 147 MPC DURING UNEXPLAINED DEVIATIONS (4 TIMES OUT OF 41 PREPARATIONS) IN WELL-ESTABLISHED THYROXINE SYNTHESIS. AS A PRECAUTION, THE WORKER WORE A FACE MASK. THE FUME HOODS NOW HAVE A LUCITE FACE WITH TWO ARM PORTS, BUT THIS AIR CONCENTRATION STILL OCCURRED. WE ARE NOW TRYING GLOVES TO CONVERT IT TO A GLOVE BOX. BREATHING-ZONE-SAMPLER USE HAS NARROWED THIS TO A 20-MIN INTERVAL IN THE PROCEDURE.

*AIRBORNE RELEASE + *FISSION PRODUCT, IODINE + GLOVE BOX + PERSONNEL PROTECTIVE DEVICE + RADIOISOTOPE

17-25280 ALSO IN CATEGORY 15
NON COMPLIANCE CITATION CORRESPONDENCE, ABBOTT LABORATORIES
ABBOTT LABORATORIES + DIVISION OF COMPLIANCE
7 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 14-20, (MAY 13, 1968)

COMPLIANCE CITATION, MARCH 22, FOR (1) NOT CONSULTING HP DURING CONTAMINATION OF DEC. 13, 1967 (EMPLOYEE LEFT PLANT STILL CONTAMINATED), (2) FOR OVEREXPOSURE OF 2 MEN ABOVE 3 REMS/QUARTER, (3) FOR NOT WEARING WRIST BADGES AT ALL TIMES, AS NOTED DURING INSPECTION OF JAN. 68. ALSO LACK OF FORMAL RADIATION-SAFETY TRAINING, INADEQUATE FACE VELOCITY OF FUME HOODS, AND FREQUENT IODINE CONTENT OF THYROIDS, INDICATING LACK OF MANAGEMENT CONTROL. (REPLY, APRIL 5) DISCUSSES EACH ITEM, INDICATING SPECIFIC ADMINISTRATIVE CONTROLS AND GUIDELINES ESTABLISHED FOR INTERNAL REPORTING. TRAINING OUTLINE GIVEN. A 400-CHANNEL ANALYSER WAS BOUGHT FOR MEASURING INTERNAL DEPOSITS IN WORKERS.

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *RADIOISOTOPE + CONTAMINATION + PERSONNEL EXPOSURE, RADIATION + STAFFING, TRAINING, QUALIFICATION + VENTILATION SYSTEM

17-25281
WATKINS CE
RADIOGRAPHY INCIDENT AT DUKE POWER CO.
DUKE POWER CO., SOUTH CHURCH ST., CHARLOTTE, N. C. 28201
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 18 AND 19, (MAY 13, 1968)

(LETTER, MARCH 15) ON FEB. 20, 1968, A RADIOGRAPHER AND ASSISTANT WORKING UNDER A LIMITED LICENSE RECEIVED EXCESSIVE RADIATION DOSES. RADIOGRAPHER RECEIVED 800 RADS TO HANDS, BASED ON CALCULATIONS, AND 2966 MILLIRADS WHOLE BODY, BASED ON FILM-BADGE REPORT. ASSISTANT RECEIVED 194 MILLIRADS WHOLE BODY, WITH NO EXTREMITY EXPOSURE. SOURCE HAD NOT BEEN ATTACHED TO CABLE AND COULD NOT BE WITHDRAWN FROM EXPOSED POSITION. RADIOGRAPHER MISTAKENLY THOUGHT HE HAD SUFFICIENT EXPOSURE TIME TO REMOVE SOURCE AND PLACE IT IN SHIELDED CONTAINER. TIME

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25281 *CONTINUED*
REQUIRED 10 TO 15 SEC.

*INCIDENT, HUMAN ERROR + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + INCIDENT, NONREACTOR
/

17-25282 ALSO IN CATEGORY 15
NON COMPLIANCE AT INTERNATIONAL CHEMICAL AND NUCLEAR CORP.
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 19 AND 20, (MAY 13, 1968)

(LETTER TO IC AND N CORP., APRIL 10) AFTER A JAN. 1968 INSPECTION OF THE PGH., PA., FACILITY, CITATIONS FOR (1) NOT INFORMING RAD. OFFICER OF LOSS OF 30 MILLICURIES OF TIN-113, (2) CHARCOAL FILTERS MONITORING STACK DISCHARGE SEPT.-DEC. 1967 WERE STORED RATHER THAN ANALYZED, (3) BREATHING-ZONE SAMPLES WERE NOT TAKEN, (4-5) RECORDS OF SURVEYS AND WASTE DISPOSAL NOT KEPT. PREVIOUS LETTER OF MAR. 10, 1967, TO COMPANY (THEN KNOWN AS NUCLEAR SCIENCE AND ENGR. CO.) OUTLINED ITS INADEQUATE MANAGEMENT CONTROL OVER SAFETY. (REPLY MAY 3, 1967, OUTLINED A PROGRAM.) JAN. 1968 INSPECTION SHOWED SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY, AND WE DO NOT BELIEVE HP STAFF ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION-SAFETY PROGRAM.

*FAILURE, ADMINISTRATIVE CONTROL + *RADIATION SAFETY AND CONTROL + HEALTH PHYSICS TRAINING + MONITOR, RADIATION, STACK + RADIOISOTOPE

17-25283
SOLDAN DW
THYROID INTAKE OF IODINE 131
MALLINCKRODT NUCLEAR, BOX 10172, LAMBERT FIELD, ST. LOUIS, MO., 63145
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21, (MAY 13, 1968)

(LETTER, MAR. 23) ROUTINE THYROID MEASUREMENTS DISCLOSED 0.22 MICROCURIE OF I-131 IN AN INDIVIDUALS THYROID ON FEB. 25. INDEPENDENT MEASUREMENTS ON MAR. 4 AT CRAWFORD W. LONG HOSPITAL WERE INVALID, BUT AT SOUTH FULTON HOSPITAL CONFIRMED WITH A READING OF 0.17 MICROCURIE. BASED ON TOTAL ELIMINATION IN 13 WEEKS FOR AN ACUTE INTAKE, THE INTEGRATED THYROID DOSE IS 1.42 REMS.

*FISSION PRODUCT, IODINE + *RADIOISOTOPE + PERSONNEL EXPOSURE, RADIATION

17-25284 ALSO IN CATEGORY 14
NON COMPLIANCE AT LONG ISLAND NUCLEAR SERVICE CORP.
LONG ISLAND NUCLEAR SERVICE CORP., STATION ROAD, BELLPORT, N. Y. 11713
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21, (MAY 13, 1968)

(LETTER, MARCH 13) AFTER A NOV. AND DEC. 1967 INSPECTION, CITATION WAS ISSUED FOR (1) INCOMPLETE PERSONNEL MONITORING RECORDS FOR 2 EMPLOYEES, (2) WASTE PICKUPS OF LICENSED MATERIAL WERE NOT RECEIVED BY THE SPECIFIED PERSONNEL. OTHER ITEMS WERE - (A) POCKET DOSIMETERS NOT WORN, (B) SURVEY INSTRUMENTS NOT CALIBRATED OR RECORDS MAINTAINED, (C) SURVEYS OF WASTE CONTAINER NOT MADE. YOUR APPLICATION FOR REMOVAL OF LICENSE 31-8360-1 IS CURRENTLY BEING EVALUATED BY DML.

*WASTE MANAGEMENT + FAILURE, ADMINISTRATIVE CONTROL + INSPECTION AND COMPLIANCE + RADIATION SAFETY AND CONTROL

17-25285
MASSE FX
EXPOSURE AT SANDERS NUCLEAR PLANT
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MEDICAL DEPT., 77 MASSACHUSETTS AVE., CAMBRIDGE, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21 AND 22, (MAY 13, 1968)

(LETTER, APRIL 5) AN EXPOSURE OCCURRED FEB. 27, 1968, AT THE SANDERS NUCLEAR PLANT IN PROCESSING A 50-CURIE THULIUM SOURCE LICENSED BY THE STATE OF NEW HAMPSHIRE. A FULL-TIME MIT GRAD. STUDENT (WHO WORKS WITH LICENSED MATERIAL AT MIT) IS A PART-TIME CHEMIST THERE AND WORE BOTH SETS OF FILM BADGES. (MIT WRIST BADGE - 45 RADS BETA, AND BODY BADGE - 0.305 RAD BETA). (SANDERS WRIST BADGE - 250 RADS BETA, BODY BADGE - 0.44 RADS BETA). FINGER EXPOSURE MAY HAVE EXCEEDED WRIST EXPOSURE BY A FACTOR OF 4. MIT RAD. PROTECTION COMMITTEE ALLOWS WORK TO CONTINUE AT MIT ONLY IF HAND DOSE DOES NOT EXCEED 10% PERMISSIBLE. RECOMMENDS HE DROP OUTSIDE ACTIVITIES THAT MAY RESULT IN FURTHER EXPOSURE.

*PERSONNEL EXPOSURE, RADIATION + BETA EMITTER + DOSIMETRY, PHOTOGRAPHIC + FABRICATION + SOURCE, RADIATION + STATE PROGRAM

17-25286 ALSO IN CATEGORY 12
JOHNSON JL
INHALATION OF AIRBORNE URANIUM ORE DUST
WESTERN NUCLEAR, INC., JEFFREY CITY, WYO., 82310
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 22, (MAY 13, 1968)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25286 *CONTINUED*
(LETTER, MARCH 12) BETWEEN DEC. 13, 1967, AND FEB. 6, 1968, TWO CRUSHER OPERATORS WERE EXPOSED TO AIR CONCENTRATIONS 1.05-1.70 MPC FOR NATURAL URANIUM. THIS WAS DUE TO ORE-DRYING OPERATIONS REQUIRED ONLY IN WINTER. A DIFFERENT HANDLING METHOD HAS LOWERED AIRBORNE LEVELS. OVERTIME WORK WILL BE IN ANOTHER JOB. IF INDIVIDUAL EXPOSURE APPROACHES MPC, THAT PERSON WILL BE ROTATED TO ANOTHER JOB. BASED ON 160 HR IN A 28-DAY PERIOD, EXPOSURES WERE BELOW THE TIME-WEIGHTED MPC. HOWEVER, A RECENT COMPLIANCE INSPECTION POINTED OUT THE EXCESSIVE OVERTIME WORKED.

*INHALATION + *URANIUM, NATURAL + ADMINISTRATIVE CONTROL + MILLING + PERSONNEL EXPOSURE, RADIATION

17-25305 ALSO IN CATEGORY 9
RECOVERY OF BOLT HEAD FROM JAMMED BIG ROCK POINT CONTROL ROD DRIVE
CONSUMERS POWER COMPANY
2 PAGES, APRIL 23, 1968, LETTER TO P. A. MORRIS FROM R. L. HAUETER, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER TO DRL, APRIL 23) ON STARTUP APRIL 6 (FOLLOWING A TWO-DAY SHUTDOWN TO REINSTALL THE NO. 2 RECIRCULATION PUMP) ROD DRIVE B-4 WOULD NOT WITHDRAW FROM THE FULL-IN POSITION. AFTER SEVERAL ATTEMPTS, THE ROD BROKE LOOSE BUT APPEARED NORMAL. THE DRIVE WAS REMOVED, AND A HALF-INCH SS BOLT HEAD FOUND IN IT. THE BOLT HEAD READ ONLY 14 MR, AND ONLY 0.4 MR (MOSTLY ZN-65) AFTER DECONTAMINATION. THERE WAS NO EVIDENCE THAT IT CAME FROM REACTOR INTERVALS, AND PROBABLY CAME FROM EARLY TEST WORK WHERE TORQUE WRENCHES BROKE OFF INITIALLY INSTALLED UPPER-GRID BOLTS PRIOR TO INSTALLATION OF NEW ONES.

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

*CORE COMPONENTS + *FAILURE, SCRAM MECHANISM + BIG ROCK POINT (BWR) + FAILURE, INSTALLATION ERROR + OBSTRUCTION + OPERATING EXPERIENCE + REACTOR, BWR

17-25306 ALSO IN CATEGORY 9
REMOVAL OF THE TRIGA ROTARY SPECIMEN RACK
UNIVERSITY OF ILLINOIS
3 PAGES, APRIL 29, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM G. P. BECK, DOCKET 50-151

THE PREVIOUS THREE BREAKDOWNS WERE FIXED WITHOUT REMOVAL FROM THE CORE. THIS DIFFICULTY IS IN THE MAIN HOUSING. THE RACK HAS NOW BEEN LIFTED 5 FT ABOVE THE CORE AND LEFT IN THE POOL TO DECAY FOR FINAL PREPARATIONS FOR CONTROL-ROD AND CORE-SUPERSTRUCTURE REMOVAL. ***CONTROL-ROD POSITIONS AND FUEL TEMPERATURES WERE MEASURED AT LOW AND HIGH POWER BEFORE BEING REMOVED. AFTER REMOVAL, REACTOR POWER WAS INCREASED UNTIL CONTROL-ROD POSITION AND FUEL TEMPERATURE WERE THE SAME AS BEFORE AT 100 KW, AND THE ION CHAMBERS MOVED TO INDICATE 100 KW. ***THE CHANGE INCREASED REACTIVITY $0.05 AND REDUCED THE ION-CHAMBER READINGS 50%.

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

*INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, POWER RANGE + *IRRADIATION FACILITY + *MAINTENANCE AND REPAIR + *REACTIVITY EFFECT + FAILURE, EQUIPMENT + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR POWER + REACTOR, RESEARCH + TRIGA (RR)

17-25307 ALSO IN CATEGORY 9
RELAY FAILURE CAUSES CONTROL ROD WITHDRAWAL
UNIVERSITY OF MISSOURI AT ROLLA
4 PAGES, APRIL 25, 1968, LETTER TO P. A. MORRIS FROM D. RAY EDWARDS, DOCKET 50-123

ON MARCH 5, 1968, DURING A ROUTINE SHUTDOWN WITH ALL RODS BEING DRIVEN IN BY GANG MOVEMENT, ROD 1 SUDDENLY STOPPED. THE OPERATOR PUT THE GANG-SWITCH IN NEUTRAL, THINKING THAT THE ROD HAD JAMMED, BUT ROD 1 STARTED MOVING OUT. PUTTING THE RODS IN INSERT STOPPED THE WITHDRAWAL. ***THE ARMATURE SPRING ON RELAY K-9 HAD COME LOOSE, ALLOWING CLOSURE OF THE WITHDRAW CONTACTS, SO THE ROD WOULD WITHDRAW WHENEVER THERE WAS NO INSERT REQUEST (DIAGRAM INCLUDED). NO CHANGE IS RECOMMENDED, ALTHOUGH REDESIGN WILL BE STUDIED. SCRAM ABILITY NOT IMPAIRED.

*ACCIDENT, CONTROL ROD WITHDRAWAL + *CONTROL ROD DRIVE + *FAILURE, COMPONENT + INSTRUMENTATION, RELAY + OPERATING EXPERIENCE + REACTOR, RESEARCH

17-25308 ALSO IN CATEGORY 6
SAXTON OPERATIONS SUMMARY
SAXTON NUCLEAR EXPERIMENTAL CORPORATION
48 PAGES, APRIL 19, 1968, DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

(OCT.) NEWLY INSTALLED SUPERHEAT LOOP OPERATED 4 DAYS, THEN, ON ITS THIRD STARTUP, FISSION PRODUCTS WERE RELEASED. 23.5-MIL ZIRCALOY-CLAD FUEL, IRRADIATED AT 22,000 PSI INTERNAL, SWELLED. (NOV.) LOOP WAS SHIPPED OUT FOR EXAMINATION. (DEC.) PH TEST ASSEMBLY SHOWED NO TEMP. CHANGE IN FUEL OR COOLANT ON A PH TRANSIENT, WHEN LOCATED IN A NONBOILING AREA. YEARLY ACTIVITY DISCHARGED WAS 22 CURIES OF XENON AND 6 OF TRITIUM. (JAN.) A ROD JAMMED, APPARENTLY DUE TO A FOREIGN OBJECT IN THE DASHPOT. PH TEST ASSEMBLY SHOWED NO SIGNIFICANT TEMPERATURE IN THE CENTER OF THE CORE.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25308 *CONTINUED*
*EXPANSION + *FAILURE, FUEL ELEMENT + *PH REACTIVITY EFFECT + *WASTE DISPOSAL, GAS + FAILURE, CLADDING + IN PILE LOOP + PRESSURE, INTERNAL + REACTOR, PWR + REACTOR, SUPERCRITICAL PRESSURE + REPORT, OPERATIONS SUMMARY + SAXTON (PWR) + TEST, PHYSICS

17-25309 ALSO IN CATEGORY 9
PROPOSED CHANGE 2--SAFETY CHANNEL SETPOINT CHANGE
UNIVERSITY OF CALIFORNIA, BERKELEY
2 PAGES, APRIL 18, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM HANS MARK, DOCKET 50-224

REQUESTS INCREASE IN (GAMMA) SAFETY-CHANNEL SETPOINT FROM 110 TO 130% BECAUSE VARIOUS ROD-BANK POSITIONS CHANGE ITS READING BETWEEN 77 AND 95 WHEN THE POWER IS HELD AT 1 MW BY THE LINEAR POWER CHANNEL. SPECIFICATION OF A UNIQUE BALANCED BANK IS NOT PRACTICAL FOR THE VARIOUS OPERATIONAL MODES. REQUIRING THE OPERATOR TO ADJUST SCRAM SETTING IS IMPRACTICAL. SAFETY ANALYSIS SHOWS PEAK FUEL TEMP. AT 1.3 MW IS 385 C, RATHER THAN 350 C AT 1 MW. NO CONCLUSION OF THE SAR WILL BE AFFECTED BY A SHORT INTERVAL AT 1.3 MW.

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

*INSTRUMENTATION, POWER RANGE + *SET POINT + CONTROL ROD PROGRAM + FLUX DISTRIBUTION + INSTRUMENTATION, ABNORMAL INDICATION + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (RR)

17-25310 ALSO IN CATEGORY 9
MODIFICATION OF AGN 201 SCRAM CIRCUIT
GEORGIA INSTITUTE OF TECHNOLOGY
3 PAGES, APRIL 25, 1968, LETTER TO D. J. SKOVHOLT FROM F. W. CHAMBERS, JR., DOCKET 50-276

REPORTS ADDITION OF DIODES IN THE COIL CIRCUITS OF RELAYS K8 THRU K11 SO THAT THE -90-V SCRAM SIGNAL WOULD NOT BE DISSIPATED AND WOULD CUT OFF V5.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR SAFETY SYSTEM + AGN (TNG) + FAILURE, SCRAM MECHANISM + REACTOR, TRAINING

17-25311 ALSO IN CATEGORY 9
ANNUAL REPORT 4 ON INSPECTION OF SHIM RODS
TEXAS A AND M UNIVERSITY
2 PAGES, APRIL 25, 1968, LETTER TO P. A. MORRIS FROM J. D. RANDALL, DOCKET 50-128

THE FOURTH ANNUAL INSPECTION (FOR JAN. 1967 THRU APRIL 15, 1968) SHOWED NO CRACKS ANYWHERE, WITH VISUAL INSPECTION OVER THE ENTIRE LENGTH FROM 1 FOOT AWAY.

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

*CONTROL ROD BURNUP + *EXAMINATION + ALLOY + BORON + CONTROL ROD, SHIM SAFETY + REACTOR, POOL TYPE + STEEL, STAINLESS

17-25312
YANKEE PROPOSED CHANGE 84 - REACTOR VESSEL STUD
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
2 PAGES, APRIL 17, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM L. E. MINNICK, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

YANKEE REQUESTS PERMISSION TO REPLACE ONE OF THE 52 EXISTING 5.25-IN.-DIAM SA-193 STUDS WITH A 4.75 A320 STUD. REMOVAL OF THE STUD REQUIRED HIGH TORQUE, WHICH GALLED THE FLANGE. A THREADED SLEEVE WILL BE INSTALLED AFTER THE FLANGE IS BORED OUT.

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

*FAILURE, EQUIPMENT + *PRESSURE VESSEL + EQUIPMENT, GENERAL + REACTOR, PWR + TECHNICAL SPECIFICATIONS + YANKEE (PWR)

17-25313 ALSO IN CATEGORY 11
FATIGUE DATA ON REPLACEMENT REACTOR VESSEL STUD
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
1 PAGE, APRIL 25, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM W. P. JOHNSON, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

IN REPLY TO PHONE INQUIRY APRIL 23 REGARDING PROPOSED CHANGE 84, THE SLEEVE REDUCES THE LIGAMENT BETWEEN BOLT HOLES FROM 2.453 TO 2.328 IN., WHICH CALCULATIONS SHOW HAS A NEGLIGIBLE EFFICIENCY EFFECT. FATIGUE ANALYSIS OF THE SMALLER-DIAMETER STUD SHOWS THERE IS NO APPRECIABLE REDUCTION IN ALLOWABLE NUMBER OF THERMAL CYCLES, DESPITE AN INCREASE FROM 27,000 TO 31,000 PSI STRESS. A SPARE 4.75-IN. STUD WILL ALTERNATE SERVICE, AND THEY WILL BE ULTRASONICALLY INSPECTED.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25313 *CONTINUED*
AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FAILURE, EQUIPMENT + *PRESSURE VESSEL + FAILURE, FATIGUE + REACTOR, PWR + TECHNICAL SPECIFICATIONS + TEST, NONDESTRUCTIVE + YANKEE (PWR)

17-25314
YANKEE CHANGE 84 - REACTOR VESSEL STUD
USAEC, DIVISION OF REACTOR LICENSING
2 PAGES, APRIL 26, 1968, LETTER TO L. E. MINNICK FROM P. A. MORRIS, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CONCLUDES THAT REPLACEMENT OF A VESSEL STUD WITH ONE SMALLER BUT OF STRONGER MATERIAL WILL NOT WEAKEN THE LIGAMENT AND THAT FATIGUE LIFE WILL NOT BE AFFECTED. CHANGE IS AUTHORIZED.

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

*EQUIPMENT, GENERAL + *PRESSURE VESSEL + REACTOR, PWR + TECHNICAL SPECIFICATIONS + YANKEE (PWR)

17-25315
HALLAM DECOMMISSIONING CONTINUES
CONSUMERS PUBLIC POWER DISTRICT
31 PAGES, FIGURES, TABLES, FROM HALLAM NUCLEAR POWER FACILITY MONTHLY RETIREMENT REPORT NO. 18, JANUARY 1968

WORK CONTINUED ON CUTTING OUT SECTIONS OF PIPE CONTAINING VARIOUS VALVES AND FITTING FOR EVENTUAL REUSE. SODIUM LEFT UNDRAINABLE IN THE REACTOR VESSEL WILL BE CONTACTED WITH STEAM.

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

*REACTOR DECOMMISSIONING + REACTOR, LMCR + REPORT, OPERATIONS

17-25346 ALSO IN CATEGORY 13
AEC COMPLIANCE ISSUES CEASE AND DESIST ORDER FOR NUMEC APOLLO PLANT
NUCLEAR MATERIALS AND EQUIPMENT CORP.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGES 10-12 (MAY 20, 1968)

(LETTER, MAY 10) NUMEC FILED JAN. 31, 1968, LICENSE-AMENDMENT APPLICATION FOR CP-2 (CONVERSION) AND CF-4 (CERAMIC FABRICATION) AREAS. A COMPLIANCE INSPECTION APRIL 30 TO MAY 2, 1968, REVEALED THAT UNLICENSED OPERATIONS IN THESE AREAS BEGAN MAR. 4 AND MAR. 25. (REPLY, TWX) OPERATIONS DISCONTINUED. WE TAKE STRONG EXCEPTION TO ALLEGATION OF WILFUL NONCOMPLIANCE. MANAGER SAYS THAT OUR PRESENT LICENSE COVERS THESE OPERATIONS AND THAT CHANGES WERE PRIMARILY ENCLOSURES TO CONTROL AIRBORNE ACTIVITY AND WERE MADE ACCORDING TO SNM-145. LICENSE SUBMISSIONS WERE FOR INFORMATION BECAUSE AEC SUGGESTED THAT ALL CHANGES BE SUBMITTED TO DML FOR CASE-BY-CASE DETERMINATION IF THEY WERE NECESSARY AMENDMENTS. TALKS WITH DML LEFT HIM WITH THE IMPRESSION THAT THE MATTERS WERE PERFUNCTORY AND NO LICENSING PROBLEMS WERE INVOLVED. MANAGER WILL NOW SPECIFICALLY INQUIRE WITH EACH SUBMISSION WHETHER THE ITEM REQUIRES A LICENSE AMENDMENT, AND WILL NOT AUTHORIZE OPERATION UNTIL HE GETS WRITTEN REPLY.

*AIRBORNE RELEASE + *SPECIAL NUCLEAR MATERIAL + FABRICATION FACILITY + FAILURE, ADMINISTRATIVE CONTROL + FUEL ELEMENT + INSPECTION AND COMPLIANCE + OPERATING LICENSE PROCESS

17-25347
NONCOMPLIANCE CITATION OF ARNOLD GREENE RADIOGRAPHY
ARNOLD GREENE TESTING LABORATORIES, INC., NATICK, MASS. + DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGES 15-16 (MAY 20, 1968)

(CITATION, FEB. 23) A NOV. 29-30, 1967, INSPECTION AT THE WEST END IRON WORKS SHOWED (1) SURVEYS WERE NOT MADE AFTER EACH EXPOSURE, (2) UTILIZATION LOGS WERE NOT KEPT. ON NOV. 24, TWO EMPLOYEES RECEIVED FILM-BADGE DOSES OF 36 AND 14 REMS, BUT YOUR LETTER OF DEC. 8, 1967, REFERS ONLY TO 2.5-REM CALCULATED DOSES. (REPLY, MAR. 12) ALL RADIOGRAPHERS WERE RETRAINED, AND ONE OF THE MEN IN THE INCIDENT EXPLAINED HOW HE RECEIVED HIS OVEREXPOSURE. BADGE REPORTS SHOW CONSIDERABLY LESS EXPOSURE LATELY. UTILIZATION LOGS ARE BEING KEPT.

*PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL + INSPECTION AND COMPLIANCE

17-25348 ALSO IN CATEGORY 15
FLETCHER FR
DELIBERATE EXPOSURE OF RADIOGRAPHY FILM BADGE
CRANE COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGE 16-17 (MAY 20, 1968)

(LETTER, MARCH 15, INCLUDING A HEALTH PHYSICS ASSOCIATES LTD. REPORT) A FILM BADGE FOR THE WEEK OF FEB. 19-23, 1968, RECORDS A PARTIAL EXPOSURE TO THE FILM OF 36.25 R, AT 100 KEV. THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25348 *CONTINUED*
ROUND, SHARP FIELD WAS DUPLICATED BY HOLDING A BADGE AT THE TUBE BEAM PORT OF THE 250-KVP X-RAY MACHINE. THE EMPLOYEE WAS ABSENT WED. OF THAT WEEK. FURTHER QUESTIONING MAY ARRIVE AT THE ANSWER. OUR OPINION IS THAT THE BADGE WAS DELIBERATELY EXPOSED. OUR RECOMMENDATION IS TO LOCK UP ALL BADGES NOT IN USE.

*RADIOGRAPHY + FAILURE, OPERATOR ERROR + PERSONNEL EXPOSURE, RADIATION + PERSONNEL PROTECTIVE DEVICE + X-RAY

17-25349
SOERNSON RC
NON COMPLIANCE CITATION OF US RADIUM
US RADIUM CORPORATION, MORRISTOWN, N. J.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGE 18-20 (MAY 20, 1968)

(LETTER, APRIL 11) A NOV. 1967 INSPECTION REVEALED NINE SPECIFIC ITEMS INVOLVING INADEQUATE SURVEYS OF AIRBORNE TRITIUM AND 4 OTHER ISOTOPES, PLUS INADEUATE RECORD KEEPING, INSUFFICIENT DECONTAMINATION AND SAFETY INSTRUCTION, AND FAILURE TO REPORT EXCESSIVE AIRBORNE CONCENTRATION EXPOSURE TO AEC. *** THESE ARE SIMILIAR TO ONES IN OUR JULY 20, 1967, CITATION, WHICH INDICATED INADEQUATE MANAGEMENT CONTROL. STEPS SPECIFIED BY U.S. RADIUM IN AUG. 15 AND OCT. 5 CORRESPONDENCE AND AT SEPT. 27 MEETING ARE DEMONSTRATED INEFFECTIVE OR NOT CARRIED OUT. RADIUM FACILITY REMAINS GROSSLY CONTAMINATED AND POORLY VENTILATED. NEVERTHELESS, OPERATIONS HAVE BEEN RESUMED, AND SOME OF THOSE PEOPLE ALSO WORK WITH BY-PRODUCT MATERIAL.

*AIRBORNE RELEASE + *INSPECTION AND COMPLIANCE + AMERICIUM + BYPRODUCT MATERIAL + KRYPTON + NICKEL + RADIOISOTOPE + RADIUM + RADON + TRITIUM

17-25408 ALSO IN CATEGORY 9
FOGARTY OJ + ORTEGA OJ
SAN ONOFRE STARTUP
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.
3 PAGES, POWER ENGINEERING, 72(4), PAGE 38-40, (APRIL 1968)

STARTUP PROBLEMS EXPERIENCED AT SAN ONOFRE CAN BE DIVIDED AMONG FIVE CATEGORIES - (1) ORGANIZATION, (2) EQUIPMENT OR SYSTEM SEASONING, (3) QUALITY CONTROL, (4) OPERATIONS, AND (5) DESIGN. QUALITY-CONTROL SLIP-UPS WERE DISCOVERED IN A CONTROL-ROD-DRIVE MECHANISM AND OTHER SYSTEMS, COLLECTIVELY RESULTING IN THREE-WEEK DELAY OF PHASE-I TESTING. NUCLEAR-INSTRUMENTATION DEBUGGING WAS A TEDIOUS EXERCISE, WITH NOISE AND COMPONENT FAILURE THE MOST PREVALENT PROBLEMS. HOWEVER, FIRST-OF-A-KIND DESIGN PROBLEMS CAUSED THE BULK OF THE DELAYS.

*OPERATING EXPERIENCE + FAILURE, GENERAL + INSTRUMENTATION, ABNORMAL INDICATION + INSTRUMENTATION, TESTING + QUALITY CONTROL + REACTOR, PWR + SAN ONOFRE (PWR) + STAFFING, TRAINING, QUALIFICATION + TEST, INSTRUMENT RESPONSE

17-25447
RAPID TURBINE CONTROL VALVE CYCLING AT A PWR
DIVISION OF OPERATIONAL SAFETY, AEC
REACTOR SAFETY BULLETIN ROE 68-2 +. 5 PAGES, 1 FIGURE, APRIL 9, 1968

THE FOUR VALVES SIMULTANEOUSLY CYCLED FROM FULLY OPEN TO FULLY CLOSED AND RETURNED TO FULLY OPEN WITHIN 12 SEC, INDUCING A SEVERE LOAD TRANSIENT. INITIAL CLOSING WAS CAUSED BY A RELEASE OF PRESSURE WHICH HOLDS THE VALVES OPEN AND AN IMPROPER PRESSURE SETTING OF 22 PSI INSTEAD OF 45. A FAILED TRIP SOLENOID ALLOWED THE VALVES TO REOPEN. THE OPERATOR RESPONDED IMMEDIATELY TO VALVE CLOSURE AND INSERTED CONTROL RODS, MINIMIZING THE TRANSIENTS.

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

*CONTROLLER + *FAILURE, SEQUENTIAL + *INCIDENT, EQUIPMENT + *TURBINE + *VALVE + FAILURE, INSTRUMENT + OPERATING EXPERIENCE + REACTOR TRANSIENT + REACTOR, POWER + REACTOR, PWR

17-25451
GUSKOVA AK + DENISOVA EA + MOISEITSEV PI + KORLYAKOVA EA + SIZIKOVA NV
LABOR CONDITIONS AND STATE OF HEALTH OF PERSONS WORKING AT RESEARCH NUCLEAR REACTORS
INST. OF INDUSTRIAL HEALTH AND OCCUPATIONAL DISEASE, MOSCOW
5 PAGES, GIG. SANIT. 9, PAGES 39-43 (SEPT. 1967) (IN RUSSIAN)

HYGIENIC FEATURES OF LABOR CONDITIONS PREVAILING AT RESEARCH REACTORS ARE DESCRIBED. THE MAIN UNFAVORABLE OCCUPATIONAL FACTORS ARE THE EXTERNAL GAMMA AND NEUTRON RADIATIONS AND THE CONTAMINATION OF THE ENVIRONMENT WITH RADIOACTIVE SUBSTANCES. THE ELABORATE PRINCIPLES OF PLANNING, PROTECTION, AND EQUIPMENT PROVIDE SAFE WORKING CONDITIONS. THE LEVELS OF VARIOUS KINDS OF IRRADIATIONS DO NOT EXCEED THE MAXIMUM PERMISSIBLE VALUES. THE STATE OF HEALTH OF PERSONS WORKING AT REACTORS IS QUITE SATISFACTORY. NO CASES OF CHRONIC RADIATION SICKNESS WERE REGISTERED.

*RADIATION SAFETY AND CONTROL + *USSR + ADMINISTRATIVE CONTROL + ENVIRONMENTAL CONDITION + PERSONNEL EXPOSURE, RADIATION + REACTOR, RESEARCH + REVIEW

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25455
WINSCHE WE + LEVINE MM
METHOD OF OPERATING A BREEDER REACTOR
U.S. PATENT 3,335,061 +. 3 PAGES, 2 FIGURES, 1 TABLE, REFERENCES, AUGUST 8, 1967

PATENT IS ON A METHOD OF OPERATION. THE FUEL CONSISTS OF MODULES CONTAINING MIXTURES OF FERTILE AND FISSILE MATERIALS. THE MODULES ARE PROGRAMMED FOR PERIODIC MOVEMENT TOWARD THE CENTER OF THE REACTOR CORE WHERE THEY ARE REMOVED. FRESH MODULES ARE INSERTED AT THE OUTER LIMITS OF THE CORE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. 25 CENTS A COPY

*FUEL BURNUP + *PATENT + *REFUELING + OPERATION + REACTOR, BREEDER

17-25457
IMPROVED METHOD OF OPERATING A NUCLEAR REACTOR
ATOMIC ENERGY OF CANADA
BRITISH PATENT 1,077,385 +. 8 PAGES, 3 FIGURES, 9 TABLES, JULY 26, 1967

METHOD DESCRIBED IS THE INCORPORATION OF A BURNABLE POISON IN THE FUEL ROD, WHICH WILL MINIMIZE CRITICALITY HAZARD UPON INITIAL INSERTION INTO FLUX REGION NO. 1, ALLOWING THIS POISON TO BURN OUT, REMOVING THE ELEMENT AND ALLOWING FISSION-PRODUCT POISONS TO BUILD IN (SUCH AS XENON 135) TO THEIR MAXIMUM REACTIVITY-EFFECT LEVEL, AND REINSERTING INTO FLUX REGION NO. 2.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND, 49 CENTS/COPY

*FUEL BURNUP + *PATENT + *POISON, BURNABLE + FABRICATION + FUEL ELEMENT + FUEL HANDLING + REACTIVITY EFFECT + UNITED KINGDOM

17-25458
MAREK
CONTAINER FOR WASTE PAPER AND RAGS
U.S. PATENT 3,333,721 +. 3 PAGES, 3 FIGURES, AUGUST 1, 1967

DESCRIBES A CONTAINER WITH SIMPLE-FLANGED SELF-INTERLOCKING SIDE PANELS, END PANELS, AND BOTTOM PANEL. A REMOVABLE COVER INTERLOCKABLE WITH THE PANELS MAY HAVE A DOOR OPENING AND A SLIDABLE DOOR POSITIONED UNDER THE COVER. THE DOOR IS MOVED BY MEANS OF A CABLE PASSING THROUGH THE COVER TO A FOOT PEDAL. THE CONTAINER IS INTENDED AS A FIRE RETARDANT FOR COMBUSTIBLE WASTE RECEPTACLES, IS INEXPENSIVE, AND MAY BE DISCARDED IF CONTAMINATED WITH RADIOACTIVE MATERIALS.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*PATENT + *STORAGE CONTAINER + WASTE STORAGE

17-25521
SELECTED PEACH BOTTOM I OPERATING EXPERIENCES
PHILADELPHIA ELECTRIC COMPANY, PHILADELPHIA, PENNSYLVANIA
26 PAGES, FIGURES, FROM PHILADELPHIA ELECTRIC COMPANY PEACH BOTTOM ATOMIC POWER STATION MONTHLY OPERATIONS REPORT NO. 24 SUBMITTED TO UNITED STATES ATOMIC ENERGY COMMISSION PURSUANT TO PROVISIONAL OPERATING LICENSE NO. DPR-12, FEBRUARY 1968, DOCKET NO. 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

ONE OF 804 FUEL ELEMENTS WAS IDENTIFIED AS HAVING FAILED, BY USING THE TRANSFER MACHINE AND CHECKING PURGE FLOWS. ONE ELEMENT WAS DROPPED 13 FT. FROM THE CHARGE MACHINE INTO THE PARKING HOLE CANISTER. THE REFLECTOR SECTION BROKE AND BOUNCED OUT. INVESTIGATION REVEALED DEFICIENCIES IN THE GRAPPLING MECHANISM PLUS INTERFERENCE BETWEEN THE JAW LOCKING SLEEVE AND CANISTER. (DETAILED DESCRIPTION GIVEN IN ANNEX A). ***CONTAINMENT ISOLATION OCCURRED WHEN A VENTILATION UPSET RESULTED IN A BUILDUP OF ACTIVITY IN THE VENT-PURGE PLENUM DURING A CONTROLLED RELEASE FROM THE KR-85 HOLDUP TANK.

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

*FAILURE, DESIGN ERROR + *FAILURE, EQUIPMENT + *FUEL HANDLING MACHINE + CONTAINMENT SYSTEM, OPERATION OF + DAMAGE + EXAMINATION + FAILURE, FUEL ELEMENT + FUEL ELEMENT + INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR + REPORT, OPERATIONS + VENTILATION SYSTEM

17-25522 ALSO IN CATEGORY 11
VELEZ GA
CONTAINMENT BUILDING LEAK TEST
PUERTO RICO WATER RESOURCES AUTHORITY, BONUS NUCLEAR POWER PLANT
PRWRA-20 + WRA-8-67-21 +. 42 PAGES, 6 FIGURES, 5 TABLES, NOV. 1967

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25522 *CONTINUED*
DATA AND RESULTS OF TESTS ARE GIVEN FOR TWO METHODS USED (A REFERENCE-VESSEL METHOD AND A TEMPERATURE METHOD). LEAK RATE BY REFERENCE-VESSEL METHOD IS 0.187% OF BUILDING VOLUME PER DAY. THE TEMPERATURE METHOD YIELDED ERRATIC DATA BECAUSE AIR AT TOP OF BUILDING IS STAGNANT AND HEATS UP DURING DAY TO OVER 100 F, THEN COOLS AT NIGHT. APPENDIX CONTAINS SAMPLE CALCULATIONS, STATISTICAL EVALUATION OF DATA, LISTING OF BUILDING PENETRATIONS AND RESULTS OF SOAP BUBBLE TESTS, AND TABLES OF DATA COLLECTED.

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

*CONTAINMENT PENETRATION, GENERAL + *CONTAINMENT, LOW PRESSURE + *TEST, LEAK RATE + BONUS (ISR) + CONTAINMENT ABSOLUTE MEASURING SYSTEM + REACTOR, INTERNAL SUPERHEAT

17-25523 ALSO IN CATEGORY 11
BONUS EXPERIENCE WITH FUEL ELEMENT SCALE
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
10 PAGES, 2 TABLES, BONUS NUCLEAR POWER PLANT, DRL MONTHLY REPORT NO. 11, NOVEMBER 1967

REACTOR DID NOT OPERATE DURING NOV. DATA INDICATES PRIMARY-WATER-IMPURITY CONCENTRATION IS HIGHEST AFTER A LONG SHUTDOWN (DUE TO CORROSION PRODUCTS FROM THE COPPER-ALLOY TUBES OF FEEDWATER HEATERS). FUEL-ELEMENT INSPECTION BY G.E. INDICATE (APED-5392) FLOW REDUCTION HAS BEEN CAUSED BY CRUD DEPOSITS (COPPER OXIDE, 75 TO 86%, FROM FEEDWATER HEATERS) IN COOLANT-ENTRY FLOW HOLES, CAUSING A 35-55% REDUCTION OF FLOW AREA ON INDIVIDUAL ELEMENTS. HEATERS TO BE FILLED WITH 220-PPM HYDRAZINE SOLUTION DURING SHUTDOWN TO REDUCE CORROSION. CONTAINMENT LEAK-TEST DATA SHOWS LEAK RATE OF 0.014%/DAY.

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

*CORROSION + *FLOW BLOCKAGE + *FUEL ELEMENT + *HEAT EXCHANGER + *SURFACE FILM DEPOSIT + BONUS (ISR) + CONTAINMENT, LOW PRESSURE + COOLANT CHEMISTRY + COPPER + OPERATING EXPERIENCE + OXIDE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TEST, LEAK RATE

17-25524
SELECTED OPERATING EXPERIENCES AT BONUS
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUNA, PUERTO RICO
7 PAGES, 2 TABLES, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT NO. 12, DECEMBER 1967

LOAD CENTER NO. 4 WAS REMOVED FROM SERVICE WHEN ROUGH SEAS FLOODED AREA WHERE LOCATED. MAGNETIC CLUTCH OF CONTROL-ROD-DRIVE 6 WAS DEFECTIVE. ABNORMAL OSCILLATIONS ON PERIOD CHANNEL CAUSED BY DEFECTIVE LOW-LEVEL AMPLIFIER. LIQUID-POISON SYSTEM TESTED. MINOR DEFICIENCES FOUND WITH POSITION-INDICATION SWITCHES. TWELVE CONTROL RODS WERE MODIFIED TO ADD A SPRING TO EXERT TORQUE IN SCRAM DIRECTION, A DECELERATING DEVICE TO LIMIT ITS VELOCITY, AND A SNUBBER-COCKING SPRING.

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

BONUS (ISR) + CONTROL ROD DRIVE + ELECTRIC POWER, GENERAL + FAILURE, INSTRUMENT + FAILURE, SCRAM MECHANISM + FLOOD + INSTRUMENTATION, AMPLIFIER + INSTRUMENTATION, PERIOD + MODIFICATION, SYSTEM OR EQUIPMENT + OCEAN AND SEA + POISON, SOLUBLE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TEST, SYSTEM OPERABILITY

17-25525
SELECTED BONUS OPERATING EXPERIENCE
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
13 PAGES, 3 TABLES, BONUS NUCLEAR POWER PLANT, DRL MONTHLY REPORT NO. 1, JANUARY 1968

REACTOR DID NOT OPERATE DURING THE MONTH BECAUSE BOILER FUEL WAS MOVED TO STORAGE FOR REMOVING SCALE. MAINTENANCE PERFORMED ON EMERGENCY CONDENSER EXHAUST VALVES AND INSTRUMENTATION. CHANGES IN FACILITY DESIGN WERE - (1) ADDITION OF 3 RELAYS IN THE VENTILATION-SYSTEM ISOLATION CIRCUIT AND (2) REMOVAL OF MAIN STEAM STOP VALVE FULLY OPEN BYPASS SWITCH. BOTH CHANGES RECOMMENDED BY G.E. BONUS DESIGN-REVIEW TEAM TO MEET SINGLE-FAILURE CRITERION.

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

BONUS (ISR) + CONTAINMENT PENETRATION, CLOSURE OF + CONTROL SYSTEM + FUEL ELEMENT + INSTRUMENTATION, REDUNDANT + MAINTENANCE AND REPAIR + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + SINGLE FAILURE CRITERION + SURFACE FILM DEPOSIT + VENTILATION SYSTEM

17-25614 ALSO IN CATEGORY 8
TICHLER P + BAKER L + ISLER R + METZ D
INVESTIGATING COMMITTEE REPORT OF THE NITRATE RESIN BED ACCIDENT AT THE BROOKHAVEN HIGH FLUX BEAM REACTOR
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNCL-12460 +. 28 PAGES, 13 FIGURES, AUGUST 11, 1965

PRIOR TO INITIAL REACTOR OPERATION, THE ANION EXCHANGE COLUMN EXPLODED ON JULY 23, 1965, DURING RE-NITRIFICATION OF ALIPHATIC AMINE RESIN DUOLITE A30B WITH 2N HNO3. CONCLUSIONS - (1) INADEQUATE MIXING IN A 55-GAL DRUM RESULTED IN USE OF ACID STRONGER THAN 2N, WHILE 0.1 N

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25614 *CONTINUED*
WOULD HAVE BEEN ADEQUATE FOR REGENERATION. (2) ALIPHATIC-BASED RESIN SHOULD NOT BE TREATED WITH NITRIC ACID. (3) COMPRESSED GAS SHOULD NOT BE USED TO TRANSFER HAZARDOUS MATERIALS (DANGER OF OVERPRESSURE).

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

*COOLANT PURIFICATION SYSTEM + *EXPLOSION + *RESIN + ACCIDENT ANALYSIS + BNL + FAILURE, OPERATOR ERROR + HFBR (RR) + INCIDENT, HUMAN ERROR + ION EXCHANGE + REACTOR, FLUX TRAP + REACTOR, HWR + REACTOR, RESEARCH

17-25631
SELDEN JV
CITATION OF MMM AMERICIUM SOURCE RUPTURE
MINNESOTA MINING AND MANUFACTURING CO., ST. PAUL, MINN. + AEC DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 20 AND 21, (MAY 27, 1968)

(COMPLIANCE LETTER, APRIL 15) A FEB. 7-9, 1968, INSPECTION FOLLOWING A RUPTURE OF AN 0.1C SOURCE CAUSED CITATION FOR WELDING AN UNFINISHED SOURCE IN AN OPEN-FACED HOOD. (MMM LETTER, MARCH 25) THE 30-DAY REPORT OF THE RUPTURE WAS FILED FEB. 22, 1968. USUALLY, COMPLIANCE FOLLOWS UP THESE REPORTS ON THE NEXT VISIT, BUT THE SPECIAL VISIT HAS CAUSED CONCERN BY RADIATION WORKERS THAT THERE WAS A SERIOUS ACCIDENT AND THAT COMPANY EVALUATION WAS INCORRECT. AEC IS IN UNIQUE POSITION TO PROVIDE INFORMATION AND SERVICES NOT OTHERWISE AVAILABLE, AND IT SHOULD BE PROVIDED TO ALLEVIATE CONCERN RATHER THAN CREATE A SENSE OF INSECURITY.

*FAILURE, CLADDING + *GLOVE BOX + *WELDING + AMERICIUM + INSPECTION AND COMPLIANCE + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + RADIOLOGICAL ASSISTANCE + SOURCE, RADIATION

17-25632
CITATION OF RADIOLOGICAL TESTING LAB.
RADIOLOGICAL TESTING LAB., MADISON, WISCONSIN + AEC DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 21 AND 22, (MAY 27, 1968)

(CITATION, MARCH 6) A DEC. 1967 INSPECTION REVEALED SEVEN ITEMS OF NON-COMPLIANCE (NO SURVEYS NOR RECORDS OF SURVEYS DONE, IMPROPER POSTING, SURVEILLANCE, AND TRANSPORTATION). NUMBER AND NATURE INDICATE INADEQUATE MANAGEMENT CONTROL. (REPLY, MAR. 22). LISTS ACTIONS TAKEN FOR EACH SPECIFIC ITEM AND ASSERTS THE SAFETY OFFICE MAKES FREQUENT ON-SITE INSPECTIONS.

*FAILURE, ADMINISTRATIVE CONTROL + *RADIOGRAPHY + FAILURE, OPERATOR ERROR + INSPECTION AND COMPLIANCE

17-25633
KAUTH JE
RADIOLOGY OVEREXPOSURE
ST. FRANCIS HOSPITAL, TULSA, OKLA.
1 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 22, (MAY 27, 1968)

THE RADIOLOGY TECHNICIAN RECEIVED 1.874 REMS IN THE 4TH QUARTER OF 1967, AND 6.723 REMS FOR THE YEAR. THIS WAS BECAUSE HE WAS HOLDING PATIENTS WHILE PORTABLE FILMS WERE BEING TAKEN. HE HAS BEEN ADVISED BY LETTER AND DISCUSSION NOT TO EXPOSE HIMSELF TO A DIRECT RADIATION BEAM.

*RADIOLOGY + PERSONNEL EXPOSURE, RADIATION

17-25634
LOST RADIATION SOURCE
SHERWIN WILLIAMS CO., CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 22 AND 23, (MAY 27, 1968)

(LETTER, APRIL 2) A 0.05-CURIE CS-137 SOURCE WAS NOT IN ITS LOCATION FOR DEC. 1967 WIPE TESTS. THE INSTRUMENT SUPERVISOR WAS OFF WORK DUE TO ILLNESS, AND WE AWAITED HIS RETURN BECAUSE THE ELECTRONIC PORTION OF THIS DENSITY GAUGE WAS OUT FOR REPAIR. ON FEB. 22, A CLEANER REMEMBERED THROWING THE SOURCE IN THE WASTE DUMPSTER. IN MARCH, THE LOCAL AEC OFFICE CITED US FOR LACK OF COMMUNICATION. WORK ON THE REMAINING UNITS WILL REQUIRE A SAFETY PERMIT, AND THIS WILL BE SO POSTED AT THE UNITS. MONTHLY, THE INSTRUMENT MAN WILL CHECK THAT THE UNITS ARE IN PLACE.

*SOURCE, RADIATION, LOST + CESIUM + FAILURE, MAINTENANCE ERROR + RADIOISOTOPE

17-25643
POSITIVE MODERATION COEFFICIENT AT PLATR REQUIRES SHUTDOWN
UNITED NUCLEAR CORPORATION
1 PAGE, APRIL 10, 1968, LETTER TO USAEC, DIVISION OF REACTOR LICENSING FROM J. KARP, DOCKET 50-101

ON MARCH 15, SYSTEM WAS SHUT DOWN UNTIL THE SYSTEM IS MODIFIED TO CONFORM TO TECHNICAL SPECIFICATIONS OR LICENSE IS AMENDED TO CONFORM TO THE EXISTING SITUATION (A MODERATOR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25643 *CONTINUED*
COEFFICIENT OF 0.00003 DK/K PER C BETWEEN 65 AND 90 F).

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

*MODERATOR COEFFICIENT + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS

17-25653 ALSO IN CATEGORY 9
ELIMINATION OF PERIOD RECORDING
TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS
1 PAGE, PAGE 10 OF AMENDMENT 1 TO THE TEXAS A AND M NUCLEAR SCIENCE CENTER SAR, APRIL 3, 1968, DOCKET 50-128

IT HAS BEEN DIFFICULT TO MODIFY (AS ON SAR PAGE 74) A SINGLE RECORDER TO SELECTIVELY RECORD REACTOR PERIOD OR FUEL TEMPERATURE. SINCE 1962, RECORDED PERIOD HAS NOT PROVIDED US WITH USEFUL INFORMATION. THEREFORE THE PERIOD WILL NOT BE RECORDED, STILL BEING INDICATED BY A METER ON THE LOG-N AMPLIFIER.

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

*INSTRUMENTATION, RECORDER + *PERIOD METER + ELECTRICAL CONDUCTION + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + REPORT, SAR + TRIGA (RR)

17-25681 ALSO IN CATEGORY 9
GUBINSKII A + KOLESNIKOV N
ACHIEVEMENTS OF ENGINEERING PSYCHOLOGY--THE PRACTICAL DESIGN OF INFORMATION AND CONTROL SYSTEMS
1 PAGE, ENGLISH ABSTRACT IN AUTOMATION EXPRESS 8(2), PAGE 50 (1966) TRANSLATED FROM AVTOMETRIA NO. 6, PAGES 116-117 (NOV.-DEC. 1965)

A SCIENTIFIC AND TECHNICAL CONFERENCE WAS HELD IN LENINGRAD BETWEEN MAY 12 AND 14, 1965, ENTITLED, ENGINEERING PSYCHOLOGY IN INSTRUMENT DESIGN (CONSIDERING HUMAN PSYCHOLOGICAL FACTORS IN THE DEVELOPMENT OF MONITORING AND CONTROL SYSTEMS). THE AIM WAS TO BRING TOGETHER ACTIVITIES OF SPECIALISTS IN THESE TWO AREAS FOR MUTUAL ACQUAINTANCE WITH PROBLEMS AND ACHIEVEMENTS, AND FOR THE DEVELOPMENT OF COMMON VIEWPOINTS AND METHODS FOR FURTHER COOPERATIVE EFFORT.

CONTROL SYSTEM + EQUIPMENT DESIGN + INSTRUMENTATION, GENERAL + THEORETICAL INVESTIGATION + USSR

17-25696 ALSO IN CATEGORY 6
FAST REACTOR SAFETY
4 PAGES, 2 FIGURES, NUCLEAR ENGINEERING 12(138), PAGES 839-42 (NOVEMBER 1967)

BRIEF REVIEW OF THE CONFERENCE ON THE SAFETY OF FAST BREEDER REACTORS, AIX-EN-PROVENCE, FRANCE, SEPTEMBER 19 TO 22, 1967.

*REACTOR, BREEDER + *REACTOR, FAST + *SAFETY REVIEW + REACTOR, POWER

17-25721 ALSO IN CATEGORIES 10 AND 9
REPORT ON CABLE FAILURES - 1968 - SAN ONOFRE UNIT 1
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
165 PAGES, 16 FIGURES, 10 TABLES OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

FIRES FEB. 7, AND MAR. 12 SHOWED THAT THE AWG6 WIRE FOR THE 480 PRESSURIZER HEATERS WAS BOTH THERMALLY OVERLOADED AND IN AN OVERFILLED CABLE TRAY, THUS OPERATING ABOVE THE 90 C DESIGN. HEAVY MECHANICAL LOADING RESULTED IN PHASE-TO-PHASE CONNECTION BETWEEN TWO SEPARATE HEATER CIRCUITS SUCH THAT CURRENT CONTINUED TO FLOW BELOW THE FUSE-BLOWOUT POINT. ***IN THE MAR. 12 COOLDOWN, BORIC ACID WAS INJECTED BY THE TRANSFER PUMP BECAUSE THE INJECTION-PUMP POWER WAS LOST. FOUR HOURS AFTER COOLDOWN STARTED, IT WAS HALTED WHEN BORON CONCENTRATION WAS FOUND REDUCING RATHER THAN INCREASING. BORIC ACID CRYSTALS WERE BLOCKING THE TRANSFER PUMP, WHILE MAKEUP-PUMP OPERATION WAS UNIMPEDED. ***A 6-MONTH SHUTDOWN TO MAKE $1.5 MILLION REPAIRS RESULTED.

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

*ACCIDENT ANALYSIS + *ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + *POISON, SOLUBLE + CONTAINMENT PENETRATION, ELECTRICAL + FAILURE, DESIGN ERROR + INDEPENDENCE + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY

17-25722 ALSO IN CATEGORY 10
SECTION 4 - SAFETY EVALUATION AND CORRECTIVE ACTION OF SAN ONOFRE CABLE FAILURE - 1968
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
29 PAGES, PAGES 4-1 THRU 4-29 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25722 *CONTINUED*
POWER OR CONTROL WAS LOST FOR 6 EQUIPMENT ITEMS, 7 ENGINEERED SAFEGUARD ITEMS, AS WELL AS 17 OTHER ITEMS DUE TO LOSS OF 480-V BUS 2, AND THE LATTER LOSS REQUIRED SHUTDOWN AT 1 A.M. COOLDOWN AND BORON ADDITION SHOWED NO INCREASE IN SOURCE-RANGE INSTRUMENTS, BUT A SAMPLE AT 430 A.M. SHOWED BORON DILUTION FROM 1911 PPM TO 1638. MINIMUM SHUTDOWN MARGIN WAS 2.8%. ***A FLOWMETER WAS ADDED TO THE TRANSFER PUMP, ADDITIONAL INSULATION AND HEATING FOR THE BORIC ACID TANKS AND LINES, ADDITIONAL BREAKERS TO ISOLATE BUSES FROM DIESELS, SEPARATION OF AND RELOCATION OF CABLES FOR VARIOUS SYSTEMS, PYRALARM UNITS ADDED IN CABLE RUNS, ADDITIONAL TRAINING ON REVISED OPERATING INSTRUCTIONS, AND USE OF 3-WIRE INSTEAD OF SINGLE-WIRE CABLES.

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

*FIRE + *INCIDENT, EQUIPMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + DILUTION + ELECTRIC POWER, SHUTDOWN + ELECTRICAL CONDUCTION + INDEPENDENCE + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY + STAFFING, TRAINING, QUALIFICATION

17-25723 ALSO IN CATEGORY 10
SECTION 5 - ELECTRICAL SYSTEM INVESTIGATION AND CORRECTIVE ACTION OF SAN ONOFRE CABLE FAILURES - 1968
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
14 PAGES, 2 FIGURES, PAGES 5-1 THRU 5-14 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

(FEB. 7) AWG6 WIRE IN THE PRESSURIZER-HEATER CIRCUITS WAS OVERHEATED IN THE RESTRICTED VENTILATION COWLINGS AT THE CONTAINMENT PENETRATIONS. MOISTURE COULD HAVE ENTERED THE SILICONE-RUBBER SEALS, LEADING TO ELECTRICAL BREAKDOWN. HEAT FROM FIRE DECOMPOSED INSULATION, EXPELLING THE OUTSIDE BULKHEAD FROM THE CANISTER. (MAR. 12) AGAIN, ALL THE HEATERS HAD BEEN IN SERVICE 9 HR AT 46 AMP AND FAILED IN THE BOTTOM OF A TRAY LOADED WITH TWICE THE PERCENTAGE OF CABLES (40) ALLOWED BY DESIGN CRITERIA, AT A SPOT WHERE CABLE-TO-TRAY TIES WERE MADE WITH WIRE (TRANSFORMER ACTION OVERHEATING). ***TESTS DUPLICATING FIRES, DESIGN CRITERIA, AND OTHER ANALYSES INCLUDED (ALSO SECT. 7 - DETAILS IN APPENDIXES.)

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

*ELECTRICAL CONDUCTION + *FIRE + *INCIDENT, EQUIPMENT + ACCIDENT ANALYSIS + DESIGN CRITERIA + ELECTRIC POWER, SHUTDOWN + FAILURE, DESIGN ERROR + FAILURE, INSTALLATION ERROR + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR)

17-25724 ALSO IN CATEGORY 9
SECTION 7.1.5 - BORIC ACID CRYSTALLIZATION STUDY - SAN ONOFRE
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
3 PAGES, 1 FIGURE, PAGE 1-3 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

TESTS SIMULATING BORIC-ACID-TRANSFER THE SYSTEM THAT PLUGGED ON MAR. 12 REVEALED THAT BORIC ACID CRYSTALS IN STAGNANT SYSTEM NEAR SATURATION DO NOT DISSOLVE, THUS FORMING PRECIPATION SITES WHEN HEAT IS LOST. THUS, INJECTION OF CRYSTALS BY STARTING A PUMP OR BY REAPPLYING HEAT TO CRYSTALS ON THE WALLS (BREAKING THEM OFF) RESULTS IN CRYSTALS BEING CARRIED TO ACCUMULATE IN A RESTRICTION IN THE LINE. EXPERIMENTS DEMONSTRATE SEVERE PACKING TENDENCY OF CRYSTALS ONCE FORMED IN A PIPE, GIVING A VERY HIGH CHANCE OF PLUGGING. WITH CRYSTALS IN THE SUCTION LINE FOLLOWED BY A LOSS OF HEAT TRACING, RAPID CRYSTAL DEPOSITION MAY EXIST EVEN AT TEMPERATURE ABOVE 150 F.

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

*OPERATING EXPERIENCE + *POISON, SOLUBLE + BORON + DEPOSITION + INCIDENT, EQUIPMENT + REACTOR, PWR + SAN ONOFRE (PWR) + SHUTDOWN MARGIN + SHUTDOWN SYSTEM, SECONDARY + TEST, PLANT RESPONSE

17-25725 ALSO IN CATEGORY 10
SECTION 7.2-.4 CABLE TRAY THERMAL ANALYSIS AND DESIGN BASIS
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
22 PAGES, 5 TABLES, OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

DESIGN BASIS (3 PG), MATERIAL SPECIFICATION 225-63 FOR 600-V RUBBER LIKE INSULATED CONTROL CABLES (20 PG). WORST POSSIBLE LOADING WITH A TIGHT BUNDLE OF POWER CABLE SURROUNDED BY CONTROL CABLE LAYER IS SOLVED TO OBTAIN AN EQUATION TO OBTAIN ALLOWABLE HEAT SOURCE. OF THE EIGHT SWITCHGEAR-ROOM 1-CABLE TRAYS, ONLY 1 WAS BELOW 100 C AT CENTER, AND ONE WAS AT 190. WITH THE REVISED INSTALLATION, ONLY ONE IS ABOVE 90 C.

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

*ELECTRICAL CONDUCTION + *TEMPERATURE GRADIENT + *THERMAL ANALYSIS + ANALYTICAL MODEL + ELECTRIC POWER, SHUTDOWN + INCIDENT, EQUIPMENT + REACTOR, PWR + SAN ONOFRE (PWR)

17-25726 ALSO IN CATEGORY 14
TURBINE CONDENSER TUBE FAILURES, WASTE DISCHARGE
YANKEE ATOMIC ELECTRIC COMPANY
8 PAGES, 2 FIGURES FROM YANKEE NUCLEAR POWER STATION OPERATION REPORT NO. 85, JANUARY 1968, DOCKET 50-29,

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25726 *CONTINUED*
TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ON JAN. 22, STEAM-GENERATOR-BLOWDOWN CHLORIDE CONTENT RAPIDLY INCREASED FROM 0.05 TO 0.60 PPM. LOAD WAS REDUCED, MAIN CONDENSER WEST WATER BOX ENTERED, AND THREE TUBES WERE PLUGGED. ON JAN. 25, BOX WAS AGAIN ENTERED BUT NO PLUGGING NEEDED. ***CONTROL RODS AND THROTTLE VALVES WERE EXERCISED. PRESSURIZER RADIOLYTIC GAS FRACTIONS ARE REPORTED WITH AMMONIATED UNBORATED WATER. ***SUMMARY OF 1967 WASTE DISCHARGE SHOWS - (LIQUID) 54.1 MILLICURIES BETA-GAMMA AND 1589.54 CURIES TRITIUM, (GAS) 2.31 B-G AND 15.07 OF TRITIUM. SHIPPED WASTE CONSISTED OF 4 CASKS (37,000 CURIES) AND 52 FUEL ELEMENTS (64,950,000 CURIES).

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

CHLORINE + FAILURE, TUBING + PRESSURIZER + RADIOLYTIC GAS + REACTOR, PWR + REPORT, OPERATIONS + TURBINE + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + YANKEE (PWR)

17-25727 ALSO IN CATEGORY 6
DE-AMMONIATION GIVES TWICE EXPECTED REACTIVITY GAIN
YANKEE ATOMIC ELECTRIC COMPANY
7 PAGES, 2 FIGURES FROM YANKEE NUCLEAR POWER STATION, OPERATION REPORT NO. 87, MARCH 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

MAIN-COOLANT AMMONIA AVERAGED 12 PPM UNTIL MARCH 15 (FEED STOPPED), AND RADIOLYSIS DECREASED IT TO 2. ON MARCH 18 A MIXED-BED ION EXCHANGER REDUCED IT TO NEGLIGIBLE LEVELS. A 0.39% DK/K REACTIVITY LOSS RESULTED (TWICE THE GAIN ON AMMONIATION IN NOV. 67), SUPPORTING THE THEORY OF SLOW REACTIVITY GAINS SINCE JULY 1967. ***VESSEL-HEAD STUDS WERE REMOVED WITH DIFFICULTY. VIBRATION TESTS OF MAIN PUMPS SHOWED NO. 1 DIFFERENT. IT IS BEING INSPECTED. PRESSURIZER INTERNAL SURFACES PHOTOGRAPHED AND DYE-CHECKED. RADIATION LEVELS WERE 1 TO 1.5 R/HR.

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

*CHEMICAL SHIM + *EXAMINATION + *PH REACTIVITY EFFECT + *PRESSURIZER + COOLANT CHEMISTRY + FUEL BURNUP + POISON, SOLUBLE + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PWR + REPORT, OPERATIONS + SURFACE, GENERAL + TEST, NONDESTRUCTIVE + YANKEE (PWR)

17-25728 ALSO IN CATEGORIES 18 AND 15
INFORMATION REQUESTED ON GINNA RADIATION EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO F. E. DRAKE, JR. FROM P. A. MORRIS, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

ORL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + GINNA (PWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, PWR

17-25729 ALSO IN CATEGORIES 18 AND 15
INFORMATION REQUESTED ON NINE MILE POINT EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, MAY 27, 1968, LETTER TO M. H. PRATT FROM P. A. MORRIS, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

ORL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + NINE MILE POINT (BWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, BWR

17-25730 ALSO IN CATEGORIES 18 AND 15
INFORMATION REQUESTED ON SEFOR EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO K. P. COHEN FROM P. A. MORRIS, DOCKET 50-231

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25730 *CONTINUED*
DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + OPERATING LICENSE PROCESS + RADIATION INJURY, TREATMENT OF + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SEFOR (RE)

17-25731 ALSO IN CATEGORY 9
SEVENTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR
ALLIS-CHALMERS
ACNP-68501 +. 25 PAGES, FIGURES, TABLES, JANUARY 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR WAS OPERATED FOR 102 HR, INCLUDING 60 FOR CHECKING SYSTEM PERFORMANCE AND 40 FOR ATTAINMENT OF NORMAL OPERATING CONDITIONS AT 577 F. TOTAL TEMPERATURE DEFECT FROM 80 TO 410 F WAS $5.01, AND FROM 410 TO 575 WAS $5.71. ***ADJUSTMENT OF THE ROTOVALVES WAS NECESSARY AS THEY JAMMED WHEN THE COOLANT WAS BELOW 350 F. VARIOUS CONTROL-ROD-DRIVE MALFUNCTIONS OCCURRED.

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

*CONTROL ROD DRIVE + *FAILURE, COMPONENT + *TEMPERATURE REACTIVITY EFFECT + LACROSSE (BWR) + REACTOR, BWR + REPORT, OPERATIONS

17-25732
LA CROSSE STARTUP EXPERIENCE
ALLIS-CHALMERS
ACNP-68503 +. 20 PAGES, FIGURES FROM EIGHTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR, FEBRUARY 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR OPERATED 71 HR, INCLUDING 50 HR AT THE END OF THE MONTH TO HOT-TEST THE PRIMARY PUMPS AND ROTOVALVES, PLUS THE CONTROL-ROD DRIVES. ***CONTROL-ROD-DRIVE SEAL MODIFICATION WAS COMPLETED. INCREASING THE HYDRAULIC-LINE DIAMETER IMPROVED THE SCRAM RESPONSE TIME. ***ABOUT 17 CU. FT OF ANION RESIN WAS MISSING, APPARENTLY BY DISCHARGE TO WASTE-STORAGE TANKS DURING REGENERATION. ***RECIRC.-PUMP SEALS WERE FOUND DAMAGED BY CHIPS FROM MANUFACTURING PROCESS.

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

*CONTROL ROD DRIVE + *MAINTENANCE AND REPAIR + *PUMP + *VALVE + ION EXCHANGE + LACROSSE (BWR) + MAIN COOLING SYSTEM + REACTOR, BWR + REPORT, OPERATIONS + RESIN + RESPONSE TIME

17-25733 ALSO IN CATEGORY 9
LA CROSSE INITIAL POWER ESCALATION
ALLIS-CHALMERS
ACNP-68504 +. 29 PAGES, FIGURES, TABLES FROM NINTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR, MARCH 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

HEAT BALANCE AT 320, 760, AND 1250 PSIG FOR SEVERAL ROD POSITIONS INDICATES POWER-RANGE-INSTRUMENT CALIBRATION (MW/MILLIAMP) DECREASES AS PRESSURE INCREASES OR AS ROD BANK WITHDRAWS. THE CHANGE IS A FACTOR OF 5 - FROM 18 IN. AND 320 PSIG TO 27 IN. AND 1250 PSIG. FINALLY THE REACTOR WAS BROUGHT TO 25% (39 MWTH), BUT HEAT BALANCES SHOWED 43.8 (TURBINE WATER FLOW) AND 34 MWTH (STEAM OR FEEDWATER FLOW). A -$0.004/PSI PRESSURE COEFFICIENT WAS INFERRED. CONTROL-ROD DRIVES OPERATED SATISFACTORILY. ***ON THREE OCCASIONS, ALL ROD INSERTS STOPPED RAPID POWER INCREASES FROM FEEDWATER CHANGES (THE SPEED CONTROL WAS STICKY), WITH A TIME DELAY BETWEEN THE OPERATORS SIGNAL AND PUMP RESPONSE. ***ON THE FIRST ATTEMPT TO ROLL THE TURBINE WITH REACTOR STEAM, CONDUCTIVITY RAPIDLY INCREASED. REMNANTS OF THE CLEANING SOLUTION FOR THE FEEDWATER SYSTEM HAD COLLECTED IN THE REHEATER SHELL. THE RESULTANT DISSOLVED IRON FOULED THE FULL-FLOW BEDS RAPIDLY.

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

CONTROLLER + COOLANT QUALITY + FAILURE, OPERATOR ERROR + FLUX DISTRIBUTION + INSTRUMENTATION, ABNORMAL INDICATION + LACROSSE (BWR) + REACTIVITY EFFECT, PRESSURE + REACTOR POWER + REACTOR STARTUP EXPERIENCE + REACTOR, PWR + REFLECTOR + REPORT, OPERATIONS

17-25734
CHANGE 29 TO WESTERN NEW YORK PULSTAR PULSE CALIBRATION
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, APRIL 2, 1968, LETTER TO R. F. LUMB FROM D. J. SKOVHOLT, DOCKET 50-57

ALLOWS (1) FOIL ACTIVATION INSTEAD OF FUEL ACTIVATION FOR PULSE CALIBRATION (DIFFICULTY IN

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25734 *CONTINUED*
POSITIONING, INACCURACIES OF FUEL CONFIGURATION), (2) USE OF A CALIBRATION PULSE TO CALIBRATE PULSE ROD (IN-HOUR METHOD INACCURATE DURING XENON TRANSIENTS), AND (3) REDUCTION OF CALIBRATION PULSE FROM 35 TO 20 MW-SEC (ADEQUATE LINEAR INSTRUMENT RESPONSE POSSIBLE).

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

*CONTROL ROD CALIBRATION + *INSTRUMENTATION CALIBRATION + INSTRUMENTATION, POWER RANGE + PULSTAR (RR) + REACTIVITY EFFECT + REACTOR, PULSED + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-25736 ALSO IN CATEGORY 6
INITIAL TESTING OF THE LA CROSSE BOILING WATER REACTOR
ALLIS-CHALMERS
ACNP-67533 +. 67 PAGES, FIGURES, TABLES, DECEMBER 1967, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

COMPILED FROM MONTHLY OPERATING REPORTS 1-5 (WITH LITTLE ADDITION). SECTIONS INCLUDE (1) INITIAL CRITICALITY, 6 PAGES, (2) LOADING TO FULL CORE, 5 PAGES, (3) CONTROL-ROD CALIBRATION, 8 PAGES, (4) SHUTDOWN MARGIN, 6 PAGES, (5) EXCESS-REACTIVITY MEASUREMENT, 12 PAGES, (6) FLUX DISTRIBUTION AND POWER-LEVEL DETERMINATION, 19 PAGES, (7) INSTALLATION OF SECOND NEUTRON SOURCE, 2 PAGES.

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

*CRITICALITY EXPERIMENT + LACROSSE (BWR) + REACTOR STARTUP TESTING + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

17-25737
RESPONSE TO AEC QUESTIONS
TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS
12 PAGES, 3 FIGURES OF AMENDMENT I TO THE TEXAS A AND M NUCLEAR SCIENCE CENTER SAR, APRIL 3, 1968, DOCKET 50-128

ANSWERS 6 QUESTION BY ORL ON MARCH 28, 1968, RELATING TO PROPOSED USAGE OF A TRIGA-TYPE CORE IN PLACE OF THE ORIGINAL PLATE CORE.

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

*POWER UPRATING + AEC QUESTION + FUEL ELEMENT + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + REPORT, SAR + TRIGA (RR)

17-25829 ALSO IN CATEGORY 2
N.S. SAVANNAH, PORT OPERATING PLANT, PORT OF PIRAEUS, PIRAEUS, GREECE, FEBRUARY 1966
FIRST ATOMIC SHIP TRANSPORT INC.
FAST 131(REV.) +. 26 PAGES, 1 FIGURE, 2 TABLES, APRIL 1968

OUTLINES ARRIVAL PRECAUTIONS (TWO TUGS FOR ESCORT), CONTROLLED (APPROXIMATELY 600 FT) AND LOW-POPULATION (APPROXIMATELY 1020 FT) ZONES. TOTAL POPULATION DOSE FOR 24 HR WOULD BE 541,600 MAN-REMS.

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

*SITING, REACTOR + GREECE + NS SAVANNAH (PWR) + REACTOR, MARITIME + TECHNICAL SPECIFICATIONS

17-25830 ALSO IN CATEGORY 5
AMENDMENT TO OPERATE THERMIONIC CRITICAL EXPERIMENT
USAEC, DIVISION OF REACTOR LICENSING
11 PAGES, APRIL 15, 1968, LETTER TO S. J. FARMER FROM D. J. SKOVHOLT, DOCKET 50-234

ORIGINAL CONSTRUCTION-PERMIT CONCLUSIONS ARE STILL VALID. TESTS OF PYROPHORICITY OF URANIUM FOILS COATED WITH FLUOROCARBON RESIN MODERATED WITH POLYETHYLENE INDICATE IGNITION AT 330 C FOLLOWED BY AN ORGANIC FIRE. THIS WOULD NOT CAUSE CRITICALITY AS URANIUM BECOMES LESS DENSE AND HYDROGEN IS LOST IN THE ALREADY UNDER-MODERATED CORE. ADDITIONAL RELEASE OF FISSION PRODUCTS FROM A FIRE AFTER A 14.4-MWSEC EXCURSION RAISING FUEL TEMPERATURE TO 445 C GIVES A THYROID DOSE OF 8.6 REMS FOR A 2-HR EXPOSURE AT SITE BOUNDARY.

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

*FIRE + *IGNITION + DOSE + OFF SITE + PYROPHORIC REACTION + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + URANIUM

17-25831 ALSO IN CATEGORY 19
PAGET JA
A SURVEY OF TECHNICAL CONSIDERATIONS APPLICABLE TO AN ON-LINE REFUELING SYSTEM FOR LARGE HTGR(S)
GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25831 *CONTINUED*
GA-8075 +. 167 PAGES, FIGURES, TABLES, JUNE 30, 1967

SELECTION OF WELL-DEVELOPED FOREIGN TECHNOLOGY APPLIED TO A U.S. 1000-MW HTGR. CHAPTER TITLES INCLUDE (2) TECHNICAL EVALUATION OF ON-LINE REFUELING, (3) FUNDAMENTAL LAYOUT POLICY ALTERNATIVES, (5) INFLUENCE OF CORE CONFIGURATION ON ON-LINE REFUELING, (6) PRESSURE SHIELD AND SHIELDING ENVELOPE, (9) RELIABILITY, REDUNDANCY, AND SERVICE FACILITIES.

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

*REFUELING, ON LINE + BIBLIOGRAPHY + DESIGN STUDY + REACTOR, HTGR + REVIEW

17-25857 ALSO IN CATEGORIES 9 AND 6
SELECTED PEACH BOTTOM OPERATING EXPERIENCE
GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.
GA-8153 +. 60 PAGES, 32 FIGURES, 8 TABLES, 40-MW(E) PROTOTYPE HIGH-TEMPERATURE GAS-COOLED REACTOR POSTCONSTRUCTION RESEARCH AND DEVELOPMENT PROGRAM, QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING JULY 31, 1967, AUGUST 30, 1967

(PAGE 10-14) POWER CALIBRATION TEST, (PAGE 14-21) PLANT CONTROL CONFIRMATION TEST, (PAGE 21-29) DYNAMIC VERIFICATION OF NUCLEAR STEAM SUPPLY SYSTEM, (PAGE 30-35) POWER COEFFICIENT TEST WITH VARIABLE FLOW AND POWER, (PAGE 35-37) XENON BUILDUP AND DECAY, (PAGE 37-40) VERIFICATION OF CORE HEAT-TRANSFER COEFFICIENT, (PAGE 43-44) SHIELDING SURVEY AT 100 PERCENT POWER, (PAGE 45-48) HELIUM-PURIFICATION-SYSTEM PERFORMANCE, (PAGE 48-51) MAIN-COOLANT-SYSTEM PARTICULATE MATTER, (PAGE 53-59) GASEOUS ACTIVITY DETERMINATIONS (IN MAIN COOLANT AND FUEL-ELEMENT PURGE SYSTEMS).

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

CONTROLLER + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + R AND D PROGRAM + REACTOR POWER + REACTOR STARTUP TESTING + REACTOR, HTGR + REPORT, OPERATIONS + TEST, SYSTEM OPERABILITY

17-25858
ADDISON JV
PIQUA NUCLEAR POWER FACILITY AVAILABILITY EVALUATION REPORT. VOLUME II. RELIABILITY BLOCK DIAGRAMS, MAJOR COMPONENT FAILURE DATA, FAILURE MODE AND EFFECT ANALYSES
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-12420, VOL. 2 +. 356 PAGES, NOVEMBER 6, 1967

CONTAINS RELIABILITY BLOCK DIAGRAMS, FAILURE-MODE-AND-EFFECT-EVALUATION DIAGRAMS, TABLES, AND ANALYSES, AND MAJOR-COMPONENT-FAILURE DATA IN SUPPORT OF VOLUME 19

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

*RELIABILITY ANALYSIS + FAILURE MODE ANALYSIS + PIQUA (OCR) + REACTOR, ORGANIC COOLED

17-25859
ADDISON JV
PIQUA NUCLEAR POWER FACILITY AVAILABILITY EVALUATION REPORT. VOLUME I
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
NAA-SR-MEMO-12420(VOL.1) +. 101 PAGES, 4 FIGURES, 9 TABLES, REFERENCES, NOVEMBER 6, 1967

OBJECT WAS TO DETERMINE EXPECTED AVAILABILITY AND RELIABILITY AFTER MODIFICATIONS (NEW CONTROL-ROD SYSTEM AND ELIMINATION OF LOW-VELOCITY REGION IN CORE). EVALUATED VARIOUS PLANT SYSTEMS BY USE OF FAILURE MODE AND EFFECT ANALYSIS, FAULT-TREE DIAGRAMS, AND RELIABILITY BLOCK DIAGRAMS. RESULTS INDICATE CONTROL-ROD CIRCUITS SHOULD HAVE A RELIABILITY OF 85.8% FOR A 3-MONTH OPERATIONAL CYCLE. THE AVAILABILITY FOR THE FIRST 2 YEARS HAD BEEN 70%.

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

*RELIABILITY ANALYSIS + CONTROL ROD DRIVE + FAILURE MODE ANALYSIS + PIQUA (OCR) + REACTOR, ORGANIC COOLED

17-25860 ALSO IN CATEGORY 11
SPECIFICATION FOR PM TYPE NUCLEAR REACTOR CORES (TYPE 2 DESIGN)
HITTMAN ASSOCIATES, INC., BALTIMORE, MD.
NYO-10743 +. 91 PAGES, JANUARY 1967

CONTAINS, AMONG OTHER ITEMS, MANUFACTURING, QUALITY ASSURANCE, AND PRODUCT REQUIREMENTS FOR MATERIALS, FUEL ELEMENTS, BURNABLE-POISON ELEMENTS, CONTROL-ROD ASSEMBLY, CORE-BUNDLE ASSEMBLY, SOURCE TUBE, WELDED STRUCTURAL ASSEMBLY, AND CORE ASSEMBLY. FUEL ELEMENTS ARE TUBULAR, UO2-SS CORE, SS CLAD. BURNABLE-POISON ELEMENTS CONSIST OF B4C-ZR2 PELLETS IN STAINLESS-STEEL TUBES. CONTROL ROD HAS CORE OF EUROPIUM TITANATE DISPERSED IN STAINLESS STEEL MATRIX, STAINLESS-STEEL CLAD. SOURCE IS PO-BE IN STAINLESS-STEEL TUBE.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25860 *CONTINUED*
*CODES AND STANDARDS + *QUALITY CONTROL + BORON + CARBIDE + CONTROL ROD FABRICATION + CORE COMPONENTS + FABRICATION + FUEL ELEMENT + FUEL, PELLET TYPE + MATERIAL + PM 2A (PWR) + POISON, BURNABLE + REACTOR, MILITARY + REACTOR, PWR + SOURCE, NEUTRON + STEEL, STAINLESS + URANIUM OXIDE

17-25864 ALSO IN CATEGORY 5
AMENDMENT 1 TO SAXTON CHANGE REQUEST 31
SAXTON EXPERIMENTAL CORPORATION
3 PAGES, APRIL 19, 1968, LETTER TO D. J. SKOVHOT FROM C. R. MONTGOMERY, DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

THE HOT-CHANNEL FACTORS (FQ OF 1.72, AND F DELTA H OF 1.22) IN TABLE 3, PAGE 7 OF CHANGE 20, ARE ACTUALLY THE ASSEMBLY PEAK-TO-AVERAGE VALUES. CORRECT VALUES ARE 6.44 AND 4.56 FOR THE ASSEMBLY PEAK-TO-CORE AVERAGE WHEN ELEMENT IS IN THE CENTRAL CORE LOCATION.

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

*HOT CHANNEL FACTOR + REACTOR, PWR + SAXTON (PWR) + TECHNICAL SPECIFICATIONS

17-25865
STERLING FOREST CHANGE 7 - FUEL ELEMENTS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, APRIL 22, 1968, LETTER TO J. J. MCGOVERN FROM D. J. SKOVHOLT, DOCKET 50-54

ALLOWS USE OF 16- AND 19-PLATE ELEMENTS AS WELL AS 18 PLATES, AND REDUCED THICKNESS OF ALUMINUM CLADDING (FROM 0.020 TO 0.015 IN.) WHILE MAINTAINING THE LOADING PER ELEMENT.

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

*FUEL ELEMENT + CLAD + FUEL, METALLIC TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-25866
USE OF UNCOATED FUEL IN OSCILLATOR RODS
GULF GENERAL ATOMIC INCORPORATED
3 PAGES, APRIL 19, 1968, LETTER TO D. J. SKOVHOLT FROM P. H. MILLER, JR., DOCKET 50-240

TO MAKE CERTAIN DOPPLER-COEFFICIENT MEASUREMENTS, THE OSCILLATOR FUEL ROD MUST BE LOADED WITH URANIUM AND THORIUM OXIDES AND CARBIDES HAVING THE SMALLEST GRAIN SIZES POSSIBLE TO ELIMINATE SELF-SHIELDING BY THE PARTICLES. EVEN IF 100% RELEASE OF THE FISSION PRODUCTS OCCURED, THE DOSE RATES WOULD INCREASE ONLY 5% IN THE MCA.

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

*COATED PARTICLE + CRITICAL ASSEMBLY FACILITY + DOPPLER COEFFICIENT + OSCILLATOR, REACTIVITY + REACTOR, HTGR + SHIELDING + TECHNICAL SPECIFICATIONS

17-25867
AMENDMENT 1 - INCREASED URANIUM ALLOWANCE
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, APRIL 23, 1968, LETTER TO A. M. EMMONS FROM D. J. SKOVHOLT, DOCKET 50-186

INCREASES ALLOWANCE TO 45 KG OF U-235 AND 80 G OF PU IN A PU-BE SOURCE. CONTINUOUS OPERATION AT 5 MWTH WILL REQUIRE 3-5 CORES PER YEAR. THIS WILL BE STORED BECAUSE THE PROCUREMENT TIME IS 10-12 MONTHS.

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

*SPECIAL NUCLEAR MATERIAL + FUEL STORAGE + PLUTONIUM + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + URANIUM-235

17-25869
UCLA PROPOSED POWER ESCALATION
USAEC, DIVISION OF REACTOR LICENSING
9 PAGES, MARCH 27, 1968, LETTER TO H. V. BROWN FROM D. J. SKOVHOLT, DOCKET 50-142

PROPOSED AMENDMENT WOULD ALLOW BRIEF PERIOD OF OPERATION (SINGLE 15-MIN RUN IN ANY 3-DAY PERIOD) AT 500 KW TO PROVIDE HEAT-TRANSFER AND SHIELD-PERFORMANCE DATA. MEASURED BULK OUTLET TEMPERATURE AT HOTTEST FUEL BOX WILL NOT EXCEED 210 F.

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

*POWER UPRATING + ARGONAUT (TNG) + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25881
SELECTED YANKEE MAINTAINENCE EXPERIENCE
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS
12 PAGES, 3 FIGURES, TABLE, FROM YANKEE NUCLEAR POWER STATION OPERATION REPORT NO. 88 FOR THE MONTH OF APRIL, 1968, DOCKET NO. 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PLANT WAS SHUT DOWN FOR CORE VI-VII REFUELING. THERMAL SHIELD REPAIRS OF IV-V OUTAGE WERE INSPECTED. A GALLED VESSEL STUD WAS REPLACED, WORK FIELD AT VESSEL REDUCED FROM 1.5 R/HR TO 0.3 R/HR BY SHIELDING. A SUBSTANTIAL AREA OF MAIN CONDENSER TUBES WERE RETUBED BECAUSE LEAKS OCCURRED JUST BELOW THE CONDENSER OFF-GAS TAKEOFF. A CRACK WAS REPAIRED IN THE INTERNAL WELD OF LOOP-2 SAFETY-INJECTION LINE, WHERE THE THERMAL SLEEVE ATTACHES TO THE TRANSITION PIECE. ***WATER IN THE SHIELD TANK WAS EXCEPTIONALLY CLEAR BECAUSE THE ADJUSTABLE STANDPIPE TAKES SUCTION TO PREVENT STRATIFICATION AND THEN PASSES IT THROUGH A 1- TO 3-MICRON FILTER BEFORE PUTTING IT INTO THE LP SURGE TANK.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*OPERATING EXPERIENCE + *REFUELING + *THERMAL SHIELD + CORE REFLOODING SYSTEM + EXAMINATION + FAILURE, TUBING + FAULT + REACTOR, PWR + REPORT, OPERATIONS + WELDING + YANKEE (PWR)

17-25893 ALSO IN CATEGORIES 6 AND 7
SEMIANNUAL PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1967. SAXTON PLUTONIUM PROGRAM
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH
WCAP-3385-14 + EURAEC-1955 +. 30 PAGES, FIGURES, TABLES, 10 REFERENCES, MARCH 1968

(PAGES 3-1 THRU 3-16) - REBUF CODE WAS MODIFIED FOR AN INITIAL PLUTONIUM CONTENT AND CHECKED AGAINST LEOPARD RUNS. CRITICAL BORON CONCENTRATION VS BURNUP IS BEING CALCULATED BY THE FOLLOW CODE. EXTENSIVE REEVALUATION OF FUEL-BURNUP CODES ESTABLISHED THAT THE DIFFERENCE BETWEEN LEOPARD (PU AND U FISSION YIELDS THE SAME) AND CINDER IS 35 PPM OF BORON, AND THAT LEOPARD-PDQ3 AGREES WITH OBSERVED BORON, THUS CINDER OVERESTIMATES FP POISIONING. A REVISED DEPLETION ANALYSIS WAS BEGUN WITH A LEOPARD-PDQ7 - HARMONY SEQUENCE. (PGS. 4-1 AND-2) - FISSION GASES RELEASED FROM TWO TYPICAL PU)2-UO2 RODS WERE MEASURED AS FOLLOWS - (PELLET) 2.1% OBSERVED, 1.5% PREDICTED. (VIPAC) 10.8% OBSERVED, 9% PREDICTED BY FIGHT CODE.

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

*COMPUTER PROGRAM + *FUEL BURNUP + COMPARISON, THEORY AND EXPERIENCE + FISSION GAS RELEASE + FUEL ELEMENT + FUEL, PELLET TYPE + FUEL, POWDER TYPE + INITIAL CONDITIONS + PLUTONIUM DIOXIDE + R AND D PROGRAM + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + SAXTON (PWR) + URANIUM DIOXIDE

17-25894 ALSO IN CATEGORY 19
PROGRAMMED INSTRUCTION GUIDE
NORTHEASTERN UNIVERSITY
137 PAGES, PUBLISHED IN 1967 BY ENTELEK INCORPORATED

LISTS A TOTAL OF 1773 PROGRAMS, CONSISTING OF 4036 SEPARATE PIECES OF MATERIAL, COVERING 158 MAJOR SUBJECTS. OF POTENTIAL USE IN A REACTOR-OPERATOR TRAINING PROGRAM ARE 14 ITEMS ON USE OF SLIDE RULE, 20 PAGES OF PROGRAMS ON MATHEMATICS COVERING 7TH-GRADE MATH THRU CALCULUS, 17 ITEMS ON BASIC PHYSICS, 16 ITEMS ON BASIC ELECTRICITY, 7 ITEMS ON ELECTRONICS, 5 ITEMS ON ATOMIC STRUCTURE AND RADIOACTIVITY, 14 ITEMS ON INDUSTRIAL SAFETY, 13 ITEMS ON DATA PROCESSING. DESCRIPTIVE INFORMATION FOR EACH PROGRAM INCLUDES COST, EVALUATIVE INFORMATION, SOURCE, AND AVAILABILITY.

AVAILABILITY - ENTELEK INCORPORATED

*BIBLIOGRAPHY + *STAFFING, TRAINING, QUALIFICATION

17-25898 ALSO IN CATEGORIES 1 AND 15
US NUCLEAR CORP DENIED LICENSE RENEWAL FOR PU-BE SOURCE FABRICATION
UNITED STATES ATOMIC ENERGY COMMISSION
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(24), PAGE 4-7,(JUNE 12, 1968)

(JUNE 1 NOTICE OF DENIAL.) REQUIRES DISPOSAL OF PLUTONIUM AND DECONTAMINATION/DISMANTLING OF FACILITY LICENSED ORIGINALLY APRIL 6, 1967. CITED IN APPENDIX A ARE 3 ITEMS OF NONCOMPLIANCE REVEALED IN A MAY 24, 1967, INSPECTION, 3 ON JUNE 5, 2 ON JULY 11, 3 ON DEC. 14-15, AND 6 DURING THE JAN.-MAR. 1968 INVESTIGATION OF A JAN. 18, 1968 INCIDENT (CUTTING INTO A 35-CURIE PU-BE SOURCE IN AN OPEN MACHINE SHOP UNAUTHORIZED FOR SNM OPERATIONS). (THE 15 ITEMS APPARENTLY ESTABLISH A REPETITIVE PATTERN OF INADEQUATE AIRBORNE-PU SURVEYS, PLUS OTHER INADEQUATE RECORD KEEPING AND INADEQUATE HEALTH PHYSICS CAPABILITY).

*HEALTH PHYSICS TRAINING + *INSPECTION AND COMPLIANCE + *OPERATING LICENSE PROCESS + *SOURCE, NEUTRON + *SPECIAL NUCLEAR MATERIAL + APPLICATION FOR AEC LICENSE + FAILURE, ADMINISTRATIVE CONTROL + LICENSING STATUS OF NUCLEAR PROJECTS + PLUTONIUM + RADIATION SAFETY AND CONTROL + RADIOISOTOPE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25899
ICE RD
TE-99M SPILL DUE TO CARELESSNESS
TEMPLE UNIVERSITY, HEALTH SCIENCES CENTER, SCHOOL OF PHARMACY, PHILADELPHIA, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(24), PAGE 12-14, (JUNE 12, 1968)

(LETTER, MAR. 22) AT 9 AM ON MONDAY, FEB. 26, 1968, A NUCLEAR-MEDICINE TECHNICIAN DROPPED A VIAL CONTAINING 250 MILLICURIES OF TE-99M. SHE HAD JUST FINISHED MILKING THE MO-99 GENERATOR, AND WAS CARRYING THE VIAL IN A LEAD CONTAINER TO AN ELECTROMETER WHEN SHE COUGHED AND DROPPED THE GLASS VIAL. REPLAY SHOWED THAT WHEN THE RETAINING RING WAS PLACED WELL DOWN IN THE CONTAINER, IT WAS IMPOSSIBLE TO SHAKE THE VIAL OUT. RADIATION 1 FT FROM THE SPILL WAS 48 MILLI-R/HR, AND CERTAIN FLOOR AREAS OUTSIDE THE LAB SHOWED 35,000 CPM. AREA WAS POSTED AND 6-HR HALF-LIFE TE-99M WAS ALLOWED TO DECAY (PREFERABLE TO DECONTAMINATING THE AREA).

*INCIDENT, HUMAN ERROR + *ISOTOPIC GENERATOR + *RADIOISOTOPE + CONTAMINATION + FAILURE, OPERATOR ERROR + RADIOLOGY + TECHNETIUM

17-25900
DIETZ, CR + DUNCAN, DE + GARRETT, AW + GRUBB, CA + SEYFRIT, KV + SIMS, WH + WEBSTER, BH
PIQUA NUCLEAR POWER FACILITY MONTHLY PROGRESS REPORT NO. 60
PIQUA NUCLEAR POWER FACILITY, PIQUA, OHIO
COO-652-50 +. 6 PAGES, APRIL, 1968, DOCKET 115-2, TYPE--OCR, MFG--A.I., AE-A.I.

MONTHLY PROGRESS REPORT. USUAL CONTENTS ARE DIVIDED BETWEEN HIGHLIGHTS, PLANT PERFORMANCE DATA, ADMINISTRATION, TESTING AND ANALYSIS, HEALTH AND SAFETY, MAINTENANCE AND MODIFICATION.

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

*MAINTENANCE AND REPAIR + *RADIATION SAFETY AND CONTROL + *TESTING + PIQUA (OCR) + REACTOR, ORGANIC COOLED + REPORT, OPERATIONS SUMMARY

17-25901
FERMI REMOVES ZIRCONIUM PLATE
POWER REACTOR DEVELOPMENT COMPANY
PRDC-EF-55 +. 7 PAGES, POWER REACTOR DEVELOPMENT COMPANY ENRICO FERMI ATOMIC POWER PLANT REPORT FOR MARCH 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

THE ZIRCONIUM PLATE WAS REMOVED FROM THE REACTOR ON MARCH 22. THE 200-MR/HR SURFACE RADIATION WAS REDUCED TO 2 MR/HR BY DECONTAMINATION. DESPITE THE MOCKUP WORK, THE REMOTE-HANDLING TOOLS NEEDED MINOR MODIFICATION. A PATCH CUT FROM PRIMARY PIPING WAS UNWETTED BY SODIUM, AND THE BETA RADIATION (150 MR/HR) WAS REDUCED TO BACKGROUND BY DECONTAMINATION.

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

*FLOW BLOCKAGE + *REMOTE MANIPULATING AND VIEWING + BETA EMITTER + CONTAINMENT, GENERAL + DECONTAMINATION + FERMI (LMFBR) + MAIN COOLING SYSTEM + PIPING + REACTOR, LMFBR + REPORT, OPERATIONS

17-25902
PNEUMATIC CYLINDER ROD UNSCREWS--DROPS DRYBOX DOOR
USAEC, DIVISION OF OPERATIONAL SAFETY
SERIOUS ACCIDENTS ISSUE 288 +. 3 PAGES, 1 FIGURE, APRIL 29, 1968

DOOR WAS CONNECTED TO THE PISTON ROD OF THE PNEUMATIC CYLINDER BY A SINGLE VERTICAL ROD AND THREADED CONNECTION. AS A CORRECTIVE MEASURE TO PREVENT ROTATION OF THE PISTON AND ROD, A SMALL HOLE WAS DRILLED THROUGH THE DOOR ASSEMBLY, LIFTING ROD AND THE PISTON ROD, AND A COTTER PIN WAS INSERTED. THE HAZARD IS THE GUILLOTINE ACTION OF THE DOOR. RECOMMENDS THAT DOORS OF THIS TYPE, WHEN USED, SHOULD BE BLOCKED WITH A STOP TO PREVENT FALLING, OR MATERIALS SHOULD BE PASSED THROUGH WITH A CARRIER SO THAT NO PART OF THE BODY IS PLACED UNDER THE DOOR. THERE ARE 63 DOORS IN THIS FACILITY, NONE OF WHICH COULD BE EXAMINED FROM THE OUTSIDE TO SEE IF UNSCREWING HAS TAKEN PLACE, SINCE THE ASSEMBLY IS INSIDE THE HOUSING.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*FAILURE, DESIGN ERROR + *HOT CELL + FAILURE, EQUIPMENT + INDUSTRIAL SAFETY + SAFETY PRINCIPLES AND PHILOSOPHY

17-25912
SELECTED OPERATING EXPERIENCES AT BONUS
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN
20 PAGES, 2 FIGURES, 3 TABLES, BONUS NUCLEAR POWER PLANT, DRL MONTHLY REPORT NO. 2, FEBRUARY 1968, DOCKET 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

REACTOR REMAINED SHUT DOWN FOR THE MONTH. THE BOILER FUEL ASSEMBLIES AND ORIFICES WHERE THE ASSEMBLIES REST WERE CLEANED BY BRUSHING WITH NYLON AND STEEL-WIRE BRUSHES TO REMOVE CRUD

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25912 *CONTINUED*
DEPOSITS, WHICH HAD CAUSED CONSIDERABLE FLOW REDUCTION. AFTER EACH CLEANING, A VIDEO-TAPE RECORDING WAS MADE OF THE TV PICTURE OF THE CLEANED SURFACE. CONSIDERABLE CORROSION WAS FOUND IN FEEDWATER HEATERS 1 AND 2. AN INCREASE IN STACK PARTICULATE ACTIVITY, WHEN BUILDING IS ISOLATED, IS BEING INVESTIGATED.

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

*CRUD + *SURFACE FILM DEPOSIT + AIRBORNE RELEASE + BONUS (ISR) + CORE COMPONENTS + CORROSION + FLOW BLOCKAGE + FLOW ORIFICE + HEAT EXCHANGER + REACTOR, INTERNAL SUPERHEAT + REMOTE MANIPULATING AND VIEWING + REPORT, OPERATIONS

17-25913
CHLORIDES INTRODUCED INTO PRIMARY WATER FROM LACROSSE CLEANING SOLUTION
ALLIS-CHALMERS MANUFACTURING COMPANY, BETHESDA, MARYLAND
3 PAGES, LETTER TO P.A. MORRIS FROM W.S. FARMER, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

SHORTLY AFTER INTRODUCING REACTOR STEAM FOR THE FIRST TIME TO THE TURBINE SYSTEM, A RAPID INCREASE IN PRIMARY COOLANT CONDUCTIVITY OCCURRED. SAMPLE SHOWED 1.8 PPM Cl, 10 MICROMHOS/CM, AND PH OF 5.72 (TECH.-SPECS. LIMITS ARE 0.1 PPM Cl AND 5 MICROMHOS/CM). CLEANING SOLUTION (200 PPM Cl) USED TO CLEAN FEEDWATER SYSTEM HAD LEAKED INTO WATER-STORAGE TANK AND INTO SHELL SIDE OF REHEATER. DRAIN WAS INSTALLED ON SHELL SIDE OF REHEATER FOR DRAINING AND FLUSHING, AND MORE STRINGENT CONTROL OF TRANSFER OF RESIN BEDS WHEN DEPLETED SHOULD PREVENT REOCCURRENCE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*CHLORIDE + *COOLANT QUALITY + *FAILURE, ADMINISTRATIVE CONTROL + COOLANT PURIFICATION SYSTEM + DECONTAMINATION + LACROSSE (BWR) + MAIN COOLING SYSTEM + MAINTENANCE AND REPAIR + OPERATING EXPERIENCE + REACTOR, BWR + TECHNICAL SPECIFICATIONS + TURBINE

17-25914
ADDITIONAL AR-41 RELEASE FROM TRIGA POOL WATER
GULF GENERAL ATOMIC, SAN DIEGO, CALIFORNIA
2 PAGES, LETTER TO D.J. SKOVHOLT FROM P.H. MILLER, APRIL 5, 1968, DOCKET NO. 50-227

AS A RESULT OF TURBULENCE IN THE POOL WATER, AR-41 ACTIVITY LEAVING THE BEAM TUBES AND POOL IS 6.4 MICROCURIE/SEC RATHER THAN 2.48, AS PREVIOUSLY INDICATED IN HAZARDS ANALYSIS REPORT. RESULTS ARE BASED ON MEASUREMENTS IN REACTOR ROOM AND STACK DISCHARGE OF CONCENTRATION OF 4 X 10 (MINUS 6) MICROCURIE/CC. DOWNWIND CONCENTRATION FOR MOST UNFAVORABLE CONDITIONS IS A FACTOR OF 6 LESS THAN PERMISSIBLE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*AIRBORNE RELEASE + *ARGON + COMPARISON, THEORY AND EXPERIENCE + OPERATING EXPERIENCE + RADIOLYTIC GAS + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + TRIGA (RR)

17-25915
DESCRIPTION AND ANALYSIS OF INCIDENT OF MARCH 10, 1968 AT UNIVERSITY OF VIRGINIA REACTOR
REACTOR FACILITY, SCHOOL OF ENGINEERING AND APPLIED SCIENCE, UNIVERSITY OF VIRGINIA
14 PAGES, 3 FIGURES, 2 TABLES, ATTACHED TO LETTER TO THE DIVISION OF REACTOR LICENSING FROM W.R. JOHNSON, DOCKET NO. 50-62

AN ALUMINUM WELD FAILED ON A BEAM-PORT MODERATOR BOX CONTAINING GRAPHITE POWDER, AS A RESULT OF PRESSURE BUILDUP. TRAPPED GAS ESCAPED AND BUBBLES ROSE THROUGH CLUSTER OF INSTRUMENTS, DECREASING NEUTRON SIGNAL TO SAFETY CIRCUITS. SHUTDOWN RESULTED FROM APPARENT HIGH POWER (117-161%) AND SHORT PERIOD. OPERATOR ERRONEOUSLY ASSUMED SHUTDOWN CAUSED BY SERVO-SYSTEM FAILURE WHICH HAD OCCURRED PREVIOUSLY, AND TRIED TO RESTART. HE DID NOT NOTIFY SENIOR OPERATOR. MODERATOR BOX REDESIGNED WITH INTERNAL STIFFENERS, AND SOLID GRAPHITE BARS ARE TO BE USED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*FAILURE, OPERATOR ERROR + *INCIDENT, EQUIPMENT + BEAM HOLE + CONTROLLER + FAILURE, DESIGN ERROR + REACTIVITY EFFECT, VOID + REACTOR, POOL TYPE + REACTOR, POWER + REFLECTOR + SCRAM, REAL + WELDS

17-25916
A BRIEF DISCUSSION OF THE TRIGA PROMPT NEGATIVE TEMPERATURE COEFFICIENT OF REACTIVITY
GULF GENERAL ATOMIC, SAN DIEGO, CALIF.
IB NO. 404 +. 3 PAGES, 1 FIGURES, 4 REFERENCES, TRIGA REACTORS INFORMATION BULLETIN, 1965

FOR THE STAINLESS-STEEL-CLAD WATER-REFLECTED ELEMENTS, THE TEMPERATURE COEFFICIENT IS -1.26 X 10(MINUS 4TH) DELTA K/K PER DEGREE C. THE DOMINANT CONTRIBUTION TO THE COEFFICIENT FOR EITHER AL-CLAD OR SS-CLAD ELEMENTS IS THE CELL INCREASED DISADVANTAGE FACTOR WITH INCREASED FUEL TEMPERATURE.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIFORNIA 92112

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25916 *CONTINUED*
*REACTIVITY COEFFICIENT + *TEMPERATURE COEFFICIENT + DOPPLER COEFFICIENT + REACTOR, RESEARCH + TRIGA (RR)

17-25917
GRAFF AP + MCMAIN AT + SCHNURER GT + ZEITLIN HR
TRIGA - A HIGH PERFORMANCE STEADY STATE/PULSING REACTOR
GULF GENERAL ATOMIC INC.
GA-7259 +. 15 PAGES, 4 FIGURES, 2 TABLES, 10 REFERENCES, SEPTEMBER 1966, PRESENTED AT NUCLEX 66 TECHNICAL MEETING, BASLE, SWITZERLAND, SEPTEMBER 1966

BRIEFLY DESCRIBES THE TYPES OF TRIGA REACTORS, SUPPORTING DEVELOPMENT PROGRAMS, AND A SUMMARY OF THE APPLICATIONS OF SUCH REACTORS.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*REACTOR DESCRIPTION + IRRADIATION FACILITY + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (RR)

17-25919 ALSO IN CATEGORY 6
WEST GB
THE INFLUENCE OF THERMALIZATION MODELS ON THE REACTIVITY AND TEMPERATURE COEFFICIENT OF ZIRCONIUM HYDRIDE REACTORS
GULF GENERAL ATOMIC INC.
GA-6847 +. 27 PAGES, 7 FIGURES, 4 TABLES, 12 REFERENCES, DECEMBER 7, 1965, PRESENTED AT THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOVEMBER 1965

THE MODELS ANALYZED ARE A FREE GAS MODEL AND TWO VERSIONS OF THE EINSTEIN OSCILLATOR. ONE USES A DISCRETE VALVE FOR ENERGY EXCHANGE AND THE OTHER INCORPORATES A FREQUENCY DISTRIBUTION. RESULTS SHOW REACTIVITY VARIATIONS OF UP TO 2% FOR TRIGA CORES AND 0.3% FOR SNAP CORES. TEMPERATURE COEFFICIENTS SHOWED VARIATIONS OF UP TO 50% IN BOTH SYSTEMS.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*ANALYTICAL MODEL + *REACTIVITY EFFECT + *TEMPERATURE COEFFICIENT + *THEORETICAL INVESTIGATION + *THERMALIZATION + DOPPLER COEFFICIENT + HYDRIDE + NEUTRON + REACTOR, RESEARCH + SNAP, GENERAL (SR) + TRIGA (RR) + URANIUM HYDRIDE + ZIRCONIUM

17-25924 ALSO IN CATEGORY 18
TRIGA-ACPR--ANNULAR CORE PULSE REACTOR
GENERAL DYNAMICS, GENERAL ATOMIC DIVISION, SAN DIEGO, CALIF.
TRIGA REACTORS INFORMATION BULLETIN NO. 105 2 PAGES, 1965

DRY-TEST CAVITY (9 IN. IN DIAMETER X 12 IN. HIGH) INSIDE THE ANNULAR CORE. A SERPENTINE ACCESS TUBE PROVIDES SHIELDING WHILE ALLOWING CHANGING OF SAMPLES.

*IRRADIATION FACILITY + REACTOR DESCRIPTION + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (RR)

17-25925
SYMPOSIUM ON RESEARCH REACTOR APPLICATIONS
GULF GENERAL ATOMIC
73 PAGES, FIGURES, TABLES, REFERENCES, SYMPOSIUM ABSTRACTS, JUNE 16, 1967

ABSTRACTS COVER THE FOLLOWING - (1) EXPOSURE OF DOGS AND MICE, (2) ACTIVATION ANALYSIS, (3) MEDICAL APPLICATIONS OF THE MIT REACTORS, (4) RADIOGRAPHY WITH REACTOR NEUTRON BEAMS, (5) BIOCHEMISTRY, (6) RADIOCHEMICAL RESEARCH, (7) APPLICATIONS OF REACTORS AT CORNELL, CASACCIA CENTER, PENN. STATE UNIV., (8) IMPLEMENTATION OF OREGON STATE UNIVERSITY PROGRAMS, AND (9) GROWTH AND DIVERSIFICATION AT PENNE STATE AND ILLINOIS UNIVERSITY REACTOR.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

BIOMEDICAL + ITALY + MITR (RR) + OPERATING EXPERIENCE SUMMARY + RADIATION EFFECT + RADIOGRAPHY + REACTOR, RESEARCH + STAFFING, TRAINING, QUALIFICATION + TRIGA (RR)

17-25927
FISCHER PU + SCHNURER GT
CONVERSION OF PLATE TYPE REACTORS TO DUAL STEADY STATE/PULSING THROUGH USE OF U-ZRH FUEL ELEMENTS
GULF GENERAL ATOMIC INC.
GA-7260 +. 14 PAGES, 11 FIGURES, 1 TABLE, SEPTEMBER 1966

DISCUSSES THE SAFETY AND RELIABILITY OF TRIGA REACTORS, THE SIMPLICITY OF CONVERTING PLATE-TYPE CORES. REVIEWS THE CONVERSION AND UPRATING TO 1 MW OF PENN. STATE UNIVERSITY REACTOR, COMPLETED DECEMBER 31, 1965, USING THE STANDARD TRIGA GRID PLATE RATHER THAN THE ORIGINAL ONE.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIFORNIA 92112

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25927 *CONTINUED*
*MODIFICATION, SYSTEM OR EQUIPMENT + POWER UPRATING + REACTOR DESCRIPTION + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (RR)

17-25932 ALSO IN CATEGORY 5
WEST GB + HITTEMORE WL + SHOPTAUGH JR + DEE JB + COFFER CO
KINETIC BEHAVIOR OF TRIGA REACTORS
GULF GENERAL ATOMIC
GA-7882 +. 36 PAGES, 8 FIGURES, 8 TABLES, 23 REFERENCES, MARCH 31, 1967, RESEARCH REACTORS, MEXICO CITY, MAY 1967 SPONSORED BY COMISION NACIONAL DE ENERGIA NUCLEAR DE MEXICO

DISCUSSES METHODS OF CALCULATING THE PROMPT NEGATIVE TEMP. COEFFICIENT, HEAT CAPACITY, BETA-EFFECTIVE, AND NEUTRON LIFETIME FOR TRIGA REACTOR. CALCULATED PULSE CHARACTERISTICS ARE COMPARED WITH EXPERIMENTAL DATA AND AGREE. FILM BOILING OCCURS AROUND HOTTEST ELEMENTS AT PULSES APPROACHING $5. AN ANNULAR CORE WITH A DRY HOLE WILL ROUTINELY PRODUCE INTEGRATED FAST NEUTRON FLUXES OF 10(15TH) NVT/PULSE, WITH PEAK FUEL TEMPERATURE OF 1000 C AND PEAK POWERS OF 20,200 MW. A DELIBERATE GAP BETWEEN FUEL AND CLADDING REDUCES PEAK HEAT-TRANSFER RATES, SO FILM BOILING IS PRECLUDED. NEUTRON LIFETIME VARIES BETWEEN 39 AND 60 MICROSEC, DEPENDING ON HYDRIDE RATIO AND REFLECTOR MATERIAL.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*COMPARISON, THEORY AND EXPERIENCE + *MATHEMATICAL STUDY + *PERFORMANCE LIMIT + *REACTOR PHYSICS + DOPPLER COEFFICIENT + FAILURE, FUEL ELEMENT + FILM BOILING + HEAT CONDUCTANCE, FUEL TO CLAD + IRRADIATION FACILITY + PROMPT NEUTRON LIFETIME + REACTOR STABILITY + REACTOR, PULSED + REACTOR, RESEARCH + TEMPERATURE COEFFICIENT + TRIGA (RR)

17-25934
SELECTED EXPERIENCES AT HBWR
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
HPR-88 +. 78 PAGES, 18 FIGURES, 3 TABLES, 8 REFERENCES, HBWR QUARTERLY PROGRESS REPORT, JULY TO SEPTEMBER 1967, NOVEMBER 1967

AFTER MODIFICATION OF THE PRIMARY SYSTEM, RESTART RESULTED IN PROBLEMS IN WHICH HEAVY WATER WAS LOST DUE TO (1) WRONG VALVE SETTING, LEAKAGE VIA A VENT LINE, WITH TRITIUM RELEASE, (2) A MALADJUSTED TORQUE SWITCH ON A MOTORIZED VALVE, (3) BELLOWS FAILURE FROM STRESS CORROSION, (4) SYSTEM OVERPRESSURE WHEN A SEALED POSITION WAS OPENED, AND (5) STEAM EMISSION FROM A DRAIN PLUG. TESTS AT 80 C (NORMAL, 100 C) SHOWED IRREGULAR TRAVEL TIME ON CONTROL RODS. LUBRICATION AND WASHOUT OF CONDENSATE IS BETTER AT HIGHER TEMPERATURES.

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

*FAILURE, MAINTENANCE ERROR + *HEAVY WATER + *LEAK + CONTROL ROD DRIVE + FAILURE, EQUIPMENT + FAILURE, OPERATOR ERROR + HBWR (BWR) + LUBRICATION + MAIN COOLING SYSTEM + REACTOR, BWR + REACTOR, HWR + RESPONSE TIME + STRESS CORROSION + TEST, SYSTEM OPERABILITY

17-25936 ALSO IN CATEGORY 9
TABOR WH
CONTROL ROD DRIVE PROBLEMS AT BSR
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2158 +. 25 PAGES, 1 FIGURE, 10 TABLES, FEBRUARY 28, 1968, FROM THE BULK SHIELDING FACILITY QUARTERLY REPORT, OCTOBER-DECEMBER OF 1967

A CONTROL-ROD-CLUTCH SWITCH FAILED DUE TO ACCUMULATED RUST BETWEEN THE MAGNET AND SWITCH ACTUATOR. AFTER CLEANING, A URETHANE SOLUTION WAS PAINTED ON THE SWITCH TO PREVENT CORROSION AND SHORTING OF THE SWITCH. BUT, EXCESS SOLUTION CAUSED THE SWITCH TO STICK, AND THE DRIVE UNIT HAD TO BE REMOVED AGAIN FOR CLEANING OF THE SWITCH. SEAT SWITCH FAILED ON ROD 6, AND THE GUIDE TUBE WAS REPLACED. SIX ROD DROPS OCCURRED DUE TO A DIRTY SWITCH, WATER IN THE UPPER SECTION OF A LIFT TUBE, AND A FAULTY MAGNET AMPLIFIER.

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

*FAILURE, INSTRUMENT + BSR (RR) + COATING, SURFACE + CONTROL ROD DRIVE + CORROSION + FAILURE, MAINTENANCE ERROR + INSTRUMENTATION, SWITCH + REACTOR, RESEARCH + REPORT, OPERATIONS + SCRAM, SPURIOUS

17-25937 ALSO IN CATEGORY 15
SURVEY OF ENVIRONMENTAL RADIOACTIVITY IN THE VICINITY OF INDIAN POINT STATION - AUG.-JAN. 1968
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
7 PAGES, 7 TABLES, ATTACHED TO LETTER TO P.A. MORRIS FROM L.E. MCCORMACK, MAY 24, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

THE ENVIRONMENTAL SURVEY PROGRAM WAS CONTINUED THROUGH THE PERIOD (8/1/67-1/31/68) TO ENSURE THAT ACTUAL STATION RELEASES DO NOT EXCEED EITHER THE LIMITS PRESCRIBED IN THE STATION AEC LICENSE DPR-5 OR THOSE PRESCRIBED IN 10CFR20. THE RESULTS OF THE MEASUREMENTS INDICATE ONLY MINOR VARIATIONS IN THE BACKGROUND RADIOACTIVITY ATTRIBUTED PREVIOUSLY TO CHANGES IN FALLOUT LEVELS DUE TO NUCLEAR WEAPONS DEBRIS.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25937 *CONTINUED*
AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*FALLOUT + *INDIAN POINT 1 (PWR) + *SURVEY, RADIATION, ENVIRONMENTAL + MONITOR, RADIATION, ENVIRONMENTAL + NUCLEAR EXPLOSION DEBRIS + POPULATION EXPOSURE + REACTOR, PWR

17-25939 ALSO IN CATEGORY 12
HADDAM NECK PROPOSED CHANGE 6 INFORMATION
CONNECTICUT YANKEE ATOMIC POWER COMPANY
11 PAGES, FIGURES, APRIL 4, 1968, LETTER TO DIVISION OF REACTOR LICENSING FROM WM. WEBSTER, DOCKET 50-213, TYPE--PWR + MFG--WEST., AE--STONE + WEBSTER

IN RESPONSE TO DRL QUESTIONS ON USE OF LEAKING HIGH-PRESSURE PUMPS DURING A LOSS OF COOLANT, PROVIDES GRAPHS TO SHOW (FOR A 4-IN.-DIA BREAK) PRESSURE DECREASES BELOW RHR PUMPS SHUT OFF HEAD (165 PSI) IN 0.5 HR. THUS THIS HIGH PRESSURE PUMP WOULD BE NEEDED ONLY FOR BREAKS LESS THAN 4 IN., AND THEN THERE WOULD BE NO CLAD PERFORATION. THUS (NORMAL) LEAKAGE OF 2 GPM WOULD GIVE A 0.25-R DOSE, GROUND RELEASE. ENCLOSED IS CRANE PACKING COMPANY LETTER STATING THAT 2-8 LITERS/HR SEAL LEAKAGE IS ABNORMAL, AND SUGGESTED TECHNICAL SPECIFICATIONS SECTION 3.14 ALLOWING 6 LITERS/HR LEAKAGE FROM RHR SYSTEM WITHOUT SHUTDOWN.

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

*LEAK + *PUMP + *SHUTDOWN COOLING SYSTEM + ACCIDENT, LOSS OF COOLANT + DOSE + HADDAM NECK (PWR) + OFF SITE + REACTOR, PWR + TECHNICAL SPECIFICATIONS

17-25940
YANKEE CHANGE 81--CORE LOADING VII
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, APRIL 12, 1968, LETTER TO L. E. MINNICK FROM P. A. MORRIS, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AUTHORIZES THREE-REGION CORE VII AS FOLLOWS - REGION A (CENTER), 4 ASSEMBLIES AVERAGING 19,000 MWD/MTU. REGION B (MIDDLE), 36 ASSEMBLIES FROM CORE VI AVERAGING 9,600 MWD/MTU. REGION C (PERIPHERAL), 32 NEW SS-CLAD ELEMENTS PLUS 4 NEW ZIRCALOY CLAD ELEMENTS. HOT SHUTDOWN IS 4.5% ALL RODS IN, 2.1% ONE ROD OUT. POWER WILL BE LIMITED TO 485 MWTH UNTIL GROUPS 3,4,5 ARE OUT AND XENON IN EQUILIBRIUM. W-3 CORRELATION SAYS DNB RATIOS ARE 3.67, 2.18, AND 2.17 FOR SS, ZIRCALOY-A AND -B ASSEMBLIES IF POWER RAISED TO 600 MWTH WITH ROD-GROUP 5 IN.

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

*REFUELING + DNB + FAILURE, OPERATOR ERROR + POWER DISTRIBUTION + REACTOR POWER + REACTOR, PWR + SAFETY EVALUATION + SHUTDOWN MARGIN + TECHNICAL SPECIFICATIONS + YANKEE (PWR)

17-25941
DRESDEN CHANGE 14--RELOADING FOR 6TH OPERATING CYCLE
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, 1 TABLE, APRIL 22, 1968, LETTER TO R. E. REDER FROM P. A. MORRIS, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL

ALLOWS ADDITION OF UP TO 83 TYPE-VI ASSEMBLIES (SIMILAR TO TYPE IIIF BUT WITH GADOLINIA POISON IN A URANIA ROD INSTEAD OF ALUMINA ROD, DISHED ENDS ON PELLETS TO REDUCE AXIAL THERMAL EXPANSION) AND 13 TYPE VI WITH GADOLINIA ROD REPLACED BY AN IN-CORE INSTRUMENT. ***RELOAD WILL BE IN 1-IN-4 SCATTER PATTERN BUT WITH RADIAL POWER FLATTERING (SAME GROSS PEAK AS CYCLE 4, NOT TO EXCEED 3.24) BY MOVING ELEMENTS WITH BURNED-OUT GADOLINIA TO THE PERIPHERY. MODERATOR WILL TURN NEGATIVE ABOVE 370 F.

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

*REFUELING + POISON, BURNABLE + REACTOR, BWR + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TEMPERATURE COEFFICIENT

17-25942 ALSO IN CATEGORY 6
CHANGE 30 - REFLECTOR CHANGES AT WNYRC PULSTAR
USAEC, DIVISION OF REACTOR LICENSING
6 PAGES, MAY 23, 1968, LETTER TO R. F. LUMB FROM D. J. SKOVHOLT, DOCKET 50-57

ALLOWS OPTIONAL USE OF EXISTING LEAD REFLECTOR IN FRONT OF THERMAL COLUMN, AND ALUMINUM AND GRAPHITE REFLECTOR ELEMENTS. PDQ CALCULATIONS FOR GRAPHITE REFLECTED CORE SHOW FLUX PEAKS IN CORE LESS THAN FOR WATER-REFLECTED CASE, CONFIRMED BY FLUX PLOT. PDQ CALCULATIONS ALSO SHOW DOPPLER COEFFICIENT NOT SIGNIFICANTLY CHANGED IF GRAPHITE OR ALUMINUM REFLECTED, BUT A REPORT OF MEASUREMENT REQUIRED. ***MAXIMUM REACTIVITY VALUES ARE +1.17% DK/K FOR LOSS OF 1 ALUMINUM SLAB, +1.40% DK/K FOR ADDITION OF LEAD NOSEPIECE, +1.76% DK/K FOR ADDITION OF 1 GRAPHITE SLAB.

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

*BEAM HOLE + *REFLECTOR + ALUMINUM + DOPPLER COEFFICIENT + FLUX DISTRIBUTION + GRAPHITE + LEAD + PULSTAR (RR) + REACTIVITY EFFECT + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25943
GETR PROPOSED CHANGE 7 - SAFETY REVIEW
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
12 PAGES, MARCH 8, 1968, DOCKET 50-70, TYPE--TR, MFG--G.E., AE--G.E.

AFTER INFORMAL DISCUSSIONS WITH DRL STAFF, SECTION 9 OF APPENDIX A WAS REVISED TO SPECIFY MORE CLEARLY THE REVIEW AND AUDIT FUNCTION, MATTERS REQUIRING INDEPENDENT REVIEW, THOSE ITEMS REQUIRING WRITTEN PROCEDURES, AND ACTIONS TO BE TAKEN IN THE EVENT OF ABNORMAL OCCURRENCES. IN THE EVENT OF AN ABNORMALITY, THE REACTOR MAY BE OPERATED FOR DIAGNOSTIC PURPOSES UNDER ESPECIALLY DELIBERATE SURVEILLANCE IF A COMPLETE CHECK OF ALL NUCLEAR AND PROCESS SYSTEMS SHOWS ALL REACTOR SYSTEMS WITHIN NORMAL OPERATING RANGE.

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

*SAFETY REVIEW + ADMINISTRATIVE CONTROL + GETR (TR) + INCIDENT, GENERAL + REACTOR, TEST + SCRAM, SPURIOUS + TECHNICAL SPECIFICATIONS

17-25947 ALSO IN CATEGORY 6
ALTERNATE REFLECTOR MATERIALS SAFETY ANALYSIS
WESTERN NEW YORK NUCLEAR RESEARCH CENTER, BUFFALO, NEW YORK
5 PAGES, 2 FIGURES, LETTER TO D.J. SKOVHOLT FROM W.F. HALL, MAY 3, 1968, DOCKET NO. 50-57

REACTIVITY EFFECT OF A SLAB REFLECTOR WOULD BE 1.17% (REMOVAL OF AL SLAB), 1.40% (INSERTION OF GRAPHITE SLAB), EACH LESS THAN THE 3.8% MCA. ***PDQ CALCULATION SHOWS PREVIOUS PEAK RADIAL FLUX (IN PERIPHERY) REDUCED 36%, AND NEW PEAK PIN IS ADJACENT TO CONTROL-ROD WATER GAP, A RISE OF 13% BUT STILL LESS THAN PREVIOUS PEAK. ACTUAL CHANGE IS LESS BECAUSE THERE IS STILL SOME WATER IN REFLECTOR. ***PULSING WITH A 3-IN. AL-SLAB REFLECTOR SHOWS NO MEASURABLE DOPPLER EFFECT. PDQ RESONANCE FLUX DISTRIBUTION (GRAPH) SHOWS THAT AL HARDENS FLUX MORE THAN GRAPHITE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*DOPPLER COEFFICIENT + *REACTIVITY EFFECT + *REFLECTOR + ALUMINUM + FLUX DISTRIBUTION + GRAPHITE + PULSTAR (RR) + REACTOR, PULSED + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-25948
LACROSSE STARTUP EXPERIENCE
ALLIS-CHALMERS, BETHESDA, MARYLAND
16 PAGES, FIGURE, TABLES, FROM THE TENTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR COVERING THE MONTH OF APRIL 1968, CONTRACT NO. AT (11-1)-850, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

A SCRAM ON APRIL 25 WAS CAUSED BY THE OPERATOR INCREASING FEEDWATER FLOW TOO RAPIDLY (CHANGE OF 230,000 LB/HR IN A FEW SEC), AND REACTOR WENT FROM 17% TO 30% SCRAM POINT. CALCULATIONS INDICATED A 1.6% REACTIVITY CHANGE, BUT EXPERIENCE SHOWS NEARER $0.23. RATE OF TRAVEL OF FW PUMP SCOOP TUBE WILL BE DECREASED. ***INITIAL OPERATION OF TURBINE WITH REACTOR STEAM CAUSED CHLORIDES IN REACTOR TO PEAK AT 0.45 PPM. TURBINE-PLANT PIPING WAS FLUSHED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

CHLORIDE + CONTROLLER + COOLANT PURIFICATION SYSTEM + COOLANT QUALITY + DECONTAMINATION + FAILURE, OPERATOR ERROR + LACROSSE (BWR) + MAIN COOLING SYSTEM + REACTOR, BWR + REACTOR, BWR + REPORT, OPERATIONS + SCRAM, REAL + VALVE

17-25949
CONN. YANKEE EXCEPTED FROM 10 CFR 20.203 (C)(2)
USAEC, DIVISION OF REACTOR LICENSING
2 PAGES, LETTER TO W.P. JOHNSON FROM P.A. MORRIS, MAY 24, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

DRL ALLOWS EXEMPTION FROM 10CFR20 TO SUBSTITUTE PROCEDURAL CONTROLS AND PHYSICAL CONTROL OF ACCESS IN LIEU OF VISIBLE/AUDIBLE ALARM DEVICE TO ENSURE CONTROL OF ACCESS TO HIGH-RADIATION AREAS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

ADMINISTRATIVE CONTROL + HADDAM NECK (PWR) + RADIATION SAFETY AND CONTROL + REACTOR, PWR + REGULATION, AEC

17-25971 ALSO IN CATEGORY 5
PEACH BOTTOM REPORT ON MISSING VIEWING DEVICE LIGHT SHIELD
PHILADELPHIA ELECTRIC COMPANY, PHILADELPHIA, PENNSYLVANIA
6 PAGES, ATTACHED TO LETTER TO P.A. MORRIS FROM V.P. MCDEVITT, APRIL 24, 1968, DOCKET NO. 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25971 *CONTINUED*
ALTHOUGH SHIELD WAS DISCOVERED MISSING OUTSIDE THE CORE, IT WAS ASSUMED SHIELD (2-3/4 X 5-1/4 X 1/16 IN. CARBON STEEL) FELL INTO CORE AND BLOCKED FLOW TO ONE TRICUSPID. TEMPERATURE ANALYSIS OF CORE HOT SPOT SHOWED SLEEVE TEMPERATURE INCREASE OF LESS THAN 100 F (TO 2875 F) AND NO FUEL-ELEMENT THERMAL-STRESS PROBLEM. NO PROBLEMS FORESEEN IF SHIELD REMAINS ON CORE-PLATE THERMAL SHIELD, SIDE REFLECTOR, IN UPPER PLENUM, OR IN HOT PIPE. IF SHIELD ENTERED HOT PIPE, IT MIGHT BE TRANSPORTED TO STEAM GENERATOR AND COME TO REST ON THE SHROUD. REACTIVITY EFFECT OF SHIELD IN CORE IS ABOUT 1 IN. OF REGULATING-ROD MOVEMENT. NO FUEL-ELEMENT BONDING DUE TO PRESENCE OF SHIELD EXPECTED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*DAMAGE + *FUEL HANDLING MACHINE + *OPERATING EXPERIENCE + FLOW BLOCKAGE + FUEL INTEGRITY + HOT CHANNEL + HOT SPOT + PEACH BOTTOM 1 (HTGR) + REACTIVITY EFFECT + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR, HTGR + REMOTE MANIPULATING AND VIEWING + THERMAL ANALYSIS

17-25972
PEACH BOTTOM REPORT ON IDENTIFICATION AND REMOVAL OF DEFECTIVE FUEL ELEMENT C05.05
PHILADELPHIA ELECTRIC COMPANY, PHILADELPHIA, PENNSYLVANIA
12 PAGES, 2 TABLES, ATTACHED TO LETTER TO P.A. MORRIS FROM V.P. MCDEVITT, APRIL 24, 1968, DOCKET NO. 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

PRESENCE OF SHORT-LIVED FISSION PRODUCTS, DESPITE PROPER FUNCTIONING OF PURIFICATION SYSTEM, INDICATED INCREASED PRIMARY SYSTEM ACTIVITY CAUSED BY FRACTURED FUEL ELEMENT(S) OR BLOCKED PURGE FLOW. TRANSFER-MACHINE FAILED-FUEL-ELEMENT-LOCATOR HEAD CHECKED THE PURGE FLOW ON EACH ELEMENT. C05.05 SHOWED NO PURGE FLOW, AND CRACK IN ELEMENT SLEEVE WAS SUSPECTED. THE BROKEN-ELEMENT-REMOVAL TOOL (CYLINDRICAL SLEEVE THAT FITS DOWN OVER ENTIRE ELEMENT AND GRASPS IT AT BOTTOM) EXTRACTED C05.05. TV SHOWED A 3-4 IN. VERTICAL CRACK AND A CIRCUMFERENTIAL CRACK WHICH COMPLETELY SEVERED ELEMENT. ELEMENTS IN SECTORS A, B, D, F, IN 05.05 POSITION WERE EXAMINED AND APPEARED TO BE IN EXCELLENT CONDITION.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE + ACTIVITY BUILDUP + FISSION PRODUCT RELEASE, GENERAL + FUEL HANDLING MACHINE + MAIN COOLING SYSTEM + PEACH BOTTOM 1 (HTGR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR, HTGR

17-25979
FERMI VESSEL RADIATION SURVEY
POWER REACTOR DEVELOPMENT COMPANY
PRDC-EF-54 +. 6 PAGES, FEBRUARY 1968, POWER REACTOR DEVELOPMENT COMPANY ENRICO FERMI ATOMIC POWER PLANT REPORT FOR FEBRUARY 1968

A SURVEY REVEALS THAT THE GAMMA FIELD IN THE REACTOR RANGES FROM 1500 R/HR AT THE CORE CENTER TO 1 R/H HALFWAY UP INTO THE ROTATING SHIELD PLUG.

*PRESSURE VESSEL + *SURVEY, RADIATION, GENERAL + FERMI (LMFBR) + MAINTENANCE AND REPAIR + REACTOR, LMFBR + REPORT, OPERATIONS

17-25986 ALSO IN CATEGORY 9
COSTNER RA + CRAMER EN + SCOTT RL
REACTOR OPERATOR STUDY HANDBOOK VOLUME V - INSTRUMENTATION AND CONTROLS
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2034, VOL. V +. 251 PAGES, 74 FIGURES, JUNE 1968

A SELF-TEACHING (PROGRAMMED INSTRUCTION) MANUAL COVERING (1) PRINCIPLES OF ELECTRICITY (WITH DEFINITION OF TERMS), AND COMPONENTS SUCH AS RESISTORS, TRANSFORMERS, ETC., (2) RADIATION-DETECTION INSTRUMENTS, (3) PHILOSOPHY OF REACTOR CONTROL, (4) CONTROL INSTRUMENTATION, (5) INSTRUMENT BEHAVIOR DURING AN ORDERLY REACTOR STARTUP, AND (6) PROCESS INSTRUMENTATION. EACH SECTION INCLUDES A LIST OF QUESTIONS FOR SELF-TESTING.

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

*INSTRUMENTATION, GENERAL + *PROCEDURES AND MANUALS + *STAFFING, TRAINING, QUALIFICATION + CONTROL SYSTEM + INSTRUMENTATION, COMPONENT + INSTRUMENTATION, PROCESS + REACTOR, RESEARCH + SAFETY PRINCIPLES AND PHILOSOPHY

17-25988
TEXAS A AND M AGN-201 PROPOSED TECHNICAL SPECIFICATIONS
TEXAS A AND M UNIVERSITY
13 PAGES, LETTER TO DIVISION OF REACTOR LICENSING FROM EARL RUDDER, MAY 15, 1968, DOCKET 50-59

LIMITS EXCESS REACTIVITY TO 0.25% (NO EXPERIMENTS) AND 0.5% WITH EXPERIMENTS. ALLOWS COCKROFT-WALTON NEUTRON GENERATOR FOR PULSED KINETICS STUDIES. APPENDIX A IS A DETAILED PROCEDURE FOR A FUEL-LOADING CRITICAL EXPERIMENT.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25988 *CONTINUED*
AGN (TNG) + CRITICALITY EXPERIMENT + PULSED NEUTRON TECHNIQUE + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS

17-25989
YANKEE STRONGLY URGED TO SUBMIT NEW FORMAT TECHNICAL SPECIFICATIONS
USAEC, DIVISION OF REACTOR LICENSING
1 PAGE, LETTER TO L. E. MINNICK FROM P. A. MORRIS, MAY 31, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

YANKEE HAS BEEN OPERATING SINCE JUNE 1961, WITH THE FINAL HAZARDS-SUMMARY REPORT INCORPORATED AS THE PRINCIPAL PART OF THE TECHNICAL SPECIFICATIONS. 84 CHANGES WERE REQUIRED. ***THE AUGUST 1966 NEW FORMAT HAS DEMONSTRATED MORE LICENSEE FREEDOM, STILL PROVIDING AEC WITH ADEQUATE REVIEW. ENCLOSED FOR INFORMATION IS A COPY OF CONNECTICUT YANKEE TECHNICAL SPECIFICATIONS. ***IN VIEW OF YANKEES LONG-TERM LICENSE, WE STRONGLY URGE THAT YOU SUBMIT TECHNICAL SPECIFICATIONS IN THE NEW FORMAT.

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

*TECHNICAL SPECIFICATIONS + *YANKEE (PWR) + HADDAM NECK (PWR) + REACTOR, PWR

17-25991 ALSO IN CATEGORY 7
ZEBROSKI EL
VENTED FUEL SYSTEM
U.S. PATENT 3,356,585 +. 5 PAGES, 1 FIGURES, DECEMBER 5, 1967

DESCRIBES A VENT FOR A FUEL ELEMENT PERMITTING DELAY OF GASEOUS AND VOLATILE FISSION PRODUCTS UNTIL SUBSTANTIAL PORTION OF RADIOACTIVE PRECURSORS HAVE DECAYED, AND CONTROL OF RELEASE OF LONG-LIVED FISSION PRODUCTS. DELAY IS ACHIEVED BY MAKING GAS FLOW THROUGH PLURALITY OF POROUS MEMBERS AND THROUGH A CONTROLLED LEAK OR VALVE AT A RATE ABOUT PROPORTIONAL TO INTERNAL PRESSURE.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*PATENT + FISSION PRODUCT RETENTION + FUEL ELEMENT

17-25993
NEWMAN JB
ELASTIC ANALYSIS OF THERMAL GRADIENT BOWING IN ROD-TYPE FUEL ELEMENTS SUBJECTED TO AXIAL THRUST (LWBR/LSBR DEVELOPMENT PROGRAM)
BETTIS ATOMIC POWER LAB., PITTSBURGH
WAPD-TM-726 +. 87 PAGES, 10 FIGURES, 17 REFERENCES, JANUARY 1968

THERMAL-GRADIENT BOWING OF ROD-TYPE FUEL ELEMENTS CAN BE ANALYZED IN TERMS OF DEFLECTIONS OF A PRECURVED BEAM. REPORT PRESENTS FUNDAMENTAL ASPECTS OF AXIALLY COMPRESSED MULTISPAN BEAMS. ELASTICITY OF SUPPORTS IN AXIAL AND TRANSVERSE DIRECTIONS IS CONSIDERED, AND TECHNIQUE IS APPLICABLE TO PROBLEMS IN WHICH AXIAL THRUST DEPENDS ON TRANSVERSE DEFLECTION AND TO PROBLEMS WITH PRESCRIBED AXIAL THRUST. FORMULAS PRESENTED CONSTITUTE THEORY FOR COMPUTER PROGRAM IN ANALYSIS OF FUEL-ROD BOWING OR MULTISPAN BEAM WHEN EFFECTS OF AXIAL LOADS CANNOT BE NEGLECTED.

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

*FUEL ELEMENT BOWING + *MATHEMATICAL TREATMENT + *THERMAL MECHANICAL EFFECT + COMPUTER PROGRAM + REACTOR, BWR + REACTOR, PWR + STRESS ANALYSIS

17-25994
SEELEY WJ
ELEMENTARY MATHEMATICS FOR POWER GENERATION TECHNOLOGY
DUKE POWER COMPANY
182 PAGES, 1968, DUKE POWER COMPANY

THIS MANUAL IS INTENDED AS A REVIEW OF HIGH SCHOOL MATH--ARITHMETIC, ALGEBRA, LOGARITHMS, TRIGONOMETRY--AND ALSO INCLUDES CHAPTERS ON SCIENTIFIC NOTATION, THE SLIDE RULE, FORMULAS, PROBLEM SOLVING, EXPONENTIALS, COMPLEX ALGEBRA, VECTORS, AND BINARY ARITHMETIC. A LARGE NUMBER OF PROBLEMS ARE INCLUDED TO GIVE THE STUDENT PLENTY OF PRACTICE. THE MANUAL IS USED BOTH FOR REACTOR OPERATOR TRAINING AND FOR SPECIAL TRAINING CLASSES FOR STEAM-STATION TECHNICIANS AND OPERATORS BUT DOES NOT INCLUDE MATERIAL SPECIFIC TO REACTORS.

AVAILABILITY - STEAM PRODUCTION DEPARTMENT, DUKE POWER COMPANY, P. O. BOX 2178, CHARLOTTE NORTH CAROLINA 28201

*PROCEDURES AND MANUALS + *STAFFING, TRAINING, QUALIFICATION + EQUATION, GENERAL + MATHEMATICS

17-25995 ALSO IN CATEGORY 9

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25995 *CONTINUED*
HAWTHORNE JR
METALLURGICAL FAILURE ANALYSIS OF PM-3A REACTOR CONTROL ROD LIFTING KNOB
NAVAL RESEARCH LABORATORY
NRL-MR-1788 +. 24 PAGES, 7 FIGURES, 1 TABLE, JUNE 14, 1967

PRESENTS DETAILED OBSERVATIONS OF MATERIAL USED IN LIFTING KNOB. THE KNOB WAS MADE FROM 300-SERIES STAINLESS STEEL, NOT FROM 17-4 PH AS HAD BEEN SPECIFIED. RESULTS GIVEN FOR COMPOSITION ANALYSIS, MICROSTRUCTURAL EXAMINATION, AND HARDNESS SURVEY.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VA. 20545

*FAILURE, FABRICATION ERROR + COMPONENTS, MISCELLANEOUS + CONTROL ROD + EXAMINATION + FAILURE, SCRAM MECHANISM + MATERIAL + PM 3A (PWR) + QUALITY CONTROL + REACTOR, MILITARY + REACTOR, PWR + STEEL, STAINLESS

17-25996 ALSO IN CATEGORY 14
FERMI REPORTS CORROSION FAILURE OF LOW LEVEL WASTE PIPES
POWER REACTOR DEVELOPMENT COMPANY, DETROIT, MICHIGAN
3 PAGES, LETTER TO P.A. MORRIS FROM W.J. MCCARTHY, JUNE 4, 1968, DOCKET NO. 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

ON APRIL 30, A 2-IN.-DIA. CARBON-STEEL GAS-WASTE PIPE WAS FOUND CORRODED THROUGH, 4 FT BELOW GROUND. THE TWO GAS PIPES ARE IN AN 8-IN.-DIA. CARBON-STEEL CONTAINMENT PIPE DEEP UNDER GROUND. THE 8-IN.-DIA. PIPE IS BADLY CORRODED AND MUST BE PERMANENTLY REPAIRED. THE 2-IN. PIPE WAS UNPROTECTED WHERE IT LEFT THE 8-IN. ONE, BUT THE NEW 2-IN. PIPE IS NOW COVERED WITH BITUMASTIC. ***A LIQUID-WASTE PIPE WAS FOUND CORRODED THROUGH IN SEVERAL SPOTS DUE TO LOCAL BITUMASTIC FAILURE. ***SINCE NOV. 1966, THESE PIPES HAVE CARRIED ONLY LOW-LEVEL WASTE. THE FAR-BLDG. LIQUID-WASTE PIPE (SS IN A CARBON-STEEL CONTAINMENT PIPE) WILL BE INSPECTED.

AVAILABILITY - PUBLIC DOCUMENT ROOM

*CORROSION + *FAILURE, PIPE + FERMI (LMFBR) + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR + REACTOR, LMFBR + REACTOR, POWER + WASTE HANDLING

17-25997
DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967
COMMONWEALTH EDISON COMPANY
62 PAGES, 15 FIGURES, 9 TABLES, REFERENCES, JANUARY 23, 1968, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL

DRESDEN OPERATED 4905 HR AND GENERATED 853,566 MW-H(E). WAS DOWN 4064 HR FOR THE FOLLOWING REASON - FOURTH REFUELING (1849 HR), PRIMARY PIPING INSPECTION (1206 HR), FUEL CLEANING (442 HR), 138-KV SWITCHYARD MODIFICATION AND OPERATOR-TRAINING LICENSING (200 HR), ETC. POWER WAS LIMITED 18 TIMES FOR IN-CORE STABILIZATION AND CALIBRATION (5), CONDENSATE-DE-MINERALYZER REGENERATION (5), HEATER OR RECIRC.-LOOP PROBLEMS (7). EIGHT SCRAMS OCCURRED.

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

DRESDEN 1 (BWR) + REACTOR, BWR + REPORT, OPERATIONS SUMMARY + SCRAM, REAL

17-25998 ALSO IN CATEGORY 9
DRESDEN 1 CONTROL ROD DRIVE PROBLEMS
COMMONWEALTH EDISON COMPANY
10 PAGES, PAGES 8 THRU 17 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, JANUARY 23, 1968, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL

ELEVEN CONTROL-ROD DRIVES WERE REPLACED IN JANUARY BECAUSE OF PREVIOUS ABNORMALITIES (LONG INSERTION TIMES, JAMMING DUE TO FOREIGN MATERIAL IN DRIVES, WORN SEALS). LATER, 11 DIFFERENT RODS DISPLAYED ABNORMALITIES, DRIFTING OUT (4) OR DRIVING IN (1) WITHOUT SIGNAL, NOT DRIVING IN (2) OR NOT DRIVING OUT (1) WITH SIGNAL, AND POSITION INDICATOR SHOWING FULLY OUT WHILE INSTRUMENTATION SHOWING FULLY IN.

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

*CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM + DRESDEN 1 (BWR) + OPERATING EXPERIENCE + REACTOR, BWR + REPORT, OPERATIONS SUMMARY

17-25999 ALSO IN CATEGORY 6
DRESDEN 1 REACTOR PHYSICS TESTS
COMMONWEALTH EDISON COMPANY
4 PAGES, PAGES 17,37,45, AND 58 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL, JANUARY 23, 1968

(PAGE 17) ON THE JANUARY SHUTDOWN, SECONDARY STEAM VALVES WERE CLOSED, AND LOAD DROPPED FROM 140 MWE TO 81, WITH NO CHANGE IN PRIMARY STEAM FLOW. POWER WAS REDUCED TO 58 MWE BY ROD INSERTION AND INCREASED SECONDARY STEAM FLOW. AND, ON THE TURBINE TRIP, PRESSURE INCREASED 2 PSI AND THEN DROPPED 10, STEAM FLOW DROPPED 24.3%, ROSE 42%, DROPPED BACK TO CONTROL, AND

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-25999 *CONTINUED*
POWER-LEVEL INDICATORS ROSE 20% AND DROPPED 34%. (PAGE 58) A LOAD DROP OF 15 MWE BY REDUCING SEC. STEAM FLOW CAUSED A FURTHER DROP OF 5 MWE IN 2 HR, RETURNING TO 140 MWE IN 4 HR. IN-CORE INSTRUMENTS SHOWED AXIAL POWER PEAK SHIFTED UPWARD (BY 12% AT MOST) AND RETURNED IN 14 HR, THEN STARTED TO SHIFT DOWN. (PAGE 45) SEVERAL FUEL REARRANGEMENTS WERE REQUIRED TO GIVE EQUAL SHUTDOWN MARGIN ON ALL SIDES OF THE PERIPHERY. NO MULTIPLICATION WAS OBSERVED WHEN 3 CENTRAL RODS WERE REMOVED. WITH THE REACTOR CRITICAL WITH 31 RODS OUT, INSERTION OF ONE OR MORE CONTROL RODS IN THE CENTER OF THE CORE HAD LITTLE OR NO EFFECT ON THE CRITICAL STATE. (PAGE 37) TEMP. COEFFICIENT TURNED NEGATIVE AT SOME TEMPERATURE BELOW 113 F.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON

*ACCIDENT, LOAD REJECTION + *MEASUREMENT, SUBCRITICALITY + *TEMPERATURE COEFFICIENT + *XENON OSCILLATION + CONTROL ROD WORTH + DRESDEN 1 (BWR) + FLUX DISTRIBUTION + REACTOR STABILITY + REACTOR, BWR + REFUELING + REPORT, OPERATIONS SUMMARY + TEST, PHYSICS + TEST, PLANT RESPONSE

17-26000 ALSO IN CATEGORY 5
DRESDEN 1 FUEL CLEANING AND PIPING INSPECTION
COMMONWEALTH EDISON COMPANY
4 PAGES, PAGES 7, 28, 35, AND 43 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL, JANUARY 23, 1968

(PAGE 43) - 437 FUEL ELEMENTS WERE DRY-SIPPED (25 LEAKED). 19 HAD BEEN IN SINCE CYCLE 4, 7 FROM THE FIRST CORE. (PAGE 28) - 356 FUEL ASSEMBLIES BOTTOM NOSE-PIECES WERE CLEANED. FLOW TESTS SHOWED FLOW INCREASES RANGING BETWEEN 30 AND 240% FOR 8-PSI PRESSURE DROP. (PAGE 7) - THE FUEL HOIST RAN AWAY DUE TO TWO GROUNDS IN THE CONTROL CIRCUIT. THE GRAPPLE HELD NO FUEL AT THE TIME. BY THE TIME AN OPERATOR OPENED THE NEARBY POWER DISCONNECT, THE HOIST REACHED MAXIMUM UPTRAVEL. (PAGE 35) - ULTRASONIC TESTING OF THE 6-IN STEAM-GENERATOR PIPING REVEALED 7 CRACKS NEAR WELDS. LATER, A 20-FT SECTION OF PIPE REMOVED REVEALED 9 FLAWS IN ULTRASONIC TESTING, AND ALL ACCESSIBLE PIPES 8 IN. IN DIAMETER OR LESS WERE ULTRASONICALLY INSPECTED, WITHOUT FINDING FURTHER FLAWS.

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

*ACCIDENT, REFUELING + *FAILURE, CLADDING + *FAILURE, PIPE + *SURFACE FILM DEPOSIT + CRUD + DRESDEN 1 (BWR) + FAULT + FLOW ORIFICE + FUEL ELEMENT + MAIN COOLING SYSTEM + REACTOR, BWR + REPORT, OPERATIONS SUMMARY + TEST, NONDESTRUCTIVE + WELDING

17-26001
SMALL DIAMETER PRIMARY PIPING WELD HEAT AFFECTED ZONE CRACKS FOUND IN A BWR PLANT
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-3 +. 3 PAGES, AEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 20, 1968

LATE IN 1965, AFTER 5 YEARS OF OPERATION, A CRACK WAS FOUND IN THE HEAT-AFFECTED ZONE AROUND A WELD IN A 6-IN. 304-SS BYPASS LINE AROUND AN MOV FOLLOWING A SATISFACTORY HYDROTEST. THIS SECONDARY STEAM-GENERATOR LOOP WAS ISOLATED, AND 190-MWE OPERATION CONTINUED ON 3 OTHER LOOPS. LATER, OTHER CRACKS WERE FOUND IN VARIOUS OTHER SEAMLESS PIPE. ***STRESS-CORROSION ATTACK OCCURRED IN THE GRAIN BOUNDARIES OF REGIONS SENSITIZED BY WELDING TEMPERATURES HIGH ENOUGH TO PRECIPITATE CHROMIUM CARBIDE DURING THE LONG COOLING PERIOD.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*FAILURE, PIPE + *MAIN COOLING SYSTEM + *STRESS CORROSION + *WELDING + FAILURE, INSTALLATION ERROR + FAULT + PIPING + REACTOR, BWR

17-26002 ALSO IN CATEGORY 9
RELIANCE ON A SINGLE INFORMATION SOURCE LEADS TO OPERATING ERROR
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-4 +. 3 PAGES, AEC BULLETIN, OPERATING EXPERIENCE, REACTOR SAFETY, MAY 20, 1968

THE FUEL CENTERLINE TEMPERATURE IN THE CENTRAL PRESSURE TUBE WAS TO BE LIMITED TO 2790 C (UO2-PUO2 FUEL) BY LIMITING CENTRAL TUBE POWER TO 18.6 KW/FT (BY LIMITING AVERAGE POWER IN THE 6 SURROUNDING PRESSURE TUBES). THE REACTOR WAS BROUGHT TO 8 MW AND THEN INCREASED STEPWISE TO 45 MW (80% DESIRED). LINEAR-FLUX MONITORS READ HIGHER THAN EXPECTED AND INDICATED FLOW WAS 8,200 GPM RATHER THAN EXPECTED 10,600. A PARTIALLY OPEN BYPASS VALVE AROUND THE FLOWMETER WAS CAUSING AN ERRONEOUSLY LOW POWER-CALCULATOR READING. ***RISE TO POWER IS NOW IN SMALLER STEPS, WITH HEAT BALANCES GUIDED BY FLUX LEVELS AS WELL AS THERMAL POWER CALCULATOR.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*FAILURE, MAINTENANCE ERROR + *INSTRUMENTATION, FLOW + *INSTRUMENTATION, POWER RANGE + CENTERLINE MELTING + CONTROLLER + FAILURE, ADMINISTRATIVE CONTROL + IRRADIATION TESTING + OPERATING EXPERIENCE + REACTOR POWER + REACTOR, AEC OWNED + REACTOR, PRESSURE TUBE

17-26003
RUPTURE DISC FAILURES AT A TEST REACTOR
USAEC, DIVISION OF OPERATIONAL SAFETY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26003 *CONTINUED*
ROE 68-5 +. 2 PAGES, USAEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 23, 1968

AFTER 4 YEARS OF SATISFACTORY SERVICE, A 2-MIL-THICK SS RUPTURE DISK WAS FOUND FAILED. THE DISK PROTECTED AGAINST COMPLETE LOSS OF FLOW IN CASE THE PRIMARY-SYSTEM VALVE WAS CLOSED. AFTER 150 HR OF FLUSHING WATER THROUGH SCREENS, 72% OF THE MISSING MATERIAL WAS RECOVERED. TWO MONTHS LATER, THE DISK FAILED, AND 566 HR OF FLUSHING RECOVERED 64%. ***THE DISKS HAD BEEN INSTALLED WITHOUT A STAINLESS-STEEL BACKUP PLATE (WHICH PREVENTS DISK FROM COLLAPSING ON A VACUUM), APPARENTLY BECAUSE PLATE AND DISK WERE SEPARATE STORES ITEMS. DISK IS NOW SCHEDULED FOR ANNUAL REPLACEMENT WITH A TYPE CONTAINING AN INTEGRAL SUPPORT PLATE.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*FAILURE, INSTALLATION ERROR + *MAIN COOLING SYSTEM + *PRESSURE RELIEF + REACTOR, AEC OWNED + REACTOR, TEST

17-26004 ALSO IN CATEGORY 9
INADVERTENT DISARMING OF SAFETY CIRCUIT INSTRUMENTATION
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE-68-6 +. 2 PAGES, USAEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 23, 1968

DURING THE STARTUP TESTING PHASE AT A PWR, AN INSTRUMENTATION TEST SIGNAL (INDICATING PRIMARY COOLANT TEMPERATURE OF 570 F) CAUSED THE STEAM-DUMP VALVES TO OPEN WHEN THE CONDENSER LOW-VACUUM TRIP WAS UNBLOCKED WHILE ESTABLISHING A VACUUM IN THE MAIN CONDENSER. THE EXCESSIVE COOLING (90 F IN 5 MIN) COULD HAVE BEEN A 1% REACTIVITY INCREASE LATE IN CORE LIFETIME. THE EXCESSIVE STEAM FLOW PRODUCED A STEAM/FEEDWATER MISMATCH SCRAM. ***PROTECTIVE CIRCUITRY SHOULD BE DESIGNED SO TEST DEVICES ARE READILY VISIBLE, AND CHECK SHEETS SHOULD INCLUDE A CHECK THAT ALL VALVE POSITIONS AND BYPASS MECHAMISMS ARE RETURNED TO NORMAL.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

*INSTRUMENTATION, TESTING + *REACTOR STARTUP TESTING + FAILURE, MAINTENANCE ERROR + INSTRUMENTATION CALIBRATION + INSTRUMENTATION, TEMPERATURE + REACTOR, PWR + SCRAM, REAL + TURBINE

17-26067 ALSO IN CATEGORY 1
SAFETY PROCEDURES AND HAZARDS OF DECOMMISSIONED ARR (L-54) REACTOR
IIT RESEARCH INSTITUTE, CHICAGO, ILLINOIS
4 PAGES, LETTER TO D.J. SKOVHOLT FROM R.B. MOLER AND R.E. ZELAC, MARCH 6, 1968, DOCKET NO. 50-1

THE RISK OF PRESSURE BUILDUP DUE TO RADIOLYTIC PRODUCTION OF H2 AND O2, AND SUBSEQUENT PRECIPITATION OF UO2 BY H2O2, ARE NOT CREDIBLE SINCE (1) RECOMBINATION RATE OF 2H2 AND O2 WAS OBSERVED TO BE SAME AS PRODUCTION RATE DURING OPERATION, AND (2) EVEN IF ALL UO2 PRECIPITATED, REACTOR WOULD REMAIN SUBCRITICAL. EMERGENCY PROCEDURES AVAILABLE BEFORE OPERATION CEASED ARE STILL SUITABLE NOW FOR PLAUSIBLE INCIDENTS SUCH AS FIRE OR EXPLOSION AND INVOLVE ARRANGEMENTS WITH CHICAGO FIRE DEPT., AEC RADIOLOGICAL ASSISTANCE TEAM, CAMPUS SECURITY FORCE, AND HEALTH PHYSICS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*EMERGENCY PROCEDURE + *HAZARD, RELATIVE + *RADIOLYTIC GAS + CHEMICAL REACTION + EXPLOSION + FIRE + PRECIPITATION + PRESSURE, INTERNAL + RADIOLOGICAL ASSISTANCE + REACTOR DECOMMISSIONING + REACTOR, HOMOGENEOUS + REACTOR, RESEARCH + URANIUM DIOXIDE

17-26068 ALSO IN CATEGORY 9
NBSR ROD DROP FAILURE
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.
6 PAGES, LETTER TO P.A. MORRIS FROM R.S. CARTER, MAY 10, 1968, DOCKET NO. 50-184

ON MAY 2, 1968, THE NO. 4 SHIM ROD FAILED TO DROP TO THE FULL-INSERT POSITION. INSPECTION SHOWED GALLING OF THE LOWER-SPRING-RETAINER ASSEMBLY. THE ASSEMBLY HAD BEEN ACCIDENTALLY DRIVEN INTO A FIXED MECHANICAL STOP DURING A CHECKOUT OF POSITION INDICATION. MAINTENANCE HAD BEEN PERFORMED, AND THE COMPONENTS HAD POSSIBLY BEEN REASSEMBLED IN A DIFFERENT ORIENTATION, WHICH WOULD AGGRAVATE GALLING. THE BALL SCREW AND SPRING RETAINER ASSEMBLY WERE REPLACED. NO SIMILAR INCIDENTS HAVE OCCURRED OR BEEN INDICATED IN OTHER UNITS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM + CP 5 (RR) + DAMAGE + FAILURE, MAINTENANCE ERROR + FAILURE, OPERATOR ERROR + NBS + OPERATING EXPERIENCE + REACTOR, HWR + REACTOR, RESEARCH

17-26084 ALSO IN CATEGORY 15
FREDERICKSON RL
EXPOSURE TO EXCESSIVE AIRBORNE I-131
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16, (JUNE 17, 1968)

(LETTER, MAY 3) DURING THE WEEK OF APRIL 1-7, THE EXPOSURE WAS TO 81 MPC-HR OF I-131, NEARLY ALL DURING A 1/2-HR THYROXINE PREPARATION. THERE WAS NO INHALATION BECAUSE WORKER WORE A FACE MASK. IN FACT, HIS THYROID BURDEN DROPPED FROM 26% TO 15% OF PERMISSIBLE. UNLESS WE

4

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26084 *CONTINUED*
CAN SOLVE THIS PROBLEM SOON, WE WILL REQUEST AN EXEMPTION FROM 10 CFR 20.103(C)(1), FOR THIS ONE OPERATION. WE FIND THAT THE ACTIVITY BECOMES AIRBORNE WHEN THE PREPARATION IS REMOVED FROM THE FUME HOOD FOR ASSAY. WE WILL TRY A CONTAINMENT BAG FOR THE VIAL. PROGRESS IS SLOW BECAUSE OF THE SPORADIC NATURE OF THE PROBLEM.

*AIRBORNE RELEASE + *PERSONNEL PROTECTIVE DEVICE + *RADIOISOTOPE + FISSION PRODUCT, IODINE + INHALATION

17-26085 ALSO IN CATEGORIES 15 AND 13
NONCOMPLIANCE CITATION OF INTERNATIONAL CHEMICAL AND NUCLEAR CORP.
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., NORTH LAKE ST., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16 AND 17, (JUNE 17, 1968)

(LETTER, APRIL 10) A JAN. 1968 INSPECTION OF THE PITTSBURGH FACILITY GAVE 5 ITEMS OF NONCOMPLIANCE - (1) LOSS OF 30 MILLICURIES OF SN-113 WAS NOT REPORTED TO RAD-PROTECTION OFFICER, (2) STACK SURVEYS FROM SEPT. 67 WERE INADEQUATE TO DETERMINE I-125 RELEASES FROM LAB 4A, CHARCOAL FILTERS BEING STORED UNANALYZED, (3) SURVEYS WERE INADEQUATE TO DETERMINE LAB AIRBORNE ACTIVITY, (4,5) RECORDS OF CONTAMINATION SURVEYS AND BY-PRODUCT DISPOSAL WERE INADEQUATE. CHEMICAL HOODS ALSO HAVE INADEQUATE FACE VELOCITY. THE STACK PROBE IS PERPENDICULAR TO AIR FLOW, AND RELATIVE VELOCITIES NOT ACCOUNTED FOR. COMPLIANCE LETTER OF MAR. 10, 1967, TO THE THEN NS AND E CO. INDICATED INADEQUATE PERSONNEL SAFETY TRAINING AND INADEQUATE MANAGEMENT CONTROL. PRESENT INSPECTION REVEALS THAT COMPANY RADIATION-SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY. WE DO NOT BELIEVE YOUR HP STAFF IS ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION SAFETY PROGRAM.

*FAILURE, ADMINISTRATIVE CONTROL + *INSPECTION AND COMPLIANCE + *RADIOISOTOPE + GLOVE BOX + HEALTH PHYSICS TRAINING + MONITOR, RADIATION, STACK + RADIATION SAFETY AND CONTROL + STAFFING, TRAINING, QUALIFICATION + SURVEILLANCE PROGRAM + VENTILATION SYSTEM

17-26086
SOLDAN DW
IODINE INHALATION DURING CAPSULE MACHINE ADJUSTMENT
MALLINCKRODT NUCLEAR, LAMBERT FIELD, ST. LOUIS, MO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 18, (JUNE 17, 1968)

(LETTER, APRIL 23) ROUTINE THYROID-BURDEN MEASUREMENTS SHOWED 0.06 MICROCURIE I-131 ON 3/25 AND 0.30 ON 3/28. THE AVERAGE BURDEN FOR THE PRECEEDING 12 WEEKS WOULD GIVE AN 0.8-REM THYROID EXPOSURE, WHILE THIS ACUTE UPTAKE WOULD GIVE A 2-REM EXPOSURE. THIS EXPERIENCED EMPLOYEE HAS ADJUSTED THE SODIUM IODIDE MACHINE FREQUENTLY. A SMALL LEAK IN THE PLASTIC TUBING LED TO A HIGH LOCAL AIRBORNE CONCENTRATION. NEW FILTERS AND A MANOMETER WERE INSTALLED, PLUS PRESSURIZED PLASTIC HOODS ALONG WITH A COMPRESSED-AIR SUPPLY PROVIDED AT THIS LOCATION FOR ANYONE WHO ENTERS THE ENCLOSURE.

*INHALATION + *RADIOISOTOPE + FISSION PRODUCT, IODINE + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + PERSONNEL PROTECTIVE DEVICE + RADIATION SAFETY AND CONTROL

17-26087 ALSO IN CATEGORY 12
INTERNAL EXPOSURE OF CHEMIST TO TRITIUM
NEW ENGLAND NUCLEAR CORP., ALBANY ST., BOSTON, MASS.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19, (JUNE 17, 1968)

(LETTER, MAY 8) ON APRIL 4, A JUNIOR CHEMIST WAS SYNTHESIZING AN ORGANIC COMPOUND CONTAINING TRITIUM IN A HOOD UNDER VACUUM WITH A GAS CHROMATOGRAPH. HE RECEIVED A CALCULATED INTERNAL WHOLE-BODY EXPOSURE OF 662 MREM FROM TRITIUM AND CARBON-14. EXPOSURE WAS FROM MULTIPLE CAUSES - (1) LOOSENING OF FAN BELTS, (2) PLACING HEAD IN THE HOOD, (3) POSSIBLE FATIGUE OF RUBBER TUBING AND LEAKS. A NEW FACE DESIGN FOR HOOD WILL PREVENT ENTRY OF HEAD. RUBBER TUBING WILL BE CHANGED OFTENER. CHROMATOGRAPH EXIT PORTS WILL BE DIRECTED TO THE SIDE OF HOOD RATHER THAN TO PORT.

*INHALATION + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE + *VENTILATION SYSTEM + FAILURE, OPERATOR ERROR + GLOVE BOX + TRITIUM

17-26088 ALSO IN CATEGORY 13
URBON WG
OVEREXPOSURES IN DECONTAMINATION AND IN FILTER REPAIRS
NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19 AND 20, (JUNE 17, 1968)

(LETTER, APRIL 29) - EMPLOYEE RECEIVED 3.27 REMS WHOLE-BODY IN FIRST QUARTER 1968, 1.27 WHILE DIRECTING REMOVAL OF A COLLAPSED DISSOLVER OFF-GAS FILTER. FILTERS WILL NOW HAVE A DOWNSTREAM SUPPORT SO THEY CAN BE PLACED IN THE SHIELDED REMOVAL CASK AS A UNIT. (LETTER, MAY 6) - EMPLOYEE RECEIVED 21.55 REMS EXTREMITY EXPOSURE IN FIRST QUARTER 1968, ABOUT HALF, HIGHLY LOCALIZED. AFTER EQUIPMENT REPAIR, A FINGER DOSIMETER READ 10.3 RADS. THE PRE-SURVEY GAVE EXTREMITY RADIATION LEVELS OF 590-650 MILLIRADS/HR. THE POST-SURVEY FOUND THREE SMALL HIGH-RADIATION AREAS, ONE 3 R/HR. MORE CLEANUP, REVISED PROCEDURES, AND A SAFETY FACTOR OF 2 FOR DOSE ESTIMATION ARE NOW USED.

*PERSONNEL EXPOSURE, RADIATION + DECONTAMINATION + FILTER, DAMAGED + FUEL REPROCESSING +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26088 *CONTINUED*
MAINTENANCE AND REPAIR + NFS + RADIATION SAFETY AND CONTROL

17-26092
GUIDANCE IN PREPARING APPLICATION FOR PEACH BOTTOM I FULL TERM LICENSE
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, LETTER TO V.P. MCDEVITT FROM P.A. MORRIS, JUNE 7, 1968, DOCKET NO. 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

PROVIDES GENERAL REQUIREMENTS - (1) DETAILED OPERATING HISTORY, ADEQUACY OF LICENSE ORGANIZATION, AND SIGNIFICANT CHANGES SINCE FSAR WRITTEN, (2) COMPARISON WITH AEC GENERAL DESIGN CRITERIA, (3) NEW FORMAT TECHNICAL SPECIFICATIONS. ***SPECIFIC ITEMS INCLUDE (1) PERIODIC TESTS OF PRIMARY SYSTEM AND CONTAINMENT, (2) DETECTION OF REACTIVITY AND POWER ANOMALIES, (3) PRIMARY-COOLANT-LEAKAGE DETECTION, (4) SAFETY-SYSTEM ADEQUACY, (5) INDEPENDENCE BETWEEN CONTROL AND SAFETY SYSTEM, (6) PRESSURE-VESSEL-MATERIALS SURVEILLANCE PROGRAM, (7) INDEPENDENT SAFETY REVIEW, (9) FIRE PROTECTION, (10) RADIOACTIVITY DISCHARGES, (11) LOSS OF OFF-SITE POWER, (12) DETAILED WRITTEN PROCEDURES, (13) PREVENTION OF OPERATING STAFF DEGRADATIONS, AND (14) IDENTIFICATION OF ITEMS FOR FURTHER REVIEW.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*APPLICATION FOR AEC LICENSE + *OPERATING LICENSE PROCESS + AEC DESIGN CRITERIA + AEC QUESTION + OPERATING EXPERIENCE SUMMARY + PEACH BOTTOM 1 (HTGR) + REACTIVITY EFFECT, ANOMALOUS + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR, HTGR + SAFETY REVIEW + STAFFING, TRAINING, QUALIFICATION

17-26093
GUIDANCE IN PREPARING APPLICATION FOR HADDAM NECK FULL TERM LICENSE
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, LETTER TO S.R. KNAPP FROM P.A. MORRIS, JUNE 7, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES GENERAL REQUIREMENTS - (1) DETAILED OPERATING HISTORY, ADEQUACY OF LICENSE ORGANIZATION, AND SIGNIFICANT CHANGES SINCE FSAR WRITTEN, (2) COMPARISON WITH AEC GENERAL DESIGN CRITERIA, (3) NEW FORMAT TECHNICAL SPECIFICATIONS. ***SPECIFIC ITEMS INCLUDE (1) PERIODIC TESTS OF PRIMARY SYSTEM AND CONTAINMENT, (2) DETECTION OF REACTIVITY AND POWER ANOMALIES, (3) PRIMARY-COOLANT-LEAKAGE DETECTION, (4) SAFETY-SYSTEM ADEQUACY, (5) INDEPENDENCE BETWEEN CONTROL AND SAFETY SYSTEM, (6) PRESSURE-VESSEL-MATERIALS SURVEILLANCE PROGRAM, (7) EMERGENCY INSTRUMENTATION AND PROCEDURES, (8) INDEPENDENT SAFETY REVIEW, (9) FIRE PROTECTION, (10) RADIOACTIVITY DISCHARGES, (11) LOSS OF OFF-SITE POWER, (12) DETAILED WRITTEN PROCEDURES, (13) PREVENTION OF OPERATING-STAFF DEGRADATIONS, AND (14) IDENTIFICATION OF ITEMS FOR FURTHER REVIEW.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*APPLICATION FOR AEC LICENSE + *OPERATING LICENSE PROCESS + AEC DESIGN CRITERIA + AEC QUESTION + HADDAM NECK (PWR) + OPERATING EXPERIENCE SUMMARY + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PWR + SAFETY REVIEW + STAFFING, TRAINING, QUALIFICATION

17-26094
GUIDANCE IN PREPARING APPLICATION FOR SAN ONOFRE FULL TERM LICENSE
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, LETTER TO J.B. MOORE FROM P.A. MORRIS, JUNE 10, 1968, DOCKET NO. 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDES GENERAL REQUIREMENTS - (1) DETAILED OPERATING HISTORY, ADEQUACY OF LICENSE ORGANIZATION, AND SIGNIFICANT CHANGES SINCE FSAR WRITTEN, (2) COMPARISON WITH AEC GENERAL DESIGN CRITERIA, (3) NEW FORMAT TECHNICAL SPECIFICATIONS. ***SPECIFIC ITEMS INCLUDE (1) PERIODIC TESTS OF PRIMARY SYSTEM AND CONTAINMENT, (2) DETECTION OF REACTIVITY AND POWER ANOMALIES, (3) PRIMARY-COOLANT-LEAKAGE DETECTION, (4) SAFETY-SYSTEM ADEQUACY, (5) INDEPENDENCE BETWEEN CONTROL AND SAFETY SYSTEMS, (6) PRESSURE-VESSEL-MATERIALS SURVEILLANCE PROGRAM, (7) EMERGENCY INSTRUMENTATION AND PROCEDURES, (8) INDEPENDENT SAFETY REVIEW, (9) FIRE PROTECTION, (10) RADIOACTIVITY DISCHARGES, (11) LOSS OF OFF-SITE POWER, (12) DETAILED WRITTEN PROCEDURES, (13) PREVENTION OF OPERATING STAFF DEGRADATIONS, AND (14) IDENTIFICATION OF ITEMS FOR FURTHER REVIEW.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*APPLICATION FOR AEC LICENSE + *OPERATING LICENSE PROCESS + AEC DESIGN CRITERIA + AEC QUESTION + OPERATING EXPERIENCE SUMMARY + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PWR + SAFETY REVIEW + SAN ONOFRE (PWR) + STAFFING, TRAINING, QUALIFICATION

17-26095
PIQUA NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 57
PIQUA NUCLEAR POWER FACILITY
COO-652-47 +. 9 PAGES, TABLES, JANUARY, 1968, DOCKET NO. 115-2, TYPE--OCR, MFG--A.I., AE--A.I.

MONTHLY PROGRESS REPORT. USUAL CONTENTS ARE DIVIDED BETWEEN HIGHLIGHTS, PLANT PERFORMANCE DATA, ADMINISTRATION, TESTING AND ANALYSIS, HEALTH AND SAFETY, MAINTENANCE AND MODIFICATION.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26095 *CONTINUED*
AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*MAINTENANCE AND REPAIR + *RADIATION SAFETY AND CONTROL + *TESTING + PIQUA (OCR) + REACTOR, ORGANIC COOLED + REPORT, OPERATIONS SUMMARY

17-26096
TEXAS A+M UNIVERSITY TRIGA CORE AUTHORIZED
USAEC, DIVISION OF REACTOR LICENSING
26 PAGES, 2 TABLES, LETTER TO J.D. RANDALL FROM D.J. SKOVHOLT, JUNE 14, 1968, DOCKET NO. 50-128

PROPOSED ISSUANCE OF CONSTRUCTION PERMIT, PROPOSED LICENSE AMENDMENT, SAFETY EVALUATION, AND TECHNICAL SPECIFICATIONS FOR 1 MW (SS) AND $3 PULSES. REPLACES 100-MW PLATE-TYPE CORE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*POWER UPRATING + CONSTRUCTION PERMIT PROCESS + REACTOR, PULSED + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + TRIGA (RR)

17-26098
INDIAN POINT STATION CORE B CYCLE I GAMMA SCAN MEASUREMENTS
WESTINGHOUSE ELECTRIC CORPORATION
24 PAGES, 10 FIGURES, 3 TABLES, MAY, 1968, DOCKET NO. 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

60 FUEL ASSEMBLIES FROM CORE-B CYCLE 1 WERE SCANNED IN 36 HR BY 4 DETECTORS (ONE PER SIDE) SIMULTANEOUSLY. ON-LINE AVERAGING AND INTEGRATING, CORRECTED FOR THE 14-DAY DECAY, GAVE END-OF-LIFE RADIAL POWER DISTRIBUTION WITHIN -3.1 TO +5.8% OF CALCULATED. POWER WAS FLATTER IN CENTER THAN PREDICTED, AND HIGHER AT ELEMENTS REFLECTED BY WATER ON 2 SIDES. DESPITE HEAVILY RODDED UPPER 30 IN. OF CORE AND COASTDOWN OF LAST 10 DAYS, END-OF-LIFE AXIAL PEAKING FACTORS WERE ALMOST UNIFORMLY 1.36 TO 1.32. QUARTER CORE SYMMETRY WAS VERIFIED. (DATA ABSTRACTED FROM WCAP-7168.)

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*FUEL ELEMENT + *POWER DISTRIBUTION + EXAMINATION + FUEL BURNUP + INDIAN POINT 1 (PWR) + INSTRUMENTATION, FUEL SCANNING + REACTOR, PWR + REACTOR, PWR

17-26099
FERMI FLOW BLOCKAGE OBJECT IDENTIFIED
POWER REACTOR DEVELOPMENT COMPANY, DETROIT, MICHIGAN
PRDC-EF-53 +. 9 PAGES, TABLES, DOCKET NO. 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

UNIDENTIFIED FOREIGN OBJECT HAS NOW BEEN IDENTIFIED AS A 1/6 SEGMENT OF ZIRCONIUM SHEET COVERING A CONICAL FLOW GUIDE UNDER THE CORE. SHOWN ON HSR FIGURES 102.2 AND 102.9, IT DOES NOT APPEAR ON ANY CONSTRUCTION PRINTS BUT WAS LOCATED FROM CONSTRUCTION PHOTOGRAPHS. THROUGH ALL THE LOWER-PLENUM PHOTOGRAPHY, NO ATTENTION WAS PAID TO THE FLOW GUIDE. BORESCOPE NOW FINDS 1 SEGMENT LOOSE AND A SCREW MISSING ON ANOTHER.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*FLOW BLOCKAGE + FAILURE, ADMINISTRATIVE CONTROL + FERMI (LMFBR) + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR + REACTOR, LMFBR + REPORT, OPERATIONS

17-26164 ALSO IN CATEGORY 15
HNPF ENVIRONMENTAL MONITORING PROGRAM
CONSUMERS PUBLIC POWER DISTRICT
12 PAGES, 10 TABLES, TWENTH-FOURTH QUARTERLY REPORT, APRIL, MAY, JUNE 1967, DOCKET NO. 115-3, TYPE--PWR, MFG--B+W, AE--CON ED

PRESENTS DATA FROM ENVIRONMENTAL SAMPLES ACCUMULATED DURING APRIL, MAY, AND JUNE 1967. BRIEF DISCUSSIONS ARE GIVEN ON SAMPLING TECHNIQUES, ANALYTICAL CRITERIA, AND COUNTING CRITERIA.

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

*ANALYTICAL TECHNIQUE, GENERAL + *HALLAM (LMR) + *MONITOR, RADIATION, ENVIRONMENTAL + *SAMPLING + AIR + COUNTER + EFFLUENT + GROSS ALPHA + GROSS BETA + REACTOR, LMCR + SEDIMENT + WATER, GENERAL

17-26203 ALSO IN CATEGORY 15
HALLAM ENVIRONMENTAL SURVEY PROGRAM-APRIL 67 THROUGH MARCH 68
CONSUMERS PUBLIC POWER DISTRICT, HALLAM, NEBRASKA
12 PAGES, LETTER TO P.A. MORRIS FROM R.E. BUNTAIN, JUNE 3, 1968, DOCKET NO. 115-3, TYPE--LMR, MFG--A.I., AE--BECHTEL

A SET OF NUMBERS (GROSS ALPHA AND GROSS BETA) FOR AIR-SAMPLE DATA AT PLANT SITE AND AT CITY OF HALLAM, AND FROM PLANT RAW-WATER SUPPLY AND RETENTION PONDS AND SOIL.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26203 *CONTINUED*
AVAILABILITY-USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

*GROSS BETA + *GROSS GAMMA + *MONITOR, RADIATION, ENVIRONMENTAL + *SAMPLING + AIR + EFFLUENT + HALLAM (LMR) + REACTOR, LMCR + SEDIMENT + SOIL + WATER, GENERAL

17-26251
BROWN KK
THREE YANKEE REFUELINGS POINT TOWARD MINIMUM DOWNTIME
7 PAGES, 7 FIGURES, 2 TABLES, 4 REFERENCES, NUCLEONICS 23(1), PAGES 64-70 (JANUARY 1965)

THE FIRST REFUELING TOOK 4 MONTHS, THE THIRD 35 DAYS, OF WHICH ONLY 4 WERE USED FOR FUEL-MOVING OPERATION. YANKEE VIEWS ON REFUELING EQUIPMENT ARE - KEEP IT SIMPLE, MAKE IT RUGGED, AND USE THE RIGHT MATERIAL. COMPLEX EQUIPMENT IS LABOR-MAKING RATHER THAN LABOR-SAVING. OPERATORS HAVE MORE CONFIDENCE IN HAND TOOLS THAN IN THE NO-FEEL OPERATION. THEY NOW HAVE A SET OF HOOK-AND-LINE TOOLS. HEAVY COMPONENTS ARE HANDLED WITH POWERED CABLE WITH SPRING SCALE TO WHICH TOOL IS ATTACHED. EXCELLENT DISCUSSION OF PROBLEMS AND CORRECTIVE MEASURES.

*FUEL HANDLING MACHINE + *REFUELING + CONTAINMENT, GENERAL + DECONTAMINATION + FUEL HANDLING + MAINTENANCE AND REPAIR + OPERATING EXPERIENCE + REACTOR, PWR + REMOTE MANIPULATING AND VIEWING + YANKEE (PWR)

17-26304 ALSO IN CATEGORY 18
PROBLEMS OF THE PEBBLE-BED CORE
4 PAGES, 8 FIGURES, 4 REFERENCES, NUCLEAR ENGINEERING, 13(144), PAGES 432-435, (MAY, 1968)

DISCUSSES PAPERS PRESENTED AT SYMPOSIUM. THE PRACTICALITY OF DESIGN CONCEPT IS BELIEVED TO HAVE BEEN PROVED BY THE FIRST TWO MONTHS OPERATION OF THE 15-MWE AVR IN JULICH. ALTHOUGH THE FUEL BALLS HAVE AVERAGE VELOCITY OF 1 MM/HR, THE CORE MAY BE CONSIDERED TO BE SOLID BED OF GRANULAR MATERIAL. PROBLEM OF BALLS BLOCKING OUTLET OF CONICAL EXIT HAS BEEN AVOIDED. SESSION ON FLOW BEHAVIOR DISCUSSED OBSERVATIONS OF AN ORDERED REGION OF STACKING IN VICINITY OF SMOOTH WALLS. A MATHEMATICAL MODEL FOR FLOW BEHAVIOR IS DISCUSSED IN DETAIL.

*COATED PARTICLE + *FUEL BURNUP + *MATHEMATICAL TREATMENT + ANALYTICAL MODEL + DESIGN STUDY + REACTOR, HTGR + REACTOR, PEBBLE BED + REVIEW + UNITED KINGDOM

17-26395 ALSO IN CATEGORY 15
SOURCE DAMAGED - STARTS LEAKING
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA
1 PAGE, LETTER TO AEC DIVISION OF MATERIALS LICENSING FROM J. W. STAIGER, MARCH 22, 1967

ON MARCH 8, 1967, A 4-CURIE IRIDIUM-192 SOURCE WAS DAMAGED AND STARTED LEAKING. THE SOURCE WAS ATTACHED TO A ROD USED TO PUSH IT THROUGH TWO CYLINDRICAL LEAD VALVES INTO A VAN DE GRAAFF ACCELERATOR TANK. IN RETRACTING THE SOURCE INTO ITS LEAD SHIELD, IT WAS WITHDRAWN ONLY PARTIALLY, AND, IN CLOSING A VALVE, THE SOURCE WAS CLIPPED OFF, ALLOWING POWDERED IRIDIUM TO LEAK INTO THE SPACE BETWEEN SHIELD AND STEEL CASING. UNIT WRAPPED IN POLYETHYLENE BAGS FOR DISPOSAL.

*CONTAMINATION + *DAMAGE + *FAILURE, OPERATOR ERROR + *SOURCE, RADIATION + RADIOGRAPHY

17-26396
INITIAL START-UP OF THE PAKISTAN RESEARCH REACTOR
PAKISTAN INST. OF NUCLEAR SCIENCE AND TECHNOLOGY, ISLAMABAD
PINSTECH/RD-1 +. 15 PAGES, 8 FIGURES, 7 TABLES, 1966

BRIEF DESCRIPTION OF PRECRITICAL INSTRUMENT AND ROD-WORTH TESTS AND APPROACH TO CRITICAL CONFIGURATION AND CORE-LOADING PROCEDURE GIVEN.

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

*REACTOR STARTUP EXPERIENCE + *REACTOR STARTUP TESTING + CONTROL ROD WORTH + INSTRUMENTATION, STARTUP + PAKISTAN + REACTOR, POOL TYPE

17-26397
HULOVEC J
THE FIRST CZECHOSLOVAK NUCLEAR POWER PLANT AND PERSPECTIVES OF NUCLEAR POWER IN CZECHOSLOVAKIA
SKODA WORKS, PILSEN
ZJE-1-67 +. 9 PAGES, TABLES, 1966

DESCRIBES THE A-1 REACTOR (150-MWE, HEAVY-WATER-MODERATED, GAS-COOLED, NATURAL-U-FUELED, TO BE COMPLETED IN 1968) AND THE SUCCEEDING REACTOR A-2 (300 MWE).

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26397 *CONTINUED*
*REACTOR DESCRIPTION + CZECHOSLOVAKIA + REACTOR, GCR + REACTOR, HWR

17-26407
U.S. ARMY BARGE STURGIS MH-1A FLOATING NUCLEAR POWER PLANT
U.S. ARMY
14 PAGES 2 FIGURES, APRIL 23, 1968

BRIEF DESCRIPTION OF FIRST FLOATING POWER PLANT. THE 10-MWE PWR WAS DEVELOPED TO SUPPORT MILITARY OPERATIONS IN REMOTE AREAS. POWER PLANT IS MOUNTED IN HULL OF A MODIFIED 10,000-TON LIBERTY SHIP. IN JAN. 1967, STARTUP TESTING BEGAN. FUEL CONSISTS OF UO2 PELLETS, 4 TO 5% ENRICHED. LOADING ALLOWS 2 YEARS OF CONTINUOUS OPERATION.

AVAILABILITY - DEPARTMENT OF THE ARMY, OFFICE OF THE CHIEF OF ENGINEERS, TECHNICAL LIAISON OFFICE, WASHINGTON, D.C.

*REACTOR DESCRIPTION + MH 1A (PWR) + REACTOR, MILITARY + REACTOR, PWR

17-26410
OGAWA SY
POWER REACTOR HIGH PERFORMANCE UO2 PROGRAM. PROGRESS REPORT NUMBER 5 JULY 1-DECEMBER 31, 1967
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
GEAP-5585 +. 14 PAGES, 5 FIGURES, TABLE, CONTRACT AT(04-3)-189, JANUARY, 1968

ONLY PROGRESS REPORTED IS THAT LICENSE TO ALLOW IRRADIATION WAS OBTAINED. SUMMARIZES DESCRIPTION OF FUEL AND FABRICATION TECHNIQUE FOR ELEMENTS OF ZR-2-CLAD UO2 RODS TO BE IRRADIATED TO VARYING DEGREES OF CENTRAL MELTING IN THE BIG ROCK POINT REACTOR TO AN AVERAGE EXPOSURE OF 15,000 MWD/T.

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

*CENTERLINE MELTING + *FUEL SEGREGATION + *R AND D PROGRAM + BIG ROCK POINT (BWR) + FABRICATION + FUEL ELEMENT + IRRADIATION TESTING + PERFORMANCE LIMIT + REACTOR, BWR + SYSTEM DESCRIPTION

17-26442 ALSO IN CATEGORY 12
REPORT ON FAILURE OF THE SHUTDOWN VALVES TO OPEN
ALLIS-CHALMERS MANUFACTURING CO.
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGE 11 (JUNE 24, 1968), DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

(LETTER, JUNE 8) REACTOR WAS AT 25% POWER WHEN THE SHUTDOWN CONDENSER STEAM INLET VALVES AND ONE CONDENSATE RETURN VALVE FAILED TO OPEN WHEN THE MAIN STEAM ISOLATION VALVE WAS CLOSED FOR TEST 215. FEEDWATER SYSTEM PREVENTED THE PRESSURE TRANSIENT. ***VALVE PACKING WAS TIGHT BUT DID NOT PREVENT OPENING. THE CONDENSATE VALVE HAD A TEASPOONFUL OF WELD BEADS, INCLUDING ONE PARTICLE JAMMED BETWEEN PLUG AND SEAT. IN THE STEAM INLET VALVES, A DIFFERENTIAL PRESSURE IS DEVELOPED (DUE TO UNEQUAL PATH LENGTHS FOR STEAM TO FOLLOW IN PASSING THROUGH VALVE BODY AND THROUGH TWO OPENINGS 180 DEG APART) WHICH CAUSES THE PLUG TO RUB AGAINST THE SEAT WHEN OPENING. SEAT CAGE OPENINGS WILL BE INSTALLED WITH HOLES 90 DEG FROM VALVE INLET, AND HIGHER.

*CONTAINMENT PENETRATION, CLOSURE OF + *SHUTDOWN COOLING SYSTEM + *TEST, PLANT RESPONSE + *VALVE + FAILURE, INSTALLATION ERROR + FAILURE, SIMULTANEOUS + LACROSSE (BWR) + MAIN COOLING SYSTEM + OBSTRUCTION + REACTOR STARTUP TESTING + REACTOR, BWR + WELDING

17-26443 ALSO IN CATEGORY 3
CORRESPONDENCE ON LICENSE REQUIREMENTS FOR POSSESORS OF SHIPPING CONTAINER
LONG ISLAND NUCLEAR SERVICE CORP. + DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 15 AND 16 (JUNE 24, 1968)

(LINS LETTER TO COMPLIANCE, APRIL 1) INDICATES THAT X CORP. RETAINS AND MAY BE USING WITHOUT LICENSE A SHIPPING CONTAINER OWNED AND LICENSED BY LINS CO. ASKS FOR INVESTIGATION OF ICC REGULATION VIOLATION. (COMPLIANCE REPLY MAY 9, COPY TO DEPT. OF TRANSPORTATION). LICENSEE OWNERSHIP OF EQUIPMENT IN WHICH LICENSED MATERIAL IS PLACED IS NOT A LICENSING REQUIREMENT. SUGGESTS LINS NOTIFY DEPT. OF TRANSPORTATION. (LINS REPLY, MAY 18). - AEC IS AVOIDING ISSUE. IN A SIMILAR SITUATION YEARS AGO, AEC POSITION IN WRITING WAS THAT CARRIER DOES NOT HAVE PROPER LICENSING. SHOULD NOT AEC NOTIFY ICC OF VIOLATIONS.

*SHIPPING CONTAINER + *TRANSPORTATION AND HANDLING + INSPECTION AND COMPLIANCE + REGULATION, ICC

17-26444
APPARENT OVEREXPOSURE DURING FLUROSCOPY
LOWER BUCKS HOSPITAL, BRISTOL, PENNSYLVANIA
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGE 16(JUNE 24, 1968)

(LETTER TO COMPLIANCE, MAY 29) DURING A RECENT COMPLIANCE VISIT, WE DISCUSSED THE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26444 *CONTINUED*
RADIATION-EXPOSURE RECORDS OF DR. X - 1.788 REMS (2ND QUARTER 67), 1.483 REMS (3RD QUARTER 67), AND 1.26 REMS (1ST QUARTER 68). DR. X, GREGERSEN, AND I ARE EXPOSED ABOUT THE SAME DEGREE TO X RAYS AND ISOTOPES. GREGERSON AND I WEAR BADGES INSIDE THE LEAD APRON AND AVERAGE 0.1 REM/QUARTER. DR. X NOW WEARS HIS BADGE INSIDE THE LEAD APRON AT BELT LEVEL WHILE FLUROSCOPING.

*PERSONNEL EXPOSURE, RADIATION + *RADIOLOGY + PERSONNEL PROTECTIVE DEVICE + RADIOISOTOPE + X-RAY

17-26445 ALSO IN CATEGORIES 3 AND 15
STATE OF MASSACHUSETTS INQUIRY ON LEAKING SHIPPING CONTAINER IN BOSTON
DIVISION OF COMPLIANCE + STATE OF MASSACHUSETTS
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 16 AND 17 (JUNE 24, 1968)

(LETTER FROM MASS. GOVERNOR, MARCH 68) - COOPERATIVE EFFORTS OF FEDERAL, STATE, AND LOCAL OFFICIALS AVERTED ANY SERIOUS DANGER IN GREATER BOSTON AREA FROM LEAKING SHIPPING CONTAINER. REQUEST AEC REVIEW SHIPPING-CONTAINER DESIGN AND INSTRUCTIONS FOR HANDLING IN TRANSIT. (APRIL 16 REPLY FROM G.T. SEABORG) - ENCLOSES COMPLIANCE INVESTIGATION REPORT SUMMARY. DEPT. OF TRANSPORTATION SUSPENDED THE CASK PERMIT. AEC AND FEDERAL AGENCIES HAVE DEVELOPED IMPROVED STANDARDS AND REQUIREMENTS (10 CFR 71, AUG. 66). IN 20 YEARS, MANY HUNDRED THOUSAND SHIPMENTS HAVE BEEN MADE WITH AN OUTSTANDING RECORD OF SAFETY.

*ACCIDENT, TRANSPORTATION + *CASK OPERATING EXPERIENCE + *RADIOISOTOPE + INCIDENT, NONREACTOR + INSPECTION AND COMPLIANCE + RADIOLOGICAL ASSISTANCE + REGULATION, AEC + SHIPPING CONTAINER

17-26446 ALSO IN CATEGORIES 3 AND 15
SUMMARY OF INVESTIGATION BY DIVISION OF COMPLIANCE OF AN INCIDENT INVOLVING THE SPREAD OF CONTAMINATION IN THE BOSTON MASS. AREA
DIVISION OF COMPLIANCE, AEC
2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 17 AND 18 (JUNE 24, 1968)

16 QUARTZ AMPOULES (CONTAINING 4 CURIES OF I-131, CS-134, RB-86, AND S-35) WERE SHIPPED IN A CONTAINER FROM GETR ON FEBRUARY 31, 1968, AND DELIVERED TO NENC IN BOSTON FEBRUARY 26. CONTAMINATION AND WATER DRIPPING FROM CASK DRAIN PLUG WERE FOUND. APPARENTLY WATER IN THE CASK FROZE AND CRUSHED THE SAMPLES, AFTER BEING LOADED ON D AND J TRUCK FEBRUARY 24 AND PARKED OUTDOORS. ***A RESIDENCE WAS CONTAMINATED 20 MRADS/HR. A SHOE COMPANY WAS CONTAMINATED TO 50 MRADS/HR. FEATURE ARTICLE APPEARED IN MARCH 3 BOSTON HERALD TRAVELER.

*ACCIDENT ANALYSIS + *ACCIDENT, TRANSPORTATION + *FAILURE, OPERATOR ERROR + *INSPECTION AND COMPLIANCE + CASK OPERATING EXPERIENCE + GETR (TR) + INCIDENT, HUMAN ERROR + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + RADIOISOTOPE + RADIOLOGICAL ASSISTANCE + REACTOR, RESEARCH + SHIPPING CONTAINER + TRANSPORTATION AND HANDLING

17-26447 ALSO IN CATEGORIES 15 AND 1
DETAILED REPLY TO COMPLIANCE LETTER OF APRIL 1, 1968
U.S. RADIUM CORPORATION, MORRISTOWN, NEW JERSEY
8 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 19-26 (JUNE 24, 1968)

(LETTER TO COMPLIANCE, APRIL 30) PROVIDES PLANS FOR NEW FACILITIES FOR OCCUPANCY LATE 68 OR EARLY 69. DISCUSSES EACH OF 7 CITATION ITEMS IN DEPTH AND POINTS OUT GENERAL PROBLEM AREAS CURRENTLY BEING RESOLVED. (1-3) REORGANIZATION AND REASSIGNMENT OF RESPONSIBILITY AND PERSONNEL UPGRADING. (5-6) NEW RADIATION MONITORING AND MEASUREMENT EQUIPMENT. (7-9) OPERATING PROCEDURES HAVE BEEN UPDATED, AND REVIEW COMMITTEE MEETS OFTNER. ***CONTRIBUTING FACTORS WERE ERRONEOUS IDEAS OF ECONOMY, GIVING INADEQUATE AMOUNTS OF EQUIPMENT BROUGHT TO LIGHT BY THE EMERGENCY, A FALSE IDEA THAT THE AMERICIUM CONTAMINATION WAS DUE TO RADIUM (FROM RADIUM EQUIPMENT MOVED IN IN 1949). MOST PROBLEMS WERE TRACED TO COMPLETE DEGREDATION OF TECHNIQUES WHICH HAD TAKEN PLACE OVER PAST YEARS (RATHER THAN TO EQUIPMENT).

*INSPECTION AND COMPLIANCE + AMERICIUM + CONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + INCIDENT, NONREACTOR + RADIATION SAFETY AND CONTROL + RADIOISOTOPE + RADIUM

17-26497 ALSO IN CATEGORIES 1 AND 15
DUNLOP WW
SATISFACTORY OPERATION OF SAN ONOFRE AND HUMBOLDT BAY
CALIFORNIA PUBLIC UTILITIES COMMISSION, SAN FRANCISCO, CALIF. + DIVISION OF COMPLIANCE, WASHINGTON, D. C.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(27), PAGE 17 AND 17, (JULY 1, 1968), DOCKET NO. 50-155 AND 50-206, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER, MAY 1, TO AEC COMPLIANCE, CALIFORNIA) - ARE SAN ONOFRE AND HUMBOLDT BAY COMPLYING WITH RADIATION SAFETY REQUIREMENTS. (REPLY, JUNE 20) - COMPLIANCE IS DETERMINED BY PERIODIC ON-SITE INSPECTION, WITH PARTICULAR ATTENTION TO (1) PERFORMANCE OF PLANT EQUIPMENT, (2) ABNORMAL EVENTS, (3) PLANT ORGANIZATION AND PROCEDURES, (4) PERSONNEL RADIATION EXPOSURES, (5) CONTAMINATION CONTROL, (6) WASTE RELEASE, AND (7) ENVIRONMENTAL MONITORING. ON THE BASIS OF INSPECTIONS TO DATE, WE FIND THESE TWO LICENSEES SATISFACTORILY OPERATING THEIR STATIONS WITHIN AEC REGULATIONS AND LICENSE CONDITIONS.

*INSPECTION AND COMPLIANCE + *STATE PROGRAM + HUMBOLT BAY (BWR) + INCIDENT, GENERAL + MONITORING PROGRAM, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL + REACTOR, BWR + REACTOR, PWR +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26497 *CONTINUED*
SAN ONOFRE (PWR)

17-26498 ALSO IN CATEGORIES 13 AND 14
RUNION TC
AEC OPINION THAT BUTTERMILK CREEK IN RESTRICTED AREA IS A PUBLIC STREAM
NUCLEAR FUEL SERVICES, INC., WHEATON PLAZA BLDG., WHEATON, MD.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 15 AND 16, (JULY 8, 1968) DOCKET NO. 50-201

(JUNE 25 REPLY TO DML LETTER OF MAY 31). DISCHARGES TO CATTARAUGUS CREEK FROM OCT. 67 THRU MAR. 68 AVERAGED 11% MPC AND DID NOT EXCEED 30%. THIS IS NOT EXCESSIVE RELEASE TO THE WATERSHED. LEGALLY, BUTTERMILK CREEK IS NOT A PUBLIC STREAM, AND NFS HAS TAKEN STEPS (FENCING AND POSTING) TO EXCLUDE THE PUBLIC. WE HAVE NOT TAKEN SPECIAL STEPS TO EXCLUDE INDIVIDUALS FROM TAKING PRIVATE SAMPLES TO ASCERTAIN COMPLIANCE. THE CREEK RADIATION LEVEL IS HIGHER (DUE TO VERY SMALL SIZE) THAN ALLOWED IN AN UNRESTRICTED AREA. NFS WOULD TAKE FURTHER STEPS TO EXCLUDE PUBLIC OR TO BYPASS THE CREEK IF 10 CFR 20 IS NOT BEING AMENDED TO FURTHER REDUCE DISCHARGE LIMITS. NFS IS CONSIDERING ION EXCHANGE, CHEMICAL TREATMENT, EVAPORATION, AND FLOCCULATION TO REDUCE DISCHARGES.

*WASTE DISPOSAL, RIVER + *WASTE TREATMENT, GENERAL + FUEL REPROCESSING + RADIATION, PUBLIC EDUCATION/ACCEPTANCE + SITING, CHEMICAL PROCESS PLANT + WASTE DISPOSAL, LIQUID

17-26500
COE JR
YANKEE GENERAL POLICY FOR LABOR STRIKE
YANKEE ATOMIC ELECTRIC CO., BOSTON, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 17 AND 18, (JULY 8, 1968), DOCKET NO. 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

(LETTER, JUNE 25) OF THE NORMAL 66-MAN COMPLEMENT, 27 ARE NONUNION. OF THE 39 IN IBEW, 20 ARE CONTROL-ROOM AUXILIARY OPERATORS. NORMAL OPERATING STAFF CONSISTS OF 5 SRO AND 10 RO. CURRENTLY, THERE ARE 10 SRO AND 2 RO NOT PART OF THE BARGAINING UNIT. DURING A STRIKE, THERE WILL BE SAME NUMBER (5) PER SHIFT, WITH AT LEAST 3 EITHER RO OR SRO. OTHER SPECIALISTS ARE AVAILABLE. IN CASE OF A STRIKE, SAFE AND EFFICIENT PLANT OPERATION CAN BE CONTINUED.

*STAFFING, TRAINING, QUALIFICATION + REACTOR, PWR + YANKEE (PWR)

17-26501
REED COLLEGE TRIGA I OPERATING LICENSE
DIVISION OF REACTOR LICENSING
10 PAGES, 1 TABLE, LETTER TO A. F. SCOTT FROM D. J. SKOVHOLT, LETTER TO A. F. SCOTT, REED INSTITUTE, JUNE 10, 1968, DOCKET 50-288.

NOTICE OF PROPOSED ISSUANCE OF OPERATING LICENSE (ALONG WITH TECHNICAL SPECIFICATIONS AND SAFETY EVALUATION) FOR A 250-KW TRIGA I.

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

*TECHNICAL SPECIFICATIONS + OPERATING LICENSE PROCESS + REACTOR, RESEARCH + SAFETY EVALUATION + TRIGA (RR)

17-26535
PURDUE UNIVERSITY REACTIVITY OSCILLATOR DOES NOT NEED TECHNICAL SPECIFICATION CHANGES
USAEC, DIVISION OF REACTOR LICENSING
1 PAGE, LETTER TO R. L. ANDERSON FROM D. J. SKOVHOLT, JUNE 10, 1968, DOCKET 50-182

USE OF THE OSCILLATOR (MAXIMUM WORTH OF 0.003 DK/K AND MAXIMUM STROKE OF 1.5 IN.) AS DESCRIBED IN LETTERS OF FEBRUARY 17 AND MAY 13, 1968, WOULD NOT BE AN UNREVIEWED SAFETY QUESTION NOR WOULD NEED A TECHNICAL-SPECIFICATION CHANGE.

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

*OSCILLATOR, REACTIVITY + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-26536
WATER LEAKAGE FROM RESIN BED
PURDUE UNIVERSITY, LAFAYETTE, INDIANA
1 PAGE, LETTER TO P. A. MORRIS FROM R. L. ANDERSON, MAY 7, 1968, DOCKET 50-182

AT 7 PM ON MAY 2, A GRADUATE STUDENT CALLED ME AT HOME TO REPORT WATER COMING OUT UNDER REACTOR-ROOM DOOR. A CYLINDER USED IN PURIFYING CITY WATER THAT SUPPLIES OUR MAKEUP WATER HAD FAILED, RELEASING WATER AND RESIN. SINCE THE FLOOR HAD BEEN CLEANED THE DAY BEFORE, AND SINCE THIS WAS CITY WATER, I SAMPLED THE WATER, OPENED THE FLOOR DRAIN, AND ROPED OFF THE AREA UNTIL WE CORRECTED THE SITUATION. WE WILL NOW CLOSE THE MAKEUP VALVE EACH EVENING.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26536 *CONTINUED*
*COOLANT PURIFICATION SYSTEM + *CORROSION + *LEAK + CONTAMINATION + INCIDENT, NONNUCLEAR + REACTOR, RESEARCH + WASTE DISPOSAL, LIQUID

17-26537
PROCEDURES USED IN DETERMINING PUR-1 TRANSFER FUNCTION BY REACTIVITY OSCILLATION
PURDUE UNIVERSITY, INDIANA
27 PAGES, 4 FIGURES, LETTER TO E. R. PRICE FROM R. L. ANDERSON, FEBRUARY 17, 1968, DOCKET 50-182

BRIEFLY DESCRIBES EXPERIMENT HARDWARE AND DETAILED PROCEDURES 45 THRU 51 (FUEL AND POISON MANIPULATIONS AND REACTIVITY CALIBRATIONS). WRITTEN MATERIAL TO BE ADDED TO PART C OF HAZARDS SUMMARY REPORT.

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

*MEASUREMENT, REACTIVITY + *OSCILLATOR, REACTIVITY + FUEL ELEMENT + POISON, FIXED + PROCEDURES AND MANUALS + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-26542
KANTOR ME + MENZEL HF + SCHLICHT RW
ENGINEERING TESTS DURING THE INITIAL OPERATION OF THE PEACH BOTTOM HTGR
GULF GENERAL ATOMIC INC., SAN DIEGO
15 PAGES, 16 FIGURES, 2 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 7(4), PAGES 297-311 (APRIL 1968)

TESTS COVERED REACTOR PHYSICS, RADIOCHEMISTRY, PLUS CHEMICAL, MECHANICAL, ELECTRICAL, AND CONTROL ENGINEERING. OPERATIONAL BEHAVIOR OF REACTOR AS HEAT SOURCE, OF STEAM GENERATORS, OF HELIUM COMPRESSORS, OVERALL PLANT CONTROL AND SAFETY SYSTEM, HELIUM-PURIFICATION AND FISSION-PRODUCT-TRAPPING SYSTEM, AND STEAM TURBINE-GENERATOR AND FEEDWATER-SUPPLY SYSTEM WERE DEMONSTRATED. STEAM GENERATORS REQUIRED MODIFICATIONS BUT PRODUCED DESIGN CAPACITY AT 1000 F AND 1450 PSIG. PLANT CONTROLS WERE EFFECTIVE AT LOAD-CHANGE RATES OF UP TO 3%/MIN. PLANT SAFETY ACTIONS (SCRAM, SETBACK, LOOP ISOLATION) PROVED MUCH GENTLER THAN PREDICTED. MAIN COOLANT ACTIVITY REMAINED BELOW 1 CURIE TOTAL AND ALL CHEMICAL IMPURITIES BELOW DESIGN LIMIT OF 10 PPM TOTAL OXIDANTS.

*REACTOR STARTUP EXPERIENCE + *REACTOR STARTUP TESTING + FAILURE, DESIGN ERROR + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR + STEAM GENERATOR + TEST, ON LINE + TEST, PLANT RESPONSE + TEST, SYSTEM OPERABILITY

17-26567
RECOVERY OF DROPPED FUEL ELEMENT
PHILADELPHIA ELECTRIC COMPANY
30 PAGES, PEACH BOTTOM MONTHLY REPORT NO 25, PAGE 15-23, MARCH 1968. DOCKET 50-171. TYPE--HTGR, MFG--G.A., AE--BECHTEL

PRESENTS DETAILS OF RECOVERY OPERATION. (SEE REPORT 24 (FEB.) FOR DESCRIPTION OF DROPPING INCIDENT.) TO REMOVE THE REFLECTOR PIECE, A MOCKUP WAS CONSTRUCTED OF THE CORE AND A MANIPULATOR INSTALLED ON THE TRANSFER MACHINE. TRAINING WAS GIVEN, USING THIS EQUIPMENT AND ONLY A TV FOR VISUAL AID. REMOVAL OF FUELED SECTION REQUIRED SEVERAL MODIFICATIONS OF CANNING MACHINE AND FUEL-ELEMENT ELEVATOR. AFTER MODIFICATIONS AND PRACTICE RUNS, FUELED SECTION WAS REMOVED. GAMMA SCANNING SHOWED THAT ALL FUEL COMPONENTS WERE INSIDE SALVAGE CANISTER. BORESCOPIC EXAMINATION SHOWED A CLEAN BREAK IN REFLECTOR AND THAT NO FUEL PARTICLES COULD HAVE ESCAPED.

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

*ACCIDENT, REFUELING + *INCIDENT, RECOVERY FROM + FUEL HANDLING + FUEL HANDLING MACHINE + MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR + REMOTE MANIPULATING AND VIEWING + REPORT, OPERATIONS

17-26568
REMOVAL OF DEFECTIVE FUEL ELEMENT
PHILADELPHIA ELECTRIC COMPANY
30 PAGES, PAGES 24-30 OF PEACH BOTTOM MONTHLY REPORT NO. 25. MARCH 1968. DOCKET 50-171. TYPE--HTGR, MFG--G.A., AE--BECHTEL

DATA INDICATED A CRACK IN THE ELEMENT SLEEVE, SO A TOOL WAS MADE FOR GRASPING THE LOWER REFLECTOR AND CAPTURING THE ELEMENT INSIDE THE TOOL FOR REMOVAL. DETAILS GIVEN OF IN-CORE AND OUT-OF-CORE HANDLING. INSPECTION OF BARE ELEMENT SHOWED A 3-TO 4-IN. JAGGED VERTICLE CRACK IN SLEEVE OF ELEMENT, PLUS CIRCUMFERENTIAL CRACK. THE CENTER SPINE WAS PROTRUDING FROM INSIDE THE SLEEVE. NO PERSONNEL EXPOSURES EXCEEDED 50 MR ANY ONE DAY.

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

*FUEL HANDLING + *INCIDENT, RECOVERY FROM + FAILURE, FUEL ELEMENT + FUEL HANDLING MACHINE + OPERATING EXPERIENCE + PEACH BOTTOM 1 (HTGR) + REACTOR, HTGR + REMOTE MANIPULATING AND VIEWING + REPORT, OPERATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26572
CVTR LICENSE TERMINATION
CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC.
4 PAGES, LICENSE TERMINATION ORDER. DOCKET 50-144, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER. JUNE 25, 1968.

LICENSE TERMINATED BECAUSE CVTR HAS BEEN DISMANTLED AND PARTS DISPOSED OF.

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

*REACTOR DECOMMISSIONING + CVTR (PWR) + REACTOR, HWR + REACTOR, PWR + TECHNICAL SPECIFICATIONS

17-26574 ALSO IN CATEGORY 15
AEC PLANS TRAINING SEMINARS FOR NUCLEAR FACILITY PHYSICIANS
U.S. ATOMIC ENERGY COMMISSION
AEC PRESS RELEASE L-137, 2 PAGES, JUNE 20, 1968

SEMINARS (INTENDED FOR THOSE RESPONSIBLE FOR MEDICAL SUPPORT AT NUCLEAR FACILITIES OR AT LOCAL HOSPITALS WHICH HAVE AGREED TO PROVIDE CARE) WILL BE HELD JULY 8 THRU 10, 1968, IN RICHLAND, WASH., AND ON THE EAST COAST IN FALL OF 1968. SESSIONS INCLUDE DIAGNOSIS AND CARE OF RADIATION INJURY AND ILLNESS, CARE AND ADMISSION OF PERSONS CONTAMINATED INTERNALLY OR EXTERNALLY, AND CONTROLS TO MINIMIZE SPREAD OF CONTAMINATION. ***INQUIRE OF DR. W.T. DORAN, DIV. OF OPERATIONAL SAFETY, WASHINGTON, D. C., 20545.

AVAILABILITY - AEC, DIVISION OF PUBLIC INFORMATION

*RADIATION INJURY, TREATMENT OF + *STAFFING, TRAINING, QUALIFICATION + HEALTH PHYSICS TRAINING + RADIOLOGICAL ASSISTANCE + REACTOR, BWR + REACTOR, POWER + REACTOR, PWR

17-26575
GERKEN WW
BONUS PREOPERATIONAL ANALYSIS REPORT
COMBUSTION ENGINEERING, INC., WINDSOR, CONN. + PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
CEND/PRWRA-270 +. 410 PAGES, JUNE, 1966

PRESENTS RESULTS OF COLD AND HOT TESTS. TOPICS - CRITICALITY EXPERIMENTS, BOILER-ASSEMBLY CORE OPERATIONS, REDUCED AND FULL CORE OPERATIONS, EQUIPMENT PERFORMANCE, PRESSURE-CONTROL SYSTEM, AND TRANSIENT ANALYSIS.

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

*REACTOR STARTUP TESTING + BONUS (ISR) + CRITICALITY EXPERIMENT + REACTOR STARTUP EXPERIENCE + REACTOR TRANSIENT + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS SUMMARY + TEST, SYSTEM OPERABILITY

17-26576 ALSO IN CATEGORY 6
PRESSURIZED WATER REACTOR PH-REACTIVITY EFFECT, QUARTERLY PROGRESS REPORT FOR PERIOD ENDING SEPTEMBER 1967
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PENNSYLVANIA
WCAP-3696-5 + EURAEC-1926 +. 41 PAGES, 17 FIGURES, OCTOBER, 1967

PROGRESS REPORT. AN INSTRUMENTED 3-BY-3 ASSEMBLY AND A REACTIVITY OSCILLATOR WERE RECEIVED AT SAXTON. LENGTHY DISCUSSION GIVEN OF FABRICATION METHODS FOR STAINLESS-STEEL-CLAD UO2 CERMET FUEL FOR THE INSTRUMENTED ASSEMBLY.

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

*PH REACTIVITY EFFECT + *R AND D PROGRAM + CLAD + EURATOM + FABRICATION + FUEL ELEMENT + OSCILLATOR, REACTIVITY + REACTOR, PWR + SAXTON (PWR) + STEEL, STAINLESS

17-26577 ALSO IN CATEGORY 6
PROGRAMME OF RESEARCH ON THE TRINO VERCELLESE NUCLEAR POWER PLANT FOR THE DEVELOPMENT OF CLOSED-CYCLE WATER REACTOR TECHNOLOGY
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY
EUR-3657 +. 81 PAGES, CONTRACT 071-66-6 TEEI, ANNUAL REPORT, JUNE 1, 1966-JUNE 30, 1967, SEPTEMBER 22, 1967

TESTS ON PH VARIATION REVEALED (1) EFFECT IS HALF THAT OBSERVED IN YANKEE, (2) CORRELATION EXISTS WITH POWER LEVEL AND TEMP. DISTRIBUTION, (3) SOME INCONSISTENCIES EXIST. SURFACE BOILING TESTS REVEALED A STRONG NOISE RESONANCE AT 5 C/SEC. LOWERING PH REDUCES PEAK AT 10 C/SEC AND AMPLIFICATION OF 13 C/SEC. OTHER TOPICS - POWER-DENSITY MEASUREMENTS, REVIEW OF COOLANT FLOW RATE AND DISTRIBUTION, AND EVALUATION OF CORE AND STEAM-GENERATOR PERFORMANCE, LIMITS.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26577 *CONTINUED*
AVAILABILITY - AEC DEPOSITORY LIBRARIES IN THE U.S. AND OVERSEAS

*BOILING + *NOISE ANALYSIS + *PH REACTIVITY EFFECT + FLOW DISTRIBUTION + ITALY + PERFORMANCE LIMIT + R AND D PROGRAM + REACTOR, PWR + REPORT, OPERATIONS ANALYSIS + STEAM GENERATOR + TRINO (PWR) + YANKEE (PWR)

17-26578 ALSO IN CATEGORIES 9 AND 5
MAKINO K
DETECTION OF FAILED FUEL AT JPDR
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-1147 +. 23 PAGES, REFERENCES, FEBRUARY, 1967

THE FAILED FUEL WAS FIRST OBSERVED IN DEC. 1964 BY AN ACTIVITY MONITOR ON THE OFF-GAS STORAGE TANK, BUT OPERATION CONTINUED UNTIL EARLY 1966 BEFORE THE RELEASE RATE EXCEEDED STACK LIMITS. LOCALIZING THE FAILED ASSEMBLY WAS ACCOMPLISHED BY ROD SWAPPING TO GIVE FLUX TITL. BY INSERTING A PIPE IN THE ASSEMBLIES AND THEN SAMPLING THE OUTLET WATER OF EACH FUEL CHANNEL UNDER LOW-POWER CONDITIONS, THE FAILED ASSEMBLY PROVED TO BE A SWAGED FUEL ASSEMBLY. ***SOME DISCUSSION OF THE FISSION-GAS-RELEASE BEHAVIOR DURING TRANSIENT CONDITIONS, AS GAS WAS RELEASED INTERMITTENTLY AT A CONSTANT RATE, BUT THE INTERVAL AND MAGNITUDE DEPENDED ON CONTROL-ROD POSITION, POWER, AND WATER LEVELS.

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

*FISSION GAS RELEASE + *INSTRUMENTATION, DETECTION FAILED FUEL ELEMENT + FAILURE, CLADDING + FUEL BURNUP + FUEL ELEMENT + JAPAN + OPERATING EXPERIENCE SUMMARY + PRESSURE, INTERNAL + REACTOR, BWR

17-26579
RESEARCH PROGRAM INTEGRATIVE OF THE ENEL PROGRAM ON THE TRINO VERCELLESE REACTOR
FIAT, TURIN, ITALY
EUR-3732 +. 58 PAGES, 23 FIGURES, 4 TABLES, CONTRACT 098-66-6 TEEI, ANNUAL REPORT, JUNE 1966-MAY 1967, JANUARY, 1968

PROGRESS REPORT ON WORK DONE BY FIAT. THEORETICAL STUDIES PERFORMED ON REACTIVITY BALANCES, LONG-TERM REACTIVITY CHANGES, AND POWER-DENSITY-DISTRIBUTION ANALYSIS ARE DISCUSSED. OTHER TOPICS - ANALYSIS OF CORE-FLOW REDISTRIBUTION EVALUATION OF CORE AND STEAM-GENERATOR OPERATING LIMITS, AND STANDARD ERRORS TO BE USED FOR PROTECTION SYSTEM AND THE MAXIMUM OVERPOWER EVALUATION.

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

EURATOM + FLOW DISTRIBUTION + FUEL BURNUP + ITALY + MATHEMATICAL STUDY + PERFORMANCE LIMIT + POWER DISTRIBUTION + REACTIVITY EFFECT + REACTOR SAFETY SYSTEM + REACTOR, PWR + STEAM GENERATOR + THEORETICAL INVESTIGATION + TRINO (PWR)

17-26580
SELECTED OPERATING EXPERIENCES AT BONUS
PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN
PRWRA-117 + WRA-8-67-18 +. 22 PAGES, 7 TABLES, MONTHLY REPORT NO. 8, AUGUST, 1967

INVESTIGATION CONTINUED ON REDUCTION OF RECIRCULATING FLOW. PUMPS HAVE MAINTAINED DESIGN CHARACTERISTICS. MOTOR-GENERATOR SET FAILED DUE TO FAULTY CONNECTION IN OUTPUT, WHICH CAUSED INTERMITTENT LOSS OF FIELD EXCITATION. DURING CONTROL-ROD-DROP TESTS, A SUPERHEATER ROD FAILED TO DROP DUE TO INTERFERENCE CAUSED BY IMPROPER INSTALLATION OF A HELIPOT POTENTIOMETER IN THE DRIVE PACKAGE. AN EVACUATION DRILL REVEALED (1) ALARM SYSTEM DID NOT OPERATE, (2) A GROUNDED WALKIE-TALKIE ANTENNA HINDERED COMMUNICATIONS, (3) MICROWAVE PHONES WERE INOPERATIVE, AND (4) PERSONNEL ACCOUNTABILITY WAS SLOW.

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

*FAILURE, EQUIPMENT + *FLOW BLOCKAGE + BONUS (ISR) + CONTROL ROD + EMERGENCY PROCEDURE + FAILURE, INSTALLATION ERROR + FAILURE, INSTRUMENT + FAILURE, SCRAM MECHANISM + GENERATOR, ENGINE + INSTRUMENTATION, POSITION + OBSTRUCTION + OPERATING EXPERIENCE + REACTOR, INTERNAL SUPERHEAT + REPORT, OPERATIONS + TEST, SYSTEM OPERABILITY + TESTING

17-26582
SELECTED OPERATING EXPERIENCES
SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES, CHOOZ-LEZ-GIVET (FRANCE)
TID-24282 +. 24 PAGES, FROM THE ARDENNES NUCLEAR POWER PLANT QUARTERLY REPORT NO. 21, JULY 1-SEPTEMBER 30, 1967

FEEDWATER CUT-OFF VALVE TO STEAM GENERATOR FAILED TO OPEN, SETTING UP VIBRATIONS IN PIPING AND CAUSING A WELD FRACTURE ON FEED MANIFOLD. TWO ROD DROPS WERE CAUSED BY FAULTS IN THE CONTROL CONTACTOR SELF-MAINTENANCE CIRCUIT. SEVERAL LOAD REDUCTIONS WERE CAUSED BY DEFECTS IN THE ROD-POSITION-INDICATOR SYSTEM AND BY MALFUNCTION OF ROD-DROP SAFEGUARD. PRESSURIZER DISCHARGE-TANK RUPTURE DISK RUPTURED.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26582 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, $3.00 COPY, $0.65 MICROFICHE

*REPORT, OPERATIONS + CONTROL ROD + FAILURE, EQUIPMENT + FAILURE, INSTRUMENT + FAILURE, SEQUENTIAL + FRANCE + INSTRUMENTATION, POSITION + PIPING + PRESSURIZER + REACTOR, PWR + STEAM GENERATOR + VALVE + VIBRATION + WELDS

17-26583
BR2 HEAT EXCHANGER TUBE FAILURES
CENTRE D ETUDE DE L ENERGIE NUCLEAIRE, MOL, BELGIUM
EUR-3667 +. 64 PAGES, ANNUAL PROGRESS REPORT OF THE OPERATIONS GROUPS OF THE BR-2 REACTOR AND CONNECTED INSTALLATIONS, 1966, OCTOBER 26, 1967

(PAGES 40-42) RUPTURE OF HEAT-EXCHANGER TUBES WAS DUE TO TUBES RUBBING ON BAFFLE PLATES AS A RESULT OF VIBRATION INDUCED BY POOR SECONDARY-FLOW DISTRIBUTION. DIAPHRAMS WERE USED TO MAKE PENETRATIONS UNIFORM, AND FLOW WAS REDUCED 25%. ***REPORT ALSO DISCUSSES EXPERIMENTAL PROGRAM, IRRADIATION TESTS, AND POSTIRRADIATION WORK FOR A VARIETY OF PROGRAMS.

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

*FAILURE, TUBING + *IRRADIATION TESTING + BELGIUM + BR 2 (RR) + FAILURE, DESIGN ERROR + FLOW DISTRIBUTION + HEAT EXCHANGER + REACTOR, RESEARCH + REPORT, OPERATIONS + VIBRATION

17-26593
GARIGLIANO NUCLEAR POWER STATION RESEARCH PROGRAM
ENTE NAZIONALE PER L ENERGIA ELETTRICA, ROME, ITALY
EURAEC-1895 + EUR-3783 +. FINAL REPORT, DECEMBER 1, 1967

PROGRESS REPORT. TESTS WITH FLOW REDUCED BY 30% RESULTED IN VOID CONTENT OF 48% (VS 16.5% OF RATED CONDITIONS) AND CONFIRMED THAT REACTOR CAN OPERATE AT HIGHER POWER DENSITIES IN FORCED CIRCULATION. FOUR-YEAR PROGRAM TERMINATED AS SCHEDULED, OCT. 31, 1967. COVERED (1) DATA LOGGING AND COMPUTER SYSTEM, (2) PRESSURE-VESSEL-SPECIMEN IRRADIATION, (3) INSTRUMENTED FUEL ASSEMBLIES, (4) SPECIAL STUDIES AND TESTS.

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

*FLOW THEORY AND EXPERIMENTS + EURATOM + GARIGLIANO (BWR) + HEAT TRANSFER, BOILING + ITALY + PERFORMANCE LIMIT + POWER UPRATING + R AND D PROGRAM + REACTOR, BWR + REPORT, OPERATIONS ANALYSIS + SENN + VOID FRACTION

17-26594 ALSO IN CATEGORY 10
QUARTERLY REPORT NO. 20 (ON SENA REACTOR PROJECT) APRIL 1-JUNE 30, 1967
SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES, CHOOZ-LEZ-GIVET (FRANCE)
AEC-TR-6912 +. 17 PAGES

A 6-WEEK OUTAGE OCCURRED BECAUSE OF FRACTURED VANES ON THE HP STAGE OF TURBINE, APPARENTLY DUE TO RESONANCE. OTHER INCIDENTS WERE - (1) FAULTY OPENING OF ALTERNATOR EXCITER SWITCH, (2) DEFECT IN POLE 4 LINE CONTACTOR, (3) HIGH CONCENTRATION OF CHLORIDE IN SECONDARY WATER CIRCUIT DUE TO OPERATOR ERROR IN VALVING, AND (4) CONTAMINATION OF SEVERAL ROOMS BY EFFLUENT FROM WASTE PROCESS SYSTEM BECAUSE OF IMPROPERLY DESIGNED DRAIN LINES.

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

*FAILURE, EQUIPMENT + BELGIUM + BUILDING + CHLORIDE + CONTAMINATION + FAILURE, DESIGN ERROR + FAILURE, INSTRUMENT + FAILURE, OPERATOR ERROR + FRANCE + HEAT SINK + INSTRUMENTATION, SWITCH + REACTOR, PWR + REPORT, OPERATIONS + TURBINE BLADE, VIBRATION

17-26595 ALSO IN CATEGORY 6
SELECTED EXPERIENCES AT GUNDREMMINGEN
KERNKRAFTWERK RWE-BAYERNWERK G.C.B.H., GUNDREMMINGEN (WEST GERMANY)
AEC-TR-6911 +. 47 PAGES, FROM THE MONTHLY TECHNICAL REPORT (ON GENDREMMINGEN NUCLEAR POWER PLANT) JANUARY, 1967

PROGRESS REPORT. POWER TESTS AT 250 MWE WERE COMPLETED. NEITHER CIRCUIT-BREAKER OPENING NOR TURBINE TRIP CAUSES SHUT DOWN BECAUSE THE REACTOR GOES SMOOTHLY TO BYPASS OPERATION. TO AVOID SCRAM, ONE CIRCULATION PUMP HAS TO BE DROPPED WHEN THE CIRCUIT BREAKER OPENS. ***A CIRCUIT BREAKER AND ONE 6-KV PUMP MOTOR WERE DAMAGED DURING TESTS IN WHICH 6-KV MOTORS WERE REPEATEDLY SWITCHED ON AND OFF.

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

*ELECTRIC POWER, GENERAL + *TEST, PLANT RESPONSE + ACCIDENT, LOAD REJECTION + DAMAGE + FAILURE, INSTRUMENT + GERMANY + PUMP + REACTOR, BWR + REPORT, OPERATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26597 ALSO IN CATEGORY 6
PROGRESS REPORT OF NORA PROJECT JULY 1-SEPTEMBER 30, 1967
INSTITUTT FOR ATOMENERGI, KJELLER (NORWAY)
IAEA-3498-20 + NC-94 +. 25 PAGES, REFERENCES, OCTOBER, 1967

PROGRESS REPORT. TOPICS - REACTOR OPERATION, SIMULATION OF NORA BARE CORE FOR NOISE MEASUREMENTS (BY ADDING STEEL RODS AROUND THE CORE). BEYOND A CERTAIN ROD THICKNESS, CALCULATIONS INDICATE AN UNEXPECTED INCREASE IN REACTIVITY DUE TO FAST-NEUTRON REFLECTION.

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

*REACTIVITY EFFECT + *REFLECTOR + *STEEL + NOISE ANALYSIS + NORWAY + REACTOR, POOL TYPE + REPORT, OPERATIONS

17-26599
O.E.C.D. HIGH TEMPERATURE REACTOR PROJECT DRAGON EIGHTH ANNUAL REPORT, 1966-67
EUROPEAN NUCLEAR ENERGY AGENCY
NP-17118 +. 174 PAGES

PROGRESS REPORT. TOPICS - FUEL-ELEMENT PRODUCTION AND TESTING, GRAPHITE-IRRADIATION STUDIES, MATERIAL-COMPATIBILITY STUDIES, NEW FUEL-ELEMENT CONCEPTS, REACTOR PHYSICS, REACTOR OPERATION, FUEL-CYCLE ANALYSIS, FUEL REPROCESSING AND FABRICATION, AND FUEL BURNUP. BRIEF REVIEW OF FIRST YEAR OF DRAGON OPERATION.

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

DESIGN STUDY + DRAGON (HTGR) + EURATOM + FABRICATION + FUEL BURNUP + FUEL ELEMENT + FUEL ELEMENT + GRAPHITE + IRRADIATION TESTING + REACTOR PHYSICS + REACTOR, HTGR + REPORT, OPERATIONS

17-26785 ALSO IN CATEGORY 6
TECHNICAL SPECIFICATION CHANGES
MANHATTEN COLLEGE
6 PAGES, 1 FIGURE, 1 TABLE, LETTER TO D. SKOVHOLT, DRL, TAKEN FROM A LETTER TO D. DKOVHOLT FROM GABRIEL KANE. JUNE 19, 1968. DOCKET 50-199.

(I, EFFECTIVENESS OF SOLID NEUTRON-ABSORBING ROD) - USE OF SUBCRITICAL MULTIPLICATION AND ROD-DROP TESTS SHOWS THAT THE SOLID ABSORBER IS AS EFFECTIVE OR SLIGHTLY LESS EFFECTIVE THAN THE SHIM ROD. EVEN IN THE LEAST EFFECTIVE POSITION, REACTOR IS SUBCRITICAL WITH BOTH CONTROL RODS OUT, ABSORBER ROD IN. DATA GIVEN. (II, MODIFICATION OF REACTOR PLATFORM TRAP DOOR) - THE 0.25-IN.-THICK 53-X-27-IN. STEEL DOOR IS DIFFICULT TO OPEN. WE REQUEST A CHANGE TO PERMIT US TO DIVIDE THIS DOOR INTO TWO EQUAL PARTS.

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

*MEASUREMENT, SUBCRITICALITY + *SHUTDOWN SYSTEM, SECONDARY + AGN (TNG) + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS

17-26786
REVISED DATA FOR TECHNICAL SPECIFICATION
RHODE ISLAND ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO A. BURGER, ORL. FEBRUARY 7, 1968. DOCKET 50-193.

PROVIDES REVISED NUMBERS (HEAT FLUXES, TEMPERATURES, FLOWS) BASED ON A REANALYSIS OF THE LIMITING THERMAL AND HYDRAULIC CORE CHARACTERISTICS TO DETERMINE SAFETY-SYSTEM SETTINGS.

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

*POWER UPRATING + HEAT TRANSFER ANALYSIS + REACTOR, RESEARCH

17-26787
RHODE ISLAND POWER UPRATING
DIVISION OF REACTOR LICENSING
17 PAGES, PROPOSED AMENDMENT 1 TO LICENSE R-95. FROM LETTER TO A. FRANCIS DIMEGLIO FROM D. J. SKOVHOLT. JUNE 28, 1968. DOCKET 50-193.

PROVIDES PROPOSED REVISED LICENSE, TECH.-SPEC. CHANGES, AND SAFETY EVALUATION FOR OPERATION AT 2 MW THERMAL. VENTILATION WILL BE INCREASED FROM 1500 TO 4500 CFM, WITH A CHARCOAL FILTER 99% EFFICIENT FOR INORGANIC IODINE. ARGON-41 RELEASE RATE WILL BE ONLY 38% OF MPC AT GROUND. POWER WILL BE LIMITED BY PRESENT HEAT-REMOVAL SYSTEM.

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

*POWER UPRATING + REACTOR, POOL TYPE + REACTOR, RESEARCH + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26788
PLANS FOR LONG TERM OPERATING LICENSE
SOUTHERN CALIFORNIA EDISON
2 PAGES, LETTER TO P. A. MORRIS, DRL, TAKEN FROM A LETTER TO P. A. MORRIS FROM J. B. MOORE. JUNE 24, 1968. DOCKET 50-206. TYPE--PWR, MFG--WEST., AE--BECHTEL

POWER WAS LIMITED TO 90% BECAUSE OF CALORIMETRIC MISMATCH. CABLE REWORKING SHOULD BE COMPLETED BY SEPT. 1968, AND FULL POWER BY JAN. 69. A TURBINE OVERHAUL IS SCHEDULED FOR MARCH THRU APRIL 1969. SINCE WE CONSIDER 6 MONTHS OF FULL-POWER OPERATION SUFFICIENT TO CONFIRM DESIGN BASES, WE ANTICIPATE APPLYING FOR THE FULL-TERM LICENSE BY MID-SUMMER 1969. THIS IS EIGHT MONTHS BEFORE EXPIRATION OF THE REQUESTED EXTENSION.

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

*OPERATING LICENSE PROCESS + *RESPONSE TIME + OPERATING EXPERIENCE + REACTOR, PWR + SAN ONOFRE (PWR)

17-26789 ALSO IN CATEGORY 5
WATER LOSS ANALYSIS FOR POWER UPRATING
RHODE ISLAND ATOMIC ENERGY COMMISSION
6 PAGES, LETTER TO A BURGER, DRL, FROM A LETTER REPORTING CALCULATIONS ANALYTICALLY CORROBORATING THE CONCLUSION THE FUEL WILL NOT MELT FOLLOWING A LOSS OF POOL WATER AFTER OPERATION OF 2000 KW. DECEMBER 14, 1967. DOCKET 50-193.

ORIGINAL SUBMISSIONS (JULY 21, SEPT. 22, OCT. 9) WERE BASED ON LITR WATER-LOSS TESTS. AT DRL REQUEST THE FOLLOWING ANALYTICAL CALCULATIONS WERE MADE TO CORROBORATE THE CONCLUSION THAT FUEL WILL NOT MELT AFTER WATER LOSS AT 2 MW. ***TIME TO DRAIN WATER THRU A BEAM HOLE IS 30 MIN, WHEN THE HEAT RATE IS 0.06 BTU/SEC (AT THE TOP OF THE PLATES) TO CAUSE MELTING WITH A WATER TEMP. OF 240 F. IF, AS IS REASONABLE, 30% OF THE HEAT IS REMOVED BY STEAM PASSING THRU THE ELEMENTS, IT REQUIRES 0.087 BTU/SEC FOR MELTING.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + *POWER UPRATING + AEC QUESTION + DECAY HEAT + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + LITR (TR) + REACTOR, POOL TYPE + REACTOR, RESEARCH

17-26791 ALSO IN CATEGORY 5
LOSS OF COOLANT ANALYSIS REVISED BY ACTUAL FLUX DISTRIBUTION
RHODE ISLAND ATOMIC ENERGY COMMISSION
5 PAGES, 2 FIGURES, LETTER TO R J SCHEMEL, DRL, FROM LETTER TO SCHEMEL FROM A. FRANCIS DIMEGLIO. JUNE 21, 1968. DOCKET 50-193.

CALCULATIONS IN OUR LETTER OF DEC. 14, 1967, HAVE BEEN REWORKED TO INCORPORATE THE ACTUAL FLUX DISTRIBUTION. RADIAL PEAKING FACTOR OF 1.41 GIVES A MAXIMUM OF 0.077 BTU/SEC FOR THE HOTTEST PLATE. CONSIDERING ALL HEAT TRANSFERRED DOWN THE FUEL PLATE INTO WATER GIVES 0.074 BTU/SEC NECESSARY FOR THE TOP OF A PLATE TO MELT. CONDUCTION DOWN THE SIDE PLATE RAISES THIS TO 0.084, AND STEAM CONVECTION RAISES THIS 0.0109 BTU/SEC (MARGIN THUS ALMOST 50%). ACTUAL HEAT GENERATION RATE IS NOT ENOUGH TO CAUSE PLATE MELTING.

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

*ACCIDENT ANALYSIS + *ACCIDENT, LOSS OF COOLANT + DECAY HEAT + FLUX DISTRIBUTION + FUEL ELEMENT + HEAT TRANSFER, CONDUCTION + HEAT TRANSFER, CONVECTION + REACTOR, RESEARCH

17-26792 ALSO IN CATEGORY 10
ELECTRICAL SYSTEM, THERMAL LOADING TESTS ON CABLE TRAY 39C3
SOUTHERN CALIFORNIA EDISON
25 PAGES, 9 FIGURES, 4 TABLES, LETTER TO P. A. MORRIS, DRL, FROM A LETTER TO P. A. MORRIS FROM R. M. COE. JUNE 14, 1968. DOCKET 50-206. TYPE--PWR, MFG--WEST., AE--BECHTEL

PROVIDES MINOR CORRECTIONS MADE FOR REPORT ON CABLE FAILURES, 4 SINGLE LINE DRAWINGS ON 4-KV AND 480-V ELECTRICAL SYSTEMS, AND TWO TEST REPORTS. (MAY 17) - PRIOR TESTS WERE REPEATED WITH NEW CABLE, TO AVOID AIR SPACES CAUSED BY DISTORTION. 25 THERMOCOUPLES WERE SPACED AT 5 LOCATIONS ALONG THE 15-FT SECTION. MAXIMUM TEMPERATURE DURING 585-MIN RUN WAS 159 C IN THE PRESSURIZER HEATER CABLE. RATING IS 90C. (MAY 31) - PREVIOUS TEST REPEATED WITH PRESSURIZER HEATER CABLE NOT ENERGIZED, AS A CONSERVATIVE SIMULATION OF FUTURE TRAY. MAXIMUM TEMPERATURE WAS ONLY 41 C.

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

*ELECTRIC POWER, NORMAL + *ELECTRICAL CONDUCTION + *MEASUREMENT, TEMPERATURE + FAILURE, INSTALLATION ERROR + FIRE + PRESSURIZER + REACTOR, PWR + SAN ONOFRE (PWR)

17-26793
PROPOSED AMENDED LICENSE AND TECHNICAL SPECIFICATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-26793 *CONTINUED*
AEC DIVISION OF REACTOR LICENSING
21 PAGES, 2 TABLES, AMENDMENT 3 TO LICENSE FROM NOTICE OF PROPOSED ISSUANCE OF AMENDED FACILITY LICENSE. DOCKET 50-192. JANUARY 25, 1968.

PROVIDES PROPOSED LICENSE, SAFETY EVALUATION, AND TECHNICAL SPECIFICATIONS FOR TEXAS U TRIGA MARK-I, TO BE OPERATED AT 250 KW STEADY STATE (NO PULSING) AFTER SOME YEARS OF 10-KW OPERATION. MAJOR CHANGE IS TO INCREASE REACTIVITY FROM 1.75 TO 2.25% DK/K. POOL-TEMP. LIMIT ALLOWS 5 HR OF OPERATION AT 250 KW BEFORE 120 F LIMIT IS REACHED.

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

*TECHNICAL SPECIFICATIONS + POWER UPRATING + REACTOR, RESEARCH + SAFETY EVALUATION + TRIGA (RR)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-22274 ALSO IN CATEGORY 9
RESPONSE TO QUESTION IX.4-MIGRATION OF BORON IN CORE DURING HEATUP ACCIDENT
PUBLIC SERVICE COMPANY OF COLORADO
15 PAGES, 4 FIGURES, 12 REFERENCES, 4 TABLES, ATTACHMENT A, PAGE IX.4.D-1 THRU 15 OF AMENDMENT 6 TO FT ST VRAIN CONSTRUCTION PERMIT APPLICATION. OCT 30, 1967. DOCKET 50-267. TYPE--HTGR, MFG--G.A., AE--G.A.

APPENDIX IX.4.D REVISES BORON-RELEASE CALCULATIONS TO TAKE ACCOUNT OF FINAL REDUCTION OF THE EXPERIMENTALLY OBTAINED DIFFUSION-COEFFICIENT DATA. THE FINAL VALUES ARE SUCH THAT VAPOR TRANSPORT RATHER THAN DIFFUSION IS THE RATE-LIMITING PROCESS FOR THE CONTROL-ROD BORON. ONLY 38% OF THE CONTROL-ROD BORON AND 2% OF THE SHUTDOWN BORON ARE LOST FROM THE HOTTEST ZONE, AND CONDENSE IN THE CORE. THIS INFORMATION SUPERSEDES THE CALCULATION INCLUDED IN ANSWER IX.4 OF AMEND. 3.

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

*BORON + *CONTROL ROD BURNUP + *DIFFUSION + *TRANSPORT PROPERTY + ACCIDENT, LOSS OF FLOW + AEC QUESTION + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR + SHUTDOWN MARGIN

18-22275 ALSO IN CATEGORY 11
RESPONSE TO QUESTION V19-SPECIFICATIONS FOR FABRICATION, INSPECTION AND TESTING OF CONTAINMENT LINER
PUBLIC SERVICE COMPANY OF COLORADO
3 PAGES, PAGE V.19-1 THRU 3, ATTACHMENT A OF AMENDMENT 6 TO FT ST VRAIN CONSTRUCTION PERMIT APPLICATION. OCT 30, 1967. DOCKET 50-267. TYPE--HTGR, MFG--G.E., AE--G.A.

OUTLINE THE LINER ERECTION AND LEAKAGE TESTING PROCEDURES TO BE USED DURING CONSTRUCTION. ***(ANSWER REVISED TO CONFORM WITH ANSWER IN AMEND. 6, E.24, WHICH SPECIFIES THE MANNER, EXTENT, AND STANDARDS FOR LEAK TESTING.)

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

*CONTAINMENT LINER + *TEST, LEAK RATE + AEC QUESTION + CONTAINMENT CONSTRUCTION + CONTAINMENT PENETRATION, GENERAL + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR

18-24659
STEWARD DV
COMPUTING THERMAL REACTORS TO PREDETERMINED CONDITIONS ON REACTIVITY AND POWER SHAPE
THE UNIVERSITY OF WISCONSIN
NUCLEAR ENGINEERING MEMO 1 +. 7 PAGES, 2 REFERENCES, 1960

DESCRIBES A METHOD FOR COMPUTING THE CONTROL-ELEMENT DISTRIBUTION OR THE FUEL DISTRIBUTION FOR A DESIRED REACTIVITY AND POWER SHAPE. TWO-GROUP DIFFUSION EQUATIONS ARE USED FOR ILLUSTRATION.

*MATHEMATICAL STUDY + *REACTOR PHYSICS + EQUATION, GENERAL + POWER DISTRIBUTION + THEORETICAL INVESTIGATION

18-24660
STEWARD DV
A PROPOSAL FOR THE STUDY OF OPTIMUM FUEL BURNUP POLICY
UNIVERSITY OF WISCONSIN
NUCLEAR ENGINEERING MEMO 2 +. 9 PAGES, 1 REFERENCE, 1960

DISCUSSES (THEORETICAL) METHOD FOR OBTAINING AN END OF FUEL CYCLE SUCH THAT THE MAXIMUM ENERGY HAS BEEN EXTRACTED FROM FUEL, AND A METHOD OF EXTRACTING THE MAXIMUM AMOUNT OF ENERGY FROM THE FUEL, USING THE BEST POSSIBLE OPERATING STRATEGY.

*FUEL BURNUP + *THEORETICAL INVESTIGATION

18-24661
CHRISTENSON JM + TROST R + PITTERLE NL
MAIDS-II, A MACROSCOPIC INPUT DIFFUSION SYSTEM FOR A 60K IBM-1620 WITH DISK AND PRINTER
UNIVERSITY OF WISCONSIN
NUCLEAR ENGINEERING MEMO 3 +. 76 PAGES, 3 FIGURES, 8 TABLES, 11 REFERENCES, MAY 31, 1967

DESCRIBES A SET OF REACTOR DIFFUSION CODES. THE FOUR SECTIONS OF REPORT ARE - SOLUTION OF PROBLEMS, BASIC USERS DESCRIPTION, INTERMEDIATE USERS DESCRIPTION, AND PROGRAMMERS DESCRIPTION.

*COMPUTER PROGRAM + *REACTOR PHYSICS + DIFFUSION + MATHEMATICAL STUDY + NEUTRON

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25181
PILGRIM STATION AMENDMENT 5
BOSTON EDISON COMPANY
100 PAGES, TABLES, FIGURES, FEBRUARY 6, 1968, DOCKET 50-293, TYPE--BWR, MFG.--G.E., AE--BECHTEL

CONSISTS OF REVISED DESIGN-AND-ANALYSIS-REPORT PAGES AND THE REPLIES TO 21 AEC DRL COMMENTS IN A LETTER DATED JAN. 25, 1968.

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

AEC QUESTION + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR

18-25182
SALEM AMENDMENT 6
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
250 PAGES, TABLES, FIGURES, APRIL 15, 1968, DOCKET 50-272/311, TYPE--PWR, MFG.--WEST, AE--PUBLIC SERVICE OF N. J.

CONSISTS OF REVISED PSAR PAGES, AND (IN A NEW SECTION FOR VOL. 5) ANSWERS DRL QUESTIONS IN A LETTER OF 9 APRIL 1968.

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + SALEM 1 AND 2 (PWR)

18-25183
AMENDMENT 5 TO ZION APPLICATION
COMMONWEALTH EDISON COMPANY
75 PAGES, MARCH 1, 1968, DOCKET 50-295/304, TYPE--PWR, MFG.--WEST, AE--SGT. + LUNDY

PROVIDES ANSWERS TO 19 QUESTIONS ASKED BY DRL AT A MEETING FEB. 19, 1968. INCLUDES A MEMO REGARDING FINANCIAL QUALIFICATIONS OF COMMONWEALTH EDISON AND REVISED PSAR PAGES.

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)

18-25184
FT. ST. VRAIN AMENDMENT 11
PUBLIC SERVICE COMPANY OF COLORADO
200 PAGES, TABLES, FIGURES, MARCH 21, 1968, DOCKET 50-267, TYPE--HTGR, MFG.--G.A., AE--G.A.

CONTAINS REVISED PAGES FOR PREVIOUSLY SUBMITTED ANSWERS TO AEC QUESTIONS, REVISED PSAR PAGES, AND ANSWERS TO DRL QUESTIONS OF MARCH 14, 1968.

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

AEC QUESTION + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR

18-25185 ALSO IN CATEGORY 11
AMENDMENT 9 TO THREE MILE ISLAND CONSTRUCTION PERMIT APPLICATION
METROPOLITAN EDISON CO.
8 PAGES, 4 FIGURES, MARCH 6, 1968, DOCKET NO. 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

REVISES THE FEB. 23, 1968, SUBMISSION ON HYPOTHETICAL AIRCRAFT INCIDENT, APPARENTLY TO INCLUDE RESULTS OF A DYNAMIC ELASTIC ANALYSIS ALONG WITH THE GROSSLY CONSERVATIVE PLASTIC-RESPONSE ANALYSIS. RUPTURE OF ALL FOUR STEAM LINES WILL NOT INCREASE THE OFF-SITE DOSE CALCULATED FOR A STEAM-LINE RUPTURE (0.88 REM, THYROID).

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

*AIRCRAFT + *CONTAINMENT DESIGN + *MISSILE GENERATION AND PROTECTION + ACCIDENT, STEAM LINE RUPTURE + REACTOR, PWR + REPORT, PSAR + STRUCTURAL ANALYSIS, DYNAMIC + THREE MILE ISLAND (PWR)

18-25188
SKOVHOLT DJ

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25188 *CONTINUED*
GEORGIA TECH AGN 201 OPERATING LICENSE AND TECHNICAL SPECIFICATIONS
AEC, DIVISION OF REACTOR LICENSING, WASH., D. C.
LETTER TO F. W. CHAMBERS, GEORGIA INSTITUTE OF TECHNOLOGY, 12 PAGES, 1 TABLE, APRIL 19, 1968, DOCKET NO. 50-276

LICENSE ALLOWS OPERATION OF AGN-201 SERIAL 104 UP TO 0.1 WATT POWER. TECHNICAL SPECIFICATIONS INCLUDED.

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

*TECHNICAL SPECIFICATIONS + AGN (TNG) + REACTOR, TRAINING

18-25190 ALSO IN CATEGORIES 11 AND 5
ZION 1 AND 2 AMENDMENT 7
COMMONWEALTH EDISON CO.
59 PAGES, FIGURES, TABLES, APRIL 17, 1968, DOCKET NO. 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

CONSISTS OF REVISED PSAR PAGES (RELATED TO CONTAINMENT SPRAY AND ADDITIVES FOR IODINE REMOVAL, AND TO CORE-MELTDOWN ANALYSIS) AND 9 ANSWERS TO QUESTIONS ASKED AT AN APRIL 5, 1968, MEETING WITH DRL.

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

*ADDITIVE + *CONTAINMENT SPRAY + *CORE MELTDOWN + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + ZION 1 AND 2 (PWR)

18-25203 ALSO IN CATEGORIES 12 AND 10
RUSSELVILLE AMENDMENT 1
ARKANSAS POWER AND LIGHT CO.
153 PAGES, FIGURES, TABLES, REFERENCES, FEB. 14, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES TO CORRECT ERRORS AND PRESENT INFORMATION ON CHANGES IN DESIGN WHICH HAVE BEEN INFORMALLY REQUESTED BY DRL STAFF, PRINCIPALLY WITH RESPECT TO THE EMERGENCY CORE-COOLING SYSTEM AND ELECTRICAL SYSTEMS. ALSO INCLUDES NEW APPENDIX 2-F, A SAFETY INVESTIGATION OF DARDANELLE LOCK AND DAM.

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

AEC QUESTION + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-25204
RUSSELVILLE PSAR APPENDIX 2F - DARDANELLA DAM SAFETY INVESTIGATION REPORT
ARKANSAS POWER AND LIGHT CO.
19 PAGES, 5 REFERENCES, PAGE 2F-1 THRU 2F-8 OF PRELIMINARY SAFETY ANALYSIS REPORT, AMENDMENT NO. 1, FEB. 14, 1968, DOCKET NO. 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CONCLUDES THAT DAM AND LOCK COULD WITHSTAND THE MAXIMUM EARTHQUAKE (0.2-G GROUND-SURFACE ACCELERATION, AS CHOSEN BY BECHTEL AS THE MAXIMUM EARTHQUAKE FOR THIS AREA) WITHOUT LOSING FUNCTIONAL INTEGRITY. EROSION WILL NOT BE A PROBLEM IN THE EARTH-FILL SECTION BECAUSE THE SEVERAL-HUNDRED-FOOT-LONG BERMS DOWNSTREAM ALLOW TIME FOR THE DAM OPERATORS TO BEGIN REMEDIAL WORK.

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

*IMPOUNDMENT + *STRUCTURAL ANALYSIS, DYNAMIC + EARTHQUAKE ENGINEERING + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-25256 ALSO IN CATEGORY 5
GROSSMANN SR + GOTTSCHALK VB
SAFETY ANALYSIS REPORT FOR FRAN PROMPT BURST MACHINE
PHILLIPS PETROLEUM CO.
IDO-17231 +. 92 PAGES, 16 FIGURES, 4 TABLES, 23 REFERENCES, SEPT, 1967

ANALYSIS CONSIDERS CHANGES IN OPERATING CHARACTERISTICS DUE TO DIFFERENCES IN SITE PROPERTIES AND HOUSING. MACHINE PREVIOUSLY OPERATED AT NEVADA TEST SITE. MAXIMUM REFERENCE ACCIDENT IS THAT YIELDING 1.5 X 10(17TH) FISSIONS AT A CENTRAL TEMPERATURE INCREASE OF ABOUT 1100 C FOR A BURST LASTING A MAXIMUM OF 30 MICROSECONDS. DOSE FROM FUEL ASSEMBLY VAPORIZING AND 100% OF FISSION PRODUCTS BEING DISPERSED AT 1000 M IS 3 MREMS FROM CLOUD GAMMA AND 9 REMS FROM INHALATION. DIRECT DOSE AT 100 M IS 0.2 REM GAMMA AND 9 REMSNEUTRON. ACCIDENT TO OCCUR REQUIRES TWO OPERATORS MISCALCULATING AVAILABLE REACTIVITY, SCRAM-CIRCUIT MALFUNCTIONS TO SUPPORT MISCALCULATIONS, AND EXPERIMENT MOVE TO ADD REACTIVITY WHILE CRITICAL PRIOR TO BURST OPERATION.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25256 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, $3.00 COPY, $0.65 MICROFICHE

*REPORT, SAR + ACCIDENT ANALYSIS + ACCIDENT, CONSEQUENCES + NRTS + REACTOR DESCRIPTION + REACTOR, FAST BURST

18-25259
KOPROWSKI RR
POWER SYSTEM AND SITE CONSIDERATIONS
ROCHESTER GAS + ELECTRIC, ROCHESTER, NEW YORK
33 PAGES, 18 FIGURES, APRIL 1968, DOCKET NO. 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC., AMER. POWER CONF., CHICAGO, ILL., APRIL 1968

DESCRIBES THE 470-MWE PWR. FUELED BY 60 TONS OF SINTERED UO2 PELLETS IN ZR-4 TUBES WITH A THREE-REGION LOADING. CONTROLLED BY ROD CLUSTERS OF AG-IN-CD AND CHEMICAL SHIM. BRIEFLY DISCUSSES COOLANT SYSTEM, SAFEGUARDS, INSTRUMENTATION, TURBINE AND GENERATOR, CONDENSERS, AND ELECTRICAL SYSTEM. EIGHT PAGES DEVOTED TO CONTAINMENT VESSEL, A REINFORCED CONCRETE STRUCTURE WITH STEEL LINER WITH DESIGN PRESSURE OF 60 PSIG.

AVAILABILITY - R. R. KOPROWSKI, ASSISTANT CHIEF ENGINEER, ROCHESTER GAS + ELECTRIC CORPORATION, ROCHESTER, NEW YORK

*REACTOR DESCRIPTION + CONTAINMENT DESIGN + GINNA (PWR) + REACTOR, PWR

18-25260
ABBOTT WE + BEVILACQUA F + HANZALEK FJ
DESIGN AND OPERATING FEATURES OF LARGE PWR SYSTEMS
COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT
10 PAGES, 5 FIGURES, 3 TABLES, 2 REFERENCES, APRIL 25, 1968, PAPER PRESENTED AT AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23-25, 1968

DISCUSSES THE DESIGN OF A TYPICAL 800-MWE REACTOR. FUEL CONSISTS OF 87 TONS OF SLIGHTLY ENRICHED, SINTERED, UO2 PELLETS ENCLOSED IN ZR-4 TUBES. CONTROL IS BY CONTROL-ELEMENT ASSEMBLIES AND CHEMICAL SHIM. DESIGN PRESSURE IS 2500 PSIA AND 650 F. FUEL-GUIDE TUBE, INTERNAL STRUCTURE, FUEL MANAGEMENT, INSTRUMENTATION, CONTROL, AND NUCLEAR STEAM-SUPPLY-SYSTEM COMPONENTS DESCRIBED.

AVAILABILITY - W. E. ABBOTT, PWR ENGINEERING, NUCLEAR POWER DEPT., COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT

*REACTOR DESCRIPTION + REACTOR, PWR

18-25261 ALSO IN CATEGORY 17
DRAGOUMIS P + CRAWFORD WD + TRIBBLE JE
CONSIDERATIONS IN THE PURCHASE OF REPLACEMENT FUEL FOR WATER REACTORS
CONSOLIDATED EDISON CO. OF NEW YORK, INC., NEW YORK, N. Y. + AMERICAN ELECTRIC POWER SERVICE CORP., NEW YORK, N. Y. + YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
10 PAGES, APRIL 24, 1968, PAPER PRESENTED BEFORE THE 1968 ANNUAL MEETING OF THE AMERICAN POWER CONFERENCE, APRIL 24, 1968, SPONSORED BY ILLINOIS INSTITUTE OF TECHNOLOGY

DISADVANTAGES TO UTILITIES IN THE PURCHASE OF FULLY FABRICATED ELEMENTS AND RESELLING SPENT ELEMENTS BACK TO MANUFACTURER ARE - (1) COST MAY BE MORE THAN IF SOME PARTS WERE SUBMITTED TO OPEN-MARKET BIDDING, (2) BY-PRODUCTS OF SPENT FUEL LOST TO UTILITY, (3) VENDORS BENEFIT BY DISPOSAL OF PU, AND (4) UTILITIES AVOID DEVELOPMENT OF TECHNICAL COMPETENCE IN ALL PHASES OF FUEL CYCLE. WARRANTIES ARE DISCUSSED IN DETAIL. FUEL-COST WARRANTIES MORE BENEFICIAL TO SUPPLIER THAN TO OPERATOR, AND THEY ALSO PERMIT SUPPLIER A MEASURE OF CONTROL OVER REACTOR OPERATION. FUEL-PURCHASE METHODS ARE GIVEN WHICH PROVIDE MORE BENEFIT TO UTILITIES.

AVAILABILITY - W. DONHAM CRAWFORD, ADMINISTRATIVE VICE PRESIDENT, CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., NEW YORK, N. Y.

*ECONOMICS + *FABRICATION + *FUEL ELEMENT + ELECTRIC POWER, GENERAL + REACTOR, POWER + REFUELING

18-25262
LEE WS + ROWAND WH
NUCLEAR POWER AT OCONEE
DUKE POWER CO., CHARLOTTE, NORTH CAROLINA + BABCOCK + WILCOX, NUCLEAR POWER GENERATION DEPT., BARBERTON, OHIO
19 PAGES, 16 FIGURES, 4 REFERENCES, APRIL 23, 1968, DOCKET NO. 50-269/270, TYPE--PWR, MFG--B+W, AE--DUKE, PRESENTED AT AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23, 1968

DESCRIBES THE THREE-UNIT 2658-MWE PWR STATION. TOPICS ARE - SITE, STATION ARRANGEMENT, UNIT PERFORMANCE, ELECTRICAL SYSTEM, TRAINING, CONSTRUCTION SCHEDULE, REACTOR COOLANT SYSTEM, INSTRUMENTATION, AND ENGINEERED SAFEGUARDS. WHEN OCONEE GOES INTO OPERATION IN 1971, IT WILL BE THE FIRST LARGE NUCLEAR-FUELED STATION TO OPERATE WITH A HEAT RATE BELOW 10,000 BTM/KW-HR (9,951).

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25262 *CONTINUED*
AVAILABILITY - W. S. LEE, VICE PRESIDENT, ENGINEERING, DUKE POWER COMPANY, CHARLOTTE, NORTH CAROLINA

*REACTOR DESCRIPTION + OCONEE 1, 2, AND 3 (PWR) + REACTOR, PWR

18-25290 ALSO IN CATEGORY 11
BEASLEY EG
SUMMARY OF DESIGN OF EGCR REACTOR COOLANT SYSTEM
TENNESSEE VALLEY AUTHORITY, OAK RIDGE
TID-22738 +. 7 PAGES, JULY 19, 1965

THE PURPOSE OF THIS PAPER IS TO SUMMARIZE THE DESIGN AND STRESS ANALYSIS OF THE PRESSURE-CONTAINING COMPONENTS OF THE EGCR REACTOR COOLANT SYSTEM. THE ANALYTICAL AND EXPERIMENTAL WORK HAS REQUIRED MANY YEARS OF EFFORT. THE REFERENCES WHICH FOLLOW TOTAL SEVERAL THOUSAND PAGES OF DOCUMENTED ANALYSIS AND DATA. THIS SUMMARY IS BEING MADE TO EMPHASIZE THE EXTENT AND THOROUGHNESS OF THE NUMEROUS INVESTIGATIONS REGARDING THE STRENGTH AND INTEGRITY OF THE EGCR REACTOR COOLANT SYSTEM.

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

*DESIGN CRITERIA + *EGCR (AGR) + *PIPING + *PRESSURE VESSEL + CODES AND STANDARDS + MEASUREMENT, STRAIN GAGE + REACTOR, GCR + STRESS ANALYSIS

18-25292 ALSO IN CATEGORIES 11 AND 1
SAFETY STANDARDS, CRITERIA, AND GUIDES FOR THE DESIGN, LOCATION, CONSTRUCTION, AND OPERATION OF REACTORS. III. TECHNICAL SAFETY GUIDE. REACTOR CONTAINMENT LEAKAGE TESTING AND SURVEILLANCE REQUIREMENTS
U.S. ATOMIC ENERGY COMMISSION, DIVISION OF SAFETY STANDARDS
TID-24085 +. 14 PAGES, DECEMBER 15, 1966

IN RECOGNITION OF THE NEED TO PROVIDE EVIDENCE, DURING SERVICE, OF THE CAPABILITY OF A CONTAINMENT SYSTEM TO PERFORM ITS INTENDED SAFETY FUNCTION, A PROGRAM OF TESTING AND SURVEILLANCE IS OUTLINED. BECAUSE THE LEAKAGE RATE OF CONTAINMENT SYSTEM IS A PRACTICAL MEASURE OF ITS READINESS TO FULFILL THE CONTAINMENT FUNCTION, THE INTEGRATED LEAKAGE-RATE TEST IS CONSIDERED A PRINCIPAL AND ESSENTIAL TEST.

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

*CONTAINMENT INTEGRITY + *CONTAINMENT, GENERAL + *SURVEILLANCE PROGRAM + *TEST, LEAK RATE + CONTAINMENT ABSOLUTE MEASURING SYSTEM + CONTAINMENT PENETRATION, GENERAL + CONTAINMENT REFERENCE MEASURING SYSTEM + ENGINEERED SAFETY FEATURE

18-25298 ALSO IN CATEGORY 14
SURRY AMENDMENT 11
VIRGINIA ELECTRIC AND POWER COMPANY
21 PAGES, FIGURES, AMENDMENT 11 TO THE SURRY LICENSE APPLICATIONS, MARCH 18, 1968, DOCKET 50-280, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES ANSWERS TO 6 AEC QUESTIONS AND REVISES UNRELATED PSAR SECTION 11.2.2.3 (GASEOUS WASTE DISPOSAL SYSTEM).

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR) + WASTE DISPOSAL, GAS

18-25330
PRAIRIE ISLAND AMENDMENT 5
NORTHERN STATES POWER COMPANY
150 PAGES, FIGURES, TABLES, FEBRUARY 27, 1968

IN ANSWER TO 21 ORAL QUESTIONS ASKED BY DRL FEB. 6/7, 1967, REVISES AMENDMENT 4 BY PROVIDING A LIST OF 50 PERTINENT TOPICS, REFERENCING APPROPRIATE PSAR SECTIONS, AND PROVIDING REVISED PSAR SECTIONS FOR THESE PAGES.

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

AEC QUESTION + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-25331
PRAIRIE ISLAND AMENDMENT 4
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA
17 PAGES, 13 FIGURES, PAGE 1.8-1 THRU 1.8-17 OF AMENDMENT 4 TO PRAIRIE ISLAND 1 AND 2, LICENSE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25331 *CONTINUED*
APPLICATION, FEB. 15, 1968, DOCKET NO. 50-282/306, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

INFORMATION (SUPPLIED IN RESPONSE TO 27 ORAL QUESTIONS ASKED BY DRL AT A MEETING FEB. 6-7, 1967) IS IN THE FORM OF STATEMENTS NUMBERED ACCORDING TO A QUESTION LIST NOT SUPPLIED. THIS INFORMATION WAS IN TURN SUPPLEMENTED BY AMENDMENT 5, WHICH PROVIDED A LIST OF SOME 50 TOPICS APPLICABLE TO THESE QUESTIONS, GAVE REFERENCES TO APPROPRIATE PSAR SECTIONS, AND THEN PROVIDED REVISED PSAR PAGES FOR THESE SECTIONS.

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

*AEC QUESTION + PRAIRIE ISLAND 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-25341 ALSO IN CATEGORY 1
BOLSA ISLAND PSAR, VOLUME I
SOUTHERN CALIFORNIA EDISON COMPANY + SAN DIEGO GAS AND ELECTRIC COMPANY
150 PAGES, FIGURES, TABLES, FROM BOLSA ISLAND NUCLEAR POWER AND DESALTING PLANT, PART B, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME I, AUGUST 1967, DOCKET 50-307/308

INTRODUCTION AND SITE FOR TWO 3400-MWTH REACTORS ON A MAN-MADE ISLAND OFF SUNSET BEACH, FOR POWER AND DESALINATION. ***REPORT INCLUDES GEOLOGY AND SEISMICITY (23 PG), SOILS (12 PG), OCEANOGRAPHY (15 PG), HYDROLOGY, METEOROLOGY (16 PG), AND CRITERIA FOR EARTHQUAKE ENGINEERING AND ISLAND CONSTRUCTION.

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

*SITING, REACTOR + BOLSA ISLAND + FLOOD + REACTOR, DESALINATION + REPORT, PSAR + SOIL PROPERTY, IN SITU

18-25343
OYSTER CREEK 2 (PWR) PRELIMINARY SAFETY ANALYSIS REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
225 PAGES, FIGURES, TABLES, REFERENCES FROM OYSTER CREEK NUCLEAR STATION - UNIT 2, VOLUME I, MARCH 1968, DOCKET 50-320

VOLUME I CONTAINS THE FOLLOWING - (1) INTRODUCTION FOR THIS 2452-MWTH/845-MW(E) B AND W PWR WITH ULTIMATE OUTPUT OF 2788 MWTH (ALSO COMPLIANCE WITH AEC GENERAL DESIGN CRITERIA, COMPARISON OF CHARACTERISTICS WITH TURKEY POINT, OCONEE AND THREE MILE ISLAND). (2) SITE AND ENVIRONMENT (ON-SITE METEOROLOGY DATA TAKEN FEB. 1966 THRU FEB. 1967, PASQUILL VIRTUAL SOURCE UPWIND). (3) REACTOR CORE DESIGN (ALMOST NO HARDWARE DESCRIPTION, MOSTLY PERFORMANCE OBJECTIVES, CHARACTERISTICS OF THE DESIGN, TESTS AND INSPECTIONS).

REPORT, PSAR + *COMPARISON, REACTOR CHARACTERISTICS + REACTOR PHYSICS + THERMAL ANALYSIS + FUEL ELEMENT + REACTOR, PWR + DIFFUSION COEFFICIENT + ON SITE WORK

OYSTER CREEK 2 (PWR)

18-25344 ALSO IN CATEGORIES 11 AND 12
OYSTER CREEK 2 (PWR) PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY
175 PAGES, FIGURES, TABLES, REFERENCES FROM OYSTER CREEK NUCLEAR STATION - UNIT 2, VOLUME 2, MARCH 1968, DOCKET 50-320

CHAPTERS - (4) REACTOR COOLANT SYSTEM, (5) CONTAINMENT SYSTEM (7 APPENDIXES ON STRUCTURAL DESIGN AND TESTS), (6) ENGINEERED SAFETY FEATURES (WATER INJECTION, CONTAINMENT AIR COOLING AND IODINE REMOVAL, WATER LEAKAGE FROM ENGINEERED SAFETY FEATURES OUTSIDE CONTAINMENT), (7) INSTRUMENTATION AND CONTROL, AND (8) ELECTRICAL SYSTEMS.

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

CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + OYSTER CREEK 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-25345
OYSTER CREEK 2 (PWR) PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY
175 PAGES, FIGURES, TABLES, REFERENCES FROM OYSTER CREEK NUCLEAR STATION-UNIT 2, VOLUME 3, MARCH 1968, DOCKET 50-320

CHAPTERS INCLUDE - (9) AUXILIARY AND EMERGENCY SYSTEMS, (10) STEAM POWER SYSTEM, (11) WASTE DISPOSAL, (12,13) OPERATIONS AND INITIAL TESTS, (14) SAFETY ANALYSIS. MAXIMUM OFF-SITE DOSES ARE FOR ABNORMALITY, STEAM-GENERATOR-TUBE RUPTURES, 2-REM WHOLE BODY AND 0.025-REM THYROID. FOR LOSS-OF-COOLANT ACCIDENT, 30-DAY DOSE IS 9.3 REMS THYROID. FOR MAXIMUM HYPOTHETICAL ACCIDENT, 2-HR DOSE IS 129 REMS THYROID, AND 30-DAY DOSE AT 2 MILES IS 47 REMS THYROID.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25345 *CONTINUED*
ACCIDENT, LOSS OF COOLANT + DOSE + OFF SITE + OYSTER CREEK 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-25350
CALVERT CLIFFS LICENSE APPLICATION
BALTIMORE GAS AND ELECTRIC COMPANY
7 PAGES OF CALVERT CLIFFS NUCLEAR POWER PLANT UNITS 1 AND 2, LICENSE APPLICATION, JANUARY 1968, DOCKET 50-317/318

STANDARD PART-A APPLICATION, LISTING CORPORATIONS AND OFFICERS INVOLVED, WITH ANNUAL REPORT FOR 1966 TO INDICATE FINANCIAL QUALIFICATIONS.

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

*APPLICATION FOR AEC LICENSE + CALVERT CLIFFS (PWR) + REACTOR, PWR + REPORT, PSAR

18-25351
CALVERT CLIFFS PSAR VOLUME I
BALTIMORE GAS AND ELECTRIC COMPANY
275 PAGES, FIGURES, TABLES, REFERENCES OF CALVERT CLIFFS NUCLEAR POWER PLANT UNITS 1 AND 2, PRELIMINARY SAFETY ANALYSIS REPORT VOLUME I, JANUARY 1968, DOCKET 50-317/318

TWO 2440-MWTH UNITS LOCATED 35 MILES SE OF WASHINGTON, D.C. CORE IS LIKE THAT OF MAINE YANKEE BUT WITH ONLY TWO STEAM GENERATORS AND FOUR PUMPS. VOL. I CONTAINS SYSTEM DESCRIPTIONS AND VOL. II CONTAINS SAFETY ANALYSIS AND APPENDIXES FOR SITE AND CONTAINMENT DETAILS.

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

CALVERT CLIFFS (PWR) + REACTOR, PWR + REPORT, PSAR

18-25352
CALVERT CLIFFS PSAR VOLUME II
BALTIMORE GAS AND ELECTRIC COMPANY
300 PAGES, FIGURES, TABLES, REFERENCES OF CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2, PRELIMINARY SAFETY ANALYSIS REPORT VOLUME II, JANUARY 1968, DOCKET 50-317/18

CONTAINS WASTE DISPOSAL AND SAFETY ANALYSES, APPENDIXES FOR SITE AND CONTAINMENT DETAILS, AND GENERAL-DESIGN-CRITERIA COMPLIANCE. ***VARIOUS INCIDENTS (INCLUDING LOSS OF COOLANT) ARE CALCULATED. NO FUEL MELTING RESULTS. OFF-SITE DOSES MENTIONED FOR ONLY SG TUBE RUPTURE (60 MREM), FUEL HANDLING (14 MREM), WASTE-GAS RELEASE (450 MREM). A HYPOTHETICAL ACCIDENT (BASED ON TID-14844) RESULTS IN A THYROID DOSE OF 300 REMS AND WHOLE-BODY DOSE OF 2.7 REMS (AT THE SITE BOUNDARY, 2-HR DOSE). ***APPENDIX 2F (HURRICANE TIDAL EFFECT), 5J (TURBINE MISSILES).

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

ACCIDENT, HYPOTHETICAL + AEC DESIGN CRITERIA + CALVERT CLIFFS (PWR) + DESTRUCTIVE WIND + DOSE + FLOOD + MISSILE GENERATION AND PROTECTION + OFF SITE + REACTOR, PWR + REPORT, PSAR + TURBINE

18-25385 ALSO IN CATEGORY 11
SALEM PSAR AMENDMENT 8
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
60 PAGES, TABLES, FIGURES, MAY 6, 1968, DOCKETS 50-272/311, TYPE--PWR, MFG.--WEST, AE--PUBLIC SERVICE OF N. J.

PROVIDES REVISED PSAR PAGES AND RESPONDS TO AEC QUESTIONS OF APRIL 9, 1968, REGARDING CONTAINMENT-DESIGN DETAILS.

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

CONTAINMENT CONSTRUCTION + REACTOR, PWR + REPORT, PSAR + SALEM 1 AND 2 (PWR)

18-25386
PSAR SECTION 12.6 - RADIATION EMERGENCY PLAN
MAINE YANKEE ATOMIC POWER STATION, WISCASSET, MAINE
8 PAGES, PAGE 12.6-1 THRU 12.6-8 OF AMENDMENT 6 TO MAINE YANKEE LICENSE APPLICATION, APRIL 17, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

A PRELIMINARY OUTLINE, TO DEFINE COURSE OF ACTION TO SAFEGUARD PLANT PERSONNEL AND THE PUBLIC IN CASE OF A MAJOR INCIDENT. PLANT SUPERINTENDENT IS REPRESENTATIVE OF COMPANY. PLAN HAS 3 SECTIONS - (I) IMMEDIATE ACTION, NOTIFICATION, AND EVACUATION, (II) ON- AND OFF-SITE RADIATION SURVEILLANCE, AND (III) COORDINATION OF ACTIVITIES WITH EXTRA-COMPANY GROUPS.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25386 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA, 22151, $3.00 COPY, $0.65 MICROFICHE

*EMERGENCY PROCEDURE + BAILEY POINT (PWR) + RADIOLOGICAL ASSISTANCE + REACTOR, PWR + REPORT, PSAR

18-25387
MAINE YANKEE AMENDMENT 5
MAINE YANKEE ATOMIC POWER COMPANY
50 PAGES, FIGURES, TABLES, APRIL 8, 1968, DOCKET 50-309, TYPE--PWR, MFG.--C.E., AE--STONE + WEBSTER

PROVIDES A NEW PSAR SECTION 1.7 (QUALITY-ASSURANCE PROGRAM) AND RESPONSES TO 34 DRL QUESTIONS OF MARCH 20, 1968.

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

AEC QUESTION + BAILEY POINT (PWR) + REACTOR, PWR + REPORT, PSAR

18-25399 ALSO IN CATEGORY 11
ACRS REPORT ON THREE MILE ISLAND
U. S. ATOMIC ENERGY COMMISSION
2 PAGES, APRIL 6, 1968, LETTER TO G. T. SEABORG FROM C. W. ZABEL, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

FURTHER REVIEW ON THE QUESTION OF AIRPLANES STRIKING THE STATION (AMENDMENTS 8-10). CONCLUDES THAT THE APPLICANT HAS UNDERTAKEN TO PROVIDE CAPABILITY OF WITHSTANDING AIRCRAFT STRIKE LOADINGS, THUS PLANT MAY BE BUILT.

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

*AIRCRAFT + *CONTAINMENT DESIGN + *MISSILE GENERATION AND PROTECTION + ACRS + REACTOR, PWR + REPORT, PSAR + THREE MILE ISLAND (PWR)

18-25400 ALSO IN CATEGORY 11
AEC QUESTIONS FOR RUSSELLVILLE (PWR)
USAEC, DIVISION OF REACTOR LICENSING
19 PAGES, MAY 6, 1968, LETTER TO J. D. PHILLIPS FROM P. A. MORRIS,DOCKET 50-313

LETTER TRANSMITS 93 QUESTIONS OR REQUESTS FOR INFORMATION ON CONTAINMENT STRUCTURE, PLUS 13 QUESTIONS OR REQUESTS FOR INFORMATION ON EARTHQUAKE OR TORNADO-RELATED CONTAINMENT DESIGN.

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

*CONTAINMENT DESIGN + *DESTRUCTIVE WIND + *EARTHQUAKE ENGINEERING + AEC QUESTION + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-25401 ALSO IN CATEGORY 2
SUPPLEMENT 10 TO FORT CALHOUN UNIT 1 FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT
OMAHA PUBLIC POWER DISTRICT
26 PAGES, 2 FIGURES, NOV. 10, 1967, DOCKET NO. 50-285, TYPE--PWR, MFG--C.E., AE--GIBBS + HILL

REVISES ANSWERS 11 AND 12 TO DRL QUESTIONS OF JUNE 14, 1967. ALSO REVISES ANSWERS 1.4 AND 13.3 TO DRL QUESTIONS OF JULY 20, 1967. ANSWERS APPEARED IN SUPPLEMENTS 2, 3, AND 8.

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

*EARTHQUAKE ENGINEERING + AEC QUESTION + FT. CALHOUN (PWR) + REACTOR, PWR + REPORT, PSAR

18-25402
ZABEL CW
ACRS REPORT ON SURRY CONSTRUCTION PERMIT
U. S. ATOMIC ENERGY COMMISSION, WASH., D. C.
LETTER TO U. S. ATOMIC ENERGY COMMISSION, WASH., D. C., 5 PAGES, 12 REFERENCES, APRIL 29, 1968, DOCKET NO. 50-280/281, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

BRIEFLY MENTIONS SIGNIFICANT SAFETY ITEMS - (1) CORE COOLING WILL KEEP CLADDING FROM DISINTEGRATING UPON COOLING SUBSEQUENT TO A LOSS-OF-COOLANT ACCIDENT, (2) CONTAINMENT PRESSURE WILL RETURN TO SUBATMOSPHERIC WITHIN 40 MIN, (3) HURRICANE WAVE-RUNUP PROTECTION WILL BE AFFORDED. NOTES THAT CONTROL AND PROTECTION INSTRUMENTS SHOULD BE SEPARATED TO FULLEST EXTENT PRACTICABLE, AND CALLS ATTENTION TO OTHER MATTERS AS IN ACRS REPORT ON DIABLO CANYON OF DEC. 20, 1967.

AVAILABILITY - ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, UNITED STATES ATOMIC ENERGY COMMISSION, WASH., D.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25402 *CONTINUED*
C.

ACRS + REACTOR, PWR + REPORT, PSAR + SURRY 1 AND 2 (PWR)

18-25403
ZABEL CW
ACRS REPORT ON PILGRIM STATION
U.S. ATOMIC ENERGY COMMISSION, WASH., D. C.
LETTER TO U. S. ATOMIC ENERGY COMMISSION, WASH., D. C., 5 PAGES, 11 REFERENCES, APRIL 12, 1968, DOCKET NO. 50-293, TYPE--BWR, MFG--G.E., AE--BECHTEL

BRIEFLY REVIEWS SAFETY-RELATED PLANT FEATURES. (1) STUDIES ON WATER RUNUP DURING COASTAL STORMS, PAST PROBLEM AREAS OF LARGE WATER REACTORS. (2) DESIGN CRITERIA 35. (3) ECCS WILL KEEP CLAD FROM DISINTEGRATING ON COOLING. APPLICANT STATES FURTHER CONSIDERATION TO ENSURE LOW-PRESSURE COOLING CAPABILITY PRIOR TO PRESSURE RELIEF. ACRS RECOMMENDS EDISON ASSUME AN ACTIVE QUALITY-CONTROL ROLE AND ASSURE THEMSELVES OF ADEQUACY OF OFF-SITE EMERGENCY PLANS PREPARED BY COMMONWEALTH OF MASS.

AVAILABILITY - U. S. ATOMIC ENERGY COMMISSION, WASH., D. C.

ACRS + BRITTLE FRACTURE + PILGRIM (BWR) + QUALITY CONTROL + RADIOLOGICAL ASSISTANCE + REACTOR, BWR + REPORT, PSAR

18-25450
BROWN FX + LINDSAY WT
CARE OF FEEDWATER HEATERS
WESTINGHOUSE ELECTRIC CORP., LESTER, PA. + WESTINGHOUSE ELECTRIC, CHURCHILL BORO, PA.
3 PAGES, 3 FIGURES, POWER ENGINEERING 72(4), PAGES 48-50 (APRIL 1968)

DISCUSSES MEANS OF CONTROLLING AND PREVENTING DAMAGE TO FEEDWATER HEATERS CAUSED BY EXPOSURE TO NORMAL OPERATING CONDITIONS AND ENVIRONMENTS DURING SHIPMENT, ERECTION, AND TESTING. INLET-END EROSION CAN BE REDUCED BY PH AND OXYGEN CONTROL DURING OPERATION. ON THE TUBE SIDE OF STEEL TUBES, IRON PICKUP CAN BE MINIMIZED BY PH OVER 9.5. FOR COPPER-ALLOY TUBES, COPPER PICKUP CAN BE MINIMIZED BY A SLIGHTLY ALKALINE PH. DURING SHIPMENT, PROTECTION IS PROVIDED BY SEALING UNIT AND PURGING WITH INERT GAS. AT PLANT SITE, OPENINGS SHOULD BE KEPT CLOSED TO PREVENT EXPOSURE TO ENVIRONMENT.

*ADMINISTRATIVE CONTROL + *DAMAGE + *ENVIRONMENTAL CONDITION + *HEAT EXCHANGER + CHEMICAL REACTION + COOLANT CHEMISTRY + CORROSION + EROSION + MAINTENANCE AND REPAIR + REACTOR, BWR + TRANSPORTATION AND HANDLING

18-25453
LEIPUNSKII AI + AFRIKANTOV II + ORLOV VV + PINKHASIK DS + KOSHKIN YI + SHIRYAEV VI + BAKLUSHIN RP + SHARONOV VI + KISELEV GV + MILOVIDOV IV
THE NUCLEAR POWER PLANT WITH BN-350 REACTOR
8 PAGES, AT. ENERG (USSR) 23, PAGES 409-16 (NOVEMBER 1967) (IN RUSSIAN)

DATA ARE GIVEN ON THE CONSTRUCTION AND EQUIPMENT OF NUCLEAR POWER STATIONS POWERED BY BN-350. A BRIEF REVIEW IS PRESENTED ON THE BASIC TECHNOLOGICAL EQUIPMENT IN THE POWER STATIONS. THE CONSTRUCTION OF THE REACTOR VESSEL, COOLANTS, AND STEAM GENERATORS ARE DESCRIBED. TESTS WITH THE FIRST AND SECOND LOOP PUMPS ARE DESCRIBED.

*EQUIPMENT, GENERAL + *SYSTEM DESCRIPTION + *USSR + MAIN COOLING SYSTEM + PRESSURE VESSEL + REACTOR, BREEDER + STEAM GENERATOR

18-25454
DIECKAMP H + RODDIS LH
THE GENERAL PUBLIC UTILITIES/ATOMICS INTERNATIONAL FAST BREEDER REACTOR DEMONSTRATION PLANT
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA + PENNSYLVANIA ELECTRIC COMPANY
40 PAGES, 16 FIGURES, 3 TABLES, PRESENTED AT AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 23-25, 1968

DESCRIBES A PROPOSED CONCEPT TO BE EVALUATED ON BASIS OF DESIGN, TEST RESULTS, AND FINANCIAL ASPECTS, WITH OPERATION BY 1975 ANTICIPATED. POWER SET AT 500 MWE. POT CONCEPT FOR CORE, PUMPS, HEAT EXCHANGERS ETC. CLADDING SELECTION DIFFICULT BECAUSE FUEL LIFETIME LIMITED BY RADIATION DAMAGE TO CLAD. AEC DESIGN-CRITERIA BASIS FOR SAFETY GUIDELINES. PLANT HAS CAPABILITY OF LOAD FOLLOWING. MAINTENANCE AND INSPECTION SYSTEMS DISCUSSED BRIEFLY. FUEL BURNUP OF 75 MWD/KG (OF HEAVY ISOTOPE, PU PLUS U) DURING 1980S EXPECTED, WITH INCREASE TO 100. LINEAR POWER IS 15KW/FT OF ROD. FUEL-CYCLE COSTS FIRST 5 YEARS 1 MILL/KWHR.

AVAILABILITY - L. H. RODDIS, JR., DIRECTOR, NUCLEAR ACTIVITIES, GENERAL PUBLIC UTILITIES CORPORATION

*REACTOR DESCRIPTION + *REACTOR, BREEDER + ECONOMICS + REACTOR, LMCR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25456
TAPE GF
THE INCREASING IMPORTANCE OF THE BREEDER PROGRAM
U.S. ATOMIC ENERGY COMMISSION
AEC NEWS RELEASE S-17-68 +. 9 PAGES, APRIL 23, 1968, PRESENTED AT THE AMERICAN POWER CONFERENCE SYMPOSIUM, CHICAGO, ILL., APRIL 1968

BRIEFLY REVIEWS THE PRINCIPALS OF BREEDER REACTORS AND ANALYZES FUEL NEEDS OF SUCH REACTORS. DOUBLING TIME OF A COMMERCIAL BREEDER IS EXPECTED TO BE ABOUT 10 YR. THE MOLTEN SALT REACTOR OFFERS AVOIDANCE OF FUEL FABRICATION, LOW FUEL-CYCLE COSTS, LOW PUMPING REQUIREMENTS. REMOTE MAINTENANCE IS A DISADVANTAGE. AEC SUPPORT OF THERMAL BREEDERS IS THROUGH THE THORIUM UTILIZATION PROGRAM AND MSRE. SUPPORT OF CONVERTER CONCEPTS THROUGH HTGR AND LWBR. FAST BREEDER IS CENTERED ON LMFBR.

AVAILABILITY - G. F. TAPE, U.S. ATOMIC ENERGY COMMISSION

*REACTOR, BREEDER + *REVIEW + ECONOMICS + MSRE (RE) + R AND D PROGRAM + REACTOR, HTGR

18-25459
WILLS JG
NUCLEAR POWER PLANT TECHNOLOGY
MOBILE OIL COMPANY
323 PAGES, 175 FIGURES, 44 TABLES, JOHN WILEY AND SONS, INC., NEW YORK, LONDON, SYDNEY, SEPTEMBER 1967

BOOK WAS WRITTEN FOR THOSE NOT TRAINED IN NUCLEAR SCIENCE. CHAPTERS ARE - (1) THE FISSION PROCESS - 13 PAGES, (2) REACTOR COMPONENTS - 43 PAGES, (3) POWER REACTOR - 115 PAGES, (4) NUCLEAR POWER PLANTS - 37 PAGES, (5) RADIATION EFFECTS ON PETROLEUM PRODUCTS - 40 PAGES, AND (6) LUBRICATION RECOMMENDATIONS - 19 PAGES. TREATS THE BASIC THEORY OF ATOMIC STRUCTURE AND THE FISSION PROCESS, DISCUSSES THE DESIGN OF COMPONENTS, AND THE MAJOR PORTION IS DEVOTED TO CHARACTERISTICS AND DESCRIPTION OF FIVE TYPES OF POWER REACTORS. APPENDIX 2 (23 PAGES) LISTS THE LUBRICATING PRACTICES AT 6 POWER REACTORS AND INCLUDES OPERATING CHARACTERISTICS, ITEM LUBRICATED, AND APPLICATION OF LUBRICANT.

AVAILABILITY - JOHN WILEY AND SONS, INC., NEW YORK

*LUBRICATION + *PROCEDURES AND MANUALS + *REACTOR DESCRIPTION + *STAFFING, TRAINING, QUALIFICATION + EQUIPMENT, GENERAL + MAINTENANCE AND REPAIR + RADIATION EFFECT + REACTOR, POWER

18-25462
RAMEY, JT
UTILITY PARTICIPATION IN THE AEC FAST BREEDER REACTOR PROGRAM
U.S. ATOMIC ENERGY COMMISSION
15 PAGES, FROM THE AMERICAN POWER CONFERENCE, APRIL 23, 1968, CHICAGO, ILL.

AEC PLANS NOW PROVIDE FOR FINANCIAL ASSISTANCE FOR AT LEAST THREE DEMONSTRATION PLANTS. RECOMMENDATIONS FOR INCREASED INVOLVEMENT BY THE UTILITIES INCLUDE (1) PLANNING AND ENSURING THAT LIGHT-WATER NUCLEAR-EQUIPMENT SUPPLIERS ESTABLISH AND USE CODES, STANDARDS, AND EFFECTIVE QUALITY-ASSURANCE PROGRAMS, (2) EXPEDITE AND AUGMENT PROGRAMS FOR EARLY DEMONSTRATION OF PLUTONIUM RECYCLE IN COMMERCIAL LIGHT-WATER REACTORS, AND (3) ENHANCE THE FAST-BREEDER-REACTOR TECHNICAL BACKGROUNDS OF PERSONNEL BY ASSIGNING TO LMFBR AND OTHER BREEDER PROGRAMS.

AVAILABILITY - J.T. RAMEY, COMMISSIONER, U.S. ATOMIC ENERGY COMMISSION

ADMINISTRATIVE CONTROL + R AND D PROGRAM + REACTOR, BREEDER + REACTOR, LMCR + REVIEW + STAFFING, TRAINING, QUALIFICATION

18-25463
ARMSTRONG, E + HAWGOOD, J
IMPROVEMENTS IN AND RELATING TO THERMAL INSULATION
BRITISH PATENT 1,077,503 +. 8 PAGES, 3 FIGURES, AUGUST 7, 1967

THERMAL INSULATION FOR REACTOR PRESSURE VESSELS IS PROVIDED BY APPLYING TO THE WALLS OF THE VESSEL A SERIES OF STAINLESS-STEEL INSULATING PACKS, EACH CONSISTING OF FLUID-CONFINING SHEETS SPACED APART BY SEPARATOR MEMBERS. THE SHEETS OVERLAP AND INTERLEAVE, WITH THE INTENT OF REDUCING THE CONVECTION OF THE CONTAINED FLUID.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

*PATENT + *THERMAL INSULATION + PRESSURE VESSEL + UNITED KINGDOM

18-25564
TSUNAMI PROTECTION AND ADDITIONAL INFORMATION ON INSTRUMENTATION AND CONTROL
PACIFIC GAS AND ELECTRIC COMPANY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25564 *CONTINUED*
6 PAGES OF NUCLEAR PLANT DIABLO CANYON SITE, EIGHTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, DECEMBER 6, 1967, DOCKET 50-275, TYPE--PWR, MFG--WEST, AE--PG + E

EQUIPMENT WILL BE PROTECTED BY A WALL TO ACCOMODATE A WAVE RUNUP TO ELEVATION PLUS 30 FT. INTAKE CHANNEL WILL SUPPLY FLOW FOR 25 MIN. IN CASE OF BLOWDOWN TO MINUS 16 FT. SUPPLEMENT 6 ERRONEOUSLY SHOWED 4.16-KV BUS F LOAD GREATER THAN DIESEL GENERATOR RATING. LOADS WILL BE BALANCED. BRIEF STATEMENTS GIVEN CLARIFYING DESCRIPTION OR OPERATION OF 13 SYSTEMS OR MONITORS TO DOCUMENT DISCUSSIONS HELD WITH AEC STAFF ON NOV. 21, 22, 1967

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

DIABLO CANYON (PWR) + GENERATOR, ENGINE + HEAT SINK + INSTRUMENTATION, CONTROL + INSTRUMENTATION, PROCESS + REACTOR, PWR + REPORT, PSAR + TSUNAMI

18-25565
STRESS CRITERIA OF CLASS 1 COMPONENTS
PACIFIC GAS AND ELECTRIC COMPANY
10 PAGES, 4 FIGURES OF NUCLEAR PLANT DIABLO CANYON SITE, EIGHTH SUPPLEMENT TO PRELIMINARY SAFETY ANALYSIS REPORT, DECEMBER 6, 1967, DOCKET 50-275, TYPE--PWR, MFG--WEST., AE--PG + E

PRESENTS THE DISCUSSIONS HELD WITH AEC ON NOV. 30 AND DEC. 1, 1967, CONCERNING RADIATION PROTECTION FOR CONTROL ROOM, STRESS CRITERIA FOR CLASS-1 COMPONENTS, AND STRESS-ANALYSIS RESULTS FOR REACTOR-VESSEL NOZZLES. LOAD CRITERIA OF CLASS-1 COMPONENTS MODIFIED TO LIMIT ALLOWABLE PRIMARY MEMBRANE STRESS TO 1/5 OF STRAIN OF MATERIAL AS DETERMINED BY TENSILE TESTS.

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

*DESIGN CRITERIA + *EQUIPMENT, GENERAL + *STRESS ANALYSIS + *STRESS STRAIN DATA + CONTROL PANEL/ROOM + DIABLO CANYON (PWR) + NOZZLE + PRESSURE VESSEL + REACTOR, PWR + REPORT, PSAR + SHIELDING

18-25616 ALSO IN CATEGORY 2
VERMONT YANKEE ASKS EASING OF THERMAL EFFECTS ORDER
3 PAGES, TABLE, NUCLEAR INDUSTRY, 15(5), PAGES 24-26 (MAY 1968)

AT THE MAY 2 VERMONT WATER RESOURCES BOARD HEARING, VERMONT YANKEE GAVE AN EBASCO SERVICES REPORT INDICATING THAT THE APRIL 5 ORDER (75 F UPPER TEMP. LIMIT, WITH TEMP. INCREASE OF 1 DEG AT 74 F AND A MAX. OF 9 F AT 35 F) WILL INCREASE POWER COST. VY ASKED FOR A FLAT 4 F INCREASE, AND AN INCREASE RATE OF 1-5 F/HR, AS OTHERWISE THE OPERATING COST WOULD BE INCREASED 10% AND THE FLEXIBLE COOLING-TOWER-SYSTEM ADVANTAGES NEGATED.

*REGULATION, STATE + *THERMAL POLLUTION + COOLING TOWER + ECONOMICS + OPERATION + REACTOR, BWR + VERMONT YANKEE (BWR)

18-25639
RUSSELVILLE PSAR SUPPLEMENT 3
ARKANSAS POWER AND LIGHT COMPANY
121 PAGES, FIGURES, TABLES, REFERENCES, MAY 3, 1968, DOCKET NO. 50-313

THIS CHANGES THE FEB. 14 DOCUMENT FROM AMENDMENT 1 TO SUPPLEMENT 2. PROVIDES REVISED PSAR PAGES TO REFLECT CHANGES, WHICH INCLUDE ADDITION OF A CONTAINMENT SPRAY. INCLUDES ANSWERS DRL QUESTIONS OF APRIL 3, 1968.

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

AEC QUESTION + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-25640
GINNA UNIT 1 FINAL FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 1
ROCHESTER GAS AND ELECTRIC CORPORATION
475 PAGES, FIGURES, TABLES, REFERENCES FROM ROBERT EMMETT GINNA NUCLEAR POWER PLANT UNIT 1, FINAL FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, INTRODUCTION AND SUMMARY DESCRIPTION OF SITE AND ENVIRONMENT PLANT DESIGN DESCRIPTION, JANUARY 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST, AE--GILBERT ASSOC.

INCLUDES CHAPTER 2 (SITE AND ENVIRONMENT), 3 (REACTOR), 4 (REACTOR COOLANT SYSTEM), AND 5 (CONTAINMENT).

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

GINNA (PWR) + REACTOR, PWR + REPORT, SAR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25641
GINNA UNIT 1 FINAL FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOLUME 2
ROCHESTER GAS AND ELECTRIC CORPORATION
375 PAGES, FIGURES, TABLES, REFERENCES FROM ROBERT EMMETT GINNA NUCLEAR POWER PLANT UNIT 1, FINAL FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, PLANT DESIGN DESCRIPTION AND SAFETY ANALYSIS, JANUARY 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST, AE--GILBERT ASSOC.

INCLUDES CHAPTERS 6 (ENGINEERED SAFETY FEATURES), 7 (I AND C), 8 (ELECTRICAL SYSTEMS), 9 (AUXILIARY AND EMERGENCY SYSTEMS), 10 (POWER CONVERSION), 11 (WASTE DISPOSAL), 12 AND 13 (OPERATIONS), AND 14 (SAFETY ANALYSIS).

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

GINNA (PWR) + REACTOR, PWR + REPORT, SAR

18-25642
FIRST SUPPLEMENT TO FINAL SAFETY ANALYSIS REPORT. NINE MILE POINT NUCLEAR STATION, EXHIBIT D-3
NIAGARA MOHAWK POWER CORP., SYRACUSE, NEW YORK
169 PAGES, FIGURES, TABLES, MAY 1968, DOCKET NO. 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

REPLIES TO NUMEROUS AEC QUESTIONS OF FEB. 20, 1968, ON GENERAL (5), ENGINEERED SAFETY FEATURES (15), REACTOR COOLANT SYSTEM (13), INSTRUMENTATION AND CONTROL (14), ELECTRICAL SYSTEMS (10), ACCIDENT ANALYSIS (12), AND CONDUCT OF OPERATIONS (5).

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

AEC QUESTION + NINE MILE POINT (BWR) + REACTOR, BWR + REPORT, SAR

18-25644
BROWNS FERRY UNIT 3 AMENDMENT 5
TENNESSEE VALLEY AUTHORITY
32 PAGES, FIGURES, BROWNS FERRY NUCLEAR POWER STATION, UNIT 3 DESIGN AND ANALYSIS REPORT, APRIL 18, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

CONSISTS OF A DESCRIPTION OF TVA QUALITY-CONTROL PROGRAM FOR BROWNS FERRY, PLUS INFORMATION ON PARALLEL OPERATION OF DIESEL GENERATORS AFTER A LOSS OF OFF-SITE POWER.

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

AEC QUESTION + BROWNS FERRY (BWR) + REACTOR, BWR + REPORT, PSAR

18-25645
AMENDMENT 5 SECTION 2, TVA QUALITY CONTROL PROGRAMS FOR THE BROWNS FERRY PLANT
TENNESSEE VALLEY AUTHORITY
8 PAGES, 4 FIGURES FROM BROWNS FERRY NUCLEAR POWER STATION, UNIT 3 DESIGN AND ANALYSIS REPORT, AMENDMENT 5, APRIL 18, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

DESCRIBES QUALITY CONTROL BY INDICATING WHETHER MAJOR ITEMS OR SYSTEMS ARE PROCURED BY GE OR BY TVA, AND OUTLINING TYPICAL STEPS ACCORDINGLY.

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

*QUALITY CONTROL + AEC QUESTION + BROWNS FERRY (BWR) + REACTOR, BWR + REPORT, PSAR

18-25646 ALSO IN CATEGORY 10
AMENDMENT 5 SECTION 3 - ADDITIONAL INFORMATION ON PARALLEL OPERATION OF DIESEL GENERATORS
TENNESSEE VALLEY AUTHORITY
6 PAGES, PAGES 3.1-1 THRU 3.6-1 OF AMENDMENT 5, BROWNS FERRY NUCLEAR POWER STATION, UNIT 3, DESIGN AND ANALYSIS REPORT, APRIL 18, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

PARALLELING WOULD BE NECESSARY 1 HR AFTER A LOSS OF OFF-SITE POWER TO START BIG MOTORS FOR THE RHR PUMPS AND TO CARRY OTHER LONG-TERM LOADS. A SINGLE DIESEL CANNOT CARRY OTHER LONG-TERM LOADS. A SINGLE DIESEL CANNOT CARRY CORE-SPRAY PUMPS AND WITHSTAND STARTING TORQUE OF RHR PUMP MOTORS. TIME MARGIN TO MELT CLADDING, ASSUMING THAT DIESEL POWER IS LOST AN HOUR AFTER ACCIDENT, IS 18 MIN FLOODED AND 13 MIN WITH CORE-SPRAY COOLING.

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

*ACCIDENT, LOSS OF POWER + *GENERATOR, ENGINE + AEC QUESTION + BROWNS FERRY (BWR) + CORE SPRAY +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25646 *CONTINUED*
EMERGENCY POWER, ELECTRIC + OPERATION + REACTOR, BWR + REPORT, PSAR + SHARED COMPONENTS

18-25647
REQUEST FOR INFORMATION ON MAINE YANKEE
USAEC, DIVISION OF REACTOR LICENSING
14 PAGES, APRIL 23, 1968, LETTER TO W. DUNHAM FROM P. A. MORRIS, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

INDICATES 38 QUESTIONS IN ADDITION TO THOSE OF MARCH 20, 1968. ALSO REQUESTS INFORMATION ON ROD WITHDRAWAL, ROD EJECTION, LOSS OF FLOW, STEAM-GENERATOR-TUBE BREAK, AND FUEL-HANDLING ACCIDENTS.

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

ACCIDENT, CONTROL ROD EJECTION + ACCIDENT, CONTROL ROD WITHDRAWAL + ACCIDENT, LOSS OF FLOW + ACCIDENT, REFUELING + AEC QUESTION + MAINE YANKEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-25658
HATCH PSAR VOLUME IV
GEORGIA POWER COMPANY
175 PAGES, FIGURES, TABLES, REFERENCES FROM EDWIN I. HATCH NUCLEAR PLANT, PRELIMINARY SAEETY ANALYSIS REPORT, VOLUME IV, MAY 1968, DOCKET 50-321

CONSISTS OF FOLLOWING APPENDIXES - B (CORE THERMAL DESIGN), C (CONTROL-ROD-DRIVE-SYSTEM DESCRIPTION), D (JET-PUMP DEVELOPEMENT PROGRAM), E (CORE-SPRAY COOLING TEST PROGRAM), F (PROPOSED TECH. SPEC. OUTLINE), AND G (COMPARATIVE EVALUATION WITH AEC DESIGN CRITERIA). ***THESE APPEAR TO BE QUITE SIMILAR TO OTHER SIMILARLY TITLED APPENDIXES. THE COMPARATIVE EVALUATION LISTS ONLY PERTINENT PSAR SECTIONS.

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

*PUMP, JET + AEC DESIGN CRITERIA + CORE SPRAY + HATCH (BWR) + REACTOR, BWR + REPORT, PSAR + TEST, PROOF

18-25659 ALSO IN CATEGORY 2
HATCH PSAR VOLUME III
GEORGIA POWER COMPANY
200 PAGES, TABLES, FIGURES, REFERENCES FROM EDWIN I. HATCH NUCLEAR PLANT, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME III, MAY 1968, DOCKET 50-321

CONTAINS APPENDIX A(GEOTECHNICAL STUDIES) - (A1) HYDROLOGY, (A2) GEOLOGY AND SEISMOLOGY, (A3) FOUNDATIONS. ***MAXIMUM POTENTIAL EARTHQUAKE WOULD BE A RECURRENCE OF THE 1886 CHARLESTON INTENSITY-IX QUAKE, AND AT THE CLOSEST APPROACH OF THE COASTAL BELT ZONE (50 MILES).

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

*EARTHQUAKE ENGINEERING + *FOUNDATION ENGINEERING + *HYDROLOGICAL CONSIDERATION, GENERAL + HATCH (BWR) + REACTOR, BWR + REPORT, PSAR

18-25660
HATCH PSAR VOLUME II
GEORGIA POWER COMPANY
325 PAGES, FIGURES, TABLES, REFERENCES FROM EDWIN I. HATCH NUCLEAR PLANT, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME II, MAY 1968, DOCKET 50-321

INCLUDES CHAPTERS ON INSTRUMENTS AND CONTROLS, WASTE CONTROL, AUXILIARY, ELECTRICAL, STRUCTURES, AND SAFETY ANALYSIS. ***THYROID DOSES FOR THE FOUR DESIGN-BASIS ACCIDENTS ARE CONTROL-ROD-DROPOUT (2.8 MREM), REFUELING DROPPED ELEMENT (20 MREM), STEAM-LINE BREAK (3.1 MREM), AND LOSS OF COOLANT (320 MREM).

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

*ACCIDENT, LOSS OF COOLANT + *CONTAINMENT DESIGN + DOSE + HATCH (BWR) + OFF SITE + REACTOR, BWR + REPORT, PSAR

18-25661
HATCH PSAR VOLUME I
GEORGIA POWER COMPANY
300 PAGES, FIGURES, TABLES, REFERENCES FROM EDWIN I. HATCH NUCLEAR PLANT, PRELIMINARY SAFETY ANALYSIS REPORT, VOLUME I, MAY 1968, DOCKET 50-321

A 2436/813-MW(E), STANDARD, JET-PUMP, PRESSURE-SUPPRESSION BWR (SIMILAR TO COOPER STATION),

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25661 *CONTINUED*
LOCATED ON THE ALTAHAMA RIVER 50 MILES N OF WAYCROSS, GA. ***VOLUME I CONTAINS SITE AND ENVIRONMENT, CORE, COOLANT, AND ENGINEERED-SAFEGUARDS SECTIONS.

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

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

18-25718 ALSO IN CATEGORIES 11 AND 16
MILLSTONE FINAL SAFETY ANALYSIS REPORT. VOLUME I
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
275 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

EXPECTED READY FOR FUEL LOADING IN MARCH 1969. REPORT FOR 2011 MWTH RATHER THAN PREVIOUS 1730, AND THE MAXIMUM OFF-SITE THYROID DOSE WAS CALCULATED AS FOLLOWS - ROD DROPOUT (0.2 MRAD), FUEL-ELEMENT-DROPPAGE (13 MRAD), STEAM-LINE RUPTURE (280 MRAD), AND LOSS OF COOLANT (0.43 MRAD). SECTION II - ON-SITE METEOROLOGY COMPILED AUGUST 65-67 INDICATES FUMIGATION INLAND AVERAGES 25%, BEING 51.4% JUNE-AUGUST. SECTION III - REACTOR CORE. SECTION IV - REACTOR COOLANT SYSTEM, INCLUDES AN ISOLATION CONDENSER INSTEAD OF RELIEF TO SUPPRESSION POOL. SECTION V - CONTAINMENT INERT ATMOSPHERE WILL NOT BE NEEDED BECAUSE EMERGENCY CORE-COOLING SYSTEM PREVENTS SIGNIFICANT METAL-WATER REACTION.

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

*CONTAINMENT ATMOSPHERE, INERT + *LAPSE RATE, STABLE + DOSE + MILLSTONE POINT (BWR) + OFF SITE + REACTOR, BWR + REPORT, SAR + WIND STATISTICS

18-25719 ALSO IN CATEGORIES 10 AND 12
MILLSTONE POINT FINAL SAFETY ANALYSIS REPORT. VOLUME 2
CONNECTICUT LIGHT AND POWER COMPANY + HARTFORD ELECTRIC LIGHT COMPANY + WESTERN MASS. ELECTRIC COMPANY
350 PAGES, FIGURES, TABLES, REFERENCES, MARCH 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

INCLUDES THE FOLLOWING - (1) SECTION VI, ENGINEERED SAFEGUARDS - FAILURE-RATE DATA USED TO COMPUTE ECCS AVAILABILITY AS 0.99969. (2) SECTION VII, I AND C. (3) SECTION VIII, ELECTRICAL SYSTEM - A 12-MW GAS TURBINE (FOR PEAKING POWER) ALSO SUPPLIED BUSES 3 AND 4, BACKING UP THE SINGLE DIESEL. (4) SECTION IX, RADIOACTIVE WASTE, (5) SECTION X, AUXILIARY SYSTEMS. (6) SECTION XI, TURBINE, INCLUDING MALFUNCTION BEHAVIOR. (7) SECTION XII, STRUCTURAL DESIGN.

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

*EMERGENCY COOLING CONSIDERATIONS + *GENERATOR, ENGINE + *RELIABILITY, SYSTEM + ELECTRIC POWER, SHUTDOWN + MILLSTONE POINT (BWR) + REACTOR, BWR + REPORT, SAR

18-25720
THREE MILE ISLAND CONSTRUCTION PERMIT
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, LETTER TO R. L. NEIDIG FROM P. A. MORRIS, MAY 18, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

AUTHORIZES CONSTRUCTION OF THREE MILE ISLAND.

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

*CONSTRUCTION PERMIT PROCESS + REACTOR, PWR + THREE MILE ISLAND (PWR)

18-25728 ALSO IN CATEGORIES 17 AND 15
INFORMATION REQUESTED ON GINNA RADIATION EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO F. E. DRAKE, JR. FROM P. A. MORRIS, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + GINNA (PWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, PWR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25729 ALSO IN CATEGORIES 17 AND 15
INFORMATION REQUESTED ON NINE MILE POINT EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
7 PAGES, MAY 27, 1968, LETTER TO M. H. PRATT FROM P. A. MORRIS, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + NINE MILE POINT (BWR) + OPERATING LICENSE PROCESS + PERSONNEL EXPOSURE, RADIATION + RADIATION INJURY, TREATMENT OF + REACTOR, BWR

18-25730 ALSO IN CATEGORIES 17 AND 15
INFORMATION REQUESTED ON SEFOR EMERGENCY PLANS
USAEC, DIVISION OF REACTOR LICENSING
4 PAGES, MAY 27, 1968, LETTER TO K. P. COHEN FROM P. A. MORRIS, DOCKET 50-231

DRL HAS BEEN REVIEWING STATUS OF MEDICAL PLANS, INCLUDING FACILITIES AND PERSONNEL FOR TREATMENT OF CONTAMINATED OR IRRADIATED PERSONNEL, AND REQUESTS INFORMATION ON (1) ON-SITE DECONTAMINATION FACILITIES, (2) QUALIFICATIONS AND TRAINING OF LOCAL PHYSICIANS, (3) ARRANGEMENTS FOR TRANSPORTING THE INJURED, (4) DISTANCE TO NEAREST HOSPITAL AGREEABLE TO ACCEPTING INJURED PEOPLE, (5) QUALIFICATIONS AND TRAINING OF HOSPITAL PERSONNEL, (6) LIMITATIONS ON HOSPITAL AVAILABILITY, (7) WRITTEN PLAN OF ACTION AT LOCAL HOSPITAL. ***SEPARATE LETTER INDICATES TRAINING SEMINAR THAT LOCAL MEDICAL PERSONNEL CAN ATTEND.

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

*RADIOLOGICAL ASSISTANCE + AEC QUESTION + EMERGENCY PROCEDURE + OPERATING LICENSE PROCESS + RADIATION INJURY, TREATMENT OF + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + SEFOR (RE)

18-25735
LA CROSS STARTUP ORGANIZATION (AMENDMENT 28)
ALLIS-CHALMERS
ACNP-66556 +. 50 PAGES, FIGURES, FROM SUMMARY DESCRIPTION OF ALLIS-CHALMERS ORGANIZATION AND PROCEDURES FOR PREOPERATIONAL TESTING AND STARTUP OF THE LA CROSSE BOILING WATER REACTOR AND REVISED ANSWER TO GROUP IV QUESTION 10, AUGUST 1966, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

FOUR PAGES DESCRIBE THE FUNCTIONS OF VARIOUS POSITIONS IN THE STARTUP ORGANIZATION. THE REMAINDER ARE SUMMARIES OF THE EXPERIENCE OF THE VARIOUS PEOPLE FILLING THE POSITIONS. THIS IS REVISED ANSWER TO GROUP-IV QUESTION 10, ANSWERED IN AMENDMENT 26.

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

*STAFFING, TRAINING, QUALIFICATION + AEC QUESTION + LACROSSE (BWR) + REACTOR, BWR + SAFETY REVIEW

18-25861
AMENDMENT 6
MAINE YANKEE ATOMIC POWER CO., WISCASSET, MAINE
60 PAGES, FIGURES, TABLES, APRIL 17, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES (OFF-SITE DOSES IN SG TUBE RUPTURE, FUEL HANDLING, AND WASTE-GAS-RELEASE INCIDENTS), A NEW SECTION 12.6 (RADIATION EMERGENCY PLAN), AND RESPONSES TO 15 DRL QUESTIONS OF MARCH 20, 1968.

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

AEC QUESTION + MAINE YANKEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-25862
QUALITY ASSURANCE PROGRAM
MAINE YANKEE ATOMIC POWER STATION, WISCASSET, MAINE
90 PAGES, FIGURES, TABLES, APRIL 8, 1968, AMENDMENT NO. 5, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

DESCRIBES FUNCTIONS OF MAINE YANKEE (OPR.), COMBUSTION ENGR (NSSS DESIGNER), AND STONE AND

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25862 *CONTINUED*
WEBSTER (AE) DURING DESIGN, PROCUREMENT, INSTALLATION, AND TEST OF MAINE YANKEE STATION.

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

*QUALITY CONTROL + ADMINISTRATIVE CONTROL + MAINE YANKEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-25863
COOPER STATION PROVISIONAL CONSTRUCTION PERMIT
USAEC, DIVISION OF REACTOR LICENSING
13 PAGES, JUNE 4, 1968, CONSTRUCTION PERMIT CPPR-42, DOCKET 50-298

AUTHORIZES CONSTRUCTION OF 2381-MWTH COOPER STATION BWR ON THE MISSOURI RIVER, 60 MILES SOUTH OF OMAHA, NEBRASKA. ***PERMIT INCLUDES ASLB INITIAL DECISION OF THE SAME DATE.

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

*CONSTRUCTION PERMIT PROCESS + ASLB + COOPER (BWR) + REACTOR, BWR

18-25868
THREE MILE ISLAND CONSTRUCTION PERMIT
USAEC, DIVISION OF REACTOR LICENSING
2 PAGES, MAY 18, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC., CONSTRUCTION PERMIT NO. CPPR-40

ALLOWS CONSTRUCTION OF 2452-MWTH PWR ON THREE MILE ISLAND, PA.

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

*CONSTRUCTION PERMIT PROCESS + REACTOR, PWR + THREE MILE ISLAND (PWR)

18-25880
MORE INFORMATION NEEDED ON SEFOR
USAEC, DIVISION OF REACTOR LICENSING
16 PAGES, LETTER TO K.P. COHEN FROM P.A. MORRIS, MAY 1, 1968, DOCKET NO. 50-231

REVIEW OF SEFOR FDSAR AND SUPPLEMENTS 1 THROUGH 9 INDICATES THAT A NUMBER OF AREAS WERE INADEQUATELY DESCRIBED AND EVALUATED AND THAT SUPPLEMENTS 10 THROUGH 15 HAVE NOT BEEN REVIEWED. WE UNDERSTAND THAT FURTHER SUPPLEMENTS ARE DUE. ENCLOSED IS A 15-PAGE LIST OF QUESTIONS ON ADDITIONAL INFORMATION REQUIRED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*AEC QUESTION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMCR + REPORT, SAR + SEFOR (DC)

18-25886 ALSO IN CATEGORY 16
BELL STATION PSAR VOLUME II
NEW YORK STATE ELECTRIC AND GAS CORPORATION
400 PAGES, FIGURES, TABLES, REFERENCES, DOCKET 50-319, MARCH 1968

SECTIONS INCLUDE THE FOLLOWING - (VII, 1 AND C) A 10-PAGE DISCUSSION OF PLANT STABILITY ANALYSIS SUPPLEMENTS THE USUAL DESCRIPTION. (VIII, STATION ELECTRIC POWER) A 115-KV LINE TO THE TWO-UNIT MILLIKEN STATION ADJACENT, TWO 345-KV LINES, 3 DIESELS AND 2 BATTERY BANKS. (IX, RADWASTE). (X, AUXILIARY SYSTEMS). (XI, POWER CONVERSION) A NEW FEATURES IS THE POWDEX HEATER-DRAIN DEMINERALIZER. DEEP INLET PIPE WILL ALLOW CONDENSER TEMPERATURE RISE OF 20 F YET KEEP TEMPERATURE AT SURFACE CONDITIONS. (XII, STRUCTURES AND SHIELDING). (XIII, OPERATIONS) (XIV, SAFETY AND ACCIDENT ANALYSIS) SINCE THE GROUND LEVEL RISES GOING INLAND, OFF-SITE DOSES ARE CALCULATED ASSUMING GROUNDLEVEL RELEASE DESPITE THE 300-METER STACK. MAXIMUM DOSE IS REFUELING ACCIDENT (19 MREM WHOLE BODY AND 320 MREM THYROID).

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

*REACTOR STABILITY + *THERMAL POLLUTION + *TOPOGRAPHY + ACCIDENT, REFUELING + BELL (BWR) + COOLANT PURIFICATION SYSTEM + DOSE + ELECTRIC POWER, VITAL + LAKE + OFF SITE + REACTOR, BWR + REPORT, PSAR

18-25887 ALSO IN CATEGORY 2
BELL STATION PSAR VOLUME III
NEW YORK STATE ELECTRIC AND GAS CORPORATION
250 PAGES, FIGURES, TABLES, REFERENCES, DOCKET 50-319, MARCH 1968

APPENDIXES INCLUDE - (A) SEISMIC DESIGN CRITERIA, 81 PAGES. (B) REACTOR CORE THERMAL DESIGN, 10 PAGES. LOAD-TRIP SCRAM PROVIDED BECAUSE TURBINE BYPASS CAPABILITY IS ONLY 2.5%. (C) CONTROL-ROD-DRIVE DESCRIPTION. (D) JET-PUMP DEVELOPMENT. (E) CORE-SPRAY COOLING TEST

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25887 *CONTINUED*
PROGRAM. (F) TECHNICAL-SPECIFICATION OUTLINE. (G) COMPARATIVE EVALUATION WITH 70 AEC GENERAL DESIGN CRITERIA, USUALLY A LISTING OF APPROPRIATE PSAR SECTIONS.

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

*ACCIDENT, LOAD REJECTION + *AEC DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + BELL (BWR) + REACTOR, BWR + REPORT, PSAR

18-25918
PULSE RADIATION RESEARCH WITH TRIGA REACTORS
GULF GENERAL ATOMIC INC.
TAB-119 +. 6 PAGES, REFERENCES, TRIGA APPLICATIONS BULLETIN, NOVEMBER 1963

PULSING IS POSSIBLE BECAUSE OF LARGE NEGATIVE TEMPERATURE COEFFICIENT OF THE U-ZR HYDRIDE FUEL. STEADY-STATE OPERATION AT 1MW, OR PULSES TO 2000 MW, IS ACHIEVABLE WITHOUT CHANGES TO CORE. CAPABLE OF 12 PULSES PER HOUR, WITH EACH PULSE WIDTH OF 10 MILLISEC AND ENERGY RELEASE OF 23MW-SEC. APPLICATIONS AT G.A. - STUDY OF KINETICS OF OXIDATION OF METALS, TRANSIENT RESPONSE OF SEMICONDUCTOR MATERIALS, PREPARATION OF SHORT-HALF-LIFE ISOTOPES, FUEL-ELEMENT SAFETY STUDIES, AND DEVELOPMENT AND TESTING OF CERENKOV PULSE-POWER DETECTOR.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

REACTOR DESCRIPTION + REACTOR, RESEARCH + TRIGA (RR)

18-25920
SAFETY CHARACTERISTICS OF TRIGA
GULF GENERAL ATOMIC INC.
TRIGA REACTORS INFORMATION BULLETIN NO. 401 4 PAGES, 4 FIGURES, 1 TABLE

BRIEF ELEMENTARY DISCUSSION OF THE SAFCTY OF A TRIGA REACTOR, WITH EMPHASIS ON THE LARGE NEGATIVE TEMPERATURE COEFFICIENT RESULTING FROM THE FUEL-MODERATOR ELEMENT OF U AND ZR HYDRIDE.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

*TRIGA (RR) + REACTOR DESCRIPTION + REACTOR, RESEARCH + TEMPERATURE COEFFICIENT

18-25921
CONVERSION AND UPGRADING OF RESEARCH REACTORS FOR DUAL STEADY-STATE AND PULSED OPERATION
GULF GENERAL ATOMIC
TRIGA REACTORS PRODUCT BULLETIN NO. 102 2 PAGES, 1965

DISCUSSES BRIEFLY PERFORMANCE, SAFETY, RELIABILITY, AND CONVERSION OF EXISTING REACTORS.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR DESCRIPTION + REACTOR, RESEARCH + TRIGA (RR)

18-25922
NEW TRIGA MARK III REACTOR
GULF GENERAL ATOMIC
TRIGA REACTORS PRODUCT BULLETIN NO. 103 2 PAGES, FIGURES, 1965

A PICTORIAL DESCRIPTION.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

REACTOR DESCRIPTION + REACTOR, RESEARCH + REACTOR, RESEARCH + TRIGA (RR)

18-25923
TRIGA POWER REACTOR SYSTEMS
GULF GENERAL ATOMIC
TRIGA REACTORS PRODUCT BULLETIN NO. 106 2 PAGES, 1965

PICTURES OF A 200-3000 KWE AND A 300-KWE REACTOR FOR UNDERSEA APPLICATION. TWO PICTURES OF FUEL ELEMENTS.

AVAILABILITY - GULF GENERAL ATOMIC INC., P. O. BOX 608, SAN DIEGO, CALIF. 92112

REACTOR DESCRIPTION + REACTOR, SPACE + SNAP, GENERAL (SR)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-25924 ALSO IN CATEGORY 17
TRIGA-ACPR--ANNULAR CORE PULSE REACTOR
GENERAL DYNAMICS, GENERAL ATOMIC DIVISION, SAN DIEGO, CALIF.
TRIGA REACTORS INFORMATION BULLETIN NO. 105 2 PAGES, 1965

DRY-TEST CAVITY (9 IN. IN DIAMETER X 12 IN. HIGH) INSIDE THE ANNULAR CORE. A SERPENTINE ACCESS TUBE PROVIDES SHIELDING WHILE ALLOWING CHANGING OF SAMPLES.

*IRRADIATION FACILITY + REACTOR DESCRIPTION + REACTOR, PULSED + REACTOR, RESEARCH + TRIGA (RR)

18-25933
CAGLE, CO + CASTO WR
THE LOW-INTENSITY TESTING REACTOR. A FUNCTIONAL DESCRIPTION
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1737 +. 124 PAGES, 99 FIGURES, 24 TABLES, 1968

DESCRIBES THE 3-MW LIGHT-WATER-MODERATED-AND-COOLED RESEARCH REACTOR WHICH WAS CONVERTED IN 1950 FROM THE MTR HYDRAULIC TEST FACILITY. EXPERIMENT FACILITIES INCLUDE BEAM HOLES, CORE POSITIONS, AND PNEUMATIC TUBES. THE AVERAGE THERMAL NEUTRON FLUX IN THE CORE IS 2 X 10(13TH), AND THE MAXIMUM IN THE REFLECTOR IS 4 X 10(13TH). THE REACTOR HAS BEEN CONTROLLED REMOTELY SINCE 1957. DESCRIPTIONS GIVEN OF SITE, BUILDING, CONTAINMENT, REACTOR COMPONENTS, EXPERIMENT FACILITIES, COOLING SYSTEMS, INSTRUMENTATION, SHIELDING, UTILITIES, WASTE SYSTEMS, AND ORGANIZATION, OPERATING HISTORY AND EXPERIENCE NOT DISCUSSED, NOR ANY MODIFICATIONS OR TESTS.

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

LITR (TR) + REACTOR DESCRIPTION + REACTOR, TEST

18-25938 ALSO IN CATEGORY 2
COMMENTS ON SURRY STATION
VIRGINIA ELECTRIC AND POWER COMPANY + DIVISION OF REACTOR LICENSING, USAEC
2 PAGES, MAY 21, 1968, LETTER TO P. A. MORRIS FROM R. R. GARVEY, JR., DOCKET 50-280/281, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

IN A REPLY TO LETTER FROM DIRECTOR OF REGULATION APRIL 17, 1968, COUNCIL CONCLUDED THAT THE PROBABLE EFFECT OF SURRY STATION ON THE COLONIAL NATIONAL HISTORICAL PARK CANNOT BE JUDGED TO BE SUFFICIENTLY ADVERSE TO WARRANT COUNCIL COMMENT.

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

REACTOR, PWR + SITING, REACTOR + SURRY 1 AND 2 (PWR)

18-25992 ALSO IN CATEGORY 11
JAMROG AR
APPARATUS FOR CONTROLLING THE ATMOSPHERE OVER A NUCLEAR REACTOR
U.S. PATENT 3,282,793 +. 4 PAGES, 2 FIGURES, NOVEMBER 1, 1966

APPARATUS FOR PROVIDING AIR ATMOSPHERE DIRECTLY OVER A REACTOR INSIDE LARGER ARGON-FILLED CHAMBER COMPRISED OF AXIALLY COLLAPSIBLE BELLOWS WITH ONE END SEALED TO REACTOR AND OTHER END TO OPENING IN TOP OF CHAMBER. BELLOWS PROTECTS CONTROL-ROD ELECTRICAL CONNECTIONS AND PERMITS DIRECT-CONTACT-MAINTENANCE CONTROL-ROD DRIVES. REACTOR COVER CAN BE RAISED, COLLAPSING BELLOWS, FOR REPLACEMENT OF FUEL ELEMENTS.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 25 CENTS PER COPY

*CONTAINMENT DESIGN + *PATENT + CONTAINMENT ATMOSPHERE, INERT + CONTAINMENT PENETRATION, ELECTRICAL + CONTAINMENT STRUCTURE + CONTAINMENT, GENERAL + CONTROL ROD DRIVE + MAINTENANCE AND REPAIR + REACTOR, LMCR

18-26050
PILGRIM STATION AMENDMENT 9
BOSTON EDISON COMPANY
21 PAGES, FIGURES, TABLES, AMENDMENT 9 TO PILGRIM STATION LICENSE APPLICATION, REPLIES TO AEC STAFF COMMENTS, DOCKET 50-293, TYPE--BWR, MFG--G.W., AE--BECHTEL, MARCH 11, 1968

REPLIES TO FOUR DRL QUESTIONS - (1) NPSH REQUIREMENTS FOR CORE-SPRAY PUMPS, (2) DAMAGE LIMITS IN STRESS ANALYSIS, (3) SIMPLIFIED PIPE-RUPTURE-DETECTION SYSTEM, AND (4) BRITTLE-FRACTURE CONSIDERATIONS.

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

*AEC QUESTION + PILGRIM (BWR) + REACTOR, BWR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26055
PILGRIM STATION AMENDMENT 8
BOSTON EDISON COMPANY
PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

PROVIDES SUPPLEMENTARY SEISMIC INFORMATION IN RESPONSE TO AEC QUESTIONS ON ANALYSIS OF CLASS-I EQUIPMENT AND STRUCTURES, ADDITION OF STRESSES, AND DAMPING VALUES.

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

AEC QUESTION + PILGRIM (BWR) + REACTOR, BWR

18-26056 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON NO LOSS OF FUNCTION CRITERIA FOR CLASS I CONCRETE STRUCTURES
BOSTON EDISON COMPANY
6 PAGES, 3 REFERENCES, PAGE, OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

MAXIMUM PERMISSIBLE CALCULATED CONCRETE COMPRESSION IS LIMITED TO 0.85 F-SUB-C-PRIME (CONCRETE COMPRESSIVE STRENGTH). MAXIMUM PERMISSIBLE CALCULATED MAIN REINFORCING STEEL TENSION IS LIMITED TO 0.9 F-SUB-Y (NOMINAL YIELD STRENGTH). CALCULATED DEFORMATION IS LIMITED TO 0.5 MAXIMUM PERMISSIBLE, OR CALCULATED ENERGY ABSORBTION CAPABILITY IS AT LEAST TWICE CALCULATED ENERGY INPUT.

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

*DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + *REPORT, PSAR + BUILDING + PILGRIM (BWR) + REACTOR, BWR + STRUCTURAL INTEGRITY

18-26057 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON NO LOSS OF FUNCTION CRITERIA FOR CLASS I DUCTILE METALLIC EQUIPMENT AND STRUCTURES
BOSTON EDISON COMPANY
2 PAGES, PAGES 2-1 THRU 2-2 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

CALCULATED VALUES OF DEFORMATION ARE LIMITED TO 0.8 TIMES MAXIMUM PERMISSIBLE DEFORMATION.

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

*DESIGN CRITERIA + *EARTHQUAKE ENGINEERING + BUILDING + ENGINEERED SAFETY FEATURE + EQUIPMENT DESIGN + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + STRUCTURAL INTEGRITY

18-26058 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON SEISMIC ANALYSIS
BOSTON EDISON COMPANY
2 PAGES, PAGES 3-1 THRU 3-2 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

MATHEMATICAL MODEL LUMPED WEIGHTS OF BUILDING AND MAJOR INTERNAL ELEMENTS AT EACH FLOOR. ROCKING WAS BY SPRINGS REPRESENTING SOIL STIFFNESS. NATURAL FREQUENCIES AND MODE SHAPES WERE DETERMINED BY TRIDIAGONALIZATION BY SUCCESSIVE ROTATIONS. TIME HISTORY OF TAFT EARTHQUAKE (JULY 21, 1952) WAS USED, WITH AMPLITUDE SCALED TO 0.08 AND 0.15 G GROUND ACCELERATION FOR DESIGN AND MAXIMUM EARTHQUAKES. SPECTRUM PLOT OF RESPONSE OF SINGLE-MASS SYSTEM WAS MADE FOR EACH FLOOR FOR RANGE OF NATURAL FREQUENCIES FROM 0.1 TO 30 CPS, MAXIMUM RESPONSE, AS ACCELERATION, WAS THEN PLOTTED FOR EACH FREQUENCY.

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

*BUILDING + *EARTHQUAKE ENGINEERING + *STRUCTURAL ANALYSIS, DYNAMIC + COMPUTER PROGRAM + EARTHQUAKE + FREQUENCY SPECTRA + GROUND MOTION + MATHEMATICAL TREATMENT + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + STRUCTURAL INTEGRITY

18-26059 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON DAMPING VALUES
BOSTON EDISON COMPANY
1 PAGE, PAGE 4-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26059 *CONTINUED*
BECAUSE EXAMINATION OF FIRST STRUCTURAL MODE OF VIBRATION SHOWS STRUCTURE ACTING IN COMBINATION OF ROCKING AND BENDING, COMPOSITE DAMPING VALUES OF 5 AND 7.5% WERE USED IN ANALYSES OF REACTOR BUILDING FOR DESIGN AND MAXIMUM EARTHQUAKE, RESPECTIVELY. VALUE OF 2% WILL BE USED FOR INTERNAL CONCRETE STRUCTURES. VALUES FOR PIPING AND EQUIPMENT ARE LISTED IN TABLE XII-2-1 OF DAR. SEE ALSO COMMENT 20, AMENDMENT 5.

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

*DAMPING + *EARTHQUAKE ENGINEERING + *STRUCTURAL ANALYSIS, DYNAMIC + BUILDING + GROUND MOTION + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + SOIL, PROPERTY + VIBRATION

18-26060 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON CLASS I PIPING
BOSTON EDISON COMPANY
1 PAGE, PAGE 5-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

STRESSES IN CLASS-I PIPING (OTHER THAN ECCS PIPING DISCUSSED IN REPLY TO COMMENT 3.4.1, AMENDMENT 4 TO DAR) WILL BE COMBINED IN ACCORDANCE WITH POWER-PIPING CODE USAS B31.1.0 - 1967 AND WILL INCLUDE (1) DESIGN PRESSURES AND TEMPERATURES, (2) THERMAL EXPANSION, (3) DESIGN EARTHQUAKE, (4) DEAD AND LIVE LOADS. TOTAL PRIMARY STRESS LEVEL DURING MAXIMUM EARTHQUAKE WILL BE LESS THAN YIELD STRESS AT OPERATING TEMPERATURE. THIS LOADING CONDITION WILL INCLUDE NORMAL OPERATING CONDITIONS LISTED ABOVE.

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

*PIPING + *STRESS ANALYSIS + CODES AND STANDARDS + DESIGN CRITERIA + EARTHQUAKE ENGINEERING + PILGRIM (BWR) + PRESSURE, INTERNAL + REACTOR, BWR + REPORT, PSAR + THERMAL MECHANICAL EFFECT

18-26061
PILGRIM STATION AMENDMENT 7
BOSTON EDISON COMPANY
PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

PROVIDE DRL-REQUESTED SUPPLEMENTAL INFORMATION ON LIQUID-WASTE MONITORING, REACTOR-BUILDING DOOR SEALING AND INTERLOCK, ADDITION OF EARTHQUAKE-INDUCED STRESS IN EQUIPMENT, MORE DETAIL FROM SITE BORINGS ON SOIL SUBSTRUCTURE.

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

AEC QUESTION + PILGRIM (BWR) + REACTOR, BWR

18-26062 ALSO IN CATEGORY 15
SUPPLEMENTARY INFORMATION ON LIQUID WASTE MONITORING
BOSTON EDISON COMPANY
1 PAGE, PAGE 1-7 OF PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

GROSS-GAMMA MONITOR ON RADWASTE DISCHARGE LINE INDICATES, RECORDS, AND ALARMS ON LOCAL CONTROL PANEL THE RADIOACTIVITY CONCENTRATION IN DISCHARGE LINE, AND EFFLUENT SAMPLING STATION IN CIRCULATING-WATER DISCHARGE LINE CONTINUOUSLY ACCUMULATES SAMPLE FOR PERIODIC ANALYSIS. LIQUID-WASTE SYSTEM IS THEREFORE MONITORED BEFORE, DURING, AND AFTER DISCHARGE BY SEPARATE AND DIFFERENT METHODS.

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

*MONITOR, RADIATION, LIQUID + *WASTE DISPOSAL, LIQUID + GAMMA + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + SAMPLING

18-26063
SUPPLEMENTARY INFORMATION ON REACTOR BUILDING DOORS
BOSTON EDISON COMPANY
1 PAGE, PAGE 2-1 OF PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

REACTOR BUILDING WILL HAVE THREE ACCESS OPENINGS FOR PERSONNEL AND EQUIPMENT, PROVIDED WITH MECHANICALLY INTERLOCKED DOUBLE DOORS HAVING WEATHERSTRIP SEALS.

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

*CONTAINMENT AIR LOCK + BUILDING + CONTAINMENT DESIGN + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26064
SUPPLEMENTARY INFORMATION ON ADDITION OF STRESSES
BOSTON EDISON COMPANY
1 PAGE, PAGE 3-1 OF PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

STRESSES WILL BE COMBINED FOR APPROPRIATE LOADINGS LISTED IN REPLY TO COMMENT 3.4.1, AMENDMENT 4. BOTH VERTICAL AND HORIZONTAL COMPONENTS OF FORCES SUCH AS THOSE DUE TO EARTHQUAKE WILL BE INCLUDED IN LOAD COMBINATIONS AND WILL BE CONSIDERED TO ACT SIMULTANEOUSLY. STRUCTURES AND EQUIPMENT WILL BE DESIGNED FOR MOST SEVERE COMBINATION.

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

*EARTHQUAKE ENGINEERING + *STRESS ANALYSIS + DESIGN CRITERIA + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + STRUCTURAL ANALYSIS, DYNAMIC

18-26065
SUPPLEMENTARY INFORMATION ON SOILS INVESTIGATION
BOSTON EDISON COMPANY
2 PAGES, 7 FIGURES, PAGES 4-1 THRU 4-2 OF PILGRIM STATION AMENDMENT 7 TO LICENSE APPLICATION, SUPPLEMENTARY INFORMATION (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

TWENTY ADDITIONAL BORINGS IN ADDITION TO MAJOR EXCAVATION WERE MADE. STRATA UNDERLYING REACTOR BUILDING CAN SUPPORT MAT LOADS OF 15,000 PSF, AND TOTAL DIFFERENTIAL SETTLEMENTS WILL BE LESS THAN 1 IN. MAXIMUM EARTHQUAKE LOADING (0.15-G GROUND ACCELERATION) WILL PRODUCE 13,400 PSF. ABOUT 20,000 CU. YD OF UNSUITABLE MATERIAL UNDER TURBINE BUILDING WAS REPLACED WITH SAND AND GRAVEL COMPACTED TO 85% RELATIVE DENSITY. TURBINE-BUILDING MAT WILL EXERT 4000 AND LESS THAN 5000 PSF UNDER NORMAL AND EARTHQUAKE LOADINGS, RESPECTIVELY.

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

*EARTH MATERIAL, DYNAMIC PROPERTY + *SOIL PROPERTY, IN SITU + EARTHQUAKE + FOUNDATION ENGINEERING + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR

18-26066 ALSO IN CATEGORY 2
SUPPLEMENTARY INFORMATION ON MAIL CONTROL PANELS
BOSTON EDISON COMPANY
1 PAGE, PAGE 6-1 OF PILGRIM STATION AMENDMENT 8 TO LICENSE APPLICATION, SUPPLEMENTARY SEISMIC INFORMATION, (DOCKET 50-293), MARCH 11, 1968. TYPE--BWR, MFG--G.E., AE--BECHTEL

AS STRUCTURAL DESIGN PROGRESSES, RESPONSE SPECTRUM FOR DESIGN AND MAXIMUM EARTHQUAKE WILL BE PREPARED FOR MAIN-CONTROL-ROOM FLOOR. (TENTATIVE VALUE BASED ON PRELIMINARY DESIGN IS 0.32 G FOR MAXIMUM EARTHQUAKE.) EACH TYPE OF PROTECTIVE-SYSTEM INSTRUMENT AND ITS SUPPORTING PANEL OR CABINET WILL BE ANALYZED, TESTED, OR INVESTIGATED TO CONFIRM THAT IT WILL WITHSTAND INTERACTION EFFECTS RESULTING FROM MAIN-CONTROL-ROOM-FLOOR ACCELERATION WITHOUT LOSS OF FUNCTION. INTERACTION EFFECTS COULD BE DETERMINED BY DYNAMIC RESPONSE OF SUPPORTING CONTROL PANEL OR CABINET, BY STATIC ANALYSIS, OR BY TEST.

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

*CONTROL PANEL/ROOM + *EARTHQUAKE ENGINEERING + *INSTRUMENTATION, PROTECTIVE + PILGRIM (BWR) + REACTOR, BWR + REPORT, PSAR + RESPONSE SPECTRUM + STRUCTURAL ANALYSIS, DYNAMIC

18-26069 ALSO IN CATEGORY 11
ACRS REPORT ON FT. ST. VRAIN
USAEC, DIVISION OF REACTOR LICENSING
6 PAGES, LETTER TO L.R. PATTERSON FROM P.A. MORRIS, MAY 28, 1968, DOCKET NO. 50-267, TYPE--HTGR, MFG--G.A., AE--C.A.

ACRS CONCLUDED THAT FT. ST. VRAIN UNIT CAN BE CONSTRUCTED AT PROPOSED SITE WITH REASONABLE ASSURANCE --- ETC., BUT BELIEVES THAT (1) PCRV CONSTRUCTION PROCEDURES, (2) QUALITY-CONTROL GROUPS REPRESENTING PSC AND GGA NOT BEING RESPONSIBLE TO CONSTRUCTION GROUPS, (3) PRESTRESSING SYSTEM CORROSION PROTECTION, (4) CIRCULATOR PERFORMANCE, (5) THERMAL INSULATION, AND (6) STEAM GENERATOR LEAKAGE ARE CRITICAL ITEMS REQUIRING PARTICULAR ATTENTION. OKRENT BELIEVES DESIGN IS VULNERABLE TO VESSEL FAILURE BECAUSE OF SINGLE (PCRV) STRUCTURE, BUT, BECAUSE OF SITE CHARACTERISTICS, MODERATE POWER LEVEL, CONSERVATIVE DESIGN, AND SINGLE UNIT, IT IS ACCEPTABLE. HENDRIE BELIEVES REACTOR SHOULD BE CONTAINED IN ANOTHER BUILDING, DOES NOT AGREE THAT PRESENT DESIGN PROVIDES BOTH PRIMARY AND SECONDARY CONTAINMENT ADEQUATELY.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

ACRS + CONCRETE, PRESTRESSED + CONSTRUCTION PERMIT PROCESS + CONTAINMENT, MULTIPLE + FT. ST. VRAIN (HTGR) + PRESSURE VESSEL + QUALITY CONTROL + R AND D PROGRAM + REACTOR, HTGR + SITING, REACTOR + STEAM GENERATOR + THERMAL INSULATION

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26079
MAINE YANKEE AMENDMENT 7
MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE
150 PAGES, FIGURES, TABLES, APRIL 30, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES AND RESPONSE TO QUESTIONS IN DRL LETTERS OF MARCH 20 AND APRIL 23, 1968.

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

AEC QUESTION + MAINE YANKEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-26080
MAINE YANKEE AMENDMENT 9
MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE
100 PAGES, FIGURES, TABLES, MAY 14, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES AND ANSWERS TO 21 DRL QUESTIONS OF MAR. 20 AND APRIL 23, 1968. ALSO TRANSMITS COMBUSTION ENGINEERING TOPICAL REPORT A-68-9-1 (THERMAL SHOCK ANALYSIS DUE TO EMERGENCY CORE COOLING.)

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

AEC QUESTION + MAINE YANKEE (PWR) + REACTOR, PWR + REPORT, PSAR

18-26081 ALSO IN CATEGORY 10
MAINE YANKEE PSAR AMENDMENT 10
MAINE YANKEE ATOMIC POWER COMPANY, WISCASSET, MAINE
150 PAGES, FIGURES, TABLES, MAY 22, 1968, DOCKET NO. 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

PROVIDES REVISED PSAR PAGES AND ANSWERS TO 29 DRL QUESTIONS OF MAR. 20 AND APRIL 23, 1968. (ATTACHMENT 1) - COMPARISON OF PROTECTIVE INSTRUMENTATION FOR MAINE YANKEE AND FT. CALHOUN. (ATTACHMENT 2) - PROTECTION OF CABLE AND SWITCHGEAR FROM FIRE AND MECHANICAL DAMAGE.

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

*COMPARISON, REACTOR CHARACTERISTICS + *FIRE + AEC QUESTION + ELECTRICAL CONDUCTION + MAINE YANKEE (PWR) + PLANT PROTECTIVE SYSTEM + REACTOR, PWR + REPORT, PSAR

18-26083
RANCHO SECO AMENDMENT 3
SACRAMENTO MUNICIPAL UTILITY DISTRICT
124 PAGES, FIGURES, TABLES, RANCHO SECO NUCLEAR GENERATING STATION, UNIT NO. 1, DOCKET NO. 50-312, TYPE--PWR, MFG--B+W, AE--BECHTEL

PROVIDES MANY REVISED PSAR PAGES, AND ANSWERS DRL QUESTIONS OF APRIL 10, 1968, REGARDING CONTAINMENT DESIGN AND CONSTRUCTION.

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

RANCHO SECO (PWR) + REACTOR, PWR + REPORT, PSAR

18-26089
RUSSELVILLE PSAR SUPPLEMENT 4
ARKANSAS POWER + LIGHT COMPANY
160 PAGES, FIGURES, TABLES, JUNE 5, 1968, DOCKET NO. 50-313

PROVIDES REVISED PSAR PAGES AND ANSWERS TO DRL QUESTIONS OF MAY 6, 1968.

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

*AEC QUESTION + REACTOR, PWR + REPORT, PSAR + RUSSELLVILLE (PWR)

18-26090
SEFOR AMENDMENT 15
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26090 *CONTINUED*
6 PAGES, LETTER TO P.A. MORRIS FROM B.D. WILSON, MAY 17, 1968, DOCKET NO. 50-231

REQUESTS PERMISSION PRIOR TO OPERATING LICENSE TO INSERT NO MORE THAN 6 FUEL RODS (LESS THAN 1/3 A CRITICAL MASS) IN THE AIR-FILLED REACTOR VESSEL TO CHECK CORE-CHANNEL ALIGNMENT. PROCEDURE INCLUDED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*FUEL HANDLING + FUEL ELEMENT + REACTOR, LMCR + REPORT, SAR + SEFOR (RE)

18-26097
POINT BEACH AMENDMENT 3
WISCONSIN ELECTRIC POWER COMPANY, MILWAUKEE, WISCONSIN
21 PAGES, FIGURES, TABLES, OF THE WISCONSIN ELECTRIC POWER COMPANY ANNUAL REPORT FOR 1967, DOCKET NO. 50-301, TYPE--PWR, MFG--WEST., AE--BECHTEL

NOTES CHANGES IN CORPORATE OFFICERS SINCE DEC. 1967 AMENDMENT 2, AND PROVIDES 1967 ANNUAL REPORTS FOR WISCONSIN ELECTRIC POWER CO. AND WISCONSIN-MICHIGAN POWER CO.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

POINT BEACH 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-26100
FORT ST. VRAIN - AMENDMENT 12
PUBLIC SERVICE COMPANY OF COLORADO
5 PAGES, AMENDMENT NO. 12 TO APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR CONSTRUCTION PERMIT AND CLASS 104 LICENSE FOR THE FORT ST. VRAIN NUCLEAR GENERATING STATION, MAY 1967, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

PROVIDES A COPY OF THE 1967 ANNUAL REPORT FOR PUBLIC SERVICE COMPANY OF COLORADO, PLUS A LIST OF PRINCIPAL OFFICERS.

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

FT. ST. VRAIN (HTGR) + REACTOR, HTGR + REPORT, PSAR

18-26102 ALSO IN CATEGORY 7
ATTACHMENT C, ADDITION OF SILICON CARBIDE LAYER TO FUEL PARTICLE COATINGS
PUBLIC SERVICE COMPANY OF COLORADO
9 PAGES, PAGES C-1 THRU C-9 OF AMENDMENT 9 TO THE FORT ST. VRAIN CONSTRUCTION PERMIT APPLICATION, JANUARY 19L,, DOCKET 506867, TYPE--HTGR, MFG--G.A., AE--G.A.

SILICON CARBIDE IS SUPERIOR TO PYROLYTIC CARBON AS BARRIER TO TRANSMISSION OF METALLIC FISSION PRODUCTS SR, BA, CS, CE, RB, EU, AND SM, ENHANCING INHERENT SAFETY AND MAINTAINABILITY OF REACTOR. ATTACHMENT DISCUSSES ENHANCEMENT OF RETENTION CHARACTERISTICS, CHANGES IN FUEL-PARTICLE PARAMETERS, EFFECT ON CORE NUCLEAR CHARACTERISTICS, EFFECT ON NUCLEAR DESIGN AND ACCIDENT ANALYSIS, SHUTDOWN-MARGIN CHANGES, REDUCTION IN COOLANT-BORNE ACTIVITY LEVEL, EFFECT ON REACTIVITY ACCIDENTS, TRANSIENT RESPONSE, MCA, MHA. PRESENTS REVISED ANSWER TO AEC QUESTIONS III.12 (POTENTIALLY RELEASABLE ACTIVITY DUE TO SUDDEN DEPRESSURIZATION), IX.16, AND IX.17 (DOSE DOSES FROM PLATEOUT AND PRIMARY-COOLANT-ACTIVITY RELEASE).

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

*CARBIDE + *COATED PARTICLE + *DESIGN STUDY + *FISSION PRODUCT RETENTION + *FUEL, PELLET TYPE + *SILICON + ACCIDENT ANALYSIS + ACCIDENT, HYPOTHETICAL + ACCIDENT, MAXIMUM CREDIBLE (MCA) + COATING + DOSE + DOSE CALCULATION, INTERNAL + FISSION PRODUCT RELEASE, GENERAL + FT. ST. VRAIN (HTGR) + OFF SITE + REACTIVITY EFFECT + REACTOR TRANSIENT + REACTOR, HTGR + REPORT, PSAR + SHUTDOWN MARGIN

18-26111
ATTACHMENT E - INFORMATION RELATED TO OPERATION AT 879 MWT
PUBLIC SERVICE COMPANY OF COLORADO
23 PAGES, PAGES E-1 THRU E-23 OF AMENDMENT 9 TO THE FT. ST. VRAIN CONSTRUCTION PERMIT APPLICATION, JANUARY 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

INFORMATION SUPPORTS APPLICATION FOR PLANT INITIALLY LICENSED FOR OPERATION AT 842 MWT AND WITH ULTIMATE CAPABILITY FOR OPERATION AT 879. PROVIDES INFORMATION PROMISED IN ANSWER I.1, REV. 1, AMENDMENT 8, GIVING EFFECT OF 879 MW ULTIMATE POWER LEVEL (INSTEAD OF 842 INITIAL OPERATION LEVEL) ON (1) EFFECT ON CONSEQUENCES OF ACCIDENTS, (2) ACTIVITY, (2) ACTIVITY INVENTORY, (3) ENGINEERED SAFEGUARDS, (4) NORMAL OPERATION PARAMETERS. SIC COATING WOULD BE EXPECTED TO DECREASE BONE DOSE BY A FACTOR OF 2, BUT CREDIT NOT TAKEN.

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

*DESIGN STUDY + *POWER UPRATING + DOSE + ENGINEERED SAFETY FEATURE + FISSION PRODUCT ACTIVITY, GROSS +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26111 *CONTINUED*
FT. ST. VRAIN (HTGR) + OFF SITE + OPERATION + REACTOR POWER + REACTOR, HTGR + REPORT, PSAR

18-26112 ALSO IN CATEGORY 11
AMENDMENT 2 TO NC STATE PULSTAR PSAR
NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA
29 PAGES, 8 FIGURES, FROM THE N.C.S.U. PULSTAR SAFETY ANALYSIS REPORT, DOCKET NO. 50-297

AMENDMENT 2 CONSISTS OF ADDITIONS AND CHANGES TO PSAR AS A RESULT OF COMPLETION OF DETAILED DESIGN. AMENDMENT 2 TRANSMITS (BUT DOES NOT INCLUDE) SUPPLEMENTS 1 AND 2 AS REPLIES TO DRL QUESTIONS OF FEB. 20 AND APRIL 11, 1968. ***MAJOR CHANGE APPEARS TO BE IN SECT. 5.3 (CONFINEMENT VENTILATION SYSTEM).

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

*CONTAINMENT, PRESSURE VENTING + AEC QUESTION + PULSTAR (RR) + REACTOR, PULSED + REACTOR, RESEARCH + REPORT, PSAR

18-26298
MODIFICATIONS AND ORGANIZATIONAL CHANGES AT UNIV. OF OKLAHOMA AGN REACTOR
UNIVERSITY OF OKLAHOMA, NORMAN, OKLAHOMA
3 PAGES, LETTER TO D.S. SKOVHOLT FROM D.M. ELLIOTT, JUNE 10, 1968, DOCKET NO. 50-112

REPORTS ORGANIZATIONAL CHANGES SINCE JULY 1, 1967. REACTOR HAS BEEN SHUT DOWN SINCE NOV. 1967. POWER CHANNELS AND SCRAM SYSTEM ARE BEING MODIFIED. CHANGES AND MODIFICATIONS TO BE PERFORMED AS PER 10 CFR 50.59 AND REPORTED IN NEXT ANNUAL REPORT.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR SAFETY SYSTEM + AGN (TNG) + INSTRUMENTATION, POWER RANGE + REACTOR, TRAINING + STAFFING, TRAINING, QUALIFICATION

18-26299
SUMMARY OF CHANGES, TESTS, AND EXPERIMENTS IN NTR FOR 1967
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
6 PAGES, LETTER TO P.A. MORRIS FROM B.D. WILSON, MARCH 25, 1968, DOCKET NO. 50-73

MODIFICATIONS INCLUDE (1) PERSONNEL SHIELD INSTALLED ON INSIDE FACE OF REACTOR CELL, (2) KEEPER RING ADDED ON INSTRUMENT THIMBLE TO PREVENT EJECTION, (3) SUPPORT REEL INSTALLED ON NORTH CELL WALL FOR RADIOGRAPHY OF INSTRUMENTED CAPSULES, (4) STAND PIPE AND VENT LINE INSTALLED ON SECONDARY SIDE OF HEAT EXCHANGES, (5) ENERGY-ABSORBING SHIELD WAS INSTALLED BETWEEN BIOLOGICAL SHIELD END REACTOR THERMAL COLUMN, (6) ORGANIZATIONAL CHANGES, (7) 3-IN. HOLE IN THERMAL COLUMN ENLARGED TO 5 IN., AND (8) COMPUTER NOW USED TO INITIATE AND RECORD ROUTINE PREVENTIVE MAINTENANCE AND CHECKS. TESTS AND EXPERIMENTS ALSO DISCUSSED.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*MODIFICATION, SYSTEM OR EQUIPMENT + EXPERIMENT, GENERAL + HEAT EXCHANGER + MAINTENANCE AND REPAIR + REACTOR, RESEARCH + SHIELDING

18-26304 ALSO IN CATEGORY 17
PROBLEMS OF THE PEBBLE-BED CORE
4 PAGES, 8 FIGURES, 4 REFERENCES, NUCLEAR ENGINEERING, 13(144), PAGES 432-435, (MAY, 1968)

DISCUSSES PAPERS PRESENTED AT SYMPOSIUM. THE PRACTICALITY OF DESIGN CONCEPT IS BELIEVED TO HAVE BEEN PROVED BY THE FIRST TWO MONTHS OPERATION OF THE 15-MWE AVR IN JULICH. ALTHOUGH THE FUEL BALLS HAVE AVERAGE VELOCITY OF 1 MM/HR, THE CORE MAY BE CONSIDERED TO BE SOLID BED OF GRANULAR MATERIAL. PROBLEM OF BALLS BLOCKING OUTLET OF CONICAL EXIT HAS BEEN AVOIDED. SESSION ON FLOW BEHAVIOR DISCUSSED OBSERVATIONS OF AN ORDERED REGION OF STACKING IN VICINITY OF SMOOTH WALLS. A MATHEMATICAL MODEL FOR FLOW BEHAVIOR IS DISCUSSED IN DETAIL.

*COATED PARTICLE + *FUEL BURNUP + *MATHEMATICAL TREATMENT + ANALYTICAL MODEL + DESIGN STUDY + REACTOR, HTGR + REACTOR, PEBBLE BED + REVIEW + UNITED KINGDOM

18-26499 ALSO IN CATEGORY 2
SIERRA CLUB RECONSIDERS DIABLO CANYON SITE
PACIFIC GAS + ELECTRIC CO.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(28), PAGE 16 AND 17, (JULY 8, 1968), DOCKET NO. 50-275, TYPE--PWR, MFG--WEST., AE--PG+E

(LETTER, JUNE 22) REVISION OF CLUBS ACTION WILL HAVE PRIORITY ON THE NEXT BOARD MEETING. OUR STUDIES INDICATE THAT ADVERSE MARINE EFFECTS ARE INEVITABLE. CONSTRUCTION PROGRESS INDICATES THAT MAJOR SCENIC-RESOURCE IMPAIRMENT IS ALSO INEVITABLE. WE PROPOSE THAT PG AND E DEFER FURTHER SITE ACTIVITY WHILE RECONSIDERING. WE ALSO REQUEST PERMISSION TO GO ON THE SITE FOR PHOTOGRAPHS AND FOR OUR NUCLEAR ENGINEER (LAURENCE MOSS) TO CONTINUE REVIEWING ECONOMIC AND

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26499 *CONTINUED*
ENGINEERING DATA. NO UTILITY HAS PLANNED MORE DYNAMICALLY THAN PG AND E FOR POPULATION GROWTH, AND WITH GENIUS, BUT WE BELIEVE IT IS WORTH PAYING EXTRA TO KEEP CALIFORNIA BEAUTIFUL AND LIVABLE.

*RADIATION, PUBLIC EDUCATION/ACCEPTANCE + *SITING, REACTOR + DIABLO CANYON (PWR) + REACTOR, PWR

18-26503
ANNUAL RADIATION AND CONTAMINATION SHUTDOWN REPORT FOR RETIRED WTR AREA
WESTINGHOUSE ELECTRIC CORPORATION
6 PAGES, 4 TABLES, LETTER TO P. A. MORRIS FROM K. R. SCHENDEL, ANNUAL REPORT DRL TO RETIRED STATUS, DOCKET 50-22.

TABLE OF RADIATION AND CONTAMINATION LEVELS GIVEN. STATUS REMAINS SAME AS DESCRIBED IN LAST REPORT.

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

*CONTAMINATION + *SURVEY, RADIATION, GENERAL + RADIATION SAFETY AND CONTROL + REACTOR DECOMMISSIONING + REACTOR, TEST + WTR (TR)

18-26504
ANNUAL REPORT OF CHANGES TO PAWLING LATTICE TEST RIG
UNITED NUCLEAR CORPORATION
3 PAGES, 1 FIGURE, LETTER TO D. J. SKOVHOLT FROM J. KARP, LETTER TO DRL, DOCKET 50-101.

CHANGES INCLUDED (1) PIPING CHANGE TO ALLOW PUMPING WATER FROM STORAGE DRUMS TO POISON-RETAINER TANK, (2) ADDING INTERLOCK SYSTEM TO ALLOW OPERATION OF PROOF-TEST FACILITY (DOCKET 50-290), (3) CHANGES IN SCRAM CIRCUITRY, AND (4) CHANGES IN PROCEDURES.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + PIPING + PROCEDURES AND MANUALS + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + SHUTDOWN SYSTEM, SECONDARY

18-26505 ALSO IN CATEGORY 11
VENTILATION SYSTEM MODIFICATION
DIVISION OF REACTOR LICENSING, AEC
8 PAGES, LETTER TO M. J. LYDON FROM D. J. SKOVHOLT, AMENDMENT 1 TO CONSTRUCTION PERMIT OF LOWELL TECH. INSTITUTE, DOCKET 50-223.

SAFETY EVALUATION AND AUTHORIZATION GIVEN FOR (1) ELIMINATION OF THE 2500-CU.FT AIR TRAP BETWEEN ISOLATION AND EXHAUST VALVES, (2) REPLACING COUNTER-WEIGHTED BY PASS DAMPER ON MAIN VENTILATION SYSTEM WITH AN AUTOMATIC, ELECTRICALLY OPERATED, BUTTERFLY VALVE, AND (3) ELIMINATE BATTERY BANK THAT WOULD OPERATE EMERGENCY EXHAUST FAN IN EVENT OF FAILURE OF BOTH PUBLIC AND EMERGENCY POWER.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *VENTILATION SYSTEM + CONTAINMENT PENETRATION, CLOSURE OF + ELECTRIC POWER, VITAL + REACTOR, RESEARCH + SAFETY EVALUATION + VALVE

18-26506 ALSO IN CATEGORY 12
POST LOSS OF COOLANT ACCIDENT PROTECTION
COMMONWEALTH EDISON COMPANY
2 PAGES, OF AMENDMENT 9 TO ZION 1 AND 2 APPLICATION FOR CONSTRUCTION PERMIT, DOCKET 50-295 AND 304. JUNE 12, 1968, TYPE--PWR, MFG--WEST.,AE--SGT + LUNDY

CONSISTS OF NEW PAGES FOR PSAR, PROVIDING CONCEPTUAL DESCRIPTION OF AN ADDITIONAL SAFEGUARD (POST LOSS-OF-COOLANT ACCIDENT PROTECTION PREVIOUSLY DISCUSSED WITH ACRS). SYSTEM ENSURES PRESERVATION OF CORE HEAT-TRANSFER GEOMETRY IF FUTURE DEVELOPMENTS SHOW ECCS OPERATION COULD RESULT IN UNACCEPTABLE THERMAL SHOCK TO REACTOR VESSEL. PLANT DESIGN TO BE SUCH THAT INSTALLATION CAN BE MADE AT LATER DATE. CONSISTS OF STANDPIPE OVER INSTRUMENT PASSAGEWAY TO RETURN WATER IN CAVITY TO LEVEL ABOVE CORE, TANKS, PIPING PUMPS, ETC., TO PUMP WATER FROM CONTAINMENT FLOOR TO CAVITY, AND REDUNDANT PUMPING EQUIPMENT FOR PUMPING FROM REFUELING WATER STORAGE TANK TO HOT LEGS OF COOLANT LOOP.

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

*CORE REFLOODING SYSTEM + *SHUTDOWN COOLING SYSTEM + *SYSTEM DESCRIPTION + ACCIDENT, LOSS OF COOLANT + ACRS + COOLING, SHUTDOWN + ENGINEERED SAFETY FEATURE + PRESSURE VESSEL + REACTOR, PWR + REPORT, PSAR + THERMAL MECHANICAL EFFECT + ZION 1 AND 2 (PWR)

18-26507
REVISIONS TO ADMINISTRATIVE REQUIREMENTS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26507 *CONTINUED*
DIVISION OF REACTOR LICENSING, AEC
5 PAGES, LETTER TO B.D. WILSON FROM P.A. MORRIS, JUNE 7, 1968, DOCKET NO. 50-70, TYPE--TR, MFG--G.E., AE--G.E.

ADMINISTRATIVE REQUIREMENTS EXPANDED TO INDICATE (1) ACTIVITIES SHALL BE UNDER DIRECTION OF A FACILITY MANAGER, (2) REVIEW AND AUDIT FUNCTIONS TO BE PERFORMED BY QUALIFIED PEOPLE (LISTS MATTERS REQUIRING REVIEW), (3) LISTS PROCEDURES AND CHECKOFF LISTS REQUIRED, AND (4) ACTIONS TO BE TAKEN IN EVENT OF ABNORMAL OCCURRENCE.

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

*ADMINISTRATIVE CONTROL + *TECHNICAL SPECIFICATIONS + GETR (TR) + PROCEDURES AND MANUALS + REACTOR, TEST

18-26534 ALSO IN CATEGORY 5
TUPPENY WH + SIDDALL WF + HSU LC
THERMAL SHOCK ANALYSIS ON REACTOR VESSELS DUE TO EMERGENCY CORE COOLING SYSTEM OPERATION
COMBUSTION ENGINEERING, INC., WINDSOR, CONN.
A-68-9-1 +. 70 PAGES, FIGURES, 30 REFERENCES, MARCH 15, 1968, DOCKET 50-309, TYPE--PWR, MFG.--CE, AE--STONE + WEBSTER

EVALUATION OF STRUCTURAL ADEQUACY OF REACTOR PRESSURE VESSELS TO SUSTAIN THERMAL SHOCK AS RESULT OF ECCS INJECTING COLD WATER INTO VESSEL TO KEEP CORE COVERED AFTER RUPTURE OF REACTOR COOLANT PIPE. REPORT OFFERS THE FOLLOWING - (1) HEAT-TRANSFER ANALYSIS TO ESTABLISH TIME-DEPENDENT METAL TEMPERATURE DISTRIBUTIONS IN VESSEL, (2) ANALYSIS OF MECHANICAL, SEISMIC, RESIDUAL, AND TRANSIENT THERMAL STRESSES, (3) FAILURE STUDY(CONSIDERING FRACTURE MECHANICS ANALYSIS AND NDT TEMPERATURE APPROACH), DUCTILE YIELDING, AND FATIGUE-DAMAGE INCREMENTS. EVIDENCE INDICATES REACTOR VESSEL IS CAPABLE OF SUSTAINING THERMAL SHOCK IMPOSED BY OPERATION OF ECCS. IRWIN MODEL ANALYSIS INDICATES FLAW SIZES 10% OF WALL THICKNESS DO NOT LEAD TO CATASTROPHIC FAILURE.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM, WASHINGTON

*ACCIDENT, LOSS OF COOLANT + *PRESSURE VESSEL + *STRESS ANALYSIS + *THERMAL MECHANICAL EFFECT + BIBLIOGRAPHY + CORE REFLOODING SYSTEM + EARTHQUAKE ENGINEERING + EMERGENCY COOLING CONSIDERATIONS + HEAT TRANSFER ANALYSIS + MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + REACTOR, PWR + TEMPERATURE GRADIENT + TEMPERATURE TRANSIENT

18-26538
MORE INFORMATION NEEDED ON COOK
USAEC, DIVISION OF REACTOR LICENSING
9 PAGES, LETTER TO JOHN TILLINGHAST FROM P. A. MORRIS, MAY 21, 1968, DOCKET 50-315/316

AS DISCUSSED ON APRIL 23, SPECIFIC INFORMATION NEEDS ARE IN 65 QUESTIONS APPENDED. A SEPARATE QUESTION LIST WILL BE SENT SOON ON STRUCTURAL DESIGN AND ON THE ICE CONDENSER CONTAINMENT.

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

*AEC QUESTION + COOK 1 AND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-26539
MORE INFORMATION NEEDED ON GINNA
USAEC, DIVISION OF REACTOR LICENSING
8 PAGES, LETTER TO F. E. DRAKE FROM P. A. MORRIS, MAY 10, 1968, DOCKET 50-244, TYPE--PWR, MFG.--WEST, AE--GILBERT ASSOC.

THE FSAR DATED JAN. 18, 1968, DOES NOT MEET OUR REQUIREMENTS IN 10 CFR 50 AND ELSEWHERE. AT CONSTRUCTION-PERMIT STAGE YOU INDICATED CRITERIA TO WHICH PLANT WOULD BE DESIGNED BUT HAVE NOT YET SHOWN THEY ARE MET. R AND D DISCUSSION IS INCOMPLETE. ACRS QUESTIONS SHOULD BE GIVEN FULL AND COMPLETE ANSWERS. ENOUGH INFORMATION SHOULD BE AVAILABLE AT MAY 16 MEETING TO EVALUATE TECHNICAL-SPECIFICATION CONTENTS AND MARGIN OF SAFETY. ***60 QUESTIONS INCLUDED.

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

*AEC QUESTION + DESIGN CRITERIA + GINNA (PWR) + REACTOR, PWR + REPORT, SAR + TECHNICAL SPECIFICATIONS

18-26540 ALSO IN CATEGORY 6
STEVENS DW
A STATISTICAL ANALYSIS OF THE EFFECTS OF REGIONAL FUEL LOADING TOLERANCES ON FLUX TILTING IN THE FORT ST. VRAIN HTGR
GULF GENERAL ATOMIC, INC., SAN DIEGO, CALIF.
GA-8115 +. 66 PAGES, FIGURES, TABLES, 2 REFERENCES, DECEMBER 15, 1967

ONE FUEL-LOADING TOLERANCE IS +- 1% OF TOTAL U AND TH LOADS IN A REFUELING REGION. STATISTICAL STUDY WAS CONDUCTED TO DETERMINE FUEL UNIFORMITY REQUIREMENTS AND NEUTRONIC CONSEQUENCES (IN TERMS OF FLUX TILTING) OF FUEL DISTRIBUTION JUST MEETING THESE RESTRICTIONS. NORMAL FUEL DISTRIBUTION WITH STANDARD DEVIATION OF 0.2% FOR BOTH U AND TH GIVES PROBABILITY OF LESS THAN 0.001 FOR MAXIMUM FLUX TILT TO EXCEED 2.25%. TECHNIQUES USED - (1) SETTING

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26540 *CONTINUED*
VALUE OF X AND DETERMINING PROBABILITY FUEL REGION EXCEEDS CERTAIN % U FOR VARIOUS SIGMA VALUES, (2) DETERMINING PROBABILITIES FOR ALL POSSIBLE COMBINATIONS OF DEFECTIVE (DEFECT EQUALS LOADING GREATER THAN X%) AND ACCEPTABLE REGIONS, (3) U AND TH REGIONAL LOADINGS WERE SIMULATED BY MEANS OF MONTE CARLO TECHNIQUE.

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

*FLUX TILT + *MATHEMATICAL TREATMENT + *STATISTICAL ANALYSIS + ANALYTICAL MODEL + FAILURE, FABRICATION ERROR + FT. ST. VRAIN (HTGR) + FUEL ELEMENT + MONTE CARLO + REACTOR, HTGR

18-26543
HABUSH AL + HARRIS AM
330-MWE FORT ST. VRAIN HIGH-TEMPERATURE GAS-COOLED REACTOR
GULF GENERAL ATOMIC, INC., SAN DIEGO
10 PAGES, 8 FIGURES, NUCLEAR ENGINEERING AND DESIGN 7(4), PAGES 312-324 (APRIL 1968)

DESCRIBES PRINCIPAL DESIGN FEATURES. REACTOR WILL USE SAME PRINCIPLES AS PEACH BOTTOM-1 HTGR (HELIUM COOLANT, GRAPHITE AS FUEL-ELEMENT STRUCTURAL MATERIAL, MODERATOR, AND REFLECTOR, AND U-TH FUEL CYCLE). NEW DESIGN FEATURES ARE - PRESTRESSED-CONCRETE REACTOR VESSEL, ONCE-THROUGH MODULAR STEAM GENERATORS, STEAM-DRIVEN AXIAL-FLOW HELIUM CIRCULATORS, AND HEXAGONAL GRAPHITE FUEL ELEMENTS INCORPORATING IMPROVED CARBON-COATED PARTICLES.

*REACTOR DESCRIPTION + CONCRETE, PRESTRESSED + FT. ST. VRAIN (HTGR) + MAINE YANKEE (PWR) + PRESSURE VESSEL + REACTOR, HTGR

18-26544
KERSTING W
CONCEPTUAL STUDY FOR A HIGH-TEMPERATURE PEBBLE-BED REACTOR OF 1200 MWE
KERNFORSCHUNGSANLAGE, KARLSHRUE
22 PAGES, 13 FIGURES, 2 TABLES, 6 REFERENCES, NUCLEAR ENGINEERING AND DESIGN 7(4), PAGES 345-366 (APRIL 1966)

(IN GERMAN) DESIGN STUDY BASED ON AVR EXPERIMENTAL POWER REACTOR AND 300-MWE PROTOTYPE THORIUM HIGH-TEMPERATURE REACTOR. STEP FROM 300 TO 1200 MWE TAKES ADVANTAGE OF LOWER UNIT COSTS OF PRESTRESSED-CONCRETE REACTOR VESSEL (PCRV) AND SCALED-UP COMPONENTS. POWER STATION COST EVALUATED. GIVES CORE DESIGN AND CONSTRUCTION - TECHNOLOGY AND THERMAL BEHAVIOR OF SPHERICAL FUEL ELEMENT, PEBBLE BED, POSSIBLE FUEL CYCLES, FUEL-ELEMENT CHARGING AND TREATMENT, CORE STRUCTURE, SHUTDOWN AND CONTROL FACILITIES. DESCRIBES PCRV DESIGN WITH INSULATED AND WATER-COOLED LINER, ETC. ALSO SHOWS COOLING CIRCUIT WITH DETAILS OF COMPONENTS.

*REACTOR DESCRIPTION + GERMANY + REACTOR, HTGR + REACTOR, PEBBLE BED

18-26573
SURRY 1 AND 2 RECEIVE CONSTRUCTION PERMIT
VIRGINIA ELECTRIC AND POWER COMPANY
6 PAGES, CONSTRUCTION PERMITS CPPR-43 AND -44 FROM LETTER TO STANLEY RAGONE FROM P. A. MORRIS. DOCKET 50-280 AND 281. TYPE--PWR, MFG--WEST., STONE + WEBSTER. JUNE 25, 1968.

ALLOWS CONSTRUCTION OF TWO 2441-MWTH PWRS LOCATED NW OF NEWPORT NEWS, VA.

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

*CONSTRUCTION PERMIT PROCESS + REACTOR, PWR + SURRY 1 AND 2 (PWR)

18-26581 ALSO IN CATEGORY 1
TENTH ANNUAL REPORT, 1965-1966
ATOMIC ENERGY COMMISSION, TOKYO, JAPAN
NP-17017 +. 110 PAGES

PROGRESS REPORT. TOPICS - DEVELOPMENT AND UTILIZATION OF NUCLEAR REACTORS, FUEL DEVELOPMENT, APPLICATION OF RADIATION, GENERAL SAFETY MEASURES, ENVIRONMENTAL RADIOACTIVITY, INTERNATIONAL COOPERATION, AND TRAINING.

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

*JAPAN + *R AND D PROGRAM + FUEL ELEMENT + IRRADIATION TESTING + SAFETY PRINCIPLES AND PHILOSOPHY + STAFFING, TRAINING, QUALIFICATION

18-26596
PELASTERER GR
SOUTHWEST EXPERIMENTAL FAST OXIDE REACTOR DEVELOPMENT PROGRAM. FOURTEENTH QUARTERLY REPORT, AUGUST-OCTOBER 1967.
GENERAL ELECTRIC COMPANY, SUNNYVALE, CALIFORNIA, ADVANCED PRODUCTS OPERATION

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-26596 *CONTINUED*
GEAP-5561 +. 29 PAGES, 7 FIGURES, REFERENCES, NOVEMBER, 1967

PROGRESS REPORTED ON ACQUISITION OF INSTRUMENTS, FUEL FABRICATION, PLANT CONSTRUCTION, AND TRAINING.

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

*R AND D PROGRAM + FABRICATION + FUEL ELEMENT + REACTOR, LMCR + SEFOR (RE) + SODIUM + STAFFING, TRAINING, QUALIFICATION

18-26598
MUYSKEN M
NERO DEVELOPMENT PROGRAMME
REACTOR CENTRUM NEDERLAND, (THE HAGUE)
EUR-3647E +. 17 PAGES, ANNUAL REPORT, 1967

DISCUSSES DESIGN PROGRAM FOR MARINE-PROPULSION PWR. DESIGN WAS CHANGED TO INCORPORATE ROD-CLUSTER CONTROL. PREPARATION OF FUEL PELLETS WITH POISON PARTICLES AND CORROSION MEASUREMENTS CONTINUED. MODELS FOR STRESS MEASUREMENTS ON REACTOR COMPONENTS ARE BEING FABRICATED.

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

*R AND D PROGRAM + *REACTOR, MARITIME + CONTROL ROD + CORE COMPONENTS + DESIGN CRITERIA + FABRICATION + FUEL, PELLET TYPE + MEASUREMENT, GENERAL + NETHERLANDS + POISON, BURNABLE + REACTOR, PWR + STRESS

18-26767 ALSO IN CATEGORY 5
CALVERT CLIFFS AMENDMENT 1
BALTIMORE GAS AND ELECTRIC CORPORATION
165 PAGES. APRIL 17, 1968. DOCKET 50-317 AND 50-318.

PROVIDES REVISED PAGES WITH MINOR CORRECTIONS AND CHANGES. COMPLETELY REPLACED IS APPENDIX 3A (ABILITY OF FUEL TO WITHSTAND EXPECTED TRANSIENTS TOWARD THE END OF THE ANTICIPATED LIFETIME, PG 3A-1 THRU -9) AND APPENDIX 3B (REACTOR THERMAL HYDRAULICS SUPPLEMENTARY DATA, PG 3B-1 THRU -4, PLUS 6 FIGURES).

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

*FUEL ELEMENT + *PERFORMANCE LIMIT + *POWER DISTRIBUTION + CALVERT CLIFFS (PWR) + DNB + FUEL BURNUP + HOT CHANNEL FACTOR + IRRADIATION TESTING + REACTOR, PWR + REPORT, PSAR

18-27097
SHOREHAM PSAR VOL III
LONG ISLAND LIGHTING CO.
370 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, VOL. III, MAY 15, 1968, DOCKET NO. 50-322

INCLUDES SECTION VIII - ELECTRICAL POWER (TWO 2.85-MWE DIESEL GENERATORS), IX - RAD-WASTE (TURBINE OFF-GAS WILL BE RECOMBINED, PASSED THRU 8-HR DECAY TANKS, AND DISCHARGED OUT TURBINE-BLDG. VENT FANS. IN CASE OF AN ACCIDENT, TANKS WILL HOLD 4-DAY AIR SUPPLY, NO STACK), X - AUXILIARY SYSTEMS (CHARCOAL ADSORBERS IMPREGNATED WITH KI), XI - POWER CONVERSION, XII - STRUCTURES AND SHIELDING, AND XIV - SAFETY AND ACCIDENT ANALYSIS. WIND-TUNNEL TESTS ON DOWNWASH EFFECT ON OFF-GAS. OFF-SITE DOSES ARE BELOW 10 CFR 100 CRITERIA.

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

*CHARCOAL ADSORBER + *DOWNWASH + *REPORT, PSAR + ADDITIVE + IODIDE + POTASSIUM + REACTOR, BWR + SHOREHAM (BWR) + STACK + WIND TUNNEL EXPERIMENT

18-27098 ALSO IN CATEGORIES 11 AND 5
SHOREHAM PSAR VOL IV
LONG ISLAND LIGHTING CO.
320 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES THE FOLLOWING APPENDICES - (A) CONSULTANTS REPORTS ON SEISMIC ANALYSES (GROUND RESPONSE, MODAL ANALYSIS OF CONTAINMENT STRUCTURE), (B) CORE THERMAL DESIGN (THERMAL MARGIN, MCHFR SENSITIVITY TO VARIOUS ASSUMPTIONS), (C) CONTROL-ROD-DRIVE DESCRIPTION, (D) JET-PUMP DEVELOPMENT PROGRAM, (E) CORE-SPRAY COOLING TEST PROGRAM, (F) PROPOSED OUTLINE OF TECHNICAL SPECIFICATIONS, AND (G) AEC GENERAL DESIGN CRITERIA COMPARISON (A LIST OF APPROPRIATE PSAR SECTIONS).

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-27098 *CONTINUED*
22151, $3.00 COPY, $0.65 MICROFICHE

*AEC DESIGN CRITERIA + *ERROR ANALYSIS + *HEAT FLUX, CRITICAL + *STRUCTURAL ANALYSIS, DYNAMIC + EARTHQUAKE ENGINEERING + REACTOR, BWR + REPORT, PSAR + SHOREHAM (BWR)

18-27099
SHOREHAM PSAR VOL I
LONG ISLAND LIGHTING CO.
425 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES CHAP. I - INTRODUCTION, II - SITE AND ENVIRONS (INCLUDES SUMMARIES OF BNL METEOROLOGY AND ENVIRONMENTAL MONITORING PROGRAMS); III - REACTOR CORE, AND IV - REACTOR COOLANT SYSTEM (TWO RECIRCULATION PUMPS AND 16 JET PUMPS).

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

*METEOROLOGY + *MONITORING PROGRAM, ENVIRONMENTAL + *REPORT, PSAR + POPULATION DISTRIBUTION + REACTOR, BWR + SHOREHAM (BWR)

18-27100 ALSO IN CATEGORIES 11 AND 12
SHOREHAM PSAR VOL II
LONG ISLAND LIGHTING CO.
375 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, PRELIMINARY SAFETY ANALYSIS REPORT, MAY 15, 1968, DOCKET NO. 50-322

PROVIDES CHAP. V - CONTAINMENT, VI - ENGINEERED SAFEGUARDS, AND VII - INSTRUMENTATION AND CONTROL. PRESSURE-SUPPRESSION CONTAINMENT IS NOW IN THE SHAPE OF AN INVERTED CONE (INSTEAD OF LIGHT BULB) OF REINFORCED CONCRETE, WITH THE POOL BEING IN THE ENTIRE BASE. COMPUTER CODE LOCTVS USED IN PRESSURE TRANSIENT DESIGN. CONTAINMENT CAN BE FLOODED ABOVE REACTOR CORE AFTER LOSS OF COOLANT. PLANT STABILITY ANALYSIS SYNOPSIZED (FOR COOLANT CHANNEL HYDRODYNAMICS, REACTIVITY, SPATIAL XENON, AND TOTAL SYSTEM). TURBINE BYPASS VALVES WILL PASS 25% OF FULL FLOW. A LOAD REJECTION WILL CAUSE A SCRAM.

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

*BYPASS + *COMPUTER PROGRAM + *CONTAINMENT, PRESSURE SUPPRESSION + *PRESSURE TRANSIENT + *REPORT, PSAR + *TURBINE + ACCIDENT, LOAD REJECTION + REACTOR STABILITY + REACTOR, BWR + SHOREHAM (BWR) + XENON OSCILLATION

18-27101
SHOREHAM LICENSE APPLICATION
LONG ISLAND LIGHTING COMPANY
37 PAGES, FIGURES, TABLES, SHOREHAM NUCLEAR POWER STATION, MAY 15, 1968, DOCKET NO. 50-322

1593-MWTH/553-MWE (GROSS) BWR LOCATED ON NORTH SHORE OF LONG ISLAND, 48 MILES FROM QUEENS, IN THE TOWN OF BROOKHAVEN (SUFFOLK COUNTY). APPLIES FOR A CONSTRUCTION PERMIT, CLASS-104 FORTY-YEAR OPERATING LICENSE, SPECIAL AND BY-PRODUCT MATERIALS LICENSES. PROJECT (COST $127 MILLION) WILL CARRY NEPIA, MAERP, AND OTHER INSURANCE. LILCO HAS PARTICIPATED IN BNL PROJECTS APDA, PRDC, AND ESADA. 1967 ANNUAL REPORT INCLUDED.

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

*APPLICATION FOR AEC LICENSE + INSURANCE + REACTOR, BWR + SHOREHAM (BWR) + SOURCE MATERIAL + SPECIAL NUCLEAR MATERIAL

18-76502 ALSO IN CATEGORY 5
REQUEST FOR LICENSE AMENDMENT
UNITED NUCLEAR CORPORATION
UNC-5216 +. 39 PAGES, 4 FIGURES, 9 TABLES, FROM AMENDMENT 6 TO LICENSE R-49 OF THE PAWLING LATTICE TEST RIG (PLATR) AND AMENDMENT 3 TO PLATR SAFETY EVALUATION REPORT - OPERATION WITH PUO2-UO2 FUEL, MAY 15, 1968. DOCKET 50-101.

DATA GIVEN TO SUPPORT REQUEST PERMITTING PLATR OPERATION WITH BOTH UO2 AND MIXED FUEL IN CENTRAL AND BUFFER REGIONS TO PERMIT LATTICE MEASUREMENTS FOR CONFIGURATION OF INTEREST TO PU RECYCLE IN THERMAL POWER REACTORS. CONTAINS REQUESTED MODIFICATION OF TECH. SPECS., NUCLEAR CHARACTERISTICS OF FUEL RODS, SAFETY ANALYSIS, AND OBSERVED DATA ON RESTRICTED PU RELEASE. DESIGN ACCIDENT IS A STEP-REACTIVITY INSERTION OF 0.0045 DELTA K/K. PU-RELEASE HAZARD IS MINIMUM. HIGHER PROMPT NEGATIVE DOPPLER EFFECT FROM MIXED FUEL INCREASES SAFETY.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR PHYSICS + *TESTING + ACCIDENT, REACTIVITY + DOPPLER EFFECT + FUEL ELEMENT + FUEL REPROCESSING + PLUTONIUM DIOXIDE + REACTOR, RESEARCH + SAFETY ANALYSIS +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-76502 *CONTINUED*
URANIUM DIOXIDE

CATEGORY 19
BIBLIOGRAPHIES

19-25466
NUCLEAR REACTORS BUILT, BEING BUILT, OR PLANNED IN THE UNITED STATES AS OF DECEMBER 3, 1967. PART 1
OFFICE OF THE ASSISTANT GENERAL MANAGER FOR REACTORS (AEC), WASHINGTON, D.C.
TID -8200 (17TH REV.) +. 34 PAGES, 1967

COMPILATION IS CATEGORIZED BY FUNCTION OR PURPOSE AND INCLUDES CIVILIAN, MILITARY, PRODUCTION, AND EXPORT. CATEGORIES INCLUDE REACTORS FOR POWER, DUAL PURPOSE, EXPERIMENTAL, TEST, RESEARCH, DEVELOPMENTAL, AND PROPULSION. INFORMATION FOR EACH REACTOR INCLUDES NAME, OWNER, LOCATION, CONTRACTOR, TYPE, POWER, AND WHEN OPERATIONAL.

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

*BIBLIOGRAPHY + *REACTOR, GENERAL

19-25589 ALSO IN CATEGORY 15
COATS, GI
RADIONUCLIDE STANDARDIZATION. A BIBLIOGRAPHY, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE
U.S. PUBLIC HEALTH SERVICE
PHS-PUBL-999-RH-25 +. 31 PAGES, 12 REFERENCES, APRIL, 1967

CONTAINS REFERENCES ON ABSOLUTE COUNTING (23), COINCIDENCE TECHNIQUE, FORMULA AND CORRECTIONS (41), CALIBRATION BY BETA AND 4 PI BETA METHODS (89), BETA-GAMMA COINCIDENCE (32), GAMMA-GAMMA COINCIDENCE AND GAMMA COUNTING (27), X-RAY-GAMMA COINCIDENCE (17), ALPHA-GAMMA COINCIDENCE (7), LIQUID SCINTILLATION COUNTERS (14), ION CHAMBERS AND CALORIMETERS (9), COINCIDENCE CIRCUITS (48), DEAD TIME AND STATISTICS (32), THIN FILMS (21), SAMPLE PREPARATIONS, BACK SCATTERING, AND SELF-ABSORPTION (30), MAINTENANCE AND STORAGE OF STANDARDS (9), INTERCOMPARISON OF SOLUTIONS (7), AND GENERAL REFERENCES (12).

AVAILABILITY - PUBLIC INQUIRIES BRANCH, PUBLIC HEALTH SERVICE, U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, WASHINGTON, D. C. 20201

*BIBLIOGRAPHY + *CHAMBER, ION + *INSTRUMENTATION CALIBRATION + *INSTRUMENTATION, COINCIDENT + *STATISTICAL ANALYSIS + COUNTER

19-25831 ALSO IN CATEGORY 17
PAGET JA
A SURVEY OF TECHNICAL CONSIDERATIONS APPLICABLE TO AN ON-LINE REFUELING SYSTEM FOR LARGE HTGR(S)
GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.
GA-8075 +. 167 PAGES, FIGURES, TABLES, JUNE 30, 1967

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