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NUCLEAR SAFETY

A BIMONTHLY REVIEW JOURNAL PREPARED BY NSIC

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

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

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

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JANUARY 1970

OAK RIDGE NATIONAL LABORATORY
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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-360 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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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 - REACTOR

THIS CATEGORY INCLUDES ALL ENGINEERED SAFETY FEATURES OF REACTORS EXCEPT CONTAINMENT. SUCH FEATURES ARE SYSTEMS FOR PRESSURE AND TEMPERATURE REDUCTION, AIR CLEANING, LIQUID WASTE DISPOSAL, AND CORE COOLING. OTHER TOPICS INCLUDE MAINTENANCE, DECONTAMINATION, FUEL-ELEMENT PROTECTIVE DEVICES, ETC.

13. PLANT SAFETY FEATURES - NONREACTOR

THIS CATEGORY DEALS WITH FACILITIES ASSOCIATED WITH THE EXTERNAL FUEL CYCLE AND WITH THE USE OF RADIOACTIVE MATERIAL CREATED BY NUCLEAR FISSION. MAJOR DIVISIONS - MINING, ORE CONVERSION, ENRICHMENT, FUEL ELEMENT FABRICATION, HOT CELLS, FUEL REPROCESSING, FUEL CONVERSION, WASTE DISPOSAL, AND RADIOISOTOPES.

14. RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

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

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

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

16. METEOROLOGICAL CONSIDERATIONS

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

17. OPERATIONAL SAFETY AND EXPERIENCE

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

18. SAFETY ANALYSIS AND DESIGN REPORTS

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

19. BIBLIOGRAPHIES

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

CATEGORY 1
GENERAL SAFETY CRITERIA

1-29575 ALSO IN CATEGORY 18
WIESENACK G
NUCLEAR POWER PLANTS AND VERSATILE NUCLEAR POWER INSTALLATIONS
6 PAGES, VDI (VER. DEUT. ING.) Z., 110 PAGES, 141-6 (FEBRUARY 1968) (IN GERMAN)

A SURVEY OF WORLD NUCLEAR POWER PLANTS AND INSTALLED NUCLEAR POWER IS GIVEN. SAFETY QUESTIONS CONSIDERED BRIEFLY. INSTALLED NUCLEAR POWER CAPACITY THEN DISCUSSED ACCORDING TO COUNTRY (EURATOM, BELGIUM, WEST GERMANY, FRANCE, GREAT BRITAIN, ITALY, JAPAN, AND USA). OTHER COUNTRIES DISCUSSED AS A WHOLE. SHIPBOARD AND SPACE REACTORS DISCUSSED BRIEFLY.

*REACTOR DESCRIPTION + REACTOR, POWER + ECONOMICS

1-29782
CAIRNS J
WE ARE IN HOT WATER
COMMITTEE FOR ENVIRONMENTAL INFORMATION
12 PAGES, FIGURES, 19 REFERENCES, SCIENTIST AND CITIZEN 10(8), PAGES 187-98 (OCTOBER 1968)

IN VIEW OF THE COMPLEX NATURE OF THE HEAT POLLUTION PROBLEM, THE NEED FOR CONSIDERATION OF EXISTING INFORMATION AND THE GATHERING OF NEW INFORMATION—ECOLOGIC, ENGINEERING AND ECONOMIC--IS URGENT. THE HUMAN POPULATION GROWTH RATE MAY HAVE MANY DISASTROUS PRESENT AND FUTURE ENVIRONMENTAL CONSEQUENCES WHICH ARE ALREADY BEYOND OUR CONTROL. HOWEVER, IT IS ALSO POSSIBLE THAT IMMEDIATE ACTION MAY PREVENT FURTHER ECOLOGICAL COLLAPSE AND MAY EVEN MAKE POSSIBLE THE RESTORATION OF ENVIRONMENTAL QUALITY.

*THERMAL POLLUTION + *REACTOR, POWER + *ECOLOGICAL CONSIDERATION + POPULATION EXPOSURE + *AQUATIC ORGANISMS + *WATER POLLUTION + WATER, GENERAL + HYDROLOGICAL CONSIDERATION, GENERAL + *OXYGEN + HEAT TRANSFER ANALYSIS + WASTE DISPOSAL, RIVER + ESTUARY

1-30144 ALSO IN CATEGORIES 5 AND 18
DESCRIPTION AND HAZARD ANALYSIS OF JAPAN RESEARCH REACTOR
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
JAERI-6003 +. 97 PAGES, 83 FIGURES, 36 TABLES, 19 REFERENCES, 1961

GIVES A GENERAL DESCRIPTION OF THE SAFEGUARD ANALYSIS ON THE JAPAN RESEARCH REACTOR NO. 2 (JRR-2), LOCATED AT THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, JAPAN. THE REACTOR IS ESSENTIALLY A HETEROGENEOUS TYPE RESEARCH REACTOR, USING AN ENRICHED-U MTR-TYPE FUEL, MODERATED AND COOLED BY HEAVY WATER. THE TARGET POWER LEVEL AND NEUTRON FLUX ARE 10 MW AND 10 TO THE 14TH N/CM SQUARED/SEC. THE REACTOR IS QUITE SIMILAR TO THE CP-5 AT THE ARGONNE NATIONAL LABORATORY, EXCEPT IN THE FOLLOWING TWO POINTS - (1) THE THERMAL OUTPUT IS DESIGNED TO BE 10 MW, AND (2) THE THERMAL SHIELD EMPLOYS LAMINATED LAYERS OF STAINLESS STEEL AND LIGHT WATER. THE REACTOR IS HOUSED IN A GAS-TIGHT CONTAINMENT BUILDING AND INCORPORATES MANIFOLD SAFETY DEVICES. MOREOVER, AN EMERGENCY COOLING SYSTEM IS PROVIDED TO PREVENT THE FUEL ELEMENTS FROM MELTING DOWN, EVEN IN A CATASTROPHE.

AVAILABILITY - TECHNICAL LIBRARY, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA NAKA-GUN, IBARAKI-KEN, JAPAN

*REACTOR, RESEARCH + *JAPAN + *REPORT, PSAR + REACTOR, HWR

1-30145 ALSO IN CATEGORY 17
HEAVY-WATER POWER REACTORS
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA
STI/PUB-163 + CONF-670917 +. 981 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF A SYMPOSIUM ON HEAVY-WATER POWER REACTORS HELD BY THE INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, SEPTEMBER 11-15, 1967

PROCEEDINGS OF A SYMPOSIUM ORGANIZED BY THE IAEA AND HELD IN VIENNA, 11-15 SEPTEMBER 1967. CONTENTS - EXPERIENCE WITH HEAVY-WATER POWER AND EXPERIMENTAL REACTORS AND PROJECTS (14 PAPERS). NEW AND ADVANCED POWER REACTOR DESIGNS AND CONCEPTS (8 PAPERS). DEVELOPMENT PROGRAMMES AND THORIUM CYCLE (9 PAPERS). ECONOMICS AND PROSPECTS OF HEAVY-WATER POWER REACTORS (7 PAPERS). PHYSICS AND FUEL MANAGEMENT (8 PAPERS). FUELS (5 PAPERS). SAFETY, CONTROLS AND ENGINEERING (6 PAPERS). PANEL DISCUSSION. EXCEPT FOR ONE RUSSIAN PAPER, WHICH IS PUBLISHED IN ENGLISH, EACH PAPER IS IN ITS ORIGINAL LANGUAGE (49 ENGLISH AND 8 FRENCH) AND IS PRECEDED BY AN ABSTRACT IN ENGLISH.

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*IAEA + *REACTOR DESCRIPTION + *OPERATING EXPERIENCE + *REACTOR, POWER + *REACTOR, HWR + *REACTOR, RESEARCH + *R AND D PROGRAM + *ECONOMICS + *FUEL MANAGEMENT

1-30146
THE NUCLEAR INDUSTRY 1968
U.S. ATOMIC ENERGY COMMISSION
257 PAGES, FIGURES, TABLES, 1968

THE USE OF NUCLEAR REACTORS TO PRODUCE STEAM FOR THE GENERATION OF ELECTRIC POWER CONTINUED TO ATTRACT THE MOST PUBLIC ATTENTION AND HAVE THE LARGEST IMPACT ON THE COUNTRY'S ECONOMY. ORDERS

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30146 *CONTINUED*

FOR ALL ELECTRIC GENERATING EQUIPMENT, HOWEVER, WERE DOWN CONSIDERABLY FROM THE 1967 PEAK. NUCLEAR REACTORS FOR OTHER APPLICATIONS CONTINUED TO RECEIVE ATTENTION, PARTICULARLY DUAL-PURPOSE PLANTS WHICH WOULD DESALT WATER OR PRODUCE PROCESS STEAM, AS WELL AS PRODUCE ELECTRIC POWER. OVERALL USES OF NUCLEAR ENERGY, SUCH AS THE EXTENSIVE APPLICATIONS OF RADIOISOTOPES AND RADIATION AND THE MANY PROMISING USES OF PEACEFUL NUCLEAR EXPLOSIVES IN THE PLOWSHARE PROGRAM, MADE FURTHER ADVANCES IN 1968.

AVAILABILITY - U. S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C., \$2.00 COPY

*REACTOR, POWER + *DESALINATION + *RADIOISOTOPE + *PLOWSHARE PROGRAM + USAEC

1-30147

HOGERTEN JF
BACKGROUND INFORMATION ON ATOMIC POWER SAFETY
ATOMIC INDUSTRIAL FORUM
48 PAGES, FIGURES, JANUARY 1968

THIS BOOKLET FOCUSES ON THE SAFETY OF ATOMIC POWER OPERATIONS WITHIN THE ESTABLISHED STRUCTURE OF RADIATION PROTECTION STANDARDS. THE FRAME OF REFERENCE IS AS FOLLOWS - (1) STRONG ECONOMIC INCENTIVES EXIST FOR THE DEVELOPMENT AND USE OF CENTRAL-STATION ATOMIC POWER. (2) RADIATION PROTECTION REGULATIONS HAVE BEEN LAID DOWN BY COMPETENT AUTHORITY TO GOVERN THIS ACTIVITY. (3) OUR PURPOSE IS TO PRESENT FACTUAL INFORMATION ON SAFETY CONSIDERATIONS AND PRACTICES AND TO SUMMARIZE THE INDUSTRY'S SAFETY RECORD.

AVAILABILITY - ATOMIC INDUSTRIAL FORUM, 850 THIRD AVENUE, NEW YORK, N.Y. 10022 (\$1.50 COPY)

*REACTOR SAFETY SYSTEM + *REACTOR, POWER + RADIATION SAFETY AND CONTROL + CODES AND STANDARDS

1-30451

THRO E
THE CONTROVERSY OVER THERMAL EFFECTS
5 PAGES, NUCLEAR NEWS 11(12) PAGES 49-53 (DECEMBER 1968)

BY THE YEAR 2000, ELECTRICAL POWER PRODUCTION FROM NUCLEAR FACILITIES WILL HAVE INCREASED FROM THE PRESENT 2800 MW TO 700,000. BY THE YEAR 2000, TOTAL POWER PRODUCTION WILL BE 1.8 MILLION MW, GENERATING AT LEAST 840 TRILLION BTU PER HOUR OF EXCESS HEAT. EVEN BY 1980, ONE SIXTH OF THE FRESH WATER RUNOFF IN THE UNITED STATES WILL BE USED FOR COOLING AND CONDENSING IN POWER PLANTS, AND 20 YEARS LATER, ALL THE WATER IN SOME AREAS MAY BE REQUIRED FOR COOLING. NUCLEAR POWER REQUIRES 40% MORE COOLING WATER THAN FOSSIL FUEL GENERATION AND REJECTS HALF AGAIN AS MUCH WASTE HEAT.

*THERMAL POLLUTION + *ECOLOGICAL CONSIDERATION + BIOTA + *WATER POLLUTION + *CONGRESSIONAL ACTIVITY + REACTOR, POWER + *AQUATIC ORGANISMS + USAEC + *REGULATION, AEC + *OCEAN AND SEA + *RIVER, GENERAL + HEAT TRANSFER, CONDENSATION

1-30733

BAUMIER MJ
TECHNICAL AND ECONOMIC ASPECTS OF NUCLEAR POWER PLANTS EQUIPPED WITH VARIOUS TYPES OF REACTORS
COMMISSARIAT A L ENERGIE ATOMIQUE, PARIS
26 PAGES, BULL. INFORM. A.T.E.N. (ASSN. TECH. ENERG. NUCL), NO. 70, PAGES 50-30 (MAR.-APR. 1968)

ECONOMIC AND TECHNICAL ASPECTS OF THE VARIOUS TYPES OF REACTORS FOR NUCLEAR POWER STATIONS ARE EVALUATED BRIEFLY. THE TYPES OF REACTORS INCLUDE GAS-COOLED GRAPHITE-MODERATED NATURAL-URANIUM-FUELED REACTORS, GAS-COOLED HEAVY-WATER-MODERATED NATURAL-URANIUM REACTORS, LIGHT-WATER-COOLED AND -MODERATED ENRICHED-URANIUM REACTORS, AND SODIUM-COOLED FAST REACTORS, COMPARISONS OF OPERATING PARAMETERS AND COST/KWH ARE TABULATED.

*TECHNICAL SPECIFICATIONS + *ECONOMICS + *REACTOR, POWER + *FRANCE

1-30734

KAUFMANN E
RADIATION PROTECTION IN INDUSTRY
8 PAGES, PAGES 54-61 OF RADIOISOTOPE IN DER INDUSTRIELLEN MESSTECHNIK. BERN. SCHWEIZERISCHE VEREINIGUNG FÜR ATOMENERGIE, 1965

REVIEWS SWISS LEGISLATION CONCERNING RADIATION PROTECTION IN INDUSTRY, THE ACTIVITIES OF THE SWISS INSPECTION AUTHORITIES, AND THE QUALIFICATIONS THAT EXPERTS MUST HOLD. RADIATION PROTECTION IN THE USE OF SEALED-SOURCE MEASURING INSTRUMENTS (THICKNESS GAUGES, LEVEL INDICATORS, DENSITY AND MOISTURE CONTENT MEASURING INSTRUMENTS WITH A NEUTRON SOURCE, GAS-CHROMATOGRAPHY EQUIPMENT, ETC.) IS ALSO DISCUSSED.

*RADIATION SAFETY AND CONTROL + *REGULATION, GENERAL + *SWITZERLAND

1-30854

ALSO IN CATEGORY 11

WIESENACK G
THE TECHNICAL DEMANDS OF SAFETY ON PRESSURE VESSELS IN NUCLEAR POWER PLANTS

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30854 *CONTINUED*
9 PAGES, 10 FIGURES, 4 TABLES, 23 REFERENCES, TECHN. UBERWACH, 9(4), PAGES 122-128 (APRIL 1968)

A CONDENSATION OF A LECTURE PRESENTED BEFORE THE GERMAN STEAM BOILER BOARD. AFTER A REVIEW OF THE IMPORTANT REACTOR TYPES, THE CONSTRUCTION, MATERIALS, MANUFACTURE, AND DESIGN OF REACTOR PRESSURE VESSELS IS DISCUSSED. THE DISCUSSION CONCLUDES WITH THE STATUS OF GERMAN AND INTERNATIONAL NUCLEAR PRESSURE VESSEL CODES AND THE FUTURE WORK REQUIRED TO DEVELOP THEM.

*PRESSURE VESSEL + CODES AND STANDARDS + STEEL + GERMANY

1-31356 ALSO IN CATEGORY 17
1968 USA RADIATION INCIDENT EXPERIENCE
U.S. ATOMIC ENERGY COMMISSION
5 PAGES, PG. 140-143, 152 OF MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS, JANUARY 1969

(PAGE 140) AEC INSPECTIONS TOTALLED 2406 (MATERIALS) AND 489 (REACTORS) AND ISSUED A TOTAL OF 60 AND 27 CITATIONS RESPECTIVELY. ONE LICENSE WAS NOT RENEWED, AND ONE OPERATION WAS STOPPED. BLS SURVEY SHOWED ATOMIC ENERGY HAS BETTER THAN AVERAGE WORK-INJURY EXPERIENCES. IN 1967, FILM-BADGE READINGS SHOWED 4000 ABOVE 1 REM. *** OF 17 INCIDENTS, 8 WERE IN RADIOGRAPHY (800 REMS HAND, 36 WHOLE BODY) AND 7 WERE CONTAMINATIONS FROM LICENSED BY-PRODUCT MATERIAL. 31 AND 7 WERE CONTAMINATIONS FROM LICENSED BY-PRODUCT MATERIAL. 31 SOURCES WERE LOST. *** IN AEC OPERATIONS, ONE PERSON RECEIVED A 655-REM HAND DOSE, AND ANOTHER A 500-TO 1000- REM X-RAY HAND DOSE. *** TWO SEMINARS ON MEDICAL CARE PLANNING WERE HELD FOR PHYSICIANS.

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

PERSONNEL EXPOSURE, RADIATION + CONTAMINATION + INCIDENT COMPILATION + REACTOR, RESEARCH + REACTOR, POWER + X-RAY + INCIDENT, EXPOSURE + INDUSTRIAL SAFETY + RADIOGRAPHY + BYPRODUCT MATERIAL + COMPLIANCE

1-31499 ALSO IN CATEGORY 13
PARTICLE ACCELERATOR SAFETY MANUAL
U.S. DEPT. OF HEALTH, ED., AND WELFARE, PUBLIC HEALTH SERVICE
MORP-68-12 +. 127 PAGES, 14 FIGURES, 33 REFERENCES, OCTOBER 1968

DESCRIBES (1) BRIEFLY EACH OF THE MORE COMMON ACCELERATORS, (2) PROVIDES A REVIEW OF THE MORE IMPORTANT HAZARDS (WITH EMPHASIS ON THE RADIATION SAFETY HAZARDS), AND (3) INDICATES SOME OF THE CONSIDERATIONS TO BE EVALUATED WHEN REVIEWING OR OBSERVING THE OPERATION OF A PARTICLE-ACCELERATOR FACILITY.

*RADIOISOTOPE + *ACCELERATOR + *SAFETY PRINCIPLES AND PHILOSOPHY + RADIATION SAFETY AND CONTROL

1-329C7 ALSO IN CATEGORIES 15 AND 18
AEC QUESTIONS - 7 TOPICS
GENERAL ELECTRIC COMPANY
50231-21 +. 17 PAGES, 5 FIGURES, SEFOR, PSAR, SUPPLEMENT 20, SEPT. 1968, DOCKET 50-231

RESPONSES TO 7 QUESTIONS CONCERNING EMERGENCY TREATMENT OF INJURED PERSONNEL BOTH ON AND OFF SITE.

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

AEC QUESTION + REPORT, PSAR + REACTOR, LMFBR + EMERGENCY PROCEDURE + PERSONNEL EXPOSURE, RADIATION + OFF SITE + RADIOLOGICAL ASSISTANCE + SEFOR (RE) + RADIATION INJURY TREATMENT + RADIATION PROTECTION, ORGANIZATION

1-331C3 ALSO IN CATEGORIES 14 AND 15
WOLFE DA + RICE TR
SAFE LEVELS OF RADIOACTIVITY IN AQUATIC ENVIRONMENTS
19 PAGES, FIGURES, TABLES, REFERENCES, SCIENTIA, CIII(9-10), PAGES 469-487 (1968)

AS NUCLEAR ENERGY SUPPLIES EVER-EXPANDING PROPORTIONS OF POWER REQUIREMENTS, THE DOSE OF BACKGROUND RADIATION TO MAN FROM HIS ENVIRONMENT WILL INCREASE. THE CONTINUOUS DISPOSAL OF RADIOACTIVE WASTES INTO AQUATIC ENVIRONMENTS SHOULD BE EVALUATED ON THE BASIS OF LONG-TERM POPULATION EFFECTS FROM CHRONIC EXPOSURE TO LOW-LEVEL RADIATION. IN THIS ARTICLE, WE DISCUSS THE IMPLICATIONS OF RADIOACTIVE WASTE DISPOSAL INTO AQUATIC ENVIRONMENTS, AND CONSIDER THOSE ASPECTS OF RADIATION PHYSIOLOGY, RADIOECOLOGY AND HEALTH PHYSICS USED IN DEVELOPING STANDARDS FOR THE ADEQUATE PROTECTION OF AQUATIC ECOSYSTEMS AND MAN FROM EXCESSIVE RADIATION.

WASTE DISPOSAL, OCEAN + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, LAKE + WASTE DISPOSAL, RIVER + RADIATION SAFETY AND CONTROL + ECOLOGICAL CONSIDERATION + ENVIRONMENTAL CONDITION + REACTOR, POWER + THERMAL POLLUTION + WATER POLLUTION + POPULATION EXPOSURE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, MAN + DIETARY HABIT + PROCEDURES AND MANUALS + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + ICRP + NCRP + FEDERAL RADIATION COUNCIL + DOSE

1-33331 ALSO IN CATEGORIES 11 AND 17
O KEETEM
PIPING
25 PAGES, POWER, PAGES 1-24 (MARCH 1969)

CATEGORY 1
GENERAL SAFETY CRITERIA

1-33331 *CONTINUED*

A BASIC PIPING GUIDE, PRESENTS NO DATA, DOES NOT DISCUSS VALVES FITTINGS OR JOINTS. GIVES BROAD VIEW OF PIPING SYSTEMS FOR ENGINEERS WITH OVERALL RESPONSIBILITY. CODES (2 PG.). BASIC METALLURGY, (6 PG.). PIPE FABRICATION (2 PG.). DESIGNING THE SYSTEM (8 PG.) JOINING PIPE AND TESTING JOINTS. *** GOOD TRAINING MATERIAL, NOT ORIENTED TO PARTICULAR REACTOR.

*PIPING + DESIGN STUDY + CODES AND STANDARDS + TEST, NONDESTRUCTIVE + TRAINING + MATERIAL + WELDING + REACTOR, POWER

1-33497

PRIOR WJ

NUCLEAR ENERGY - SAFETY, RELIABILITY AND COST

3 PAGES, NUCLEAR ENERGY, PAGES 177-79 (NOVEMBER-DECEMBER 1968)

THE DESIGNERS AND OPERATORS OF NUCLEAR POWER STATIONS HAVE GIVEN THE UTMOST THOUGHT AND CARE TO SAFETY. ANY ACTION ON SAFEGUARDS MUST FOLLOW AN ASSESSMENT OF THE HAZARDS. THERE IS NO POINT IN SAFEGUARDING AGAINST INCREDIBLE HAZARDS. IT IS INCREDIBLE, FOR EXAMPLE, FOR A NUCLEAR REACTOR TO BEHAVE AS A NUCLEAR BOMB. DIRECT RADIATION AND/OR CONTAMINATION BY RADIOACTIVE PARTICLES ARE, HOWEVER, CREDIBLE HAZARDS. DISCUSSES THE HISTORY OF UK NUCLEAR PLANTS WITH RESPECT TO SAFETY, EFFECTS ON ENVIRONMENT, RELIABILITY, AND COSTS.

*UNITED KINGDOM + *REACTOR, POWER + *SAFETY REVIEW + ENGINEERED SAFETY FEATURE + FRANCE + RELIABILITY ANALYSIS + ECONOMICS + CALDER HALL (GCR) + OLOBURY (GCR) + DUNGENESS B (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + WYLFA (GCR)

1-33538

ALSO IN CATEGORY 18

ORGANIZATIONAL CHANGES

JERSEY CENTRAL POWER AND LIGHT CO. + METROPOLITAN EDISON CO.

30 PAGES, FIGURES, TABLES, AMENDMENT 9 TO THREE MILE ISLAND LICENSE APPLICATION, MAY 2, 1969, DOCKET 50-320, TYPE--PWR, MFG--B+W, AE--BURNS + ROE

SUBMITS ORGANIZATIONAL CHANGES TO REFLECT FULL RESPONSIBILITY FOR ENGINEERING, DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE (NOW WITH METROPOLITAN EDISON CO). INFORMATION IS IN THE FORM OF REVISED PAGES FOR PSAR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545, (\$0.25 CENTS/PAGE)

*STAFFING + THREE MILE ISLAND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

1-33919

ALSO IN CATEGORIES 4 AND 18

BLAKE VE

AEROSPACE NUCLEAR SAFETY

SANDIA LABS., ALBUQUERQUE, NEW MEXICO

5 PAGES, 5 FIGURES, PP. 107-111 OF NUCLEONICS IN AEROSPACE, PLENUM PRESS, NEW YORK, 1968

SUMMARIZES SPACE POWER ORGANIZATION, GUIDE (SAFETY DOCUMENTATION REQUIREMENTS FOR SPACE NUCLEAR POWER SYSTEMS), AND USES AN ISOTOPIC POWER GENERATOR HAZARDS FLOW CHART TO DEMONSTRATE PROBABILITY METHOD OF CALCULATING EXPOSURE

*REPORT, SAR + *SAFETY ANALYSIS + REACTOR, SPACE + FAULT TREE ANALYSIS + *PROBABILITY + SNAP, GENERAL (SR) + ISOTOPIC GENERATOR + GUIDE

1-33932

ALSO IN CATEGORY 18

MEUSER MH + PERRY JA

FABRICATION, CONSTRUCTION, AND INSTALLATION QUALITY ASSURANCE REQUIREMENTS FOR THE FFTF

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-511 +. 56 PAGES, MARCH 15, 1968

STATES GENERAL REQUIREMENTS FOR QUALITY ASSURANCE FOR PACIFIC NORTHWEST LABORATORY (PNL) CONTRACTORS INVOLVED IN PROCUREMENT, FABRICATION, CONSTRUCTION, INSTALLATION, OR TESTING EFFORT FOR THE FFTF PROJECT. THE SECTION 1.0, INTRODUCTION, THROUGH SECTION 14.0, PROGRAM DOCUMENTATION, ARE AEC/PNL BASELINES. A GLOSSARY DEFINING TERMS IS INCLUDED AS APPENDIX A.

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

FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *FABRICATION + *CONTAINMENT CONSTRUCTION + REACTOR, FAST + REACTOR, LMCR + QUALITY ASSURANCE

1-34305

ALSO IN CATEGORIES 14 AND 17

BELL STATION THERMAL EFFECTS CASE STUDY

ATOMIC INDUSTRIAL FORUM, NEW YORK

135 PAGES, FIGURES, TABLES, 1968

PRESENTS A CASE STUDY OF A NUCLEAR-POWER-PLANT THERMAL-EFFECTS CONTROVERSY - THE CAYUGA LAKE CASE. PRESENTS POLLUTION PROBLEMS. QUESTIONABLE ASSUMPTIONS, CITIZENS EFFORTS TO SAVE CAYUGA LAKE, AND STATEMENTS AND EXHIBITS FROM JOINT LEGISLATIVE COMMITTEE HEARINGS.

CATEGORY 1
GENERAL SAFETY CRITERIA

1-34305 *CONTINUED*
REACTOR, BWR + *THERMAL POLLUTION + *BELL (BWR) + *WATER POLLUTION + *THERMAL CONSIDERATION + LAKE +
CONGRESSIONAL ACTIVITY + ENVIRONMENTAL CONDITION + REACTOR, POWER + *ECOLOGICAL CONSIDERATION + AQUATIC
ORGANISMS + STATE PROGRAM + RADIATION, PUBLIC EDUCATION + WATER, GENERAL + CODES AND STANDARDS

1-34306
MCKEE FW
AN EVALUATION OF THERMAL STANDARDS
MARYLAND DEPARTMENT OF WATER RESOURCES
14 PAGES, PAPER PRESENTED TO THE WORKSHOP EFFECTS OF COOLING WATER DISCHARGE, PHOENIX, ARIZONA, APRIL 20-23,
1969

DISCUSSES PROBLEMS ASSOCIATED WITH STANDARD SETTING AND ENFORCEMENT FOR THE CONTROL OF THERMAL
DISCHARGES.

*THERMAL POLLUTION + *WATER, GENERAL + *CODES AND STANDARDS + *STATE PROGRAM + *ADMINISTRATIVE CONTROL +
*ECOLOGICAL CONSIDERATION + AQUATIC ORGANISMS + BIOTA + COOLING, GENERAL + REACTOR, GENERAL + CONGRESSIONAL
ACTIVITY

1-34307
TURNER P
THERMAL EFFECTS - A HEATED EXCHANGE
10 PAGES, PRESENTED AT WORKSHOP ON THERMAL EFFECTS, CAREFREE, ARIZONA, APRIL 21, 1969

DISCUSSES PROBLEMS OF THERMAL EFFECTS FROM THE STANDPOINT OF (1) HISTORY IN TERMS OF PUBLIC
ATTITUDES AND RESPONSE, (A) EMERGENCE OF NUCLEAR POWER, (B) INCREASED PUBLIC AWARENESS OF
ENVIRONMENTAL CONSIDERATIONS, (C) RESPONSE OF THE FEDERAL AND STATE GOVERNMENTS.

*THERMAL POLLUTION + HEAT EXCHANGER + COOLING, GENERAL + *REACTOR, GENERAL + *ENVIRONMENTAL CONDITION + STATE
PROGRAM + CONGRESSIONAL ACTIVITY + ADMINISTRATIVE CONTROL + *WATER POLLUTION + *THERMAL CONSIDERATION

1-34308
BREGMAN J
THERMAL POLLUTION
ATOMIC INDUSTRIAL FORUM
12 PAGES, WORKSHOP ON THERMAL EFFECTS OF COOLING WATER DISCHARGE, CAREFREE, ARIZONA, APRIL 23, 1969

REMARKS OF JACOB I. BREGMAN, DEPUTY ASSISTANT SECRETARY FOR WATER QUALITY AND RESEARCH, U. S.
DEPT. OF INTERIOR, TO THE WORKSHOP ON THERMAL EFFECTS OF COOLING WATER DISCHARGE. POINTS OF
DISCUSSION - (1) HEAT IS A VALUABLE RESOURCE. IT HAS BEEN MISPLACED TO CREATE POLLUTION. (2)
THERMAL POWER GENERATION - SOURCE OF THERMAL POLLUTION. (3) PHILOSOPHICAL IMPLICATIONS. (4)
CONTROL OF THERMAL POLLUTION - (A) WATER QUALITY STANDARDS, (B) NATIONAL POLICY - PREVENTIVE
ACTION BACKED BY RESEARCH.

*THERMAL POLLUTION + RIVER, GENERAL + OCEAN AND SEA + LAKE + *COOLING, GENERAL + *ECOLOGICAL CONSIDERATION +
REACTOR, GENERAL + *ADMINISTRATIVE CONTROL + CONGRESSIONAL ACTIVITY

1-34309
MCKEE PW
A MARYLAND CASE STUDY (THERMAL POLLUTION)
MARYLAND DEPARTMENT OF WATER RESOURCES
15 PAGES, PAPER PREPARED FOR THE WORKSHOP ON THERMAL EFFECTS OF COOLING WATER DISCHARGE, PHOENIX, ARIZONA,
APRIL 20-23, 1969

DISCUSSES STATE CONTROL OVER (1) USAGE OF WATER, (2) CONSTRUCTION OF DEVICES FOR INTAKE OR
DISCHARGE OF WATER, AND (3) DISCHARGE OF WASTE WATER.

*THERMAL POLLUTION + *ECOLOGICAL CONSIDERATION + *STATE PROGRAM + ADMINISTRATIVE CONTROL + *LICENSE STATUS +
WATER POLLUTION + *AQUATIC ORGANISMS + REACTOR, GENERAL + COOLING, GENERAL + OXYGEN + CHLORINE + ESTUARY +
DILUTION

1-34341
TEMPERATURE CRITERIA IN APPROVED STATE STANDARDS
14 PAGES, APPROVED STATE STANDARDS, MAY 29, 1969

A LISTING, BY INDIVIDUAL STATES, OF TEMPERATURE CRITERIA IN STATES HAVING APPROVED WATER STANDARDS.

THERMAL POLLUTION + THERMAL CONSIDERATION + *WATER, GENERAL + *CODES AND STANDARDS + ECOLOGICAL CONSIDERATION
+ WATER POLLUTION + *STATE PROGRAM

1-34342
WATER QUALITY STANDARDS APPROVED UNDER THE FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED
3 PAGES, 1 TABLE, WATER QUALITY STANDARDS, MARCH 25, 1969

A TABULAR LISTING, BY STATE AND DATE, OF WATER-QUALITY STANDARDS APPROVED UNDER THE FEDERAL WATER

CATEGORY 1
GENERAL SAFETY CRITERIA

1-34342 *CONTINUED*
POLLUTION CONTROL ACT, AS AMENDED. INCLUDES A STATUS SUMMARY AND TEMPERATURE ITEMS EXCEPTED FROM APPROVAL

*WATER, GENERAL + *CODES AND STANDARDS + *THERMAL POLLUTION + STATE PROGRAM + CONGRESSIONAL ACTIVITY

1-3445C
WISE KR + COLE BM
A SURVEY OF HEAT SINK CAPACITY OF MAJOR STREAMS WITHIN THE U.S.
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-951 +. 61 PAGES, 2 FIGURES, 2 TABLES, 8 REFERENCES, JANUARY 1969

AS POWER REQUIREMENTS INCREASE, THE AVAILABILITY OF COOLING WATER IS BECOMING AN INCREASINGLY IMPORTANT CONCERN IN POWER GENERATION FORECASTS. THIS STUDY PRESENTS DATA INDICATIVE OF THE LIMITATIONS OF THE COOLING WATER SUPPLY IN THE NATION. AS AN INDEX OF COOLING POTENTIAL FOR EACH MAJOR STREAM, HEAT INPUT FOR A ONE DEGREE F TEMPERATURE RISE, WITH THE MINIMUM MONTHLY AVERAGE FLOW RECORDED IN A TEN YEAR PERIOD, IS USED. ATTEMPTED TO IDENTIFY WHERE ALTERNATE SOLUTIONS TO COOLING CAN BE ANTICIPATED FIRST AND TO IDENTIFY THE IMPACT OF COOLING-WATER-QUALITY.

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

*COOLING, GENERAL + *THERMAL POLLUTION + THERMAL CONSIDERATION + WATER, GENERAL + *CODES AND STANDARDS + SITING, REACTOR + RIVER, GENERAL + *FLOW, GENERAL + CONTAINMENT PENETRATION, PIPE

1-34620
PROBLEMS IN DISPOSAL OF WASTE HEAT FROM STEAM-ELECTRIC POWER
FEDERAL POWER COMMISSION, BUREAU OF POWER
53 PAGES, 11 FIGURES, 5 TABLES, 39 REFERENCES, 1969

RELATES A NATIONAL CONCERN OF GROWING IMPORTANCE OF THE EFFECT OF OUR ACTIVITIES ON THE NATURAL ENVIRONMENT AND OUR EFFORTS TO PRESERVE THE ASSOCIATED VALUES.

*THERMAL POLLUTION + *STEAM GENERATOR + *COOLING, GENERAL + *AQUATIC ORGANISMS + *OXYGEN + *ECOLOGICAL CONSIDERATION + ADMINISTRATIVE CONTROL + STATE PROGRAM + CODES AND STANDARDS

1-34664 ALSO IN CATEGORIES 5 AND 11
BALL GL + KLINK AE
COMPARATIVE HYPOTHETICAL ACCIDENT ANALYSIS FOR FOUR INTERIM CORE DESIGNS FOR THE FAST TEST REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-208 +. 51 PAGES, JANUARY 1968

PRESENTS STUDY OF THE MAXIMUM ENERGY RELEASE VALUES WHICH MIGHT RESULT FROM A COMPLETE MELTDOWN COLLAPSE IN EACH OF FOUR CORE TYPES TENTATIVELY CONSIDERED FOR THE FAST TEST REACTOR. THIS COMPARATIVE EVALUATION WAS MADE TO PROVIDE AN EARLY ESTIMATE OF THE MAXIMUM ENERGY RELEASE FOR WHICH THEIR CONTAINMENT SHOULD BE DESIGNED. PROVIDES A QUANTITATIVE GUIDE TO THE RELATIVE CONTAINMENT REQUIREMENTS FOR EACH CORE CONCEPT. THE CORE TYPES CALCULATED WERE A 600-LITER PUO2-SS CERMET CORE, AN 800-LITER MIXED-OXIDE CORE, A 600-LITER MIXED-CARBIDE CORE AND A 600-LITER METAL ALLOY CORE. THE ENERGY RELEASE CALCULATIONS UTILIZED SIMPLIFIED SPHERICAL GEOMETRIES AND ASSUMED UNIFORM SODIUM-FREE CORE COMPOSITIONS.

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

REACTOR, FAST + REACTOR, TEST + DESIGN STUDY + *CORE MELTDOWN + FUEL MELTDOWN + ACCIDENT, FUEL SLUMP + ENERGY SOURCE + *ACCIDENT ANALYSIS + *CONTAINMENT DESIGN + DOPPLER COEFFICIENT

1-34684 ALSO IN CATEGORIES 2 AND 18
GENERATING STATIONS EMERGENCY PLAN
COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS
50 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 12 TO DRESDEN 2 AND AMENDMENT 13 TO DRESDEN 3 LICENSE APPLICATION, MAY 20, 1969, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

SETS FORTH THE PLAN OBJECTIVES AND DESCRIBES THE RELATED EMERGENCY ORGANIZATION INCLUDING ASSIGNMENTS OF AUTHORITY AND RESPONSIBILITY, PROVIDES FOR DETECTING AND EVALUATING EMERGENCY CONDITIONS, ESTABLISHING PROTECTIVE ACTION LEVELS, AND PROTECTIVE MEASURES WHEN SUCH LEVELS ARE EXCEEDED, COMMUNICATIONS, LIAISON WITH OFF-SITE SUPPORT GROUPS INCLUDING FEDERAL, STATE AND LOCAL GOVERNMENTAL AUTHORITIES, DOCUMENT REVIEW AND CONTROL, PERIODIC EMERGENCY PREPAREDNESS ASSESSMENT, AND TRAINING OF THE PARTICIPATING PERSONNEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

*EMERGENCY PROCEDURE + *PROCEDURES AND MANUALS + INCIDENT, RECOVERY FROM + STAFFING + ADMINISTRATIVE CONTROL + RADIATION SAFETY AND CONTROL + RADIATION PROTECTION, ORGANIZATION + RADIOLOGICAL ASSISTANCE + DRESDEN 2 (BWR) + DRESDEN 3 (BWR) + REACTOR, BWR + CONSTRUCTION PERMIT PROCESS

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-32817 ALSO IN CATEGORY 18
ADDITIONAL INFORMATION ON SEISMIC DESIGN
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-6 +. 6 PAGES, 1 FIGURE, 2 TABLES, SEFOR, PSAR, SUPPLEMENT 6, FEB. 14, 1968, DOCKET 50-231

RESULTS OF DYNAMIC AND STATIC SEISMIC ANALYSIS GIVEN. TABLE LISTS LOADING OF ALL MAJOR EQUIPMENT (PUMPS, CRANES, TANK, AND HEAT EXCHANGERS). RESULTS FOR 109-FT STACK ARE - PERIOD 0.71 SEC, MAX. DISPLACEMENT 1.82 IN., AND MAX. MOMENT 31.8 FT. K.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *STRUCTURAL ANALYSIS, DYNAMIC + *EARTHQUAKE ENGINEERING + *STRESS ANALYSIS + INTERACTION, SOIL AND STRUCTURE + *STACK + REACTOR, LMCR + REACTOR, PULSED + REACTOR, FAST + *EQUIPMENT, GENERAL

2-32915 ALSO IN CATEGORIES 16 AND 18
AEC QUESTIONS - 11 TOPICS
GENERAL ELECTRIC
50231-21 +. 150 PAGES, 25 FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 19, OCTOBER 1968, DOCKET 50-231

SEVENTY-THREE PAGES DEVOTED TO RESPONSES TO 11 AEC QUESTIONS ON CONTROL SYSTEM MODIFICATION, AUXILIARY POWER, REFUELING ACCIDENT, THE EXCURSION DEVICE (FRED) LEAKS, TRANSIENT TEST LOADS, NOZZLE FAILURE, FUEL-ROD PIN-HOLE LEAKS, SURVEILLANCE PROGRAM, THERMAL INSULATION, AND EFFECT OF SODIUM IN THE CORE DURING MHA. APPENDIX (43 PAGES) CONSISTS OF SITE METEOROLOGICAL DATA.

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

*AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, REFUELING + REACTOR DYNAMICS + CONTROL SYSTEM + EMERGENCY POWER, ELECTRIC + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + MAIN COOLING SYSTEM + LEAK + CONTAINMENT VESSEL LOADING + FAILURE, EQUIPMENT + NOZZLE + THERMAL INSULATION + SURVEILLANCE PROGRAM + SITE CLIMATOLOGY + ACCIDENT, HYPOTHETICAL

2-33079
EPICENTRES AND ORIGIN TIMES OF SOME LARGE EXPLOSIONS
8 PAGES, GEOPHYS. J. ROY. ASTRON. SOC., 16, PAGES 1-7 (SEPT. 1968)

OBTAINED A MORE ACCURATE ESTIMATE OF THE RELATIVE POSITIONS OF EXPLOSIONS IN THE USSR AND ALSO IN THE SAHARA. THE JCINT EPICENTER METHOD USED WAS VERIFIED BY LOCATING A NUMBER OF EXPLOSIONS AT THE NEVADA TEST SITE, WHERE ACCURATELY KNOWN SHOT POINTS WERE AVAILABLE. THE RESULTS OBTAINED ARE COMPARED WITH OTHER METHODS.

EARTHQUAKE, GENERAL + *EARTH TREMOR, INDUCED + EARTHQUAKE RECORDS + MEASUREMENT, GENERAL + *COMPARISON, THEORY AND EXPERIENCE + TECTONICS

2-33105
ARITA Y + SATAKE M
STUDY ON EARTHQUAKE RESISTING STRENGTH OF NUCLEAR REACTOR CONTAINMENT VESSELS
MITSUBISHI HEAVY INDUSTRIES, LTD., TOKYO
7 PAGES, MITSUBISHI JUKO GIHO, 5, PAGES 11-17 (JAN. 1968) (IN JAPANESE)

IN THE SEISMIC DESIGN OF NUCLEAR REACTOR CONTAINMENT VESSELS, IT IS USUAL THAT THEIR VIBRATION AS A SHELL IS NEGLECTED. THIS ASSUMPTION, HOWEVER, IS NOT YET JUSTIFIED. TESTS WERE CONDUCTED USING AN ELASTICALLY SIMILAR MODEL MADE OF CELLULOID TO INVESTIGATE THIS PHENOMENON, AND IT WAS FOUND THAT VIBRATION AS A SHELL COULD NOT BE NEGLECTED. ARTIFICIAL EARTHQUAKE TESTS WERE CONDUCTED BY THE USE OF DYNAMITE TO VERIFY THE ABOVE TEST RESULTS.

EARTHQUAKE, GENERAL + *REACTOR SAFETY SYSTEM + *DESIGN CRITERIA + *MODEL TESTING + *VIBRATION + WAVE, STRESS + *EARTH TREMOR, INDUCED + SHOCK WAVE

2-33106
HAMMON S + HAMMON N
REMARKS ON THE PAPER A SURVEY OF COMPLAINTS OF SEISMIC RELATED DAMAGE TO SURFACE STRUCTURES FOLLOWING THE SALMON UNDERGROUND DETONATION, BY DEAN V. POWER
VIBRATION DAMAGE SPECIALISTS, LOUISVILLE, KY.
4 PAGES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 58, PAGES 1169-72 (JUNE 1968)

PRESENTS GENERAL REMARKS ON A PREVIOUS PAPER ON SEISMIC RELATED DAMAGE TO SURFACE STRUCTURES FOLLOWING THE SALMON UNDERGROUND NUCLEAR DETONATION. THE SOCIAL AND SCIENTIFIC IMPLICATIONS OF DAMAGE CLAIMS WHICH RESULT FROM UNDERGROUND NUCLEAR EXPLOSIONS ARE BRIEFLY REVIEWED. VERY FEW CLAIMS ARE RECEIVED IN POOR AREAS. THE MAJORITY OF COMPLAINTS ARE RECEIVED FROM LOW TO MIDDLE INCOME NEIGHBORHOODS. OWNERS OF LARGE DWELLINGS AND BUSINESS CONCERNS RARELY MAKE CLAIMS FOR VIBRATION DAMAGE.

EARTHQUAKE, GENERAL + SEISMOLOGY + EARTH TREMOR, INDUCED + HAZARDS ANALYSIS + TECTONICS + *DAMAGE + LIABILITY

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-33111
THIRLAWAY HIS
DIAGNOSING UNDERGROUND EXPLOSIONS AND EARTHQUAKES
15 PAGES, CONTEMP. PHYS. 9, PAGES 17-31 (JAN. 1968)

ALTHOUGH THE AMPLITUDE OF THE SIGNAL ITSELF IS AN INVERSE FUNCTION OF DISTANCE, IT IS EASIER TO DISCRIMINATE BETWEEN AN UNDERGROUND EXPLOSION AND AN EARTHQUAKE AT A GREAT DISTANCE FROM THE SOURCE THAN CLOSER AT HAND. AN ACCOUNT IS GIVEN OF THE PRINCIPLES OF SHORT-PERIOD ARRAY SYSTEMS AND THEIR DIAGNOSTIC PERFORMANCE, AND OF THE INDEPENDENT DIAGNOSIS AFFORDED BY OBSERVATIONS OF THE R-WAVES. THE RELEVANCE OF THE EXPERIMENTAL FACILITIES AND OF THE ANALYTICAL RESULTS TO MORE GENERAL GEOPHYSICAL AND GEOLOGICAL PROBLEMS IS BRIEFLY MENTIONED.

*EARTHQUAKE, GENERAL + *WAVE, STRESS + GEOLOGICAL CONSIDERATION, GENERAL + GROUND MOTION + INSTRUMENT, EARTHQUAKE + SEISMOLOGY + *SHOCK WAVE + *STRESS ANALYSIS + TECTONICS + COMPARISON, THEORY AND EXPERIENCE

2-33116
DENT HK + DAVIDSON I
DESIGNING GAS-COOLED REACTORS FOR SEISMIC CONDITIONS
UKAEA, GAS-COOLED REACTORS, DIRECTORATE, RISLEY, GREAT BRITAIN
TRG-1795(R) +. 12 PAGES, 3 FIGURES, 7 REFERENCES, 1968

DEALS WITH THE DESIGN OF NUCLEAR POWER PLANTS TO BE BUILT IN SEISMIC AREAS TO ENSURE ADEQUATE PROTECTION OF PEOPLE FROM HARM WHICH MIGHT RESULT FROM RELEASE OF RADIOACTIVITY OR FROM RADIATION. THE AIMS ARE - SUITABLE DESIGN AND MATERIALS TO WITHSTAND VIBRATORY MOTIONS AND DIFFERENTIAL MOVEMENTS OF THE GROUND. DESIGN LEVEL, INTERNAL STRUCTURE, CORE AND SHUTDOWN SYSTEMS, PRESTRESSED CONCRETE AND FAULT DISPLACEMENTS ARE DISCUSSED.

AVAILABILITY - H.K. DENT/I. DAVIDSON, UKAEA, GAS-COOLED REACTORS DIRECTORATE, RISLEY, GREAT BRITAIN

*REACTOR SAFETY SYSTEM + EARTHQUAKE, GENERAL + *DESIGN CRITERIA + SEISMOLOGY + GROUND MOTION + CONCRETE, PRESTRESSED + FAULT

2-33117
LILWALL RC + DOUGLAS A
EPICENTRE DETERMINATION BY SEISMIC ARRAYS
UNIV. OF BIRMINGHAM, ENGLAND
NATURE (LONDON), 220, PAGES 362-3 (OCTOBER 26, 1968)

DESCRIBES METHODS OF LOCATING SEISMIC EVENTS BY COMBINING DATA FROM SEVERAL SEISMOGRAPHIC ARRAYS. BY USING MORE THAN ONE ARRAY, AN INCREASE IN ACCURACY IS OBTAINED WITHOUT EXCLUDING THE POSSIBILITY OF AUTOMATION. LOCATION OF THE NUCLEAR EXPLOSION LONGSHOT IN THE ALEUTIANS WAS IN ERROR BY 60 KM AND 150 KM BY TWO OF THE METHODS.

EARTHQUAKE, GENERAL + SEISMOLOGY + *EARTHQUAKE EPICENTER + *EARTHQUAKE ENGINEERING + EARTHQUAKE RECORDS + *INSTRUMENT, EARTHQUAKE

2-33435
KELLER MD + FOSTER FS + WERNER FH
GROUND VIBRATION CHARACTERISTICS OF MESITA DE LOS ALAMOS
LOS ALAMOS SCIENTIFIC LABORATORY, NEW MEXICO
CONF-670804 +. 14 PAGES, PAGES 469-82 OF PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS HELD ON AUGUST 23-25, 1967 AT ALBUQUERQUE, NEW MEXICO, UNIVERSITY OF NEW MEXICO PRESS, 1968

THE FOUNDATION MATERIAL WHICH MUST SUPPORT THE LOS ALAMOS MESON PHYSICS LINEAR ACCELERATOR IS A WELDED TUFF OF VOLCANIC ORIGIN. BEFORE DESIGN OF CRITICAL COMPONENTS FOR THE MESON PHYSICS LINEAR ACCELERATOR, IT WAS NECESSARY TO DETERMINE THESE CHARACTERISTICS WITH SUFFICIENT RELIABILITY TO PROVIDE FOR ECONOMICAL DESIGNS OF BUILDINGS AND CRITICAL MACHINE COMPONENTS. TWO TESTS OF THIS SERIES, THE IMPACT TESTS AND THE HIGH-EXPLOSIVE DETONATION TESTS, ARE DESCRIBED.

*GROUND MOTION + *EARTH MATERIAL, DYNAMIC PROPERTY + SITE CRITERIA, EARTHQUAKE + *ACCELERATION + EARTHQUAKE, GENERAL + SEISMOLOGY + *ACCELERATOR + TECTONICS

2-33456
KRIZEK R + FRANKLIN AG
ENERGY DISSIPATION IN A SOFT CLAY
NORTHWESTERN UNIVERSITY, ILLINOIS
CONF-670804 +. 11 PAGES, PAGES 797-807 OF PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS HELD ON AUGUST 23-25, 1967 AT ALBUQUERQUE, NEW MEXICO, UNIVERSITY OF NEW MEXICO PRESS, 1968

THE ENERGY DISSIPATION CHARACTERISTICS OF A SOFT KAOLIN CLAY ARE MEASURED BY ANALYZING HYSTERESIS LOOPS PRODUCED BY SUBJECTING A CLAY SPECIMEN TO A HARMONICALLY APPLIED, RELATIVELY HOMOGENEOUS, TORSIONAL SHEAR STRAIN, AND MEASURING THE RESULTING STRESS RESPONSE. ENERGY DISSIPATION IS RELATIVELY INDEPENDENT OF FREQUENCY FROM APPROXIMATELY 0.1 TO 30 CPS. THUS, FOR THE PARTICULAR MATERIAL TESTED, A CONSTANT TAN δ VISCOELASTIC MODEL SEEMS TO OFFER A REASONABLE FIRST-ORDER APPROXIMATION OF ITS BEHAVIOR FOR PURPOSES OF DETERMINING PEAK STRESS ATTENUATION AND CHANGE IN WAVE SHAPE FOR PROBLEMS INVOLVING WAVE PROPAGATION.

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-33456 *CONTINUED*
*STRESS ANALYSIS + WAVE, STRESS + SOIL MECHANICS + EARTHQUAKE, GENERAL + *TECTONICS + *EARTH MATERIAL, DYNAMIC PROPERTY

2-33455
BALLARC RF
A VIBRATORY TECHNIQUE FOR DELINEATING SUBSURFACE FRACTURE ZONES RESULTING FROM DETONATIONS
ARMY ENGINEER WATERWAYS EXPERIMENT STATION, MISS.
CONF-670804 +. 13 PAGES, PAGES 891-903 OF PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS HELD ON AUGUSTS 23-25, 1967 AT ALBUQUERQUE, NEW MEXICO, UNIVERSITY OF NEW MEXICO PRESS, 1968

SITE INVESTIGATIONS WERE CONDUCTED AT TWO LOCATIONS, THE SITES OF THE DUGOUT AND 'CHARLIE' EVENTS, AT THE NEVADA TEST SITE, FOR THE PURPOSE OF EVALUATING THE DYNAMIC IN SITU TECHNIQUE AS A MEANS OF DETERMINING THE BOUNDARIES OF CRATERS PRODUCED BY EXPLOSIVE DETONATIONS. SHEAR-WAVE VELOCITIES AT THE LOCATION OF THE DUGOUT EVENT WERE DETERMINED BY VIBRATION TESTS. FROM THE VIBRATION DATA, IT WAS POSSIBLE TO MAKE A CROSS-SECTIONAL CONTOURED PLOT OF SHEAR-WAVE VELOCITIES WHICH SHOWED THE EXTENT OF SUBSURFACE DISTURBANCES.

*EARTH MATERIAL, DYNAMIC PROPERTY + *GROUND MOTION + *FAULT + *ROCK MECHANICS + SOIL MECHANICS + EARTHQUAKE, GENERAL + *FAULT + EARTH TREMOR, INDUCED

2-33507
MAXWELL AA + FRY ZB
A PROCEDURE FOR DETERMINING ELASTIC MODULI OF IN SITU SOILS BY DYNAMIC TECHNIQUES
ARMY ENGINEER WATERWAYS EXPERIMENT STATION, VICKSBURG, MISSISSIPPI
CONF-670804 +. 7 PAGES, PAGES 913-19 OF PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS HELD ON AUGUST 23-24, 1967 AT ALBUQUERQUE, NEW MEXICO, UNIVERSITY OF NEW MEXICO PRESS, 1968

DESCRIBES PROCEDURE FOR DETERMINING THE ELASTIC MODULI OF IN SITU SOILS. USES THE DETERMINATION OF THE VELOCITY OF WAVES PROPAGATED AT KNOWN FREQUENCIES ALONG THE EXPOSED SURFACE OF THE SOIL. THE DETERMINATION OF THE VELOCITY OF WAVE PROPAGATION OVER A RANGE OF FREQUENCIES PROVIDES A MEANS OF DERIVING THE ELASTIC CONSTANTS OF A SOIL.

*EARTH MATERIAL, DYNAMIC PROPERTY + *SOIL MECHANICS + *ELASTICITY + EARTHQUAKE, GENERAL + *STRESS ANALYSIS + TECTONICS + *EARTHQUAKE ENGINEERING

2-33512
CAVE L
SAFETY EVALUATION PROBABILITY METHOD FOR GCRS
6 PAGES, NUCLEAR ENGINEERING, VOLUME 13, PAGES 848-53 (OCTOBER 1968)

THE SUITABILITY FOR URBAN SITING OR THE MAIN VARIANTS OF THE AGR AND HTR SYSTEMS IS INVESTIGATED ON THE BASIS OF THE CRITERIA PROPOSED BY FARMER. THE DESIGN CHARACTERISTICS WHICH AFFECT SAFETY ARE IDENTIFIED, AND THE WAY IN WHICH POSSIBLE VARIATIONS WOULD AFFECT THE FREQUENCY OF PRIMARY FAULTS AND THE SERIOUSNESS OF THEIR EFFECTS IS DISCUSSED. IT IS CONCLUDED THAT IN ADDITION TO THE CURRENT AGR SYSTEM, THE VARIANT MOST LIKELY TO BE SUITABLE IS A HOMOGENEOUS HTR WITH UPWARD COOLANT FLOW, CO₂ COOLANT, A COATED PARTICLE FUEL WITH GOOD FISSION PRODUCT RETENTION, AND A CO₂ RESISTANT CONTAINER.

REACTOR, GCR + REACTOR, HTGR + *SITING, URBAN + DESIGN CRITERIA + *SAFETY PRINCIPLES AND PHILOSOPHY + *UNITED KINGDOM

2-33546
IDRISS IM + SEED HB
SEISMIC RESPONSE OF HORIZONTAL SOIL LAYERS
UNIVERSITY OF CALIFORNIA, BERKELEY
29 PAGES, 17 FIGURES, 4 TABLES, 25 REFERENCES, JOURNAL OF THE SOIL MECHANICS AND FOUNDATIONS DIVISION, PROCEEDINGS OF THE ASCE, 94(4), PAGES 1003-31 (JULY 1968)

GIVES METHODS FOR ANALYZING THE RESPONSE OF SOIL LAYERS DURING EARTHQUAKES. THE METHODS INCLUDE LINEAR ELASTIC ANALYSES, A BILINEAR ANALYSIS, AND AN EQUIVALENT LINEAR ANALYSIS.

*SEISMOLOGY + EARTHQUAKE, GENERAL + *MATHEMATICAL TREATMENT + *ROCK MECHANICS + TECTONICS + *SOIL MECHANICS

2-33571
DOUGLAS A + LILWALL RC
DOES EPICENTRE SOURCE BIAS EXIST
2 PAGES, NATURE (LONDON), 220, PAGES 469-470 (NOVEMBER 2, 1968)

A STUDY OF THE SEISMIC WAVES GENERATED INDICATED THAT THE ARRIVAL TIMES OF P WAVES AT STATIONS ON AZIMUTHS TO THE NORTH OF THE ALEUTIAN ARC WERE EARLIER THAN PREDICTED, WHEREAS ARRIVAL TIMES TO THE SOUTH WERE USUALLY LATER THAN PREDICTED. ERRORS IN EPICENTRE LOCATION, WITH AND WITHOUT STATION CORRECTIONS, ARE TABULATED FOR A NUMBER OF EVENTS (INCLUDING LONGSHOT AND THE HAWAIIAN EARTHQUAKE OF JUNE 28, 1962).

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-33571 *CONTINUED*

*EARTHQUAKE EPICENTER + EARTHQUAKE, GENERAL + SEISMOLOGY + *GEOLOGICAL CONSIDERATION, GEOPHYSICAL + *WAVE, STRESS + *EARTH TREMOR, INDUCED

2-33572

SMITH WET + WHITHAM K + PICHE WT

A MICROEARTHQUAKE SWARM IN 1965 NEAR MOULD BAY, N.W.T., CANADA

21 PAGES, 10 FIGURES, 2 TABLES, 23 REFERENCES, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, 58(6), PAGES 1991-2011 (DECEMBER 1968)

IN A 30-DAY PERIOD BEGINNING MARCH 29, 1956, SOME 2026 MICROEARTHQUAKES WERE RECORDED AT MBC AND BY THE ARRAY NPNT. ABOUT 10 PER CENT WERE LOCATED. THE EXTENT OF THE EPICENTRAL REGION WAS 3 SQ KM AND OF THE HYPOCENTRAL REGION 8 CU KM. THE CENTROID OF THE HYPOCENTERS WAS 12.6 KM FROM MBC ON AN AZIMUTH OF 121 DEG AND AT A DEPTH OF 6.8 KM, VERY NEARLY ON THE STRIKE OF AN OLD FAULT. ALTHOUGH NO FORESHOCK-AFTERSHOCK SERIES COULD BE DISTINGUISHED, THE EVENTS WERE NOT INDEPENDENT NOR RANDOMLY DISTRIBUTED IN TIME.

EARTHQUAKE, GENERAL + *SEISMIC ZONE + *CANADA + *EARTHQUAKE RECORDS + *EARTHQUAKE EPICENTER + AFTERSHOCK + FORESHOCK + FAULT + *MICROEARTHQUAKE

2-33573

TABOR LL

COMPILATION OF SEISMIC DATA - PANAMA AND ADJOINING LAND AND SEA AREAS

BLUME (JOHN A.) AND ASSOCIATES RESEARCH DIV., CALIF.

NVO-99-22.+. 41 PAGES, DECEMBER 1967

DESCRIPTIVE DATA OF 442 EARTHQUAKES APPEAR IN THIS SEISMIC HISTORY OF PANAMA AND ADJOINING LAND AND SEA AREAS. NOTES INTENSITIES AND THE SCALE USED, SPECIAL OBSERVATIONS SUCH AS (1) CERTAIN CENTERS OF POPULATION REMAINING COMPARATIVELY UNAFFECTED BY SHOCKS OF RELATIVELY HIGH MAGNITUDE OR INTENSITY. (2) CERTAIN EARTHQUAKES IN OR NEAR OCEAN REGIONS THAT MAY GENERATE DESTRUCTIVE TSUNAMIS, AND (3) OTHER POINTS OR TRENDS.

AVAILABILITY - L.L. TABOR, BLUME (JOHN A.) AND ASSOCIATES RESEARCH DIV., SAN FRANCISCO, CALIF.

EARTHQUAKE, GENERAL + *SEISMIC ZONE + EARTHQUAKE RECORDS + GEOLOGICAL CONSIDERATION, GENERAL + *SEICHE + TECTONICS + *TSUNAMI

2-33574

TABOR LL

COMPILATION OF SEISMIC DATA - COLOMBIA AND ADJOINING LAND AND SEA AREAS

BLUME (JOHN A.) AND ASSOCIATES RESEARCH DIV., CALIF.

NVO-99-21 +. 213 PAGES, NOVEMBER 1967

COVERS THE SEISMIC HISTORY OF COLOMBIA AND ADJOINING LAND AND SEA AREAS FOR THE PAST 400 YEARS. DATA OBTAINED FROM A VARIETY OF SOURCES. WHEREAS THE FIRST 300 YEARS WERE GENERALLY BASED ON OBSERVATIONS IN AT MOST A FEW PLACES IN THE THEN SPARSELY POPULATED REGION AFFECTED BY THE SHOCKS, THE CURRENT PRACTICE IS TO DETERMINE THE EPICENTRAL LOCATION AND INTENSITY OF THE QUAKE.

AVAILABILITY - L.L. TABOR, BLUME (JOHN A.) AND ASSOCIATES RESEARCH DIV., SAN FRANCISCO, CALIF.

TSUNAMI + EARTHQUAKE, GENERAL + *EARTHQUAKE RECORDS + GEOLOGICAL CONSIDERATION, GENERAL + FAULT + SEISMOLOGY

2-33575

STRUCTURAL DYNAMICS OF CANTILEVER-TYPE BUILDINGS

BLUME (JOHN A.) AND ASSOCIATES RESEARCH DIV., CALIF.

NVO-99-31 + CONF-690101-1 +. 48 PAGES, JAN. 1968, FOR PRESENTATION AT 4TH WORLD CONFERENCE ON EARTHQUAKE ENGINEERING, SANTIAGO, CHILE

STRUCTURAL AND DYNAMIC PROPERTIES OF BUILDINGS VARY WITH THE RATIO OF THE STIFFNESS OF THE HORIZONTAL TO THE VERTICAL MEMBERS AND ELEMENTS. MANY CONTEMPORARY BUILDINGS HAVE LOW RATIOS AND PERFORM MORE AS CANTILEVERS THAN AS FRAMES. CANTILEVER-TYPE BUILDINGS ARE INVESTIGATED BY THE DETAILED ANALYSIS OF OVER FORTY MODELS COVERING THE ENTIRE RANGE OF RELATIVE STIFFNESSES. USEFUL CONCEPTS AND STRUCTURAL-DYNAMIC DATA ARE PROVIDED FOR CANTILEVER-TYPE BUILDINGS, WHICH TYPE HAS BEEN SUBJECT TO SEVERE EARTHQUAKE DAMAGE IN CHILE, ANCHORAGE AND CARACAS.

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

*STRUCTURAL INTEGRITY + *DESIGN CRITERIA + *GROUND MOTION + DEFORMATION + *FOUNDATION ENGINEERING + MODEL TESTING + *EARTHQUAKE ENGINEERING + *STRESS ANALYSIS + EARTHQUAKE, GENERAL

2-33576

HUTCHINS WH

A REAL TIME SEISMIC ARRAY DATA ANALYSER AND ITS ASSOCIATED EVENT SELECTOR

UKAEA, ALDERMASTON

16 PAGES, 9 FIGURES, 5 REFERENCES, THE RADIO AND ELECTRONIC ENGINEER, 31, PAGES 293-308 (MAY 1966)

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-33576 *CONTINUED*

S.A.D.A. IS ESSENTIALLY A SPECIALIZED HYBRID COMPUTER, ANALOGUE OR DIGITAL METHODS BEING USED FOR THE VARIOUS FUNCTIONS AS DIRECTED BY CONSIDERATIONS OF ACCURACY, SPEED, COMPLEXITY, DEVELOPMENT TIME, AND COST. THE ANALYSER CAN BE CONSIDERED TO CONSIST OF FOUR SECTIONS, NAMELY, ANALOGUE INPUT, SIGNAL PHASING, ARITHMETIC, AND DISPLAY.

*COMPUTER, ANALOG + *COMPUTER, DIGITAL + *MATHEMATICAL TREATMENT + DESIGN CRITERIA + EARTHQUAKE, GENERAL + *INSTRUMENT, EARTHQUAKE

2-33577

BUSEY FM

FLOATING EARTHQUAKE-RESISTANT LARGE NUCLEAR POWER STATIONS

DONALD W. DOUGLAS LAB., WASH.

1 PAGE, 1 FIGURE, 1 REFERENCE, ANS TRANSACTIONS, 11(1), PAGE 370 (JUNE 1968)

PROTECTION AGAINST SEVERE SHAKING AND DIFFERENTIAL MOVEMENT OF EARTHQUAKES IS PROVIDED BY FLOATING A NUCLEAR POWER STATION ON WATER AND SHELTERING IT FROM STORM WAVES WITH A BREAKWATER OR WAVE DAMPER. ALL ITEMS ARE DESIGNED TO WITHSTAND THE ACCELERATION, PROVIDED THAT ALL COMPONENTS MOVE TOGETHER.

HAROLD M BUSEY, DONALD W. DOUGLAS LABORATORIES, MCDONNELL DOUGLAS CORP., 2955 GEORGE WASHINGTON WAY, RICHLAND, WASHINGTON 99352

EARTHQUAKE, GENERAL + *REACTOR, SAFETY RESEARCH + HAZAROUS ANALYSIS + INTERACTION, FOUNDATION AND STRUCTURE + MODEL TESTING + *SHOCK ISOLATION + SITE CRITERIA, EARTHQUAKE + STRESS ANALYSIS + STRUCTURAL INTEGRITY

2-33578

FINITE ELEMENT SOLUTION FOR WAVE PROPAGATION IN LAYERED MEDIA CAUSED BY A NUCLEAR DETONATION

IIT RESEARCH INSTITUTE, CHICAGO

CONF-670804 +. 12 PAGES, PAGES 59-70 OF PROCEEDINGS OF INTERNATIONAL SYMPOSIUM ON WAVE PROPAGATION AND DYNAMIC PROPERTIES OF EARTH MATERIALS HELD ON AUGUST 23-25, 1967, ALBUQUERQUE, NEW MEXICO, UNIVERSITY OF NEW MEXICO PRESS, 1968

DEVELOPED A COMPUTER PROGRAM TO TREAT THE RESPONSE OF GENERAL TWO-DIMENSIONAL CONTINUUM PROBLEMS SUBJECTED TO DYNAMIC LOADINGS CAUSED BY NUCLEAR DETONATION. THE NUMERICAL RESULTS PRESENTED ARE FOR RATHER IDEALIZED PROBLEMS, NAMELY, THE RESPONSE OF HORIZONTALLY LAYERED ELASTIC MATERIALS SUBJECTED TO A 1-MT EXPLOSION.

*WAVE, STRESS + *STRESS ANALYSIS + *MATHEMATICAL TREATMENT + *EARTH TREMOR, INDUCED + EARTHQUAKE, GENERAL + TECTONICS + GROUND MOTION + *SHOCK WAVE

2-33579

HORAI K + SIMMONS G

SEISMIC TRAVEL TIME ANOMALY DUE TO ANOMALOUS HEAT FLOW AND DENSITY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE

12 PAGES, J. GEOPHYS. RES., 73, PAGES 7477-88 (DECEMBER 15, 1968)

THE EFFECTS ON SEISMIC TRAVEL TIMES OF (1) EXCESS TEMPERATURES ASSOCIATED WITH THE LOW-ORDER HARMONICS OF THE SURFACE HEAT FLOW AND (2) EXCESS MASS ESTIMATED FROM THE HIGH-ORDER HARMONICS OF THE EARTH'S GRAVITATIONAL FIELD AS DETERMINED FROM SATELLITE ORBITS ARE CALCULATED. THE RESULTS ARE COMPARED WITH THE DATA OF HEAT FLOW AND THE SEISMIC TIME DELAYS OF LONGSHOT, AN UNDERGROUND NUCLEAR EXPLOSION IN THE ALUTIANS. IT IS SUGGESTED THAT THE THERMAL FIELD RATHER THAN THE DENSITY OF THE EARTH MAY BE A MAJOR CAUSE OF THE SEISMIC-TRAVEL-TIME ANOMALY.

SEISMOLOGY + ENERGY LEVEL + *GEOLOGICAL CONSIDERATION, GEOPHYSICAL + COMPACTION + GROUND MOTION + ROCK MECHANICS

2-33751

ALSO IN CATEGORIES 12 AND 18

MODIFICATIONS AND SAFETY EVALUATION OF EMERGENCY CORE COOLING SYSTEM

JERSEY CENTRAL POWER AND LIGHT COMPANY, MORRISTOWN, N.J.

75 PAGES, FIGURES, TABLES, AMENDMENT 8 TO OYSTER CREEK 1 LICENSE APPLICATION, AUG. 22, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 20-PAGE REPORT ON SMALL-BREAK-REGION CLAD TEMPS. AND FUEL-ROD PERFORATION SHOWING THAT PERCENTAGE OF RODS PERFORATED INDICATES CORE ADEQUATELY PROTECTED. OTHER ITEMS DISCUSSED - ELECTROMAGNETIC RELIEF VALVES, ON-SITE AC-DC POWER, INITIATION OF BOTH CORE SPRAYS, CLOSURE OF ISOLATION VALVES, ACTUATION OF ECCS, POST-ACCIDENT CONDITIONS, AND IN-SERVICE INSPECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

OYSTER CREEK 1 (BWR) + REACTOR, BWR + *ENGINEERED SAFETY FEATURE + *MODIFICATION, SYSTEM OR EQUIPMENT + *SAFETY EVALUATION + EMERGENCY COOLING CONSIDERATIONS + ELECTRIC POWER, GENERAL + FAILURE, FUEL ELEMENT + CONTAINMENT ISOLATION + ACCIDENT, CONSEQUENCES + SURVEILLANCE PROGRAM + EXAMINATION

2-33757

ALSO IN CATEGORIES 16 AND 18

REVISIONS TO PSAR

GULF GENERAL ATOMIC

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-33757 *CONTINUED*
160 PAGES, FIGURES, TABLES, AMEND. 3 TO FT. ST. VRAIN LICENSE APPLICATION, 1967, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS REVISED PAGES FOR PSAR TO REFLECT PROGRESS IN THE PLANT DESIGN. MAJOR REVISION IS THE METEOROLOGICAL REPORT ON THE SITE CLIMATOLOGY AND ATMOSPHERIC CONDITIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, PSAR + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + *SITE CLIMATOLOGY + SITING, REACTOR + *METEOROLOGY + REACTOR, GRAPHITE MODERATED

2-34684 ALSO IN CATEGORIES 1 AND 18
GENERATING STATIONS EMERGENCY PLAN
COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS
50 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 12 TO DRESDEN 2 AND AMENDMENT 13 TO DRESDEN 3 LICENSE APPLICATION, MAY 20, 1969, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

SETS FORTH THE PLAN OBJECTIVES AND DESCRIBES THE RELATED EMERGENCY ORGANIZATION INCLUDING ASSIGNMENTS OF AUTHORITY AND RESPONSIBILITY, PROVIDES FOR DETECTING AND EVALUATING EMERGENCY CONDITIONS, ESTABLISHING PROTECTIVE ACTION LEVELS, AND PROTECTIVE MEASURES WHEN SUCH LEVELS ARE EXCEEDED, COMMUNICATIONS, LIAISON WITH OFF-SITE SUPPORT GROUPS INCLUDING FEDERAL, STATE AND LOCAL GOVERNMENTAL AUTHORITIES, DOCUMENT REVIEW AND CONTROL, PERIODIC EMERGENCY PREPAREDNESS ASSESSMENT, AND TRAINING OF THE PARTICIPATING PERSONNEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

*EMERGENCY PROCEDURE + *PROCEDURES AND MANUALS + INCIDENT, RECOVERY FROM + STAFFING + ADMINISTRATIVE CONTROL + RADIATION SAFETY AND CONTROL + RADIATION PROTECTION, ORGANIZATION + RADIOLOGICAL ASSISTANCE + DRESDEN 2 (BWR) + DRESDEN 3 (BWR) + REACTOR, BWR + CONSTRUCTION PERMIT PROCESS

2-34686 ALSO IN CATEGORIES 11 AND 18
REVISIONS TO PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY + METROPOLITAN EDISON COMPANY
30 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 10 TO THREE MILE ISLAND LICENSE APPLICATION, JUNE 4, 1969, DOCKET 50-320, TYPE--PWR, MFG--B+W, AE--BURNS + ROE

CONSISTS OF REVISED PAGES FOR PSAR WITH SUPPLEMENTAL INFORMATION ON THE REACTOR COOLANT-PUMP FLYWHEEL-DESIGN CRITERIA, PREOPERATIONAL ENVIRONMENTAL SURVEYS, FIRE PROTECTION IN CLASS-1 BUILDINGS, AND CLARIFICATION OF CORE INTERNALS EARTHQUAKE-DESIGN CRITERIA.

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

REPORT, PSAR + *THREE MILE ISLAND 1 (PWR) + REACTOR, PWR + *DESIGN CRITERIA + *PUMP + *MAIN COOLING SYSTEM + FIRE + CORE COMPONENTS + STRUCTURAL INTEGRITY + EARTHQUAKE ENGINEERING + SAFETY DEVICE

2-34733
NAVARRO R + KING KW
U.S. COAST AND GEODETIC SURVEY SEISMOGRAPH SYSTEMS
COAST AND GEODETIC SURVEY, LAS VEGAS, NEV. SPECIAL PROJECTS PARTY
CGS-C-106 +. 145 PAGES, FIGURES, TABLES, REFERENCES, JUNE, 1967

THE SPECIAL PROJECTS PARTY OF THE COAST AND GEODETIC SURVEY HAS USED MANY TYPES OF SEISMOGRAPH SYSTEMS IN ITS PARTICIPATION IN NUCLEAR AND HIGH EXPLOSIVE TESTS SINCE 1949, BOTH ON AND OFF-SITE OF THE NEVADA TEST SITE. THIS WORK HAS INCLUDED GROUND-MOTION MEASUREMENTS, VIBRATION STUDIES, AND BACKGROUND AND EARTHQUAKE MONITORING. THIS REPORT DESCRIBES ALL THE SEISMOGRAPH SYSTEMS PRESENTLY USED IN THE NUCLEAR AND HIGH-EXPLOSIVE TESTING PROGRAM. IT ALSO DESCRIBES THE PROCEDURE USED TO CALIBRATE EACH SYSTEM.

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

*SEISMOLOGY + *INSTRUMENT, EARTHQUAKE + GROUND MOTION + *VIBRATION ANALYSIS + MONITOR, GENERAL + EARTHQUAKE, GENERAL + SHOCK WAVE + MEASUREMENT, GENERAL

2-34775
WHEELER VE + PRESTON RG
SCALED FREE-FIELD PARTICLE MOTIONS FROM UNDERGROUND NUCLEAR EXPLOSIONS
UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-50563 +. 29 PAGES, 10 FIGURES, 2 TABLES, 7 REFERENCES, AUGUST 1, 1968

DEALS WITH EQUATIONS THAT HAVE BEEN DERIVED FROM STATISTICAL FITS TO OBSERVATIONS RELATING SCALED FREE-FIELD ACCELERATION. A SURVEY OF RESULTS FROM EXPERIMENTS ARE MADE AND THE RESULTS DISPLAYED IN GRAPHICAL FORM. THIS INFORMATION SHOULD BE USEFUL IN PROBLEMS DEALING WITH POTENTIAL DAMAGE TO NUCLEAR TEST FACILITIES.

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

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-34775 *CONTINUED*
*EARTH TREMOR, INDUCED + *SEISMOLOGY + *WAVE, STRESS + SHOCK WAVE + EARTHQUAKE, GENERAL + DISPLACEMENT, GENERAL + ACCELERATION + *STRESS ANALYSIS + *MATHEMATICAL TREATMENT + MEASUREMENT, GENERAL

2-34776
DUNCAN JM + GEKLER WC + KENNEDY RP + KWAN LT + SHIMIZU B + WILLIAMSON RA + WILSON JH
ANTISEISMIC DESIGN OF A PWR NUCLEAR POWER STATION
HOLMES + NARVER, INC., LOS ANGELES, CALIFORNIA MEMO HN-192 +. PAGES, FIGURES, TABLES, REFERENCES, APRIL, 1968

AMPLE JUSTIFICATION EXISTS FOR CONSIDERING STRONG GROUND SHAKING IN THE DESIGN OF NUCLEAR PLANT STRUCTURES LOCATED IN SEISMIC AREAS. ONE SYSTEM OF MAJOR CONCERN, NAMELY THE REACTOR CONTAINMENT, IS SELECTED FOR DETAILED DEVELOPMENT OF DESIGN CONCEPTS. DESIGN CALCULATIONS AND PRELIMINARY COST ESTIMATES INDICATE THAT REINFORCED CONCRETE CONTAINMENT STRUCTURES ARE TECHNICALLY FEASIBLE FOR AREAS OF SEVERE SEISMICITY AND PROBABLY CAN BE CONSTRUCTED FOR A COST PENALTY IN THE RANGE OF 1 TO 2 PERCENT OF THE TOTAL PLANT COST.

*REACTOR, PWR + *STRESS ANALYSIS + *SEISMOLOGY + *DESIGN CRITERIA + EARTHQUAKE, GENERAL + *SEISMIC ZONE + ECONOMICS + INTERACTION, SOIL AND STRUCTURE + *STRUCTURAL INTEGRITY

2-34777
BUSEY FM
FLOATING PLANTS FOR SEISMIC PROTECTION
MCDONNELL DOUGLAS CORPORATION, RICHLAND, WASHINGTON
11 PAGES, 7 FIGURES, 2 TABLES, 19 REFERENCES, NUCLEAR APPLICATIONS 6(6) PAGES 533-43 (JUNE 1969)

FLOATING ENTIRE NUCLEAR POWER PLANTS ON WATER TO MINIMIZE STRESSES AND DIFFERENTIAL DEFLECTIONS RESULTING FROM SEISMIC SHOCK MAY PERMIT THEIR CONSTRUCTION OFFSHORE, IN BAYS OR RIVERS, AND CLOSE TO POPULATED LOAD CENTERS. THE USE OF OPEN WATER AS AN EXCLUSION AREA, ACCESS TO COOLING WATER IMMEDIATELY AROUND THE STATION, AVAILABILITY OF WATER TRANSPORTATION, AND ASSURANCE OF SAFETY DURING EARTHQUAKES LARGELY OFFSET THE ADDED COST OF FLOATING THE STATION AND TRANSMITTING POWER TO SHORE.

*REACTOR, POWER + *SEISMOLOGY + *REACTOR SAFETY SYSTEM + *ECONOMICS + *DESIGN CRITERIA + *EARTHQUAKE, GENERAL + *SITE CRITERIA, EARTHQUAKE + COMPARISON, THEORY AND EXPERIENCE + *HAZARDS ANALYSIS + SEISMIC ZONE + TSUNAMI + STRESS ANALYSIS + STRUCTURAL INTEGRITY + SITING, OFF SHORE

2-34779
DATT R
CONVERSION OF GAURIBIDANUR SEISMIC ARRAY DATA INTO COMPUTER COMPATIBLE FORM
BHABHA ATOMIC RESEARCH CENTRE, NUCLEAR PHYSICS DIVISION, BOMBAY, INDIA
BARC-357 +. 9 PAGES, 4 FIGURES, 1968

THE PROCESS OF CONVERSION OF THE ANALOG DATA FROM A TWENTY ELEMENT SEISMIC ARRAY INTO A SUITABLE FORMAT FOR CDC-3600 COMPUTER IS DESCRIBED. METHOD OF CONVERSION, STORAGE AND SIGNAL RETRIEVAL FROM THE DIGITIZED DATA AND THE PROBLEM OF SYNCHRONIZATION HAVE BEEN DISCUSSED. ALSO, THE LIMITATIONS AND SCOPE OF THE DATA ACQUISITION SYSTEM ARE MENTIONED.

*COMPUTER PROGRAM + *COMPUTER, DIGITAL + *SEISMOLOGY + COMPUTER, ANALOG + EARTHQUAKE, GENERAL + INSTRUMENT, EARTHQUAKE + *EARTHQUAKE RECORDS

2-34907 ALSO IN CATEGORIES 7 AND 11 AND 18
NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY QUARTERLY REPORT, NOVEMBER 1968-
JANUARY 1969
BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-1C09 +. 161 PAGES, FIGURES, TABLES, MARCH 1969

(CONTAINMENT SYSTEM EXPERIMENT) SPRAY REMOVAL RATE FOR ELEMENTAL IODINE PREDICTED WITHIN 20(FOR THE FIRST FEW MINUTES. NAOH ADDITION NOT EFFECTIVE. NO ACOUSTIC EMISSION DURING BLOWDOWN FROM KNOWN FLAWS IN VESSEL HEAD (THERMAL POLLUTION). REPORT BNWL-999, SIMULATION TO YEAR 2000 OF PLANTS ON THE UPPER MISSISSIPPI, WAS ISSUED. OHIO RIVER SIMULATION HAS BEGUN.

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

R AND C PROGRAM + CSE + FAULT + SIMULATION + THERMAL POLLUTION + RIVER, GENERAL + ANALYTICAL MODEL + *CONTAINMENT SPRAY + *ADDITIVE + *ACOUSTICS + BLOWDOWN + *PRESSURE VESSEL

2-35193
DAVIS HS
A METHOD FOR DETERMINING CONSERVATISM OF EARTHQUAKE DESIGN CRITERIA
DOUGLAS UNITED NUCLEAR
2 PAGES, 1 TABLE, 1 REFERENCE, AHS TRANSACTIONS, 12(1), PAGES 173-174 (JUNE 1969)

CRITICAL COMPONENTS OF A NUCLEAR POWER PLANT ARE USUALLY DESIGNED TO RESIST TWO MAGNITUDES OF EARTHQUAKES - (1) THE OPERATING-BASES EARTHQUAKE AND (2) THE DESIGN-BASIS EARTHQUAKE. THIS PAPER PRESENTS A METHOD FOR DETERMINING (A) WHICH EARTHQUAKE WILL CONTROL IN A PARTICULAR DESIGN AND

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-35193 *CONTINUED*
(B) THE CONSERVATISM OF THE DESIGN.

EARTHQUAKE, GENERAL + *STRUCTURAL INTEGRITY + *DESIGN CRITERIA + SHOCK WAVE + ACCELERATION + *STRESS ANALYSIS
+ TECTONICS + *THEORETICAL INVESTIGATION + MATHEMATICAL TREATMENT + SEISMOLOGY

2-35194
WESLEY DA
RESPONSE SPECTRUM APPROACH TO EARTHQUAKE RESPONSE OF NUCLEAR POWER STATION APPENDAGES
GULF GENERAL ATOMIC
2 PAGES, 1 FIGURE, 8 REFERENCES, ANS TRANSACTIONS, 12(1), PAGES 174-175 (JUNE 1969)

AN ALTERNATIVE APPROACH IS PRESENTED WHERE THE DYNAMIC RESPONSE OF MULTI-DEGREE-OF-FREEDOM
COMPONENT SYSTEMS MAY BE DETERMINED WITHOUT RESORTING TO THE SOLUTION OF THE COMPLETE
MATHEMATICAL MODEL OF THE COMBINED APPENDAGE AND PRIMARY STRUCTURE. ONCE THE DYNAMIC RESPONSE
CHARACTERISTICS OF THE PRIMARY SYSTEM SUBJECTED TO SEISMIC EXCITATION ARE KNOWN, A RESPONSE
SPECTRUM FOR THE APPENDAGE ONLY IS GENERATED, WHICH ACCOUNTS FOR BOTH THE DYNAMIC AMPLIFICATION
OF THE APPENDAGE AS WELL AS THE DYNAMIC FEEDBACK TO THE PRIMARY SYSTEM.

EARTHQUAKE, GENERAL + *MODEL TESTING + *MATHEMATICAL STUDY + MEASUREMENT, GENERAL + DESIGN CRITERIA +
ACCELERATION + STRESS ANALYSIS + THEORETICAL INVESTIGATION

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-29552 ALSO IN CATEGORY 17
STEEL DRUMS LEAKS U-235 AFTER NAIL PUNCTURE
NUCLEAR MATERIALS AND EQUIPMENT CORP.
1 PAGE, TWX TO NY COMPLIANCE (KIRKMAN), NOVEMBER 14, 1968

EARLY MORNING OF NOV. 13, 1968, NAILS PROTRUDING OUT OF A PALLET BEING LOADED ON A TRUCK PUNCTURED A 55-GAL POLYETHYLENE-LINED STEEL DRUM. 8 KG OF 2.78% ENRICHED U-235 IN NITRATE SOLUTION LEAKED ONTO THE TRAILER AND TERMINAL ROADBED. RESIDUAL CONTAMINATION (UP TO 5000 COUNTS/MIN PER 60 SQ. CM) WAS FOUND.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. 20545, (\$0.25 CENTS/PAGE)

TRANSPORTATION AND HANDLING + *LEAK + *SHIPPING CONTAINER + SPECIAL NUCLEAR MATERIAL + URANIUM-235 + FAILURE, OPERATOR ERROR

3-30919
STECHMESSER H
DEVELOPMENT AND CONSTRUCTION OF A SWEEP CIRCUIT FOR THE TRANSPORT OF FISSION PRODUCTS
KERNFORSCHUNGSALAGE, JUELICH, GERMANY
6 PAGES, KERntechnik, 10, PAGES 325-30 (JUNE 1968) IN GERMAN AND ENGLISH

SOME QUESTIONS RELATING TO THE SPECIFICATION, PROJECT STUDY, LAYOUT AND CONSTRUCTION OF A SWEEP CIRCUIT FOR TRANSPORTING FISSION PRODUCTS FROM 10 IRRADIATION CAPSULES ARE DISCUSSED. SOME TYPICAL GAS CIRCUIT PROBLEMS ARE DISCUSSED IN DETAIL

FISSION GAS RELEASE + OFF GAS + IRRADIATION TESTING + GERMANY

3-31461 ALSO IN CATEGORIES 11 AND 13
LONG JT
ENGINEERING FOR NUCLEAR FUEL REPROCESSING
OAK RIDGE NATIONAL LAB., TENN.
1023 PAGES, FIGURES, TABLES, REFERENCES, NEW YORK, GORDON AND BREACH SCIENCE PUBLISHERS INC., 1967

PRESENTS THE ENGINEERING ASPECTS OF THE REPROCESSING OF POWER-REACTOR FUELS. FLOWSHEETS, DESIGN AND SAFETY FEATURES, CRITICALITY, REMOTE HANDLING AND VIEWING EQUIPMENT, PROCESS EQUIPMENT FUEL STORAGE, AUXILIARY EQUIPMENT, MANAGEMENT AND OPERATION, AND COSTS ARE COVERED.

*FUEL REPROCESSING + *DESIGN CRITERIA + *WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, GAS + WASTE DISPOSAL, SOLID + WASTE DISPOSAL, LIQUID + *SOLVENT EXTRACTION PROCESS + REMOTE MANIPULATING AND VIEWING + *EQUIPMENT, GENERAL + *DISSOLUTION + CRITICALITY SAFETY + FUEL STORAGE + TRANSPORTATION AND HANDLING + DECONTAMINATION + ADMINISTRATIVE CONTROL + *ECONOMICS + *CONTAINMENT, FUEL REPROCESSING + HOT CELL + RADIOCHEMICAL PLANT SAFETY + *SHIPPING CONTAINER + *WASTE STORAGE

3-34706 ALSO IN CATEGORIES 12 AND 13 AND 17
JOHNSON KP + MATTE J
OPERATING EXPERIENCE WITH THE FERMI FUEL HANDLING CASK CAR
POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN + ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN
15 PAGES, 9 FIGURES, PP. 135-149 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY. REPL 34706 ABST THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY.

AVAILABILITY - K.P. JOHNSON, POWER REACTOR DEVELOPMENT COMPANY, P. O. BOX 725, MONROE, MICHIGAN 48161

*TRANSPORTATION AND HANDLING + *FERMI (LMFBR) + *FUEL HANDLING + *CASK OPERATING EXPERIENCE + FUEL HANDLING MACHINE + OPERATING EXPERIENCE + FAILURE, EQUIPMENT + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

3-34707 ALSO IN CATEGORY 12
WILLIAMS RO + HALLINAN GJ + KIRKBY RC
THE TECHNICAL EVOLUTION OF THE FERMI FUEL TRANSPORT FACILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF. + POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN
11 PAGES, 8 FIGURES, 4 REFERENCES, PP. 150-160 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT IS EQUIPPED WITH A FUEL TRANSPORT FACILITY WHICH FUNCTIONS TO WITHDRAW FUEL SUBASSEMBLIES AND SPECIAL CORE COMPONENTS FROM EITHER THE FUEL-STORAGE OR REACTOR TRANSFER ROTOR, AND TO TRANSPORT AND DEPOSIT THE SUBASSEMBLY OR COMPONENT INTO THE OPPOSITE

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-347C7 *CONTINUED*

ROTOR. THIS PAPER DISCUSSES THE EVOLUTION OF THE FUEL TRANSPORT FACILITY FROM THE ORIGINAL MULTI-BARRELED MACHINE TO THE PRESENT SINGLE-BARREL MACHINE. THE DECISION TO PURCHASE THE NEW MACHINE WAS MADE AFTER REVIEW OF THE MAINTENANCE REQUIREMENTS NECESSITATED BY DESIGN DEFICIENCIES IN THE ORIGINAL MACHINE.

AVAILABILITY - R.O. WILLIAMS, JR., ATOMICS INTERNATIONAL, P.O. BOX 309, CANOGA PARK, CALIFORNIA 91304

*REACTOR, POWER + *FERMI (LMFBR) + REACTOR, LMFBR + *FUEL HANDLING MACHINE + FUEL HANDLING + TRANSPORTATION AND HANDLING + *CASK OPERATING EXPERIENCE + OPERATING EXPERIENCE + DESIGN CRITERIA + REMOTE MANIPULATING AND VIEWING + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

3-34711

ALSO IN CATEGORY 13

MALECHA RF + COLEMAN LF + FINEMAN P + KELECIOUS A + SLAWECKI MA

EBR-II INTRASITE SPENT-FUEL SHIPPING CASKS

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

7 PAGES, 3 FIGURES, 1 REFERENCES, PP. 205-211 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A CHANGE IN THE STATUS OF THE EXPERIMENTAL BREEDER REACTOR II (EBR-II) FROM AN EXPERIMENTAL REACTOR TO A NEUTRON IRRADIATION FACILITY NECESSITATED THE CONSTRUCTION OF TWO DIFFERENT CASKS. THE LEAD-SHIELDED CASKS ARE TO BE USED TO TRANSFER SPENT FUEL TO AN ON-SITE STORAGE AREA. ONE CASK HAS BEEN DESIGNED AND BUILT WHICH PROVIDES AN WATER-COOLED FUEL CAVITY. THE SECOND CASK IS DESIGNED FOR BOTTOM LOADING AND INCORPORATES AN INTEGRAL, TOTALLY ENCLOSED, RECIRCULATING AIR COOLING SYSTEM FOR THE FUEL.

AVAILABILITY - R.F. MALECHA, ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVENUE, ARGONNE, ILLINOIS 60439

*TRANSPORTATION AND HANDLING + *SHIPPING CONTAINER + *DESIGN CRITERIA + REACTOR, BREEDER + REACTOR, LMCR + REACTOR, FAST

3-34716

ALSO IN CATEGORY 13

NATESH R + KOPROWSKI BJ + BUTLER EM + DONAHUE DA

TRANSFER AND ANALYSIS OF HIGHLY RADIOACTIVE MATERIALS IN A SHIELDED ELECTRON MICROPROBE

ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

10 PAGES, 12 FIGURES, 2 TABLES, 1 REFERENCES, PP. 243-252 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A PNEUMATIC TRANSFER SYSTEM HAS BEEN DESIGNED AND BUILT TO PROVIDE RAPID AND SAFE TRANSPORTATION FOR HIGHLY RADIOACTIVE BULK SAMPLES FROM A HOT-CELL STORAGE AREA TO A SHIELDED ELECTRON MICROPROBE. REMOTE SPECIMEN TRANSFER CAN BE ACCOMPLISHED BY THE MICROPROBE OPERATOR IN LESS THAN TWO MINUTES. EXPERIMENTS HAVE BEEN PERFORMED ON SPECIMENS OF IRRADIATED UO₂-PUO₂ FUEL IN THE SHIELDED PROBE TO DETERMINE THE CORRECTIONS FOR BACKGROUND RADIATION.

AVAILABILITY - R. NATESH, ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVENUE, ARGONNE ILLINOIS 60439

*TRANSPORTATION AND HANDLING + *ELECTRON MICROSCOPY + *EQUIPMENT, GENERAL + *REACTOR, GENERAL + *IRRADIATION TESTING + FUEL ELEMENT + HOT CELL

3-35172

ALSO IN CATEGORY 17

SELECTED ELK RIVER OPERATING EXPERIENCE FOR APRIL, 1968

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-59 +. 20 PAGES, OPERATING REPORT NO. 66, APRIL 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR HAS REMAINED SHUTDOWN SINCE JAN. 31, 1968 AND NOW AWAITS APPROVAL OF 250-PSIG HYDROTEST. BF3 CHAMBER FOR STARTUP CHANNEL WAS FULLY INSERTED WHERE LOWER STARTUP CRITERIA LIMIT OF 120 CPM WILL OCCUR AT END OF JUNE (DECAY OF 60-D HALF-LIFE OF SB-BE NEUTRON SOURCE). *** THREE STEEL-LINED CONCRETE DRY-WASTE SHIPPING CASKS, REDESIGNED TO ACCOMMODATE STANDARD 55-GAL DRUMS, WERE RECEIVED. REDESIGN OBTAINS TRANSFERRAL FROM DRUM TO CASK. *** ENGINE GENERATOR (50 KW) FAILED TO START. ADJUSTMENT OF CARBURETOR LINKAGE AND SOLENOID SHUTOFF VALVE RESULTED IN TROUBLE-FREE STARTS. *** SHIPPING CASK (30 TON) WAS LOADED WITH 28 IRRADIATED ELEMENTS (FOUR KNOWN LEAKERS), INSTRUMENTED WITH THERMOCOUPLES TO MEASURE EQUILIBRIUM TEMPERATURE, LEAK TESTED AT 5 PSIG, INTERNAL CASK ENVIRONMENT SAMPLED, EXTERIOR DECONTAMINATED AND AEC SHIPPING APPROVAL OBTAINED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + REACTOR, BWR + *SOURCE, NEUTRON + ANTIMONY + BERYLLIUM + *WASTE HANDLING + WASTE DISPOSAL, SOLID + SHIPPING CONTAINER + *FAILURE, DESIGN ERROR + *FAILURE, EQUIPMENT + EMERGENCY POWER, ELECTRIC + *GENERATOR, ENGINE + *FUEL HANDLING + DECONTAMINATION + *TEST, PRESSURE VESSEL + *PRESSURE, INTERNAL + OPERATING EXPERIENCE

CATEGORY 4
AEROSPACE SAFETY

4-33919 ALSO IN CATEGORIES 1 AND 18
BLAKE VE
AEROSPACE NUCLEAR SAFETY
SANDIA LABS., ALBUQUERQUE, NEW MEXICO
5 PAGES, 5 FIGURES, PP. 107-111 OF NUCLEONICS IN AEROSPACE, PLENUM PRESS, NEW YORK, 1968

SUMMARIZES SPACE POWER ORGANIZATION, GUIDE (SAFETY DOCUMENTATION REQUIREMENTS FOR SPACE NUCLEAR POWER SYSTEMS), AND USES AN ISOTOPIIC POWER GENERATOR HAZARDS FLOW CHART TO DEMONSTRATE PROBABILITY METHOD OF CALCULATING EXPOSURE

*REPORT, SAR + *SAFETY ANALYSIS + REACTOR, SPACE + FAULT TREE ANALYSIS + *PROBABILITY + SNAP, GENERAL (SR) + ISOTOPIIC GENERATOR + GUIDE

4-33920 ALSO IN CATEGORIES 16 AND 18
PARKER AJ + WEST WS + PYATT DW
AN AEROSPACE NUCLEAR SAFETY ANALYSIS OF A PM203 RADIOISOTOPIC THRUSTER
HITTMAN ASSOCIATES, INC. + GODDARD SPACE FLIGHT CENTER
18 PAGES, 19 FIGURES, 4 TABLES, 5 REFERENCES, PAGES 112-129 OF NUCLEONICS IN AEROSPACE, NEW YORK, PLENUM PRESS, 1968

OUTLINES ANALYSIS METHODS (QUITE IN DETAIL) WHICH GIVE PROBABILITY VALUES FOR VARIOUS KINDS OF DOSES WHICH MIGHT RESULT FROM AN ABORT OR REENTERING ROCKET. HEAT SHIELD WILL MAKE REENTRY INTACT POSSIBLE.

PROBABILITY + *HAZARDS ANALYSIS + SNAP, GENERAL (SR) + SHIELDING + *PRCMETHIUM + ISOTOPIIC GENERATOR

4-33921 ALSO IN CATEGORY 18
ANNO GH + EASTON CR
POPULATION EXPOSURE RISK FROM RANDOM RE-ENTRY OF ISOTOPIIC POWER DEVICES
DOUGLAS AIRCRAFT CO., SANTA MONICA, CALIFORNIA
8 PAGES, 4 FIGURES, 6 TABLES, 13 REFERENCES, PAGES 130-137 OF NUCLEONICS IN AEROSPACE, NEW YORK, PLENUM PRESS, 1968

PROBABILITY TECHNIQUES USED TO ESTIMATE LUNG DOSE (104 TO 350 PEOPLE WOULD RECEIVE GREATER THAN 15 REMS WITH PROBABILITIES OF 0.00015 TO 0.00026) BASED ON A 1-CURIE RELEASE OF PU-238 OR 30 CURIES OF SR-90, WITH RANDOM REENTRY FROM AN EARTH ORBIT.

*POPULATION EXPOSURE + PLUTONIUM + STRONTIUM + ISOTOPIIC GENERATOR + *HAZARDS ANALYSIS + PROBABILITY + SNAP, GENERAL (SR)

4-34354
MANTELL CL
CARBON AND GRAPHITE HANDBOOK
546 PAGES, NEW YORK, JOHN WILEY AND SONS, INC., 1968

CARBON AS AN ELEMENT, MINERAL FORMS, ORIGIN, APPLICATIONS, AND PRODUCTS OF RESTRICTED COMBUSTION, DESTRUCTIVE DISTILLATION, AND THERMAL DECOMPOSITION ARE DISCUSSED. FABRICATION OF CARBON AND GRAPHITE ARTICLES, STRUCTURAL FABRICATED FORMS, MACHINED FABRICATED FORMS, AND CONTROL PROCEDURES ARE INCLUDED. ARTIFICIAL GRAPHITE FOR NUCLEAR AND OTHER SHAPES IS DISCUSSED FOR PURIFICATION METHODS AND ALL VARIETIES ARE LISTED.

BIBLIOGRAPHY + PROPERTY, PHYSICAL + CHEMICAL PROPERTY + FABRICATION + THERMAL PROPERTY + MODERATOR + *CARBON + *GRAPHITE

4-34361 ALSO IN CATEGORY 7
ZWETZIG GB
SURVEY OF FISSION-AND-CORROSION-PRODUCT ACTIVITY IN SODIUM-OR NAK-COOLED REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
AI-AEC-MEMO-12790 +. 13 PAGES, FEBRUARY 28, 1969

IN THE EVENT OF SIGNIFICANT FUEL CLADDING FAILURE, THE FOLLOWING FISSION PRODUCTS WILL PROBABLY BE PRESENT AT THE LOCATIONS INDICATED - COVER GAS (KR-85, XE-133, AND XE-135), COOLANT (I-131, BA-LA-140, ZR-NB-95, AND CS-137), PRIMARY SYSTEM WALLS (ZR-NB-95, XE-141, CE-144, SR-89, SR-90, CS-137, RU-106, AND BA-LA-140). WHERE COOLANT TEMPERATURES ARE 1000 F OR ABOVE, CORROSION OF CORE STRUCTURAL AND CLADDING MATERIALS IS LIKELY TO OCCUR. SOME OF THIS MATERIAL WILL BE RADIOACTIVE, AND WILL DEPOSIT ON THE WALLS OF THE PRIMARY SYSTEM. THE PRINCIPAL ISOTOPES WHICH WILL BE FOUND ARE MN-54 AND CO-60. THE EFFECTIVENESS OF COLD TRAPS IN THE REMOVAL OF FISSION AND CORROSION PRODUCTS OTHER THAN CA-137 REMAINS TO BE DETERMINED, FOR SYSTEMS NOT CONTAINING LARGE QUANTITIES OF CARBONACEOUS MATERIALS.

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

*COOLANT CHEMISTRY + *FISSION PRODUCT RELEASE, GENERAL + CERIUM + STRONTIUM + RUTHENIUM + FILTER, TRAP + *SODIUM + *REACTOR, LMFBR + KRYPTON + XENON + FISSION PRODUCT, IODINE + BARIUM + ZIRCONIUM + CESIUM + *FISSION PRODUCT TRANSPORT

CATEGORY 4
AEROSPACE SAFETY

4-34362 ALSO IN CATEGORY 7
ONDREJCIN RS + SELBY CL
ROLE OF CHLORIDE IN HOT SALT STRESS-CORROSION CRACKING OF TITANIUM-ALUMINUM ALLOYS
SAVANNAH RIVER LAB., AIKEN, S.C.
DP(NASA)-1118 +. 16 PAGES, 1 FIGURE, 2 TABLES, JULY 1967

EXPERIMENTAL EVIDENCE OBTAINED BY THE ELECTRON MICROPROBE, MASS SPECTROMETER, AND RADIOTRACERS DEMONSTRATED THAT THE ROLE OF CHLORIDE IN HOT SALT STRESS-CORROSION CRACKING OF TITANIUM-ALUMINUM ALLOYS IS TO FORM HCl THROUGH A PYROHYDROLYTIC REACTION BETWEEN THE SALT, MOISTURE RETAINED IN THE SALT DEPOSIT, AND THE PROTECTIVE OXIDE FILM ON THE METAL. THE HCl SUBSEQUENTLY REACTS WITH THE METAL SURFACE TO PRODUCE THE METAL CHLORIDE AND HYDROGEN.

R.S. ONDREJCIN/C.L. SELBY, SAVANNAH RIVER LAB., AIKEN, S.C.

CORROSION + *STRESS CORROSION + *CHLORIDE + *TITANIUM + *ALLOY + HYDROGEN + WATER VAPOR + ALUMINUM

4-34420 ALSO IN CATEGORY 7
MEYER RT + LEVINE HS
HIGH-TEMPERATURE PERMEATION OF ZIRCONIA MICROSPHERES BY NITROGEN AND OXYGEN
SANDIA LABS., ALBUQUERQUE, NEW MEXICO
SC-RR-69-160 +. 30 PAGES, 3 FIGURES, 5 TABLES, 16 REFERENCES, MARCH 1969

A SOLID STATE DIFFUSION MODEL IS FORMULATED TO EXAMINE THE PERMEATION OF GASES THROUGH ZIRCONIA MICROSPHERES FORMED DURING THE SHORT DURATION (ABOUT 200 MSEC), HIGH TEMP. (3000 TO 4000K) REACTION OF ZIRCONIUM WITH CONTROLLED MIXTURES OF NITROGEN AND OXYGEN (N₂/O₂ EQUAL TO 0.025, 625 TORR). THE RESULTS INDICATE THAT INWARD DIFFUSION OF N₂ AND O₂ FROM THE REACTANT ENVIRONMENT ACCOUNTS FOR PARTIAL PRESSURES OF 0.1 AND 2 TORR (MEASURED AT 300K), RESPECTIVELY, IF THE MICROSPHERE IS INITIALLY DEVOID OF GAS. NO SIGNIFICANT OUTWARD DIFFUSION OCCURS IF THE MICROSPHERE INITIALLY CONTAINS 1 ATMOSPHERE OF N₂ AND O₂.

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

COATED PARTICLE + THERMAL EXPERIMENT + *HIGH TEMPERATURE + *ANALYTICAL MODEL + *DIFFUSION + THEORETICAL INVESTIGATION + *ZIRCONIUM + NITROGEN + OXYGEN + *OXIDE

4-34646 ALSO IN CATEGORY 7
NICHOLS FA
THEORY OF THE CREEP OF ZIRCALOY DURING NEUTRON IRRADIATION
WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB., PA.
WAPD-T-2102(REV.) +. 41 PAGES, 3 TABLES, 53 REFERENCES, SEPTEMBER 1968

PROPOSES COMPREHENSIVE MODEL TO EXPLAIN CREEP OF ZIRCALOY DURING NEUTRON IRRADIATION. SUGGESTS THAT IN-PILE SOFTENING OBSERVED AT LOW STRESSES IS DUE TO A COMBINATION OF THE GROWTH-DIRECTED ROBERTS-COTTRELL YIELDING CREEP ORIGINALLY PROPOSED FOR ALPHA-URANIUM AND THE FORMATION OF POINT DEFECT LOOPS PREFERENTIALLY ON CERTAIN PLANES IN RESPONSE TO THE APPLIED STRESS, WITH THE SECOND PROCESS BEING OF RELATIVELY GREATER IMPORTANCE. SUGGESTS IN-PILE HARDENING OBSERVED AT HIGH STRESSES (OR STRAIN-RATES) IS DUE TO THE CUTTING BY DISLOCATIONS OF DEPLETED ZONES (ORIGINALLY PROPOSED BY SEEGER TO ACCOUNT FOR POSTIRRADIATION HARDENING). IN THIS STRESS (STRAIN-RATE) REGION, IN-PILE BEHAVIOR IS IDENTICAL TO POSTIRRADIATION BEHAVIOR.

AVAILABILITY - F.A. NICHOLS, WESTINGHOUSE ELECTRIC CORPORATION, BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.

*CREEP + CREEP BEHAVIOR + CREEP PROPERTY + *ANALYTICAL MODEL + *RADIATION EFFECT + RADIATION DAMAGE + *STRESS STRAIN DATA + THEORETICAL INVESTIGATION + *ZIRCALOY + ZIRCONIUM + ALLOY

4-34744 ALSO IN CATEGORY 9
SMITH OL + ROBINSON JC
POSSIBLE CONTROL MECHANISMS FOR THE MPRE
OAK RIDGE NATIONAL LABORATORY
ORNL - TM - 1619 +. 23 PAGES, 8 FIGURES, 5 TABLES, JANUARY 1967

THREE POSSIBLE CONTROL DEVICES FOR THE MPRE ARE STUDIED (A) AN IRIS DIAPHRAGM OF B₄C ACROSS ONE END OF THE REACTOR CORE, (B) A SET OF ROTATING BEN DRUMS INLAID WITH THIN LAYERS OF B₄C IN THE SIDE REFLECTOR, (C) A MOVABLE PLUG OF REFLECTOR AT THE BOTTOM OF THE CORE. THE CONTROL DEVICES ARE EVALUATED IN TERMS OF A REFERENCE REACTOR THAT IS INTENDED TO APPROXIMATE THE DESIGN CONFIGURATION OF THE MPRE AS NEARLY AS POSSIBLE AT THE PRESENT TIME. CURRENT ESTIMATES INDICATE THAT A 4% REACTIVITY SWING MAY BE NECESSARY FOR TOTAL REACTOR CONTROL OVER A 3-YEAR PERIOD.

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

*REACTOR CONTROL + *REACTOR, SPACE + THEORETICAL INVESTIGATION + CONTROL SYSTEM + *DESIGN STUDY + MATHEMATICAL TREATMENT + REACTOR POWER

4-34746 ALSO IN CATEGORIES 6 AND 9
SMITH OL + ROBINSON JC
A THEORETICAL INVESTIGATION OF THE DYNAMIC BEHAVIOR OF THE MEDIUM POWER REACTOR EXPERIMENT

CATEGORY 4
AEROSPACE SAFETY

4-34746 *CONTINUED*
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-TM-1611 +. 73 PAGES, 20 FIGURES, 1 TABLE, 5 REFERENCES, JANUARY 1967

PRESENTS A THEORETICAL STUDY OF THE TRANSIENT BEHAVIOR OF THE MPRE UNDER A VARIETY OF NONEQUILIBRIUM CONDITIONS. A FAIRLY GENERALIZED PHYSICAL AND MATHEMATICAL MODEL OF THE SYSTEM IS DEVELOPED, INCLUDING DETAILED DESCRIPTIONS OF THE NEUTRONICS AND THERMODYNAMICS OF THE FUEL, THE TWO-PHASE FLOW IN THE BOILER, AND THE SINGLE-PHASE FLOW IN THE REMAINDER OF THE SYSTEM. THE MATHEMATICAL PROBLEM IS SOLVED NUMERICALLY BY A CODE WRITTEN IN FORTRAN II FOR THE IBM 7090 COMPUTER AND IN FORTRAN IV FOR THE IBM 360 COMPUTER.

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

REACTOR CONTROL + THEORETICAL INVESTIGATION + *REACTOR, SPACE + METAL, LIQUID + POTASSIUM + *ANALYTICAL MODEL
+ *REACTOR DYNAMICS + MATHEMATICAL TREATMENT + REACTOR POWER

CATEGORY 5
ACCIDENT ANALYSIS

5-30007 ALSO IN CATEGORY 6
RHODE RR + WINIECKI AL
ANALOG ANALYSIS OF FLOW REVERSAL AND WATER-HAMMER PRESSURE IN A TYPICAL CLOSED AARR HYDRAULIC RABBIT-TUBE FACILITY
ARGONNE NATIONAL LABORATORY
ANL-7336 +. 23 PAGES, 15 FIGURES, 1 TABLE, AUGUST 1967

CONDUCTED AN ANALOGUE COMPUTER ANALYSIS OF FLOW REVERSAL AND WATER-HAMMER PRESSURES IN A CLOSED AARR HYDRAULIC RABBIT SYSTEM. THE PARAMETRIC STUDY INDICATED THAT THE OVERPRESSURE ALLOWANCE SHOULD BE ENOUGH TO PREVENT VOID FORMATION IN THE LOOP.

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

*COMPUTER, ANALOG + *HYDRAULIC ANALYSIS + FLOW, PULSATING + COMPUTER PROGRAM

5-30144 ALSO IN CATEGORIES 1 AND 18
DESCRIPTION AND HAZARD ANALYSIS OF JAPAN RESEARCH REACTOR
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
JAERI-6003 +. 97 PAGES, 83 FIGURES, 36 TABLES, 19 REFERENCES, 1961

GIVES A GENERAL DESCRIPTION OF THE SAFEGUARD ANALYSIS ON THE JAPAN RESEARCH REACTOR NO. 2 (JRR-2), LOCATED AT THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, JAPAN. THE REACTOR IS ESSENTIALLY A HETEROGENEOUS TYPE RESEARCH REACTOR, USING AN ENRICHED-U MTR-TYPE FUEL, MODERATED AND COOLED BY HEAVY WATER. THE TARGET POWER LEVEL AND NEUTRON FLUX ARE 10 MW AND 10 TO THE 14TH N/CM SQUARED/SEC. THE REACTOR IS QUITE SIMILAR TO THE CP-5 AT THE ARGONNE NATIONAL LABORATORY, EXCEPT IN THE FOLLOWING TWO POINTS - (1) THE THERMAL OUTPUT IS DESIGNED TO BE 10 MW, AND (2) THE THERMAL SHIELD EMPLOYS LAMINATED LAYERS OF STAINLESS STEEL AND LIGHT WATER. THE REACTOR IS HOUSED IN A GAS-TIGHT CONTAINMENT BUILDING AND INCORPORATES MANIFOLD SAFETY DEVICES. MOREOVER, AN EMERGENCY COOLING SYSTEM IS PROVIDED TO PREVENT THE FUEL ELEMENTS FROM MELTING DOWN, EVEN IN A CATASTROPHE.

AVAILABILITY - TECHNICAL LIBRARY, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA NAKA-GUN, IBARAKI-KEN, JAPAN

*REACTOR, RESEARCH + *JAPAN + *REPORT, PSAR + REACTOR, HWR

5-30655 ALSO IN CATEGORY 12
FUEL ELEMENT HEAT TRANSFER ARRANGEMENT
LICENTIA PATENTVERWALTUNG GMBH
U. S. PATENT 3,384,551 +. MAY 21, 1968

A CLADDING ARRANGEMENT FOR PROTECTING A TUBULAR FUEL ELEMENT AND INCLUDING AN INNER JACKET COVERING THE INNER SURFACE OF THE FUEL ELEMENT IS DESCRIBED. A CORROSION RESISTANT METAL LAYER COVERS THE FIRST JACKET OF ZIRCONIUM ALLOY, AND A SECOND JACKET COVERS THE OUTER SURFACE OF THE FUEL ELEMENT. THE ENDS OF THE FUEL ELEMENTS ARE PLUGGED WITH THE SAME ZIRCONIUM ALLOY.

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

*REACTOR, GENERAL + *FUEL ELEMENT + HEAT TRANSFER + *CLADDING + PATENT + ZIRCONIUM + ALLOY + GERMANY

5-30669 ALSO IN CATEGORY 12
TONG LS
EVALUATION OF THE DEPARTURE FROM NUCLEATE BOILING IN BUNDLES OF REACTOR FUEL RODS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH
9 PAGES, NUCL. SCI. ENG., 33, PAGES 7-15 (1968)

FLOW BOILING CRISIS IS CATEGORIZED INTO AT LEAST TWO TYPES (DEPARTURE FROM NUCLEATE BOILING (DNB) IN THE SUBCOOLED AND LOW-QUALITY REGION AND DRY-OUT IN THE HIGH-QUALITY REGION). TO ANALYZE THE DNB FLUX IN A ROD BUNDLE, THE FLOW CONDITIONS ARE EVALUATED BY A SUBCHANNEL ANALYSIS AND A SINGLE-CHANNEL DNB CORRELATION IS USED FOR PREDICTIONS. ROD-BUNDLE DNB DATA ARE PRESENTED TO VERIFY THE ABOVE STATEMENT. UNCERTAINTIES IN THE MEASURED DNB HEAT FLUXES ARE LISTED.

*REACTOR, GENERAL + FUEL ELEMENT + BUBBLE NUCLEATION + *NUCLEATE BOILING + EXPERIMENT, GENERAL

5-31578 ALSO IN CATEGORIES 13 AND 18
YOUNGBLOOD EL + MILES FW
HAZARDS EVALUATION FOR THE FLUIDIZED-BED VOLATILITY PILOT PLANT
OAK RIDGE NATIONAL LABORATORY, TENN.
ORNL-TM-2092 +. 133 PAGES, 27 FIGURES, 7 TABLES, 86 REFERENCES, JULY 1968

PLANT DEMONSTRATES RECOVERY AND PURIFICATION OF U AND PU FROM LOW-ENRICHED UO₂ FUEL BY FLUORIDE-VOLATILITY METHOD. UP TO 40 KG OF PU PROCESSED PER RUN. MCA IS NUCLEAR EXCURSION IN WHICH A PROCESS VESSEL CONTAINING PU AND FISSION PRODUCTS RUPTURES IN A CONTAINMENT CELL. FOR CHEMICAL EXPLOSION OF 6 MILLION CURIES OF MIXED FISSION PRODUCTS, DOSE OF 34 MILLIREMS RECEIVED DOWNWIND AND 14 MILLIREMS FOR 2-MIN EXPOSURE IN SECONDARY CONTAINMENT.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-31578 *CONTINUED*
COPY, \$0.65 MICROFICHE

*HAZARDS ANALYSIS + *FUEL REPROCESSING + RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + CHEMICAL REACTION + EXPLOSION + FISSION PRODUCT RELEASE, GENERAL + URANIUM + PLUTONIUM + FUEL CONVERSION + *FLUIDIZED BED VOLATILITY PROCESS

5-32815 ALSO IN CATEGORY 18
CORE DESIGN AND ANALYSIS
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-10 +. 175 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 10, FEB. 29, 1968, DOCKET 50-231

CONTAINS DETAILED DESCRIPTION OF MECHANICAL DESIGN AND ANALYSIS OF CORE. EXPANDED VERSION OF INFORMATION IN SECT. IV OF PSAR. THE MECHANICAL ANALYSIS IS DESCRIBED IN SECTION I, DESIGN IN SECTION II. SECTION III CONTAINS ADDITIONAL PHYSICS INFORMATION WHICH SUPPLEMENTS PSAR. A SUMMARY OF CODES USED IN DESIGN OF CORE IS INCLUDED. SUMMARIES OF THE MORE SIGNIFICANT RESULTS OF R AND D EFFORT HAVE EITHER BEEN TRANSMITTED AS SEPARATE SUPPLEMENTS (SUPPLEMENTS 1, 3, AND 4), ARE SUMMARIZED IN APPENDIX OF THIS SUPPLEMENT OR ARE REFERRED TO.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE).

*THERMAL ANALYSIS + *HYDRAULIC ANALYSIS + *HEAT TRANSFER ANALYSIS + *FUEL ELEMENT + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

5-32819 ALSO IN CATEGORIES 17 AND 18
FLUID FLOW AND VIBRATION TESTS ON 1/2 SCALE VESSEL MODEL
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-4 +. 60 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 4, DEC. 5, 1967, DOCKET 50-231

WATER, AT TEMPERATURES UP TO 265 F, WAS USED TO SIMULATE COOLANT CONDITIONS IN THE SODIUM-COOLED REACTOR. FLOWS WERE VARIED FROM 10 TO 100 PERCENT OF RATED REYNOLDS NUMBER IN THE REACTOR. DATA WAS OBTAINED ON RELATIVE CORE FLOW DISTRIBUTION, FLOW PATTERNS, PRESSURE LOSSES, AND VIBRATION CHARACTERISTICS OF THE CANTILEVER-MOUNTED CORE SHROUD. FLUID FLOW RESULTS PROVIDED INFORMATION NECESSARY FOR VERIFICATION OF FINAL DESIGN. VIBRATION RESULTS INDICATED NO SERIOUS EFFECTS OF AMPLITUDE OR STRESS IN THE FULL-SCALE REACTOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*PRESSURE VESSEL + *VIBRATION + *TEST, PRESSURE VESSEL + *TESTING + *FLOW, GENERAL + *MODEL TESTING + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + FLOW DISTRIBUTION + REACTOR COOLANT + METAL, LIQUID + SODIUM + PRESSURE DROP + FLOW THEORY AND EXPERIMENTS

5-32903 ALSO IN CATEGORIES 12 AND 18
SIMULTANEOUS FAILURES - LOCA AND SAFEGUARD
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231 +. 7 PAGES, 1 FIGURE, SEFOR, PSAR, SUPPLEMENT 23, FEB. 20, 1969, DOCKET 50-231.

DESCRIBES MODIFICATIONS MADE TO MITIGATE CONSEQUENCES OF TWO SIMULTANEOUS FAILURES, I.E., A FAILURE IN THE PRIMARY COOLANT SYSTEM FOLLOWED BY A FAILURE OF ONE OF THE SYSTEMS OR COMPONENTS (ENGINEERED SAFEGUARDS FEATURES). GIVES SUMMARY OF PROTECTION AND INHERENT DESIGN FEATURES OF THESE SAFEGUARDS THAT ASSURE OPERABILITY IN THE ENVIRONMENT IN WHICH THEY ARE REQUIRED TO OPERATE FOLLOWING A PRIMARY SYSTEM FAILURE.

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

SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, LOSS OF COOLANT + *ENGINEERED SAFETY FEATURE + *FAILURE, SIMULTANEOUS + *MODIFICATION, SYSTEM OR EQUIPMENT + *SYSTEM OPERABILITY IN ACCIDENT + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

5-32904 ALSO IN CATEGORIES 12 AND 18
RESPONSE TO AEC QUESTION
GENERAL ELECTRIC
50231-26 +. 7 PAGES, SEFOR, PSAR, SUPPLEMENT 22, JANUARY 24, 1969, DOCKET 50-231

SUPPLEMENTARY INFORMATION GIVEN TO PREVIOUSLY ANSWERED QUESTIONS CONCERNING THE CONSEQUENCES OF COOLANT SYSTEM LEAKS AND RESULTING SYSTEM CHARACTERISTICS (SEE COMMENTS 1 IN SUPPLEMENT 18 AND PAGE 53 OF SUPPLEMENT 19), SPECIFIC TOPICS AND SMALL LEAKS IN MAIN COOLANT SYSTEM, AND EVALUATION OF EQUIPMENT NEEDED TO RECOVER FROM A GUILLOTINE PIPE FAILURE.

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

AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT, CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT, CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

CATEGORY 5
ACCIDENT ANALYSIS

5-33504 ALSO IN CATEGORIES 17 AND 18
1058 DUNGENESS B - THE BOILER CONFLICT
2 PAGES, 5 FIGURES, ENGINEERING, VOLUME 206, PAGES 392-93 (SEPTEMBER 13, 1968)

CONFLICTING REQUIREMENTS TO WITHSTAND THE GAS-INDUCED VIBRATION AND CORROSION HAVE BEEN MET IN THE DESIGN OF THE BOILER TUBE SYSTEM FOR DUNGENESS B NUCLEAR POWER STATION. A BRIEF DESCRIPTION IS GIVEN OF THE RESEARCH CARRIED OUT TO RESOLVE THE CONFLICT.

*VIBRATION + *CORROSION + *SUPPORT STRUCTURE + *HEAT EXCHANGER + DUNGENESS B (GCR) + REACTOR, GCR + UNITED KINGDOM + MAINTENANCE AND REPAIR + *MODIFICATION, SYSTEM OR EQUIPMENT + FLOW THEORY AND EXPERIMENTS

5-33542 ALSO IN CATEGORIES 14 AND 18
KATO WY + RUSCH GK + DATES LR + TILL CE + VAN DOORNINCK J + CHEEVER CL
FINAL SAFETY ANALYSIS REPORT ON THE USE OF PLUTONIUM IN ZPR-6 AND -9
ARGONNE NATIONAL LAB.
ANL-7442 +. 303 PAGES, FIGURES, TABLES, REFERENCES, JULY 1, 1968

THE ZPR-6 AND -9 ARE SPLIT-TABLE CRITICAL FACILITIES USED FOR STUDY OF FAST-REACTOR PHYSICS SINCE JULY 1963. MODIFICATIONS WERE MADE SO THAT PLUTONIUM MAY BE USED AS FUEL TO PROVIDE EXPERIMENTAL PHYSICS DATA FOR THE LMFBR PROGRAM. THE DESIGN-BASIS ACCIDENT RESULTS IN MELTING AND BURNING 60 KG OF PU AND VAPORIZATION OF 22 KG OF SODIUM. OFF-SITE DOSE FROM NOBLE GASES AND RADIOIODINE ARE - 190 REMS AT 225 METERS AND 13 REMS AT 1500 METERS.

*REPORT, SAR + ZPR 6 (CAF) + ZPR 9 (CAF) + *CRITICAL ASSEMBLY FACILITY + R AND D PROGRAM + REACTOR, LMFBR + *ACCIDENT ANALYSIS + HAZARDS ANALYSIS + *PLUTONIUM

5-33550 ALSO IN CATEGORY 17
FUNAKAWA M
VIBRATION AND NOISES OF A HEAT EXCHANGER
KAWASAKI DOCKYARD CO., LTD., JAPAN
9 PAGES, FAPIG (TOKYO), NUMBER 49, PAGES 39-47 (JUNE 1968)(IN JAPANESE)

IN THE JAPC TOKAI POWER STATION, DAMAGE OCCURRED RECENTLY TO THE VAPORIZATION TUBES OF THE STEAM GENERATOR. TO PURSUE THE CAUSES FOR THIS ACCIDENT, STUDIES WERE CARRIED ON POSSIBLE FACTORS. FROM THE EXPERIMENT WITH MODEL TUBE GROUPS IN THE ATMOSPHERIC-PRESSURE AIR CHANNEL, IT WAS CONFIRMED THAT THE VIBRATIONS OF TUBES COULD BE MEASURED AND FATIGUE DAMAGE BE PRODUCED.

*STEAM GENERATOR + HEAT EXCHANGER + NOISE + *VIBRATION ANALYSIS + RESONANCE OVERLAP + FAILURE, FATIGUE + FAILURE, TUBING + JAPAN + REACTOR, POWER + OPERATING EXPERIENCE

5-33553 ALSO IN CATEGORY 9
DOUET P + ROGUIN A
DEVICE FOR MONITORING VARIATIONS OF A CHARACTERISTIC OF A FLUID IN A MATRIX OF PIPES
COMMISSARIAT A L ENERGIE ATOMIQUE
BRITISH PATENT 1,138,482 +. JANUARY 1, 1969

RADIATION MONITORING - FUEL CAN RUPTURE, DESCRIPTION OF REACTOR LATTICE-ARRANGED COOLANT-SAMPLE-PIPES FOR. REACTOR FUEL ELEMENTS - RUPTURE IN CLADDING OF, DESCRIPTION OF LATTICE-ARRANGED COOLANT-SAMPLE-PIPES WITH FISSION PRODUCT MONITORS FOR. REACTORS - FUEL CAN RUPTURE IN, DESCRIPTION OF LATTICE-ARRANGED MULTIPLE COOLANT-SAMPLE-PIPES WITH FISSION PRODUCT MONITORS FOR.

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

*INSTRUMENT, DETECTION FAILED FUEL ELEMENT + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, COMPONENT + MONITORING SYSTEM, RADIATION + FAILURE, CLADDING + FAILURE, FUEL ELEMENT + PATENT + UNITED KINGDOM + FRANCE

5-33930
CHELEMER H + WEISMAN J + TONG LS
SUBCHANNEL THERMAL ANALYSIS OF ROD BUNDLE CORE
WESTINGHOUSE ATOMIC POWER DIVISIONS, PITTSBURGH, PA.
WCAP-7015 (REV. 1) +. 44 PAGES, 8 FIGURES, 1 TABLE, 14 REFERENCES, JANUARY 1969

DEVELOPED COMPUTER PROGRAMS FOR HOT CHANNEL ANALYSIS. THREE-DIMENSIONAL MATRIX USED TO REPRESENT CORE. COOLANT CONDITIONS IN EACH MATRIX ELEMENT DETERMINED BY SIMULTANEOUS SOLUTION OF EQUATIONS OF CONSERVATION OF MASS, ENERGY, MOMENTUM. BEHAVIOR OF HOT ASSEMBLY DETERMINED BY SUPERIMPOSING POWER DISTRIBUTION ON FLOW ALLOWING FOR CROSS MIXING. PROPERTIES OF EACH ELEMENT DETERMINED BY USING FLOWS TO HOT ASSEMBLY AS BOUNDARY CONDITION. SIMULTANEOUS CONSIDERATION OF ALL VARIATIONS FROM NOMINAL CONDITIONS PROVIDES EVALUATION OF HOT CHANNEL BEHAVIOR. GOOD COMPARISON WITH EXPERIMENTAL DATA. EXTENSION TO TRANSIENT ANALYSES FEASIBLE. SHOULD PROVIDE IMPROVED METHODS FOR ANALYSES OF TRANSIENTS SUCH AS LOSS-OF-FLOW ACCIDENTS.

AVAILABILITY - H. CHELEMER/J. WEISMAN/L.S. TONG, WESTINGHOUSE ATOMIC POWER DIVISION, P.O. BOX 355, PITTSBURGH, PENNSYLVANIA 15230

*COMPUTER PROGRAM + *HEAT TRANSFER ANALYSIS + *HOT CHANNEL + *HYDRODYNAMIC ANALYSIS + FLOW DISTRIBUTION + HEAT GENERATION, NONUNIFORM + HEAT TRANSFER + ACCIDENT, LOSS OF FLOW + TEMPERATURE TRANSIENT

CATEGORY 5
ACCIDENT ANALYSIS

5-33931 ALSO IN CATEGORY 11
SIMON JJ + DAVIS MW + TUPPENY WH
EXPERIMENTAL DETERMINATION OF LIMITING HEAT TRANSFER COEFFICIENTS DURING THE QUENCHING OF THICK STEEL PLATES
IN WATER
COMBUSTION ENGINEERING, WINDSOR, CONN.
CE-TECH-REPORT-A-68-10-1 +. 40 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 13, 1968

THE REPORT CONCLUDES THAT AN EFFECTIVE HEAT TRANSFER COEFFICIENT OF 300 BTU/HR-FT²-F PROVIDES A
REALISTIC UPPER LIMIT FOR SIX-INCH-THICK STEEL PLATES QUENCHED IN HIGHLY AGITATED ROOM
TEMPERATURE WATER. THIS VALUE IS DERIVED FROM ACTUAL TEST MEASUREMENTS IN WHICH THE STEEL PLATE
IS QUENCHED OVER A WIDE RANGE (450 F TO 1750 F) OF STARTING TEMPERATURES.

AVAILABILITY - J.J. SIMON/M.W. DAVIS/W.H. TUPPENY, COMBUSTION ENGINEERING, INC., P.O. BOX 500, WINDSOR, CONN.
06095

*PRESSURE VESSEL + *HEAT TRANSFER EXPERIMENT + HEAT TRANSFER + HEAT TRANSFER, CONVECTION + PLATE + THERMAL
MECHANICAL EFFECT

5-33944 ALSO IN CATEGORY 6
LONG JK
ANALYSIS OF THE STATIC POWER COEFFICIENT OF EBR-II WITH REDUCED COOLANT FLOW
ARGONNE NATIONAL LABORATORY
21 PAGES, NUCLEAR APPLICATION 6, PAGES 116-26 (FEB. 1969)

A STUDY OF EBR-II OPERATING BEHAVIOR, WHICH BEGAN WITH A REEXAMINATION OF THE THERMAL ANALYSIS OF
FUEL PINS UNDER VARYING RATES OF COOLANT FLOW, INCORPORATES THE RECENT INTERPRETATIONS OF THE
BOWING BEHAVIOR OF THE SUBASSEMBLIES. THE NONLINEAR BOWING EFFECTS ARE COMBINED WITH THE LINEAR
EXPRESSION EFFECTS IN EQUATIONS THAT EXPRESS THE POWER-REACTIVITY DECREMENT AS A FUNCTION OF BOTH
POWER AND FLOW. COMPARISON WITH EXPERIMENTS INDICATES AGREEMENT TO WITHIN A FEW INHOURS.
DIFFERENTIATION OF THE EQUATIONS LEADS TO EXPRESSIONS FOR POWER AND FLOW COEFFICIENTS OF
REACTIVITY. THE REDUCED FLOW DATA ARE USED TO DETERMINE AN EFFECTIVE AVERAGE THERMAL EXPANSION
COEFFICIENT FOR THE FUEL.

POWER COEFFICIENT + FUEL ELEMENT BOWING + FUEL EXPANSION COEFFICIENT + REACTIVITY COEFFICIENT + REACTIVITY
EFFECT, EXPANSION + REACTOR, FAST + REACTOR, LMC R + REACTOR, TEST + COOLANT COEFFICIENT

5-33948 ALSO IN CATEGORY 18
AASE OT
STEAM-COOLED FAST BREEDER REACTORS
BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-2063 +. 25 PAGES, AUGUST 27, 1968, FROM TOPICAL MEETING ON FAST REACTORS AND THE UNIVERSITIES, TROY,
N.Y.

DESCRIBES THE CONCEPTUAL DEVELOPMENT. INCENTIVES FOR STEAM COOLING ARE - SIMPLICITY POSSIBILITY
OF FLOODING REACTOR WITH WATER DURING REFUELING AND MAINTENANCE OPERATIONS FOR VISIBILITY, AND
USE OF WATER SPRAY SYSTEMS FOR EMERGENCY COOLING. DISCUSSES RESULTS OF A PARAMETRIC STUDY TO
DETERMINE OPTIMUM CORE SIZE, SHAPE, ETC., AND DISCUSSES ELEMENTS OF BASIC NEUTRONICS, FUELS AND
MATERIALS, AND THERMAL HYDRAULICS.

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

*DESIGN STUDY + REACTOR COOLANT + *STEAM + REACTOR, FAST + *REACTOR, SCBR + BATTELLE NORTHWEST + *REACTOR
PHYSICS + THEORETICAL INVESTIGATION + HYDRAULIC ANALYSIS + THERMAL ANALYSIS

5-33977 ALSO IN CATEGORIES 11 AND 18
DENIELCU G + ROZENHOLC M + STORRER F + VAUTREY + VELLENEUVE J
PHENIX - MAIN SAFETY CRITERIA - CONSEQUENCES FOR THE REACTOR DESIGN
CEA-CEN/CADARACHE/DRP, CEA-CEN/SACLAY/DRP, EURATOM-CEN/CADARACHE/DRP
12 PAGES, 3 FIGURES, 4 REFERENCES, PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST
REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DISCUSSES INFLUENCE OF SAFETY CONSIDERATIONS ON THE DESIGN OF PHENIX PROTOTYPE. DISCUSSES CORE
COOLING FOR VARIOUS ACCIDENTS, CONTAINMENT OF FISSION PRODUCTS, AND MEANS FOR DETECTING LOCAL
REACTIVITY AND TEMP. MEASUREMENTS.

AVAILABILITY - F. STORRER, EURATOM-CEN/CADARACHE/DRP

*DESIGN CRITERIA + *SAFETY PRINCIPLES AND PHILOSOPHY + DESIGN STUDY + *REACTOR, LMFBR + SODIUM + FRANCE

5-34343
NAHAVANDI AN
THE LOSS-OF-COOLANT ACCIDENT ANALYSIS OF PRESSURIZED WATER REACTORS
UNIVERSITY OF VERMONT, BURLINGTON, VERMONT
30 PAGES, FIGURES, TABLES, REFERENCES, NUCLEAR SCIENCE AND ENGINEERING, 36(2), PAGES 159-188 (MAY 1969)

COMPUTER PROGRAM WRITTEN TO ANALYZE PWR LOSS-OF-COOLANT ACCIDENTS. NUMERICAL STABILITY AND
CONVERGENCE PROBLEMS REMEDIED BY CLASSIFYING PROBLEM VARIABLES AS NUMERICALLY-INTEGRATED,

CATEGORY 5
ACCIDENT ANALYSIS

5-34343 *CONTINUED*

ANALYTICALLY-INTEGRATED, AND AUXILIARY-ALGEBRAIC. ALLOWANCE FOR MASS EXCHANGE BETWEEN TOP AND BOTTOM CONTROL VOLUMES IN STRATIFIED ELEMENTS HANDLED BY USE OF BUBBLE RISE AND CONDENSATE DROP VELOCITY CONCEPTS. CRITICAL FLOW MODELS INCLUDING INERTIA EFFECTS USED. FIVE WELL-KNOWN TWO-PHASE FRICTIONAL FLOW CORRELATIONS REVIEWED. COMPARISON OF ANALYTICAL RESULTS AGAINST LOFT EXPERIMENTAL DATA DEMONSTRATES GOOD AGREEMENT AND SHOWS THAT MORE ACCURATE PREDICTION REQUIRES INTRODUCTION OF METASTABILITY ANALYSIS.

*ACCIDENT, LOSS OF COOLANT + *REACTOR, PWR + *COMPUTER PROGRAM + *ACCIDENT ANALYSIS + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + HYDRODYNAMIC ANALYSIS + SHOCK WAVE + *COMPUTER PROGRAM + SHOCK WAVE

5-34443 ALSO IN CATEGORIES 9 AND 11

FORRESTER ER + THEVENOV VH
DESIGNING FOR EXPECTED FATIGUE LIFE
GENERAL MOTORS

9 PAGES, 21 REFERENCES, PP. 511-19 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 68 (APRIL 1969)

DISCUSSION OF SOME OF THE PROCESSING AND OPERATIONAL FACTORS WHICH REDUCE FATIGUE STRENGTH. EMPHASIS IS PLACED ON THE FINITE FATIGUE LIFE REGION, OFTEN CALLED LOW-CYCLE FATIGUE, BECAUSE IN MANY LIGHTWEIGHT, HIGH-PERFORMANCE SYSTEMS, HARDWARE CANNOT BE DESIGNED FOR INFINITE LIFE. AN APPROACH FOR ESTIMATING THE PROBABILITY OF FATIGUE FAILURE ON THE BASIS OF THE SCATTER INHERENT IN MATERIAL PROPERTIES AND FATIGUE LIFE IS DESCRIBED.

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *FAILURE, FATIGUE + OPERATING EXPERIENCE + PROBABILITY

5-34485

ENGLISH WF + GILMAN JD
BWR PRIMARY PIPING STRESSES FOR SYSTEM RELIABILITY ANALYSIS
LAZ

GEAP-5724 +. 118 PAGES, 24 FIGURES, 1 TABLE, 18 REFERENCES, SEPTEMBER, 1968

THE RESULTS OF A DETAILED STRESS ANALYSIS OF A TYPICAL BWR PRIMARY PIPING SYSTEM ARE PRESENTED FOR USE IN A DETERMINATION OF THE SYSTEMS RELIABILITY DURING ITS DESIGN LIFETIME. STRESSES RESULTING FROM NORMAL AND ABNORMAL CONDITIONS ARE CALCULATED, AND ANALYTICAL MODELS ARE DISCUSSED. RESULTS ARE TABULATED FOR EACH PIPING COMPONENT IN THE SYSTEM.

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

REACTOR, BWR + STRESS ANALYSIS + PIPING + *RELIABILITY ANALYSIS + *STRESS STRAIN DATA + RELIABILITY, SYSTEM + ANALYTICAL MODEL

5-34488

HIATT RM + BROMLEY C., JR
REPP A THERMAL HYDRAULIC DESIGN CODE FOR WATER-COOLED REACTORS
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL - 1013 +. 168 PAGES, 7 FIGURES, 7 TABLES, 28 REFERENCES, MARCH, 1969

REPP, A DIGITAL COMPUTER METHOD FOR DESIGNING PRESSURE WATER AND BOILING WATER REACTOR CORES WITHIN SPECIFIED HEAT TRANSFER AND FUEL CENTERLINE TEMPERATURE LIMITS IS PRESENTED. THE METHOD INCORPORATES THE WETTINGHOUSE W-2 AND W-3 EMPIRICAL CORRELATIONS AND A THEORETICAL HOT CHANNEL MODEL TO PREDICT BUTTOUT CONDITIONS IN A ROD BUNDLE. TWO GEOMETRIES ARE CONSIDERED - RODS IN A TRIANGULAR ARRAY AND RODS IN A SQUARE LATTICE. THE HEAT TRANSFER PROBLEM SOLVED IS A ONE-DIMENSIONAL ANALYSIS. PRESSURE DROP IS CONSIDERED FOR FOUR TYPES OF FUEL-PIN SPACERS. VARIABLE HEAT GENERATION RATE THROUGH THE FUEL-PIN AND SINTERING IN LOW DENSITY FUELS ARE ALSO INCLUDED.

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

*REACTOR, POWER + *REACTOR, WATER + *REACTOR, PWR + *REACTOR, BWR + *COMPUTER PROGRAM + MATHEMATICAL TREATMENT + HEAT TRANSFER + *DESIGN STUDY + PRESSURE DROP

5-34494

KLOPFER G
OBLIQUE FLOW HEADERS FOR HEAT EXCHANGERS - THE INFLUENCE OF INLET VELOCITY PROFILES
STANFORD UNIVERSITY, STANFORD, CALIFORNIA
TR NO. 65 +. 45 PAGES, 28 FIGURES, 4 REFERENCES, JULY, 1967

THE INFLUENCE OF INLET VELOCITY PROFILES ON THE PERFORMANCE OF OBLIQUE FLOW HEADERS FOR HEAT EXCHANGERS IS CONSIDERED. IT IS SHOWN THAT THE THEORY BASED ON A UNIFORM INLET VELOCITY PROFILE AS COVERED IN THE REPORT, OBLIQUE FLOW HEADERS FOR HEAT EXCHANGERS - THE IDEAL GEOMETRIES AND EVOLUTION OF LOSSES, BY A.L. LONDON, G. KLOPFER, AND S. WOLF, TR NO. 63, DEPARTMENT OF M. E. STANFORD UNIVERSITY, AUGUST 1966, PROVIDES AN ADEQUATE DESIGN BASIS EVEN IF THE INLET PROFILE IS NOT VERY UNIFORM.

AVAILABILITY - G. KLOPFER, DEPARTMENT OF MECHANICAL ENGINEERING, STANFORD UNIVERSITY, STANFORD, CALIFORNIA

CATEGORY 5
ACCIDENT ANALYSIS

5-34494 *CONTINUED*
*HEAT EXCHANGER + *FLOW DISTRIBUTION + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER ANALYSIS + HYDRODYNAMIC ANALYSIS + *HEAT TRANSFER

5-34495
DONNE MD
COMPARISON OF HE, CO₂, AND STEAM AS COOLANTS OF A 1000 MEW FAST REACTOR
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
KFK-447 +. 46 PAGES, 13 FIGURES, 4 TABLES, 25 REFERENCES, JULY 1966

AN ANALYTICAL COMPARISON OF HE, CO₂, AND STEAM AS COOLANTS OF A LARGE FAST REACTOR YIELDED INCONCLUSIVE RESULTS. GENERAL CONCLUSIONS CAN BE DRAWN. THERMALLY, STEAM IS BEST FOLLOWED BY HELIUM AND CARBON DIOXIDE. CARBON DIOXIDE MAKES THE BEST BREEDER, STEAM THE WORST. STEAM IS THE MOST DANGEROUS BUT IT IS THE MOST ECONOMICAL. UNTIL CAPITAL COSTS ARE KNOWN WITH SUFFICIENT PRECISION, IT IS NOT POSSIBLE TO DRAW A DEFINITIVE CONCLUSION REGARDING THE CHOICE OF A GAS COOLANT FOR A LARGE FAST REACTOR.

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

*HEAT TRANSFER ANALYSIS + *REACTOR COOLANT + *REACTOR, FAST, GAS COOLED

5-34496
BUBBLE GROWTH MEASUREMENTS IN UNIFORMLY SUPERHEATED LIQUIDS
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-R-5553 +. 28 PAGES, 13 FIGURES, 1 TABLE, 18 REFERENCES, AUGUST 1967

BUBBLE GROWTH MEASUREMENTS WERE MADE IN UNIFORMLY, SUPERHEATED WATER AT PRESSURES FROM 1/2 TO 1.2 ATMOSPHERES WHICH SUPPLEMENT THE DATA OF DERGARABEDIAN AND OF HOOPER AND ABDELMESSIH. THE DATA IN THE ASYMPTOTIC PHASE OF SPHERICAL GROWTH SHOW GOOD AGREEMENT WITH THE THEORY OF PLESSET AND ZWICK. OVER THE COMPLETE GROWTH AN EXTENDED THEORY IS FOUND TO BE IN GOOD AGREEMENT WITH THE DATA. VAPOUR SLUG GROWTH, WHEN SPHERICAL VAPOUR BUBBLES ELONGATE DUE TO THE RESTRAINING WALLS OF THE APPARATUS, WAS ALSO INVESTIGATED. THE RATE OF GROWTH OF THESE SLUGS IS GREATLY INCREASED BY A THIN FILM OF EVAPORATING SUPERHEATED LIQUID LEFT ON THE WALLS OF THE APPARATUS.

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*FLOW, TWO PHASE + *HEAT TRANSFER EXPERIMENT + *BOILING + HEAT TRANSFER + HEAT TRANSFER, BOILING + METAL, LIQUID + NUCLEATE BOILING + REACTOR, LMFBR + REACTOR, LMCR

5-34497
TURBULENT VELOCITY DISTRIBUTION IN A ROD BUNDLE
GENERAL ELECTRIC CO., SUNNYVALE, CALIFORNIA
GEAP-5411 +. 35 PAGES, 19 FIGURES, 4 REFERENCES, OCTOBER 1967

A METHOD TO DETERMINE THE TWO-DIMENSIONAL VELOCITY DISTRIBUTION FOR TURBULENT, CONSTANT PROPERTY SINGLE-PHASE FLOW THROUGH AN INFINITE TRIANGULAR ROD BUNDLE IS PRESENTED. TURBULENT MOMENTUM TRANSPORT IS DIRECTLY CALCULATED VIA A MIXING LENGTH THEORY BASED ON ACTUAL FLOW GEOMETRY. THE VELOCITY SOLUTION VECTOR IS DETERMINED BY ITERATION BETWEEN THE MOMENTUM EQUATION AND THE DEFINITION OF TURBULENT MOMENTUM DIFFUSIVITY. CORRELATION OF THE RESULTS SHOWS THE METHOD TO BE CONSISTENT WITH EXPERIMENTAL DATA AND PREFERABLE TO OTHER ANALYTIC METHODS INVESTIGATED. MORE DETAILED EXPERIMENTAL DATA ARE NECESSARY TO DEMONSTRATE A GENERAL VALIDITY OF THE METHOD. A DIGITAL COMPUTER CODE WAS WRITTEN.

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

*REACTOR, LMFBR + *REACTOR, LMCR + *HYDRODYNAMIC ANALYSIS + METAL, LIQUID + COMPUTER PROGRAM + FLOW, TURBULENT + FLOW DISTRIBUTION

5-34611 ALSO IN CATEGORY 9
SHIOMI H
COMPONENT DEGRADATION ESTIMATION BASED ON DAMAGE ACCUMULATION PRINCIPLE
ELECTROTECHNICAL LABORATORY, MITI, TOKYO, JAPAN
7 PAGES, 19 REFERENCES, ELECTRONICS AND COMMUNICATIONS IN JAPAN, NO. 12 (1967). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 86 (MAY 1969)

IN ORDER TO ESTIMATE COMPONENT DEGRADATION AND THE CUMULATIVE PERCENT FAILURE FOR VARIOUS STRESSES, GRAPHICAL OR MATHEMATICAL METHODS ARE USED WHICH ALSO PERMIT DETERMINATION OF THE EXCESS DEGRADATION ACCOMPANYING VARIATIONS IN STRESS. BY INTRODUCING THE PRINCIPLE OF CUMULATIVE DEGRADATION, THE DEGRADATION FOR VARIOUS STRESSES CAN BE OBTAINED. THE EXPECTED LIFETIME CAN BE OBTAINED. AS EXAMPLES, THE STEP-STRESS TESTING OF A COMPOSITION RESISTOR DEGRADATION DURING ON-OFF CYCLING, AND THE TESTING OF A MYLAR CAPACITOR ARE CONSIDERED. SOME PRECAUTIONS FOR USING THIS METHOD ARE ALSO DISCUSSED IN THIS PAPER.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-34625 ALSO IN CATEGORY 17
SAXTON PLUTONIUM PROJECT - QUARTERLY PROGRESS LETTER FOR THE PERIOD ENDING SEPTEMBER 30, 1968
WESTINGHOUSE ELECTRIC CORP., ATOMIC POWER DIV., PITTSBURGH, PA.
EURAEC-2066 +. 12 PAGES, OCTOBER 1968

REACTOR OPERATIONS CONTINUED, AN OVERPOWER TEST WAS RUN. RODS RAN AT 21.5 KW/FT (PEAK) FOR 5 DAYS, INCREASE MADE FROM 19 KW/FT IN 20 MIN. AFTER EXAMINATION OF FUEL ELEMENT, TEST WAS REPEATED FOR 15 DAYS WITHOUT INCIDENT. PROFILOMETER MEASUREMENTS INDICATE FURTHER CLAD CREEPDOWN.

EURATOM + SAXTON (PWR) + REACTOR, PWR + *IRRADIATION TESTING + FUEL ELEMENT + R AND D PROGRAM + PLUTONIUM + *CREEP BEHAVIOR + PERFORMANCE LIMIT + POWER UPGRATING

5-34631
CONN WG
N-REACTOR SECONDARY COOLING SYSTEM RESPONSE TO AN A-BUS LOSS
GENERAL ELECTRIC, RICHLAND, WASHINGTON
RL-GEN-1438 +. 29 PAGES, APRIL 28, 1967

DESCRIBES THE EXPECTED COOLING SYSTEM RESPONSE TO AN A-BUS LOSS UNDER VARIOUS PLANT OPERATING CONDITIONS AND RECOMMENDS PROCEDURES THAT WILL MINIMIZE THE TRANSIENT EFFECTS ON THE PLANT.

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

*ACCIDENT, LOSS OF POWER + STEAM + RESPONSE TIME + *SYSTEM OPERABILITY IN ACCIDENT + PROCEDURES AND MANUALS

5-34638 ALSO IN CATEGORIES 11 AND 18
FORBES SG + WILSON TR
LOSS OF COOLANT ACCIDENT INVESTIGATIONS
PHILLIPS PETROLEUM COMPANY
ID0-17272 +. 163 PAGES, 84 FIGURES, 36 TABLES, 3 REFERENCES, JUNE 1968

DESCRIBES AND EVALUATES THE LOFT PROGRAM, USING THE SYSTEM ENGINEERING APPROACH. LICENSING PROBLEMS AND PROCESSES ARE DEFINED, INFORMATION REQUIREMENTS OF THE LOCA STUDY ARE GIVEN, DESIGN OF THE EXPERIMENTS REVIEWED. TOPICS - LOCA PROBLEM DEFINITION, INFORMATION REQUIREMENTS FOR PRIMARY SYSTEMS AND CONTAINMENT RESPONSE, FISSION PRODUCT BEHAVIOR, AND THE EXPERIMENTAL PROGRAM.

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

*ACCIDENT, LOSS OF COOLANT + *R AND D PROGRAM + FUEL, LIQUID METAL + CONTAINMENT, GENERAL + *SAFETY PROGRAM + FISSION PRODUCT TRANSPORT + FISSION PRODUCT RETENTION + FISSION PRODUCT RELEASE, GENERAL + ACCIDENT, CONSEQUENCES + *ACCIDENT ANALYSIS + SYSTEM OPERABILITY IN ACCIDENT

5-34654 ALSO IN CATEGORIES 6 AND 18
WELFARE FG
THE EFFECT OF STEAM DENSITY ON REACTIVITY IN THREE STEAM COOLED FAST BREEDER REACTORS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2582 +. 17 PAGES, 1 FIGURE, 4 TABLES, 9 REFERENCES, MAY 23, 1969

EFFECT OF CHANGES IN STEAM DENSITY ON REACTIVITY HAS BEEN CALCULATED FOR THREE STEAM COOLED BREEDER REACTORS OF 3600, 2500, AND 1200 PSI OPERATING PRESSURE. WHEN FLOODED AT END OF LIFE THE SYSTEMS SHOW REACTIVITY INCREASES OF 4%, 1%, AND 1% FOR HIGH, INTERMEDIATE, AND LOW-PRESSURE SYSTEMS. WHEN VOIDED AT BEGINNING OF LIFE THE SYSTEMS SHOW INCREASES IN REACTIVITY OF 0.5%, 2% AND 0.9%. WHEN VOIDED AT END OF LIFE INTERMEDIATE, AND LOW-PRESSURE SYSTEMS SHOW INCREASES IN REACTIVITY OF 1.9% AND 0.7% RESPECTIVELY AND HIGH-PRESSURE SYSTEM SHOWS DECREASE IN REACTIVITY OF 3.8%.

*REACTIVITY EFFECT + ACCIDENT, LOSS OF COOLANT + *STEAM QUALITY + *REACTIVITY EFFECT, VOID + *REACTIVITY EFFECT, PRESSURE + REACTOR DYNAMICS + ACCIDENT, STEAM LINE RUPTURE + ACCIDENT, COLD COOLANT + ACCIDENT, LOAD REJECTION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, POWER + *REACTOR, SCBR

5-34659 ALSO IN CATEGORY 18
LAVERNE ME
ANALYSIS OF THE HOT SPOT PROBLEM IN THE MPRE
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1371 +. 22 PAGES, 7 FIGURES, 4 REFERENCES, DECEMBER 1966

AN ANALYSIS OF THE FLOW DISTRIBUTION IN MPRE-TYPE ROD BUNDLES HAS BEEN MADE IN ORDER TO ASSESS THE EXTENT TO WHICH NONUNIFORM VAPOR GENERATION AFFECTS THE FLOWS AND THUS THE DEVELOPMENT OF POTENTIAL HOT SPOTS IN SUCH BUNDLES. A COMPUTER PROGRAM EMBODYING THE ANALYSIS HAS BEEN WRITTEN AND TESTED. RESULTS OF COMPUTER RUNS INDICATE THAT THE FLOW CHANNEL COUPLINGS CHARACTERISTIC OF THE MPRE-TYPE CORE GREATLY DIMINISH THE EFFECTS OF DISSYMMETRY.

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

*HOT SPOT FACTOR ANALYSIS + *HEAT TRANSFER ANALYSIS + REACTOR, LMCR + REACTOR, FAST + REACTOR, AIRCRAFT + ORNL

CATEGORY 5
ACCIDENT ANALYSIS

5-34659 *CONTINUED*
+ DESIGN STUDY + *FLOW DISTRIBUTION + COMPUTER PROGRAM + COMPUTER, ANALOG

5-34664 ALSO IN CATEGORIES 1 AND 11
BALL GL + KLINK AE
COMPARATIVE HYPOTHETICAL ACCIDENT ANALYSIS FOR FOUR INTERIM CORE DESIGNS FOR THE FAST TEST REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-208 +. 51 PAGES, JANUARY 1968

PRESENTS STUDY OF THE MAXIMUM ENERGY RELEASE VALUES WHICH MIGHT RESULT FROM A COMPLETE MELTDOWN COLLAPSE IN EACH OF FOUR CORE TYPES TENTATIVELY CONSIDERED FOR THE FAST TEST REACTOR. THIS COMPARATIVE EVALUATION WAS MADE TO PROVIDE AN EARLY ESTIMATE OF THE MAXIMUM ENERGY RELEASE FOR WHICH THEIR CONTAINMENT SHOULD BE DESIGNED. PROVIDES A QUANTITATIVE GUIDE TO THE RELATIVE CONTAINMENT REQUIREMENTS FOR EACH CORE CONCEPT. THE CORE TYPES CALCULATED WERE A 600-LITER PUO2-SS CERMET CORE, AN 800-LITER MIXED-OXIDE CORE, A 600-LITER MIXED-CARBIDE CORE AND A 600-LITER METAL ALLOY CORE. THE ENERGY RELEASE CALCULATIONS UTILIZED SIMPLIFIED SPHERICAL GEOMETRIES AND ASSUMED UNIFORM SODIUM-FREE CORE COMPOSITIONS.

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

REACTOR, FAST + REACTOR, TEST + DESIGN STUDY + *CORE MELTDOWN + FUEL MELTDOWN + ACCIDENT, FUEL SLUMP + ENERGY SOURCE + *ACCIDENT ANALYSIS + *CONTAINMENT DESIGN + DOPPLER COEFFICIENT

5-34667 ALSO IN CATEGORIES 6 AND 18
FRISCH W
STABILITY PROBLEMS OF STEAM-COOLED FAST REACTORS
KERNFORSCHUNGSZENTRUM, KARLSRUHE
KFK-759 + EUR-3730D + EURFNR-583 +. 106 PAGES, 26 FIGURES, 2 TABLES, 23 REFERENCES, APRIL 1963

DESCRIBES THE DYNAMIC CORRELATIONS OF CORE DYNAMICS CONSIDERING FIRST, NEUTRON KINETICS AND POWER, REDUCTION, AND SECCNC, THERMODYNAMICS AND REACTIVITY FEEDBACK.

AVAILABILITY - C.L. STORRS + W.P. STAKER + R.C. NOYES, COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT

*REACTOR, SCBR + REACTOR, FAST + REACTOR COOLANT + STEAM + GERMANY + *REACTOR STABILITY + *REACTOR DYNAMICS + DESIGN STUDY + *MATHEMATICAL TREATMENT + HEAT TRANSFER ANALYSIS + THERMODYNAMICS

5-34676
SATO T
HEAT TRANSFER BIBLIOGRAPHY - JAPANESE WORKS
DEPARTMENT OF MECHANICAL ENGINEERING, KYOTO UNIVERSITY, JAPAN
2 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 353-354 (FEBRUARY 1968)

HEAT-TRANSFER BIBLIOGRAPHY BY T. SATO OF JAPANESE WORKS (NO ACCOMPANYING DISCUSSIONS). CONSISTS OF 59 REFERENCES ON APPLICATION AND OUTLOOK, CHANNEL FLOW, CONVECTIVE HEAT TRANSFER, TWO-PHASE FLOW, MASS TRANSFER, RADIANT HEAT TRANSFER, PROPERTIES OF GASES AND LIQUIDS, MEASURING METHODS.

*HEAT TRANSFER + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER AUGMENTATION + *HEAT TRANSFER CORRELATION + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, CONDENSATION + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONDUCTION + *HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, NATURAL CONVECTION + *HEAT TRANSFER, RADIANT + *HEAT TRANSFER, TWO PHASE + CONVECTIVE BOILING + FILM BOILING + FIN + MASS TRANSFER + NUCLEATE BOILING + PHASE CHANGE + HEAT TRANSFER, CONDUCTION

5-34677
ECKERT ERG + IBELE WE + GOLDSTEIN RJ
HEAT TRANSFER - A REVIEW OF CURRENT LITERATURE
HEAT TRANSFER LABORATORY, DEPT. OF MECHANICAL ENGINEERING, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA
35 PAGES, 1 FIGURE, 104 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 83-116 (FEBRUARY 1968)

GOOD REVIEW OF HEAT TRANSFER LITERATURE OF 1965-1966 BY E. R. G. ECKERT, W. E. IBELE, R. J. GOLDSTEIN. LITERATURE CATEGORIZED AS CONDUCTION, CHANNEL FLOW, BOUNDARY-LAYER FLOW, FLOW WITH SEPARATED REGIONS, TRANSFER MECHANISMS, NATURAL CONVECTION, CONVECTION FROM ROTATING SURFACES, COMBINED HEAT AND MASS TRANSFER, CHANGE OF PHASE, RADIATION, LIQUID METALS, LOW-DENSITY HEAT TRANSFER, NON-NEWTONIAN FLUIDS, MEASUREMENT TECHNIQUES, HEAT EXCHANGERS, AIRCRAFT AND SPACE VEHICLES, THERMODYNAMIC AND TRANSPORT PROPERTIES. 600 REFERENCES CITED.

*HEAT TRANSFER + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER AUGMENTATION + *HEAT TRANSFER CORRELATION + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, CONDENSATION + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONDUCTION + *HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, LOW DENSITY + *HEAT TRANSFER, NATURAL CONVECTION + *HEAT TRANSFER, RADIANT + *HEAT TRANSFER, TWO PHASE + BOUNDARY LAYER + CONDENSATION + CONVECTIVE BOILING + FILM BOILING + FIN + HEAT EXCHANGER + MASS TRANSFER + METAL, LIQUID + NUCLEATE BOILING + PHASE CHANGE + HEAT TRANSFER, CONDUCTION

5-34678
FILIPPCV LP

CATEGORY 5
ACCIDENT ANALYSIS

5-34678 *CONTINUED*

LIQUID THERMAL CONDUCTIVITY RESEARCH AT MOSCOW UNIVERSITY
MOSCOW STATE UNIVERSITY, MOSCOW, U.S.S.R.

15 PAGES, 13 FIGURES, 2 TABLES, 44 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 331-345 (FEBRUARY 1968)

THE PAPER IS A BRIEF REVIEW OF WORKS RELATING TO THERMAL CONDUCTIVITIES OF LIQUIDS WHICH HAVE BEEN CARRIED OUT AT THE MOSCOW UNIVERSITY. NINE ESSENTIALLY NEW EXPERIMENTAL METHODS ARE DESCRIBED IN THE PAPER. THERMAL CONDUCTIVITIES OF EIGHTY-THREE ORGANIC LIQUIDS ARE REPORTED. THE LAWS ARE DISCUSSED OF THE DEPENDENCE OF THERMAL CONDUCTIVITY ON THE CONCENTRATION AND TEMPERATURE OF SOLUTIONS INCLUDING THE CASES OF LIQUID BINARY SYSTEMS IN THE CRITICAL REGION. THE BEHAVIOUR OF THERMAL CONDUCTIVITY OF LIQUIDS UNDER SUPER-SUBCOOLING AND CRYSTALLIZATION IS PRESENTED. A BRIEF DISCUSSION OF THERMAL CONDUCTIVITIES OF LIQUID METALS IS GIVEN.

*HEAT TRANSFER + *HEAT TRANSFER EXPERIMENT + THERMAL PROPERTY + METAL, LIQUID + HEAT TRANSFER, CONDUCTION

5-34679

STERMAN LS + VILEMAS YU

THE INFLUENCE OF THE STATE OF HEATING SURFACE ON HEAT TRANSFER AT BOILING

MOSCOW POWER INSTITUTE, U.S.S.R.

5 PAGES, 4 FIGURES, 10 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 347-351 (FEBRUARY 1968)

IN THE PAPER THE RESULTS ARE REPORTED ON THE INFLUENCE OF THE STATE OF THE HEAT-TRANSFER SURFACE UPON THE HEAT TRANSFER IN BOILING OF A NUMBER OF ORGANIC LIQUIDS (DIPHENYL, MONOISOPROPYLDIPHENYL, BENZOL AND ETHANOL) WHICH MOISTEN THE SURFACE BETTER THAN WATER. WHEN LIQUID COMPLETELY MOISTENS THE SURFACE, THE INFLUENCE OF CHANGE IN MOISTENING IS NEGLECTED AND, HENCE, IN THIS CASE THE EFFECT OF OTHER FACTORS CAN BE REVEALED WHICH CAUSE A TIME CHANGE IN HEAT-TRANSFER COEFFICIENT.

*HEAT TRANSFER + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, BOILING + BOILING

5-34680

HAYS OF + CURO HN

HEAT CONDUCTION IN SOLIDS. TEMPERATURE-DEPENDENT THERMAL CONDUCTIVITY

MECHANICAL DEVELOPMENT DEPARTMENT, RESEARCH LABORATORIES, GENERAL MOTORS CORPORATION, WARREN, MICHIGAN

11 PAGES, 6 FIGURES, 13 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 285-295 (FEBRUARY 1968)

A VARIATIONAL FORMULATION IS DERIVED AND APPLIED TO PROBLEMS IN HEAT CONDUCTION THROUGH SOLIDS. THIS FORMULATION HAS, AS ITS EULER-LAGRANGE EQUATION, THE GENERAL HEAT EQUATION WHERE THE THERMAL CONDUCTIVITY, DENSITY, AND SPECIFIC HEAT MAY BE TEMPERATURE-DEPENDENT. THE MACROSCOPIC TEMPERATURE DISTRIBUTION FOR TWO PROBLEMS IS DETERMINED USING THIS TECHNIQUE. IN BOTH APPLICATIONS, THE THERMAL CONDUCTIVITY IS ASSUMED TO VARY LINEARLY WITH TEMPERATURE AND THE DENSITY AND SPECIFIC HEAT ARE ASSUMED TO HAVE UNIFORM VALUES. COMPARISON OF THE RESULTS OBTAINED USING THE VARIATIONAL FORMULATION WITH THOSE OBTAINED BY FINITE DIFFERENCE TECHNIQUES SHOWS AN EXCELLENT CORRELATION OVER A RANGE OF THE TEMPERATURE-CONDUCTIVITY COEFFICIENT.

*HEAT TRANSFER + *HEAT TRANSFER ANALYSIS + SOLID + THERMAL PROPERTY + HIGH TEMPERATURE + *HEAT TRANSFER, CONDUCTION

5-34681

Dwyer OE

RECENT DEVELOPMENTS IN LIQUID-METAL HEAT TRANSFER

BROOKHAVEN NATIONAL LAB., UPTON, N.Y.

90 PAGES, 51 FIGURES, 5 TABLES, 100 REFERENCES, ATOMIC ENERGY REVIEW, 4(1), PAGES 3-92 (1966)

THIS REVIEW SUMMARIZES DEVELOPMENTS IN LIQUID-METAL HEAT TRANSFER WHICH HAVE OCCURRED, FOR THE MOST PART, DURING 1960-1965. IT PRESENTS COMPARISONS BETWEEN THEORETICAL AND EMPIRICAL PREDICTIONS AND EXPERIMENTAL RESULTS, WITH ACCOMPANYING DISCUSSIONS. ALSO, AREAS WHERE FURTHER RESEARCH IS NEEDED ARE INDICATED. SINCE THE SUBJECT CANNOT BE COMPLETELY COVERED IN A SINGLE ARTICLE, EMPHASIS IS GIVEN TO THOSE TOPICS OF MOST ENGINEERING INTEREST. MOREOVER, WITH EACH TOPIC THE THOROUGHNESS OF TREATMENT VARIES ACCORDING NOT ONLY TO REPORTED PROGRESS BUT ALSO TO CURRENT INTEREST. THE PRINCIPAL TOPICS COVERED INCLUDE LIQUID METAL HEAT TRANSFER FOR (A) FLOW IN PIPES, (B) FLOW IN ANNULI, (C) FLOW BETWEEN PARALLEL PLATES, (D) IN-LINE FLOW THROUGH ROD BUNDLES, (E) 90-DEG CROSS FLOW THROUGH ROD BUNDLES, (G) POOL BOILING, (H) NATURAL CONVECTION BOILING IN RECIRCULATING LOOP, (I) FORCED-CONVECTION BOILING IN A RECIRCULATING LOOP, AND (J) CRITICAL HEAT FLUX IN BOTH POOL AND FORCED-CONVECTION BOILING.

*HEAT TRANSFER + *METAL, LIQUID + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER CORRELATION + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, NATURAL CONVECTION + FLOW, AXIAL + FLOW, CROSS + FLOW, ANNULAR + BOILING

5-34682

HOFFMAN HW + VACHON RI

PROCEEDINGS OF SECOND SOUTHEASTERN SEMINAR ON THERMAL SCIENCES, JULY 25-26, 1966, OAK RIDGE, TENNESSEE
OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-1975 +. 195 PAGES, FIGURES, TABLES, REFERENCES, OCT. 1967

CATEGORY 5
ACCIDENT ANALYSIS

5-34682 *CONTINUED*

MANY TOPICS DISCUSSED OF INTEREST TO NUCLEAR SAFETY (HEAT-TRANSFER ASPECT). THE FOLLOWING SPECIAL LECTURES ARE REPORTED - THE PRESENT LIMITS OF OUR ABILITY TO PREDICT NATURAL CONVECTION AND RADIATION (S.W. CHURCHILL), THE EFFECTIVE FILM CONCEPT (R.N. LYON), SOME RECENT RESULTS IN BOILING AND CONDENSING RESEARCH (W.M. ROHENOW), ATMOSPHERIC TURBULENCE AND DIFFUSION (F.A. GIFFORD).

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

*HEAT TRANSFER + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, NATURAL CONVECTION +
*HEAT TRANSFER, RADIANT + *HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONDENSATION
+ *TURBULENCE, CONVECTIVE + COMPUTER PROGRAM + FLOW, TURBULENT + BOILING + POOL BOILING + METAL, LIQUID

5-34693 ALSO IN CATEGORY 6
STEPHAN LA
THE RESPONSE OF WATERLOGGED UO2 FUEL RODS TO POWER BURSTS
PHILLIPS PETROLEUM COMPANY
IDO-ITR-105 +. 43 PAGES, 18 FIGURES, 3 TABLES, 3 REFERENCES, APRIL 1969

DESTRUCTIVE TRANSIENT TESTS WERE PERFORMED ON SIX WATERLOGGED ZIRCALOY CLAD GEP AND STAINLESS-STEEL-CLAD F-TYPE FUEL RODS IN THE CAPSULE DRIVER CORE (CDC) AT SPERT TO FIND THE TRANSIENT ENERGY DEPOSITION REQUIRED TO CAUSE FAILURE IN WATERLOGGED RODS, AND THE CONSEQUENCES OF FAILURE. DATA ON ENERGY DEPOSITION AT FAILURE, INTERNAL ROD PRESSURE, CAPSULE PRESSURE, WATER-COLUMN KINETIC ENERGY, AND ENERGY CONVERSION RATIO ARE GIVEN FOR EACH ROD.

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

REACTOR TRANSIENT + DESTRUCTIVE TRANSIENT + *FAILURE, CLADDING + MEASUREMENT, GENERAL + SPERT, ALL (S-RR) +
CLADDING + FUEL ELEMENT + REACTOR, SAFETY RESEARCH

5-34694
KASHCHEEV VM + NOMOFILCV EV
TURBULENCE SCALE IN CHANNELS FORMED BY CLOSELY PACKED RODS
ENERGY-PHYSICS INSTITUTE, OBNISK, U.S.S.R.
11 PAGES, 4 FIGURES, 10 REFERENCES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 11(2), PAGES 267-277
(FEBRUARY 1968)

ACCORDING TO OBUKHOVS METHOD THE FORMULA WAS OBTAINED TO CALCULATE TURBULENCE SCALE DISTRIBUTION IN CHANNELS FORMED BY CLOSELY PACKED RODS ARRANGED IN-LINE OR STAGGERED, THE FUNCTIONS CONFORMALLY REPRESENTING THE CROSS-SECTIONS OF THE ABOVE CHANNELS TO THE INSIDE OF THE UNIT CIRCLE, WHICH ARE NECESSARY FOR DETERMINING TURBULENCE SCALE, ARE ALSO PRESENTED.

*FLOW, TURBULENT + REACTOR, LMCR + REACTOR, LMFBR + HYDRODYNAMIC ANALYSIS

5-34655 ALSO IN CATEGORIES 11 AND 12
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
GEAP-5716 +. 157 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

COVERS QUARTERLY WORK ON (1) RELIABILITY ENGINEERING, (2) STRESS ANALYSIS, (3) FRACTURE MECHANICS,
(4) FATIGUE, (5) EFFECT OF BWR ENVIRONMENT.

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

*REACTOR, POWER + *REACTOR, BWR + *COOLANT PURIFICATION SYSTEM + EXPERIMENT, GENERAL + *STRESS ANALYSIS +
*FAILURE, FATIGUE + *RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + PIPING + TESTING + FRACTURE TOUGHNESS +
STEEL + *FAILURE, PIPE + FAILURE, EQUIPMENT

5-34722
ROBINSON LE + CARLSON RD
THE DEVELOPMENT OF PUMPS FOR USE IN FAST-REACTOR-SAFETY INTEGRAL-LOOP EXPERIMENTS
ARGONNE NATIONAL LABORATORY, ILL.
ANL-7369 +. 14 PAGES, 7 FIGURES, 6 REFERENCES, APRIL 1968

THIS REPORT DESCRIBES THE DESIGN OF AN ANNULAR LINEAR-INDUCTION PUMP SUITABLE FOR USE IN A RADIOACTIVE ENVIRONMENT. THE PUMP WAS DESIGNED FOR AN IN-PILE SODIUM LOOP IN WHICH FAST-REACTOR SAFETY STUDIES WERE TO BE CONDUCTED. THE PUMP IS CAPABLE OF OPERATING AT 500 C AND WILL DELIVER 10 GPM AT 20 PSI WITH AN EFFICIENCY OF 31. AT 200 C, THE PUMP WILL DELIVER 20 GPM AT 20 PSI WITH AN EFFICIENCY OF 51. THE PUMP TUBE IS CAPABLE OF WITHSTANDING A STATIC PRESSURE OF 340 ATM.

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

OUT OF PILE LOOPS AND EXPERIMENTS + *SODIUM + IN PILE LOOP + IN PILE EXPERIMENT + *PUMP

CATEGORY 5
ACCIDENT ANALYSIS

5-34723

FOX JC + AASE DT + WISE KR + ALTSCHULER SJ + BUSSELMAN GJ + HOLEMAN RH
STEAM-COOLED FAST BREEDER POWER REACTORS PARAMETRIC DESIGN STUDIES
BATTELLE-NORTHWEST, RICHLAND, WASH., PACIFIC NORTHWEST LAB.
BNWL-713 +. 83 PAGES, FIGURES, TABLES, 18 REFERENCES, APRIL 1968

THE PURPOSE OF THIS STUDY WAS TO IDENTIFY, BY CONSISTENT METHODS AND ASSUMPTIONS, THE MAJOR EFFECTS AND THE IMPORTANCE OF STEAM PRESSURE ON REACTOR PERFORMANCE. QUANTITATIVELY, FINDINGS HAVE NOT BEEN NORMALIZED TO ANY OF THE ORNL SPECIFIC EVALUATIONS, AND THE RESULTS FOR A GIVEN REACTOR WILL DIFFER SOMEWHAT FROM THE ORNL RESULTS, SINCE DIFFERENT METHODS OF CALCULATION WERE USED WHERE NECESSARY FOR EXPEDIENCY.

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

*REACTOR, FAST, GAS COOLED + *STEAM + REACTOR PHYSICS + FUEL CONVERSION + REACTIVITY EFFECT + *REACTOR, FAST

5-34724

HENRY RE
A STUDY OF ONE- AND TWO-COMPONENT, TWO-PHASE CRITICAL FLOWS AT LOW QUALITIES
ARGONNE NATIONAL LAB., ILL.
ANL-7430 +. 77 PAGES, FIGURES, TABLES, 53 REFERENCES, MARCH 1968

TWO-PHASE, ONE-COMPONENT CRITICAL FLOW WAS OBTAINED IN LONG TUBES (L/D GREATER THAN 40) FOR MASS FLOW RATES OF 512-6460 LB/SEC-FT², EXIT PRESSURES OF 40-150 PSIA, AND THERMODYNAMIC EQUILIBRIUM QUALITIES OF 0.0019-0.216. EXIT VOID FRACTIONS AS WELL AS AXIAL VOID-FRACTION PROFILES WERE MEASURED BY A GAMMA-RAY ATTENUATION TECHNIQUE FOR VOID FRACTIONS OF 0.07-0.94. THESE EXPERIMENTAL VOID FRACTIONS RESULTED IN VELOCITY RATIOS THAT WERE CONSIDERABLE LESS THAN THE EXISTING ANALYTICAL PREDICTIONS.

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

*FLOW, TWO PHASE + *FLOW, CRITICAL + FLOW, TUBE + MATHEMATICAL STUDY + EXPERIMENT, GENERAL + FLOW CORRELATION

5-34725

ISRAEL SL + NOLAN DJ + MALMBORG FB
PERFORMANCE EVALUATION OF HEAT EXCHANGERS FOR SODIUM-COOLED REACTORS
UNITED NUCLEAR CORP., ELMSFORD, N.Y.
UNC-5200 +. 51 PAGES, 6 FIGURES, 4 TABLES, JANUARY 20, 1968

PROGRESS REPORT CONCERNS THE EVALUATION OF THE THERMAL-HYDRAULIC AND STRUCTURAL PERFORMANCE OF HEAT EXCHANGERS FOR SODIUM-COOLED REACTOR PLANTS. THE EVALUATION WILL BE BASED ON THE RESULTS OF TESTS OF MODEL HEAT EXCHANGERS (APPROXIMATELY 30 MW(T)) IN THE SODIUM COMPONENTS TEST INSTALLATION (SCTI). AN INTERMEDIATE HEAT EXCHANGER DESIGNED AND MANUFACTURED BY ALCO PRODUCTS, INC., (ALCO) AND A STEAM GENERATOR DESIGNED BY ALCO AND MANUFACTURED BY BALDWIN-LIMA-HAMILTON CORPORATION (BLH) ARE THE FIRST UNITS TO BE TESTED.

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

*HEAT EXCHANGER + *TEST, COMPONENT + RELIABILITY, COMPONENT + *SODIUM + HYDRAULIC EFFECT + HYDRODYNAMIC ANALYSIS + FLOW STABILITY + STRUCTURAL INTEGRITY

5-34726

FERRELL JK + BYLUND DM
LOW PRESSURE STEAM-WATER FLOW IN A HEATED VERTICAL CHANNEL
NORTH CAROLINA STATE UNIV., RALEIGH, N.C.
TID-23394(VOL.2) +. 266 PAGES, FIGURES, TABLES, REFERENCES, JUNE 1966

THE CHARACTERISTICS OF BOILING WATER MIXTURES FLOWING THROUGH A VERTICAL, SMALL DIAMETER, UNIFORMLY HEATED CHANNEL UNDER FORCED CIRCULATION WERE STUDIED. IN ADDITION, QUANTITATIVE OBSERVATIONS WERE MADE OF THE FLOW PATTERNS EMERGING FROM THE HEATED CHANNEL BY PHOTOGRAPHING THESE PATTERNS AS THEY WERE PASSED THROUGH A TRANSPARENT ADIABATIC EXTENSION OF THE HEATED CHANNEL. A WIDE RANGE OF HEAT FLUXES, FLOW RATES AND INLET TEMPERATURES WAS COVERED IN THE 60 TO 240 PSIA PRESSURE RANGE. SPECIFIC SYSTEM VARIABLES WERE SO CHOSEN AS TO PERMIT AN EVALUATION OF THE EFFECTS OF EACH UPON THE MEASURED AND OBSERVED TWO PHASE BEHAVIOR. REPL 34726 ABSTTHE CHARACTERISTICS OF BOILING WATER MIXTURES FLOWING THROUGH A VERTICAL, SMALL DIAMETER, UNIFORMLY HEATED CHANNEL UNDER FORCED CIRCULATION WERE STUDIED. IN ADDITION, QUANTITATIVE OBSERVATIONS WERE MADE OF THE FLOW PATTERNS EMERGING FROM THE HEATED CHANNEL BY PHOTOGRAPHING THESE PATTERNS AS THEY WERE PASSED THROUGH A TRANSPARENT ADIABATIC EXTENSION OF THE HEATED CHANNEL. A WIDE RANGE OF HEAT FLUXES, FLOW RATES AND INLET TEMPERATURES WAS COVERED IN THE 60 TO 240 PSIA PRESSURE RANGE. SPECIFIC SYSTEM VARIABLES WERE SO CHOSEN AS TO PERMIT AN EVALUATION OF THE EFFECTS OF EACH UPON THE MEASURED AND OBSERVED TWO PHASE BEHAVIOR.

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

*FLOW, TWO PHASE + FLOW CORRELATION + *HOT CHANNEL + WATER, GENERAL + *CONVECTIVE BOILING + STEAM

CATEGORY 5
ACCIDENT ANALYSIS

5-34727 ALSO IN CATEGORIES 6 AND 9
MILLER CS
LOFT CORE DESIGN REPORT
PHILLIPS PETROLEUM COMPANY, IDAHO OPERATIONS OFFICE
ID0-17219 +. 143 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967

THE NUCLEAR REACTOR FOR USE IN THE LOSS-OF-FLUID TEST (LOFT) IS DESIGNED TO BE REPRESENTATIVE OF A LARGE PRESSURIZED-WATER REACTOR EXCEPT FOR SIZE AND POWER. THE REACTOR OPERATES WITH A POWER OUTPUT OF 50 MEGAWATTS AT 2330 PSI AND 545 F. THE CORE IS 36 INCHES LONG AND HAS AN EFFECTIVE DIAMETER OF 41.5 INCHES. IT IS FUELED WITH 52 ELEMENTS, EACH CONTAINING 64 ZIRCALOY-CLAD, LOW-ENRICHED UO₂ FUEL PINS. REACTIVITY CONTROL IS PROVIDED BY CRUCIFORM-SHAPED, BORON-STAINLESS STEEL CONTROL RODS.

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

*NRTS + *LOFT (S-RR) + DESIGN STUDY + CORE COMPONENTS + *REACTOR DESCRIPTION + REACTOR, SAFETY RESEARCH + REACTOR, PWR + REACTOR, AEC OWNED

5-34728 ALSO IN CATEGORY 6
WORDEN JR + ROWE DS + DICNNE PJ
A STUDY OF HYDRAULIC AND NUCLEAR STABILITY OF BOILING WATER PARALLEL FLOW CHANNEL REACTOR SYSTEMS
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-574 +. 173 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

STABILITY OF A BOILING, LIGHT WATER COOLED, HEAVY WATER-MODERATED REACTOR HAS BEEN STUDIED BY SIMULATION ON AN ANALOG COMPUTER. THE MODEL CONSISTS OF A TWO-REGION REACTOR WITH COUPLING BETWEEN THE NUCLEAR KINETICS AND HYDRODYNAMICS. THOSE PARTS OF THE REACTOR SYSTEM EXTERNAL TO THE RECIRCULATING LOOP, SUCH AS TURBINES AND FEEDWATER PUMPS, WERE APPROXIMATED BY APPROPRIATE CONTROL FUNCTIONS. THE SIMULATION PROVIDES VALID RESULTS OVER A RANGE IN POWER LEVEL FROM ABOUT 2/3 NOMINAL UP TO THE THRESHOLD OF PARALLEL CHANNEL INSTABILITY.

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

*REACTOR, BWR + REACTOR, SAFETY RESEARCH + *SAFETY ANALYSIS + BATTELLE NORTHWEST + ACCIDENT, REACTIVITY + *REACTIVITY EFFECT + REACTIVITY EFFECT, VOID + *HEAT TRANSFER, BOILING

5-34730
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY - QUARTERLY PROGRESS REPORT NO. 8 JANUARY - MARCH, 1967
GENERAL ELECTRIC, ATOMIC POWER EQUIPMENT DEPT., SAN JOSE, CALIF.
GEAP-5474 +. 50 PAGES, FIGURES, TABLES, MAY 1967

THE REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY IS BEING CONDUCTED FOR THE SAETY BRANCH, DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY USAEC. THIS EIGHTH QUARTERLY REPORT DOCUMENTS PROGRESS FOR THE PERIOD JANUARY 1 TO MARCH 31, 1967. 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. WORK IS PROCEEDING IN THE AREAS OF RELIABILITY ENGINEERING, STRESS ANALYSIS, FRACTURE MECHANICS, AND FATIGUE. A COMPUTER CODE, PAPA, FOR THE ELASTIC ANALYSIS OF PIPING COMPONENTS HAS BEEN DEVELOPED. SIX BURST TESTS AT ROOM TEMPERATURE ON FLAWED CARBON STEEL PIPE UP TO SIX INCHES IN DIAMETER WERE CONDUCTED IN ADDITION TO TWO TESTS ON UNFLAWED PIPE. THREE PROTOTYPE PIPE FATIGUE TESTS HAVE BEEN MADE ON PLAIN CARBON STEEL, A-106B, STRAIGHT PIPE SPECIMENS.

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

*ACCIDENT ANALYSIS + *PIPING + *FAILURE, PIPE + ACCIDENT, STEAM LINE RUPTURE + FAILURE, FATIGUE + FAILURE, TUBING

5-34731
DESCRIPTION OF AN ALGOL-COMPUTER PROGRAM FOR CALCULATING THERMAL STRESSES AND TEMPERATURES FOR A STACK OF FLAT PLATES SUBJECTED TO A THERMAL SHOCK
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK, THE HAGUE. CENTRAAL TECHNISCH INSTITUUT
EURFNR-355L + SR-TN/6605-02 +. 30 PAGES, FIGURES, TABLES, 2 REFERENCES, MAY 1966

THIS REPORT DEALS WITH THE CALCULATION OF THERMAL STRESSES AND TEMPERATURES FOR THE CASE OF A FLAT PLATE WITH FLAT SHIELDS. IT IS ASSUMED THAT BETWEEN PLATE AND SHIELDS LIQUID SODIUM IS PRESENT AND THAT THE GAP WIDTHS ARE SO SMALL THAT THE THERMAL CAPACITIES AND THE THERMAL RESISTANCES OF THE SODIUM LAYERS CAN BE NEGLECTED. THE THICKNESSES OF THE THERMAL SHIELDS SHOULD BE DETERMINED SO THAT FOR A GIVEN TEMPERATURE TRANSIENT OF THE MEDIUM AND A GIVEN HEAT TRANSFER COEFFICIENT AT THE SURFACE OF THE FIRST SHIELD TOO HIGH STRESSES DO NOT OCCUR, NEITHER IN THE PLATE NOR IN THE SHIELDS.

HEAT TRANSFER + *THERMAL MECHANICAL EFFECT + *STRESS ANALYSIS + *COMPUTER PROGRAM + SODIUM

5-34734 ALSO IN CATEGORY 11

CATEGORY 5
ACCIDENT ANALYSIS

5-34734 *CONTINUED*
EIBER RJ + MAXEY WA + DUFFY AR + ATTERBURY TJ
INVESTIGATION OF THE INITIATION AND EXTENT OF DUCTILE PIPE RUPTURE
BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO
BMI-1853 +. 8 PAGES, 3 FIGURES, NOVEMBER 1, 1968

THIS PROGRAM INVOLVES FULL-SCALE PIPE-RUPTURE EXPERIMENTS UNDER SIMULATED PW AND BW CONDITIONS. THE OBJECTIVES OF THE PROGRAM ARE TO DEFINE THE SIZES OF DEFECTS REQUIRED TO INITIATE FRACTURES IN TYPICAL PWR AND BWR PRIMARY COOLANT PIPING AND TO OBTAIN INFORMATION ON THE EXTENT OF PROPAGATION. THEORETICAL FORMULATIONS FOR PREDICTING THE FAILURE PRESSURE OF THROUGH WALL AND SURFACE FLAW DEFECTS OF VARIOUS SIZES. REPORT COVERS WORK JULY 1968 TO SEPTEMBER 1968. TWENTY FULL-SCALE EXPERIMENTS HAVE BEEN CONDUCTED TO DATE INVOLVING PIPING MATERIALS A106B AND TYPE 316 STAINLESS STEEL. EXPERIMENTAL RESULTS HAVE BEEN COMPARED WITH ANALYTICAL PREDICTIONS TO EVALUATE THE ACCURACY AND GENERAL TRENDS OF THE ANALYTICAL RELATIONSHIPS. TO DATE, TWO ANALYTICAL RELATIONSHIPS HAVE BEEN EXAMINED.

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

REACTOR, PWR + REACTOR, BWR + *PIPING + *ACCIDENT, STEAM LINE RUPTURE + *FAILURE, PIPE

5-34749 ALSO IN CATEGORIES 12 AND 13
TRUPP AC
FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER - A DYNAMICISTS VIEW
WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA
AECL-3185 +. 20 PAGES, 7 FIGURES, 18 REFERENCES, JUNE 1968

THE REPORT PRESENTS A FEW EXPERIMENTAL OBSERVATIONS ON TYPICAL SOLIDS MOTION FROM WHICH CERTAIN GENERAL CONCLUSIONS ARE DRAWN REGARDING THE CONVECTIVE HEAT TRANSFER COEFFICIENT PERTINENT TO FUEL DESIGN FOR A LIQUID FLUIDIZED BED NUCLEAR REACTOR. THE AVAILABLE LITERATURE IS THEN REVIEWED AND THE THREE MAIN PUBLISHED CORRELATIONS ARE SHOWN TO DISAGREE. THE MOST PROBABLE REASONS FOR THE DISCREPANCIES ARE OUTLINED. AN EXPLANATION IS SUGGESTED TO ACCOUNT FOR THE APPARENT MAXIMA IN FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER COEFFICIENTS AT BED POROSITIES OF ABOUT 70%. FURTHER EXPERIMENTAL HEAT TRANSFER WORK IS STRONGLY RECOMMENDED.

AVAILABILITY - A.C. TRUPP, WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA

CANADA + *FUEL REPROCESSING + *FUEL CONVERSION + *ORE CONVERSION + HEAT TRANSFER + THEORETICAL INVESTIGATION + *REACTOR, GENERAL + FLUIDIZED BED VOLATILITY PROCESS

5-34760
BAMMERT K
THE THERMODYNAMIC PROPERTIES OF HELIUM AS A WORKING MEDIUM FOR NUCLEAR POWER PLANT GAS TURBINES
4 PAGES, 3 FIGURES, KERNTECHNIK, 11(2), PAGES 88-91 (FEBRUARY 1969)

IN VIEW OF THE INCREASING IMPORTANCE OF HELIUM AS A WORKING MEDIUM FOR CLOSED GAS TURBINES FOR NUCLEAR POWER PLANTS, THIS PAPER PRESENTS EQUATIONS MAKING IT POSSIBLE TO CALCULATE THE COMPRESSIBILITY FACTOR, THE ENTHALPHY, THE SPECIFIC THERMAL CAPACITY AND THE ENTROPY. A FURTHER EQUATION IS PRESENTED MAKING IT POSSIBLE TO CALCULATE THE END TEMPERATURE OF AN ISENTROPIC COMPRESSION OR EXPANSION. AN I,S DIAGRAM IS PRESENTED FOR RAPID APPROXIMATE CALCULATIONS.

TURBINE + *HELIUM + THERMAL PROPERTY + PROPERTY, PHYSICAL + HEAT TRANSFER + MATHEMATICAL TREATMENT + REACTOR, HTGR + REACTOR, GCR + GERMANY

5-34763 ALSO IN CATEGORY 18
DIBELIUM G + FORSTER S
GAS-COOLED REACTORS WITH GAS-TURBINES USING HELIUM NEON, OR CARBON-DIOXIDE
6 PAGES, 10 FIGURES, KERNTECHNIK, 11(2), PAGES 105-110 (FEBRUARY 1969)

GAS TURBINE CYCLES AND THEIR COMPONENTS FOR VARIOUS TYPES OF GAS COOLED REACTORS USING DIFFERENT GASES ARE COMPARED. AS REACTORS THE ADVANCED GAS COOLED REACTORS, THE HIGH TEMPERATURE REACTOR AND THE FAST REACTOR ARE CONSIDERED. AS WORKING FLUID HELIUM, NEON OR CARBON DIOXIDE ARE USED. THE PRESENT ANALYSIS IS AIMED TO FIND THE BEST SUITED WORKING FLUID FOR THE CYCLE IN EACH CASE OF REACTOR TYPE AND THE MOST FAVORABLE CYCLE DATA FOR THE LOWEST GENERATING COSTS. WITHIN THE OPTIMIZING CALCULATIONS THE CYCLE DATA ARE VARIED AND THE CORRESPONDING HEAT EXCHANGER SURFACES AS WELL AS THE MAIN DIMENSIONS OF THE TURBOSET ARE DETERMINED. FROM THE COSTS FOR THESE COMPONENTS TOGETHER WITH THE FUEL CYCLE COSTS A REPRESENTATIVE PART OF THE GENERATING COSTS CAN BE ESTIMATED. THE MINIMUM OF THIS PART OF THE GENERATING COSTS IS TAKEN AS CRITERION FOR THE CHOICE OF THE CYCLE DATA AND THE PLANT COMPONENTS.

*REACTOR COOLANT + HELIUM + NEON + CARBON DIOXIDE + *DESIGN STUDY + REACTOR, HTGR + REACTOR, GCR + REACTOR, FAST + GERMANY

5-34768
EISNER JH
INVESTIGATIONS OF THE INFLUENCE OF VIBRATION BEHAVIOUR ON THE DESIGN OF STEAM COOLED HIGH POWER FUEL ELEMENTS
3 PAGES, FIGURES, REFERENCES, ATOMPRAXIS, PAGES 93-95, APRIL, 1969

THE VIBRATION BEHAVIOUR IS (ESPECIALLY AT HIGH COOLANT FLOW VELOCITIES) ONE OF THE DESIGN CRITERIA

CATEGORY 5
ACCIDENT ANALYSIS

5-34768 *CONTINUED*

OF ROD TYPE FUEL ELEMENTS WITH AXIAL COOLANT FLOW. THE POSSIBLE MODES OF VIBRATION ARE DISCUSSED. HERE THE VIBRATION BETWEEN THE SPACER SUPPORTS IS OF MAIN SIGNIFICANCE. THIS KIND OF VIBRATION IS ANALYZED. FOR STEAM COOLED FUEL ELEMENTS THE ROD DIAMETER, THE ROD TO ROD DISTANCE, THE SLOPE OF SPACERS, THE COOLANT FLOW VELOCITY AND THE VIBRATION AMPLITUDE CAN BE OPTIMIZED BY MEANS OF GIVEN DIAGRAMS.

*VIBRATION + *CORE COMPONENTS + *FLOW THEORY AND EXPERIMENTS + DESIGN STUDY + DESIGN CRITERIA + FUEL ELEMENT + *REACTOR, SCBR + REACTOR COOLANT + STEAM

5-34782 ALSO IN CATEGORY 12

REILLY HJ + HANSELL JD + HEATH GL

A NEW METHOD FOR TREATMENT OF UNCERTAINTIES IN NUCLEAR REACTOR HEAT TRANSFER CALCULATIONS

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA-TM-X-1802 +. 16 PAGES, 8 FIGURES, 2 TABLES, 1 REFERENCE, MAY, 1969

A METHOD FOR PERFORMING PROBABILITY CALCULATIONS FOR FUEL CLAD SURFACE TEMPERATURES OF NUCLEAR REACTORS IS PRESENTED. THE METHOD PROPERLY TREATS FACTORS WHICH VARY SYSTEMATICALLY OVER THE WHOLE CORE, FACTORS WHICH VARY OVER A PLATE, AND THOSE THAT VARY AT A SPOT. ONE METHOD OF CHOOSING SPOT SIZE FOR PLATE-TYPE REACTORS IS SHOWN AND A MORE GENERAL METHOD IS DISCUSSED. THE METHOD IS NOT RESTRICTED TO NORMAL DISTRIBUTIONS. THE CALCULATED VALUE FOR PROBABILITY OF SUCCESS, THAT IS, SURFACE TEMPERATURE NOT EXCEEDING COOLANT SATURATION TEMPERATURE, IS IDENTIFIED AS STRICTLY APPLICABLE ONLY TO THE INSTANT OF REACTOR STARTUP.

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

*REACTOR, GENERAL + *REACTOR, POWER + CORE COMPONENTS + *TEMPERATURE GRADIENT + CLADDING + FUEL ELEMENT + PROBABILITY + FUEL, METALLIC TYPE + MATHEMATICAL TREATMENT

5-34861 ALSO IN CATEGORIES 9 AND 17

DECREASE IN FUEL ELEMENT TEMPERATURE AT STEADY STATE FULL POWER

U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

3 PAGES, LETTER TO P.A. MORRIS, USAEC-DRL, MAY 19, 1969, DOCKET 50-274

DURING INITIAL STARTUP OPERATIONS AT 1 MW, THE TEMPERATURE OF THE INSTRUMENTED FUEL ELEMENT IN B RING DECREASED FROM 510 C TO 360 C DURING A FOUR-WEEK PERIOD. VARIOUS TESTS (INCLUDING FOLLOWING THE TEMPERATURE DURING AN 80-HOUR RUN, OBSERVING PEAKS TEMPERATURES DECREASE DURING A SERIES OF \$3.00 PULSES, AND ROTATING THE ELEMENT AT POWER) SUGGEST THAT A LARGER THAN USUAL FUEL-TO-CLAD GAP EXISTED INITIALLY, AND THAT THIS GAP DECREASED FOLLOWING PULSED OPERATION. THE TEMPERATURES CURRENTLY BEING MEASURED AGREE WITH PREDICTIONS IN THE HAZARDS SUMMARY REPORT.

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

*INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT + REACTOR, RESEARCH + TRIGA (RR) + *HEAT CONDUCTANCE, FUEL TO CLAD + REACTIVITY EFFECT, ANOMALOUS + INSTRUMENT, TEMPERATURE

5-34862 ALSO IN CATEGORIES 6 AND 17

SELECTED HADDAM NECK OPERATING EXPERIENCES

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-34 +. 22 PAGES, MAY 16, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SUCCESSFULLY UPGRATED FROM 490 TO 600 MW(IE). INCORE FLUX MAPS SHOW DECREASES IN HOT CHANNEL FACTORS DESPITE THE POWER COOLANT TEMPERATURE INCREASE FROM 534 TO 545 F. ON APRIL 12, CONTROL ROD 28 DID NOT DROP ON A MANUAL SCRAM UNTIL MOVED OUTWARD SEVERAL TIMES BY THE ROD DRIVE. SIMILAR EXPERIENCE WITH SIMILAR MAGNETIC JACK CONTROL ROD DRIVES AT YANKEE HAVE RESULTED IN INSPECTIONS THAT REVEALED NO ABNORMALITIES. A TEMPORARY MALFUNCTION (POSSIBLY CRUD ACCUMULATION) WITHIN THE INTERNAL STEPPING MECHANISM CAN ONLY BE SUSPECTED. (INITIATED BY DILUTION SO THE CONTROL ROD GROUP INSERTED 20 STEPS (300 TO 280), WAITING 2 HOURS AND THEN REBORATING). A XENON TRANSIENT TEST AT 600 MW SHOWED THE TRANSIENT WAS DAMPED AT THE COMPLETION OF ONE CYCLE, HOT CHANNEL FACTOR ANALYSIS HAS NOT BEEN COMPLETED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST.; WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*XENON OSCILLATION + *FAILURE, SCRAM MECHANISM + *POWER UPGRATING + HADDAM NECK (PWR) + HOT CHANNEL FACTOR + TEST, PLANT RESPONSE + OPERATING EXPERIENCE + CRUD + YANKEE (PWR) + REACTOR, PWR + REPORT, OPERATIONS

5-34864 ALSO IN CATEGORY 17

FURTHER ELK RIVER WELD INSPECTIONS

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-74 +. 19 PAGES, 3 FIGURES, APRIL 1969, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ULTRASONIC RADIOGRAPHIC AND DYE PENETRANT INSPECTIONS OF WELDS IN PRIMARY STEAM AND FEEDWATER PIPING REVEALED MORE DEFECTS AND CRACKS. TENTATIVE GENERALIZATIONS INCLUDE (A) CRACKING APPEARS CONCENTRATED IN THE STEAM PHASE. (B) CRACKS OCCUR IN RANDOM ORIENTATION AND ARE INITIATED FROM EITHER THE INSIDE OR OUTSIDE OF THE PIPE, ARE MORE FREQUENT IN FURNACE SENSITIZED STAINLESS STEEL, AND ARE MOST FREQUENTLY ASSOCIATED WITH AREAS OF COLD WORK OR HIGH STRESS, (C) ULTRASONICS IS A MORE SENSITIVE DETECTOR THAN RADIOGRAPHY. HOWEVER, ORIENTATION IS A SERIOUS PROBLEM. THE

CATEGORY 5
ACCIDENT ANALYSIS

5-34864 *CONTINUED*

LARGEST CRACK FOUND WAS 9 IN. LONG, ABOUT 25% OF THE CIRCUMFERENCE OF THE PIPE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS + MAIN COOLING SYSTEM + FAILURE, PIPE + WELDS + STEEL, STAINLESS + REACTOR, BWR +
*EXAMINATION + TEST, NONDESTRUCTIVE + *PIPING + *FAULT + ACOUSTICS

5-34868 ALSO IN CATEGORY 17

PERFORMANCE EVALUATION OF THE CENTERMELT FUEL AFTER THE FIRST PERIOD OF IRRADIATION IN THE BIG ROCK POINT REACTOR

CONSUMERS POWER COMPANY

SR-10 +. 85 PAGES, 40 FIGURES, APRIL 7, 1969, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

SIX ELEMENTS (188 FUEL RODS, BOTH POWDER AND PELLET IN VARYING ENRICHMENTS) WERE OPERATED AT PEAK ROD POWERS UP TO 24.15 KW/FT. 3 RODS FAILED AFTER 3,000 MWD/T EXPOSURE (15% OF FUEL LIFETIME), WITH A UCHFR OF 1.9. ALL FAILURES WERE IN THE SAME LOCATION - IN THE HOT CORNER SHROUDED BY THE BUNDLE CORNER SUPPORT (UNIQUE TO DEVELOPMENTAL BUNDLES) AND DOWNSTREAM OF DIMPLES IN THE CORNER ANGLE (WITH UNIQUE SKI-JUMP CRUD). ONE HAD CLAD BULGES FROM ZRO2 AND ZR HYDRIDE INSIDE THE CLAD WHERE WATER PENETRATED. ANOTHER HAD 1/6 OF THE CLAD CIRCUMFERENCE LOST DUE TO ACCELERATED CORROSION, AND CLAD TEMPERATURE REACHED 1400 F. NO MOLTEN BOUNDARY WAS EVIDENT, BUT MELTING NEARLY REACHED THE FUEL SURFACE BECAUSE THE FUEL-CLAD GAP RESISTANCE INCREASES, AND THE HIGHER OXYGEN CONTENT LOWERS BOTH THE CONDUCTIVITY AND THE MELTING POINT OF THE UO2+ FUEL. ***OTHERWISE MELT RADII AGREED WITH PREDICTIONS WITHIN 5%, RADII REPRESENT CONDITIONS ONLY IN THE LAST 12 HOURS. FUEL RODS WITH DEPLETED UO2 WILL BE CRUCIAL POSITIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS ANALYSIS + STOICHIOMETRY + *SURFACE FILM DEPOSIT + EURATOM + R AND D PROGRAM + BIG ROCK POINT (BWR) + REACTOR, BWR + *IRRADIATION TESTING + *CENTERLINE MELTING + HEAT CONDUCTANCE, FUEL TO CLAD + FUEL ELEMENT + FAILURE, CLADDING + ZIRCONIUM + HYDROXIDE

5-34875 ALSO IN CATEGORY 6

LEBERRE F

STUDY OF THE BEHAVIOR OF A WATER REACTOR SUBJECTED TO A REACTIVITY JUMP WITH COOLING SYSTEM OUT OF ACTION AND WITH FORCED CIRCULATION

CENTRE D'ETUDES NUCLEAIRES DE CADARACHE

DEP/GTSP/CADARACHE +. 50 PAGES, 16 FIGURES, TABLES, 4 REFERENCES, NOVEMBER, 1967

PRESENTS A MATHEMATICAL STUDY OF THE REACTIVITY ACCIDENT. TWO CASES STUDIED ARE FOR (1) NO COOLING AND (2) WITH FORCED CONVECTION. INTERACTION OF BOILING PHENOMENA NOT CONSIDERED. TEMPERATURE DISTRIBUTION CALCULATIONS ARE BY THE METHOD OF FINITE DIFFERENCES

*ACCIDENT ANALYSIS + *MATHEMATICAL STUDY + ANALYTICAL MODEL + REACTOR PHYSICS + *REACTOR KINETICS + FUEL ELEMENT + TEMPERATURE GRADIENT + HEAT TRANSFER ANALYSIS + REACTOR, WATER + FRANCE + ACCIDENT, REACTIVITY

5-34895 ALSO IN CATEGORIES 11 AND 12

ALESHIN VS + KUZNETSOV NM + SARKISOV

SUDDOYE YADERNYE REAKTORY

492 PAGES, IZKATEL'S STVG SUDCSTROENIE, 1968

A BRIEF REVIEW OF NUCLEAR PHYSICS, HEAT-EXCHANGE MECHANICS, CONTROL SYSTEMS, CONSTRUCTION, AND DESIGN OF NUCLEAR MARITIME REACTORS. CONCEPTS OF BIOLOGICAL PROTECTION AND SHIELDING ARE DISCUSSED. THE BOOK CAN BE A HANDBOOK FOR ENGINEERS DESIGNING AND OPERATING NUCLEAR POWER PLANTS.

THERMAL ANALYSIS + *REACTOR, MARITIME + DESIGN CRITERIA + CONTROL SYSTEM + *REACTOR POWER

5-34897 ALSO IN CATEGORY 18

SAFETY ANALYSIS SUMMARY OF BABCOCK AND WILCOX'S CNSG MARITIME REACTOR

BABCOCK AND WILCOX, LYNCHBURG, VIRGINIA

BAW-1321 +. 100 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

A SAFETY ANALYSIS OF AN INTEGRATED REACTOR DESIGN IS PRESENTED FOR A PRE LICENSE APPLICATION REVIEW. THE REACTOR IS INTENDED FOR APPLICATION IN A HIGHER-POWERED SHIP.

*REACTOR, MARITIME + *SAFETY EVALUATION + CONTAINMENT, PRESSURE RELIEF + SAFETY REVIEW

5-34898

FAURE J + JAUMOTTE A

ETUDE DES ECHANGES THERMIQUES ENTRE LES CANAUX ET L'EAU LOURDE DANS UN REACTEUR NUCLEAIRE

18 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, 12(2), PAGES 155-172, FEBRUARY, 1969

IN THIS PAPER THE RISK OF LOCAL BOILING OF THE MODERATOR IN A PRESSURE TUBE REACTOR HAS BEEN INVESTIGATED. FOR VARIOUS COOLANT CHANNEL CONCEPTS, THE INLET TEMPERATURE OF THE MODERATOR HAS BEEN DETERMINED IN SUCH A WAY THAT THIS PHENOMENON WILL NOT OCCUR. AN EXPERIMENTAL STUDY HAS SHOWN THE INSTABLE CHARACTER OF THE DOWNWARD FLOW OF THE MODERATOR. FURTHERMORE IT HAS BEEN VERIFIED THAT THE ORIFICES OF THE DISTRIBUTION PLATES CAUSE LOCAL INCREASE OF HEAT TRANSFER.

CATEGORY 5
ACCIDENT ANALYSIS

5-34898 *CONTINUED*
*HEAT TRANSFER + *HEAT TRANSFER, BOILING + *REACTOR, PRESSURE TUBE + HEAT TRANSFER EXPERIMENT + BOILING

5-34899
VAN STRALEN SJD + SLUYTER WM
LOCAL TEMPERATURE FLUCTUATIONS IN SATURATED POOL BOILING OF PURE LIQUIDS AND BINARY MIXTURES
TECHNOLOGICAL UNIVERSITY, EINDHOVEN, THE NETHERLANDS
12 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 12(2), FEBRUARY, 1969

EXPERIMENTAL VERIFICATION OF THE PHYSICAL BACKGROUND UNDERLYING BUBBLE GROWTH THEORIES FOR THE MECHANISM OF NUCLEATE BOILING IS GIVEN. THE THERMAL BOUNDARY LAYER IS PUSHED AWAY FROM THE WALL DURING RAPID INITIAL BUBBLE GROWTH. SUBSEQUENT HEATING OCCURS DURING THE WAITING TIME BETWEEN THE DETACHMENT OF A BUBBLE AND THE GENERATION OF THE SUCCEEDING BUBBLE. THE MECHANISM RESULTS IN LARGE LOCAL TEMPERATURE FLUCTUATIONS IN PURE LIQUIDS. IN BINARY MIXTURES CONTAINING A SMALL FRACTION OF THE MORE VOLATILE COMPONENT, THE TEMPERATURE DIPS ARE LIMITED TO CONSIDERABLY LOWER VALUES. THIS PROVES THE EXISTENCE OF A DECREASED EFFECTIVE SUPERHEATING, WHICH IS CAUSED BY AN INCREASE OF THE DEW POINT.

*HEAT TRANSFER + *HEAT TRANSFER, BOILING + *NUCLEATE BOILING + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER, TWO PHASE + BOILING + POOL BOILING + PHASE CHANGE

5-34906 ALSO IN CATEGORY 17
LESURF JE + BRYANT PE
EFFECT OF WATER CHEMISTRY ON THE OXIDATION OF ZIRCONIUM ALLOYS UNDER REACTOR RADIATION
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)
AECL-2797 +. 16 PAGES, 4 FIGURES, 3 TABLES, 10 REFERENCES, FEBRUARY 1968

BOILING ENHANCES THE OXIDATION OF ZIRCALOY-2 CLADDING AS WELL AS THE ZR-2.5(NB ALLOY. BOTH OXIDATION AND DAMAGING RADIATION ARE REQUIRED FOR CORROSION OF ZR-2. THE 2.5(NB ALLOY SENSITIVITY IS DUE TO ITS METALLURGICAL STRUCTURE, NOT TO RADIATION. AMMONIA ADDITION PREVENTS THE APPEARANCE OF MOLECULAR OXYGEN, SO THAT HIGH ZR-2 CORROSION RATES IN BWRs MAY BE REDUCED, ALONG WITH HYDROGEN PICKUP. *** IN-PILE TESTS IN VARIOUS IN- AND OUT-OF-REACTOR LOOPS ARE SUMMARIZED.

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

*COOLANT CHEMISTRY + CORROSION + ZIRCALOY + REACTOR, PWR + FAILURE, CLADDING + IN PILE LOOP + *BOILING + CANADA + REACTOR, BWR

5-34910 ALSO IN CATEGORIES 11 AND 18
GARMICHAEL CF + MARKO SA
CONTENPT-PS - A DIGITAL COMPUTER CODE FOR PREDICTING THE PRESSURE-TEMPERATURE HISTORY WITHIN A PRESSURE-SUPPRESSION CONTAINMENT VESSEL IN RESPONSE TO A LOSS-OF-COOLANT ACCIDENT
PHILLIPS PETROLEUM COMPANY
IDO-17252 +. 74 PAGES, FIGURES, TABLES, APRIL 1969

REPORT DESCRIBES BOTH ANALYTICAL MODEL AND COMPUTER CODE. (FORTRAN IV OR SYMBOLIC LANGUAGE USED FOR IMB 7040-44). PROVISIONS FOR CONTAINMENT LEAKAGE (GROSS OR FROM PENETRATIONS), FAN COOLING, DRY- AND WET- WELL SPRAYS. FLOW MAY BE SONIC OR SUBSONIC THROUGH VENTS, AND DRY- WELL TEMPERATURES MUST STAY BELOW 460 F.

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

*CONTAINMENT, PRESSURE SUPPRESSION + *CONTAINMENT DESIGN + BLOWDOWN + REACTOR, BWR + CONTAINMENT SPRAY + CONTAINMENT PENETRATION, GENERAL + *ANALYTICAL MODEL + *COMPUTER PROGRAM + CONTAINMENT AIR COOLING + LEAK RATE

5-34919 ALSO IN CATEGORIES 9 AND 17
TECHNICAL SPECIFICATIONS FOR THE BABCOCK AND WILCOX TEST REACTOR
BABCOCK AND WILCOX, LYNCHBURG, VA.
BAW-287-4 +. 25 PAGES, FIGURES, TABLES, 14 REFERENCES, APRIL 18, 1969, DOCKET 50-200

REVISED SUBMITTAL FOR UPGRATING FROM 6 MW TO 14. EXTENSIVE BASES FOR DETERMINING LIMITING SAFETY SYSTEM SITTING AND BURNOUT POWER FOR 4 CORE CONFIGURATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + *POWER UPGRATING + REACTOR, TEST + *PERFORMANCE LIMIT + *REACTOR POWER + REACTOR, FLUX TRAP + REACTOR, RESEARCH

5-34920 ALSO IN CATEGORIES 17 AND 18
SUPPLEMENT 4 TO THE BAWTR SAFETY ANALYSIS REPORT
BABCOCK AND WILCOX, LYNCHBURG, VA.
BAW-208-4 +. 25 PAGES, FIGURES, TABLES, 23 REFERENCES, APRIL 18, 1969, DOCKET 50-200

PROVIDES INFORMATION ON 3 MAJOR CHANGES IN SUPPORT OF A REQUEST FOR TECHNICAL SPECIFICATION CHANGE

CATEGORY 5
ACCIDENT ANALYSIS

5-34920 *CONTINUED*

- (1) POWER UPGRATING FROM 6 MW TO 14. (2) REGULATING-ROD FUEL-ELEMENT CHANGE FROM 10 TO 19, ADDING 0.0066 REACTIVITY AND SLIGHTLY INCREASING THE HOT-SPOT PEAK FACTOR. (3) REPLACING THE CENTRAL PWR LOOP WITH A CENTRAL FILLER WITH 5 HOLES, USING 785 GPM. *** REPORT ANALYZES POWER UPGRATING (DESIGN-BASIS ACCIDENT IS FLOW BLOCKAGE OF 1 FUEL ELEMENT, SITE IS ADEQUATE TO MEET FULL CORE MELTDOWN AT 12 MW), CONSIDERING FLOW INSTABILITY AND LOSS-OF-FLOW ACCIDENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, SAR + *POWER UPGRATING + *FLOW STABILITY + ACCIDENT, LOSS OF FLOW + REACTOR, TEST + TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + REACTOR, RESEARCH

5-35022 ALSO IN CATEGORY 17

MILLER RS + ROLL JB + JORDAN KR + ROLIN JL + KUBIT CJ
OPERATING EXPERIENCE WITH THE SAXTON REACTOR PARTIAL PLUTONIUM CORE II
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PA.
17 PAGES, NUCL. MET., MET. SOC. AIME, VOL. 13, PG. 129-45 (1968)

OPERATION OF THE SAXTON REACTOR WITH NINE CENTRAL FUEL ASSEMBLIES CONTAINING 6.6 WT% PUO₂ IN NATURAL UO₂ AND CLAD WITH ZIRCALOY-4 CONTINUES. OBSERVED NUCLEAR, THERMAL-HYDRAULIC, AND FUEL MATERIALS PERFORMANCE HAVE AGREED VERY WELL WITH THAT PREDICTED. THE RESULTS OF THE POST-IRRADIATION EXAMINATION AND EVALUATION OF TWO PELLETT AND TWO VIPAC FUEL RODS, REMOVED FROM THE CENTRAL 3 X 3 SUBASSEMBLY AT A PEAK BURNUP OF 6100 MWD/MTM, ARE DISCUSSED.

*REFUELING + IRRADIATION TESTING + *PLUTONIUM DIOXIDE + EXAMINATION + FUEL, POWDER TYPE + REACTOR, PWR

5-35023 ALSO IN CATEGORY 17

ROLSTAD E + KJAERHEIM G
BWR BURN-OUT EXPERIMENTS
7 PAGES, NUCL. ENG. INT., VOL. 13, PG. 1021-7 (DECEMBER 1968)

RESULTS OF EXPERIMENTS USING FOUR DIFFERENT DETECTORS TO MAP THE CRITICAL HEAT TRANSFER CONDITION ON SIX DIFFERENT TEST ASSEMBLIES WITH NATURAL AND FORCED COOLING. PRINCIPLES USED WERE THERMOCOUPLE TEMPERATURE MEASUREMENT AT AN ARTIFICIALLY INDUCED HOT SPOT, VARIATION OF THE INSULATION OF A CABLE EMBEDDED IN AXIAL GROOVES IN THE FUEL SURFACE, FUEL ELONGATION MEASUREMENT BY DIFFERENTIAL TRANSFORMER, AND VARIATION OF THE CLADDING RESISTANCE. CRITICAL CONDITIONS WERE APPROACHED EITHER BY INCREASING POWER OR BY REDUCING FLOW. A BURNOUT MECHANISM IS PROPOSED, AND THE DETECTORS COMPARED.

*BURNOUT HEAT FLUX + FUEL ELEMENT + REACTOR, BWR + *INSTRUMENT, CONTROL + INSTRUMENT, TEMPERATURE + FAILURE, CLADDING + EXPANSION + HEAT FLUX, CRITICAL

5-35025 ALSO IN CATEGORY 17

SECTION X + TECHNICAL SPECIFICATIONS
ARMY MATERIALS AND MECHANICS RESEARCH CENTER
47 PAGES, SECTION X OF SAFETY ANALYSIS REPORT, MAY 1, 1969, DOCKET 50-47

FOR POWER UPGRATING TO 5 MW, A 1490-GPM OPEN-POOL RESEARCH REACTOR. ORR TEMPERATURE DATA FOR FUEL ELEMENTS IN AIR USED TO SHOW THAT WATER FOR COOLING NEED NOT BE PROVIDED LONGER THAN 16 HR AFTER SHUTDOWN. *** SPECIFICATION AND BASES ARE IN CURRENT (NEW) MODEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + POWER UPGRATING + EMERGENCY COOLING CONSIDERATIONS + REACTOR, POOL TYPE

5-35147

EDWARDS DK + CATTON I
PREDICTION OF HEAT TRANSFER BY NATURAL CONVECTION IN CLOSED CYLINDERS HEATED FROM BELOW
UNIVERSITY OF CALIFORNIA, LOS ANGELES
8 PAGES, INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER 12(1) PG. 23-30 (JANUARY 1969)

USE IS MADE OF THE MALKUS-VERONIS POWER INTEGRAL TECHNIQUE TO PREDICT HEAT-TRANSFER RATES IN FLUIDS CONTAINED IN VERTICAL RIGHT CYLINDERS HEATED ON A HORIZONTAL BOTTOM AND COOLED ON A HORIZONTAL TOP ENC. RESULTS ARE OBTAINED FOR CELLS WITH EITHER THERMALLY INSULATING OR CONDUCTING SIDEWALLS. CLOSED-FORM RELATIONS ARE GIVEN FOR NUSSELT NUMBER IN TERMS OF RAYLEIGH NUMBER BASED ON CELL HEIGHT AND ON AN ADJUSTED WAVE-NUMBER WHICH DEPENDS ON HEIGHT-TO-DIAMETER RATIO FOR CIRCULAR CYLINDERS AND HEIGHT-TO-SIDE RATIOS FOR SQUARE CYLINDERS. COMPARISONS BETWEEN THE PREDICTIONS AND PREVIOUSLY REPORTED DATA ARE SHOWN.

*HEAT TRANSFER + *HEAT TRANSFER, NATURAL CONVECTION + HEAT TRANSFER ANALYSIS + HEAT TRANSFER CORRELATION

5-35149

GAS MIXING IN ROD CLUSTERS
BERKELEY NUCLEAR LABORATORIES, BERKELEY, GLOS., ENGLAND
14 PAGES, 13 FIGURES, 10 REFERENCES, INT. J. OF HEAT AND MASS TRANSFER, 12(3), PAGES 265-278 (MARCH 1969)

CATEGORY 5
ACCIDENT ANALYSIS

5-35149 *CONTINUED*

TRANSVERSE TEMPERATURE DIFFERENCES IN A COOLANT FLOWING AXIALLY ALONG A ROD CLUSTER OR TUBE BUNDLE WILL BE REDUCED BY DIFFUSION OF HEAT FROM ONE SUB-CHANNEL TO ANOTHER THROUGH THE GAPS BETWEEN THE RODS OR TUBES. THIS PROCESS, CALLED MIXING FOR CONVEYANCE, HAS BEEN STUDIED EXPERIMENTALLY USING A MASS-TRANSFER ANALOGY. MIXING RATES WERE FOUND TO BE GREATER THAN CAN BE EXPLAINED BY TURBULENT DIFFUSION THEORY. THEY WERE ATTRIBUTED TO THE ACTION OF SECONDARY VELOCITIES. THE RESULTS ARE USED TO PREDICT THE EXTENT TO WHICH MIXING WILL REDUCE TEMPERATURE DIFFERENCES WITHIN FUEL CLUSTERS OF ADVANCED GAS-COOLED REACTORS.

5-35150

BIASI L

A NON-EQUILIBRIUM DESCRIPTION OF TWO-PHASE ANNULAR FLOW - APPLICATION TO THE BURNOUT PREDICTION
13 PAGES, 13 FIGURES, 1 TABLE, 14 REFERENCES, INT. J. OF HEAT AND MASS TRANSFER, 12(3), PAGES 319-331 (MARCH 1969)

A DESCRIPTION IS GIVEN OF A HEAT-TRANSFER ANNULAR DESPERSED FLOW IN TERMS OF NON-EQUILIBRIUM IN THE PHASE DISTRIBUTION. A SIMPLE EQUATION RELATING FILM FLOWRATE VARIATION TO HEAT FLUX AND TO THE DEPARTURE FROM EQUILIBRIUM IS USED TO PREDICT THE DRY-OUT POINT IN CIRCULAR DUCTS. THE RESULTS OBTAINED ARE COMPARED WITH THE EXPERIMENTAL BURNOUT DATA FOR UNIFORM AND NON-UNIFORM HEATING.

*BURNOUT HEAT FLUX + *CONVECTIVE BOILING + *HEAT FLUX, DRYOUT + CORE MELTDOWN + FLOW, ANNULAR + FLOW, TWO PHASE + HEAT TRANSFER + HEAT TRANSFER ANALYSIS + PHASE CHANGE

5-35151

ECKERT ERG + SPARROW EM + IBELE WE + GOLDSTEIN RJ + SCOTT CJ

HEAT TRANSFER BIBLIOGRAPHY

UNIV. OF MINNESOTA, MINNEAPOLIS

15 PAGES, INT. J. OF HEAT AND MASS TRANSFER, 12(3), PG. 349-363 (MARCH 1969)

HEAT TRANSFER BIBLIOGRAPHY BY E.R.G. ECKERT, ET AL. FIVE HUNDRED REFERENCES CATEGORIZED AS FOLLOWS APPLICATIONS, BOOKS, BOUNDARY LAYER, CHANGE OF PHASE AND TWO PHASE FLOW, CHANNEL FLOW, CONDUCTION, FLOW WITH SEPARATED REGIONS, HEAT AND MASS TRANSFER, LIQUID METALS, LOW DENSITY, MAGNETOHYDRODYNAMICS, MEASUREMENT TECHNIQUES, NATURAL CONVECTION, PACKED AND FLUIDIZED BEDS, RADIATION, ROTATING SURFACES ON FLUIDS, THERMODYNAMIC AND TRANSPORT PROPERTIES, TRANSFER MECHANISMS.

HEAT TRANSFER + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER AUGMENTATION + *HEAT TRANSFER CORRELATION + *HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER, CONDENSATION + *HEAT TRANSFER, BOILING + *HEAT TRANSFER, CONDUCTION + *HEAT TRANSFER, CONVECTION + *HEAT TRANSFER, NATURAL CONVECTION + *HEAT TRANSFER, RADIANT + *HEAT TRANSFER, SUPERCRITICAL + *HEAT TRANSFER, TWO PHASE

5-35152

TURTON JS

THE EFFECTS OF PRESSURE AND ACCELERATION ON THE POOL BOILING OF WATER AND ARCTON II

UNIV. OF SUSSEX, ENGLAND

16 PAGES, 17 FIGURES, 3 TABLES, 9 REFERENCES, INT. J. OF HEAT AND MASS TRANSFER, 11(9), PG. 1295-1310 (SEPTEMBER 1968)

AN EXPERIMENTAL STUDY OF THE EFFECTS OF HIGH PRESSURE AND ACCELERATION ON POOL BOILING IS DESCRIBED. BOILING IS FROM AN ELECTRICALLY HEATED STAINLESS STEEL TUBULAR TEST ARRANGED SO THAT THE RESULTANT ACCELERATION IS PERPENDICULAR TO THE AXIS OF THE TUBE. THE RESULTS FOR WATER SHOW VARIATIONS WHICH ARE ATTRIBUTED TO VARIABLE WETTING OF THE BOILING SURFACE. THOSE FOR ARCTON II DISPLAY CONSIDERABLE TEMPERATURE OVERSHOTS WITH TEMPERATURE DIFFERENCES OF UP TO 120 F ATTAINED UNDER NATURAL CONVECTION CONDITIONS BEFORE BOILING OCCURRED. THE RESULTS ARE DISCUSSED ON THE BASIS OF A HYPOTHESIS CONCERNING THE CONTAMINATION OF THE CAVITIES IN A BOILING SURFACE

*HEAT TRANSFER, BOILING + *POOL BOILING + *HEAT TRANSFER EXPERIMENT + BOILING + HEAT TRANSFER, TWO PHASE + HYDRAULIC EXPERIMENT

5-35153

TYLDESLEY JR + SILVER RS

THE PREDICTION OF THE TRANSPORT PROPERTIES OF A TURBULENT FLUID

16 PAGES, 10 FIGURES, 1 TABLE, 19 REFERENCES, INT. J. OF HEAT AND MASS TRANSFER, 11(9), PAGES 1325-1340 (SEPTEMBER 1968)

TRANSPORT PROPERTIES OF A TURBULENT FLUID ARE INVESTIGATED USING A SIMPLE MODEL TO REPRESENT THE DETAILED FLUID BEHAVIOUR. THIS IS ATTRIBUTED TO THE MOTIONS OF FLUID ENTITIES OF VARYING SIZE, SHAPE AND VELOCITY, AND AN ANALYSIS IS MADE TO FIND THE EFFECT OF INTERACTIONS AND TRANSPORT BETWEEN THE INDIVIDUAL ENTITIES. THE ANALYSIS ENABLES EXPRESSIONS TO BE FOUND FOR THE DIFFUSIVITIES OF MASS, MOMENTUM AND ENERGY IN TERMS OF PROPERTIES OF THE TURBULENCE. EXPERIMENTAL VALUES OF THE VARIOUS DIFFUSIVITY RATIOS COMPARE FAVOURABLY WITH THE THEORETICAL PREDICTIONS. IT IS CONCLUDED THAT THE MODEL IS A USEFUL CONCEPT FOR PREDICTING THE BULK BEHAVIOUR IN TURBULENT FLOW.

*FLOW, TURBULENT + *HEAT TRANSFER ANALYSIS + *HEAT TRANSFER, CONVECTION + *TRANSPORT PROPERTY + HEAT TRANSFER + HYDRODYNAMIC ANALYSIS + MASS TRANSFER

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-30007 ALSO IN CATEGORY 5
RHODE RR + WINIECKI AL
ANALOG ANALYSIS OF FLOW REVERSAL AND WATER-HAMMER PRESSURE IN A TYPICAL CLOSED AARR HYDRAULIC RABBIT-TUBE FACILITY
ARGONNE NATIONAL LABORATORY
ANL-7336 +. 23 PAGES, 15 FIGURES, 1 TABLE, AUGUST 1967

CONDUCTED AN ANALOGUE COMPUTER ANALYSIS OF FLOW REVERSAL AND WATER-HAMMER PRESSURES IN A CLOSED AARR HYDRAULIC RABBIT SYSTEM. THE PARAMETRIC STUDY INDICATED THAT THE OVERPRESSURE ALLOWANCE SHOULD BE ENOUGH TO PREVENT VOID FORMATION IN THE LOOP.

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

*COMPUTER, ANALOG + *HYDRAULIC ANALYSIS + FLOW, PULSATING + COMPUTER PROGRAM

6-30678 ALSO IN CATEGORY 7
SCHROEDER R
SIMULATION OF FISSION PRODUCTS IN FAST CRITICAL ASSEMBLIES
KERNFORSCHUNGSZENTRUM, KARLSRUHE
10 PAGES, NUKLEONIK 10, PAGES 18-27 (JUNE 1967)

THE FISSION PRODUCT MIXTURE TO BE EXPECTED IN A REACTOR AFTER A TIME OF OPERATION MUST, ON A PRACTICAL BASIS FOR MEASUREMENTS, BE MADE IN A CRITICAL ASSEMBLY WITH STABLE ELEMENTS. IT FOLLOWS THAT A PART OF THE FISSION PRODUCT NUCLIDES ARE SIMULATED BY OTHER NUCLIDES. THESE ARE CLOSELY OBSERVED IN THE SIMULATED PORTION AS WELL AS IN THE EXPERIMENTAL, AND IN THE RESULTING REACTIVITY ERRORS. A PRACTICAL EXAMPLE IS DISCUSSED.

*SIMULATION + CRITICALITY EXPERIMENT + CRITICALITY SAFETY + REACTOR TEST FACILITY + *MOCKUP + *REACTIVITY EFFECT + *CRITICAL ASSEMBLY FACILITY + REACTIVITY, EXCESS + *REACTOR, FAST

6-30814
TONE T + KATSURAGI S
NOTE ON TREATMENTS OF SODIUM VOID REACTIVITY EFFECTS IN A LARGE FAST REACTOR
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
21 PAGES, JOURNAL OF NUCLEAR SCIENCE TECHNOLOGY (TOKYO), VOLUME 5, PAGES 210-21 (MAY 1968)

FINE SPECTRA IN LARGE FAST REACTORS OF VARIOUS COMPOSITIONS HAVE BEEN CALCULATED BY EXACTLY TREATING SLOWING DOWN DUE TO ELASTIC SCATTERING OF LIGHT ELEMENTS, AND THE RESULTING COMPOSITION-DEPENDENT SETS OF THE EFFECTIVE CROSS SECTIONS HAVE BEEN COMPARED WITH CURRENTLY TYPICAL STANDARD SETS. THE FOLLOWING RESULTS HAVE BEEN OBTAINED - (1) EFFECTIVE CROSS SECTIONS DEPEND LARGELY ON COMPOSITION. (2) IN THE PRESENT STANDARD SET, THE SELF-SHIELDING FACTORS OF BOTH ELASTIC REMOVAL AND ELASTIC SCATTERING CROSS SECTION ARE TREATED UNDER THE SAME PRINCIPLE. THE EFFECTIVE CROSS SECTION IN A BLANKET REGION, EXCEPT CLOSE TO THE INTERFACE AND BOUNDARY, ARE HARDLY AFFECTED BY THE BUCKLING ASSUMED, AND THE EFFECTS OF BUCKLING ON EFFECTIVE MULTIPLICATION FACTOR AS WELL AS THE SODIUM VOID REACTIVITY EFFECT ARE SMALL ENOUGH TO BE NEGLECTED.

*VOID COEFFICIENT + *REACTOR, FAST + CROSS SECTION + *REACTIVITY EFFECT + *REACTIVITY EFFECT, VOID + *SODIUM

6-30815 ALSO IN CATEGORY 7
POSTNIKOV IS + SABAIEV EF
XENON INSTABILITY OF THERMAL NEUTRON REACTORS AND METHODS OF STABILIZING THE NEUTRON FLUX DISTRIBUTION
GORKY RESEARCH INSTITUTE OF TECHNICAL PHYSICS, USSR
6 PAGES, VESTSI AKADEMI NAVUK BELARUSKAI S.S.R., SERYYA FIZIKA-TEKHNICHNYKH NAVUK, NUMBER 3, PAGES 46-52 (1967)

A MATERIAL BALANCE IS WRITTEN FOR I-125 AND XE-125 NUCLEI, MOST OF THE XE-135 NUCLEI ORIGINATING FROM THE I-125 PRECURSOR (IT 1/2 EQUALS 9.7 HR). IT FOLLOWS FROM THIS EQUATION THAT WITH AN INCREASE IN REACTOR POWER THE XENON CONCENTRATION FIRST DECREASES BECAUSE OF BURNUP BUT THEN INCREASES TO A NEW EQUILIBRIUM VALUE EXCEEDING THE FORMER VALUE WITH ACCUMULATION OF I-125. THIS BEHAVIOR LEADS TO INSTABILITY OF THERMAL NEUTRON REACTORS, ESPECIALLY IN LARGE ONES.-

*NEUTRON + *FLUX DISTRIBUTION + *INSTABILITY + *BUCKLING + FLUX TILT + *XENON + IODINE + FISSION PRODUCT, IODINE

6-32821 ALSO IN CATEGORY 18
MOCKUP EXPERIMENTS IN ZPR-3
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-1 +. 40 PAGES, FIGURES, TABLES, 24 REFERENCES, SEFOR, PSAR, SUPPLEMENT 1, DEC. 5, 1967, DOCKET 50-231

ANALYSES OF A SERIES OF CRITICAL EXPERIMENTS AND APPLICATION OF RESULTS TO THE SEFOR DESIGN ARE DISCUSSED. CRITICAL-MASS VALUES WERE DETERMINED FOR 1-, 2-, AND 3-SEGMENT FUEL DESIGNS TO HELP ESTABLISH THE PLUTONIUM ATOM FRACTION. REACTIVITY EFFECTS OF AXIAL FUEL EXPANSION WERE MEASURED WHICH LED TO SELECTION OF THE 2-SEGMENT DESIGN FOR SEFOR. MEASUREMENTS OF THE REACTIVITY WORTH OF THE RADIAL REFLECTOR ESTABLISHED THE ADEQUACY OF THE REFLECTOR CONTROL SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

*MOCKUP + *CRITICALITY EXPERIMENT + REACTOR PHYSICS + CRITICAL MASS + REACTIVITY COEFFICIENT + MEASUREMENT,

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-32821 *CONTINUED*
REACTIVITY + DOPPLER COEFFICIENT + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

6-33122 ALSO IN CATEGORY 9
ROSENTHAL HB + SZYMKOWIAK EA + GEORGE CH
HYDROGEN REACTIVITY CONTROL EXPERIMENT
MARIETTA CORP., BALTIMORE, MARYLAND
8 PAGES, 8 FIGURES, 1 TABLE, 9 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 191-98 (MARCH 1969)

THIS EXPERIMENT VERIFIED THAT HYDROGEN REACTIVITY CONTROL, A MECHANICALLY PASSIVE DEVICE, IS AN EFFECTIVE, SELF-REGULATING MECHANISM FOR CONTROLLING A NUCLEAR REACTOR. THIS PAPER DESCRIBES THE PRINCIPLE OF HYDROGEN REACTIVITY CONTROL AND DISCUSSES THE H-RHO EXPERIMENTAL SYSTEM AND THE ANALYTICAL CONSIDERATIONS THAT ESTABLISHED THE SYSTEM DESIGN, PRELIMINARY MEASUREMENTS THAT VALIDATE THE EXPERIMENT, AND THE EXPERIMENTAL DEMONSTRATION AND EVALUATION OF THE SYSTEM RESPONSE TO CHANGES IN THERMAL LOAD.

*REACTOR CONTROL + *HYDROGEN + *REACTIVITY EFFECT + HYDRIDE + ZIRCONIUM + MODERATOR + COMPARISON, THEORY AND EXPERIENCE

6-33944 ALSO IN CATEGORY 5
LONG JK
ANALYSIS OF THE STATIC POWER COEFFICIENT OF EBR-II WITH REDUCED COOLANT FLOW
ARGONNE NATIONAL LABORATORY
21 PAGES, NUCLEAR APPLICATION 6, PAGES 116-26 (FEB. 1969)

A STUDY OF EBR-II OPERATING BEHAVIOR, WHICH BEGAN WITH A REEXAMINATION OF THE THERMAL ANALYSIS OF FUEL PINS UNDER VARYING RATES OF COOLANT FLOW, INCORPORATES THE RECENT INTERPRETATIONS OF THE BOWING BEHAVIOR OF THE SUBASSEMBLIES. THE NONLINEAR BOWING EFFECTS ARE COMBINED WITH THE LINEAR EXPRESSION EFFECTS IN EQUATIONS THAT EXPRESS THE POWER-REACTIVITY DECREMENT AS A FUNCTION OF BOTH POWER AND FLOW. COMPARISON WITH EXPERIMENTS INDICATES AGREEMENT TO WITHIN A FEW INCHES. DIFFERENTIATION OF THE EQUATIONS LEADS TO EXPRESSIONS FOR POWER AND FLOW COEFFICIENTS OF REACTIVITY. THE REDUCED FLOW DATA ARE USED TO DETERMINE AN EFFECTIVE AVERAGE THERMAL EXPANSION COEFFICIENT FOR THE FUEL.

POWER COEFFICIENT + FUEL ELEMENT BOWING + FUEL EXPANSION COEFFICIENT + REACTIVITY COEFFICIENT + REACTIVITY EFFECT, EXPANSION + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + COOLANT COEFFICIENT

6-33564 ALSO IN CATEGORY 18
HAGAN JW + WORTH GA + PADILLA A
PARAMETRIC SCRAM TRANSIENT ANALYSES FOR THE FFTF FAST TEST REACTOR
BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-657 +. 27 PAGES, NOVEMBER 1967

PARAMETRIC ANALYSES OF THE TRANSIENT CHARACTERISTICS FOR VARIOUS ASSUMED RAMP REACTIVITY INPUTS WHICH ARE TERMINATED BY TRIP OF REACTOR SAFETY SYSTEM HAVE BEEN PERFORMED AND RESULTS OF STUDIES ARE DESCRIBED. IN EACH CASE REACTOR WAS ASSUMED AT OPERATING CONDITIONS AT INITIATION OF RAMP. THESE RESULTS WILL BE USED IN EVALUATION OF TRANSIENT SENSITIVITIES TO VARIOUS DESIGN PARAMETERS FOR ESTABLISHING DESIGN TRADE-OFFS AND SYSTEM LIMITS. SYSTEM VARIABLES INCLUDED IN STUDY WERE, MAGNITUDE OF RAMP REACTIVITY INSERTION, SYSTEM RESPONSE TIME, SAFETY ROD ACCELERATION RATE, AND MAGNITUDE OF DOPPLER COEFFICIENT.

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

FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *THEORETICAL INVESTIGATION + *REACTOR TRANSIENT + *REACTOR STABILITY + REACTOR PHYSICS + REACTOR CONTROL + REACTIVITY EFFECT + RESPONSE TIME + DOPPLER COEFFICIENT + REACTOR, FAST + REACTOR, LMCR

6-34357 ALSO IN CATEGORY 9
DIERCKX R + HAGE W + HETTINGER H + LIGOU J + MARTINET M
REACTIVITY CALIBRATIONS BY ANALOG AND DIGITAL METHODS USED DURING ESSOR ZERO POWER EXPERIMENTS
EURATOM
5 PAGES, ATOMKERNENERGIE 14, PAGES 17-21 (JAN.-FEB. 1969)

CONTROL ROD CALIBRATIONS PERFORMED WITH AN ANALOG AND DIGITAL METHOD ARE DESCRIBED. THE OBTAINED EXPERIMENTAL REACTIVITY VALUES ARE COMPARED WITH THEORETICAL CALCULATIONS.

COMPUTER PROGRAM + *COMPUTER, ANALOG + *COMPUTER, DIGITAL + COMPUTER CONTROL + THEORETICAL INVESTIGATION + *REACTOR CONTROL + *REACTIVITY EFFECT

6-34384 ALSO IN CATEGORY 9
SEIFRITZ W + STEGEMANN D + VATH W
TWO-DETECTOR CROSS-CORRELATION EXPERIMENTS IN THE FAST-THERMAL ARGONAUT REACTOR (STARK)
INSTITUT FÜR NEUTRONENPHYSIK UND REAKTORTECHNIK
22 PAGES, 9 FIGURES, 2 TABLES, 7 REFERENCES, PAGES 195-216 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-343E4 *CONTINUED*

POWER AND CROSS-SPECTRAL-DENSITY MEASUREMENTS WERE MADE IN THE EXTERNALLY UNPERTURBED FAST-THERMAL ARGONAUT REACTOR (START) WITH THE USE OF THE FREQUENCY ANALYSIS OF NOISE TECHNIQUE. THEORETICAL CONSIDERATIONS SHOWED THE ADVANTAGE OF TWO-DETECTOR CROSS-CORRELATION EXPERIMENTS OVER SINGLE-DETECTOR AUTOCORRELATION EXPERIMENTS BECAUSE THE CONTRIBUTION OF UNCORRELATED NOISE IS ELIMINATED IN THE OUTPUT SIGNAL. THIS WAS VERIFIED EXPERIMENTALLY.

*NOISE ANALYSIS + REACTOR, FAST + REACTOR, THERMAL + MEASUREMENT, NOISE + ARGONAUT (TNG) + TRANSFER FUNCTION + INSTRUMENT, COMPONENT + NOISE CROSS CORRELATION + *COMPARISON, THEORY AND EXPERIENCE + FREQUENCY SPECTRA + REACTOR, TRAINING + *NOISE ANALYSIS

6-343E5 ALSO IN CATEGORY 9

NOMURA T + GOTOH S + YAMAKI K
REACTIVITY MEASUREMENTS BY THE TWO-DETECTOR CROSS-CORRELATION METHOD AND SUPERCRITICAL-REACTOR NOISE ANALYSIS
NIPPON ATOMIC IND. GROUP CO., LTD., TOKYO, JAPAN
30 PAGES, 28 FIGURES, 3 TABLES, 34 REFERENCES, PAGES 217-46 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

EXPERIMENTS WERE PERFORMED ON THE TOSHIBA TRAINING REACTOR, A SWIMMING-POOL TYPE, TO MEASURE THE PROMPT-NEUTRON DECAY CONSTANTS BY NATURAL NEUTRON NOISE ANALYSIS AT SUBCRITICAL, CRITICAL, AND SUPERCRITICAL STATES. A TWO-DETECTOR CROSS-CORRELATION METHOD WAS DEVELOPED THAT USES BAND PASS FILTERS TO ELIMINATE TC CHAMBER NOISE COMPONENT.

*NOISE ANALYSIS + MEASUREMENT, NOISE + COMPARISON, THEORY AND EXPERIENCE + REACTOR, POOL TYPE + INSTRUMENT, COMPONENT + *REACTIVITY EFFECT + *PROMPT NEUTRON + TRANSFER FUNCTION + NOISE CROSS CORRELATION

6-343E6 ALSO IN CATEGORY 9

JOHNSON JA
MEASUREMENT OF PRESSURE-TO-PRESSURE TRANSFER FUNCTIONS THROUGH THE PHOEBUS-1A NUCLEAR REACTOR
UNIVERSITY OF CALIFORNIA, LOS ALAMOS SCIENTIFIC LABORATORY
14 PAGES, 13 FIGURES, 1 TABLE, 3 REFERENCES, PAGES 271-84 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PURPOSE OF THIS EXPERIMENT WAS TO OBTAIN DYNAMIC RESPONSE MEASUREMENTS OF COOLANT PRESSURE FROM THE NOZZLE INLET PLENUM TO THE CORE EXIT PLENUM. THE PRESSURE-TO-PRESSURE TRANSFER FUNCTIONS OF THE NOZZLE COOLANT TUBES, THE REFLECTOR AND THE CORE WERE OBTAINED OVER A LIMITED RANGE OF FREQUENCIES DURING THE SAME EXPERIMENT. THE RESULTS WERE EXCELLENT AND ESSENTIALLY IN AGREEMENT WITH THE PREDICTIONS.

REACTOR DYNAMICS + *PRESSURE TRANSIENT + *REACTOR COOLANT + TRANSFER FUNCTION + *COMPARISON, THEORY AND EXPERIENCE

6-343E7 ALSO IN CATEGORY 9

WASSERMAN AA + STEINER GH + BODENSCHATZ CA + HONKA EK
NERVA REACTOR TRANSFER-FUNCTION MEASUREMENTS WITH CROSS-CORRELATION TECHNIQUES
WESTINGHOUSE ASTRONUCLEAR LABORATORY
30 PAGES, 11 FIGURES, 4 TABLES, 17 REFERENCES, PAGES 285-314 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

SYSTEM TRANSFER FUNCTIONS OF SEVERAL REACTOR PROTOTYPES FOR THE NUCLEAR ENGINE FOR ROCKET VEHICLE APPLICATION WERE MEASURED BY MEANS OF NOISE TECHNIQUES. THE PURPOSE OF THE MEASUREMENTS WAS TO PROVIDE DATA FOR VALIDATION OF DYNAMIC MODELS OF THE SYSTEM AND TO FACILITATE CONTROL SYSTEM DESIGN.

REACTOR CONTROL + *TRANSFER FUNCTION + *NERVA PROGRAM + NOISE ANALYSIS + NRX (TR) + COMPARISON, THEORY AND EXPERIENCE + DATA PROCESSING + NOISE CROSS CORRELATION + REACTOR, TEST + REACTOR, HWR + REACTOR, PRESSURE TUBE + CANADA

6-343E8 ALSO IN CATEGORY 9

UHRIG RE + OHANIAN MJ
PSEUDORANDOM PULSING OF SUBCRITICAL SYSTEMS
UNIVERSITY OF FLORIDA, GAINESVILLE
18 PAGES, 9 FIGURES, 12 REFERENCES, PAGES 315-32 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PSEUDORANDOM NEUTRON-SOURCE EXCITATION METHOD AS APPLIED TO SUBCRITICAL SYSTEMS IS DESCRIBED, WITH EMPHASIS ON INSTRUMENTATION AND DATA-ACQUISITION AND ANALYSIS TECHNIQUES. RESULTS OBTAINED FOR ROSSI-ALPHA AND PULSE-PROPAGATION MEASUREMENTS ON THE UNIVERSITY OF FLORIDA ACCELERATOR PULSED ASSEMBLY ARE GIVEN, AND THE DIFFICULTIES IN USING THE METHOD FOR SUCH MEASUREMENTS ARE DISCUSSED.

*NOISE ANALYSIS + TESTING + DATA PROCESSING + ROSSI ALPHA + MEASUREMENT, NOISE + *PULSED NEUTRON TECHNIQUE + NOISE CROSS CORRELATION + COMPARISON, THEORY AND EXPERIENCE

6-343E9 ALSO IN CATEGORY 9

MEYER P + GARELIS E
USE OF A PSEUDORANDOM SOURCE INPUT IN THE MEASUREMENT OF IMPULSE-RESPONSE FUNCTIONS

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34389 *CONTINUED*

GENERAL ELECTRIC, PLEASANTON, CALIFORNIA

10 PAGES, 5 FIGURES, 4 REFERENCES, PAGES 333-42 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PSEUDORANDOM-IMPULSE-RESPONSE METHOD, IN WHICH A PSEUDORANDOM NEUTRON-SOURCE INPUT IS USED AND CROSS CORRELATION BETWEEN THE SOURCE INPUT AND THE REACTOR OUTPUT IS MADE, COMPARED WITH THE PULSED NEUTRON METHOD. IDENTICAL RESULTS FOR THE PROMPT DECAY CONSTANT WERE OBTAINED. A NOVEL DIGITAL DATA-ACQUISITION SYSTEM FOR THE PSEUDORANDOM METHOD IS DESCRIBED.

NOISE ANALYSIS + *NOISE CROSS CORRELATION + PULSED NEUTRON TECHNIQUE

6-34390

ALSO IN CATEGORY 9

RANDALL RL + PEKRUL PJ

APPLICATIONS OF ANALOG TIME AND FREQUENCY CORRELATION COMPUTERS TO REACTOR-SYSTEM

ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA

24 PAGES, 14 FIGURES, 14 REFERENCES, PAGES 357-80 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

ANALYSIS TECHNIQUES OF ANALOG-CROSS SPECTRAL DENSITY AND ANALOG CROSS CORRELATION ARE APPLIED TO PRACTICAL PROBLEMS IN REACTOR DESIGN AND PERFORMANCE EVALUATION. CROSS-SPECTRAL-DENSITY TECHNIQUES AND EQUIPMENT ARE DESCRIBED FOR EXPERIMENTAL DETERMINATION OF A NUMBER OF FEEDBACK COEFFICIENTS VITAL TO REACTOR STABILITY AND CONTROL. CROSS-CORRELATION TECHNIQUES, TRANSDUCER DEVELOPMENTS, AND CORRELATION EQUIPMENT ARE DESCRIBED FOR MEASUREMENT OF LOCALIZED IN-CORE COOLANT VELOCITY AND FUEL-ELEMENT STRUCTURAL VIBRATIONS.

TESTING + ANALYTICAL MODEL + *ANALOG SIMULATION + NOISE CROSS CORRELATION + REACTOR CONTROL + REACTOR STABILITY + *DATA PROCESSING + SNAP 8 (SR) + SRE (RE) + FLOW CORRELATION + REACTOR, SPACE + REACTOR, LMCR + REACTOR, GRAPHITE MODERATED

6-34391

ALSO IN CATEGORY 9

ALBRECHT RW + HESS GM

REACTOR NOISE EXPERIMENTS IN REFLECTED PLUTONIUM ASSEMBLIES

UNIVERSITY OF WASHINGTON, SEATTLE + BATTELLE MEMORIAL INSTITUTE, RICHLAND

18 PAGES, 12 FIGURES, 13 REFERENCES, PAGES 381-98 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE MOTIVATION FOR PERFORMING DYNAMIC MEASUREMENTS IS EXAMINED, AND PRELIMINARY EXPERIMENTAL RESULTS ARE COMPARED WITH CALCULATIONS AND SHOWN TO EXHIBIT SIMILAR TRENDS.

*NOISE ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + EXPERIMENT, GENERAL + *MEASUREMENT, NOISE + PLUTONIUM

6-34392

ALSO IN CATEGORY 9

KENNEY ES

NOISE ANALYSIS OF NUCLEAR REACTORS WITH THE USE OF GAMMA RADIATION

PENNSYLVANIA STATE UNIVERSITY

13 PAGES, 8 FIGURES, 9 REFERENCES, PAGES 399-411 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE POSSIBILITY OF USING GAMMA RADIATION IN NUCLEAR REACTOR NOISE ANALYSIS WAS INVESTIGATED. THE DELAYED GAMMA RAYS WERE FOUND TO HAVE A READILY UNDERSTANDABLE EFFECT ON THE MEASUREMENTS, AND THUS REACTOR OSCILLATOR TECHNIQUES COULD BE USED TO STUDY THE GAMMA-RAY TIME BEHAVIOR.

*NOISE ANALYSIS + *GAMMA + MEASUREMENT, NOISE + REACTOR DYNAMICS + TRANSFER FUNCTION + COMPARISON, THEORY AND EXPERIENCE

6-34393

ALSO IN CATEGORY 9

SCHULTZ MA

MEASUREMENT OF SHUTDOWN REACTIVITY IN LARGE GAMMA FIELDS

MILLETRON, INC., EAST IRWIN, PA.

26 PAGES, 16 FIGURES, 2 REFERENCES, PAGES 413-38 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE CONVENTIONAL NARROW-BAND AND WIDE-BAND METHODS OF MEASURING NEUTRONS IN THE PRESENCE OF GAMMA FIELDS ARE DESCRIBED, AND A NEW VARIATION OF THE WIDEBAND METHOD WITH THE USE OF MULTIPLE DETECTOR TUBES IS PRESENTED. TESTS WERE RUN WITH THIS METHOD AT THE PENNSYLVANIA STATE UNIVERSITY REACTOR.

NOISE ANALYSIS + *MEASUREMENT, REACTIVITY + NEUTRON + GAMMA + COMPARISON, THEORY AND EXPERIENCE + COUNTER + INSTRUMENT, COMPONENT + TRANSFER FUNCTION

6-34394

ALSO IN CATEGORY 9

KATAOKA H + KUBO M

IDENTIFICATION OF TRANSFER FUNCTION OF REACTOR CONTROL SYSTEM BY NOISE ANALYSIS

SOPHIA UNIVERSITY + TOKYO SHIBAURA ELEC. CO., LTD.

15 PAGES, 10 FIGURES, 11 REFERENCES, PAGES 439-53 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34394 *CONTINUED*

GIVES A METHOD FOR THE IDENTIFICATION OF CHARACTERISTICS OF THE CONTROL SYSTEM OF NUCLEAR REACTORS. THE CHARACTERISTICS OF THREE TYPES OF JAPANESE REACTORS ARE ANALYZED BY THE NEUTRON-NOISE-ANALYSIS METHOD.

*NOISE ANALYSIS + TRANSFER FUNCTION + REACTOR CONTROL + CONTROL SYSTEM + MEASUREMENT, NOISE + REACTOR, POWER + *NEUTRON + NOISE CROSS CORRELATION

6-34395 ALSO IN CATEGORY 9

YAMADA S + KAGE H

REACTOR NOISE CAUSED BY COOLANT-FLOW FLUCTUATION

HITACHI CENTRAL RESEARCH LABORATORY, TOKYO, JAPAN

8 PAGES, 9 FIGURES, 5 REFERENCES, PAGES 455-62 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

IN THE MEASUREMENTS OF REACTOR POWER SPECTRAL DENSITY AT VARIOUS POWER LEVELS ON THE HITACHI TRAINING REACTOR (SWIMMING-POOL TYPE) SOME RESONANCE PEAKS WERE FOUND IN THE LOW-FREQUENCY REGION IN THE FORCED-CIRCULATION RESPONSE. FROM MEASUREMENTS OF THE POWER SPECTRAL DENSITIES OF REACTOR NOISE AND COOLANT-FLOW FLUCTUATION AND MEASUREMENTS OF THE TRANSFER FUNCTION BY THE ROD-OSCILLATION METHOD, IT WAS FOUND THAT THE RESONANCE PEAKS ARE DUE TO THE REACTIVITY CHANGE CAUSED BY THE MOVEMENT OF THE CONTROL RODS, WHICH ARE DRIVEN BY COOLANT-FLOW FLUCTUATION.

*NOISE ANALYSIS + MEASUREMENT, NOISE + COOLING, GENERAL + *FLOW, GENERAL + REACTOR, TRAINING + REACTOR, POOL TYPE + REACTOR POWER + FLUCTUATION

6-34396 ALSO IN CATEGORY 9

SAXE RF

THE ACOUSTIC CHARACTERISTICS OF THE OAK RIDGE REACTOR

NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA

11 PAGES, 3 FIGURES, 6 REFERENCES, PAGES 475-85 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

STUDIED THE BACKGROUND ACOUSTICAL RADIATIONS FROM THE OAK RIDGE RESEARCH REACTOR AND FOUND THAT THESE VARIATIONS ARE FLOW-DEPENDENT BUT NOT FLUX-DEPENDENT. HOWEVER, FLOW-INDUCED CAVITATION COULD CAUSE FLUX MODULATION THROUGH THE NUCLEAR VOID-COEFFICIENT COUPLING.

*NOISE ANALYSIS + NUCLEATE BOILING + INSTRUMENT, COMPONENT + VOID COEFFICIENT + BUBBLE NUCLEATION + ACOUSTICS + REACTOR, TEST + REACTOR, AEC OWNED + ORR (RR)

6-34397 ALSO IN CATEGORY 9

SOME APPLICATIONS OF DYNAMIC (NOISE) MEASUREMENTS IN PRESSURIZED-WATER-REACTOR NUCLEAR POWER PLANTS

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.

15 PAGES, 5 FIGURES, 2 TABLES, 11 REFERENCES, PAGES 487-501 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

STUDIED INHERENT NOISE FLUCTUATIONS, RESPONSE TO FORCED RANDOM AND SINUSOIDAL AND STEP VARIATIONS IN REACTIVITY. RESULTS DEMONSTRATED THAT (1) SIGNIFICANT SEMI QUANTITATIVE INFORMATION ON THE PROCESS CAN BE OBTAINED FROM POWER-SPECTRAL-DENSITY ANALYSIS OF INHERENT FLUCTUATIONS AND (2) CROSS-SPECTRAL-DENSITY TECHNIQUES PERMIT FREQUENCY-RESPONSE MEASUREMENTS AND SYSTEM-PARAMETER DETERMINATION IN COMMERCIAL NUCLEAR PLANTS

*NOISE ANALYSIS + REACTOR, PWR + MEASUREMENT, NOISE + *REACTOR DYNAMICS + SAXTON (PWR) + CVTR (PWR) + YANKEE (PWR) + *REACTOR CONTROL + REACTOR, PRESSURE TUBE

6-34398 ALSO IN CATEGORY 9

CHRISTENSEN H + BABALA C + BERGEM T + JOVANOVIĆ S + STORMARK E + SUWALSKI W

A REVIEW OF NORA PROJECT NOISE EXPERIMENTS

INSTITUT FOR ATOMENERGI, KJELLER, NORWAY

28 PAGES, 15 FIGURES, 10 TABLES, 16 REFERENCES, PAGES 503-530 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

INTRODUCTORY MEASUREMENTS IN 1963 IN CORES MODERATED BY A MIXTURE OF H₂O AND D₂O GAVE INDICATIONS OF SPATIAL EFFECTS AND OF AN INADEQUACY OF THE ROSSI-ALPHA THEORY. IN LATER MEASUREMENTS OF AN H₂O-MODERATED CORE, THESE EFFECTS WERE EXPLORED FURTHER. SEVERAL DIFFERENT TECHNIQUES (ROSSI-ALPHA, FEYNMAN, POWER SPECTRAL DENSITY, AND OSCILLATOR) HAVE BEEN USED TO MEASURE THE BASIC KINETIC PARAMETERS FOR THE SAME CORE. RESULTS ARE TABULATED AND COMPARED.

*NOISE ANALYSIS + *REVIEW + ROSSI ALPHA + REACTOR KINETICS + COMPARISON, THEORY AND EXPERIENCE + COMPARISON, REACTOR CHARACTERISTICS + MEASUREMENT, NOISE

6-34399 ALSO IN CATEGORY 9

DRAGT JB

ANALYSIS OF REACTOR NOISE MEASURED IN A ZERO-POWER REACTOR AND CALCULATIONS ON ITS ACCURACY

REACTOR CENTRUM NEDERLAND, PETTEN, THE NETHERLANDS

31 PAGES, 4 FIGURES, 2 TABLES, 12 REFERENCES, PAGES 591-621 OF NEUTRON NOISE WAVES, AND PULSE PROPAGATION, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34399 *CONTINUED*

DESCRIBES NOISE EXPERIMENTS AS THEY ARE PERFORMED IN THE LOW-FLUX REACTOR AT PETTEN. SOME RESULTS ARE PRESENTED. THE MAIN EMPHASIS IS ON ANALYSIS AND ITS ACCURACY RATHER THAN ON PHYSICAL INTERPRETATION OF THE RESULTS. INFORMATION AND EXPERIENCE ABOUT THE POLARITY CORRELATION TECHNIQUES ARE GIVEN. NO NEW METHODS OR RESULTS ARE PRESENTED, BUT THE DATA ARE INCLUDED TO DRAW ATTENTION TO A TECHNIQUE THAT SEEMS TO BE NOT SUFFICIENTLY WELL KNOWN. CALCULATIONS ON THE ACCURACY THAT CAN BE OBTAINED THEORETICALLY FOR REACTOR PARAMETERS ESTIMATED FROM THE NOISE ALSO ARE INCLUDED.

*NOISE ANALYSIS + *NETHERLANDS + REACTOR, POWER + *COMPARISON, THEORY AND EXPERIENCE + MEASUREMENT, NOISE + TRANSFER FUNCTION + NOISE CROSS CORRELATION

6-34612

MILLER LB

MONTE CARLO ANALYSIS OF REACTIVITY COEFFICIENTS IN FAST REACTORS, GENERAL THEORY AND APPLICATIONS
ARGONNE NATIONAL LAB., ILL.
ANL-7307 +. 83 PAGES, 7 FIGURES, 10 TABLES, 101 REFERENCES, MARCH 1967

THIS THESIS DEVELOPS A THEORETICAL METHOD FOR ANALYZING THE DOPPLER EFFECT AND APPLIES THE METHOD TO DETERMINE THE EFFECT OF THE SIZE OF FUEL ELEMENTS ON THE DOPPLER COEFFICIENT OF TYPICAL FAST BREEDER. IN THE DEVELOPMENT, PARTICULAR EMPHASIS IS PLACED ON THE ELIMINATION OF APPROXIMATIONS AND ASSUMPTIONS THAT HAVE LIMITED THE ACCURACY AND RELIABILITY OF PREVIOUS METHODS. THIS REQUIRES THE DEVELOPMENT OF SEVERAL ADDITIONS TO MONTE CARLO THEORY.

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

MONTE CARLO + DOPPLER COEFFICIENT + COMPUTER PROGRAM + THEORETICAL INVESTIGATION

6-34614

SULLIVAN RF

A MONTE CARLO PROGRAM FOR CALCULATION OF DOPPLER COEFFICIENTS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-4200 +. 43 PAGES, 1 FIGURE, 2 TABLES, 18 REFERENCES, OCTOBER 1967

A MONTE CARLO PROGRAM FOR THE CALCULATION OF DOPPLER COEFFICIENTS IN ARBITRARY NEUTRON FLUX SPECTRA IS PRESENTED. THE PROGRAM IS DESIGNED TO DETERMINE THE EFFECTIVE CROSS SECTIONS OF RESONANCE SCATTERERS AND ABSORBERS WITH A CYLINDRICAL OR INFINITE SLAB GEOMETRY. THE CODE MAY ALSO BE USED TO STUDY THE EFFECT OF RESONANCE OVERLAP IN MIXTURES OF ISOTOPES AND TO INVESTIGATE THE APPROXIMATIONS USED IN ANALYTICAL CALCULATIONS OF THE EFFECTIVE RESONANCE INTEGRALS. AS A TEST OF THE ACCURACY OF THE PROGRAM, A FLAT IN LETHARGY SPECTRUM IS USED TO OBTAIN DOPPLER COEFFICIENTS FOR SEVERAL GOLD 197 SAMPLES, AND THE RESULTS ARE COMPARED WITH VALUES OBTAINED BY USING THE NORDHEIM CALCULATION, WHICH IS EXPECTED TO BE NEARLY EXACT FOR SUCH CASES.

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

MONTE CARLO + DOPPLER COEFFICIENT + COMPUTER PROGRAM

6-34630

ALSO IN CATEGORY 9

LOFTHOUSE JH + BRISCOE GJ
NUCLEAR TEST GAUGE SAFETY ANALYSIS REPORT
GENERAL ELECTRIC CO., IDAHO FALLS, IDAHO
GEMP-663 +. 67 PAGES, FEB. 21, 1969

THE NUCLEAR TEST GAUGE (NTG) IS A SUBCRITICAL NUCLEAR ASSEMBLY, FUELED WITH ENRICHED URANIUM FOILS AND MODERATED AND REFLECTED BY PLEXIGLAS, WHICH IS USED TO MEASURE THE RELATIVE NUCLEAR CHARACTERISTICS OF REACTOR MATERIALS. THE SYSTEM IS MAINTAINED IN THE SUBCRITICAL CONDITION, IS PROVIDED WITH ESSENTIALLY THE SAME SAFEGUARDS AND IS OPERATED UNDER THE SAME ADMINISTRATIVE CONTROLS AS ARE CRITICAL EXPERIMENT REACTORS. A SERIES OF POSTULATED NUCLEAR TRANSIENTS HAS BEEN ANALYZED. THE RADIOLOGICAL HAZARDS ASSOCIATED WITH THE WORST OF THESE ARE MINIMAL, AND IT IS CONCLUDED THAT THE PROPOSED OPERATION OF THE NTG CONSTITUTES A NEGLIGIBLE PUBLIC RISK.

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

*INSTRUMENT, NUCLEAR + *MEASUREMENT, SUBCRITICALITY + SOURCE MECHANISM + CRITICALITY SAFETY + EXPERIMENT, GENERAL + SYSTEM DESCRIPTION + TEST, INSTRUMENT RESPONSE + TRAINING + *SAFETY REVIEW + OPERATING EXPERIENCE + SAFETY ANALYSIS

6-34649

ALSO IN CATEGORIES 12 AND 18

KING LD
DISPOSABLE CORE FAST BURST REACTORS
LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO
LA-DC-10055 +. 19 PAGES, 1968

A POSSIBLE MEANS FOR PRODUCING VERY LARGE FAST NEUTRON BURSTS APPEARS FEASIBLE THROUGH THE USE OF A MOBILE FUEL IN AN UNCONFINED GEOMETRY. THE FUEL IS DISPERSED BY INTERNAL ENERGY INTO A LARGE CAVITY FOR REUSE WITHOUT DAMAGE TO THE MAIN FACILITY. A STUDY OF SUCH A POTENTIAL SYSTEM HAS

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34649 *CONTINUED*

BEEN MADE USING A DESIGN CONCEPT DESIGNATED LIQUID EXCURSION PULSED REACTOR, OR LEPR. CALCULATIONS AND SOME PRELIMINARY EXPERIMENTS FOR SUCH A SYSTEM WHEN USING A URANYL SULFATE FUEL SOLUTION LOOK PROMISING. BURST INTENSITIES OF 10(9TH) - 10(20TH) MAY BE ACHIEVABLE WITH MINIMUM PULSE WIDTHS AT HALF MAXIMUM OF 35 MICROSEC. TWO SCHEMATIC DESIGNS OF SUCH A DEVICE ARE ILLUSTRATED.

AVAILABILITY - L.D.P. KING, LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

*DESIGN STUDY + *REACTOR, PULSED + REACTOR DESCRIPTION + *LIQUID FUEL + *DISPERSION + DISPLACEMENT, GENERAL

6-34654 ALSO IN CATEGORIES 5 AND 18

WELFARE FG

THE EFFECT OF STEAM DENSITY ON REACTIVITY IN THREE STEAM COOLED FAST BREEDER REACTORS

OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-2582 +. 17 PAGES, 1 FIGURE, 4 TABLES, 9 REFERENCES, MAY 23, 1969

EFFECT OF CHANGES IN STEAM DENSITY ON REACTIVITY HAS BEEN CALCULATED FOR THREE STEAM COOLED BREEDER REACTORS OF 3600, 2500, AND 1200 PSI OPERATING PRESSURE. WHEN FLOODED AT END OF LIFE THE SYSTEMS SHOW REACTIVITY INCREASES OF 4(, 1(, AND 16(FOR HIGH, INTERMEDIATE, AND LOW-PRESSURE SYSTEMS. WHEN VOIDED AT BEGINNING OF LIFE THE SYSTEMS SHOW INCREASES IN REACTIVITY OF 0.5(, 2(AND 0.9(. WHEN VOIDED AT END OF LIFE INTERMEDIATE, AND LOW-PRESSURE SYSTEMS SHOW INCREASES IN REACTIVITY OF 1.9(AND 0.7(RESPECTIVELY AND HIGH-PRESSURE SYSTEM SHOWS DECREASE IN REACTIVITY OF 3.8(.

*REACTIVITY EFFECT + ACCIDENT, LOSS OF COOLANT + *STEAM QUALITY + *REACTIVITY EFFECT, VOID + *REACTIVITY EFFECT, PRESSURE + REACTOR DYNAMICS + ACCIDENT, STEAM LINE RUPTURE + ACCIDENT, COLD COOLANT + ACCIDENT, LOAD REJECTION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, POWER + *REACTOR, SCBR

6-34665

BLAINE RA

HEAVY WATER ORGANIC COOLED REACTOR. THREDES - ATOMICS INTERNATIONAL THERMAL REACTOR DESIGN SYSTEM

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.

AI-CE-MEMO-11 +. 170 PAGES, 1968

THREDES IS A SCIENTIFIC APPLICATIONS PROGRAMMING SYSTEM WRITTEN IN THE FORTRAN IV LANGUAGE FOR THE IBM 7094/360 COMPUTERS. INCORPORATED IN THIS SYSTEM ARE THE NECESSARY MODULES TO PERFORM PARAMETRIC DESIGN STUDIES OF THERMAL REACTORS INCLUDING THE THERMAL CELL HOMOGENIZATION (BAM), THE FAST SPECTRUM CALCULATION (FORM), REACTOR DIFFUSION THEORY (FOG), AND ZERO DIMENSIONAL BURN-UP (KINDLE) CALCULATIONS.

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

*COMPUTER PROGRAM + COMPUTER, DIGITAL + *REACTOR PHYSICS + MATHEMATICAL TREATMENT + REACTOR, HWR + REACTOR, ORGANIC COOLED + REACTOR, THERMAL + DESIGN STUDY + FUEL BURNUP

6-34667

ALSO IN CATEGORIES 5 AND 18

FRISCH W

STABILITY PROBLEMS OF STEAM-COOLED FAST REACTORS

KERNFORSCHUNGSZENTRUM, KARLSRUHE

KFK-759 + EUR-3730D + EURFNR-583 +. 106 PAGES, 26 FIGURES, 2 TABLES, 23 REFERENCES, APRIL 1963

DESCRIBES THE DYNAMIC CORRELATIONS OF CORE DYNAMICS CONSIDERING FIRST, NEUTRON KINETICS AND POWER REDUCTION, AND SECOND, THERMODYNAMICS AND REACTIVITY FEEDBACK.

AVAILABILITY - C.L. STORRS + W.P. STAKER + R.C. NOYES, COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT

*REACTOR, SCBR + REACTOR, FAST + REACTOR COOLANT + STEAM + GERMANY + *REACTOR STABILITY + *REACTOR DYNAMICS + DESIGN STUDY + *MATHEMATICAL TREATMENT + HEAT TRANSFER ANALYSIS + THERMODYNAMICS

6-34669

ALSO IN CATEGORIES 11 AND 18

ROSSIN AD + GLASSNER A

REACTOR DEVELOPMENT PROGRESS REPORT

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

ANL-7553 +. 123 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1969

ONE OF A SERIES OF SIMILAR REPORTS. TOPICS - LMFBR DEVELOPMENT STUDIES, FAST REACTORS, GENERAL DEVELOPMENT STUDIES, NUCLEAR SAFETY, FUEL-MELTDOWN STUDIES WITH TREAT, CORE STRUCTURAL SAFETY, AND CONTAINMENT RESPONSE TO HIGH-ENERGY EXCURSION.

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

*R AND D PROGRAM + REACTOR, LMFBR + REACTOR, FAST + FUEL MELTDOWN + TREAT (PRR) + REACTOR, RESEARCH + CORE COMPONENTS + STRUCTURAL INTEGRITY + CONTAINMENT INTEGRITY + PRESSURE, INTERNAL + EXCURSION, LARGE + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34693 ALSO IN CATEGORY 5
STEPHAN LA
THE RESPONSE OF WATERLOGGED UO2 FUEL RODS TO POWER BURSTS
PHILLIPS PETROLEUM COMPANY
IDC-ITR-105 +. 43 PAGES, 18 FIGURES, 3 TABLES, 3 REFERENCES, APRIL 1969

DESTRUCTIVE TRANSIENT TESTS WERE PERFORMED ON SIX WATERLOGGED ZIRCALOY CLAD GEP AND STAINLESS-STEEL-CLAD F-TYPE FUEL RODS IN THE CAPSULE DRIVER CORE (CDC) AT SPERT TO FIND THE TRANSIENT ENERGY DEPOSITION REQUIRED TO CAUSE FAILURE IN WATERLOGGED RODS, AND THE CONSEQUENCES OF FAILURE. DATA ON ENERGY DEPOSITION AT FAILURE, INTERNAL ROD PRESSURE, CAPSULE PRESSURE, WATER-COLUMN KINETIC ENERGY, AND ENERGY CONVERSION RATIO ARE GIVEN FOR EACH ROD.

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

REACTOR TRANSIENT + DESTRUCTIVE TRANSIENT + *FAILURE, CLADDING + MEASUREMENT, GENERAL + SPERT, ALL (S-RR) + CLADDING + FUEL ELEMENT + REACTOR, SAFETY RESEARCH

6-34727 ALSO IN CATEGORIES 5 AND 9
MILLER CS
LOFT CORE DESIGN REPORT
PHILLIPS PETROLEUM COMPANY, IDAHO OPERATIONS OFFICE
IDC-17219 +. 143 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967

THE NUCLEAR REACTOR FOR USE IN THE LOSS-OF-FLUID TEST (LOFT) IS DESIGNED TO BE REPRESENTATIVE OF A LARGE PRESSURIZED-WATER REACTOR EXCEPT FOR SIZE AND POWER. THE REACTOR OPERATES WITH A POWER OUTPUT OF 50 MEGAWATTS AT 2330 PSI AND 545 F. THE CORE IS 36 INCHES LONG AND HAS AN EFFECTIVE DIAMETER OF 41.5 INCHES. IT IS FUELED WITH 52 ELEMENTS, EACH CONTAINING 64 ZIRCALOY-CLAD, LOW-ENRICHED UO2 FUEL PINS. REACTIVITY CONTROL IS PROVIDED BY CRUCIFORM-SHAPED, BORON-STAINLESS STEEL CONTROL RODS.

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

*NRTS + *LOFT (S-RR) + DESIGN STUDY + CORE COMPONENTS + *REACTOR DESCRIPTION + REACTOR, SAFETY RESEARCH + REACTOR, PWR + REACTOR, AEC OWNED

6-34728 ALSO IN CATEGORY 5
WORDEN JR + ROWE DS + DIONNE PJ
A STUDY OF HYDRAULIC AND NUCLEAR STABILITY OF BOILING WATER PARALLEL FLOW CHANNEL REACTOR SYSTEMS
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-574 +. 173 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

STABILITY OF A BOILING, LIGHT WATER COOLED, HEAVY WATER-MODERATED REACTOR HAS BEEN STUDIED BY SIMULATION ON AN ANALOG COMPUTER. THE MODEL CONSISTS OF A TWO-REGION REACTOR WITH COUPLING BETWEEN THE NUCLEAR KINETICS AND HYDRODYNAMICS. THOSE PARTS OF THE REACTOR SYSTEM EXTERNAL TO THE RECIRCULATING LOOP, SUCH AS TURBINES AND FEEDWATER PUMPS, WERE APPROXIMATED BY APPROPRIATE CONTROL FUNCTIONS. THE SIMULATION PROVIDES VALID RESULTS OVER A RANGE IN POWER LEVEL FROM ABOUT 2/3 NOMINAL UP TO THE THRESHOLD OF PARALLEL CHANNEL INSTABILITY.

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

*REACTOR, BWR + REACTOR, SAFETY RESEARCH + *SAFETY ANALYSIS + BATTELLE NORTHWEST + ACCIDENT, REACTIVITY + *REACTIVITY EFFECT + REACTIVITY EFFECT, VOID + *HEAT TRANSFER, BOILING

6-34740 ALSO IN CATEGORY 9
LAVERNE ME
CONTROL CONCEPTS AND DIGITAL COMPUTER ANALYSIS OF THE MPRE FLUID SYSTEM
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-TM-1368 +. 68 PAGES, 24 FIGURES, 25 REFERENCES, FEBRUARY, 1966

THE BASIC CONTROL SYSTEM FOR THE MPRE IS DESCRIBED, AND THE VARIOUS STABILITY AND CONTROL PROBLEMS ARE OUTLINED. THE REPORT SUMMARIZES THE DIGITAL COMPUTER ANALYSIS OF THE RANKINE-CYCLE SYSTEM

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

REACTOR CONTROL + *CONTROL SYSTEM + SYSTEM DESCRIPTION + INSTABILITY + COMPARISON, THEORY AND EXPERIENCE + *MOCKUP + REACTOR, SPACE

6-34745
O'BRYEN MJ
CONTROL OF XENON INSTABILITIES IN LARGE PWR'S
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PENNSYLVANIA
WCAP - 3680 - 7 + EURAEC - 2045 +. 23 PAGES, 5 FIGURES, 5 REFERENCES, JULY 1968

MAJOR PROGRESS AS FOLLOWS - A HALF-CORE MODEL WITH SYMMETRY ABOUT A PRINCIPAL AXIS WAS FOUND TO BE

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34745 *CONTINUED*

LESS DIVERGENT THAN A HALF-CORE MODEL OF THE SAME CORE WITH DIAGONAL SYMMETRY. THE THEORETICAL BASIS FOR A METHOD WAS FORMULATED WHICH WILL GENERATE AN EXPRESSION FOR THE TIME-DEPENDENT FLUX AT EACH SPATIAL POINT OVER A TIME-STEP INTERVAL, AND WILL ALLOW A MORE ACCURATE ESTIMATE OF THE XENON AND IODINE NUMBER DENSITIES THAN THE CONVENTIONAL CONSTANT FLUX APPROXIMATION IN THE DEPLETION EQUATIONS FOR XENON.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151 \$3.00 COPY, \$.065 MICROFICHE

THEORETICAL INVESTIGATION + *XENON OSCILLATION + REACTOR PHYSICS + REACTOR DYNAMICS + SPACE DEPENDENT DYNAMICS + REACTOR CONTROL

6-34746 ALSO IN CATEGORIES 4 AND 9

SMITH OL + ROBINSON JC

A THEORETICAL INVESTIGATION OF THE DYNAMIC BEHAVIOR OF THE MEDIUM POWER REACTOR EXPERIMENT

OAK RIDGE NATIONAL LABORATORY, TENNESSEE

ORNL-TM-1611 +. 73 PAGES, 20 FIGURES, 1 TABLE, 5 REFERENCES, JANUARY 1967

PRESENTS A THEORETICAL STUDY OF THE TRANSIENT BEHAVIOR OF THE MPRE UNDER A VARIETY OF NONEQUILIBRIUM CONDITIONS. A FAIRLY GENERALIZED PHYSICAL AND MATHEMATICAL MODEL OF THE SYSTEM IS DEVELOPED, INCLUDING DETAILED DESCRIPTIONS OF THE NEUTRONICS AND THERMODYNAMICS OF THE FUEL, THE TWO-PHASE FLOW IN THE BOILER, AND THE SINGLE-PHASE FLOW IN THE REMAINDER OF THE SYSTEM. THE MATHEMATICAL PROBLEM IS SOLVED NUMERICALLY BY A CODE WRITTEN IN FORTRAN II FOR THE IBM 7090 COMPUTER AND IN FORTRAN IV FOR THE IBM 360 COMPUTER.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151 \$3.00 COPY, \$.065 MICROFICHE

REACTOR CONTROL + THEORETICAL INVESTIGATION + *REACTOR, SPACE + METAL, LIQUID + POTASSIUM + *ANALYTICAL MODEL + *REACTOR DYNAMICS + MATHEMATICAL TREATMENT + REACTOR POWER

6-34747 ALSO IN CATEGORY 9

FREVERT L

STRUCTURE ANALYSIS OF NUCLEAR PHYSICS EXPERIMENTS AS A BASIS FOR ON-LINE CONTROL BY A DIGITAL COMPUTER CORP
HAHN-MEITNER-INSTITUT FUR KERNFORSCHUNG BERLIN, ABTEILUNG ELEKTRONIK MEMO BMWF-FBK-68-50 +. 60 PAGES, 5 FIGURES, 1 TABLE, DECEMBER 1968, (FR GERMAN)

GIVES THE BASIC LINES ALONG WHICH EXPERIMENTS AT THE NUCLEAR PHYSICS DEPARTMENT OF THE HAHN-MEITNER-INSTITUTE FOR NUCLEAR RESEARCH, BERLIN ARE BEING RUN. FURTHER IT EXAMINES THE POSSIBILITIES OF IMPROVING THE EXPERIMENTS BY MEANS OF ON-LINE DATA PROCESSING AND ON-LINE CONTROL BY A DIGITAL COMPUTER. ON THE BASIC EXPERIMENTAL DESIGN DERIVED FROM SUCH AN ANALYSIS A PROPOSAL FOR A SOFTWARE SYSTEM IS BEING DEVELOPED. FURTHER WORK IN CONTINUATION OF THE STRUCTURE ANALYSIS OF NUCLEAR PHYSICS EXPERIMENTS IS OUTLINED.

*COMPUTER CONTROL + DATA PROCESSING + COMPUTER, DIGITAL + DESIGN STUDY + *STRUCTURAL ANALYSIS, DYNAMIC + EXPERIMENT, GENERAL

6-34751

MACFARLANE DR + MACNEAL N + MENELEY DA + SANATHANAN CI

THEORETICAL STUDIES OF THE RESPONSE OF FAST REACTORS DURING SODIUM BOILING ACCIDENTS

ARGONNE NATIONAL LAB., ILL.

18 PAGES, BULL. INFORM. SCI. TECH. (PARIS) NO. 122, PAGES 35-52 (JAN. 1968) (IN FRENCH)

A CALCULATIONAL METHOD FOR THE TRANSIENT PHENOMENA WHICH CAN TAKE PLACE DURING COOLANT BOILING IN A REACTOR CORE IS DESCRIBED. IT IS THUS POSSIBLE TO STUDY THE WEAK OVERPOWER TRANSIENTS ORIGINATING FROM THE COOLANT FLOW SHUTDOWN. 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.

THEORETICAL INVESTIGATION + ACCIDENT, LOSS OF COOLANT + COOLANT COEFFICIENT + REACTOR, FAST + REACTOR, LMFBR + SODIUM COEFFICIENT

6-34752

WHEELER RC

APPROXIMATE CALCULATIONS OF REACTOR TRANSIENT AS APPLIED TO D.F.R. TYPE REACTOR SYSTEMS

COMITATO NAZIONALE ENERGIA NUCLEARE

CONF-193-(VOL-2) +. 21 PAGES, PP. 571-91 OF REATTORI VELOCI, ROME, 1967, FROM 8TH NUCLEAR CONGRESS, ROME, JUNE 1963

SIMPLE CALCULATIONS ARE DESCRIBED FOR THE CASES OF STEP REACTIVITY ADDITIONS, SLOW RAMP REACTIVITY ADDITIONS, AND COOLANT FLOW FAILURE. THE APPROXIMATIONS ARE APPLICABLE TO DFR-TYPE REACTORS BUT APPLY GENERALLY TO REACTOR SYSTEMS WITH TWO MAIN NEGATIVE FEEDBACK MECHANISMS, ONE WITH A TIME CONSTANT MUCH LESS THAN THE LUMPED ONE DELAYED NEUTRON GROUP TIME CONSTANT, AND ONE WHOSE TIME CONSTANT IS LONGER.

REACTOR TRANSIENT + REACTOR KINETICS + REACTOR DYNAMICS + ACCIDENT, LOSS OF COOLANT + REACTIVITY EFFECT + THEORETICAL INVESTIGATION

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34753
AVERY R + DICKERMAN CE + KATO WY + LONG JK + SMITH AB
THE U.S. EXPERIMENTAL PROGRAMME FOR FAST REACTOR PHYSICS
ARGONNE NATIONAL LAB., ILL.
CONF-660502 +. 18 PAGES, PP. 403-420 OF FAST BREEDER REACTORS, OXFORD, PERGAMON PRESS, 1967, FROM BRITISH NUCLEAR ENERGY SOCIETY CONFERENCE ON FAST BREEDER REACTORS, LONDON, 1967

PROGRESS IN BASIC CROSS-SECTION MEASUREMENTS IN THE RESONANCE, INTERMEDIATE, AND CONTINUUM REGIONS IS DESCRIBED. CRITICAL EXPERIMENTS DISCUSSED RELATE TO DOPPLER EFFECTS, NA VOID EFFECTS, AND ZONED CORE STUDIES. OTHER TEST PROGRAMMES REVIEWED INCLUDE THE SEFOR PROJECT, AND OUT-OF-PILE TREAT EXPERIMENTS RELATED TO SAFETY.

*TREAT (PRR) + CRITICALITY EXPERIMENT + *SEFOR (RE) + REACTOR, FAST + DOPPLER EFFECT + VOID COEFFICIENT + REACTOR, BREEDER + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + MAIN COOLING SYSTEM

6-34754
PEDERSEN KB
MEASUREMENT OF SHUTDOWN MARGIN
IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
79 PAGES, THESIS TO IOWA STATE UNIVERSITY, 1967

A METHOD FOR DIRECT MEASUREMENT OF SHUTDOWN MARGIN IS DEVELOPED. THE METHOD IS VERIFIED, EXPERIMENTALLY, USING THE UTR-10. MEASUREMENTS ARE GIVEN FOR CONDITIONS RANGING FROM ALMOST CRITICAL TO FULLY SHUT DOWN. EXPERIMENTAL TECHNIQUES AND EQUIPMENT ARE DESCRIBED.

*SHUTDOWN MARGIN + MEASUREMENT, GENERAL + REACTOR PHYSICS + EXPERIMENT, GENERAL

6-34755
MILLER LB
THE EFFECT OF FUEL DIAMETER ON THE DOPPLER TEMPERATURE COEFFICIENT OF REACTIVITY OF FAST REACTOR SYSTEMS
UNIVERSITY OF ILLINOIS, URBANA, ILL.
119 PAGES, THESIS TO UNIVERSITY OF ILLINOIS, 1967

A THEORETICAL METHOD FOR ANALYSIS OF THE DOPPLER EFFECT IS DEVELOPED, THIS IS THEN USED TO DETERMINE FUEL ELEMENT SIZE EFFECTS ON THE DOPPLER COEFFICIENT IN A TYPICAL FAST BREEDER REACTOR. VARIATIONS IN MONTE CARLO METHODS ARE USED TO ELIMINATE APPROXIMATIONS AND ASSUMPTIONS, THESE ARE DESCRIBED AND FORMULATED MATHEMATICALLY. THE AMC DIGITAL COMPUTER PROGRAM IS DESCRIBED, RESULTS OBTAINED BY USING THIS ARE COMPARED TO RESULTS FROM OTHER COMPUTER CODES.

DOPPLER EFFECT + DOPPLER COEFFICIENT + REACTOR PHYSICS + THEORETICAL INVESTIGATION + COMPUTER PROGRAM

6-34756
NICHOLSON RB + FISCHER EA
THE DOPPLER EFFECT IN FAST REACTORS
UNIVERSITY OF WISCONSIN, MADISON
86 PAGES, ADVAN. NUCL. SCI. TECHNOL., VOL. 4, PAGES 109-95 (1968)

THE THEORY OF THE DOPPLER EFFECT IS EXAMINED FROM THE STANDPOINT OF ITS IMPORTANCE IN THE DESIGN AND SAFETY EVALUATION OF LARGE FAST BREEDER REACTORS. THE THEORETICAL BASIS FOR THE CALCULATION OF DOPPLER TEMPERATURE COEFFICIENTS OF REACTIVITY IS PRESENTED AND THE VARIOUS PARAMETERS INVOLVED IN THEIR CALCULATION ARE EXAMINED. SOME REPRESENTATIVE NUMERICAL RESULTS ON DOPPLER COEFFICIENTS, EFFECTIVE CROSS SECTIONS, AND AUXILIARY FUNCTIONS USED IN THE CALCULATION OF DOPPLER COEFFICIENTS ARE INCLUDED.

DOPPLER EFFECT + DOPPLER COEFFICIENT + REACTOR, FAST + THEORETICAL INVESTIGATION + REACTIVITY COEFFICIENT + REACTOR PHYSICS + REACTOR TRANSIENT + REACTOR KINETICS + BIBLIOGRAPHY

6-34862 ALSO IN CATEGORIES 5 AND 17
SELECTED HADDAM NECK OPERATING EXPERIENCES
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-34 +. 22 PAGES, MAY 16, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SUCCESSFULLY UPGRATED FROM 490 TO 600 MW(E). INCORE FLUX MAPS SHOW DECREASES IN HOT CHANNEL FACTORS DESPITE THE POWER COOLANT TEMPERATURE INCREASE FROM 534 TO 545 F. ON APRIL 12, CONTROL ROD 28 DID NOT DROP ON A MANUAL SCRAM UNTIL MOVED OUTWARD SEVERAL TIMES BY THE ROD DRIVE. SIMILAR EXPERIENCE WITH SIMILAR MAGNETIC JACK CONTROL ROD DRIVES AT YANKEE HAVE RESULTED IN INSPECTIONS THAT REVEALED NO ABNORMALITIES. A TEMPORARY MALFUNCTION (POSSIBLY CRUD ACCUMULATION) WITHIN THE INTERNAL STEPPING MECHANISM CAN ONLY BE SUSPECTED. (INITIATED BY DILUTION SO THE CONTROL ROD GROUP INSERTED 20 STEPS (300 TO 280), WAITING 2 HOURS AND THEN REBORATING). A XENON TRANSIENT TEST AT 600 MW SHOWED THE TRANSIENT WAS DAMPED AT THE COMPLETION OF ONE CYCLE, HOT CHANNEL FACTOR ANALYSIS HAS NOT BEEN COMPLETED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*XENON OSCILLATION + *FAILURE, SCRAM MECHANISM + *POWER UPGRATING + HADDAM NECK (PWR) + HOT CHANNEL FACTOR + TEST, PLANT RESPONSE + OPERATING EXPERIENCE + CRUD + YANKEE (PWR) + REACTOR, PWR + REPORT, OPERATIONS

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34875 ALSO IN CATEGORY 5

LEBERRE F

STUDY OF THE BEHAVIOR OF A WATER REACTOR SUBJECTED TO A REACTIVITY JUMP WITH COOLING SYSTEM OUT OF ACTION AND WITH FORCED CIRCULATION
CENTRE D'ETUDES NUCLEAIRES DE CADARACHE
DEP/GTSP/CADARACHE +. 50 PAGES, 16 FIGURES, TABLES, 4 REFERENCES, NOVEMBER, 1967

PRESENTS A MATHEMATICAL STUDY OF THE REACTIVITY ACCIDENT. TWO CASES STUDIED ARE FOR (1) NO COOLING AND (2) WITH FORCED CONVECTION. INTERACTION OF BOILING PHENOMENA NOT CONSIDERED. TEMPERATURE DISTRIBUTION CALCULATIONS ARE BY THE METHOD OF FINITE DIFFERENCES

*ACCIDENT ANALYSIS + *MATHEMATICAL STUDY + ANALYTICAL MODEL + REACTOR PHYSICS + *REACTOR KINETICS + FUEL ELEMENT + TEMPERATURE GRADIENT + HEAT TRANSFER ANALYSIS + REACTOR, WATER + FRANCE + ACCIDENT, REACTIVITY

6-34877

OUTRAIVE P

REPORT OF THE TESTS MADE AT CABRI ON THE SILOE CORE
CENTRE D'ETUDES NUCLEAIRES DE CADARACHE
DEP/GTSP/CADARACHE +. 25 PAGES, 10 FIGURES, 4 REFERENCES, OCTOBER, 1967

THE CORE CONFIGURATION OF THE EXPERIMENTS SIMULATE THE SILOE CORE. TWO TYPES OF EXPERIMENTS ARE DESCRIBED - (1) A SUCCESSION OF POWER LEVELS AND WITH OUTPUT FOR INCREASINGLY HIGHER POWER LEVELS UP TO THE POINT OF OBTAINING REDISTRIBUTION OF OUTPUT, AND (2) STOPPAGES OF OUTPUT AT THE BEGINNING OF OPERATION UNDER POWER.

*REACTOR PHYSICS + REACTOR KINETICS + *TEST, PHYSICS + REACTOR, POOL TYPE + FRANCE

6-34880

FUJIE Y

MEASUREMENT OF THE VOID COEFFICIENT OF REACTIVITY
HITACHI ZOSEN, LTD., JAPAN
8 PAGES, NIPPON GENSIRYOKU GAKKAISHI, VOL. 10, PAGES 58-65, FEBRUARY, 1968

AN EXPERIMENTAL STUDY OF THE VOID COEFFICIENT OF REACTIVITY IN HTR WAS CARRIED OUT. THE EXPERIMENT CONSISTED OF AN OUT-OF-PILE EXPERIMENT ON VOID RATIO CALIBRATION AND AN IN-PILE EXPERIMENT ON REACTIVITY MEASUREMENT. A STREAM OF NITROGEN GAS WAS INTRODUCED THROUGH A PIPE TO THE BOTTOM OF A FUEL CHANNEL TO PRODUCE A RISING COLUMN OF VOID BUBBLES. THE REACTIVITY WAS DERIVED FROM EITHER ROD POSITION OR POSITIVE PERIOD. THE LOCAL VOID COEFFICIENTS MEASURED WERE - SINGLE CHANNEL VOID COEFFICIENTS, TWO CHANNEL VOID COEFFICIENTS AND THREE CHANNEL VOID COEFFICIENT. THE AVERAGE VOID COEFFICIENT OF HTR WAS DETERMINED TO BE $\Delta K/K$ EQUALS -1.4×10^{-3} VOID.

VOID COEFFICIENT + REACTIVITY COEFFICIENT + MEASUREMENT, GENERAL + VOID FRACTION + REACTOR, RESEARCH + CRITICALITY EXPERIMENT

6-34892

MEYER RA + WOLFE B

FAST REACTOR MELTDOWN ACCIDENTS USING BETHE-TAIT ANALYSIS
GENERAL ELECTRIC CO., SUNNYVALE, CALIFORNIA
54 PAGES, ADVANCED NUCLEAR SCIENCE TECHNOLOGY, VOL. 4, PAGES 197-250, 1968

THE ENERGY RELEASE FROM A MELTDOWN ACCIDENT IS EXAMINED FOR A 1000 MW(E) FAST CERAMIC-FUELED POWER REACTOR. VARIOUS REACTIVITY INSERTION RATES OR REACTIVITY STEPS ARE ASSUMED, AND THE ENERGY RELEASE AS A FUNCTION OF THE REACTOR PARAMETERS IS INVESTIGATED TO ASSESS THE IMPORTANCE OF THESE PARAMETERS AND THE SENSITIVITY OF THE RESULTS TO THE ASSUMPTIONS MADE. SPECIFIC PARAMETERS CONSIDERED ARE DOPPLER COEFFICIENT, NEUTRON LIFETIME, PRESSURE-ENERGY RELATIONSHIP FOR THE FUEL, CORE SHAPE, AND INITIAL CONDITIONS AT THE START OF THE REACTIVITY INPUT.

EXCURSION, LARGE + *BETHE TAIT + REACTOR, FAST + THEORETICAL INVESTIGATION + *FUEL MELTDOWN + REACTOR KINETICS + REACTIVITY EFFECT + DOPPLER COEFFICIENT

6-34918

ALSO IN CATEGORY 9

COUDERT C

EXPERIMENTAL STUDY OF POWER OSCILLATIONS IN NATURAL CONVECTION
CENTRE D'ETUDES NUCLEAIRES DE CADARACHE
DEP/GTSP/CADARACHE REPORT NO. 14/67 +. 60 PAGES, 47 FIGURES, 8 REFERENCES, OCTOBER 1967

EXPERIMENTS PERFORMED AT CABRI CONCERNING ACCIDENTS OF WATER REACTORS HAVE SHOWN THAT POWER OSCILLATIONS OF LARGE AMPLITUDE CAN BE ESTABLISHED FOLLOWING A FAST INJECTION OF REACTIVITY. IT IS THEREFORE INTERESTING FOR THE STUDY OF THE STABILITY OF LIGHT-WATER REACTORS IN NATURAL CIRCULATION TO UNDERSTAND THESE OSCILLATIONS BETTER (STUDIES OF THE ORIGIN OF THE FLUCTUATIONS, OF THE DEVELOPMENT OF THE AMPLITUDES AND FREQUENCIES, OF THE HYDRODYNAMIC BEHAVIOR OF THE CORE IN OSCILLATING CONDITION, THE DETERMINATION OF THE TRANSFER FUNCTION OF THE REACTOR). SUCH WERE THE PURPOSES OF THE TESTS CARRIED OUT DURING THE PERIOD OF APRIL 11 TO MAY 26, 1967.

*REACTOR, WATER + ACCIDENT, REACTIVITY + TRANSFER FUNCTION + TEST, PHYSICS + REACTOR CONTROL + NOISE ANALYSIS + *OSCILLATOR, REACTIVITY + COMPARISON, REACTOR CHARACTERISTICS + *REACTOR, WATER + *OSCILLATOR, REACTIVITY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-34980
DIETRICH HOW
SOURCES OF ERROR AND INTERPRETATION OF REACTIVITY DETERMINATIONS BY MEANS OF ROD DROP AND SOURCE JERK MEASUREMENTS
EURATOM-CCR, ISPRA, ITALY
7 PAGES, NUKLEONIK, VOL. 10, PAGES 297-303 (JANUARY, 1968)

INVESTIGATES THEORETICALLY THE EFFECT OF INCORRECT VALUES OF DELAYED NEUTRON DATA OR INITIAL CONDITIONS, AND OF EXTRANEOUS SOURCES, ON THE VALUE OF REACTIVITY DETERMINED FROM ROD DROP AND SOURCE JERK EXPERIMENTS IN D2O ASSEMBLIES.

THEORETICAL INVESTIGATION + REACTOR PHYSICS + MEASUREMENT, REACTIVITY + REACTOR KINETICS + DELAYED NEUTRON

6-35019 ALSO IN CATEGORY 17
JAERSCKY R + SCHULZE J
COMMISSIONING AND START-UP OF KWL
AEG-TELEFUNKEN, FRANKFURT AM MAIN
6 PAGES, NUCL. ENG. INT., VOL. 13, PG. 939-44 (NOVEMBER 1968)

DETAILS ARE GIVEN OF THE PREOPERATIONAL TESTS AND OF THE TESTS AT ZERO POWER AND UP TO FULL LOAD. THE REACTOR PHYSICS PROGRAM INCLUDED SAFETY AND CORE DESIGN VERIFICATION AT ZERO POWER, TEMPERATURE COEFFICIENT MEASUREMENTS AND CONTROL CHECKS DURING POWER BUILD-UP, AND OPTIMIZATION OF THE ROD PATTERNS IN THE POWER RANGE.

*TEST, PREOPERATIONAL + *REACTOR STARTUP TESTING + *REACTOR STARTUP EXPERIENCE + REACTOR, BWR + CONTROL ROD PROGRAM + GERMANY

6-35029 ALSO IN CATEGORY 17
SMIT J + BRUGGINK JC
CRITICAL EXPERIMENTS FOR THE SKN DODEWAARD NUCLEAR POWER STATION PERFORMED IN THE KRITO FACILITY OF RCN AT PETTEN
REACTOR CENTRUM NEDERLAND, PETTEN
RCN-102 +. 29 PAGES, NOVEMBER 1968

AFTER DETERMINING MINIMUM CRITICAL FUEL LOADING, VARIATION OF THE REACTIVITY EFFECT OF SEVERAL ELEMENTS WAS FOUND NEGLIGIBLE. IN MOST CASES, THE EXPERIMENTAL HORIZONTAL POWER DISTRIBUTION IS IN CLOSE AGREEMENT WITH THE THEORETICAL. THE TEMPERATURE COEFFICIENT HAS BEEN MEASURED IN A CORE WITHOUT CONTROL ROD FOLLOWERS, AND FROM CALCULATIONS WHERE THE FOLLOWERS WERE TAKEN INTO ACCOUNT, COEFFICIENT IS NEGATIVE ABOVE 25 C.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

POWER DISTRIBUTION + TEMPERATURE COEFFICIENT + REACTOR, BWR + CRITICAL ASSEMBLY FACILITY + NETHERLANDS + POWER DISTRIBUTION

6-35039 ALSO IN CATEGORY 18
STEWART JE
PARAMETRIC EVALUATION OF THE INFLUENCE OF 239PU AND FISSION PRODUCT CAPTURE CROSS SECTIONS ON LMFBR PERFORMANCE
BABCOCK AND WILCOX, LYNCHBURG, VA.
BAW-3867-7 +. 69 PAGES, TABLES, REFERENCES, MARCH, 1969

THIS STUDY INVESTIGATED LARGE UNCERTAINTIES, OVER THE ENTIRE SPECTRUM, IN THE CAPTURE CROSS SECTIONS OF PU-239 AND LUMPED PLUTONIUM FISSION FRAGMENTS. EMPHASIS WAS PLACED ON DETERMINING THE EFFECTS OF THE UNCERTAINTIES ON THE DEPLETION AND FUEL MANAGEMENT CHARACTERISTICS OF TWO LMFBR CORE SIZES. COMPARISONS WERE MADE FOR THE APPROACH TO EQUILIBRIUM AND PARTICULARLY FOR THE EQUILIBRIUM CYCLE ITSELF.

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

*CROSS SECTION + NEUTRON + PLUTONIUM + MEASUREMENT, GENERAL + REACTOR PHYSICS + *FUEL BURNUP + FUEL MANAGEMENT + REACTOR, LMFBR + R AND D PROGRAM

6-35146 ALSO IN CATEGORY 9
SHAH SK + SASTRY VR
A REVIEW OF NONLINEAR NUCLEAR REACTOR STABILITY
6 PAGES, NUCLEAR ENERGY, PG. 48+, APRIL, 1969

IN THE PRESENT PAPER THE WORK WHICH HAS BEEN DONE IN THE FIELD OF NONLINEAR NUCLEAR REACTOR STABILITY IS BRIEFLY REVIEWED. SOME OF THE IMPORTANT AND WIDELY USED MATHEMATICAL MODELS ARE FURNISHED. FOR STABILITY ANALYSIS OF CERTAIN REACTOR MODELS, THE PROCEDURE FOR THE CONSTRUCTION OF LIAPUNOV FUNCTIONS IS INDICATED. DIFFERENT REACTOR STABILITY CRITERIA AND THEIR RELATIVE MERITS ARE DISCUSSED. THE EFFECT OF DELAYED NEUTRONS ON THE STABILITY OF A REACTOR IS POINTED OUT. AT THE END, TWO APPROACHES TO THE STABILITY ANALYSIS OF THE REACTORS, CONSIDERING THEM AS DISTRIBUTED PARAMETER SYSTEMS, ARE INDICATED.

*REACTOR STABILITY + *REVIEW + ANALYTICAL MODEL + THEORETICAL INVESTIGATION + MATHEMATICAL TREATMENT + LIAPUNOV FUNCTION + COMPARISON, REACTOR CHARACTERISTICS

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-35177 ALSO IN CATEGORY 17
SELECTED ELK RIVER OPERATING EXPERIENCE FOR OCTOBER 1967
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-52 +. 22 PAGES, OPERATING REPORT NO. 60, OCTOBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

WHILE REACTOR WAS SHUT DOWN (17.6 HR DUE TO POISON-INJECTION-SYSTEM LEAK), (1) SUPERHEATER AIR PREHEATER WAS CLEANED, (2) SEVERAL PRIMARY TO CONTAINMENT ATMOSPHERE LEAKS WERE REPAIRED, (3) BYPASS VALVE PS 2-1 WAS REPACKED AND ADJUSTING NUT ON CHECK VALVE RA-11 WAS TIGHTENED. *** AFTER STARTUP, CORRECTED CENTER ROD POSITIONS FOR EQUILIBRIUM XENON AND 501 PA-233 POISONING WERE IN EXCELLENT AGREEMENT WITH COMPUTER CALCULATION (JAI-67-8). COMPARISON OF BACK POSITION AT BEGINNING OF CORE LIFE WITH BANK POSITION OF AUG. 23 CRITICAL AGREES WELL WITH 42 CENTS PER 1000 MWD LOSS RATE AT END OF CYCLE 2 (JAI-67-5). *** SINCE LAST WEEK IN SEPT., I-131 CONC. INCREASED TENFOLD, I-133 BY FACTOR OF 5, AND TWO-HOUR GROSS IODINE LEVEL BY FACTOR OF TWO. INCREASES IN ACTIVITIES ARE MOST LIKELY RESULT OF MINOR FUEL ELEMENT CLADDING DEFECTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + MAINTENANCE AND REPAIR + *XENON + FUEL BURNUP + REACTIVITY, EXCESS + COMPARISON, THEORY AND EXPERIENCE + PROTACTINIUM + IODINE + *RELEASE RATE + *FAILURE, CLADDING + SHUTDOWN COOLING SYSTEM + FAILURE, GENERAL + ACTIVITY BUILDUP + FUEL ELEMENT + REPORT, OPERATIONS.

6-35178 ALSO IN CATEGORY 17
ON-LINE COMPARATIVE CHECK OF CORE PHYSICS
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-51 +. 19 PAGES, OPERATING REPORT NO. 59, SEPTEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR ON LINE ENTIRE MONTH, AND, BECAUSE OF LOAD FOLLOWING OPERATION, REACTOR DID NOT REMAIN AT 58 MWT LONG ENOUGH AT ANY ONE TIME TO OBTAIN EQUILIBRIUM XENON. HOWEVER, OBSERVED ROD POSITION WERE CORRECTED TO EQUILIBRIUM XENON. *** BYPASSING FW HEATER 4 RESULTED IN COLDER FEEDWATER, WHOSE EFFECTS VERIFIED NORMAL CORE HYDRAULICS BEHAVIOR BY COMPARISON WITH THE BYPASSING DYRING CYCLE-2-CORE OPERATION. THE DECREASED CORE VOID CONTENT WITH COLDER PRIMARY FEED WATER GIVES SAME REACTIVITY INCREASE, REQUIRING ROD INSERTION TO MAINTAIN 58 MW, NOW AS FOR THE CYCLE-2 CASE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + *TEST, ON LINE + *HYDRAULIC EFFECT + *VOID FRACTION + REACTOR, BWR + COMPARISON, THEORY AND EXPERIENCE + *REACTIVITY EFFECT, VOID + FLOW, CONVECTION + REACTOR PHYSICS + TURBINE + HEAT EXCHANGER + OPERATING EXPERIENCE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29402
VILES FJ + BULBA E + LYNCH JJ + FIRST MW
REACTANTS FOR THE REMOVAL OF IODINE AND METHYL IODIDE AND THEIR APPLICATION IN FOAMS
HARVARD UNIVERSITY
NYO-841-14 +. 29 PAGES, 13 FIGURES, 3 TABLES, 12 REFERENCES, AUGUST 1968

THE APPLICATION OF REACTIVE FOAMS WITHIN CONTAINMENT VESSELS WAS STUDIED AS A WAY OF RAPID TRAPPING AND REMOVING RADIOIODINE AND ITS COMPOUNDS. THE ENCAPSULATION OF CONTAMINATED AIR BY STABLE REACTIVE FOAMS IS POTENTIALLY AN EFFICIENT METHOD FOR CLEANING AIR BECAUSE OF LARGE SURFACE AREAS AND LONG REACTION TIMES. CONTAINED ATMOSPHERES ENCAPSULATED BY FOAM DEMONSTRATE SIGNIFICANT REDUCTIONS IN LEAKAGE. ADDITION OF HYDRAZINES TO WATER BASED FOAMS PROVIDED HIGH REMOVAL RATES FOR ELEMENTAL IODINE. A 0.11 M CONCENTRATION OF UNSYMMETRICAL DIMETHYL HYDRAZINE (UDMH) IN FOAM RESULTED IN IODINE REDUCTIONS OF 99 AND 99.97% WITHIN 12 AND 18 MINUTES, RESPECTIVELY. HIGH REMOVAL RATES OF ELEMENTAL IODINE BY HYDRAZINE-TYPE FOAMS AND OF METHYL IODIDE BY TBP-CONTAINING FOAMS ARE EXPLAINED BY NOTING THAT, IN THESE CASES, GAS-PHASE RATHER THAN LIQUID-PHASE REACTIONS ARE INVOLVED AND THAT THE FOAM BUBBLE SURFACES ARE COLLECTING SURFACES FOR THE FORMED AEROSOL PARTICLES.

*FOAM + *ORGANIC IODIDE + *TESTING + *FISSION PRODUCT RETENTION + CONTAINMENT LEAKAGE CONTROL + CHEMICAL REACTION + AIR CLEANING + IODINE + FISSION PRODUCT, IODINE

7-30459 ALSO IN CATEGORIES 14 AND 16
SMIRNOV IE + KONONOVA LN
URANIUM CONTENT OF ATMOSPHERIC AEROSOLS
4 PAGES, GEOCHEM. INT. 3, PAGES 909-12 (1966)

A STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT $1 \times 10^{(-10TH)}$ G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION. REPL 30459 ABSTA STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT $1 \times 10^{(-10TH)}$ G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION.

AEROSOL + *URANIUM + *AIRBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC POLLUTION + ANALYTICAL TECHNIQUE, AIR + FILTER

7-30460
WILSON R + VIVIAN GA
PERFORMANCE OF SURFACE CONTAMINATION DETECTORS FOR ONTARIO HYDRO - MAXIMUM PERMISSIBLE LEVELS OF SURFACE CONTAMINATION
ONTARIO HYDRO, TORONTO
CONF-555 +. 4 PAGES, PAGES 197-200 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

TECHNIQUES USED TO EVALUATE THE PERFORMANCE OF SURFACE CONTAMINATION DETECTORS IN USE AT THE NUCLEAR POWER DEMONSTRATION REACTOR AND THE RESPONSE OF THESE INSTRUMENTS FOR MAXIMUM PERMISSIBLE LEVELS OF SURFACE CONTAMINATION ARE DESCRIBED. UNIFORMLY CONTAMINATED CIRCULAR SURFACES OF AREA FROM 10 TO 300 CM² WERE CONSTRUCTED BY DEPOSITING ALIQUOTS OF SR-90/Y-90 SOLUTION ON A GRID. THE RESPONSE OF VARIOUS DETECTORS TO THE CONTAMINATED PLAQUES IS PRESENTED IN TABULAR FORM.

*SURFACE CONTAMINATION + *ANALYTICAL TECHNIQUE, CALIBRATION + STRONTIUM + YTTRIUM + INSTRUMENT, RADIATION MONITORING + TRACER, RADIOACTIVE

7-30471 ALSO IN CATEGORY 14
DALLAGLIO M + GIANNOTTI G
DISTRIBUTION AND CIRCULATION OF BARIUM, RUBIDIUM, STRONTIUM, AND CAESIUM IN NATURAL WATERS AROUND THE CASACCIA NUCLEAR CENTRE
CNEN, CASACCIA, ITALY
STI/PUB-156 + CONF-670512 +. 24 PAGES, PAGES 34-66 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, FROM JOINT IAEA/ENEA SYMPOSIUM, VIENNA, INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA, 1967

TO STUDY THE PROBLEM OF GROUND DISPOSAL FOR RADIOACTIVE WASTE IT IS NECESSARY TO HAVE COMPLETE KNOWLEDGE OF THE LOCAL HYDROLOGY WITH PARTICULAR REFERENCE TO THE VARIOUS HYDROLOGICAL CONDITIONS AND THE CHEMICAL AND PHYSICAL ENVIRONMENTS THAT MAY BE AFFECTED BY THE NATURAL WATERS. THIS AREA HAS A VARIETY OF HYDROLOGICAL AND GEOCHEMICAL ENVIRONMENTS, THE STUDY OF WHICH HAS PROVIDED INFORMATION ON THE MIGRATION AND REGIONS OF RECONCENTRATION OF THE ELEMENTS EXAMINED. THE RESEARCH WAS ALSO EXTENDED TO INCLUDE BA AND RB BECAUSE OF THE GEOCHEMICAL SIMILARITY BETWEEN THESE ELEMENTS AND SR AND CS.

*WASTE DISPOSAL, TERRESTRIAL + *WASTE TREATMENT, FIXATION + FISSION PRODUCT TRANSPORT + BARIUM + RUBIDIUM + STRONTIUM + CESIUM

7-30676 ALSO IN CATEGORIES 12 AND 13
DAVIS LP
DEPOSITION OF SUBMICRON-SIZE PARTICLES IN VENTILATION DUCTS
OAK RIDGE NATIONAL LABORATORY
8 PAGES, SURFACE CONTAMINATION, PAGES 131-38, NEW YORK, PERGAMON PRESS, 1966

A 54 SQ. IN. CONCRETE VENTILATION DUCT 1000 FT LONG, USED TO VENT SEVERAL HIGH-LEVEL RADIOACTIVITY

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30676 *CONTINUED*

FACILITIES TO A FAN BELOW A MAIN STACK, WAS USED TO STUDY THE DEPOSITION BEHAVIOR OF PARTICLES OF 0.001 TO 1.0 MICRON WITH CONCENTRATIONS RANGING FROM 1 TO 1000 MG/M³. AN EQUATION WAS DEVELOPED THAT PROVIDES A PLAUSIBLE MEANS OF PREDICTING DECREASES IN CONCENTRATION FOR THE CONCENTRATION INVESTIGATED, BUT THE CONTAMINATION ON THE DUCT WALLS CAN NOT BE OVERLOOKED.

*DEPOSITION + *PARTICULATE + AEROSOL + *VENTILATION SYSTEM + OFF GAS + STACK + *CONTAMINATION + *PARTICLE SIZE

7-30677

IONESCU E + ALEXAN Z

SOME CONSIDERATIONS CONCERNING THE DETECTION OF CLADDING DEFECTS IN NUCLEAR REACTORS
INSTITUTE OF ATOMIC PHYSICS, BUCHAREST
22 PAGES, STUD. CERCET. FIZ., 19, PAGES 429-50 (1967)

THE DETECTION METHODS INCLUDE THOSE BASED ON MECHANICAL PROPERTIES, SUCH AS THE CHANGES OF THE FLOW RATE AND PRESSURE OF THE COOLANT, AND RADIOACTIVE METHODS BASED ON THE DETECTION OF ESCAPING FISSION PRODUCT GASES. THE SYSTEM MUST BE OPERATING AUTOMATICALLY, MAKING IT POSSIBLE TO IDENTIFY THE DEFECTIVE FUEL CHANNEL AND TO INDICATE THE FINDINGS ON THE CONTROL PANEL.

FUEL INTEGRITY + FAILURE, FUEL ELEMENT + *FISSION PRODUCT RELEASE, GENERAL + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + INSTRUMENT, FLOW + INSTRUMENT, COOLANT QUALITY + INSTRUMENT, NUCLEAR + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, SURVEILLANCE

7-30678

ALSO IN CATEGORY 6

SCHROEDER R

SIMULATION OF FISSION PRODUCTS IN FAST CRITICAL ASSEMBLIES
KERNFORSCHUNGSZENTRUM, KARLSRUHE
10 PAGES, NUKLEONIK 10, PAGES 18-27 (JUNE 1967)

THE FISSION PRODUCT MIXTURE TO BE EXPECTED IN A REACTOR AFTER A TIME OF OPERATION MUST, ON A PRACTICAL BASIS FOR MEASUREMENTS, BE MADE IN A CRITICAL ASSEMBLY WITH STABLE ELEMENTS. IT FOLLOWS THAT A PART OF THE FISSION PRODUCT NUCLIDES ARE SIMULATED BY OTHER NUCLIDES. THESE ARE CLOSELY OBSERVED IN THE SIMULATED PORTION AS WELL AS IN THE EXPERIMENTAL, AND IN THE RESULTING REACTIVITY ERRORS. A PRACTICAL EXAMPLE IS DISCUSSED.

*SIMULATION + CRITICALITY EXPERIMENT + CRITICALITY SAFETY + REACTOR TEST FACILITY + *MUCKUP + *REACTIVITY EFFECT + *CRITICAL ASSEMBLY FACILITY + REACTIVITY, EXCESS + *REACTOR, FAST

7-30679

MITSUISHI N + FUKUMOTO T + HAMADA N

STUDIES ON REMOVAL OF RADIOACTIVE MIST BY PLATE COLUMN

KYUSHU UNIVERSITY

10 PAGES, J. NUCL. SCI. TECHNOL. (TOKYO), 4, PAGES 74-83 (FEB. 1967)

STUDIED ENTRAINMENT, IN WHICH THE PROBABILITY OF MIST PASSING THROUGH A PLATE IS CONSIDERED. A MATHEMATICAL ANALYSIS WAS PERFORMED FOR LARGE DIAMETER COLUMN, THAT IS, ONE IN WHICH CONSIDERATION IS GIVEN TO BACKMIXING IN A PLATE COLUMN. THE ANALYSIS AND SUBSEQUENT EXAMINATION REVEALED THAT THE DECONTAMINATION FACTOR INCREASES AS THE STATE OF THE LIQUID CHANGES FROM A CONDITION OF COMPLETE MIXING TO THAT OF PLUG FLOW.

THEORETICAL INVESTIGATION + *DECONTAMINATION + *MIST + FLOW THEORY AND EXPERIMENTS + *DECONTAMINATION FACTOR + DECONTAMINATION SPRAY + SPRAY, GENERAL

7-30803

WELLS AC + CHAMBERLAIN AC

TRANSPORT OF SMALL PARTICLES TO VERTICAL SURFACES

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENG.

7 PAGES, BRITISH JOURNAL OF APPLIED PHYSICS, VOLUME 18, PAGES 1793 (DECEMBER 1967)

RADIOACTIVE PARTICLES WERE USED TO STUDY DEPOSITION FROM AIR-STREAMS ON TO VERTICAL SURFACES. THE DEPOSITION ON SMOOTH SURFACES BY IMPACTION FROM TURBULENT FLOW WAS COMPARED WITH THEORETICAL PREDICTIONS. DEPOSITION BY BROWNIAN MOTION WAS ALSO IMPORTANT FOR THE SMALLER PARTICLES, AND THE RESULTS WERE IN ACCORDANCE WITH THE EMPIRICAL LAW RELATING TRANSPORT TO THE TWO-THIRDS POWER OF THE DIFFUSIVITY OF THE PARTICLE.

*AEROSOL + *DEPOSITION + THEORETICAL INVESTIGATION + *AEROSOL PROPERTIES + SURFACE, GENERAL + FILTER THEORY, DIFFUSION + *TRACER, RADIOACTIVE + *SIMULATION + FISSION PRODUCT TRANSPORT

7-30804

SANTOS AA + CRESPO MD

INVENTORY OF FISSION PRODUCTS OF INTEREST IN THE EVALUATION OF NUCLEAR RISKS

11 PAGES, ENERGIE NUCLEARE (MADRID), VOLUME 10, PAGES 485-95 (NOVEMBER-DECEMBER 1966)(IN SPANISH)

EQUATIONS ARE DERIVED TO REPRESENT THE INVENTORY OF FISSION PRODUCTS IN THE EVENT OF A CRITICAL INCIDENT. THE EQUATIONS ARE EVALUATED AND THE RESULTS ARE GRAPHED.

*THEORETICAL INVESTIGATION + *FISSION PRODUCT RELEASE, GENERAL + ACCIDENT, GENERAL + *SAFETY EVALUATION +

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30804 *CONTINUED*
RADIONUCLIDE, INDUCED + *CRITICALITY SAFETY

7-30805 ALSO IN CATEGORY 13
PLECHATY L + KLIČKA V
TREATMENT OF URANIUM MILL EFFLUENTS
6 PAGES, JADERNA ENERGIE, VOLUME 13, PAGES 7-12 (JANUARY 1967) (IN CZECH)

THE PROBLEM OF RADIOACTIVE POLLUTION FROM URANIUM MILL EFFLUENTS IS CONSIDERED. METHODS OF DECONTAMINATION FOR RADIUM, URANIUM, AND POLONIUM ARE BRIEFLY DESCRIBED. SOME DETAILED INFORMATION ABOUT EVAPORATION EQUIPMENT FOR TREATMENT OF URANIUM MILL EFFLUENTS IS GIVEN.

*RADIOCHEMICAL PROCESSING + *ATMOSPHERIC POLLUTION + EVAPORATION + DECONTAMINATION + FISSION PRODUCT RETENTION + PLANT PROTECTIVE SYSTEM + *RADIUM + URANIUM + *POLONIUM

7-30815 ALSO IN CATEGORY 6
POSTNIKOV IS + SABAIEV EF
XENON INSTABILITY OF THERMAL NEUTRON REACTORS AND METHODS OF STABILIZING THE NEUTRON FLUX DISTRIBUTION
GORKY RESEARCH INSTITUTE OF TECHNICAL PHYSICS, USSR
6 PAGES, VESTSI AKADEMI NAVUK BELARUSKAI S.S.R., SERYYA FIZIKA-TEKHNICHNYKH NAVUK, NUMBER 3, PAGES 46-52 (1967)

A MATERIAL BALANCE IS WRITTEN FOR I-125 AND XE-125 NUCLEI, MOST OF THE XE-135 NUCLEI ORIGINATING FROM THE I-125 PRECURSOR (IT 1/2 EQUALS 9.7 HR). IT FOLLOWS FROM THIS EQUATION THAT WITH AN INCREASE IN REACTOR POWER THE XENON CONCENTRATION FIRST DECREASES BECAUSE OF BURNUP BUT THEN INCREASES TO A NEW EQUILIBRIUM VALUE EXCEEDING THE FORMER VALUE WITH ACCUMULATION OF I-125. THIS BEHAVIOR LEADS TO INSTABILITY OF THERMAL NEUTRON REACTORS, ESPECIALLY IN LARGE ONES.-

*NEUTRON + *FLUX DISTRIBUTION + *INSTABILITY + *BUCKLING + FLUX TILT + *XENON + IODINE + FISSION PRODUCT, IODINE

7-30820
LUHLEICH H + PENNDORF K + SUETTERLIN L
CONDENSATION OF CESIUM IN COATED PARTICLES
GESELLSCHAFT FUER KERNENERGIEVERWERTUNG IN SCHIFFBAU AND SCHIFFFAHRT, GEESTHACHT, GERMANY
5 PAGES, ATOMKERNENERGIE, VOLUME 13, PAGES 171-75 (MAY-JUNE 1968) (IN GERMAN)

LIQUID CESIUM CORRUDES GRAPHITE. THEREFORE, THE PROBLEM IS HANDLED THEORETICALLY OF WHETHER THE FISSION PRODUCT CESIUM WILL BECOME LIQUID AND AT WHAT TIME THIS WILL OCCUR IN COATED PARTICLES. BURNUP IS ESTIMATED AND FUEL LIFETIMES ARE CALCULATED FOR DETERMINING THE BEGINNING OF CONDENSATION OF CESIUM IN COATED PARTICLES. IT IS SHOWN THAT CESIUM BECOMES LIQUID AT A TIME THAT IS SHORT COMPARED WITH USUAL FUEL LIFETIMES OF HTGRS.

*COATED PARTICLE + GRAPHITE + FISSION PRODUCT RELEASE, GENERAL + *FUEL INTEGRITY + CORROSION + DIFFUSION + *CESIUM + LIQUID

7-30821
MEEK ME + RIDER BF
SUMMARY OF FISSION PRODUCT YIELDS FOR U-235, U-238, PU-239, AND PU-241 AT THERMAL, FISSION SPECTRUM AND 14-MEV NEUTRON ENERGIES
GENERAL ELECTRIC CO., PLEASANTON, CALIF
APED-5398 +. 106 PAGES, MARCH 1, 1968

A TABULATION OF EXPERIMENTAL DATA, EXTRAPOLATED CHAIN YIELDS, CALCULATED CHARGE DISTRIBUTIONS, AND RECOMMENDED VALUES FOR ALL KNOWN FISSION PRODUCTS IS PRESENTED. THE FISSIONABLE NUCLIDES COVERED WERE U-235 AT THERMAL, FISSION SPECTRUM, AND 14 MEV NEUTRON ENERGIES, U-238 AT FISSION SPECTRUM AND 14 MEV ENERGIES, PU-239 AT THERMAL AND FISSION SPECTRUM ENERGIES, AND PU-241 AT THERMAL ENERGIES.

AVAILABILITY - M.E. MEEK/B.F. RIDER, GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA

*FISSION PRODUCT ACTIVITY, GROSS + FUEL BURNUP + NEUTRON + *RADIONUCLIDE, INDUCED + REACTOR, THERMAL + REACTOR, FAST + RADIOISOTOPE + *URANIUM-235 + *URANIUM-238 + PLUTONIUM + *BIBLIOGRAPHY

7-30826
APPEL J + ROOS B
A STUDY OF THE RELEASE OF RADIOACTIVE METALLIC ISOTOPES FROM HIGH-TEMPERATURE GAS-COOLED REACTORS
GULF GENERAL ATOMIC INCORPORATED, SAN DIEGO, CALIFORNIA
NUCLEAR SCIENCE AND ENGINEERING, 34, 201-213 (1968)

AN EXACT FORMULATION IS PRESENTED FOR THE RELEASE OF METALLIC FISSION PRODUCTS. SUCH RADIOACTIVE ATOMS ARE CREATED THROUGH FISSION PROCESSES INSIDE THE KERNEL OF FUEL PARTICLES. THEY CAN DIFFUSE THROUGH THE COATING OF A FUEL PARTICLE AND THE SURROUNDING CHARCOAL MATRIX INTO THE STRUCTURAL GRAPHITE OF THE REACTOR CORE. SOME ATOMS TRAVERSE THIS GRAPHITE ALONG INTERNAL SURFACES AND FINALLY ENTER THE COOLANT GAS. TO FIND THE NUMBER OF RADIOACTIVE ATOMS RELEASED INTO THE COOLANT GAS, THE DIFFUSION EQUATION IN ONE SPACE DIMENSION IS SOLVED NUMERICALLY TAKING INTO ACCOUNT AS DRIVING FORCES BOTH THE GRADIENT OF THE CHEMICAL POTENTIAL AND THAT OF THE TEMPERATURE FIELD. THE CHEMICAL POTENTIAL IS DETERMINED RESPECTIVELY BY THE LANGMUIR AND

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30826 *CONTINUED*

FREUNDLICH ADSORPTION ISOTHERMS FOR SMALL AND LARGE CONCENTRATIONS OF METAL ATOMS ADSORBED AT THE HIGHLY ACTIVE INTERNAL SURFACES OF CHARCOAL AND GRAPHITE.

FISSION PRODUCT RELEASE, GENERAL + HIGH TEMPERATURE + *COATED PARTICLE + CHARCOAL + COOLANT CHEMISTRY + *DIFFUSION + METAL + *STRONTIUM + REACTOR, GCR + COMPUTER PROGRAM + GRAPHITE

7-32641 ALSO IN CATEGORIES 12 AND 17

CHANGE 3 - IODINE FILTER ASSEMBLY

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO R. O. MEHANN, FAST, 1968, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

PERMISSION WAS GRANTED TO REPLACE THE IODINE FILTER ASSEMBLY (PLYWOOD FRAME) WITH TWO METAL-DRAWER TYPE (MSA TYPE ASK-1473-652) CHARCOAL FILTERS IN SERIES. SECOND CHARCOAL FILTER REPLACES SILVER-PLATED COPPER RIBBONS. THIS CHANGE IS EXPECTED TO DECREASE PROBABILITY OF INTERNAL LEAKAGE AND MINIMIZE DEPOSITION OF ORGANIC MATERIAL ON CHARCOAL BED FINAL FILTER, RESULTING IN INCREASED REMOVAL EFFICIENCY OF IODINE, BOTH ELEMENTAL AND METHYL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545, (\$0.25 CENTS/PAGE)

*FILTER + DEPOSITION + *CHARCOAL + REACTOR, PWR + NS SAVANNAH (PWR) + TECHNICAL SPECIFICATIONS

7-33408

WHITBY KT + LIU BY

POLYSTYRENE AEROSOLS - ELECTRICAL CHARGE AND RESIDUE SIZE DISTRIBUTION

UNIVERSITY OF MINNESOTA, MINNEAPOLIS, DEPT. OF MECHANICAL ENG.

14 PAGES, FIGURES, TABLES, REFERENCES, ATMOSPHERIC ENVIRONMENT, 2, PAGES 103-116 (1968)

THE COMPLETE SIZE DISTRIBUTION OF POLYSTYRENE AEROSOLS PRODUCED FROM A DILUTE HYDROSOL OF THE POLYSTYRENE LATEX PARTICLES BY THE ATOMIZATION AND EVAPORATION PROCESS HAS BEEN MEASURED OVER THE SIZE RANGE 0.002-5 MICRONS IN 18 SIZE INTERVALS BY MEANS OF AN AEROSOL COUNTING AND SIZE-DISTRIBUTION MEASURING SYSTEM CONSISTING OF THREE INSTRUMENTS IN PARALLEL OPERATION (A GENERAL ELECTRIC CONDENSATION NUCLEI COUNTER, AN ELECTRIC PARTICLE COUNTER AND ROYCO OPTICAL PARTICLE COUNTER. THE CONCENTRATION OF THE RESIDUE PARTICLES RESULTING FROM THE EVAPORATION OF THE EMPTY LIQUID DROPLETS CONTAINING NO PSL PARTICLES HAS BEEN FOUND TO BE APPROXIMATELY FIVE ORDERS OF MAGNITUDE HIGHER THAN THE MONODISPERSE PSL PARTICLES. THE USE AN IMPACTOR WITH A SHARP 2-MICRON DROPLET CUT-OFF HAS BEEN SHOWN TO BE EFFECTIVE IN IMPROVING THE MONODISPERSITY OF THE GENERATED POLYSTYRENE AEROSOL. THE IMPROVEMENT APPARENTLY HAS RESULTED FROM THE REDUCED NUMBER OF MULTIPLETS FORMED.

*ELECTROSTATIC CHARGE + AEROSOL PRODUCTION + AEROSOL PROPERTIES + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + FILTER IMPACTION

7-34345

MCNAIR A + BANNISTER FJ + KEITH RLG + WILSON HW

A MEASUREMENT OF THE ENERGY RELEASED AS KINETIC ENERGY OF BETA-PARTICLES EMITTED IN THE RADIOACTIVE DECAY OF THE FISSION PRODUCTS OF U-235

THE ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERNASTON, BERKSHIRE, ENGLAND

14 PAGES, 2 FIGURES, 6 TABLES, REFERENCES, JOURNAL OF NUCLEAR ENERGY 23(2), PAGES 73-86 (MARCH 1969)

A MEASUREMENT OF THE ENERGY RELEASED AS KINETIC ENERGY OF THE ELECTRONS EMITTED IN THE RADIOACTIVE DECAY OF THE FISSION PRODUCTS OF U-235 IS DESCRIBED. THE FISSION PRODUCTS WERE PRODUCED AT A UNIFORM RATE DURING PERIODS THAT RANGED FROM 10 SEC TO 100,000 SEC AND MEASUREMENTS OF THE ENERGY WERE MADE AT TIMES RANGING FROM 1 SEC TO 500,000 SEC AFTER FISSION.

ENERGY SOURCE + *DECAY HEAT + FISSION RECOIL + *ANALYTICAL TECHNIQUE, CALIBRATION + *URANIUM + *BETA EMITTER + *GAMMA EMITTER

7-34346

CARROLL RM

FISSION-GAS BEHAVIOR IN FUELS

17 PAGES, 1 FIGURE, 65 REFERENCES, NUCLEAR SAFETY 10(3), PAGES 210-16 (MAY-JUNE 1969)

THIS REVIEW, ONE OF A CONTINUING SERIES ON FISSION-GAS BEHAVIOR CARRIED IN NUCLEAR SAFETY, COVERS PAPERS PUBLISHED BETWEEN 1966 AND EARLY 1968. DURING THIS PERIOD, ADDITIONAL WORK WAS PERFORMED IN THE AREAS OF (1) FUNDAMENTAL STUDIES, MODELS, AND CALCULATIONS OF FISSION-GAS BEHAVIOR, (2) EXPERIMENTAL METHODS AND CALCULATIONS, AND (3) ENGINEERING STUDIES, CALCULATIONS, AND MODELS. IT NOW SEEMS FIRMLY ESTABLISHED THAT FISSION GAS IS TRAPPED AT IMPERFECTIONS IN A FUEL MATRIX AND THAT IRRADIATION CAN INCREASE THE TRAPPING PROBABILITY.

*ANALYTICAL MODEL + *FISSION GAS RELEASE + FISSION PRODUCT RELEASE, GENERAL + FISSION PRODUCT RETENTION + *FISSION RECOIL + BUBBLE + *BUBBLE NUCLEATION + DIFFUSION + *REVIEW + BIBLIOGRAPHY + *RADIATION EFFECT + RADIATION DAMAGE

7-34347 ALSO IN CATEGORY 16

DICKSON CR + START GE + MARKEE EH

AERODYNAMIC EFFECTS OF THE EBR-II REACTOR COMPLEX ON EFFLUENT CONCENTRATION

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34347 *CONTINUED*
AIR RESOURCES LABORATORIES, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
15 PAGES, 17 FIGURES, 2 TABLES, 9 REFERENCES, NUCLEAR SAFETY 10(3), PAGES 228-42 (MAY-JUNE 1969)

DISPERSION OF A TRACER RELEASED FROM THE DOWNWIND SIDE OF THE EXPERIMENTAL BREEDER REACTOR II (EBR-II) WAS MEASURED IN STABLE AND UNSTABLE ATMOSPHERES. THE TRACER, URANINE DYE, WAS SAMPLED ON FIVE CONCENTRIC SAMPLING ARCS BETWEEN 30 AND 600 M FROM THE RELEASE POINT. THE DIFFUSION RATE IN THE EBR-II WAKE CONVERGED TO THE FREE ATMOSPHERE RATE BETWEEN 400 AND 600 M DOWNWIND OF THE SOURCE POINT.

AEROSOL + TESTING + *EFFLUENT + *METEOROLOGY + *AIRBORNE RELEASE + ATMOSPHERIC DIFFUSION + TRACER, RADIOACTIVE
+ *EBR 1 AND 2 (RE) + REACTOR, FAST + REACTOR, LMC R + REACTOR, TEST

7-34348
FISSION-PRODUCT DEPOSITION AND ITS ENHANCEMENT UNDER REACTOR ACCIDENT CONDITIONS
BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO
BMI-X-10244 + 26 PAGES, 6 FIGURES, 7 TABLES, 13 REFERENCES, QUARTERLY PROGRESS REPORT FOR JULY-SEPTEMBER, 1968, OCTOBER 1, 1968

DISCUSSES DEPOSITION OF ELEMENTAL IODINE UNDER CONDENSING STEAM CONDITIONS, WASHDOWN OF SORBED ELEMENTAL IODINE BY CONDENSING H₂O, CH₃I, REACTIVITY STUDIES, PIGMENTATION STUDIES, COATING RESISTANCE TO STEAM, FINAL EVALUATION PROGRAM FOR COATING CANDIDATES.

AVAILABILITY - J.M. GENCO, BATTELLE MEMORIAL INSTITUTE, COLUMBUS LABORATORIES, 505 KING AVENUE, COLUMBUS, OHIO 43201

COATING, SURFACE

7-34349
SPURNY KR + LODGE JP + FRANK ER + SHEESLEY DC
AEROSOL FILTRATION BY MEANS OF NUCLEPORE FILTERS STRUCTURAL AND FILTRATION PROPERTIES
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, COLORADO 80302
12 PAGES, 22 FIGURES, 3 TABLES, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 3(5), PAGES 453-64 (MAY 1969)

NUCLEPORE, A NEW TYPE OF POROUS ANALYTICAL FILTER, RESEMBLES A MEMBRANE FILTER WITH RESPECT TO THE RELATIONSHIP BETWEEN AIR FLOW RATE AND PRESSURE DROP. NUCLEPORE IS SUPERIOR TO OTHER FILTERS AS A SUBSTRATE FOR SUBSEQUENT MICROSCOPY. THE NEW FILTER HAS AN EXTREMELY NARROW RANGE OF PORE SIZES AND IS LESS RETENTIVE IN SOME PARTICLE SIZE RANGES THAN OTHER FILTERS, BUT WITH THE EXCEPTION OF TIME DEPENDENCY, THE BEHAVIOR OF NUCLEPORE IS ACCURATELY PREDICTED BY FILTRATION THEORY.

*SAMPLING + AEROSOL + *FILTER, COMMERCIAL + *FILTER, MEMBRANE + *FILTER, MILLIPORE + FILTER

7-34350
SPURNY KR + LODGE JP + FRANK ER + SHEESLEY DC
AEROSOL FILTRATION BY MEANS OF NUCLEPORE FILTERS AEROSOL SAMPLING AND MEASUREMENT
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, COLORADO 80302
5 PAGES, 12 FIGURES, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 3(5), PAGES, 464-68 (MAY 1969)

NUCLEPORE FILTERS HAVE UNIQUE PROPERTIES WHICH COMPLEMENT THEM FOR USE IN PRACTICAL AEROSOL STUDIES. NUCLEPORE AND MEMBRANE FILTERS ARE FAR MORE COMPLEMENTARY THAN COMPETITIVE. IN SOME APPLICATIONS NUCLEPORE FILTERS ARE SUPERIOR TO MEMBRANE FILTERS, IN OTHER APPLICATIONS, FOR EXAMPLE TOTAL RETENTIVITY, THEY ARE INFERIOR. NUCLEPORE FILTERS ARE ESPECIALLY SUITED FOR COLLECTION OF SAMPLES FOR LIGHT AND ELECTRON MICROSCOPY, SHORT-TERM GRAVIMETRIC SAMPLING, NEW APPROACH TO PARTICLE SIZE, USE IN TAPE SAMPLERS OF THE AISI TYPE.

*ANALYTICAL TECHNIQUE, AIR + PARTICLE SIZE + *SAMPLING + AEROSOL + *FILTER, COMMERCIAL + FILTER, MEMBRANE + *FILTER, MILLIPORE + ELECTRON MICROSCOPY + FILTER

7-34351
BURNHAM CD + MOORE CE + KANABROCKI E
DETERMINATION OF LEAD IN AIRBORNE PARTICULATES IN CHICAGO AND COOK COUNTY, ILLINOIS BY ATOMIC ABSORPTION SPECTROSCOPY
LOYOLA UNIVERSITY, CHICAGO, ILLINOIS 60626
4 PAGES, 4 FIGURES, 2 TABLES, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 3(5), PAGES 472-75 (MAY 1969)

THE LEAD CONTENT OF 38 SUSPENDED PARTICULATE SAMPLES COLLECTED ON MARCH 31, 1966, BY THE NATIONAL AIR SAMPLING NETWORK RANGED FROM 0.10-3.18 MICROGRAMS PER CU. M. OF AIR, WELL BELOW THE THRESHOLD LIMIT VALUE OF 0.2 MG. PER CU. M. ADOPTED BY THE AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS. THE PROCEDURE USED IS SIMPLE, INEXPENSIVE, AND CAN BE ADAPTED FOR ROUTINE ANALYSIS BY SMALL LABORATORIES. THE ATOMIC ABSORPTION SPECTROGRAPHIC RESULTS WERE VERIFIED BY POLAROGRAPHIC DATA. THE METHOD IS CURRENTLY BEING EXTENDED TO THE DETERMINATION OF OTHER METALS SUCH AS VANADIUM.

*AIRBORNE RELEASE + PARTICLE SIZE + AEROSOL + ANALYTICAL TECHNIQUE, AIR + SAMPLING + *LEAD + VANADIUM

7-34352 ALSO IN CATEGORY 15

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34352 *CONTINUED*

YAMADA VM + CHARLSON RJ

PROPER SIZING OF THE SAMPLING INLET LINE FOR A CONTINUOUS AIR MONITORING STATION

UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON 98105

2 PAGES, 1 TABLE, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 3(5), PAGES 483-84 (MAY 1969)

SERIOUS ERRORS IN CONTINUOUS MONITORING DATA FOR AIR POLLUTANTS ARE TRACEABLE TO THE INTAKE SYSTEM. BUT THE PROPER SIZE AND FLOW RATE CAN BE EASILY ACHIEVED BY USING A LARGE DUCT AND A BLOWER FOR AIR MOVEMENT THAT WILL CORRECT DIFFUSIVE LOSS OF POLLUTANTS (PARTICULARLY PARTICULATES) TO THE TUBING WALLS.

FLOW ORIFICE + FLCW, GENERAL + FLOW, TURBULENT + *AEROSOL + *SAMPLING + *ANALYTICAL TECHNIQUE, AIR + *FLOW, TUBE

7-34353

ALSO IN CATEGORIES 14 AND 16

VILENSKII VO + KUZENKOV AF

USING ATMOSPHERIC RADIOACTIVITY FOR INVESTIGATION OF AIR MASS MOVEMENTS

2 PAGES, AT. ENERG. (USSR), 25, PAGES 242-3 (SEPT. 1968)

AN ATTEMPT WAS MADE TO DETERMINE SIMULTANEOUSLY THE CONTENT OF SR-90 AND PB-210 AT VARIOUS ELEVATIONS OF UPPER TROPOSPHERE AND TO EVALUATE THE LARGE SCALE VERTICAL AIR MOTION EFFECTS OF THE MIGRATION OF THESE ISOTOPES IN THE ATMOSPHERE. AEROSOL SPECIMENS WERE TAKEN AT THE ELEVATION OF 9 TO 12 KM AROUND MOSCOW AND TBILISI REGIONS IN 1963.

AIRBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC DIFFUSION + *METEOROLOGY + *STRONTIUM + LEAD

7-34355

ALSO IN CATEGORY 12

VERSHININ NV + FIRSOV VI + FIRSOV VI + MASHKO VE

RADIATION FACTORS IN THE PRODUCTION AND USE OF KRYPTON AND XENON

INST. OF OCCUPATIONAL HYGIENE AND OCCUPATIONAL DISEASES, MOSCOW

3 PAGES, GIG. TR. PROF. ZABOL., 11 42-4 (APRIL 1967)

MEASUREMENTS WERE TAKEN AND SAFETY RULES SUGGESTED AS A RESULT OF INSPECTION OF A KR-XE PRODUCTION PLANT TO ASCERTAIN FROM THE AMBIENT GAMMA-RAY DOSES THE EXTENT OF RADIATION HAZARDS CAUSED BY DISINTEGRATION OF THE FOLLOWING BY-PRODUCTS PRESENT IN FRESH KR MIXTURES (RN, RA B, AND RA C). IT WAS FOUND THAT IN INSTALLATIONS WHERE COMPRESSED KR CYLINDERS WERE FILLED, THE DOSE RATE TO PERSONNEL WAS 0.054 MR/HR, IN GASIFICATION PROCESSES 0.014 MR/HR, IN FURNACE ROOMS WHERE O2 WAS BURNED OUT, 0.013 MR/HR, IN THE LOW PRESSURE GAS TANK AREA, 0.01 MR/HR, AND IN THE COMPRESSOR SECTION, 0.01 MR/HR.

*RADIOCHEMICAL PLANT SAFETY + *RADIATION SAFETY AND CONTROL + *KRYPTON + XENON + GAMMA EMITTER + RADON + RADIUM

7-34356

ALSO IN CATEGORY 15

MAISIN JR

METABOLISM AND TOXICITY OF PLUTONIUM

CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE, MOL, BELG.

10 PAGES, J. BELGE RADIOL., 51 274-83 (1968)

THE PROBLEM OF THE TOXICITY AND METABOLISM OF PLUTONIUM IS DISCUSSED AND THE MAIN CHANNELS OF PENETRATION AND ELIMINATION OF THIS NUCLIDE IN THE HUMAN BODY ARE REVIEWED. THE CONSEQUENCES OF A CONTAMINATION BY PU-239 ARE THEN EXAMINED AND THE BASIC PRINCIPLES FOR THE TREATMENT OF THE CONTAMINATION ARE STATED. THE PROBLEM OF ASSESSING THE PLUTONIUM BODY BURDEN IS ALSO DEALT WITH.

*MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *CONTAMINATION + RADIATION SAFETY AND CONTROL + RADIATION EXPOSURE, RECORD KEEPING + *BIOLOGICAL CONCENTRATION, MAN + *PLUTONIUM

7-34358

NISHIKAWA Y + TANAKA M

RADIATION CONTROL IN THE ATOMIC POWER STATION AT THE TIME OF ITS REGULAR INSPECTION

JAPAN ATOMIC POWER COMPANY

4 PAGES, GENSHIRYOKU KOGYO 14(8), PAGES 51-4 (AUG. 1968)

THE RADIATION CONTROL IN A LARGE POWER STATION IS DIVIDED AS FOLLOWS THE STAGE OF ITS CONSTRUCTION, OF ITS TEST OPERATION, AND OF ITS ACTUAL OPERATION (INCLUDING THE NORMAL OPERATION AND THE REGULAR INSPECTION). THE RADIATION CONTROL, CARRIED OUT AT THE TIME OF ITS REGULAR INSPECTION WHEN VARIOUS REPAIRS ARE DONE, IS DESCRIBED. AT THE JAPC TOKAI POWER STATION, THE DIFFERENCE IN RADIATION CONTROL BETWEEN THE NORMAL OPERATION AND THE REGULAR INSPECTION, WORK UNDER INTENSE RADIATIONS AND THE RADIATION CONTROL, AND PROBLEMS IN THE RADIATION CONTROL ARE DESCRIBED.

*RADIATION SAFETY AND CONTROL + RADIOCHEMICAL PLANT SAFETY + RADIATION PROTECTION, ORGANIZATION + COMPLIANCE

7-34359

ALSO IN CATEGORY 12

WADACHI Y + YASUNAKA H

SURFACE MATERIALS OF NUCLEAR POWER AND RI HANDLING FACILITIES - PAINTS

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO

5 PAGES, RADIOISOTOPES (TCKYC) L7, PAGES 573-7 (DEC. 1968)

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34359 *CONTINUED*

RADIOACTIVE CONTAMINATION PROTECTIVE PAINT MUST HAVE SMALL CONTAMINABILITY AND LARGE DECONTAMINABILITY. USING URANYL(233)NITRATE ACIDIC AQUEOUS SOLUTION AS THE RADIOACTIVE CONTAMINANT, PAINTS AND COATING SURFACES WERE EXAMINED FOR CONDITIONS INFLUENCING THEIR PROTECTIVE QUALITIES. RESULTS SHOWED THAT SOME KINDS OF EPOXY RESIN PAINTS, VINYL CHLORIDE RESIN PAINTS, AND CHLORINATED RUBBER PAINT GAVE SMALL CONTAMINABILITIES AND LARGE DECONTAMINABILITIES. MICROSCOPIC OBSERVATION (168 MAGNIFICATIONS) INDICATED THAT COATING SURFACES WERE COMPACT AND ORDERED. PHENOL RESIN PAINT AND ACRYLIC RESIN PAINT GAVE COMPARATIVELY GOOD RESULTS.

SURFACE CONTAMINATION + *SURFACE, PAINTED + *DECONTAMINATION + *CONTAMINATION + COATING + *COATING, SURFACE

7-34360

KLOONTZ RL + MOREWITZ HA
AN EVALUATION OF THE BEHAVIOR OF AEROSOLS PRODUCED BY THE LMFBR DBA
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
AI-AEC-MEMO-12761 (REV.1) +. 17 PAGES, 3 FIGURES, 8 REFERENCES, MAY 15, 1969

THE EXISTING EXPERIMENTAL DATA ON UO₂ AND PUO₂ AEROSOLS ARE EVALUATED AND AN EMPIRICAL MODEL OF THE BEHAVIOR OF AEROSOLS PRODUCED IN THE PRIMARY CONTAINMENT BY THE LMFBR DBA IS DEVELOPED. THIS MODEL IS BASED ON THE WELL KNOWN STIRRED SETTLING LAW FOR AEROSOLS. IT PERMITS A CONSERVATIVE, BUT PHYSICALLY REALISTIC, ESTIMATE OF THE SPECIFIC REDUCTION FACTOR FOR THE AEROSOL CONCENTRATION IN THE PRIMARY CONTAINMENT FOR ANY GIVEN PLANT DUE TO AGGLOMERATION AND SUBSEQUENT AND USEFUL INTERIM GUIDE FOR BOTH LMFBR DESIGNERS AND DRL STAFF. AVAILABILITY - R.L. KOONTZ/H.A. MOREWITZ, ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA

*ANALYTICAL MODEL + THEORETICAL INVESTIGATION + AEROSOL + *AEROSOL PROPERTIES + AEROSOL PRODUCTION + *PARTICLE SIZE + AGGLOMERATE + FALLOUT + *ACCIDENT MODEL + ACCIDENT, MAXIMUM CREDIBLE (MCA) + AIRBORNE RELEASE + *REACTOR, LMFBR + *SODIUM + URANIUM DIOXIDE + PLUTONIUM DIOXIDE

7-34361

ALSO IN CATEGORY 4

ZWETZIG GB
SURVEY OF FISSION-AND-CORROSION-PRODUCT ACTIVITY IN SODIUM-OR NAK-COOLED REACTORS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
AI-AEC-MEMO-12790 +. 13 PAGES, FEBRUARY 28, 1969

IN THE EVENT OF SIGNIFICANT FUEL CLADDING FAILURE, THE FOLLOWING FISSION PRODUCTS WILL PROBABLY BE PRESENT AT THE LOCATIONS INDICATED - COVER GAS (KR-85, XE-133, AND XE-135), COOLANT (I-131, BA-LA-140, ZR-NB-95, AND CS-137), PRIMARY SYSTEM WALLS (ZR-NB-95, XE-141, CE-144, SR-89, SR-90, CS-137, RU-106, AND BA-LA-140). WHERE COOLANT TEMPERATURES ARE 1000 F OR ABOVE, CORROSION OF CORE STRUCTURAL AND CLADDING MATERIALS IS LIKELY TO OCCUR. SOME OF THIS MATERIAL WILL BE RADIOACTIVE, AND WILL DEPOSIT ON THE WALLS OF THE PRIMARY SYSTEM. THE PRINCIPAL ISOTOPES WHICH WILL BE FOUND ARE MN-54 AND CO-60. THE EFFECTIVENESS OF COLD TRAPS IN THE REMOVAL OF FISSION AND CORROSION PRODUCTS OTHER THAN CA-137 REMAINS TO BE DETERMINED, FOR SYSTEMS NOT CONTAINING LARGE QUANTITIES OF CARBONACEOUS MATERIALS.

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

*COOLANT CHEMISTRY + *FISSION PRODUCT RELEASE, GENERAL + CERIUM + STRONTIUM + RUTHENIUM + FILTER, TRAP + *SODIUM + *REACTOR, LMFBR + KRYPTON + XENON + FISSION PRODUCT, IODINE + BARIUM + ZIRCONIUM + CESIUM + *FISSION PRODUCT TRANSPORT

7-34362

ALSO IN CATEGORY 4

ONDREJCIN RS + SELBY CL
ROLE OF CHLORIDE IN HOT SALT STRESS-CORROSION CRACKING OF TITANIUM-ALUMINUM ALLOYS
SAVANNAH RIVER LAB., AIKEN, S.C.
OP(NASA)-1118 +. 16 PAGES, 1 FIGURE, 2 TABLES, JULY 1967

EXPERIMENTAL EVIDENCE OBTAINED BY THE ELECTRON MICROSCOPE, MASS SPECTROMETER, AND RADIOTRACERS DEMONSTRATED THAT THE ROLE OF CHLORIDE IN HOT SALT STRESS-CORROSION CRACKING OF TITANIUM-ALUMINUM ALLOYS IS TO FORM HCl THROUGH A PYROHYDROLYTIC REACTION BETWEEN THE SALT, MOISTURE RETAINED IN THE SALT DEPOSIT, AND THE PROTECTIVE OXIDE FILM ON THE METAL. THE HCl SUBSEQUENTLY REACTS WITH THE METAL SURFACE TO PRODUCE THE METAL CHLORIDE AND HYDROGEN.

R.S. ONDREJCIN/C.L. SELBY, SAVANNAH RIVER LAB., AIKEN, S.C.

CORROSION + *STRESS CORROSION + *CHLORIDE + *TITANIUM + *ALLOY + HYDROGEN + WATER VAPOR + ALUMINUM

7-34366

ALSO IN CATEGORIES 12 AND 13

PARRISH EC + SCHNEIDER RW
REVIEW OF INSPECTION AND TESTING OF INSTALLED HIGH EFFICIENCY PARTICULATE AIR FILTERS AT ORNL - SUMMARY
OAK RIDGE NATIONAL LAB., TENN.
28 PAGES, 8 FIGURES, 12 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY AGENCY MEETING, N.Y., N.Y., AUGUST 26-30, 1968

IN MOST ATOMIC ENERGY INSTALLATIONS HEPA (HIGH-EFFICIENCY PARTICULATE AIR) FILTERS ARE USED IN VENTILATION EXHAUST OR OFF-GAS SYSTEMS AND CONSTITUTE THE PRIMARY MEANS OF PREVENTING THE RELEASE OF RADIOACTIVE PARTICULATE MATERIAL TO THE ATMOSPHERE. HEPA FILTERS ARE ALSO USED TO PROVIDE AIR, EXTREMELY LOW IN PARTICULATE MATERIAL, TO WORK AREAS, SUCH AS CLEAN BENCHES OR CLEAN ROOMS.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34366 *CONTINUED*

THESE FILTERS, IF IN GOOD CONDITION, WILL REMOVE 0.3-MICRON PARTICLES FROM AN AIRSTREAM WITH A MINIMUM EFFICIENCY OF 99.97%. HOWEVER, OUR EXPERIENCE WITH FILTER SYSTEMS AT ORNL AND AT OTHER SITES INDICATES CLEARLY THAT SYSTEMS CONTAINING THESE FILTERS SHOULD BE ASSUMED TO BE INEFFICIENT UNLESS AN IN-PLACE TEST SHOWS OTHERWISE.

AVAILABILITY - E.C. PARRISH, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

OPERATING EXPERIENCE + *OPERATING EXPERIENCE SUMMARY + *FILTER INSPECTION + FILTER MAINTENANCE + FILTER OPERATION + FILTER SAFETY EVALUATION + *FILTER SYSTEM + FILTER, HIGH EFFICIENCY

7-34367

WHITE JF

PHYSICO-CHEMICAL STUDIES OF CLAD UO₂ IN POTENTIAL MELTDOWN ENVIRONMENTS
NUCLEAR SYSTEMS PROGRAMS, GENERAL ELECTRIC CO., CINCINNATI, OHIO
GEMP-1006 +. 19 PAGES, FIGURES, TABLES, REFERENCES, JUNE 28, 1968

THE OBJECTIVE OF THIS PROGRAM IS TO STUDY THE BEHAVIOR OF ZR-ALLOY-CLAD UO₂ FUEL ELEMENTS IN STEAM AND IN STEAM PLUS AIR FROM 1000 C TO THE MELTING POINT OF UO₂. THESE STUDIES INCLUDE MEASUREMENT, WHERE NECESSARY, OF THE PERTINENT PHYSICAL AND MECHANICAL PROPERTIES OF THE CLADDING, THE OXIDIZED CLADDING, AND UO₂ TO THEIR RESPECTIVE MELTING POINTS.

*FUEL MELTDOWN + *CHEMICAL REACTION + OXIDATION + URANIUM DIOXIDE + CLADDING + *ZIRCONIUM + ALLOY + *STEAM

7-34368

PHYSICO-CHEMICAL STUDIES OF CLAD UO₂ IN POTENTIAL MELTDOWN ENVIRONMENTS
GENERAL ELECTRIC CO., CINCINNATI, OHIO
GEMP-1008 +. 23 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 20, 1968

PROGRESS REPORT. OBJECTIVE OF THIS PROGRAM (PHYSICO-CHEMICAL STUDIES OF CLAD UO₂ UNDER REACTOR CONDITIONS) IS TO STUDY BEHAVIOR OF ZIRCONIUM-ALLOY-CLAD UO₂ FUEL ELEMENTS IN STEAM AND STEAM PLUS AIR FROM 1000 C TO M.P. OF UO₂. STUDIES INCLUDE MEASUREMENTS OF PERTINENT PHYSICAL AND MECHANICAL PROPERTIES OF THE CLADDING, THE OXIDIZED CLADDING, AND UO₂ UP TO THEIR MELTING POINTS.

*FUEL MELTDOWN + *CHEMICAL REACTION + OXIDATION + URANIUM DIOXIDE + CLADDING + *ZIRCONIUM + ALLOY + *STEAM

7-34369

FONTANA MH + BAILEY RE

THE COMPUTATION OF THE EQUILIBRIUM VAPOR COMPOSITION OVER UO₂(2+X)
OAK RIDGE NATIONAL LAB., TENN.
ORNL-P-4055 +. 26 PAGES, 8 FIGURES, 8 REFERENCES, 1968

A METHOD OF COMPUTING THE VAPOR SPECIES AND CONCENTRATIONS IN THE GAS PHASE ABOVE NON-STOICHIOMETRIC UO₂+X WAS DEVELOPED. THE LARGE VARIATION IN GAS PHASE CONCENTRATIONS AS X IS VARIED NEAR THE STOICHIOMETRIC POINT UO₂.00 CAN BE PREDICTED BY EMPIRICALLY CORRELATING THE GAS PHASE O/U RATIOS TO THE CONDENSED PHASE O/U RATIO AND THE TEMPERATURE, AND THEN COMPUTING THE GAS PHASE SPECIES CONCENTRATIONS BY MULTICOMPONENT CHEMICAL EQUILIBRIUM COMPUTER TECHNIQUES.

AVAILABILITY - M.H. FONTANA, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

*COMPUTER PROGRAM + THEORETICAL INVESTIGATION + *VAPOR, VAPOR PRESSURE + *URANIUM DIOXIDE

7-34370

MOORE FL

NEW EXTRACTION CHROMATOGRAPHIC METHOD FOR THE RAPID SEPARATION OF AMERICIUM FROM OTHER TRANSURANIUM ELEMENTS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-P-4038 +. 18 PAGES, 1 FIGURE, 1 TABLE, 12 REFERENCES, 1968

A SIMPLE, RAPID METHOD IS DESCRIBED FOR THE SEPARATION OF AMERICIUM FROM CURIUM AND OTHER ACTINIDE ELEMENTS. THE METHOD EXPLOITS A NEW OXIDATION TECHNIQUE FOR THE PREPARATION OF AMERICIUM(V) IN DILUTE NITRIC ACID SOLUTION WITH AMMONIUM PERSULFATE. ISOLATION OF THE AMERICIUM IS ACHIEVED BY EXTRACTION CHROMATOGRAPHY WITH SMALL TEFLON COLUMNS CONTAINING DI(2-ETHYLHEXYL) PHOSPHORIC ACID AS THE STATIONARY PHASE. THE METHOD CONSIDERABLY SIMPLIFIES THE PURIFICATION AND DETERMINATION OF AM-243 IN THE PRESENCE OF HIGH LEVELS OF CM-244. SEVERAL USEFUL APPLICATIONS FOR BOTH ANALYTICAL AND PURIFICATION PURPOSES ARE DISCUSSED.

AVAILABILITY - F.L. MOORE, ANALYTICAL CHEMISTRY DIV., OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

*CHROMATOGRAPHY + *AMERICIUM + *ANALYTICAL TECHNIQUE, CALIBRATION + CALIFORNIUM + TRANSURANIUM ELEMENT

7-34372

WOODLEY RE

THE RADIOLYTIC REACTION OF GRAPHITE WITH WATER VAPOR
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-1804 +. 13 PAGES, 6 FIGURES, 3 REFERENCES, APRIL 22, 1968

ENERGY ABSORBED BY HELIUM IN A REACTOR ENVIRONMENT CAN BE READILY TRANSFERRED TO A REACTIVE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34372 *CONTINUED*

CONTAMINANT SUCH AS WATER VAPOR WHICH IN ITS ACTIVATED STATE MAY SUBSEQUENTLY REACT WITH GRAPHITE COMPONENTS EVEN AT LOW TEMPERATURE LEADING TO AN INTOLERABLE RATE OF GRAPHITE LOSS.

AVAILABILITY - R.E. WOODLEY, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON 99352

*RADIOLYTIC GAS + CORROSION + *CHEMICAL REACTION + CHEMICAL KINETICS + *GRAPHITE + STEAM + *WATER VAPOR

7-34373

WEST JM

SYSTEM FOR FUEL ELEMENTS FAILURE DETECTION IN NUCLEAR REACTOR
COMBUSTION ENGINEERING, DELAWARE
U.S. PATENT 3,207,668 +. SEPTEMBER 21, 1965

THIS INVENTION RELATES GENERALLY TO NUCLEAR REACTORS HAVING CORES THAT ARE COMPRISED OF NUMEROUS FUEL ELEMENTS RETAINED IN SPACED RELATION, WITH THE INVENTION HAVING PARTICULAR RELATION TO A SYSTEM AND PROCESS FOR DETECTING THE REGION IN THE CORE WHERE THERE EXISTS A FUEL ELEMENT WHICH HAS A LEAK IN THE CLADDING, WITH THIS DETECTION BEING EFFECTED WHILE THE REACTOR IS IN OPERATION.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPT. OF COMMERCE, WASHINGTON, D.C. 20545 (\$0.25 CENTS/COPY)

FUEL ELEMENT + FAILURE, CLADDING + *FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT + IN PILE EXPERIMENT + *PATENT

7-34400

RECENT AEROSOL RESEARCH - UNIVERSITY OF MINNESOTA PARTICLE TECHNOLOGY LABORATORY
UNIVERSITY OF MINNESOTA

12 PAGES, 3 FIGURES, 1 TABLE, REFERENCES, PAPER PRESENTED AT THE 61ST ANNUAL MEETING OF THE AIR POLLUTION CONTROL ASSOCIATION, ST. PAUL, MINN. JUNE 23-28, 1968

CONTINUED THE STUDY OF METHODS FOR THE GENERATION, MEASUREMENT AND SAMPLING OF AEROSOLS. WE HAVE ALSO CONTINUED OUR THEORETICAL AND EXPERIMENTAL STUDIES OF THE ELECTRICAL CHARGING OF AEROSOL PARTICLES BY GAS IONS, THE SIZE DISTRIBUTION OF ATMOSPHERIC AEROSOLS, AEROSOL FORMATION IN HIGH-TEMPERATURE PLASMAS AND FROM MOLTEN METALS, AND THE BASIC PROPERTIES OF CHAIN AGGREGATE SMOKE PARTICLES.

*AEROSOL PRODUCTION + *AEROSOL PROPERTIES + *ELECTROSTATIC CHARGE + *ELECTROSTATIC PRECIPITATION + *INSTRUMENT, AIR SAMPLING + AEROSOL + PARTICLE SIZE DISTRIBUTION

7-34401

LIU BY

AEROSOL RESEARCH - UNIV. OF MINNESOTA PARTICLE TECHNOLOGY LABORATORY
UNIVERSITY OF MINNESOTA

3 PAGES, 3 FIGURES, 1 TABLE, 21 REFERENCES, APCA JOURNAL 18(10), PAGES 694-96 (OCTOBER 1968)

RESEARCH IS BEING CONDUCTED IN THE FOLLOWING AREA - AEROSOL GENERATION, AEROSOL MEASUREMENT, ELECTRICAL CHARGING OF SMALL PARTICLES, DYNAMIC EQUILIBRIUM IN SELF-PRESERVING AEROSOLS, AND AEROSOL FORMATION.

*AEROSOL PRODUCTION + *AEROSOL PROPERTIES + *ELECTROSTATIC CHARGE + *ELECTROSTATIC PRECIPITATION + AEROSOL + *INSTRUMENT, AIR SAMPLING + PARTICLE SIZE DISTRIBUTION

7-34403

AIR CLEANING AND PARTICLE TECHNOLOGY PUBLICATIONS
UNIVERSITY OF MINNESOTA

13 PAGES, 126 REFERENCES, 1968

THIS LIST INCLUDES SIGNIFICANT REPORTS, PAPERS, AND BULLETINS, REGARDING AIR CLEANING AND PARTICLE TECHNOLOGY THAT HAVE BEEN WRITTEN BY MEMBERS OF THE MECHANICAL ENGINEERING DEPT. SINCE 1928.

AVAILABILITY - DEPT. OF MECHANICAL ENGINEERING, UNIVERSITY OF MINNEAPOLIS, MINNESOTA 55455

*BIBLIOGRAPHY + AEROSOL PRODUCTION + AEROSOL PROPERTIES + ELECTROSTATIC CHARGE + ELECTROSTATIC PRECIPITATION + AEROSOL + PARTICLE SIZE DISTRIBUTION + FILTER + AIRBORNE RELEASE + INSTRUMENT, AIR SAMPLING

7-34404

LIU YH + VERMA AC

A PULSE-CHARGING PULSE-PRECIPITATING ELECTROSTATIC AEROSOL SAMPLER

UNIVERSITY OF MINNESOTA

5 PAGES, 8 FIGURES, 1 TABLE, ANALYTICAL CHEMISTRY 40(4), PAGES 843-7 (APRIL 1968)

RECENTLY, LIU ET AL. INTRODUCED THE PULSE-PRECIPITATING PRINCIPLE IN THE DESIGN OF A TWO-STAGE ELECTROSTATIC AEROSOL SAMPLER TO OBTAIN A UNIFORM AEROSOL DEPOSIT OVER A LARGE COLLECTING AREA. THIS PAPER PRESENTS IMPROVEMENTS IN THE DESIGN OF THIS SAMPLER AND DESCRIBES A NEW CHARGER BASED UPON THE PULSE-CHARGING PRINCIPLE. PERFORMANCE CHARACTERISTICS OF THIS PULSE-CHARGING-PULSE-PRECIPITATING (PCPP) ELECTROSTATIC AEROSOL SAMPLER ARE ALSO PRESENTED.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34404 *CONTINUED*
AEROSOL + ELECTROSTATIC CHARGE + *ELECTROSTATIC PRECIPITATION + ANALYTICAL TECHNIQUE, CALIBRATION + ANALYTICAL TECHNIQUE, AIR + SAMPLING

7-34405
LIU BH + YEH HC
ON THE THEORY OF CHARGING OF AEROSOL PARTICLES IN THE ELECTRIC FIELD
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, DEPT. OF MECHANICAL ENG.
7 PAGES, 10 FIGURES, JOURNAL OF APPLIED PHYSICS, 39(3), PAGES 1396-1402 (FEBRUARY 15, 1968)

THEORIES FOR THE CHARGING OF AEROSOL PARTICLES BY UNIPOLAR GASEOUS IONS HAVE BEEN REVIEWED, AND A NEW THEORY TAKING INTO ACCOUNT BOTH THE RANDOM THERMAL MOTION OF THE IONS AND THE MOTION OF IONS INDUCED BY AN APPLIED ELECTRIC FIELD HAS BEEN DEVELOPED. THE THEORIES HAVE BEEN COMPARED WITH THE EXPERIMENTAL DATA OF HEWITT, AND THE RESULTS INDICATE THAT THE NEW THEORY DEVELOPED IN THIS PAPER SHOWS THE BEST AGREEMENT WITH THE EXPERIMENTAL DATA OVER THE ENTIRE RANGE OF CONDITIONS COVERED BY THE DATA.

*ELECTROSTATIC CHARGE + *THEORETICAL INVESTIGATION + PARTICLE SIZE + *PARTICLE SIZE DISTRIBUTION + *ELECTROSTATIC PRECIPITATION + AEROSOL + AEROSOL PROPERTIES

7-34406
VOMELA RA + WHITBY KT
THE CHARGING AND MOBILITY OF CHAIN AGGREGATE SMOKE PARTICLES
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MECHANICAL ENG. DEPT.
9 PAGES, 9 FIGURES, 15 REFERENCES, JOURNAL OF COLLOID AND INTERFACE SCIENCE, 25(4), PAGES 568-76 (1967)

THE FLUID DRAG FORCE AND UNIPOLAR DIFFUSION CHARGE ON CHAIN AGGREGATE SMOKE PARTICLES PRODUCED BY AN EXPLODING WIRE AND FROM A HYDROCARBON FLAME WERE STUDIED WITH A SYSTEM CONSISTING OF AN ELECTRICAL PARTICLE COUNTER (EPC) AND CLASSIFIER AND A CONDENSATION NUCLEI COUNTER (CNC). FROM MEASUREMENTS OF PARTICLE ELECTRIC MOBILITY, ELECTRIC CHARGE, AND NUMBERS OF PRIMARY PARTICLES PER AGGREGATE THE FLUID DRAG AS A FUNCTION OF EQUIVALENT SPHERICAL DIAMETER WAS MEASURED AND COMPARED WITH THREE DIFFERENT THEORIES.

*ELECTROSTATIC CHARGE + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + *INSTRUMENT, AIR SAMPLING + THEORETICAL INVESTIGATION + *SMOKE + PARTICULATE + *AGGLOMERATE

7-34407
WHITBY KT + LIU BH
GENERATION OF COUNTABLE PULSES BY HIGH CONCENTRATIONS OF SUBCOUNTABLE SIZED PARTICLES IN THE SENSING VOLUME
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MECHANICAL ENG. DEPT.
10 PAGES, 9 FIGURES, 4 TABLES, 8 REFERENCES, JOURNAL OF COLLOID AND INTERFACE SCIENCE, 25(4), PAGES 537-46 (1967)

IT SHOWN BY ANALYSIS AND HAS BEEN CONFIRMED BY EXPERIMENT THAT LARGE NUMBERS OF SUBCOUNTABLE PARTICLES IN THE SENSING ZONE OF SINGLE PARTICLE OPTICAL COUNTERS GENERATE SPURIOUS COUNTS IN THE COUNTING RANGE OF THE INSTRUMENT. A STATISTICAL THEORY HAS BEEN DEVELOPED WHICH IS CAPABLE OF PREDICTING THE SIZE DISTRIBUTION AND NUMBER OF THE SPURIOUS PULSES FROM THE CONCENTRATION AND PARTICLE SIZE OF SUBCOUNTABLE AEROSOL. IT IS ALSO SHOWN THAT NUMEROUS SUBCOUNTABLE RESIDUE PARTICLES PRESENT IN THE ATOMIZED POLYSTYRENE LATEX AEROSOLS CAN GENERATE SPURIOUS PULSES IN THE LOWER CHANNELS, THEREBY AFFECTING THE ACCURACY OF THIS CALIBRATION METHOD.

THEORETICAL INVESTIGATION + *PARTICLE SIZE DISTRIBUTION + AEROSOL + *AEROSOL PROPERTIES + *STATISTICAL CORRELATION + STATISTICAL ANALYSIS + AEROSOL PRODUCTION + ANALYTICAL TECHNIQUE, CALIBRATION

7-34409
LIU BY + WHITBY KT + YU HS
ON THE THEORY OF CHARGING OF AEROSOL PARTICLES BY UNIPOLAR IONS IN THE ABSENCE OF AN APPLIED ELECTRIC FIELD
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, PARTICAL TECH. LAB.
12 PAGES, 6 FIGURES, 13 REFERENCES, JOURNAL OF COLLOID AND INTERFACE SCIENCE, 23(3), PAGES 367-377 (MARCH 1967)

THE CHARGING OF AEROSOL PARTICLES BY UNIPOLAR IONS IN A GASEOUS MEDIUM AND IN THE ABSENCE OF AN APPLIED ELECTRIC FIELD HAS BEEN ANALYZED FROM THE STANDPOINT OF THE KINETIC THEORY AND COMPARED WITH THEORIES BASED UPON THE MACROSCOPIC DIFFUSION OF IONS AND EXPERIMENTAL DATA. THE THEORETICAL EQUATION SHOWS GOOD AGREEMENT WITH THE EXPERIMENTAL DATA WHEN THE MEAN THERMAL SPEED OF THE IONS IS TAKEN AS 1.18×10^{14} CM/SEC, WHICH CORRESPONDS TO A MOLECULAR WEIGHT OF 460 FOR THE CORONA IONS USED IN THE CHARGING EXPERIMENTS. IT IS ALSO SHOWN THAT THE THEORY BASED UPON THE SOLUTION OF THE CONTINUOUS MACROSCOPIC DIFFUSION EQUATION FOR IONS CANNOT BE APPLIED TO THE ELECTRICAL CHARGING OF AEROSOL PARTICLES IN THE MICRON AND SUBMICRON SIZE RANGE BECAUSE OF THE LOW CONCENTRATION OF IONS NORMALLY ENCOUNTERED AND THE ESSENTIALLY DISCONTINUOUS NATURE OF THE CHARGING PROCESS.

*ELECTROSTATIC CHARGE + *PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + *THEORETICAL INVESTIGATION + AEROSOL + *AEROSOL PROPERTIES

7-34410
LIU BY + WHITBY KT
DYNAMIC EQUILIBRIUM IN SELF-PRESERVING AEROSOLS

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34410 *CONTINUED*
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MECHANICAL ENGINEERING DEPARTMENT
5 PAGES, 1 FIGURE, 23 REFERENCES, JOURNAL OF COLLOID AND INTERFACE SCIENCE, 26(2), PAGES 161-165 (FEBRUARY 1968)

THE EXCELLENT AGREEMENT OF THE THEORETICALLY PREDICTED SIZE DISTRIBUTION WITH THE AVAILABLE EXPERIMENTAL DATA ON THE SIZE DISTRIBUTION OF ATMOSPHERIC AEROSOLS STRONGLY SUGGESTS THAT THE ATMOSPHERIC AEROSOL MAY BE REGARDED AS HAVING DEVELOPED A SELF-PRESERVING FORM OF DISTRIBUTION AND AS BEING IN A STATE OF DYNAMIC EQUILIBRIUM OVER A SUBSTANTIAL PORTION OF ITS SIZE SPECTRUM.

*THEORETICAL INVESTIGATION + AEROSOL + *AEROSOL PROPERTIES + *PARTICLE SIZE DISTRIBUTION + BIBLIOGRAPHY

7-34411
LIU BY + WHITBY KT + HENRY HY
DIFFUSION CHARGING OF AEROSOL PARTICLES AT LOW PRESSURE
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, DEPT. OF MECHANICAL ENG.
6 PAGES, 8 FIGURES, JOURNAL OF APPLIED PHYSICS, 38(4), PAGES 1592-1597 (MARCH 15, 1967)

THE DIFFUSION CHARGING OF AEROSOL PARTICLES BY UNIPOLAR IONS HAS BEEN STUDIED EXPERIMENTALLY OVER THE PRESSURE RANGE, 0.0311 TO 0.960 ATM, USING MONODISPersed AEROSOLS OF DI-OCTYL PHTHALATE. THE RATIO, A/λ , OF THE PARTICLE RADIUS TO THE MEAN FREE PATH OF IONS HAS BEEN VARIED OVER THE RANGE FROM 1.0 TO 66. WITHIN THE ACCURACY OF THE EXPERIMENTS, THE PARTICLE CHARGE HAS BEEN FOUND TO BE INDEPENDENT OF THE RATIO A/λ AND WELL REPRESENTED BY AN EQUATION (GIVEN). THIS EQUATION AGREES WITH A THEORETICAL EQUATION DERIVED BY WHITE WHEN THE MOLECULAR WEIGHTS OF THE POSITIVE IONS USED IN THE CHARGING EXPERIMENTS ARE ASSUMED TO BE EQUAL TO 16 TIMES THAT OF AIR OR 460.

*ELECTROSTATIC CHARGE + ELECTROSTATIC PRECIPITATION + *INSTRUMENT, AIR SAMPLING + *AEROSOL PRODUCTION + *AEROSOL PROPERTIES + *ANALYTICAL TECHNIQUE, CALIBRATION + TEST, DOP FILTER + PARTICLE SIZE + DIFFUSION + PARTICLE SIZE DISTRIBUTION

7-34412
LIU Y + WHITBY KT + YU HS
A CONDENSATION AEROSOL GENERATOR FOR PRODUCING MONODISPersed AEROSOLS IN THE SIZE RANGE, 0.036 MICRON TO 1.3 MICRON
UNIVERSITY OF MINNESOTA, MINNEAPOLIS
10 PAGES, 6 FIGURES, 1 TABLE, 8 REFERENCES, JOURNAL DE RECHERCHES ATMOSPHERIQUES, PAGES 397-406 (1966)

DEVELOPED A CONDENSATION AEROSOL GENERATOR CAPABLE OF PRODUCING MONODISPersed AEROSOLS OVER THE SIZE RANGE FROM 0.036 MICRON TO 1.3 MICRON. THE GENERATOR WAS CALIBRATED OVER THE ENTIRE RANGE OF DROP SIZE BY FOUR DIFFERENT METHODS INCLUDING AN OPTICAL PARTICLE COUNTER, MICROSCOPIC MEASUREMENT OF THE COLLECTED LIQUID DROPS, AN ELECTRICAL PARTICLE COUNTER AND AN ELECTRICAL METHOD IN WHICH A REPRESENTATIVE FRACTION OF THE LIQUID DROPS WERE CHARGED WITH ONE ELEMENTARY UNIT OF CHARGE. THE GEOMETRICAL STANDARD DEVIATION OF THE AEROSOL VARIED FROM 1.14 FOR THE 1.3 MICRON AEROSOL TO 1.5 FOR THE 0.036 MICRON AEROSOL. THE GENERATOR IS SIMPLE IN CONSTRUCTION, STABLE IN OPERATION, AND REQUIRES ONLY A FEW MINUTES TO REACH A STEADY-STATE OPERATING CONDITION. THE GENERATOR SHOULD BE USEFUL IN THOSE AREAS OF AEROSOL RESEARCH REQUIRING THE USE OF MONODISPersed AEROSOLS.

*AEROSOL PRODUCTION + *AEROSOL PROPERTIES + *PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + *ANALYTICAL TECHNIQUE, CALIBRATION + *INSTRUMENT, AIR SAMPLING + TEST, DOP FILTER

7-34413
CLARK WE + WHITBY KT
CONCENTRATION AND SIZE DISTRIBUTION MEASUREMENTS OF ATMOSPHERIC AEROSOLS AND A TEST OF THE THEORY OF SELF-PRESERVING SIZE DISTRIBUTIONS
UNIVERSITY OF MINNESOTA
11 PAGES, 10 FIGURES, 2 TABLES, REFERENCES, ATMOSPHERIC SCIENCES 24(6), PAGES 677-687 (NOVEMBER 1967)

THE CONCENTRATION AND SIZE DISTRIBUTION OF PARTICLES FROM 0.001 TO 3 MICRON RADIUS DISPersed IN THE URBAN ATMOSPHERE WAS MEASURED WITH A CONTINUOUS-SAMPLING SIZING SYSTEM COMPOSED OF A NUCLEI COUNTER, AN ELECTRICAL PARTICLE-COUNTER, AND AN OPTICAL COUNTER. ATMOSPHERIC AEROSOL SIZE DISTRIBUTION MEASUREMENTS MADE BY PREVIOUS INVESTIGATORS ARE REVIEWED AND COMPARED WITH THE NEW INFORMATION. THE DIURNAL VARIATION OF SIZE DISTRIBUTION WAS MEASURED FOR FOUR 24-HR PERIODS, AND CONCENTRATION VARIATIONS ARE SHOWN TO BE RELATED TO LOCAL PARTICULATE SOURCE AND METEOROLOGICAL CONDITIONS.

*PARTICLE SIZE DISTRIBUTION + PARTICLE SIZE + *ANALYTICAL TECHNIQUE, CALIBRATION + AEROSOL + *AEROSOL PROPERTIES + ATMOSPHERIC POLLUTION + *INSTRUMENT, AIR SAMPLING + ATMOSPHERIC POLLUTION

7-34414
WHITBY KT + VOMELA RA
RESPONSE OF SINGLE PARTICLE OPTICAL COUNTERS TO NONIDEAL PARTICLES
UNIVERSITY OF MINNESOTA
14 PAGES, 15 TABLES, 7 FIGURES, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 1(10), PAGES 801-14 (OCTOBER 1967)

MEASURED THE RESPONSE OF THE ROYCO PC 200, SOUTHERN RESEARCH INSTITUTE (SRI), AND BAUSCH AND LOMB (B AND L) SINGLE PARTICLE COUNTERS TO NONIDEAL BUT MONODISPersed AEROSOLS. AEROSOLS USED WERE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34414 *CONTINUED*

POLYSTYRENE LATEX, DIOCTYLPHTHALATE, INDIA INK, AND POLYSTYRENE. THE INDICATED SIZE OF THE ABSORBING INDIA INK WAS 1/2 TO 1/5 OF THE TRUE SIZE FOR ALL OF THE COUNTERS.

*INSTRUMENT, AIR SAMPLING + PARTICLE SIZE + *AEROSOL PRODUCTION + *AEROSOL PROPERTIES + PARTICULATE + FILTER IMPACTION + PARTICLE SIZE DISTRIBUTION + *PARTICLE SIZE DISTRIBUTION

7-34415

LIU BY + WHITBY KT + YU TH

ELECTROSTATIC AEROSOL SAMPLER FOR LIGHT AND ELECTRON MICROSCOPY

UNIVERSITY OF MINNESOTA

3 PAGES, 3 FIGURES, 2 TABLES, THE REVIEW OF SCIENTIFIC INSTRUMENTS 38(1), PAGES 100-02 (JANUARY 1967)

A TWO STAGE ELECTROSTATIC AEROSOL SAMPLER CAPABLE OF ACCURATE SAMPLING OF MICRON AND SUBMICRON SIZE AEROSOLS ONTO ANY FLAT COLLECTING SURFACE OF AN AREA UP TO 5 X 10 CM² IS DESCRIBED. SIZE CLASSIFICATION OF THE DEPOSITED AEROSOL IS PREVENTED BY THE USE OF A NOVEL PULSED PRECIPITATING ELECTRIC FIELD. SAMPLING EFFICIENCY AND THE UNIFORMITY OF THE DEPOSITED AEROSOL HAS BEEN DETERMINED USING MONODISPERSED FLUORESCENT AEROSOLS OVER THE SIZE RANGE FROM 0.028 TO 3.2 MICRON. THE SAMPLER HAS BEEN FOUND TO BE VERY SATISFACTORY FOR OBTAINING AEROSOL SAMPLES FOR ELECTRON OR LIGHT MICROSCOPY.

ELECTROSTATIC CHARGE + *ELECTROSTATIC PRECIPITATION + SAMPLING + *INSTRUMENT, AIR SAMPLING + AEROSOL + AEROSOL PROPERTIES + *PARTICLE SIZE DISTRIBUTION + *ELECTRON MICROSCOPY

7-34416

CLARENBURG LA + PIEKAAR HW

AEROSOL FILTERS-I THEORY OF THE PRESSURE DROP ACROSS SINGLE COMPONENT GLASS FIBRE FILTERS

CHEMICAL LABORATORY OF THE NATIONAL DEFENSE RESEARCH ORGANIZATION

7 PAGES, 1 FIGURE, 5 TABLES, 6 REFERENCES, CHEMICAL ENGINEERING SCIENCE 23(7), PAGES 765-71 (1968)

BASED ON GEOMETRICAL CONSIDERATIONS A THEORETICAL EQUATION HAS BEEN DERIVED RELATING PRESSURE DROP TO FILTER- AND FIBER-PROPERTIES. THEORETICAL PREDICTIONS ARE SHOWN TO BE IN SATISFACTORY AGREEMENT WITH EXPERIMENTAL RESULTS, OBTAINED WITH SINGLE COMPONENT GLASS FIBRE FILTERS HAVING POROSITIES NOT EXCEEDING 0.94. FOR HIGHER FILTER POROSITIES THE PRESENT THEORY SHOULD BE REFINED. A QUANTITATIVE EXPRESSION IS GIVEN OF THE STRUCTURE EFFECT, SHOWN TO PLAY AN IMPORTANT ROLE IN OPTIMAL FILTER DESIGN STUDIES.

*FILTER, FIBER + THEORETICAL INVESTIGATION + AEROSOL + AEROSOL PROPERTIES + FILTER, GLASS + *FILTER THEORY, DIFFUSION + *FILTER THEORY, IMPACTION + *FILTER THEORY, INTERCEPTION

7-34417

CLARENBURG LA + SCHIERECK FC

AEROSOL FILTERS-II THEORY OF THE PRESSURE DROP ACROSS MULTI-COMPONENT GLASS FIBRE FILTERS

CHEMICAL LABORATORY OF THE NATIONAL DEFENSE RESEARCH ORGANIZATION

9 PAGES, 1 FIGURE, 5 TABLES, 8 REFERENCES, CHEMICAL ENGINEERING SCIENCE 23(7), PAGES 773-81 (1968)

BASED ON GEOMETRICAL CONSIDERATIONS A THEORETICAL EQUATION HAS BEEN DERIVED RELATING PRESSURE DROP TO FILTER- AND FIBRE PROPERTIES OF MULTI-COMPONENT GLASS FIBRE FILTERS. FOR A GREAT NUMBER OF FILTERS THEORETICAL PREDICTIONS OF THE PRESSURE DROP ARE IN EXCELLENT AGREEMENT WITH THE EXPERIMENTAL RESULTS FOR FILTER POROSITIES NOT EXCEEDING 0.94 MICRON. THESE RESULTS CONSTITUTE AN INDIRECT PROOF OF THE VALIDITY OF THE THEORY OF TORTUOSITY PRESENTED IN AN EARLIER PAPER. ITS WAS SHOWN THAT BY MINOR VARIATIONS OF THE COMPOSITION OF A FILTER, ALMOST WITHOUT AFFECTING THE PRESSURE DROP, CONSIDERABLE GAINS IN AEROSOL RETENTION CAN BE ACHIEVED.

*FILTER THEORY, DIFFUSION + *FILTER THEORY, IMPACTION + *FILTER, FIBER + THEORETICAL INVESTIGATION + AEROSOL + AEROSOL PROPERTIES + FILTER, GLASS + *FILTER THEORY, INTERCEPTION

7-34418

PARNIANPOUR H

STUDY OF THE PENETRATION OF AEROSOLS INTO FILTER BEDS

COMMISSARIAT A L'ENERGIE ATOMIQUE, FONTENAY-AUX-ROSES

ANL-TRANS-655 +. 52 PAGES, 1967

A DETAILED KNOWLEDGE OF THE BEHAVIOR AND THE PENETRATION OF AN AEROSOL INTO A FILTER MAY GIVE IMPORTANT INFORMATION BOTH ABOUT THE PROPERTIES OF FILTERS AND ABOUT THE STOPPED AEROSOL. IN THIS STUDY, IT IS PROPOSED TO STUDY, WITH A RADIOACTIVE AEROSOL, THE PENETRATION OF PARTICLES OF THE INTERIOR OF DIFFERENT FILTERING MEDIA.

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

AEROSOL + FILTER, BED + FILTER, FIBER + ADSORPTION + *AEROSOL PROPERTIES + *FILTER + TRACER, RADIOACTIVE

7-34419

HALES JM

AEROSOL TRANSPORT IN A CONDENSING STREAM ENVIRONMENT

BATTELLE-NORTHWEST, RICHLAND, WASH.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34419 *CONTINUED*
BNWL-SA-2359 +. 16 PAGES, FEBRUARY 20, 1969

THE PRESENT INVESTIGATION IS AN EXAMINATION OF THE FUNDAMENTAL PROCESSES INFLUENCING THE FORMATION AND BEHAVIOR OF BOUNDARY LAYERS IN CONDENSING-STEAM SYSTEMS, PARTICULARLY WITH RESPECT TO THE TRANSPORT OF AEROSOL PARTICLES. IT IS HOPED THAT INFORMATION GAINED FROM THIS MORE IDEALIZED AND BASIC APPROACH WILL BE HELPFUL IN ANALYZING THE RESULTS OF THE LARGER EXPERIMENTAL INVESTIGATIONS OF CONTAINMENT SYSTEM BEHAVIOR, AND IN ALLOWING THESE RESULTS TO BE PRESENTED IN A MANNER MORE SUITABLE FOR SCALE-UP AND DESIGN OF FULL SCALE SYSTEMS.

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

DEPOSITION + *AEROSOL PROPERTIES + *BOUNDARY LAYER + BOUNDARY LAYER, REACTING + TRANSPORT PROPERTY + *STEAM + AEROSOL

7-34420 ALSO IN CATEGORY 4
MEYER RT + LEVINE HS
HIGH-TEMPERATURE PERMEATION OF ZIRCONIA MICROSPHERES BY NITROGEN AND OXYGEN
SANDIA LABS., ALBUQUERQUE, NEW MEXICO
SC-RR-69-160 +. 30 PAGES, 3 FIGURES, 5 TABLES, 16 REFERENCES, MARCH 1969

A SOLID STATE DIFFUSION MODEL IS FORMULATED TO EXAMINE THE PERMEATION OF GASES THROUGH ZIRCONIA MICROSPHERES FORMED DURING THE SHORT DURATION (ABOUT 200 MSEC), HIGH TEMP. (3000 TO 4000K) REACTION OF ZIRCONIUM WITH CONTROLLED MIXTURES OF NITROGEN AND OXYGEN (N₂/O₂ EQUAL TO 0.025, 625 TORR). THE RESULTS INDICATE THAT INWARD DIFFUSION OF N₂ AND O₂ FROM THE REACTANT ENVIRONMENT ACCOUNTS FOR PARTIAL PRESSURES OF 0.1 AND 2 TORR (MEASURED AT 300K), RESPECTIVELY, IF THE MICROSPHERE IS INITIALLY DEVOID OF GAS. NO SIGNIFICANT OUTWARD DIFFUSION OCCURS IF THE MICROSPHERE INITIALLY CONTAINS 1 ATMOSPHERE OF N₂ AND O₂.

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

COATED PARTICLE + THERMAL EXPERIMENT + *HIGH TEMPERATURE + *ANALYTICAL MODEL + *DIFFUSION + THEORETICAL INVESTIGATION + *ZIRCONIUM + NITROGEN + OXYGEN + *OXIDE

7-34421
GUPTA G + HELLER F + SCHRÖEDER R
THE AMOUNTS OF FISSION PRODUCT NUCLIDES PRODUCED IN PU-239-FUELLED FAST REACTORS AND THE RELATED HEAT GENERATION AFTER SHUT-DOWN
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
KFK-722 +. 19 PAGES, 4 FIGURES, 7 TABLES, 31 REFERENCES, NOVEMBER 1968

TO OBTAIN THE DECAY HEAT GENERATED BY THE FISSION PRODUCTS OF PU-239, FIRST THE CONCENTRATION OF INDIVIDUAL FISSION PRODUCTS WAS CALCULATED AS A FUNCTION OF IN-PILE TIME, COOLING TIME, AND SPECIFIC POWER OF THE REACTOR. THE EQUATIONS USED AND THE RESULTS OF THESE CALCULATIONS ARE PRESENTED AND THE DECAY POWER OF INDIVIDUAL FISSION PRODUCT NUCLIDES WAS CALCULATED AND, FINALLY, THESE QUANTITIES WERE SUMMED UP TO RESULT IN DATA FOR GROSS FISSION PRODUCTS.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES FOR THE U.S. AND OVERSEAS

*FISSION PRODUCT ACTIVITY, GROSS + *RADIONUCLIDE, INDUCED + *PLUTONIUM + REACTOR, FAST + DECAY HEAT + REACTOR, LMFBR + FUEL BURNUP

7-34422
BREHM WF + KOVACEVICH EA + SHANNON DW
RELEASE AND MIGRATION OF IRRADIATED STAINLESS STEEL IN FLOWING SODIUM
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-2336(DRAFT) + CONF-690502-10 +. 20 PAGES, FROM 65TH NATIONAL MEETING OF THE AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, CLEVELAND, OHIO, 1968

TRANSPORT AND DEPOSITION OF RADIOISOTOPES RELEASED TO FLOWING SODIUM FROM CORROSION OF IRRADIATED STAINLESS STEEL HAS BEEN STUDIED. QUANTITATIVE MEASUREMENTS OF DEPOSITION CAN BE MADE WITH SENSITIVE COUNTING TECHNIQUES. THE RESULTS OF THE STUDY INDICATE THAT CR-51 AND CO-60 ARE TRANSPORTED SLOWLY, AND DO NOT RAPIDLY MIGRATE TO LOWER TEMP. REGIONS OF LOOP SYSTEMS. HOWEVER, MN-54 IS RELEASED IN LARGER QUANTITIES TO DEPOSIT THROUGHOUT THE TEST LOOPS. PREFERENTIAL DEPOSITION SITES ARE (1) IMMEDIATELY DOWNSTREAM FROM THE SOURCE, (2) AT MINIMUM TEMPERATURE LOCATIONS, (3) IN OXYGEN COLD TRAPS. THESE RESULTS INDICATE MN-54 IS TRANSPORTED BY MORE THAN ONE MECHANISM. DEPOSITED MN-54 MIGRATED RAPIDLY TO THE COLD TRAP, DEPOSITED CR-51 AND CO-60 MIGRATED SLOWLY. THE RAPID TRANSPORT OF LARGE AMOUNTS OF MN-54 TO LOW TEMP. LOCATIONS CAN CREATE SERIOUS PROBLEMS FOR REACTOR MAINTENANCE.

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

*CORROSION + RADIATION EFFECT + TRACER, RADIOACTIVE + *MASS TRANSFER + *CUT OF PILE LOOPS AND EXPERIMENTS + FISSION PRODUCT TRANSPORT + *SODIUM + *STEEL, STAINLESS + CHROMIUM + COBALT + MANGANESE + OXYGEN

7-34459 ALSO IN CATEGORY 17

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34459 *CONTINUED*

OSBORNE RN
AN IN-CORE FAILED-FUEL LOCATION AND MONITORING SYSTEM FOR BOILING-WATER REACTOR
GENERAL ELECTRIC, VALLECITOS
1 PAGE, ANS TRANS. 5(1), PAGE 50 (1962)

CONSIDERABLE IMPORTANCE TO FUELS-TESTING PROGRAMS IN ADDITION TO BEING AN INVALUABLE PIECE OF EQUIPMENT FOR LARGE POWER STATIONS. THE METHOD IS BASED ON THE DEGASSING NATURE OF BOILING-WATER REACTORS. SAMPLES OF COOLANT ARE COLLECTED FROM INDIVIDUAL FUEL CHANNELS AND THE GAS CONTENT ASSAYED BY GAMMA COUNTING FOR THEIR RELATIVE SPECIFIC ACTIVITIES, I.E. MICROCURIES OF FISSION GAS PER MILLILITER OF RADIOLYTIC GAS.

COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT + MONITOR, LIQUID + REACTOR, BWR + VBWR (BWR) + REACTOR, WATER + REACTOR, TEST

7-34460 ALSO IN CATEGORY 17

SMITH RR + DOE CB
A CLADDING-FAILURE MONITOR FOR LIQUID-METACOOLED REACTOR SYSTEMS
ARGONNE NATIONAL LABORATORY
1 PAGE, ANS TRANS 5(1), PAGE 50 (APRIL, 1962)

A MONITOR FOR ANNUNCIATING A CLADDING FAILURE IN A NA- OR NAK-COOLED REACTOR SYSTEM HAS BEEN DESIGNED, CONSTRUCTED, AND SUCCESSFULLY TESTED IN EBR-1. ALSO, A SIMPLE AND EXTREMELY EFFICIENT METHOD OF DISCRIMINATION HAS BEEN DEVELOPED UTILIZING THE SELECTIVE ELECTROSTATIC ISOLATION OF RARE-GAS DAUGHTER SPECIES FROM ALL OTHER INTERFERING ACTIVITIES.

MONITOR, GAS + *NAK + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT

7-34461 ALSO IN CATEGORY 17

OSBORNE RN
LOCATING FAILED FUEL IN WATER REACTORS
GENERAL ELECTRIC CO., PLEASANTON, CALIF.
3 PAGES, NUCLEONICS 19(7), PAGES 84, 86, AND 89 (JULY 1961)

DEVELOPED A METHOD OF LOCATING FAILED FUEL ELEMENTS IN WATER-COOLED REACTORS BY MEASURING THE RELATIVE AMOUNTS OF TE-132 SURFACE ACTIVITY THROUGH ITS I-132 DAUGHTER. THE METHOD IS USED DURING REACTOR SHUTDOWN AND HENCE IS QUITE USEFUL FOR REACTORS SUCH AS VALLECITO BOILING WATER REACTOR THAT ARE NOT LARGE ENOUGH TO HAVE ELABORATE BUILT-IN FAILED-FUEL LOCATION SYSTEMS. IT ALSO CAN PROVIDE A CONFIRMATORY CHECK FOR FAILED FUEL IN LARGE REACTORS CONTAINING SUCH BUILT-IN SYSTEMS. THE TECHNIQUE HAS SUCCESSFULLY LOCATED DEFECTED ELEMENTS CONTAINING EITHER URANIUM OXIDE OR URANIUM-METAL ALLOY.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + VBWR (BWR) + OPERATING EXPERIENCE + REACTOR, WATER + REACTOR, BWR + REACTOR, TEST + *COOLANT CHEMISTRY

7-34462 ALSO IN CATEGORY 17

DREYER HS + POWELL WD
FAILED FUEL ELEMENT LOCATION IN THE ML-1
AEROJET
2 PAGES, 2 FIGURES, TRANS. AMER. NUCL. SOC., 6 307-8 (1963)

A SYSTEM FOR RAPID LOCATION OF A FAILED FUEL ELEMENT IN A MOBILE NUCLEAR POWER PLANT (THE ML-1) IS DESCRIBED. THE SYSTEM IS SIMPLE, POSITIVE AND SAFE, UTILIZES FIELD EQUIPMENT AND DOES NOT SIGNIFICANTLY INCREASE PLANT WEIGHT OR LOGISTICS REQUIREMENTS. THE LOCATING EQUIPMENT IS NOT PERMANENTLY ATTACHED TO THE REACTOR.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + REACTOR, PWR + REACTOR, MILITARY + IODINE + FISSION PRODUCT, IODINE + SAMPLING + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + ML 1 (GCR)

7-34465 ALSO IN CATEGORY 17

KIGER EI
FUEL-FAILURE DETECTION IN THE HWCTR
SAVANNAH RIVER LABORATORY
1 PAGE, ANS TRANS. 5(1), PAGE 48 (APRIL 1962)

FOUR SYSTEMS FOR DETECTING FAILED FUEL ELEMENTS ARE EMPLOYED IN THE HEAVY WATER COMPONENTS TEST REACTOR (HWCTR) - (1) LOW ENERGY GAMMA MONITOR (LEGM), (2) GAS FISSION-PRODUCT MONITOR (GFPM), (3) DELAYED NEUTRON MONITOR (DNM), AND (4) SCANNING LIQUID PHOTONEUTRON MONITOR (SLPM).

*COOLANT CHEMISTRY + *FAILURE, FUEL ELEMENT + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + OPERATING EXPERIENCE + DEUTERIUM + HWCTR (TR) + REACTOR, TEST + REACTOR, HWR + REACTOR, AEC OWNED

7-34466 ALSO IN CATEGORY 17

FOWLER IL + PEARSON A + WATT LA
HALOGEN BETA COUNTER MONITORS FOR CHALK RIVER REACTORS
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER
4 PAGES, 9 FIGURES, 5 REFERENCES, NUCLEONICS 17(1), PAGES 78,80,82-83 (JANUARY 1959)

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34466 *CONTINUED*

GASEOUS-FISSION-PRODUCT MONITORS WERE PLANNED FOR THE DETECTION OF FAULTS IN ROD SHEATHINGS IN THE CHALK RIVER REACTORS. FOR THESE A BETA-SENSITIVE DETECTOR CAPABLE OF MEASURING A WIDE RANGE OF ACTIVITY WAS REQUIRED SO THAT FAULTS COULD BE DETECTED AS SOON AS THEY OCCURRED AND A MEASURE MADE OF THEIR RATE OF DEVELOPMENT. THE MONITOR DESCRIBED PROVIDES A VERY SIMPLE MEANS OF MEASURING A WIDE RANGE OF BETA AND GAMMA ACTIVITY. LIFE TESTS AND OPERATIONAL EXPERIENCE TO DATE HAVE BEEN GOOD. THE RANGE CAN BE FURTHER INCREASED WITHOUT SACRIFICE OF OVER-ALL SIMPLICITY BY ADDITIONAL MODIFICATION OF THE COUNTER ELECTRODE SHAPE. BY THIS MEANS, THE CHARACTERISTIC CAN BE MADE TO COVER AT LEAST 6 DECADES.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT + BETA EMITTER + HALOGEN + CHALK RIVER

7-34468 ALSO IN CATEGORY 17

CHENOUEAU J

BEHAVIOR OF HEAVY WATER IN PILES OF THE C.E.A.

COMMISSARIAT A L'ENERGIE ATOMIQUE

6 PAGES, 2 FIGURES, 3 TABLES, 6 REFERENCES, PROCEEDINGS OF THE FIRST CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY (1955)

THE CHATILLON PILE CONTAINS 1880 KG OF NATURAL URANIUM AND 4.5 TONS OF HEAVY WATER. THE SACLAY PILE CONTAINS 3 TONS OF NATURAL URANIUM AND 7.2 TONS OF HEAVY WATER. THE MAXIMUM POWERS AND FLUXES OBTAINED ARE, RESPECTIVELY, 150 KW AND 2000 KW, $10(12TH)$ AND $8 \times 10(12)$ NEUTRON FLUX. IN THESE TWO PILES WE HAVE CARRIED OUT (A) INVESTIGATIONS ON THE ISOTOPIC COMPOSITION OF HEAVY WATER, (B) INVESTIGATIONS OF THE GASES EVOLVED BY THE DECOMPOSITION OF THE IRRADIATED HEAVY WATER, AND OF THEIR RECOMBINATION, (C) PERIODICAL ANALYSES FOR IMPURITIES.

FRANCE + *RADIOLYTIC GAS + MONITOR, LIQUID + *COOLANT CHEMISTRY + *DEUTERIUM + REACTOR, WATER

7-34469 ALSO IN CATEGORY 17

CANZHA VD + EGOROV AI + KAMINKER DM + KOLYADIR AV + KONOPLEV KA + SAIKOV UA + SHAROV VT

AN ELECTROSPORETIC FILTER FOR PURIFYING WATER

7 PAGES, 6 FIGURES, 2 TABLES, REFERENCES, JOURNAL OF NUCLEAR ENERGY 20, PAGES 993-999 (1966)

AS THE RESULT OF CORROSION THERE FORMED IN THE WATER OF THE MAIN CIRCUIT OF THE REACTOR OF THE A.F. IOFFE PHYSICO-TECHNICAL INSTITUTE OF THE ACADEMY OF SCIENCES OF THE U.S.S.R. A HYDRATE OF ALUMINA THAT WAS DIFFICULT TO DISSOLVE. AN ELECTROPHORETIC FILTER OF SPECIAL DESIGN MADE IT POSSIBLE TO CLEAN THE COOLANT OF THE MAIN CIRCUIT COMPLETELY. THE FILTER HAS A TOTAL CAPACITY OF 10.7 LITERS, ITS HYDRAULIC RESISTANCE IS LOW, AND IT IS EASY TO SERVICE. THE EFFECTIVE DISCHARGE THROUGH THE FILTER IS 0.5 M³/HR. THE POWER EMPLOYED IS 0.3 KW.

FILTER, MEMBRANE + *WATER TREATMENT + FILTER + ELECTROSTATIC CHARGE + ELECTROSTATIC PRECIPITATION + OPERATING EXPERIENCE + *ALUMINUM + *OXIDE + REACTOR, WATER + COOLANT CHEMISTRY

7-34471 ALSO IN CATEGORY 17

PALMER AR + PORRITT R

THE DETERMINATION OF FISSION PRODUCT LEVELS IN HIFAR HEAVY WATER

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT

AAEC/TM-427 +. 12 PAGES, 4 FIGURES, 3 TABLES, 1 REFERENCES, 1967

METHODS FOR THE DETERMINATION OF BA-140 AND I-131 ARE DESCRIBED. THESE METHODS ARE SUITABLE FOR ROUTINE MONITORING OF FISSION PRODUCT LEVELS IN THE HIFAR HEAVY WATER CIRCUIT. THE RESULTS OBTAINED OVER A FOUR-MONTH PERIOD ARE PRESENTED AND DISCUSSED.

MONITORING SYSTEM, RADIATION + *INSTRUMENT, COOLANT QUALITY + *COOLANT CHEMISTRY + *ANALYTICAL TECHNIQUE, CALIBRATION + *ANALYTICAL TECHNIQUE, WATER + OPERATING EXPERIENCE + *BARIUM + *IODINE + FISSION PRODUCT, IODINE + DEUTERIUM + REACTOR, WATER

7-34646 ALSO IN CATEGORY 4

NICHOLS FA

THEORY OF THE CREEP OF ZIRCALOY DURING NEUTRON IRRADIATION

WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB., PA.

WAPD-T-2102(REV.) +. 41 PAGES, 3 TABLES, 53 REFERENCES, SEPTEMBER 1968

PROPOSES COMPREHENSIVE MODEL TO EXPLAIN CREEP OF ZIRCALOY DURING NEUTRON IRRADIATION. SUGGESTS THAT IN-PILE SOFTENING OBSERVED AT LOW STRESSES IS DUE TO A COMBINATION OF THE GROWTH-DIRECTED ROBERTS-COTTRELL YIELDING CREEP ORIGINALLY PROPOSED FOR ALPHA-URANIUM AND THE FORMATION OF POINT DEFECT LOOPS PREFERENTIALLY ON CERTAIN PLANES IN RESPONSE TO THE APPLIED STRESS, WITH THE SECOND PROCESS BEING OF RELATIVELY GREATER IMPORTANCE. SUGGESTS IN-PILE HARDENING OBSERVED AT HIGH STRESSES (OR STRAIN-RATES) IS DUE TO THE CUTTING BY DISLOCATIONS OF DEPLETED ZONES (ORIGINALLY PROPOSED BY SEEGER TO ACCOUNT FOR POSTIRRADIATION HARDENING). IN THIS STRESS (STRAIN-RATE) REGION, IN-PILE BEHAVIOR IS IDENTICAL TO POSTIRRADIATION BEHAVIOR.

AVAILABILITY - F.A. NICHOLS, WESTINGHOUSE ELECTRIC CORPORATION, BETTIS ATOMIC POWER LAB., PITTSBURGH, PA.

*CREEP + CREEP BEHAVIOR + CREEP PROPERTY + *ANALYTICAL MODEL + *RADIATION EFFECT + RADIATION DAMAGE + *STRESS STRAIN DATA + THEORETICAL INVESTIGATION + *ZIRCALOY + ZIRCONIUM + ALLOY

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-34673 ALSO IN CATEGORIES 11 AND 18
PATRIARCA P + RUCKER DJ
FUELS AND MATERIALS DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT FOR PERIOD ENDING DECEMBER 31, 1968
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4390 +. 308 PAGES, FIGURES, TABLES, REFERENCES, MAY 1969

ONE OF A SERIES OF SIMILAR REPORTS. TOPICS - FUELS AND CLADDINGS, COOLANTS, RADIATION DAMAGE TO STRUCTURAL MATERIALS, TECHNIQUES OF FABRICATION AND TESTING, ENGINEERING PROPERTIES OF REACTOR MATERIALS, DEVELOPMENT OF FAST REACTOR OXIDE FUELS, AND LMFBR FUELS, FISSION-GAS RELEASE, ZIRCONIUM METALLURGY, ALKALI-METAL CORROSION, TUNGSTEN METALLURGY, AND CLAD MATERIALS FOR SPACE HEAT SOURCES.

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

CLADDING + DIRECT ENERGY CONVERSION DEVICES + *R AND D PROGRAM + REACTOR, FAST + REACTOR, LMFBR + FUEL ELEMENT + FABRICATION + IRRADIATION TESTING + *ORNL + FISSION GAS RELEASE + CORROSION + ZIRCONIUM + TUNGSTEN

7-34907 ALSO IN CATEGORIES 2 AND 11 AND 18
NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY QUARTERLY REPORT, NOVEMBER 1968-JANUARY 1969
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-1009 +. 161 PAGES, FIGURES, TABLES, MARCH 1969

(CONTAINMENT SYSTEM EXPERIMENT) SPRAY REMOVAL RATE FOR ELEMENTAL IODINE PREDICTED WITHIN 20(FOR THE FIRST FEW MINUTES. NAOH ADDITION NOT EFFECTIVE. NO ACOUSTIC EMISSION DURING BLOWDOWN FROM KNOWN FLAWS IN VESSEL HEAD (THERMAL POLLUTION). REPORT BNWL-999, SIMULATION TO YEAR 2000 OF PLANTS ON THE UPPER MISSISSIPPI, WAS ISSUED. OHIO RIVER SIMULATION HAS BEGUN.

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

R AND D PROGRAM + CSE + FAULT + SIMULATION + THERMAL POLLUTION + RIVER, GENERAL + ANALYTICAL MODEL + *CONTAINMENT SPRAY + *ADDITIVE + *ACOUSTICS + BLOWDOWN + *PRESSURE VESSEL

7-35148 ALSO IN CATEGORIES 12 AND 13
WILHELM JG
TESTING OF IODINE FILTERS FOR NUCLEAR INSTALLATIONS
GESELLSCHAFT FÜR KERNFORSCHUNG
20 PAGES, 7 FIGURES, 4 TABLES, 4 REFERENCES, NOVEMBER, 1968

FOR STANDARD LABORATORY ADSORBER TESTS A METHOD IS DISCUSSED FOR HUMIDIFICATION AND CONTROL OF GAS STREAMS UP TO 100(R.H. AT ELEVATED TEMPERATURES. APPARATUS DESCRIBED. EXPERIMENTAL DATA ARE GIVEN FOR THE REMOVAL EFFICIENCY AND THE ADSORPTION OF WATER IN CHARCOAL SAMPLES FROM LONG-TIME TESTS UNDER 100(R.H. THE OVERALL TEST PERIOD WAS UP TO 98 H, SIMULATING THE PHASE OF ELEVATED PRESSURE AND, THEREFORE, HIGH IODINE RELEASE FROM THE REACTOR CONTAINMENT. THE REPRODUCIBILITY OF LONG-TIME TESTS UNDER EXTREMELY HIGH RELATIVE HUMIDITY IS SHOWN AND DISCUSSED. A DESCRIPTION OF THE HARDWARE FOR IN-PLACE TESTS IS INCLUDED. RESULTS ARE GIVEN.

GERMANY + KARLSRUHE + *FUEL REPROCESSING + *FILTER + FILTRATION + TESTING + CHARCOAL + *EXPERIMENT, GENERAL + *REACTOR, POWER

7-35175 ALSO IN CATEGORIES 16 AND 17
FISSION GAS ACTIVITY INCREASE AT ELK RIVER
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-53 +. 21 PAGES, OPERATING REPORT NO. 61, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

IODINE ACTIVITY DURING NOV. AGAIN INCREASED AS IT DID DURING OCT. AND LATTER PART OF SEPT. CONCENTRATION OF OTHER FISSION PRODUCTS IN PRIMARY COOLANT REMAIN UNCHANGED SINCE JUNE 1967 STARTUP. FISSION GAS AT TURBINE AIR EJECTOR AND CONTAINMENT EXHAUST DUCT WERE FROM LAST MONTH, VERIFYING THAT SOME FUEL DEFECTS EXIST. SECONDARY WATER ACTIVITY REMAINED NONDETECTABLE. *** WIND SPEED-AND-DIRECTION INDICATOR WAS RELOCATED TO ELIMINATE INFLUENCE OF BUILDING ON DATA. *** SINCE SEPT., RADIATION LEVELS AT VALVE RA-3-1 AND ASSOCIATED PIPING DOWNSTREAM OF REGENERATIVE HEAT EXCHANGER HAVE INCREASED TO 30 R/HR AND ARE ROPED OFF. RADIATION IS RESULT OF INCREASED CRUD COLLECTION HERE IN PREFILTERS IN PURIFICATION LOOPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *ACTIVITY BUILDUP + *IODINE + INSTRUMENT, METEOROLOGICAL + *FAILURE, CLADDING + *FISSION GAS RELEASE + *WIND STATISTICS + FAILURE, FUEL ELEMENT + *CRUD + INSTRUMENT, ABNORMAL INDICATION

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-34433
MALINAUSKAS AP + K
KINETICS OF THE STEAM-GRAPHITE REACTION
OAK RIDGE NATIONAL LAB., TENN.
34 PAGES, 7 FIGURES, 30 REFERENCES, PAPER 116 OF THE AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, SYMPOSIUM ON
GAS COOLED REACTOR COOLANT SYSTEMS, MAY 4-7, 1969

REVIEW OF THE PRESENT KNOWLEDGE OF THE KINETICS OF THE CHEMICAL REACTION BETWEEN GRAPHITE AND STEAM IN STEAM-HELIUM MIXTURES. ALTHOUGH THIS REACTION HAS BEEN INVESTIGATED EXTENSIVELY, NO UNIFYING PRINCIPLE HAS EMERGED. THE REACTION IS AFFECTED BY EXTERNAL SHAPE AND SIZE OF THE GRAPHITE, THE SHAPE AND THE SIZE OF THE INTERNAL PORES, AND IMPURITIES WITHIN AND ON THE SURFACE OF THE GRAPHITE. IT IS INHIBITED BY HYDROGEN AND CARBON MONOXIDE. THE REVIEW RECOMMENDS MORE ATTENTION BE GIVEN TO THE INFLUENCE OF THE GRAPHITE INTERNAL AND EXTERNAL GEOMETRY ON THE REACTION RATE.

AVAILABILITY - A.P. MALINAUSKAS, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

*GRAPHITE + *CHEMICAL KINETICS + *CHEMICAL REACTION + *STEAM + *REVIEW + ACTIVATION ENERGY + CARBON +
OXIDATION + POROUS DIFFUSION

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29299 ALSO IN CATEGORY 17
UNPLANNED NUCLEAR TRANSIENT
U.S. ATOMIC ENERGY COMMISSION, WASH., D.C., 20545
ROE-68-16 +. 2 PAGES REACTOR SAFETY OPERATING EXPERIENCES, DECEMBER 24, 1968

PROCEDURE CALLED FOR PULLING RODS ON FAST SPEED TO 12 IN., SWITCH TO SLOW, AND WITHDRAW TO 14.7 IN. (70 SEC PERIOD). OPERATOR PULLED RODS ON FAST TO 14.5 IN., SWITCHED (BUT APPARENTLY DIDNT COMPLETE THE CONTACT), AND PRODUCED A 50 MSEC/12.5 MW TRANSIENT ON FURTHER ROD WITHDRAWAL. SINCE THIS IS A TRANSIENT TEST REACTOR WITH REMOTE CONTROL ROOM, NO DAMAGE WAS DONE. THIS REACTOR WAS DEPENDENT ON ADMINISTRATIVE CONTROL RATHER THAN INSTRUMENTATION. SINCE PROGRAM IS BEING TERMINATED, ONLY MINOR CONTROL SYSTEM MODIFICATION WAS MADE.

*REACTOR TRANSIENT + *FAILURE, OPERATOR ERROR + FAILURE, ADMINISTRATIVE CONTROL + REACTOR, FAST BURST + REACTOR, PULSED + REACTOR, AEC OWNED + ACCIDENT, CONTROL ROD WITHDRAWAL

9-29872
EAST LV + WALTON RB
HIGH-EFFICIENCY NEUTRON DETECTORS FOR NUCLEAR SAFEGUARDS APPLICATIONS
LOS ALAMOS SCIENTIFIC LABORATORY
2 PAGES, 2 FIGURES, ANS TRANS. 11(2), PAGES 636-37, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOVEMBER 10-15, 1968

THE USE OF HIGH-EFFICIENCY NEUTRON DETECTORS IN DELAYED-NEUTRON ASSAY APPLICATIONS REDUCES PULSED-NEUTRON SOURCE STRENGTH REQUIREMENTS AND ASSOCIATED RADIATION SHIELDING FOR PERSONNEL PROTECTION. TO MAXIMIZE NEUTRON DETECTION EFFICIENCY, SEVERAL POLYETHYLENE-MODERATED NEUTRON DETECTORS UTILIZING MULTIPLE HE-3 PROPORTIONAL COUNTERS WITH MATCHED RESPONSES HAVE BEEN DESIGNED, AND THE PROPERTIES OF TWO DESIGNS WHICH HAVE BEEN USED EXTENSIVELY IN THE LASL SAFEGUARDS PROGRAM ARE DESCRIBED.

*NEUTRON + COUNTER + DESIGN STUDY + INSTRUMENT, COMPONENT

9-29873
LARSON JM + POWELL JE
ELECTRONIC SYSTEM DEVELOPMENTS FOR PROTON RECOIL SPECTRA MEASUREMENTS IN PLUTONIUM CRITICAL FACILITIES
ARGONNE NATIONAL LABORATORY
1 PAGE, 3 REFERENCES, ANS TRANS. 11(2), PAGE 635, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D.C., NOVEMBER 10-15, 1968

A NEW AMPLIFIER SYSTEM WITH IMPROVED OVERLOAD CAPABILITIES HAS BEEN DEVELOPED AT ANL-IDAHO FOR USE WITH PROTON RECOIL SPECTROMETERS.

SPECTROMETRY, ALPHA + INSTRUMENT, AMPLIFIER

9-29874
GOZANI T
ON THE USE OF IONIZATION-CHAMBER NEUTRON DETECTORS FOR KINETIC MEASUREMENTS IN INTENSE TRANSIENT GAMMA FIELDS
GULF GENERAL ATOMIC INC.
2 PAGES, 1 FIGURE, 7 REFERENCES, ANS TRANS. 11(2), PAGES 634-35, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

THE PROPERTIES OF THREE TYPICAL IONIZATION-CHAMBER NEUTRON DETECTORS WERE INVESTIGATED UNDER HIGH TRANSIENT GAMMA FIELDS. DETECTORS - TOTALLY DEPLETED SILICON SOLID-STATE DETECTOR WITH NEUTRON FISSION CONVERSION FOIL (SOLID STATE RADIATION, INC.), SMALL FISSION CHAMBER (20TH CENTURY ELECTRONICS, LTD.), AND A BORON-10 COATED DETECTOR (REUTER-STOKES ELECTRONIC COMPONENTS, INC.).

*CHAMBER, ION + NEUTRON + GAMMA EMITTER + *TEST, INSTRUMENT RESPONSE + INSTRUMENT, NUCLEAR

9-29875
HILDEBRAND BP
ACOUSTIC HOLOGRAPHY FOR NUCLEAR INSTRUMENTATION
BATTELLE NORTHWEST LABORATORY
2 PAGES, 2 REFERENCES, ANS TRANS. 11(2), PAGES 633-34, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-14, 1968

PRELIMINARY EXPERIMENTS ON THE APPLICATION OF ACOUSTIC HOLOGRAPHY TO LIQUID-METAL REACTOR VESSEL INSPECTION SHOW DEFINITE PROMISE OF SUCCESSFUL VIEWING OF OBJECTS IN A LIQUID-METAL MEDIUM WITH EXTERNAL EQUIPMENT ONLY. INITIAL EXPERIMENTS WERE CONDUCTED TO DETERMINE THE PRINCIPAL DIFFICULTIES AND TO CONFIRM THE PREDICTED CAPABILITY OF BEING ABLE TO VIEW OBJECTS THROUGH HEAVY STEEL. ACOUSTIC SHEAR-WAVE GENERATION IN THE LIQUID-METAL INTERFACE WAS SHOWN TO BE THE PRINCIPAL DIFFICULTY.

R AND D PROGRAM + *LASER + INSTRUMENT, NUCLEAR + INSTRUMENT, IN CORE + INSTRUMENT, SURVEILLANCE

9-29876
MARCINIAK TJ
TIME-OPTIMAL DIGITAL CONTROL OF ZERO-POWER NUCLEAR REACTORS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29876 *CONTINUED*
ARGONNE NATIONAL LABORATORY
1 PAGE, 3 REFERENCES, ANS TRANS 11(2), PAGE 633, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D.C., NOV. 10-15, 1968

IN THIS STUDY, USE WAS MADE OF SAMPLED-DATA CONTROL SYSTEM THEORY, INCLUDING Z-TRANSFORMS AND DISCRETE STATE VARIABLES, TO DESIGN A SIMPLE, STABLE, TIME-OPTIMAL, DIGITAL CONTROL PROGRAM WITH GENERAL CHANGES, ESPECIALLY POWER INCREASES. THE PROGRAM IS REQUIRED TO INCREASE POWER LEVEL WHILE MAINTAINING A MINIMUM ALLOWED PERIOD, AND TO REACH THE DEMAND POWER LEVEL WITH LITTLE OR NO OVERSHOOT. IT HAS BEEN SUCCESSFULLY APPLIED TO THE DIGITAL CONTROL OF THE ARGONNE THERMAL SOURCE REACTOR.

*REACTOR CONTROL + COMPUTER, DIGITAL + SIMULATION + COMPARISON, THEORY AND EXPERIENCE + ATR (TR) + *COMPUTER PROGRAM + REACTOR, TEST + REACTOR, AEC OWNED

9-29877
FORD JA + MESHII T
CALIBRATION OF ELECTROMAGNETIC FLOW-METERS IN THE ENRICO FERMI ATOMIC POWER PLANT
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC.
2 PAGES, 1 REFERENCE, ANS TRANS. 11(2), PAGES 632-33, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

INITIAL CALIBRATION OF THE SODIUM FLOW METERS WAS DETERMINED FROM THE EXPERIMENTALLY MEASURED PUMP CHARACTERISTICS OBTAINED AT PUMP SPEEDS LESS THAN 50% OF FULL SPEED. A NEW CALIBRATION WAS OBTAINED USING THE EXPERIMENTAL HYDRAULIC PUMP CHARACTERISTICS AT HIGH PUMP SPEED. A COMPARISON OF THE MEASURED SODIUM FLOW USING THE NEW CALIBRATION WITH THE CALCULATED VALUE FROM HEAT BALANCE TESTS SHOWED EXCELLENT AGREEMENT WITH AN AVERAGE DEVIATION OF 1.7%. PREVIOUS CALIBRATIONS WERE TOO HIGH BY AN AVERAGE OF 10%.

METAL, LIQUID + *SODIUM + FERMI (LMFBR) + REACTOR, LMC + INSTRUMENT, FLOW

9-29878
FISHER JR
METHOD FOR UTILIZATION OF IN-CORE FLUX MONITOR DATA WITH APPLICATION TO LACBWR MONITORS
NUCLEAR ASSOCIATES INTERNATIONAL
2 PAGES, 1 FIGURE, 2 REFERENCES, ANS TRANS. 11(2), PAGES 631-32, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

WITH THE ADVENT OF LARGE REACTORS BEING DESIGNED AND OPERATED CLOSER TO LIMITS, ATTENTION IS BEING FOCUSED ON IN-CORE FLUX MONITORING SYSTEMS FOR APPLICATIONS RANGING FROM AIDS IN LONG-TERM PROJECTIONS TO A CONTINUOUS MONITORING OF THE CORE. A GENERAL APPROACH FOR UTILIZING THIS IN-CORE INFORMATION HAS BEEN DEVELOPED BY NAI AND TESTED ON AN OPERATING IN-CORE FLUX MONITORING SYSTEM.

*FLUX, INTEGRATED + *IN CORE MEASUREMENT + TEST, SYSTEM OPERABILITY + INSTRUMENT, NUCLEAR + INSTRUMENT, IN CORE

9-29879
CALDWELL JH + KENDRICK ED
INTEGRATION OF ON-LINE DATA HANDLING WITH OFF-SITE ANALYSIS FOR LARGE NUCLEAR POWER PLANTS
CONTROL DATA + NUCLEAR ASSOCIATES INTERNATIONAL
1 PAGE, ANS TRANS. 11(2), PAGE 631, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

A SYSTEM IS UNDER DEVELOPMENT FOR THE INTEGRATION OF ON-LINE DATA REDUCTION AND HANDLING WITH REMOTE PERFORMANCE ANALYSIS AND OPERATING PROJECTIONS. THE MAXIMUM UTILIZATION OF A RELATIVELY SMALL ON-SITE PROCESS COMPUTER FOR DATA LOGGING AND REDUCTION, COUPLED WITH THE OCCASIONAL AS-REQUIRED USAGE OF A LARGE OFF-SITE MULTI-ACCESS COMPUTER, IS FELT TO OFFER AN OPTIMUM BALANCE OF ECONOMY AND RELIABILITY.

DATA PROCESSING + *COMPUTER CONTROL

9-29885
ROUX DP
WIDE-RANGE NUCLEAR CHANNELS
OAK RIDGE NATIONAL LABORATORY
8 PAGES, 4 FIGURES, 19 REFERENCES, NUCLEAR SAFETY 9(6), PAGES 486-93 (NOV.-DEC. 1968)

A SINGLE CHANNEL OF INSTRUMENTS COVERING THE ENTIRE RANGE OF REACTOR POWER FROM SOURCE LEVEL TO FULL POWER IS HIGHLY DESIRABLE. THIS RANGE COVERS 8 TO 10 DECADES OF REACTOR POWER. THREE CONCEPTS THAT HAVE BEEN USED OR PROPOSED ARE THE WIDE-RANGE ANALOG COUNTING CHANNEL, THE WIDE-RANGE DIGITAL COUNTING CHANNEL, AND THE COMBINATION COUNTING-CAMPBELLING CHANNEL. THESE THREE SYSTEMS ARE DESCRIBED BRIEFLY AND COMPARED ON THE BASIS OF NUCLEAR DETECTION CHARACTERISTICS, RELIABILITY, EXPERIENCE, COMPLEXITY, AND COST.

COUNTER + ECONOMICS + OPERATING EXPERIENCE + INSTRUMENT, WIDE RANGE + INSTRUMENT, POWER RANGE + INSTRUMENT, CAMPBELLING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29886
RUBEL P
RELIABILITY OF REACTOR COMPONENTS
OAK RIDGE NATIONAL LABORATORY
6 PAGES, 7 REFERENCES, NUCLEAR SAFETY 9(6), PAGES 481-86 (NOV.-DEC. 1968)

PROBABILISTIC MODELING TECHNIQUES ARE CURRENTLY ATTRACTING ATTENTION IN REGARD TO RELIABILITY EVALUATION OF VITAL SYSTEMS IN REACTOR PLANTS. PROGRAMS ARE IN EFFECT OR BEING CONSIDERED TO DEVELOP ARRAYS OF COMPONENT RELIABILITY FACTORS FOR USE IN SYSTEM MODELS THAT ARE BASED ENTIRELY ON FAILURE STATISTICAL DATA. IT APPEARS THAT MODELING LIMITATIONS CAN BE LARGELY OVERCOME BY COMPREHENSIVE ANALYSES OF SELECTED CRITICAL COMPONENTS AND INTERPRETATION BY EQUIPMENT SPECIALISTS OF ALL AVAILABLE INFORMATION RELEVANT TO COMPONENT APPLICATIONS.

*RELIABILITY, COMPONENT + FORECAST + STATISTICAL ANALYSIS + *PROBABILITY

9-30601 ALSO IN CATEGORY 17
TRIGA CONTROL ROD WORTHS
REED COLLEGE
2 PAGES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 14, 1968, DOCKET 50-288

COMPLIANCE POINTED OUT THAT OUR ROD WORTHS WERE ABOUT 20% GREATER THAN PREDICTED, SHIM AND SAFETY RODS BEING ABOUT 3.38% DK/K AND R ROD BEING 1.21% DK/K. REACTIVITY INSERTION RATES ARE ALL LESS THAN THE 0.12% DK/K PER SEC OF TECHNICAL SPECIFICATION LIMITS. SHUTDOWN MARGINS ARE 6.17% DK/K (COLD) AND 7.4% DK/K (HOT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*CONTROL ROD WORTH + SHUTDOWN MARGIN + COMPARISON, THEORY AND EXPERIENCE + REACTOR, RESEARCH + TRIGA (RR) + *HIGH + MEASUREMENT, REACTIVITY + CYLINDER GAS

9-30605 ALSO IN CATEGORY 17
CHANGE 1 - ROUND-GROOVED CONTROL RODS
U.S. ATOMIC ENERGY COMMISSION
1 PAGE, LETTER TO J.L. MEEB, U. OF VIRGINIA, 1967, DOCKET 50-62

ALLOWS BORON-STEEL CONTROL RODS WITH ROUND GROOVES (RATHER THAN SQUARE) TO MINIMIZE CRACKING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + *CONTROL ROD + STRESS + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + FAULT + FAILURE, EQUIPMENT

9-31332 ALSO IN CATEGORY 12
GARRICK BJ + GEKLER WC + BALDONADO OC + BEHRENS EH + SHIMIZU B
CLASSIFICATION AND PROCESSING OF RELIABILITY DATA FROM NUCLEAR POWER PLANTS
HOLMES + NARVER, INC.
HN-193 +. FEBRUARY 1968, 6 FIGURES, TABLES, 1 REFERENCE

METHODS FOR CLASSIFYING AND PROCESSING RELIABILITY DATA TO A POINT SUITABLE FOR USE IN A WORKING DATA COLLECTION PROGRAM HAVE BEEN DEVELOPED. THE CLASSIFICATION CODES ARE SCOPED PRIMARILY TO ACCOMMODATE THE DESIGNS AND COMPONENTS FOUND IN ENGINEERED SAFETY SYSTEMS. PARTICULAR EMPHASIS HAS BEEN GIVEN TO ENSURE OVERALL COMPATIBILITY BY LIAISON WITH THE CHORD-S PROGRAM AND THE LMRC PROGRAM. THE OBJECTIVE WAS TO REVIEW THE NEEDS OF EACH PROGRAM AND WHERE POSSIBLE TO DERIVE STANDARD FORMATS FOR DATA CLASSIFICATION. AN OPERATING DATA REDUCTION PROGRAM, FAILDARE, IS PRESENTED FOR CALCULATION OF RELIABILITY DATA FROM OPERATING EXPERIENCE ACCUMULATED AND CLASSIFIED ACCORDING TO THE CLASSIFICATION CODE.

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

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *ENGINEERED SAFETY FEATURE + DATA PROCESSING + CVTR (PWR) + *PROCEDURES AND MANUALS + REACTOR, PWR + REACTOR, PRESSURE TUBE + REACTOR, HWR + COMPUTER PROGRAM

9-31524
ARAVE AE
ULTRASONIC CHANNEL MEASURING SYSTEM
PHILLIPS PETROLEUM COMPANY
100-17290 +. JANUARY 1969, 6 FIGURES, 2 REFERENCES, 6 PAGES

DEVELOPED AN ULTRASONIC SYSTEM TO PLOT THE THICKNESS PROFILE OF A FUEL ELEMENT COOLANT CHANNEL TO MEASURE THE ETR AND ATR FUEL ELEMENTS IN A CHANNEL AFTER BEING REMOVED FROM THE REACTOR. IT HAS AN ACCURACY OF 0.5 MIL, A RESOLUTION OF 0.1 MIL, AND A RANGE OF 50 TO 175 MILS.

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

IN CORE MEASUREMENT + FUEL ELEMENT + THICKNESS + TEST, NONDESTRUCTIVE + *INSTRUMENT, FUEL SCANNING + MTR (TR) + ETR (TR) + ATR (TR) + REACTOR, TEST + REACTOR, AEC OWNED

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-31525 ALSO IN CATEGORY 17
DUNNING TG + KANTOR ME + LONG HA + SCHLICHT RW
PEACH BOTTOM CONTROL PERFORMANCE AND DYNAMIC BEHAVIOR
GULF GENERAL ATOMIC, INC., CALIF.
GAMD-7900 +. 96 PAGES, 49 FIGURES, 5 TABLES, OCTOBER 1, 1968

DESCRIBES THE TRANSIENT PERFORMANCE OF THE PEACH BOTTOM STATION AND THE EFFECTS OF THE CONTROL AND SAFETY SYSTEMS ON OPERATION. A COMPARISON IS MADE WITH THE PREDICTED PERFORMANCE AS DETERMINED FROM THE PEACH BOTTOM TRAINER-SIMULATOR. THE INFORMATION PRESENTED COVERS TESTING BEGUN IN EARLY 1967 FOLLOWING THE INITIAL STARTUP AND COMPLETED IN THE SUMMER OF 1968. THE RESULTS SHOW THAT PLANT PERFORMANCE AGREES WELL WITH PREDICTIONS, AND IT CAN BE INFERRED THAT THE MATHEMATICAL MODELS USED ARE REPRESENTATIVE OF ACTUAL PLANT DYNAMICS. FINALLY, PERFORMANCE FOLLOWING VARIOUS SAFETY SYSTEM ACTIONS REVEALS NO CHARACTERISTICS THAT WOULD BE CONSIDERED UNDESIRABLE FROM EITHER AN OPERATIONS OR ENGINEERING POINT OF VIEW.

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

REACTOR, HTGR + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR SAFETY SYSTEM + *REACTOR CONTROL + SYSTEM DESCRIPTION + INSTRUMENT, CONTROL + INSTRUMENT, PROCESS + SIMULATION + COMPARISON, THEORY AND EXPERIENCE + *PEACH BOTTOM 1 (HTGR) + *OPERATING EXPERIENCE + TRAINING

9-31874 ALSO IN CATEGORIES 12 AND 17
THE EFFECT OF HUMAN ERROR AND STATIC COMPONENT FAILURE ON ENGINEERED SAFETY SYSTEM RELIABILITY
HOLMES + NARVER, INC.
HN-194 +. NOVEMBER 1967, 18 TABLES, 16 FIGURES

HUMAN ERROR AND STATIC-COMPONENT FAILURE ARE IMPORTANT VARIABLES IN SYSTEM RELIABILITY ESPECIALLY IF THESE FAILURES CAN LEAD TO SYSTEM FAILURE BY THEMSELVES OR IN CONNECTION WITH ONLY ONE OTHER FAILURE. THE RESULT OF THE STUDY INDICATES THAT NO GENERALIZATION CAN BE MADE AS TO WHEN A STATIC COMPONENT OR HUMAN FAILURE MUST BE INCLUDED UNLESS IT IS THAT THEY SHOULD BE IGNORED OR SEPARATELY TREATED.

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

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *OPERATOR ACTION + *ENGINEERED SAFETY FEATURE + *COMPONENTS, MISCELLANEOUS + PROBABILITY + FAILURE, COMPONENT + FAILURE, FATIGUE + FAILURE, OPERATOR ERROR + FAILURE, PIPE

9-31875
ARAVE AE
AN ULTRASONIC ANEMOMETER FOR MEASURING STEAM CONVECTION CURRENTS
PHILLIPS PETROLEUM COMPANY
IDO-17293 +. JANUARY 1969, 5 FIGURES, 4 REFERENCES, 10P.

AN ULTRASONIC ANEMOMETER WAS DEVELOPED TO MEASURE AIR-STEAM MIXTURE CONVECTION CURRENTS IN REACTOR CONTAINMENT SHELLS FOR AEC REACTOR SAFETY PROGRAMS. THE ANEMOMETER WAS BUILT SPECIFICALLY FOR THE LOSS-OF-FLUID TEST AT THE NATIONAL REACTOR TESTING STATION. THE DETECTOR IS DEVELOPED FOR HIGH HUMIDITY, 130 C ENVIRONMENT BUT CAN BE USED FOR MEASURING FLOW IN MANY OTHER GAS CONDITIONS. IT HAS AN ANALOG OUTPUT PROPORTIONAL TO VELOCITY AND SPEED OF SOUND WHICH CAN BE USED IN THE ULTRASONIC ANEMOMETER EQUATION TO FIND VELOCITY AND SPEED OF SOUND.

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

*INSTRUMENT, FLOW + FLOW, CONVECTION + STEAM + LOFT (S-RR) + REACTOR, SAFETY RESEARCH + REACTOR, PWR + REACTOR, AEC OWNED

9-32807 ALSO IN CATEGORY 18
REFLECTOR CONTROL SYSTEM
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-11 +. 160 PAGES, 24 FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 11, FEBRUARY 29, 1968, DOCKET 50-231

DESCRIBES CONTROL SYSTEM AND DISCUSSES THE VARIOUS COMPONENTS FROM DESIGN TO INSTALLATION AND TESTING. SYSTEM HAS BEEN SUBJECTED TO MORE THAN 800,000 INCHES OF TRAVEL AT NORMAL DRIVE SPEEDS AND 130,000 INCHES AT SCRAM SPEED, WHICH IS APPROXIMATELY 12 TIMES EXPECTED USAGE, AND HAS NEVER FAILED TO FUNCTION. GUIDE-PAD DEVELOPMENT AND TEST PROGRAM DEMONSTRATED PADS AND RAILS HAVE LIFE EXPECTANCY CONSIDERABLY LONGER, AND AT LOADS HIGHER THAN EXPECTED OPERATING CONDITIONS.

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

*CONTROL SYSTEM + *REFLECTOR + *SYSTEM DESCRIPTION + CONTROL ROD + CONTROL ROD DRIVE + TESTING + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

9-32820 ALSO IN CATEGORY 18
SPECIFICATION AND ELEMENTARY DIAGRAMS OF REACTOR SAFETY SYSTEM
GENERAL ELECTRIC CO., SAN JOSE, CALIF.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-32820 *CONTINUED*

50231-2 +. 75 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 2, DEC. 5, 1967, DOCKET 50-231

GIVES DETAILED DRAWINGS OF ELECTRICAL MAKEUP OF SAFETY SYSTEM. SYSTEM IS DESCRIBED, SPECIFICATIONS AND QUALITY ASSURANCE ARE GIVEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

*REACTOR SAFETY SYSTEM + *DESIGN CRITERIA + SYSTEM DESCRIPTION + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

9-33122 ALSO IN CATEGORY 6

ROSENTHAL HB + SZYMOWIAK EA + GEORGE CH
HYDROGEN REACTIVITY CONTROL EXPERIMENT
MARIETTA CORP., BALTIMORE, MARYLAND

8 PAGES, 8 FIGURES, 1 TABLE, 9 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 191-98 (MARCH 1969)

THIS EXPERIMENT VERIFIED THAT HYDROGEN REACTIVITY CONTROL, A MECHANICALLY PASSIVE DEVICE, IS AN EFFECTIVE, SELF-REGULATING MECHANISM FOR CONTROLLING A NUCLEAR REACTOR. THIS PAPER DESCRIBES THE PRINCIPLE OF HYDROGEN REACTIVITY CONTROL AND DISCUSSES THE H-RHO EXPERIMENTAL SYSTEM AND THE ANALYTICAL CONSIDERATIONS THAT ESTABLISHED THE SYSTEM DESIGN, PRELIMINARY MEASUREMENTS THAT VALIDATE THE EXPERIMENT, AND THE EXPERIMENTAL DEMONSTRATION AND EVALUATION OF THE SYSTEM RESPONSE TO CHANGES IN THERMAL LOAD.

*REACTOR CONTROL + *HYDROGEN + *REACTIVITY EFFECT + HYDRIDE + ZIRCONIUM + MODERATOR + COMPARISON, THEORY AND EXPERIENCE

9-33123

LEONARD JH
CONDITIONS CONTRIBUTING TO RADIATION-INDUCED THERMOCOUPLE DECALIBRATION
UNIV. OF CINCINNATI

7 PAGES, 5 FIGURES, 2 TABLES, 6 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 202-8 (MARCH 1969)

CHROMEL/ALUMEL THERMOCOUPLES WERE CALIBRATED AT THE TEMPERATURES OF BOILING WATER AND MELTING TIN AND LEAD BEFORE, DURING AND AFTER EXPOSURE TO SEVERAL CYCLES OF NUCLEAR RADIATION. A TEMPORARY CALIBRATION SHIFT OF UP TO 50 MICROCURIES V WAS OBSERVED AT ALL THREE CALIBRATING TEMPERATURES PERSISTING FOR AT LEAST ONE HOUR FOLLOWING CESSATION OF EXPOSURE. COMPARISON WITH CORRESPONDING DATA FROM A PREVIOUS EXPERIMENT INDICATES THAT THE RELATIVE LOCATION OF FLUX AND TEMPERATURE GRADIENTS ALONG THE THERMOCOUPLE LEADS HAS A MAJOR INFLUENCE ON THE MAGNITUDE OF DECALIBRATION ENCOUNTERED.

*INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, TEMPERATURE + RADIATION EFFECT + THERMAL EXPERIMENT

9-33124

SEIFRITZ W + SIEGEMANN U
AN ON-LINE REACTIVITY METER BASED ON REACTOR NOISE USING TWO-DETECTOR CROSSCORRELATION
KERNFORSCHUNGSZENTRUM KARLSRUHE, GERMANY

8 PAGES, 5 FIGURES, 1 TABLE, 9 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 209-16 (MARCH 1969)

A PROTOTYPE ON-LINE REACTIVITY METER USING REACTOR NOISE ANALYSIS TECHNIQUES IS BASED ON A TWO-DETECTOR CROSSCORRELATION METHOD, WHICH OFFERS AS A SPECIAL FEATURE THE ABSENCE OF UNCORRELATED NOISE CONTRIBUTION TO THE SPECTRAL DENSITY FUNCTION OF THE REACTOR SYSTEM. REACTIVITY SHUTDOWN MEASUREMENTS WERE PERFORMED ON THREE DIFFERENT ZERO POWER REACTORS DOWN TO SEVEN DOLLARS. SPECIAL ATTENTION IS GIVEN TO THE PREDICTED AND MEASURED ERROR MARGINS OF REACTIVITY THIS ON-LINE METER, WHEN USED WITH OPTIMIZED CURRENT TYPE NEUTRON DETECTORS FOR MINIMUM GAMMA CONTAMINATION, PROMISES TO BE AN ENCOURAGING WAY OF MAKING SHUTDOWN REACTIVITY MEASUREMENTS.

*NOISE ANALYSIS + INSTRUMENT, COMPONENT + REACTIVITY EFFECT + ANALOG SIMULATION + COMPARISON, THEORY AND EXPERIENCE + MATHEMATICAL TREATMENT + *INSTRUMENT, NUCLEAR + NOISE CROSS CORRELATION

9-33125

BALOH FJ + KENNEY ES
LOCALIZATION OF IN-CORE DISTURBANCES WITH EX-CORE DETECTORS
PENNSYLVANIA STATE UNIVERSITY

6 PAGES, 8 FIGURES, 1 TABLE, 5 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 232-37 (MARCH 1969)

DETAILS A SUCCESSFUL ATTEMPT AT IDENTIFYING THE REGION OF A DISTURBANCE INSIDE A REACTOR CORE USING GAMMA-RAY DETECTORS PLACED OUTSIDE THE CORE. THIS SUCCESS WAS ACHIEVED BY EXTREMELY GOOD COLLIMATION OF THE GAMMA RAYS. THUS, TRIANGULATION WITH TWO DETECTORS DETERMINES THE REGION OF A LOCALIZED DISTURBANCE.

NOISE ANALYSIS + GAMMA + *IN CORE MEASUREMENT + INSTRUMENT, COMPONENT + INSTRUMENT, NUCLEAR + *NOISE CROSS CORRELATION + TRIGA (RR) + REACTOR, RESEARCH

9-33368

SENTYURIN IG + SKLYARENKO IS
PNEUMATIC BURETTE FOR REMOTE WORK WITH HIGHLY RADIOACTIVE SOLUTIONS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-33368 *CONTINUED*
2 PAGES, AT. ENERG. (USSR), 25, PAGES 325-6 (OCTOBER 1968)

DESCRIBES THE DESIGN AND OPERATION OF A PNEUMATIC BURETTE FOR REMOTE CONTROL MEASUREMENTS OF RADIOACTIVE MATERIALS SEPARATED INTO A LARGE NUMBER OF SAMPLES AND FOR THEIR TITRATION.

*REMOTE MANIPULATING AND VIEWING + *PNEUMATIC SYSTEM + SERVOMECHANISM + EQUIPMENT DESIGN + INSTRUMENT, CONTROL

9-33549
SCHRUFER E + REINHARDT A
LINGEN - INSTRUMENTATION AND CONTROL
AEG-TELEFUNKEN, FRANKFURT AM MAIN
4 PAGES, NUCLEAR ENGINEERING INTERNATIONAL, 13, PAGES 935-938 (NOV. 1968)

A REVIEW OF THE RANGE OF INSTRUMENTS AVAILABLE INCLUDES A DESCRIPTION OF THE THERMOELECTRIC FLUX PROBE DESIGN. OUTPUT CONTROL IS MAINTAINED THROUGH SYSTEMS OPERATING ON THE REACTOR, STEAM GENERATOR, SUPERHEATER, AND TURBINE PLANT, WHICH ARE DESCRIBED. REACTOR CONTROL IS BASED ON REGULATION OF THE RECIRCULATING FLOW, BUT, SINCE ROD CONTROL WAS PROVIDED AS A STANDBY, IT IS USED ADDITIONALLY FOR INCREASED EFFICIENCY AND WIDER RANGE CONTROL.

GERMANY + *CONTROL SYSTEM + *REACTOR CONTROL + SYSTEM DESCRIPTION + REVIEW + INSTRUMENT, CONTROL + INSTRUMENT, COMPONENT + INSTRUMENT, PROCESS + INSTRUMENT, FLOW + *INSTRUMENT, GENERAL + CONTROL ROD

9-33551
ABE Y
METHOD FOR DETECTING THE POSITION OF A CONTROL ROD IN THE SEALED VESSEL
MITSUBISHI ELECTRIC MFG. CO.
JAPANESE PATENT 1968-16438 +. JULY 10, 1968

A DEVICE FOR DETECTING THE CONTROL-ROD POSITION IN THE SEALED VESSEL CAN BE OBTAINED ECONOMICALLY. CONSISTS OF THE FOLLOWING - THE SEALED VESSEL (CONTAINING A CONTROL-ROD DRIVE ROD), A MAGNETIC-MATERIAL MEMBER (CONNECTED TO THE END OF THE DRIVE ROD THROUGH A SPRING), A SPRING (CONNECTED TO THE MEMBER IN A SERIES WITH THE OTHER SPRING), AND, COILS (LOCATED EXTERNALLY FOR DETECTING THE CONTROL-ROD POSITION BY MEANS OF THE MOVEMENT OF THE MEMBER). THE RATIO OF THE MOVEMENTS OF THE MEMBER AND THE CONTROL-ROD DRIVE ROD IS MADE, BASED ON THE RATIO OF THE CONSTANTS OF THE TWO SPRINGS.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. 20545, (\$0.30 CENTS/PAGE)

*INSTRUMENT, POSITION + CONTROL ROD PROGRAM + INSTRUMENT, COMPONENT + PATENT + JAPAN

9-33553 ALSO IN CATEGORY 5
DOUET P + ROGUIN A
DEVICE FOR MONITORING VARIATIONS OF A CHARACTERISTIC OF A FLUID IN A MATRIX OF PIPES
COMMISSARIAT A L ENERGIE ATOMIQUE
BRITISH PATENT 1,138,482 +. JANUARY 1, 1969

RADIATION MONITORING - FUEL CAN RUPTURE, DESCRIPTION OF REACTOR LATTICE-ARRANGED COOLANT-SAMPLE-PIPES FOR. REACTOR FUEL ELEMENTS - RUPTURE IN CLADDING OF, DESCRIPTION OF LATTICE-ARRANGED COOLANT-SAMPLE-PIPES WITH FISSION PRODUCT MONITORS FOR. REACTORS - FUEL CAN RUPTURE IN, DESCRIPTION OF LATTICE-ARRANGED MULTIPLE COOLANT-SAMPLE-PIPES WITH FISSION PRODUCT MONITORS FOR.

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

*INSTRUMENT, DETECTION FAILED FUEL ELEMENT + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, COMPONENT + MONITORING SYSTEM, RADIATION + FAILURE, CLADDING + FAILURE, FUEL ELEMENT + PATENT + UNITED KINGDOM + FRANCE

9-33554
IMPROVED CONTROL ROD DRIVE
DIAMOND POWER SPECIALTY CORP.
BRITISH PATENT 1,136,877 +. DECEMBER 18, 1968

REACTOR CONTROL ELEMENTS - DRIVES FOR ROD-TYPE, DESCRIPTION OF DUAL-GEAR ELECTRIC MOTOR-TRANSMISSION.

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

*CONTROL ROD DRIVE + PATENT + UNITED KINGDOM + EQUIPMENT DESIGN + UNITED STATES

9-33555
IMPROVEMENTS IN OR RELATING TO NUCLEAR REACTORS
BABCOCK AND WILCOX CO.
BRITISH PATENT 1,138,438 +. DECEMBER 4, 1968

REACTOR CONTROL ELEMENTS - DESCRIPTION OF MULTIPLE VERTICAL COOLANT FLOW-REGULATED MULTIPLE-BALL COLUMN TYPE.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-33555 *CONTINUED*

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

REACTOR CONTROL + INSTRUMENT, COMPONENT + *CONTROL SYSTEM + *REACTIVITY COEFFICIENT + PATENT + UNITED KINGDOM
+ UNITED STATES

9-33556

BONNAURE P

REACTOR CONTROL ROD DRIVE SYSTEM

EURATOM

BRITISH PATENT 1,136,118 +. DECEMBER 11, 1968

REACTOR CONTROL ELEMENTS - DRIVES FOR DUAL-PURPOSE CABLE-SUSPENDED CONTROL AND SHUTDOWN,
DESCRIPTION OF DISENGAGING LUG-DRIVE WITH ELECTRIC WOUND REEL.

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

*CONTROL ROD DRIVE + CONTROL ROD SCRAM MECHANISM + INSTRUMENT, COMPONENT + EQUIPMENT DESIGN + PATENT + UNITED
KINGDOM + FRANCE

9-33559

FORTIN M

REMOTE HANDLING DEVICE

COMMISSARIAT A L ENERGIE ATOMIQUE

BRITISH PATENT 1,136,585 +. DECEMBER 11, 1968

DESCRIBES A SMALL REMOTE-HANDLING DEVICE WHICH ENSURES ACCURATE OPERATION, PERMITS DISPLACEMENT OF
THE GRAB WITHOUT UNTIMELY OPENING, AND IS SIMPLE IN DESIGN AND OPERATION. LEAKTIGHTNESS THROUGH
A WALL IS ENSURED. THE DEVICE CONSISTS OF A CONTROLLED UNIT COUPLED TO A CONTROL MECHANISM BY A
MOTION TRANSMISSION SYSTEM WHICH PROVIDES ROTATIONAL AND TRANSLATIONAL MOVEMENT. THE DEVICE IS
USEFUL IN MANIPULATING RADIOACTIVE OBJECTS IN THE TANK OF A SWIMMING-POOL REACTOR OR IN A HOT
CELL.

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

*REMOTE MANIPULATING AND VIEWING + SERVOMECHANISM + PATENT + UNITED KINGDOM + FRANCE

9-33561

NORTH DC + LEIRVIK RM

FUEL ELEMENT-CONTROL ROD ASSEMBLY

BABCOCK AND WILCOX CO.

U.S. PATENT 3,407,115 +. OCTOBER 22, 1968

A FUEL-ELEMENT CONTROL-ROD ASSEMBLY COMPRISES A BUNDLE OF FUEL RODS EXTENDING BETWEEN AND SECURED
TO A PAIR OF GRID PLATES, WITH SPACER GRID POSITIONED BETWEEN THE GRID PLATES AND PROVIDING
LATERAL SUPPORT FOR THE FUEL RODS. STRUCTURAL RIGIDITY IS PROVIDED BY TIE RODS DISPOSED ABOUT
THE PERIPHERY AND IN THE CENTRAL PORTION OF THE BUNDLE OF FUEL RODS. FOUR T-SHAPED CONTROL ROD
CHANNELS EXTEND THROUGH THE ASSEMBLY ABOUT THE CENTER TIE ROD, WITH EACH CHANNEL BEING OCCUPIED
BY A CONTROL ROD.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. 20545 (\$0.25 CENTS/COPY)

CONTROL ROD + *FUEL ELEMENT CLUSTER + EQUIPMENT DESIGN + PATENT + UNITED STATES

9-33562

LICHTENBERGER HV

NUCLEAR REACTOR CONTROL ROD WITH GUIDE MEMBERS

COMBUSTION ENGINEERING, INC.

U.S. PATENT 3,407,117 +. OCTOBER 22, 1968

A CONTROL ROD ARRANGEMENT FOR A NUCLEAR REACTOR IS DESCRIBED, WITH THE ROD BEING COMPRISED OF
LONGITUDINALLY ARRANGED TUBES BONDED TOGETHER. INTERSPERSED AMONG THE TUBES IS A GUIDE ROD FOR
CONTACTING A GUIDE MEMBER IN THE PASSAGE IN THE CORE OF THE REACTOR WHICH IS TO RECEIVE THE
CONTROL ROD.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. 20545 (\$0.25 CENTS/COPY)

EQUIPMENT DESIGN + *CONTROL ROD + PATENT + UNITED STATES

9-33563

DE PARATESI SG + RINALDINI C

CONTROL ROD SYSTEM FOR NUCLEAR POWER EXCURSION REACTORS

EURATOM

U.S. PATENT 3,406,093 +. OCTOBER 15, 1968

DESCRIBES A CONTROL SYSTEM FOR AFFECTING BI-DIRECTIONAL VARIABLE-SPEED MOVEMENT OF CONTROL RODS IN
THE CORE OF A NUCLEAR REACTOR, ESPECIALLY ADAPTED FOR USE IN REACTORS OF THE POWER-EXCURSION TYPE.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-33563 *CONTINUED*
AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. 20545 (\$0.25 CENTS/COPY)
CONTROL SYSTEM + *CONTROL ROD DRIVE + *SYSTEM DESCRIPTION + REACTOR, FAST + PATENT + UNITED STATES

9-33721
CONTRCL ROD INSERTION SYSTEM
WESTINGHOUSE ELECTRIC CORPORATION
BRITISH PATENT 1,140,010 +. JANUARY 15, 1969

REACTOR CONTROL ELEMENTS - DRIVES FOR HETEROGENEOUS REACTOR, DESCRIPTION OF TELESCOPING TUBULAR SLEEVES WITH MULTIPLE CONCENTRIC SPRING-TYPE. REACTOR, HETEROGENEOUS - CONTROL ROD DRIVES FOR, DESCRIPTION OF TELESCOPING TUBULAR SLEEVES WITH MULTIPLE CONCENTRIC SPRING-TYPE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON W.C. 2, ENGLAND (49 CENTS/COPY)

*CONTROL ROD DRIVE + PATENT + UNITED STATES + UNITED KINGDOM

9-33814 ALSO IN CATEGORY 18
VOLUME 3 - DESCRIPTION - INSTRUMENTATION AND CONTROL
DETROIT EDISON COMPANY
50 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

DESCRIBES THE I AND C SYSTEM. SAFETY OBJECTIVE, SAFETY DESIGN BASIS, AND DESCRIPTION GIVEN FOR EACH OF THE SYSTEMS, WHICH INCLUDE REACTOR PROTECTION CONTAINMENT AND VESSEL ISOLATION CONTROL, CORE STANDBY COOLING SYSTEMS, NEUTRON MONITORING, REFUELING INTERLOCKS, REACTOR MANUAL CONTROL, VESSEL INSTRUMENTATION, FLOW CONTROL, AND PROCESS MONITOR. NUCLEAR SYSTEM STABILITY ANALYSIS IS DESCRIBED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *REACTOR DESCRIPTION + *SYSTEM DESCRIPTION + *INSTRUMENT, CONTROL + REACTOR SAFETY SYSTEM + INSTRUMENT, PROTECTIVE + SAFETY PRINCIPLES AND PHILOSOPHY + FERMI 2 (BWR)

9-34319
DITTERICK VK
THE TECHNOLOGY AND COSTS OF AUTOMATING NUCLEAR POWER STATIONS
6 PAGES, 5 FIGURES, 1 TABLE, 20 REFERENCES, ATOMWIRTSCHAFT 13(10), PAGES 503-8 (OCT. 1968)

THE POSSIBILITIES FOR INTRODUCING DIGITAL COMPUTERS INTO THE AUTOMATION OF NUCLEAR POWER STATIONS ARE CONSIDERED AND CONTRASTED WITH FUNCTION GROUP AUTOMATION. THE COMPARISON SHOWS THAT COMPUTER AUTOMATION IS THE MOST PERFECT BUT IS ALSO THE MOST COSTLY. IN WEIGHING UP THE ADVANTAGES AND DISADVANTAGES OF BOTH SYSTEMS THE PRACTICALITY EMERGES ON PURELY ECONOMIC CONSIDERATIONS OF COMBINING BOTH TECHNIQUES FOR LARGE NUCLEAR POWER STATIONS.

*INSTRUMENT, CONTROL + *ECONOMICS + COMPUTER CONTROL + REACTOR CONTROL + CONTROL SYSTEM

9-34321 ALSO IN CATEGORY 15
RADIATION MEASURING DEVICE - RAY ALERT
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH, SERVICE, WASHINGTON
HEW-287 +. 5 PAGES, MAY 14, 1969

THE RAY-ALERT IS SCIENTIFICALLY SOUND AS A DEVICE FOR MEASURING EXPOSURE WHICH MAY RESULT FROM X-RADIATION FROM THE FRONT OF A TELEVISION RECEIVER PICTURE, BUT A SINGLE DEVICE OF SUCH SMALL SIZE CANNOT BE USED IN MAKING THE COMPLETE SURVEY WHICH MUST BE MADE OF EACH SURFACE OF A TV SET BEFORE IT CAN BE DETERMINED WHETHER THAT RECEIVER IS EMITTING X-RAYS ABOVE THE RECOMMENDED MAXIMUM FOR PERSONNEL SAFETY.

*INSTRUMENT, RADIATION MONITORING + MONITOR, AREA + X-RAY + *RADIATION, PUBLIC EDUCATION + *PERSONNEL EXPOSURE, RADIATION

9-34357 ALSO IN CATEGORY 6
DIERCKX R + HAGE W + HETTINGER H + LIGOU J + MARTINET M
REACTIVITY CALIBRATIONS BY ANALOG AND DIGITAL METHODS USED DURING ESSOR ZERO POWER EXPERIMENTS EURATOM
5 PAGES, ATOMKERNENERGIE 14, PAGES 17-21 (JAN.-FEB. 1969)

CONTROL ROD CALIBRATIONS PERFORMED WITH AN ANALOG AND DIGITAL METHOD ARE DESCRIBED. THE OBTAINED EXPERIMENTAL REACTIVITY VALUES ARE COMPARED WITH THEORETICAL CALCULATIONS.

COMPUTER PROGRAM + *COMPUTER, ANALOG + *COMPUTER, DIGITAL + COMPUTER CONTROL + THEORETICAL INVESTIGATION + *REACTOR CONTROL + *REACTIVITY EFFECT

9-34384 ALSO IN CATEGORY 6
SEIFRITZ W + STEGEMANN D + VATH W

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34384 *CONTINUED*

TWO-DETECTOR CROSS-CORRELATION EXPERIMENTS IN THE FAST-THERMAL ARGONAUT REACTOR (STARK)
INSTITUT FUR NEUTRONENPHYSIK UND REAKTORTECHNIK
22 PAGES, 9 FIGURES, 2 TABLES, 7 REFERENCES, PAGES 195-216 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

POWER AND CROSS-SPECTRAL-DENSITY MEASUREMENTS WERE MADE IN THE EXTERNALLY UNPERTURBED FAST-THERMAL ARGONAUT REACTOR (STARK) WITH THE USE OF THE FREQUENCY ANALYSIS OF NOISE TECHNIQUE. THEORETICAL CONSIDERATIONS SHOWED THE ADVANTAGE OF TWO-DETECTOR CROSS-CORRELATION EXPERIMENTS OVER SINGLE-DETECTOR AUTOCORRELATION EXPERIMENTS BECAUSE THE CONTRIBUTION OF UNCORRELATED NOISE IS ELIMINATED IN THE OUTPUT SIGNAL. THIS WAS VERIFIED EXPERIMENTALLY.

*NOISE ANALYSIS + REACTOR, FAST + REACTOR, THERMAL + MEASUREMENT, NOISE + ARGONAUT (TNG) + TRANSFER FUNCTION + INSTRUMENT, COMPONENT + NOISE CROSS CORRELATION + *COMPARISON, THEORY AND EXPERIENCE + FREQUENCY SPECTRA + REACTOR, TRAINING + *NOISE ANALYSIS

9-34385 ALSO IN CATEGORY 6

NOMURA T + GOTOH S + YAMAKI K
REACTIVITY MEASUREMENTS BY THE TWO-DETECTOR CROSS-CORRELATION METHOD AND SUPERCRITICAL-REACTOR NOISE ANALYSIS
NIPPON ATOMIC IND. GROUP CO., LTD., TOKYO, JAPAN
30 PAGES, 28 FIGURES, 3 TABLES, 34 REFERENCES, PAGES 217-46 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

EXPERIMENTS WERE PERFORMED ON THE TOSHIBA TRAINING REACTOR, A SWIMMING-POOL TYPE, TO MEASURE THE PROMPT-NEUTRON DECAY CONSTANTS BY NATURAL NEUTRON NOISE ANALYSIS AT SUBCRITICAL, CRITICAL, AND SUPERCRITICAL STATES. A TWO-DETECTOR CROSS-CORRELATION METHOD WAS DEVELOPED THAT USES BAND PASS FILTERS TO ELIMINATE CHAMBER NOISE COMPONENT.

*NOISE ANALYSIS + MEASUREMENT, NOISE + COMPARISON, THEORY AND EXPERIENCE + REACTOR, POOL TYPE + INSTRUMENT, COMPONENT + *REACTIVITY EFFECT + *PROMPT NEUTRON + TRANSFER FUNCTION + NOISE CROSS CORRELATION

9-34386 ALSO IN CATEGORY 6

JOHNSON JA
MEASUREMENT OF PRESSURE-TO-PRESSURE TRANSFER FUNCTIONS THROUGH THE PHOEBUS-1A NUCLEAR REACTOR
UNIVERSITY OF CALIFORNIA, LOS ALAMOS SCIENTIFIC LABORATORY
14 PAGES, 13 FIGURES, 1 TABLE, 3 REFERENCES, PAGES 271-84 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PURPOSE OF THIS EXPERIMENT WAS TO OBTAIN DYNAMIC RESPONSE MEASUREMENTS OF COOLANT PRESSURE FROM THE NOZZLE INLET PLENUM TO THE CORE EXIT PLENUM. THE PRESSURE-TO-PRESSURE TRANSFER FUNCTIONS OF THE NOZZLE COOLANT TUBES, THE REFLECTOR AND THE CORE WERE OBTAINED OVER A LIMITED RANGE OF FREQUENCIES DURING THE SAME EXPERIMENT. THE RESULTS WERE EXCELLENT AND ESSENTIALLY IN AGREEMENT WITH THE PREDICTIONS.

REACTOR DYNAMICS + *PRESSURE TRANSIENT + *REACTOR COOLANT + TRANSFER FUNCTION + *COMPARISON, THEORY AND EXPERIENCE

9-34387 ALSO IN CATEGORY 6

WASSERMAN AA + STEINER GH + BODENSCHATZ CA + HONKA EK
NERVA REACTOR TRANSFER-FUNCTION MEASUREMENTS WITH CROSS-CORRELATION TECHNIQUES
WESTINGHOUSE ASTRONUCLEAR LABORATORY
30 PAGES, 11 FIGURES, 4 TABLES, 17 REFERENCES, PAGES 285-314 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

SYSTEM TRANSFER FUNCTIONS OF SEVERAL REACTOR PROTOTYPES FOR THE NUCLEAR ENGINE FOR ROCKET VEHICLE APPLICATION WERE MEASURED BY MEANS OF NOISE TECHNIQUES. THE PURPOSE OF THE MEASUREMENTS WAS TO PROVIDE DATA FOR VALIDATION OF DYNAMIC MODELS OF THE SYSTEM AND TO FACILITATE CONTROL SYSTEM DESIGN.

REACTOR CONTROL + *TRANSFER FUNCTION + *NERVA PROGRAM + NOISE ANALYSIS + NRX (TR) + COMPARISON, THEORY AND EXPERIENCE + DATA PROCESSING + NOISE CROSS CORRELATION + REACTOR, TEST + REACTOR, HWR + REACTOR, PRESSURE TUBE + CANADA

9-34388 ALSO IN CATEGORY 6

UHRIG RE + OHANIAN MJ
PSEUDORANDOM PULSING OF SUBCRITICAL SYSTEMS
UNIVERSITY OF FLORIDA, GAINESVILLE
18 PAGES, 9 FIGURES, 12 REFERENCES, PAGES 315-32 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PSEUDORANDOM NEUTRON-SOURCE EXCITATION METHOD AS APPLIED TO SUBCRITICAL SYSTEMS IS DESCRIBED, WITH EMPHASIS ON INSTRUMENTATION AND DATA-ACQUISITION AND ANALYSIS TECHNIQUES. RESULTS OBTAINED FOR ROSSI-ALPHA AND PULSE-PROPAGATION MEASUREMENTS ON THE UNIVERSITY OF FLORIDA ACCELERATOR PULSED ASSEMBLY ARE GIVEN, AND THE DIFFICULTIES IN USING THE METHOD FOR SUCH MEASUREMENTS ARE DISCUSSED.

*NOISE ANALYSIS + TESTING + DATA PROCESSING + ROSSI ALPHA + MEASUREMENT, NOISE + *PULSED NEUTRON TECHNIQUE + NOISE CROSS CORRELATION + COMPARISON, THEORY AND EXPERIENCE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34389 ALSO IN CATEGORY 6
MEYER P + GARELIS E
USE OF A PSEUDORANDOM SOURCE INPUT IN THE MEASUREMENT OF IMPULSE-RESPONSE FUNCTIONS
GENERAL ELECTRIC, PLEASANTON, CALIFORNIA
10 PAGES, 5 FIGURES, 4 REFERENCES, PAGES 333-42 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE PSEUDORANDOM-IMPULSE-RESPONSE METHOD, IN WHICH A PSEUDORANDOM NEUTRON-SOURCE INPUT IS USED AND
CROSS CORRELATION BETWEEN THE SOURCE INPUT AND THE REACTOR OUTPUT IS MADE, COMPARED WITH THE
PULSED NEUTRON METHOD. IDENTICAL RESULTS FOR THE PROMPT DECAY CONSTANT WERE OBTAINED. A NOVEL
DIGITAL DATA-ACQUISITION SYSTEM FOR THE PSEUDORANDOM METHOD IS DESCRIBED.

NOISE ANALYSIS + *NOISE CROSS CORRELATION + PULSED NEUTRON TECHNIQUE

9-34390 ALSO IN CATEGORY 6
RANDALL RL + PEKRUL PJ
APPLICATIONS OF ANALOG TIME AND FREQUENCY CORRELATION COMPUTERS TO REACTOR-SYSTEM
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
24 PAGES, 14 FIGURES, 14 REFERENCES, PAGES 357-80 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

ANALYSIS TECHNIQUES OF ANALOG-CROSS SPECTRAL DENSITY AND ANALOG CROSS CORRELATION ARE APPLIED TO
PRACTICAL PROBLEMS IN REACTOR DESIGN AND PERFORMANCE EVALUATION. CROSS-SPECTRAL-DENSITY
TECHNIQUES AND EQUIPMENT ARE DESCRIBED FOR EXPERIMENTAL DETERMINATION OF A NUMBER OF FEEDBACK
COEFFICIENTS VITAL TO REACTOR STABILITY AND CONTROL. CROSS-CORRELATION TECHNIQUES, TRANSDUCER
DEVELOPMENTS, AND CORRELATION EQUIPMENT ARE DESCRIBED FOR MEASUREMENT OF LOCALIZED IN-CORE
COOLANT VELOCITY AND FUEL-ELEMENT STRUCTURAL VIBRATIONS.

TESTING + ANALYTICAL MODEL + *ANALOG SIMULATION + NOISE CROSS CORRELATION + REACTOR CONTROL + REACTOR
STABILITY + *DATA PROCESSING + SNAP 8 (SRI) + SRE (RE) + FLOW CORRELATION + REACTOR, SPACE + REACTOR, LMC +
REACTOR, GRAPHITE MODERATED

9-34391 ALSO IN CATEGORY 6
ALBRECHT RW + HESS GM
REACTOR NOISE EXPERIMENTS IN REFLECTED PLUTONIUM ASSEMBLIES
UNIVERSITY OF WASHINGTON, SEATTLE + BATTELLE MEMORIAL INSTITUTE, RICHLAND
18 PAGES, 12 FIGURES, 13 REFERENCES, PAGES 381-98 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE MOTIVATION FOR PERFORMING DYNAMIC MEASUREMENTS IS EXAMINED, AND PRELIMINARY EXPERIMENTAL
RESULTS ARE COMPARED WITH CALCULATIONS AND SHOWN TO EXHIBIT SIMILAR TRENDS.

*NOISE ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + EXPERIMENT, GENERAL + *MEASUREMENT, NOISE + PLUTONIUM

9-34392 ALSO IN CATEGORY 6
KENNEY ES
NOISE ANALYSIS OF NUCLEAR REACTORS WITH THE USE OF GAMMA RADIATION
PENNSYLVANIA STATE UNIVERSITY
13 PAGES, 8 FIGURES, 9 REFERENCES, PAGES 399-411 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE POSSIBILITY OF USING GAMMA RADIATION IN NUCLEAR REACTOR NOISE ANALYSIS WAS INVESTIGATED. THE
DELAYED GAMMA RAYS WERE FOUND TO HAVE A READILY UNDERSTANDABLE EFFECT ON THE MEASUREMENTS, AND
THUS REACTOR OSCILLATOR TECHNIQUES COULD BE USED TO STUDY THE GAMMA-RAY TIME BEHAVIOR.

*NOISE ANALYSIS + *GAMMA + MEASUREMENT, NOISE + REACTOR DYNAMICS + TRANSFER FUNCTION + COMPARISON, THEORY AND
EXPERIENCE

9-34393 ALSO IN CATEGORY 6
SCHULTZ MA
MEASUREMENT OF SHUTDOWN REACTIVITY IN LARGE GAMMA FIELDS
MILLETTON, INC., EAST IRWIN, PA.
26 PAGES, 16 FIGURES, 2 REFERENCES, PAGES 413-38 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

THE CONVENTIONAL NARROW-BAND AND WIDE-BAND METHODS OF MEASURING NEUTRONS IN THE PRESENCE OF GAMMA
FIELDS ARE DESCRIBED, AND A NEW VARIATION OF THE WIDEBAND METHOD WITH THE USE OF MULTIPLE
DETECTOR TUBES IS PRESENTED. TESTS WERE RUN WITH THIS METHOD AT THE PENNSYLVANIA STATE
UNIVERSITY REACTOR.

NOISE ANALYSIS + *MEASUREMENT, REACTIVITY + NEUTRON + GAMMA + COMPARISON, THEORY AND EXPERIENCE + COUNTER +
INSTRUMENT, COMPONENT + TRANSFER FUNCTION

9-34394 ALSO IN CATEGORY 6
KATAOKA H + KUBO M
IDENTIFICATION OF TRANSFER FUNCTION OF REACTOR CONTROL SYSTEM BY NOISE ANALYSIS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34394 *CONTINUED*

SOPHIA UNIVERSITY + TOKYO SHIBAURA ELEC. CO., LTD.
15 PAGES, 10 FIGURES, 17 REFERENCES, PAGES 439-53 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

GIVES A METHOD FOR THE IDENTIFICATION OF CHARACTERISTICS OF THE CONTROL SYSTEM OF NUCLEAR
REACTORS. THE CHARACTERISTICS OF THREE TYPES OF JAPANESE REACTORS ARE ANALYZED BY THE NEUTRON-
NOISE-ANALYSIS METHOD.

*NOISE ANALYSIS + TRANSFER FUNCTION + REACTOR CONTROL + CONTROL SYSTEM + MEASUREMENT, NOISE + REACTOR, POWER +
*NEUTRON + NOISE CROSS CORRELATION

9-34395 ALSO IN CATEGORY 6

YAMADA S + KAGE H
REACTOR NOISE CAUSED BY COOLANT-FLOW FLUCTUATION
HITACHI CENTRAL RESEARCH LABORATORY, TOKYO, JAPAN
8 PAGES, 9 FIGURES, 5 REFERENCES, PAGES 455-62 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

IN THE MEASUREMENTS OF REACTOR POWER SPECTRAL DENSITY AT VARIOUS POWER LEVELS ON THE HITACHI
TRAINING REACTOR (SWIMMING-POOL TYPE) SOME RESONANCE PEAKS WERE FOUND IN THE LOW-FREQUENCY REGION
IN THE FORCED-CIRCULATION RESPONSE. FROM MEASUREMENTS OF THE POWER SPECTRAL DENSITIES OF REACTOR
NOISE AND COOLANT-FLOW FLUCTUATION AND MEASUREMENTS OF THE TRANSFER FUNCTION BY THE ROD-
OSCILLATION METHOD, IT WAS FOUND THAT THE RESONANCE PEAKS ARE DUE TO THE REACTIVITY CHANGE CAUSED
BY THE MOVEMENT OF THE CONTROL RODS, WHICH ARE DRIVEN BY COOLANT-FLOW FLUCTUATION.

*NOISE ANALYSIS + MEASUREMENT, NOISE + COOLING, GENERAL + *FLOW, GENERAL + REACTOR, TRAINING + REACTOR, POOL
TYPE + REACTOR POWER + FLUCTUATION

9-34396 ALSO IN CATEGORY 6

SAXE RF
THE ACOUSTIC CHARACTERISTICS OF THE OAK RIDGE REACTOR
NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA
11 PAGES, 3 FIGURES, 6 REFERENCES, PAGES 475-85 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION, MAY 1967,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

STUDIED THE BACKGROUND ACOUSTICAL RADIATIONS FROM THE OAK RIDGE RESEARCH REACTOR AND FOUND THAT
THESE VARIATIONS ARE FLOW-DEPENDENT BUT NOT FLUX-DEPENDENT. HOWEVER, FLOW-INDUCED CAVITATION
COULD CAUSE FLUX MODULATION THROUGH THE NUCLEAR VOID-COEFFICIENT COUPLING.

*NOISE ANALYSIS + NUCLEATE BOILING + INSTRUMENT, COMPONENT + VOID COEFFICIENT + BUBBLE NUCLEATION + ACOUSTICS
+ REACTOR, TEST + REACTOR, AEC OWNED + ORR (RR)

9-34397 ALSO IN CATEGORY 6

SOME APPLICATIONS OF DYNAMIC (NOISE) MEASUREMENTS IN PRESSURIZED-WATER-REACTOR NUCLEAR POWER PLANTS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.
15 PAGES, 5 FIGURES, 2 TABLES, 11 REFERENCES, PAGES 487-501 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION,
MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

STUDIED INHERENT NOISE FLUCTUATIONS, RESPONSE TO FORCED RANDOM AND SINUSOIDAL AND STEP VARIATIONS
IN REACTIVITY. RESULTS DEMONSTRATED THAT (1) SIGNIFICANT SEMI QUANTITATIVE INFORMATION ON THE
PROCESS CAN BE OBTAINED FROM POWER-SPECTRAL-DENSITY ANALYSIS OF INHERENT FLUCTUATIONS AND (2)
CROSS-SPECTRAL-DENSITY TECHNIQUES PERMIT FREQUENCY-RESPONSE MEASUREMENTS AND SYSTEM-PARAMETER
DETERMINATION IN COMMERCIAL NUCLEAR PLANTS

*NOISE ANALYSIS + REACTOR, PWR + MEASUREMENT, NOISE + *REACTOR DYNAMICS + SAXTON (PWR) + CVTR (PWR) + YANKEE
(PWR) + *REACTOR CONTROL + REACTOR, PRESSURE TUBE

9-34398 ALSO IN CATEGORY 6

CHRISTENSEN H + BABALA D + BERGEM T + JOVANOVIĆ S + STORMARK E + SUWALSKI W
A REVIEW OF NORA PROJECT NOISE EXPERIMENTS
INSTITUT FOR ATOMENERGI, KJELLER, NORWAY
28 PAGES, 15 FIGURES, 10 TABLES, 16 REFERENCES, PAGES 503-530 OF NEUTRON NOISE, WAVES, AND PULSE PROPAGATION,
MAY 1967, PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

INTRODUCTORY MEASUREMENTS IN 1963 IN CORES MODERATED BY A MIXTURE OF H₂O AND D₂O GAVE INDICATIONS
OF SPATIAL EFFECTS AND OF AN INADEQUACY OF THE ROSSI-ALPHA THEORY. IN LATER MEASUREMENTS OF AN
H₂O-MODERATED CORE, THESE EFFECTS WERE EXPLORED FURTHER. SEVERAL DIFFERENT TECHNIQUES (ROSS-
ALPHA, FEYNMAN, POWER SPECTRAL DENSITY, AND OSCILLATOR) HAVE BEEN USED TO MEASURE THE BASIC
KINETIC PARAMETERS FOR THE SAME CORE. RESULTS ARE TABULATED AND COMPARED.

*NOISE ANALYSIS + *REVIEW + ROSSI ALPHA + REACTOR KINETICS + COMPARISON, THEORY AND EXPERIENCE + COMPARISON,
REACTOR CHARACTERISTICS + MEASUREMENT, NOISE

9-34399 ALSO IN CATEGORY 6

DRAGT JB
ANALYSIS OF REACTOR NOISE MEASURED IN A ZERO-POWER REACTOR AND CALCULATIONS ON ITS ACCURACY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34399 *CONTINUED*
REACTOR CENTRUM NEDERLAND, PETTEN, THE NETHERLANDS
31 PAGES, 4 FIGURES, 2 TABLES, 12 REFERENCES, PAGES 591-621 OF NEUTRON NOISE WAVES, AND PULSE PROPAGATION,
PROCEEDINGS OF A SYMPOSIUM AT THE UNIVERSITY OF FLORIDA, GAINESVILLE, FEBRUARY 14-16, 1966

DESCRIBES NOISE EXPERIMENTS AS THEY ARE PERFORMED IN THE LOW-FLUX REACTOR AT PETTEN. SOME RESULTS ARE PRESENTED. THE MAIN EMPHASIS IS ON ANALYSIS AND ITS ACCURACY RATHER THAN ON PHYSICAL INTERPRETATION OF THE RESULTS. INFORMATION AND EXPERIENCE ABOUT THE POLARITY CORRELATION TECHNIQUES ARE GIVEN. NO NEW METHODS OR RESULTS ARE PRESENTED, BUT THE DATA ARE INCLUDED TO DRAW ATTENTION TO A TECHNIQUE THAT SEEMS TO BE NOT SUFFICIENTLY WELL KNOWN. CALCULATIONS ON THE ACCURACY THAT CAN BE OBTAINED THEORETICALLY FOR REACTOR PARAMETERS ESTIMATED FROM THE NOISE ALSO ARE INCLUDED.

*NOISE ANALYSIS + *NETHERLANDS + REACTOR, POWER + *COMPARISON, THEORY AND EXPERIENCE + MEASUREMENT, NOISE + TRANSFER FUNCTION + NOISE CROSS CORRELATION

9-34435
BREIPOHL AM + MCCORMICK WC
BAYESIAN ESTIMATION OF TIME-VARYING RELIABILITY
OKLAHOMA STATE UNIVERSITY + U.S. AIR FORCE
5 PAGES, 8 REFERENCES, PAGES 347-51 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(4), PAGE 59 (APRIL 1969)

DESCRIPTION OF HOW THE BAYES RULE TOGETHER WITH AN ENGINEERING MODEL CAN BE USED TO ESTIMATE RELIABILITY WHEN THE RELIABILITY CHANGES WITH TIME. DISCUSSES THE RESULTS OF APPLYING THE METHOD.

*RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT + RELIABILITY, SYSTEM + *THEORETICAL INVESTIGATION

9-34436
MACFARLAND WJ
USE OF BAYES THEOREM IN ITS DISCRETE FORMULATION FOR RELIABILITY ESTIMATION
GENERAL ELECTRIC, SCHENECTADY, N.Y.
14 PAGES, 4 REFERENCES, PAGES 352-65 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(4), PAGE 60 (APRIL 1969)

INTRODUCTION TO THE BAYES THEOREM (WHICH IS MERELY A SIMPLE EXPRESSION FOR THE HANDLING OF CONDITIONAL PROBABILITIES), WITH DISCUSSION OF ITS USE IN ITS DISCRETE FORMULATION FOR RELIABILITY ESTIMATION PURPOSES. THE NEED FOR AN INCLUSIVE PRIOR DISTRIBUTION IS EXPLAINED, AND THE THREE BASIC TYPES OF BAYESIAN INFERENCE SITUATIONS ARE STUDIED.

*RELIABILITY ANALYSIS + *PROBABILITY + REVIEW + MATHEMATICAL TREATMENT

9-34437
OLSSON JE
IMPLEMENTATION OF BAYESIAN RELIABILITY MEASUREMENT PROGRAM
GENERAL ELECTRIC CO., PHILADELPHIA, PA.
7 PAGES, 2 REFERENCES, PP. 372-379 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 61 (APRIL 1969)

RESULTS OF STUDIES OF THE ESTABLISHMENT OF A BAYESIAN RELIABILITY MEASUREMENT PROGRAM. THE BAYES THEOREM AND SOME OF THE VARIOUS STATISTICAL MODELS THAT WERE FORMULATED ON THE BASIS OF THE THEOREM ARE REVIEWED. THE CODING OF SUBJECTIVE KNOWLEDGE ON HARDWARE BEFORE TESTING COMMENCES IS DISCUSSED. THE IMPLEMENTATION OF A BAYESIAN RELIABILITY MEASUREMENT PROGRAM ON A TYPICAL SUBSYSTEM IS DESCRIBED. THERE IS CONSIDERABLE REASON, IT IS BELIEVED, FOR CONTINUING THIS AND OTHER TRIAL APPLICATIONS OF A BAYESIAN RELIABILITY MEASUREMENT PROGRAM.

*RELIABILITY ANALYSIS + *MEASUREMENT, GENERAL + STATISTICAL ANALYSIS + *THEORETICAL INVESTIGATION + RELIABILITY, SYSTEM

9-34438
BRENDER DM
THE PREDICTION AND MEASUREMENT OF SYSTEM AVAILABILITY - A BAYESIAN TREATMENT
12 PAGES, 21 REFERENCES, IEEE TRANS. ON RELIABILITY, VOL. R-17, PAGES 127-38 (SEPT. 1968), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 62 (APRIL 1969)

DESCRIPTION OF A BAYESIAN-ORIENTED METHODOLOGY FOR (1) PREDICTING THE AVAILABILITY OF A PROJECTED SYSTEM, AND (2) MEASURING THE AVAILABILITY OF AN EXISTING SYSTEM. THE APPROACH FOLLOWED IS TO START WITH FAMILIAR AVAILABILITY EXPRESSIONS CONTAINING PARAMETERS OF UNCERTAIN VALUE, AND EVOLVE POINT AND INTERVAL ESTIMATES FOR THESE AVAILABILITY EXPRESSIONS WHICH TAKE INTO ACCOUNT THE INFORMATION GAINED, INITIALLY, FROM AN ANALYSIS OF THE SYSTEM, AND LATER, FROM A TEST OF THE SYSTEM. THE RESULTS OBTAINED FOR MEASURING THE STEADY-STATE POINT AVAILABILITY PROVIDE THE BASIS FOR HANDLING EXPRESSIONS ASSOCIATED WITH MORE COMPLICATED AVAILABILITY DEFINITIONS, SUCH AS THAT OF TRANSIENT AVAILABILITY, MISSION AVAILABILITY, AND OTHERS.

RELIABILITY ANALYSIS + MEASUREMENT, GENERAL + THEORETICAL INVESTIGATION + PROBABILITY + MATHEMATICAL TREATMENT + *RELIABILITY, SYSTEM

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34439

TILLMAN FA + HWANG CL + SAN LT + BALLALE S
SYSTEMS RELIABILITY SUBJECT TO MULTIPLE NONLINEAR CONSTRAINTS
KANSAS STATE UNIVERSITY
5 PAGES, IEEE TRANS. ON RELIABILITY, VOL. R-17, PAGES 153-57 (SEPT. 1968), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 63 (APRIL 1969)

A SIMPLE COMPUTATIONAL PROCEDURE HAS BEEN DEVELOPED FOR MAXIMIZING RELIABILITY OF MULTISTAGE PARALLEL SYSTEMS SUBJECT TO MULTIPLE NONLINEAR CONSTRAINTS. IT APPEARS THAT THE PROCEDURE CAN BE APPLIED TO A VARIETY OF OPTIMIZATION PROBLEMS WITH SEPARABLE OBJECTIVE AND MULTIPLE CONSTRAINT FUNCTIONS.

*RELIABILITY, SYSTEM + MATHEMATICAL TREATMENT + INSTRUMENT, GENERAL + PROCEDURES AND MANUALS

9-34440

MINE H + OSAKI S + ASAKURA T
SOME CONSIDERATIONS FOR MULTIPLE-UNIT REDUNDANT SYSTEMS WITH GENERALIZED REPAIR TIME DISTRIBUTIONS
KYOTO UNIVERSITY, JAPAN
7 PAGES, 3 REFERENCES, IEEE TRANS. ON RELIABILITY, VOL. R-17, PAGES 170-76 (SEPTEMBER 1968), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 64 (APRIL 1969)

THE MEAN TIME TO SYSTEM FAILURE (MTSF) FOR A 2-OUT-OF-N SYSTEM WITH REPAIR IS INTUITIVELY DERIVED. THE IMPROVEMENT FACTOR, THE RATIO OF THE MTSF FOR A 2-OUT-OF-N SYSTEM WITH REPAIR TO THAT SYSTEM WITH REPAIR, IS EVALUATED AND ITS SYMPTOTIC BEHAVIOR IS STUDIED. TABLES ARE GIVEN FOR THE IMPROVEMENT FACTOR FOR THE IMPROVEMENT FACTOR FOR 2-OUT-OF-3, 3-OUT-OF-3, AND 3-OUT-OF-4 SYSTEMS.

*RELIABILITY, SYSTEM + *REDUNDANCE + MAINTENANCE AND REPAIR + FAILURE, GENERAL

9-34441

NEWMAN DJ + WEISSBLUM WE
EXPECTATIONS IN CERTAIN RELIABILITY PROBLEMS
YESHIVA UNIVERSITY + AVCO MFG. CORP.
4 PAGES, 1 REFERENCE, SIAM REVIEW, 9, PAGES 744-47 (OCT. 1967), ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 66 (MAY-JUNE 1969)

BASED ON A KNOWLEDGE OF THE FAILURE RATE OF ITS PARTS, THE EXPECTED LIFETIME OF A MACHINE MADE UP OF SEVERAL PARTS IS ESTIMATED. THE MACHINE CONTINUES TO FUNCTION UNTIL ANY ONE OF ITS COMPONENTS BREAKS DOWN, AND A COMPONENT BREAKS DOWN WHEN ALL ITS PARTS DO. AN ANALOGY IS MADE WITH THE CLASSICAL PROBLEM OF BALLS IN URNS. COMPUTATION IS GIVEN FOR TWO SITUATIONS - ONE WHEN REPLACEMENTS ARE ALLOWED, THE OTHER WHEN THEY ARE NOT. THE MACHINE LIFETIME IS ESTABLISHED AS THE RANDOM VARIABLE MINIMUM.

*RELIABILITY, COMPONENT + FAILURE, GENERAL + MATHEMATICAL TREATMENT + *PROBABILITY

9-34442

MILLER CO
HAZARD ANALYSIS AND IDENTIFICATION IN SYSTEM SAFETY ENGINEERING
SOUTHERN CALIFORNIA UNIVERSITY
8 PAGES, 23 REFERENCES, PAGES 336-43 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 67 (APRIL 1969)

EXAMINATION OF THE HAZARD ANALYSIS METHODOLOGY SPECTRUM, FOLLOWED BY REVIEW OF HAZARD IDENTIFICATION CONCEPTS. THE RESULT IS AN ATTEMPT TO FURTHER DELINEATE THE PRINCIPAL SYSTEM SAFETY CONTRIBUTION DURING THE DESIGN PROCESS. VIEWING THE SYSTEM SAFETY LIFE CYCLE IN TOTO (A PRECEPT THAT SHOULD CONTINUALLY BE OBSERVED BY SAFETY SPECIALISTS), FIVE BASIC TYPES OF HAZARD ANALYSES ARE PROPOSED AND DISCUSSED - PRELIMINARY HAZARD ANALYSIS (PHA), HAZARD MODE AND EFFECTS ANALYSES (HMEA), HAZARD INTEGRATION ANALYSIS (HIA), JOB HAZARD ANALYSIS (JHA), AND ACCIDENT/INCIDENT ANALYSIS (AIA).

*RELIABILITY, SYSTEM + DESIGN STUDY + *HAZARDS ANALYSIS + SAFETY PRINCIPLES AND PHILOSOPHY

9-34443

ALSO IN CATEGORIES 5 AND 11
FORRESTER ER + THEVENOV VH
DESIGNING FOR EXPECTED FATIGUE LIFE
GENERAL MOTORS
9 PAGES, 21 REFERENCES, PP. 511-19 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 68 (APRIL 1969)

DISCUSSION OF SOME OF THE PROCESSING AND OPERATIONAL FACTORS WHICH REDUCE FATIGUE STRENGTH. EMPHASIS IS PLACED ON THE FINITE FATIGUE LIFE REGION, OFTEN CALLED LOW-CYCLE FATIGUE, BECAUSE IN MANY LIGHTWEIGHT, HIGH-PERFORMANCE SYSTEMS, HARDWARE CANNOT BE DESIGNED FOR INFINITE LIFE. AN APPROACH FOR ESTIMATING THE PROBABILITY OF FATIGUE FAILURE ON THE BASIS OF THE SCATTER INHERENT IN MATERIAL PROPERTIES AND FATIGUE LIFE IS DESCRIBED.

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *FAILURE, FATIGUE + OPERATING EXPERIENCE + PROBABILITY

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34444
KECECIOGLU D + HAUGEN EB
A UNIFIED LOOK AT DESIGN SAFETY FACTORS, SAFETY MARGINS, AND MEASURES OF RELIABILITY
UNIVERSITY OF ARIZONA
11 PAGES, 23 REFERENCES, PAGES 520-30 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1969, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 68 (APRIL 1969)

THE VARIOUS DEFINITIONS OF SAFETY FACTORS AND SAFETY MARGINS ARE ANALYZED AND RELATED TO THE FAILURE GOVERNING STRESS AND STRENGTH DISTRIBUTIONS AND THEIR PARAMETERS. THE FUNDAMENTAL DEFINITION OF RELIABILITY IS PRESENTED AND FORMULATED VARIOUSLY. METHODS OF INCORPORATING THE SAFETY FACTOR, OR THE SAFETY MARGIN, INTO THE FORMULATION OF RELIABILITY ARE EXPOUNDED UPON, AND UNIFICATION OF THE VARIOUS CONCEPTS OF SAFETY FACTOR, SAFETY MARGIN, AND RELIABILITY IS ACHIEVED. THE VARIOUS UNIFICATIONS ARE GRAPHICALLY ILLUSTRATED, TO ENABLE THE ENGINEER TO DETERMINE THE RELIABILITY, THE SAFETY FACTOR, AND THE SAFETY MARGIN HE IS DESIGNING INTO A COMPONENT, KNOWING THE PARAMETERS OF THE FAILURE GOVERNING STRESS AND STRENGTH DISTRIBUTIONS INVOLVED.

SAFETY ANALYSIS + SAFETY MARGIN + *RELIABILITY ANALYSIS + DESIGN STUDY + *SAFETY PRINCIPLES AND PHILOSOPHY

9-34445
SRINIVASAN VS
A STANDBY REDUNDANT MODEL WITH NONINSTANTANEOUS SWITCHOVER
4 PAGES, 4 REFERENCES, IEEE TRANSACTION ON RELIABILITY, R-17, PAGES 175-78 (SEPTEMBER 1968). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(4), PAGE 70 (APRIL 1969)

THE CASE OF A STANDBY REDUNDANT SYSTEM, IS CONSIDERED WHERE THE SWITCHOVER IS NOT INSTANTANEOUS. THE DURATION OF TIME BETWEEN THE INSTANT AT WHICH ACTION IS INITIATED ON THE STANDBY SUBSYSTEM IN ORDER TO BRING IT TO THE ACTIVE STATE AND THE INSTANT AT WHICH IT BECOMES OPERATING STANDBY IS CALLED SWITCHOVER TIME, AND IS CONSIDERED TO BE A RANDOM VARIABLE. A POLICY SPECIFYING THE INSTANT AT WHICH ACTION IS INITIATED ON THE STANDBY SUBSYSTEM IN ORDER TO BRING IT TO THE OPERATING STANDBY STATE IS PROPOSED AND UNDER THE PROPOSED POLICY, THE LAPLACE TRANSFORM OF THE PROBABILITY DENSITY FUNCTION OF TIME TO SYSTEM FAILURE AND THE EXPRESSION FOR EXPECTED TIME TO SYSTEM FAILURE ARE DERIVED.

*REDUNDANCE + TRANSFER FUNCTION + PROBABILITY + FAILURE, GENERAL + *RELIABILITY, SYSTEM

9-34446
JENNY JA
OPTIMUM REDUNDANCY USING LOSS FUNCTIONS
STANFORD UNIVERSITY
2 PAGES, IEEE TRANSACTION ON RELIABILITY, VOL. R-17, PAGES 181-82 (SEPTEMBER 1968). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(4), PAGE 70 (APRIL 1969)

A TECHNIQUE FOR SYNTHESIZING RELIABLE SYSTEMS USING PARALLEL REDUNDANCY AT THE SUBSYSTEM LEVEL IS DESCRIBED. THE SPECIFICATION OF A LOSS FUNCTION ALLOWS THE CALCULATION OF THE AVERAGE EXPECTED REDUNDANCY FOR A GIVEN APPLICATION. THIS OPTIMUM IS STATISTICAL AND THEREFORE APPLICABLE ONLY WHEN THE MISSION IS PERFORMED MANY TIMES.

*RELIABILITY, SYSTEM + *REDUNDANCE + MATHEMATICAL TREATMENT + *ECONOMICS

9-34448
FOWLER PH
SYSTEM PATHOLOGY
TRW SYSTEMS GROUP
5 PAGES, 7 REFERENCES, IEEE TRANSACTION ON RELIABILITY, VOL. R-17, PAGES 122-126 (SEPTEMBER 1968). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(4), PAGE 71 (APRIL 1969)

A SYSTEM OF CLASSIFYING FAILURES IS PROPOSED AS A STARTING POINT FOR INCREASING THE AMOUNT OF SCIENCE IN THE ART OF RELIABILITY ENGINEERING. FAILURES ARE CLASSIFIED AS (1) LACK OF QUALIFICATIONS, (2) HUMAN ERROR AND (3) WEAR OUT. SUBSETS ARE PROPOSED COVERING THE MAJORITY OF FAILURES OBSERVED IN PRACTICE. USEFULNESS OF THE CLASSIFICATION IS ILLUSTRATED BY RELATING SPECIFIC METHODS OF FAILURE CONTROL TO EACH TYPE OF FAILURE. VALIDITY OF CURRENT RELIABILITY PREDICTION TECHNIQUES IS DISCUSSED. THE SUGGESTION IS MADE THAT VALIDITY AND ACCURACY WOULD BE IMPROVED IF NEW PREDICTIVE METHODS WERE USED WHICH ARE MORE DIRECTLY RELATED TO THE DISTINCT TYPE OF FAILURE BEING EXAMINED.

*RELIABILITY ANALYSIS + FAILURE, GENERAL + FAILURE, OPERATOR ERROR + TRAINING + FAILURE, FATIGUE + PROBABILITY + *DATA PROCESSING

9-34480
DAVIS JW + DEXTER WL + SMLTH BH
APPLICATION OF TELEPHONE CROSSBAR RELAYS TO COMPUTER CONTROL OF A PARTICLE ACCELERATOR
CALIFORNIA UNIVERSITY, BERKELEY
UCRL - 18493 +. 25 PAGES, 12 FIGURES, 5 REFERENCES, JANUARY 31, 1969

A PROTOTYPE AUTOMATED CONTROL SYSTEMS USING CROSSBAR RELAYS FOR SWITCHING WAS BUILT TO PROVIDE COMPUTER OR MANUAL ACCESS TO THE CONTROL OF 1000 MAGNETS AND OTHER REGULATED SYSTEMS FOR A PARTICLE ACCELERATOR.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34480 *CONTINUED*

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

*ACCELERATOR + INSTRUMENT, RELAY + INSTRUMENT, CONTROL + *COMPUTER CONTROL + CONTROL SYSTEM + SYSTEM
DESCRIPTION

9-34481

MALAKHOFF V + SIMON WA
LUMPED BURNABLE POISON RODS FOR THE PSC CORE
GULF GENERAL ATOMIC, INCORPORATED, SAN DIEGO, CALIFORNIA
GAMD - 9187 +. 30 PAGES, FEBRUARY 20, 1969

FLUX SELF-SHIELDING FACTORS FOR LUMPED BURNABLE POISON RODS IN THE INITIAL 330-MW(E) PSC CORE AND THE RELOAD SEGMENTS WERE CALCULATED WITH THE TWO-DIMENSIONAL TRANSPORT THEORY CODE 20F. THE EFFECT OF FUEL DISCONTINUITIES AND THE MUTUAL SHADOWING BETWEEN THE BURNABLE POISON RODS ON THE SELF-SHIELDING FACTORS WERE INVESTIGATED. THE SELF-SHIELDING FACTORS WERE USED TO DETERMINE THE WORTH OF THE BURNABLE POISON RODS IN DIFFUSION THEORY CALCULATIONS. THE EFFECT OF VARIOUS METHODS OF LUMPED BURNABLE POISON SMEARING ON THE WORTH OF A CONTROL ROD PAIR WAS ALSO INVESTIGATED.

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

*POISON, BURNABLE + CONTROL ROD WORTH + SHIELDING + POWER DISTRIBUTION + FT. ST. VRAIN (HTGR) + REACTOR,
GRAPHITE MODERATED + REACTOR, HTGR

9-34483

ALSO IN CATEGORY 17

GRIDLEY RL + GUPPY WH + PERKINS KT
EXPERIENCE IN THE USE OF A BWR NUCLEAR POWER PLANT TRAINING SIMULATOR
GENERAL ELECTRIC COMPANY, MORRIS, ILLINOIS, COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS, GENERAL ELECTRIC
COMPANY, SAN JOSE, CALIFORNIA
8 PAGES, AMERICAN POWER CONFERENCE PAPER, APRIL 22, 1969

GENERAL ELECTRIC COMPANY DEVELOPED A BWR NUCLEAR POWER PLANT SIMULATOR FOR USE IN TRAINING PERSONNEL OF ELECTRIC UTILITIES WHO WILL OPERATE LARGE BOILING WATER REACTOR PLANTS. THE SIMULATOR IS PART OF A COMPREHENSIVE TRAINING PROGRAM TO DEVELOP OPERATOR PROFICIENCY IN NUCLEAR POWER PLANT STARTUP AND OPERATING PROCEDURES. THE SIMULATOR GIVES THE OPERATOR A CHANCE TO PRACTICE REGULAR STARTUPS, SHUTDOWNS, AND EMERGENCY MANEUVERS. HE CAN ALSO PRACTICE FOR CONDITIONS NOT EXPECTED AND FOR EVENTS THAT COULD NOT BE DUPLICATED WITHOUT DAMAGE TO THE REAL PLANT.

AVAILABILITY - R. L. GRIDLEY, MANAGER, BWR TRAINING CENTER, GENERAL ELECTRIC COMPANY, BOX 220, ROUTE 1, MORRIS, ILLINOIS, W. H. GUPPY, GENERAL STAFF ENGINEER, COMMONWEALTH EDISON COMPANY, 72 W. ADAMS STREET, ROOM 1334, CHICAGO, ILLINOIS, K. T. PERKINS, MANAGER, FIELD ENGINEERING, GENERAL ELECTRIC COMPANY, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA

REACTOR, PWR + *REACTOR, TRAINING + SIMULATION + OPERATOR ACTION

9-34484

ALSO IN CATEGORY 17

DEDDENS JC
SIMULATOR TRAINING OF NUCLEAR POWER PLANT OPERATORS
BABCOCK AND WILCOX
TP9-7 +. 16 PAGES, 3 REFERENCES, 2 TABLES, APRIL 22, 1969

OPERATIONAL TRAINING ON A SIMULATOR IS A LOGICAL ALTERNATIVE TO TRAINING ON POWER REACTORS. BY SUPPLYING STARTUP EXPERIENCE TO OPERATOR TRAINEES, SIMULATOR TRAINING WILL PREVENT THE UTILITY INDUSTRY FROM SUSTAINING A SUBSTANTIAL LOSS IN GENERATING-PLANT AVAILABILITY.

AVAILABILITY - J. C. DEDDENS, MANAGER, SERVICE SECTION, NUCLEAR POWER GENERATION DEPT., BABCOCK AND WILCOX, LYNCHBURG, VIRGINIA 24505

*REACTOR, TRAINING + *SIMULATION + OPERATOR ACTION + REACTOR, PWR + REVIEW

9-34604

BAZOVSKY I
RELIABILITY THEORY AND PRACTICE
GENGE INDUSTRIES, SHERMAN OAKS, CALIF.
292 PAGES, 35 REFERENCES, ENGLEWOOD CLIFFS, NEW JERSEY, PRENTICE-HALL, INC. 1961. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5), PAGE 77 (MAY 1969)

THE SUBJECT OF RELIABILITY IS QUANTITATIVELY TREATED, AND RELIABILITY CONCEPTS AND METHODS ARE DEVELOPED LOGICALLY FROM SIMPLE COMPONENTS TO COMPLEX SYSTEMS. THE OBJECTIVE IS TO SHOW THE ENGINEER HOW TO SOLVE RELIABILITY PROBLEMS BY ANALYSIS, DESIGN, AND TESTING. RELIABILITY FORMULAS ARE PRESENTED AS AN AID IN PREDICTING SYSTEM RELIABILITY, ESTABLISHING RELIABILITY GOALS, AND DETERMINING THE PROCEDURES NECESSARY TO ACHIEVE THEM. IT IS POINTED OUT THAT RELIABILITY IS CLOSELY CONNECTED WITH THE CONCEPTS OF SYSTEM MAINTAINABILITY, AVAILABILITY, AND SAFETY. A QUANTITATIVE TREATMENT OF THESE CONCEPTS IS INCLUDED, AND THE METHODS TO BE FOLLOWED ARE OUTLINED.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34604 *CONTINUED*
*RELIABILITY ANALYSIS + *COMPARISON, THEORY AND EXPERIENCE + RELIABILITY, COMPONENT + RELIABILITY, SYSTEM +
PROBABILITY + MATHEMATICAL TREATMENT

9-34605 ALSO IN CATEGORY 17

MAGGREGOR RV

PREDICTIVE MAINTENANCE, FORLORN HOPE OF FORESEEABLE REALITY

DOUGLAS AIRCRAFT COMPANY, LONG BEACH, CALIFORNIA

AD - 664371 +. 31 PAGES, 1967. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5), PAGE 80 (MAY 1969)

CONSIDERATION IS GIVEN TO PREDICTING THE MAINTENANCE OF FUNCTIONAL SUBSYSTEMS AND COMPONENTS OF AIRCRAFT BASED ON THE THEORY THAT IT IS BETTER TO DETECT AND CORRECT DETERIORATING FUNCTIONAL CONDITIONS THAT TO ISOLATE AND CORRECT ACTIVE MALFUNCTIONS OR FAILURES. THE PREREQUISITES OF PREDICTIVE MAINTENANCE ARE DELINEATED, AND THE PROBLEMS OF IDENTIFYING AND SPECIFYING PROBABLE MODES AND MALFUNCTION OR FAILURE ARE ILLUSTRATED. A DISTINCTION IS DRAWN BETWEEN FUNCTIONAL PERFECTION AND MALFUNCTION, AND AN ASSESSMENT IS MADE OF THREE CHARACTERISTIC MODES OF MALFUNCTION AND THE TIME FACTOR WHICH IS INVOLVED. THE FUTURE APPLICATIONS OF PREDICTIVE MAINTENANCE ARE BRIEFLY MENTIONED IN RELATION TO AN ONBOARD COMPUTER THAT CAN PROVIDE INSTANTANEOUS MALFUNCTION DETECTION AND FAULT ISOLATION CAPABILITIES.

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

RELIABILITY ANALYSIS + *PROBABILITY + *MAINTENANCE AND REPAIR + COMPONENTS, MISCELLANEOUS + FAILURE, GENERAL +
COMPUTER CONTROL + SAFETY PRINCIPLES AND PHILOSOPHY

9-34606 ALSO IN CATEGORY 17

ELLIOTT TK

DEVELOPMENT OF FULLY PROCEDURALIZED TROUBLESHOOTING ROUTINES

WRIGHT - PATTERSON AFB, OHIO

AD - 664076 +. 64 PAGES, REFERENCES, NOVEMBER, 1967. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5), PAGE 82 (MAY 1969)

SEVERAL STUDIES OVER THE PAST DECADE HAVE SHOWN THAT PROCEDURALIZED TROUBLESHOOTING CAN PRODUCE ACCEPTABLE OR BETTER PERFORMANCE OF THIS COMPLEX MAINTENANCE TASK WHILE PERMITTING SUBSTANTIAL REDUCTION IN THE COSTLY TRAINING TYPICALLY ASSOCIATED WITH ITS ACCOMPLISHMENT. THE TERM PROCEDURALIZED TROUBLESHOOTING IS USUALLY APPLIED WHEN THE DECISION ABOUT WHERE THE SYSTEM THE TECHNICIAN IS TO CHECK NEXT, BASED ON THE RESULTS OF PREVIOUS CHECKS, IS MADE BY A PERFORMANCE AID WHICH DIRECTS HIS ACTIONS. EXAMPLES OF TROUBLESHOOTING PROCEDURES DEVELOPED FOR USE IN THE EVALUATION ARE PRESENTED AND DESCRIBED.

RELIABILITY ANALYSIS + *MAINTENANCE AND REPAIR + *TRAINING + ECONOMICS + SYSTEM DESCRIPTION

9-34607

GUSEV AS

ON THE ANALYSIS OF THE EXCURSIONS OF RANDOM FUNCTIONS

LOCKHEED MISSILES AND SPACE COMPANY, SUNNYVALE, CALIFORNIA

5 PAGES, REFERENCES, IZV. VYSSK. UCHER. ZAVED. NO. 3, PAGES 27 - 31 (1967). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 83 (MAY 1969)

THE PROBLEM OF DETERMINING THE NUMBER OF EXCURSIONS OF A RANDOM FUNCTION BEYOND A CERTAIN LEVEL POSSESSING STATISTICAL PROPERTIES IS CONSIDERED HEREIN. THIS PROBLEM IS OF INTEREST IN CONNECTION WITH THE QUESTION OF CUMULATIVE DAMAGE AND THE ESTIMATION OF THE RELIABILITY OF A STRUCTURE UNDER RANDOM LOADINGS. THE CASE INVESTIGATED HEREIN IS WHEN THE DANGER LEVEL CAN BE REPRESENTED AS THE SERIES WITH STOCHASTIC COEFFICIENTS DISTRIBUTED NORMALLY, AND ACCORDING TO RAYLEIGH.

*RELIABILITY ANALYSIS + STATISTICAL ANALYSIS + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION +
PROBABILITY + *EXAMINATION + *NOISE

9-34608

JACOBSON, LJ

AN APPLICATION OF THE BRANCH - AND - BOUND METHOD TO THE CATALOGUE ORDERING PROBLEM

CALIFORNIA UNIVERSITY, BERKELEY

AD - 675035 +. 22 PAGES, REFERENCES, JULY, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 83 (MAY 1969)

A PARALLEL (OR SERIES) SYSTEM OR COMPONENTS IS CONSIDERED. EACH COMPONENT OF THE SYSTEM IS ASSUMED TO BE CHOSEN FROM A SET OF AVAILABLE COMPONENTS EACH WITH A SPECIFIED RELIABILITY AND A SPECIFIED COST. THE PROBLEM, THAT OF MINIMIZING THE COST OF THE SYSTEM WHILE GUARANTEEING A SPECIFIED SYSTEM RELIABILITY, CAN BE WRITTEN AS A ZERO-ONE INTEGER PROGRAM. A BRANCH-AND-BOUND ALGORITHM IS THE SUGGESTED SOLUTION METHOD.

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

*RELIABILITY ANALYSIS + ECONOMICS + MATHEMATICAL TREATMENT + *PROCEDURES AND MANUALS + *RELIABILITY, COMPONENT

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34610 ALSO IN CATEGORY 17

ROELOFFS R
MINIMAX SURVEILLANCE SCHEDULES FOR REPLACEABLE UNITS
NEW YORK UNIVERSITY
12 PAGES, REFERENCES, NAVAL RES. LOGISTICS QUARTERLY, VOL. 14 NO. 4 (DECEMBER 1967). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 85 (MAY 1969)

AN ANALYSIS IS MADE OF THE PROBLEM OF FINDING OPTIMAL SCHEDULES FOR CHECKING AN OPERATING UNIT SUBJECT TO RANDOM FAILURE DETECTABLE ONLY BY INSPECTION OF THE UNIT. IT IS ASSUMED THAT ONLY PARTIAL INFORMATION, IN THE FORM OF A SINGLE PERCENTILE OF THE OTHERWISE UNKNOWN LIFE DISTRIBUTION OF THE UNIT IS AVAILABLE. IN A PREVIOUS PAPER SOME RESULTS WERE GIVEN FOR THE CASE WITH A FINITE TIME HORIZON. IN THIS WORK IT IS ASSUMED THAT THE UNIT IS REPLACEABLE AT WILL WITH A NEW, STATISTICALLY IDENTICAL UNIT, AND THE HORIZON IS INFINITE.

RELIABILITY ANALYSIS + *MAINTENANCE AND REPAIR + FAILURE, GENERAL + *THEORETICAL INVESTIGATION + *PROCEDURES AND MANUALS

9-34611 ALSO IN CATEGORY 5

SHIOMI H
COMPONENT DEGRADATION ESTIMATION BASED ON DAMAGE ACCUMULATION PRINCIPLE
ELECTROTECHNICAL LABORATORY, MITI, TOKYO, JAPAN
7 PAGES, 19 REFERENCES, ELECTRONICS AND COMMUNICATIONS IN JAPAN, NO. 12 (1967). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 86 (MAY 1969)

IN ORDER TO ESTIMATE COMPONENT DEGRADATION AND THE CUMULATIVE PERCENT FAILURE FOR VARIOUS STRESSES, GRAPHICAL OR MATHEMATICAL METHODS ARE USED WHICH ALSO PERMIT DETERMINATION OF THE EXCESS DEGRADATION ACCOMPANYING VARIATIONS IN STRESS. BY INTRODUCING THE PRINCIPLE OF CUMULATIVE DEGRADATION, THE DEGRADATION FOR VARIOUS STRESSES CAN BE OBTAINED. THE EXPECTED LIFETIME CAN BE OBTAINED. AS EXAMPLES, THE STEP-STRESS TESTING OF A COMPOSITION RESISTOR DEGRADATION DURING ON-OFF CYCLING, AND THE TESTING OF A MYLAR CAPACITOR ARE CONSIDERED. SOME PRECAUTIONS FOR USING THIS METHOD ARE ALSO DISCUSSED IN THIS PAPER.

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

9-34612

LEONT'YEV LP
METHODS FOR THE DETERMINATION OF THE APPROXIMATE VALUES OF THE AGING TIME AND SUBSTITUTION TIME OF ELEMENTS
WRIGHT-PATTERSON AFB, OHIO
10 PAGES, AVTOMAT. VYCHISL. TEKH. (RIGA), NO. 11, PAGES 193-198 (1965). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 87 (MAY 1969)

A METHOD IS DESCRIBED FOR THE DETERMINATION OF APPROXIMATE AGING TIMES AND SUBSTITUTION TIMES OF ELECTRONIC ELEMENTS. IT IS BASED ON THE MINIMIZATION OF THE LOSS FUNCTION. FOR CERTAIN SIMPLE TYPES OF DISTRIBUTION (E.G. GAMMA DISTRIBUTION) THE THEORY YIELDS REASONABLE SIMPLE EQUATIONS FOR THE DETERMINATION OF SUBSTITUTION TIMES AND AGING TIMES WHICH CAN BE USED DURING RELIABILITY DETERMINATION OF ELECTRONIC EQUIPMENT.

RELIABILITY ANALYSIS + *RELIABILITY, COMPONENT + FAILURE, COMPONENT + FAILURE, INSTRUMENT + PROBABILITY + *PROCEDURES AND MANUALS + *THEORETICAL INVESTIGATION

9-34622

STRAIT BG + LANG RM
AN INTEGRATED CIRCUIT CONTROL SYSTEM FOR THE PEWEE REACTOR
LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO
LA-DC-9620 +. 7 PAGES, 1968

A CONTROL SYSTEM UTILIZING DIGITAL AND LINEAR INTEGRATED CIRCUITS WAS DEVELOPED FOR LOW POWER TESTING OF THE ROVER REACTOR, PEWEE. THE CONTROL-ROD ACTUATOR EMPLOYS ELECTRIC STEPPING MOTORS WHICH ARE GEARED DOWN TO PROVIDE 0.01-DEG. RESOLUTION TO THE REACTOR ROTARY CONTROL RODS. THE SYSTEM WAS DESIGNED TO PROVIDE PRECISION POSITIONING CAPABILITY FOR THE CONTROL RODS AND FEATURES OPERATING EASE AND VERSATILITY WHICH MINIMIZES THE TIME AND EFFORT REQUIRED TO EXECUTE EXPERIMENTS.

AVAILABILITY - B.G. STRAIN/R.M. LANG, LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

CONTROL SYSTEM + ROVER PROGRAM + TESTING + *CONTROL ROD DRIVE + *INSTRUMENT, POSITION

9-34627 ALSO IN CATEGORY 17

KUSHKOWSKI P
CONNECTICUT - MONITORING SYSTEM RELIES ON TIME-SHARED COMPUTER
CONNECTICUT YANKEE ATOMIC POWER COMPANY
5 PAGES, 1 TABLE, NUCLEAR NEWS, 12(6), PAGES 63-67 (JUNE 1969)

DESCRIBES IBM-1800 SYSTEM, DEBUGGING, AND ANALYSES DONE ON TIME SHARE. SYSTEM MONITORS CONTROL-ROD POSITION DEVIATION FROM AVERAGE, PRINTS OUT DATA AFTER A REACTOR SCRAM, ANALYZES CORE OUTLET TEMPERATURES AND IN-CORE FLUX DATA. SYSTEM HAS OPERATOR ACCEPTANCE.

*DATA PROCESSING + HADDAM NECK (PWR) + *OPERATING EXPERIENCE SUMMARY + REACTOR POWER + REACTOR, PWR +

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34627 *CONTINUED*
INSTRUMENT, ALARM

9-34630 ALSO IN CATEGORY 6
LOFTHOUSE JH + BRISCOE GJ
NUCLEAR TEST GAUGE SAFETY ANALYSIS REPORT
GENERAL ELECTRIC CO., IDAHO FALL, IDAHO
GEMP-663 +. 67 PAGES, FEB. 21, 1969

THE NUCLEAR TEST GAUGE (NTG) IS A SUBCRITICAL NUCLEAR ASSEMBLY, FUELED WITH ENRICHED URANIUM FOILS AND MODERATED AND REFLECTED BY PLEXIGLAS, WHICH IS USED TO MEASURE THE RELATIVE NUCLEAR CHARACTERISTICS OF REACTOR MATERIALS. THE SYSTEM IS MAINTAINED IN THE SUBCRITICAL CONDITION, IS PROVIDED WITH ESSENTIALLY THE SAME SAFEGUARDS AND IS OPERATED UNDER THE SAME ADMINISTRATIVE CONTROLS AS ARE CRITICAL EXPERIMENT REACTORS. A SERIES OF POSTULATED NUCLEAR TRANSIENTS HAS BEEN ANALYZED. THE RADIOLOGICAL HAZARDS ASSOCIATED WITH THE WORST OF THESE ARE MINIMAL, AND IT IS CONCLUDED THAT THE PROPOSED OPERATION OF THE NTG CONSTITUTES A NEGLIGIBLE PUBLIC RISK.

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

*INSTRUMENT, NUCLEAR + *MEASUREMENT, SUBCRITICALITY + SOURCE MECHANISM + CRITICALITY SAFETY + EXPERIMENT,
GENERAL + SYSTEM DESCRIPTION + TEST, INSTRUMENT RESPONSE + TRAINING + *SAFETY REVIEW + OPERATING EXPERIENCE +
SAFETY ANALYSIS

9-34660 ALSO IN CATEGORY 18
BURKE OW + DITTO SJ + WALKER CS
AN ANALOG COMPUTER STUDY OF THE CONTROL CHARACTERISTICS OF THE MEDIUM POWER REACTOR EXPERIMENT SYSTEM
INCLUDING THE TURBINE-GENERATOR
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TP-1494 +. 22 PAGES, 7 FIGURES, 5 REFERENCES, MAY 6, 1966

THE STABILITY AND CONTROL CHARACTERISTICS OF THE MEDIUM POWER REACTOR EXPERIMENT (MPRE), INCLUDING THE TURBINE-GENERATOR UNIT AND THE REACTOR SYSTEM, WERE INVESTIGATED BY MEANS OF AN ANALOG COMPUTER. THE GENERATOR TERMINAL VOLTAGE AND FREQUENCY WERE CONTROLLED FOR TWO TYPES OF ELECTRICAL LOADS. ONE LOAD WAS ENTIRELY RESISTIVE AND THE OTHER WAS SIMILAR TO THAT IMPOSED BY INDUCTION MOTORS DRIVING PUMPS. TWO CONTROL SCHEMES WERE USED. IN CONTROL SCHEME NO. 1, THE GENERATOR TERMINAL VOLTAGE-ERROR SIGNAL WAS THE INPUT TO A CONTROLLER WHICH REGULATED THE REACTOR CONTROL-PLUG POSITION, AND THE GENERATOR FREQUENCY-ERROR SIGNAL WAS THE INPUT TO A CONTROLLER WHICH REGULATED THE GENERATOR FIELD CURRENT. THE CONTROLLER INPUT SIGNALS WERE INTERCHANGED FOR SCHEME NO. 2.

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

*REACTOR CONTROL + REACTOR, FAST + REACTOR, LMCR + ORNL + DESIGN STUDY + *COMPUTER, ANALOG + MATHEMATICAL
STUDY + *INSTRUMENT, CONTROL + *CONTROL SYSTEM + RESPONSE TIME + *REACTOR, AIRCRAFT

9-34663
PORGES KGA
FUEL-FAILURE DETECTION IN LMFBR POWER PLANTS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILL.
ANL-7533 +. 45 PAGES, 4 FIGURES, 6 TABLES, 21 REFERENCES, FEBRUARY 1969

DISCUSSES APPLICATION OF DELAYED-NEUTRON MONITORING TO THE LATTER TASK. THE VARIOUS EFFECTS ON THE SIGNAL OBTAINED FROM SUCH A CHANNEL OF THE TYPE OF FUEL, CONJECTURAL FAILURE MECHANISM, FISSION-PRODUCT TRANSPORT TO THE DETECTOR SITE, AND, FINALLY, ELECTRONIC PROCESSING ARE DISCUSSED AND EVALUATED IN THE LIGHT OF TRANSIENT-DETECTION STATISTICS. SUCH STATISTICAL CONSIDERATIONS STRONGLY EMPHASIZE THE NEED FOR ADEQUATE ELECTRONIC PROCESSING AND PROVIDE GUIDANCE IN THE CHOICE OF DETECTOR SITE AND OTHER HARDWARE DECISIONS. WITH WELL-DESIGNED ELECTRONICS AND A FAVORABLE SITE, A DELAYED NEUTRON-MONITORING SYSTEM CAN GIVE A FAILURE INDICATION WITHIN ABOUT 5 SEC FROM THE ACTUAL MOMENT OF FAILURE, WHEREAS A FLOWMETER GIVES AN INDICATION WITHIN 1 SEC FROM THE MOMENT THE CHANNEL BECOMES BLOCKED BY DEBRIS. THE DELAYED-NEUTRON SIGNAL SHOULD ALLOW CERTAIN INFERENCES REGARDING THE TYPE AND EXTENT OF FAILURE FROM THE SIGNAL SHAPE. THE FLOWMETER, ON THE OTHER HAND, LOCATES THE EVENT. THE TWO SYSTEMS THUS COMPLEMENT EACH OTHER.

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

*INSTRUMENT, DETECTION FAILED FUEL ELEMENT + REACTOR, LMFBR + REACTOR, FAST + INSTRUMENT, NUCLEAR + *DELAYED
NEUTRON

9-34727 ALSO IN CATEGORIES 5 AND 6
MILLER CS
LOFT CORE DESIGN REPORT
PHILLIPS PETROLEUM COMPANY, IDAHO OPERATIONS OFFICE
IDO-17219 +. 143 PAGES, FIGURES, TABLES, REFERENCES, APRIL 1967

THE NUCLEAR REACTOR FOR USE IN THE LOSS-OF-FLUID TEST (LOFT) IS DESIGNED TO BE REPRESENTATIVE OF A LARGE PRESSURIZED-WATER REACTOR EXCEPT FOR SIZE AND POWER. THE REACTOR OPERATES WITH A POWER

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34727 *CONTINUED*

OUTPUT OF 50 MEGAWATTS AT 2330 PSI AND 545 F. THE CORE IS 36 INCHES LONG AND HAS AN EFFECTIVE DIAMETER OF 41.5 INCHES. IT IS FUELED WITH 52 ELEMENTS, EACH CONTAINING 64 ZIRCALOY-CLAD, LOW-ENRICHED UO₂ FUEL PINS. REACTIVITY CONTROL IS PROVIDED BY CRUCIFORM-SHAPED, BORON-STAINLESS STEEL CONTROL RODS.

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

*NRTS + *LOFT (S-RR) + DESIGN STUDY + CORE COMPONENTS + *REACTOR DESCRIPTION + REACTOR, SAFETY RESEARCH + REACTOR, PWR + REACTOR, AEC OWNED

9-34735 ALSO IN CATEGORY 17
DRESDEN NUCLEAR POWER STATION, 1966 ANNUAL REPORT
COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS
13 PAGES, 3 FIGURES, 1 TABLE, 7 REFERENCES, DRESDEN NUCLEAR POWER STATION ANNUAL REPORT, 1966

FORCED OUTAGES, 5 SCHEDULED SHUTDOWNS, 15 PERIODS OF REDUCED POWER (USUALLY TUBE LEAKS, ONCE TO MINIMIZE ADDITIONAL FUEL FAILURES). *** TEMPERATURE COEFFICIENT CHANGE FROM POSITIVE TO NEGATIVE IS NOW 280 RATHER THAN 80 F. *** ALL RECIRCULATION LOOPS WERE TAKEN OUT OF SERVICE IN TURN, TESTED FOR CRACKS AND DEFECTS. SEVERAL FOUND AND REPAIRED. *** TWO RODS WOULD NOT SCRAM ON TEST BECAUSE A TEFLON CORE ASSEMBLY TIP IN THE SCRAM SOLENOID VALVE HAD BROKEN OFF, PLUGGING THE AIR-RELIEF PORT. THE MANUAL SCRAM (WHICH OPERATES THE BACKUP SOLENOID) WAS EFFECTIVE IN CAUSING A SCRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM 1717 H ST., WASHINGTON, D. C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS SUMMARY + HEAT EXCHANGER + SCRAM, SPURIOUS + *FAILURE, SCRAM MECHANISM + VALVE + REDUNDANCE + REACTOR, BWR + FAILURE, TUBING + *FAULT + *PIPING + DRESDEN 1 (BWR) + MAIN COOLING SYSTEM + MAIN COOLING SYSTEM

9-34737
ARCIPIANI B
AN EXPERIMENTAL STUDY OF THE MACROSCOPIC SELF-SHIELDING EFFECT IN SAMPLES CONTAINING BURNABLE POISONS
COMITATO NAZIONALE PER L-ENERGIA NUCLEARE, ROME, ITALY
RT/FI-168153 +. 27 PAGES, TABLES, REFERENCES, 1968

A PROGRAM OF EVALUATION OF THE PERFORMANCE OF SMALL GADOLINIUM OXIDE SPHERES UNDER NEUTRON IRRADIATION IS BEING CONDUCTED. TECHNIQUES WERE DEVELOPED TO PREPARE SMALL SPHERES OF GD-2-0-3, IN DIFFERENT DIAMETER RANGES, TO DISTRIBUTE THEM INTO A LESS ABSORBING MATRIX MATERIAL AT DIFFERENT CONCENTRATIONS, AND TO PELLETIZE THE RESULTING MIXTURE INTO CYLINDRICAL SAMPLES CLADDED WITH ALUMINUM. SAMPLES ARE SUCCESSIVELY SUBMITTED TO SEVERAL SUITABLE NEUTRON IRRADIATION STEPS AND THE POISON BEHAVIOUR IS INFERRED FROM MEASUREMENTS OF THE EFFECTIVE ABSORPTION CROSS SECTION OF THE SAMPLES BEFORE AND AFTER THE IRRADIATIONS.

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

*POISON, BURNABLE + GADOLINIUM + *IRRADIATION TESTING + PARTICLE SIZE + EXPERIMENT, GENERAL

9-34738
RASTOGI BP + SRINIVASAN KR + PURANDARE HD
SOME FUELLING AND SAFETY ASPECTS OF RAPP REACTOR
BHABHA ATOMIC RESEARCH CENTRE, BOMBAY, INDIA
BARC-354 +. 35 PAGES, 1968

THE RAPP REACTOR HAS SIX COBALT ADJUSTER RODS TO OVERRIDE XENON BUILDUP AND TO SUPPRESS THE FLUX OSCILLATIONS DUE TO XENON INSTABILITY. THE FIRST TWO SECTIONS OF THE REPORT DEAL WITH THE REACTIVITY AND FLUX PERTURBATION EFFECTS DUE TO THESE ADJUSTER RODS. THE CALCULATIONS ON INITIAL FUELLING OF RAPP WITH SOME DEPLETED FUEL BUNDLES ARE PRESENTED.

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

REACTOR CONTROL + *XENON OSCILLATION + *CONTROL ROD INTERACTION + CONTROL ROD WORTH + COBALT + REACTIVITY EFFECT + INDIA + *REFUELLING

9-34739 ALSO IN CATEGORY 17
MUELLER V + HRSTKA V + KALIVODA R
DYNAMICS OF THE PRIMARY CIRCUIT OF AN ATOMIC POWER PLANT WITH THE MAIN AND AUXILIARY CIRCULATION BLOWERS IN SERIES
SKODA (WORKS), PILSEN (CZECHOSLOVAKIA). NUCLEAR POWER PLANT DIV.
ZJE-34 +. 19 PAGES, SEPTEMBER 1968

THE PAPER INVESTIGATES THE DYNAMICS OF THE PRIMARY CIRCUIT OF AN A-1 TYPE ATOMIC POWER PLANT DURING SCRAM WHEN THE MAIN CIRCULATION BLOWERS ARE RUNNING OUT. A SUGGESTION OF A GAS CIRCUIT WITH THE MAIN AND AUXILIARY BLOWERS IN SERIES IS INVESTIGATED. ATTENTION IS FIRST OF ALL PAID TO THE PROBLEM OF AFTER-COOLING THE REACTOR BY MEANS OF AUXILIARY BLOWERS. THE PROBLEM WAS SOLVED BY ANALOG COMPUTER AP3-M FOR VARIOUS RUNNING-OUT TIMES OF THE MAIN CIRCULATION BLOWERS. THE RESULTS ACHIEVED WERE USED IN SELECTING A SUITABLE SCHEME FOR COOLING AN A-2 REACTOR.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34739 *CONTINUED*

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

REACTOR, GCR + THEORETICAL INVESTIGATION + *ACCIDENT, LOSS OF FLOW + CZECHOSLOVAKIA

9-34740 ALSO IN CATEGORY 6

LAVERNE ME

CONTROL CONCEPTS AND DIGITAL COMPUTER ANALYSIS OF THE MPRE FLUID SYSTEM

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-1368 +. 68 PAGES, 24 FIGURES, 25 REFERENCES, FEBRUARY, 1966

THE BASIC CONTROL SYSTEM FOR THE MPRE IS DESCRIBED, AND THE VARIOUS STABILITY AND CONTROL PROBLEMS ARE OUTLINED. THE REPORT SUMMARIZES THE DIGITAL COMPUTER ANALYSIS OF THE RANKINE-CYCLE SYSTEM

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

REACTOR CONTROL + *CENTRAL SYSTEM + SYSTEM DESCRIPTION + INSTABILITY + COMPARISON, THEORY AND EXPERIENCE + *MOCKUP + REACTOR, SPACE

9-34742

VARTAK DG + JOSE CJ + PRABHU LH

APPARATUS FOR THE DETERMINATION OF DISSOLVED GASES IN NUCLEAR REACTOR COOLANTS (WATER)

BHABHA ATOMIC RESEARCH CENTRE, BOMBAY, INDIA

BARC - 36L +. 17 PAGES, 6 FIGURES, 1968

SET UP A SYSTEM AT THE CHEMICAL CONTROL LABORATORY OF THE REACTOR OPERATIONS DIVISION TO ANALYSE THE DISSOLVED GASES IN REACTOR COOLANTS. IT CONSISTS OF TWO PARTS, NAMELY, ONE FOR STRIPPING OUT THE DISSOLVED GASES AND MEASURING THE VOLUME AND THE OTHER CALLED THE ANALYSER FOR THE DETERMINATION OF THEIR PERCENTAGE (V/V) COMPOSITION. THE ANALYSER CAN BE USED INDEPENDENTLY TO ANALYZE A MIXTURE OF CARBON DIOXIDE, OXYGEN, NITROGEN AND HYDROGEN.

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

*INSTRUMENT, COOLANT QUALITY + REACTOR, WATER + *ANALYTICAL TECHNIQUE, GAS + GAS + CARBON DIOXIDE + OXYGEN + NITROGEN + HYDROGEN + SYSTEM DESCRIPTION

9-34744 ALSO IN CATEGORY 4

SMITH OL + ROBINSON JC

POSSIBLE CONTROL MECHANISMS FOR THE MPRE

OAK RIDGE NATIONAL LABORATORY

ORNL - TM - 1619 +. 23 PAGES, 8 FIGURES, 5 TABLES, JANUARY 1967

THREE POSSIBLE CONTROL DEVICES FOR THE MPRE ARE STUDIED (A) AN IRIS DIAPHRAGM OF B4C ACROSS ONE END OF THE REACTOR CORE, (B) A SET OF ROTATING BEO DRUMS INLAID WITH THIN LAYERS OF B4C IN THE SIDE REFLECTOR, (C) A MOVABLE PLUG OF REFLECTOR AT THE BOTTOM OF THE CORE. THE CONTROL DEVICES ARE EVALUATED IN TERMS OF A REFERENCE REACTOR THAT IS INTENDED TO APPROXIMATE THE DESIGN CONFIGURATION OF THE MPRE AS NEARLY AS POSSIBLE AT THE PRESENT TIME. CURRENT ESTIMATES INDICATE THAT A 4% REACTIVITY SWING MAY BE NECESSARY FOR TOTAL REACTOR CONTROL OVER A 3-YEAR PERIOD.

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

*REACTOR CONTROL + *REACTOR, SPACE + THEORETICAL INVESTIGATION + CONTROL SYSTEM + *DESIGN STUDY + MATHEMATICAL TREATMENT + REACTOR POWER

9-34746 ALSO IN CATEGORIES 4 AND 6

SMITH OL + ROBINSON JC

A THEORETICAL INVESTIGATION OF THE DYNAMIC BEHAVIOR OF THE MEDIUM POWER REACTOR EXPERIMENT

OAK RIDGE NATIONAL LABORATORY, TENNESSEE

ORNL-TM-1611 +. 73 PAGES, 20 FIGURES, 1 TABLE, 5 REFERENCES, JANUARY 1967

PRESENTS A THEORETICAL STUDY OF THE TRANSIENT BEHAVIOR OF THE MPRE UNDER A VARIETY OF NONEQUILIBRIUM CONDITIONS. A FAIRLY GENERALIZED PHYSICAL AND MATHEMATICAL MODEL OF THE SYSTEM IS DEVELOPED, INCLUDING DETAILED DESCRIPTIONS OF THE NEUTRONICS AND THERMODYNAMICS OF THE FUEL, THE TWO-PHASE FLOW IN THE BOILER, AND THE SINGLE-PHASE FLOW IN THE REMAINDER OF THE SYSTEM. THE MATHEMATICAL PROBLEM IS SOLVED NUMERICALLY BY A CODE WRITTEN IN FORTRAN II FOR THE IBM 7090 COMPUTER AND IN FORTRAN IV FOR THE IBM 360 COMPUTER.

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

REACTOR CONTROL + THEORETICAL INVESTIGATION + *REACTOR, SPACE + METAL, LIQUID + POTASSIUM + *ANALYTICAL MODEL + *REACTOR DYNAMICS + MATHEMATICAL TREATMENT + REACTOR POWER

9-34747 ALSO IN CATEGORY 6

PREVERT L

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34747 *CONTINUED*

STRUCTURE ANALYSIS OF NUCLEAR PHYSICS EXPERIMENTS AS A BASIS FOR ON-LINE CONTROL BY A DIGITAL COMPUTER CORP
HAHN-MEITNER-INSTITUT FÜR KERNFORSCHUNG BERLIN, ABTEILUNG ELEKTRONIK MEMO BMWF-FBK-68-50 +. 60 PAGES, 5
FIGURES, 1 TABLE, DECEMBER 1968, (FR GERMAN)

GIVES THE BASIC LINES ALONG WHICH EXPERIMENTS AT THE NUCLEAR PHYSICS DEPARTMENT OF THE HAHN-MEITNER-INSTITUTE FOR NUCLEAR RESEARCH, BERLIN ARE BEING RUN. FURTHER IT EXAMINES THE POSSIBILITIES OF IMPROVING THE EXPERIMENTS BY MEANS OF ON-LINE DATA PROCESSING AND ON-LINE CONTROL BY A DIGITAL COMPUTER. ON THE BASIC EXPERIMENTAL DESIGN DERIVED FROM SUCH AN ANALYSIS A PROPOSAL FOR A SOFTWARE SYSTEM IS BEING DEVELOPED. FURTHER WORK IN CONTINUATION OF THE STRUCTURE ANALYSIS OF NUCLEAR PHYSICS EXPERIMENTS IS OUTLINED.

*COMPUTER CONTROL + DATA PROCESSING + COMPUTER, DIGITAL + DESIGN STUDY + *STRUCTURAL ANALYSIS, DYNAMIC + EXPERIMENT, GENERAL

9-34784

ALSO IN CATEGORY 12

ASTLEY ER

FAST FLUX TEST FACILITY - PERIODIC TECHNICAL REPORT - OCTOBER 1968 THROUGH FEBRUARY 1969

BATTELLE NORTHWEST, RICHLAND, WASHINGTON

BNWL-941 +. 200 PAGES, FIGURES, TABLES, MAY, 1969

COVERS PROGRAM MANAGEMENT, AND FFTF OPERATIONS, PLANT DESIGN, COMPONENTS, INSTRUMENTATION AND CONTROLS, SODIUM TECHNOLOGY, CORE DEVELOPMENT AND DESIGNS, SAFEGUARDS, AND CLADDING DEVELOPMENT

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

*FFTF (TR) + *SODIUM + *FUEL ELEMENT + *CORE COMPONENTS + *INSTRUMENT, CONTROL + DESIGN STUDY + SAFETY ANALYSIS + CORROSION + COOLANT CHEMISTRY + CLADDING + REACTOR, TEST + REACTOR, FAST + REACTOR, LMC

9-34861

ALSO IN CATEGORIES 5 AND 17

DECREASE IN FUEL ELEMENT TEMPERATURE AT STEADY STATE FULL POWER

U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

3 PAGES, LETTER TO P.A. MORRIS, USAEC-DRL, MAY 19, 1969, DOCKET 50-274

DURING INITIAL STARTUP OPERATIONS AT 1 MW, THE TEMPERATURE OF THE INSTRUMENTED FUEL ELEMENT IN B RING DECREASED FROM 510 C TO 360 C DURING A FOUR-WEEK PERIOD. VARIOUS TESTS (INCLUDING FOLLOWING THE TEMPERATURE DURING AN 80-HOUR RUN, OBSERVING PEAKS TEMPERATURES DECREASE DURING A SERIES OF \$3.00 PULSES, AND ROTATING THE ELEMENT AT POWER) SUGGEST THAT A LARGER THAN USUAL FUEL-TO-CLAD GAP EXISTED INITIALLY, AND THAT THIS GAP DECREASED FOLLOWING PULSED OPERATION. THE TEMPERATURES CURRENTLY BEING MEASURED AGREE WITH PREDICTIONS IN THE HAZARDS SUMMARY REPORT.

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

*INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT + REACTOR, RESEARCH + TRIGA (RR) + *HEAT CONDUCTANCE, FUEL TO CLAD + REACTIVITY EFFECT, ANOMALOUS + INSTRUMENT, TEMPERATURE

9-34917

ALSO IN CATEGORY 17

CARROTHERS MR + WRIGHT CAH

USE OF A DEACTIVATED HANFORD REACTOR CONTROL CENTER FOR AN OPERATOR TRAINING SIMULATOR

DOUGLAS UNITED NUCLEAR, INC., RICHLAND, WASHINGTON

DUN-5381 +. 25 PAGES, FIGURES, TABLES, JANUARY 30, 1969

AN ANALOG SIMULATOR LOCATED IN THE D REACTOR CONTROL ROOM UTILIZES THE INSTALLED REACTOR INSTRUMENTATION AND PROVIDES THE VOLTAGE SIGNALS FOR DISPLAYING THE REACTOR KINETICS AND SIMULATING WHAT WOULD BE SEEN DURING ACTUAL REACTOR OPERATIONS. THE PROGRAM FOR THE COMPUTER DEVICE CONSISTS OF EIGHT INTER-DEPENDENT ANALOG CIRCUITS COUPLED TOGETHER TO DISPLAY A THREE-DIMENSIONAL SOLUTION TO THE REACTOR KINETICS EQUATIONS. THIS PARTICULAR PROGRAM IS APTLY SUITED TO ANALOG SIMULATION OF THE ROD SYSTEMS, HEAT TRANSFER, AND FLUX AND TEMPERATURE MONITORING SYSTEMS IN A PRODUCTION REACTOR. THE FACILITY IS USED AS A SUPPLEMENT TO TRAINING PROGRAMS FOR CERTIFIED REACTOR OPERATORS.

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

COMPUTER, ANALOG + ANALOG SIMULATION + *TRAINING + REACTOR, POWER + *SIMULATION + ANALYTICAL MODEL + HANFORD SITE

9-34918

ALSO IN CATEGORY 6

COUDERT C

EXPERIMENTAL STUDY OF POWER OSCILLATIONS IN NATURAL CONVECTION

CENTRE D ETUDES DE CADARACHE

DEP/GTSP/CADARACHE REPORT NO. 14/67 +. 60 PAGES, 47 FIGURES, 8 REFERENCES, OCTOBER 1967

EXPERIMENTS PERFORMED AT CABRI CONCERNING ACCIDENTS OF WATER REACTORS HAVE SHOWN THAT POWER OSCILLATIONS OF LARGE AMPLITUDE CAN BE ESTABLISHED FOLLOWING A FAST INJECTION OF REACTIVITY. IT IS THEREFORE INTERESTING FOR THE STUDY OF THE STABILITY OF LIGHT-WATER REACTORS IN NATURAL CIRCULATION TO UNDERSTAND THESE OSCILLATIONS BETTER (STUDIES OF THE ORIGIN OF THE FLUCTUATIONS,

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-34918 *CONTINUED*

OF THE DEVELOPMENT OF THE AMPLITUDES AND FREQUENCIES, OF THE HYDRODYNAMIC BEHAVIOR OF THE CORE IN OSCILLATING CONDITION, THE DETERMINATION OF THE TRANSFER FUNCTION OF THE REACTOR). SUCH WERE THE PURPOSES OF THE TESTS CARRIED OUT DURING THE PERIOD OF APRIL 11 TO MAY 26, 1967.

*REACTOR, WATER + ACCIDENT, REACTIVITY + TRANSFER FUNCTION + TEST, PHYSICS + REACTOR CONTROL + NOISE ANALYSIS
+ *OSCILLATOR, REACTIVITY + COMPARISON, REACTOR CHARACTERISTICS + *REACTOR, WATER + *OSCILLATOR, REACTIVITY

9-34919 ALSO IN CATEGORIES 5 AND 17
TECHNICAL SPECIFICATIONS FOR THE BABCOCK AND WILCOX TEST REACTOR
BABCOCK AND WILCOX, LYNCHBURG, VA.
BAW-287-4 +. 25 PAGES, FIGURES, TABLES, 14 REFERENCES, APRIL 18, 1969, DOCKET 50-200

REVISED SUBMITTAL FOR UPGRATING FROM 6 MW TO 14. EXTENSIVE BASES FOR DETERMINING LIMITING SAFETY SYSTEM SITTING AND BURNOUT POWER FOR 4 CORE CONFIGURATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + *POWER UPGRATING + REACTOR, TEST + *PERFORMANCE LIMIT + *REACTOR POWER + REACTOR, FLUX TRAP + REACTOR, RESEARCH

9-35026 ALSO IN CATEGORY 17
UNSAFE FAILURE OF LIQUID LEVEL SCRAM SENSOR
UNIVERSITY OF FLORIDA
4 PAGES, LETTER TO J. SHAPAKER, DRL, MAY 12, 1969, DOCKET 50-83

A CONVENTIONAL DEVICE (MAGNETIC FLOAT OPERATES A REED SWITCH AS THE FLOAT DROPS PAST SWITCH) WAS FOUND INOPERATIVE ON INSPECTION. CORROSION OF THE ALUMINUM STEM (WHICH WAS SUPPOSED TO BE MARINE BRONZE, ACCORDING TO DESIGN SPECS) HELD THE FLOAT UP SO A SCRAM COULD NOT OCCUR. *** STEM REPLACED WITH NONMAGNETIC STAINLESS STEEL, AND TESTS WERE CHANGED FROM YEARLY TO QUARTERLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*FAILURE, COMPONENT + *CORROSION + FAILURE, INSTALLATION ERROR + SURVEILLANCE PROGRAM + TEST, SYSTEM OPERABILITY + REACTOR, RESEARCH + INSTRUMENT, LIQUID LEVEL DETECTION + SAFE FAILURE CRITERION + REDUNDANCE + QUALITY ASSURANCE + ARGONAUT (TNG)

9-35031
NONDESTRUCTIVE TESTING OF ISOTOPE HEAT SOURCES
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-51 +. 25 PAGES, 10 FIGURES, 3 REFERENCES, APRIL 1965

BRIEF REVIEW OF SYSTEMS OF FOUR DIFFERENT ULTRASONIC TESTS OF CLAD THICKNESS, INDICATION OF TYPICAL RECORDER TRACER OF OUTPUT.

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

CONTAINMENT, SOURCE + *FAILURE, CLADDING + ISOTOPIIC GENERATOR + *TEST, NONDESTRUCTIVE + *ACOUSTICS

9-35144
KLINGLER WB
LOFT INSTRUMENT, DEVELOPMENT SUPPORT PROGRAM
PHILLIPS PETROLEUM CO., IDAHO FALLS, IDAHO
IDO-17258-G +. 21 PAGES, 8 FIGURES, 8 REFERENCES, APRIL 1969

THE LOFT INSTRUMENT DEVELOPMENT SUPPORT PROGRAM WAS ESTABLISHED TO PROVIDE THE VERIFIED MEASUREMENT CAPABILITY REQUIRED TO MEET THE EXPERIMENTAL MEASUREMENT REQUIREMENTS OF THE LOFT INTEGRAL TESTS AND THE LOFT SMALL-SCALE SEPARATE EFFECTS TESTS. SINCE THE ACQUISITION OF EXPERIMENTAL INFORMATION CONCERNING THE THERMAL, HYDRAULIC, AND MECHANICAL PROCESSES IN A LOSS-OF-COOLANT ACCIDENT IS THE PRINCIPAL OBJECTIVE OF THESE TESTS, THEY CAN BE CONDUCTED SUCCESSFULLY ONLY IF ADEQUATE MEASUREMENT CAPABILITY IS AVAILABLE. INSTRUMENTATION DEVELOPMENT IS LIMITED TO THOSE MEASUREMENTS WHICH CANNOT BE PROVIDED BY COMMERCIALY AVAILABLE INSTRUMENT SYSTEMS. THE DEVELOPMENT IS DIRECTED TOWARD THE DETECTION DEVICE (TRANSDUCER) AND CONNECTING CABLES.

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

INSTRUMENT, GENERAL + INSTRUMENT, COMPONENT + *LOFT (S-RR) + *R AND D PROGRAM + INSTRUMENT, PROCESS + INSTRUMENT, TEMPERATURE + INSTRUMENT, FLOW + INSTRUMENT, PRESSURE + INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, FLOW + INSTRUMENT, POSITION + REACTOR, AEC OWNED + REACTOR, PWR + REACTOR, SAFETY RESEARCH

9-35145
COMPILATION OF TECHNICAL EVALUATIONS RELATED TO ON-LINE REFUELING MACHINE STUDY
GULF GENERAL ATOMIC, INC. SAN DIEGO, CALIFORNIA
GA-8635 +. 69 PAGES, FIGURES, TABLES, REFERENCES, JUNE 30, 1968

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-35145 *CONTINUED*

THIS REPORT, THIRD OF A SERIES, PRESENTS CONTRIBUTIONS TO THE STUDY OF ON-LINE REFUELING MACHINE DESIGN AND EVALUATION FOR HTGR. SECTIONS 2 AND 3 OF THIS REPORT DEAL WITH THE ECONOMIC JUSTIFICATION AND INITIAL FEASIBILITY STUDY FOR AN ON-LINE REFUELING SYSTEM FOR AN HTGR. SECTIONS 4 THROUGH 7 OF THIS REPORT PRESENT AN ANALYSIS OF RADIATION SHIELDING, A VESSEL STRUCTURAL EVALUATION, A STUDY OF SHIELDING PROCUREMENT, AND THE COST ESTIMATE, ALL IN A FORM THAT SHOULD MAKE THEM READILY AVAILABLE FOR FUTURE WORK.

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

*REFUELING, ON LINE + *FUEL HANDLING MACHINE + REACTOR, HTGR + SHIELDING + ECONOMICS + STRUCTURAL INTEGRITY + SURVEY, GENERAL

9-35146 ALSO IN CATEGORY 6
SHAH SK + SASTRY VR
A REVIEW OF NONLINEAR NUCLEAR REACTOR STABILITY
6 PAGES, NUCLEAR ENERGY, PG. 48+, APRIL, 1969

IN THE PRESENT PAPER THE WORK WHICH HAS BEEN DONE IN THE FIELD OF NONLINEAR NUCLEAR REACTOR STABILITY IS BRIEFLY REVIEWED. SOME OF THE IMPORTANT AND WIDELY USED MATHEMATICAL MODELS ARE FURNISHED. FOR STABILITY ANALYSIS OF CERTAIN REACTOR MODELS, THE PROCEDURE FOR THE CONSTRUCTION OF LIAPUNOV FUNCTIONS IS INDICATED. DIFFERENT REACTOR STABILITY CRITERIA AND THEIR RELATIVE MERITS ARE DISCUSSED. THE EFFECT OF DELAYED NEUTRONS ON THE STABILITY OF A REACTOR IS POINTED OUT. AT THE END, TWO APPROACHES TO THE STABILITY ANALYSIS OF THE REACTORS, CONSIDERING THEM AS DISTRIBUTED PARAMETER SYSTEMS, ARE INDICATED.

*REACTOR STABILITY + *REVIEW + ANALYTICAL MODEL + THEORETICAL INVESTIGATION + MATHEMATICAL TREATMENT + LIAPUNOV'S FUNCTION + COMPARISON, REACTOR CHARACTERISTICS

9-35162 ALSO IN CATEGORY 17
SPURIOUS SCRAM, POWER OSCILLATION AT UMRR
UNIVERSITY OF MISSOURI
2 PAGES, LETTER TO DRL, FEBRUARY 14, 1969, DOCKET 50-186

(1) ON JAN. 29, THE REG. ROD STARTED OSCILLATING ± 0.5 IN. WHILE IN AUTO CONTROL (POWER LEVEL HELD WITHIN ± 0.5 %) DUE TO SHORTED CAPACITOR IN THE SERVO AMPLIFIER. WHEN OPERATION IN MANUAL PROVED NORMAL, OPERATOR TRIED RETURN TO AUTOMATIC, BUT SCRAM OCCURRED DUE TO FAULTY RELAY CONTACTS. OPERATORS INSTRUCTED NOT TO TEST MALFUNCTIONS WITH REACTOR OPERATING. (2) ON FEB. 7, SCRAM OCCURRED BECAUSE ONE LEAD OF ROD-DRIVE C HAD WORN INSULATION, SHORTING TO GROUND. THIS ALSO CAUSED ERRATIC INDICATION OF SOURCE-RANGE SCALER, CFF-GAS RECORDER, AND CONDUCTIVITY METERS, WHICH STOPPED WHEN ROD DRIVES STOPPED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, RESEARCH + UMRR (RR) + REACTIVITY EFFECT, ANOMALOUS + SCRAM, SPURIOUS + CONTROL ROD DRIVE + ELECTRICAL CONDUCTION + *INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, POWER RANGE + CONTROLLER + REACTOR POWER + FAILURE, COMPONENT + BOILING

9-35174 ALSO IN CATEGORY 17
SELECTED ELK RIVER OPERATING EXPERIENCE FOR NOVEMBER 1967
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-53 +. 21 PAGES, OPERATING REPORT NO. 61, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

LOAD WAS TRANSFERRED TO BOILER 3 FOR ONE DAY TO WASH SOOT FROM SUPERHEATER AIR PREHEATER. REACTOR WAS NOT SHUTDOWN, SO PRIMARY PRESSURE WAS MAINTAINED, THEREBY REDUCING MAGNITUDE OF PRESSURE-TEMPERATURE TRANSIENT ON FUEL ELEMENTS. REACTOR WAS USED FOR OPERATOR TRAINING. *** N NOV. 11, SHORTED ARC-SUPPRESSOR CAPACITOR ESTABLISHED A BYPASS CIRCUIT AROUND CONTROL RELAY TO NO. 2 EVAPORATOR FEEDWATER VALVE MOTOR. QUICK OPERATOR ACTION IN THROTTLING MANUAL UPSTREAM VALVE PREVENTED SERIOUS CONSEQUENCES. *** REPEATED FAILURES OF SODIUM PENTABORATE TANK SIGHT GLASS IS NOW ATTRIBUTED BY MANUFACTURERS REPRESENTATIVE TO SEVERAL HIGH SPOTS AND BURRS ON METAL SEAT INSTEAD OF PREVIOUSLY ASSUMED WARPEC COVER PLATE. NEW IDENTICAL UNIT WITH SAFETY SHIELD WAS ORDERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *FAILURE, INSTRUMENT + *FAILURE, FABRICATION ERROR + *INSTRUMENT, LIQUID LEVEL DETECTION + ELECTRICAL CONDUCTION + *FAILURE, GENERAL + ELECTRIC ARC + MAINTENANCE AND REPAIR + *OPERATOR ACTION + INSTRUMENT, RELAY

9-35176 ALSO IN CATEGORIES 12 AND 17
ELK RIVER POISON INJECTION SYSTEM FAILURE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-51 +. 22 PAGES, OPERATING REPORT NO. 60, OCTOBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ON OCT. 19, SIGHT GLASS ON SODIUM PENTABORATE TANK WAS VALVED OUT TO REPAIR LEAK. NEW GLASS WAS INSTALLED AND PUT IN SERVICE. ON OCT. 21, REACTOR WAS SHUT DOWN FOR 17.6 HR BECAUSE LOW PRESSURE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-35176 *CONTINUED*

ALARM ON POISON-INJECTION SYSTEM LED TO FINDING LOWER SIGHT GLASS SHATTERED AND POISON-INJECTION-SYSTEM PRESSURE AT 400 PSIG (NORMAL, 2000 PSIG). ONLY A QUART OF LIQUID WAS LOST DUE TO SEATING OF BALL CHECK VALVE, HOWEVER, UPPER CHECK VALVE WILL NOT HOLD AIR AND AIR BLANKET PRESSURE WAS LOST. NEW GAGE GLASS WAS INSTALLED AND SIGHTGLASS WILL BE USED ONLY WHEN LEVEL IS CHECKED. A SLIGHTLY WARPED COVER PLATE CAUSED THE GLASS FAILURE. WHEN NEW COVER PLATE ARRIVES AND IS INSTALLED, SIGHT GLASS WILL BE PUT BACK IN CONTINUOUS SERVICE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + *SHUTDOWN SYSTEM, SECONDARY + POISON, SOLUBLE + *INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, ALARM + PNEUMATIC SYSTEM + FAILURE, TUBING

9-35188

CALDWELL DO + ELINGS VB + HESSE WP + MORRISON RJ
AN IMPROVED LIQUID HYDROGEN DIFFERENTIAL CERENKOV COUNTER
UNIVERSITY OF CALIFORNIA, BERKELEY AND SANTA BARBARA, CALIF.
7 PAGES, 7 FIGURES, 10 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 70(1), PAGES 13-19 (APRIL 1, 1969)

A LIQUID HYDROGEN DIFFERENTIAL CERENKOV COUNTER WAS DEVELOPED. THIS TYPE OF COUNTER, PREVIOUSLY REPORTED, HAS BEEN IMPROVED CONSIDERABLY SO THAT IT GIVES NO COUNTS WHEN EMPTY, REMAINS CLEAN WITH NO WINDOW FOGGING, AND HAS A VERY STABLE INDEX OF REFRACTION. TWO SIMILAR COUNTERS WERE CONSTRUCTED WITH 4- AND 7-IN.-DIAM APERTURES, AND BOTH COULD BE USED WITH EITHER LIQUID HYDROGEN OR LIQUID DEUTERIUM AS THE RADIATING MEDIUM. EACH COUNTER CLEANLY SEPARATED PIONS AND MUONS OF THE SAME MOMENTUM, WITH A REJECTION OF BETTER THAN 10,000.

HYDROGEN + LIQUID + *COUNTER + *INSTRUMENT, NUCLEAR + INSTRUMENT, COMPONENT + EQUIPMENT DESIGN + TEST, INSTRUMENT RESPONSE + INSTRUMENT, RADIATION MONITORING

9-35189

PARA AF + BETTONI MM
COUNTING STATISTICS OF NUCLEAR DETECTORS
CESNEF, MILANO, ITALY
5 PAGES, 8 FIGURES, 7 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 70(1), PAGES 52-56 (APRIL 1, 1969)

THE BEHAVIOR OF PARALYZABLE AND NONPARALYZABLE DETECTORS, AFFECTED BY A DEAD TIME IS ANALYZED IN DIFFERENT CONDITIONS OF COUNTING. EXACT OR APPROXIMATE FORMULAE FOR CALCULATING THE PROBABILITY DISTRIBUTIONS ARE DEVELOPED AND FROM THESE THE MEAN VALUES AND THE VARIANCES ARE INFERRED. INDICATIVE GRAPHS ARE REPORTED, SHOWING THE DISTORTION OF THE POISSON DISTRIBUTION OF THE INCOMING PARTICLES.

*COUNTER + STATISTICAL ANALYSIS + *INSTRUMENT, NUCLEAR + *INSTRUMENT, COMPONENT + PROBABILITY + THEORETICAL INVESTIGATION

9-35150

GRANGE JM + DORLEANS J
THE COMPUTER AN AN AID TO THE SYSTEM RELIABILITY ENGINEER
ENGINS MATRA S.A., VELIZY, FRANCE
7 PAGES, 1 FIGURE, MICROELECTRONICS AND RELIABILITY, 8(2), PAGES 135-141 (MAY 1969)

THIS ARTICLE DEFINES WHAT CAN BE DONE IN FRANCE AT THE PRESENT TIME WITH A COMPUTER FOR THE RELIABILITY OF A COMPLEX SYSTEM. STRESS IS LAID PARTICULARLY ON THE ANALYSIS OF CIRCUIT DESIGN, FAULTS CAUSED BY CRISTS, AND THE EFFECT OF COMPONENT FAILURE MODES ON CIRCUITS. BY USING THE WELL-KNOWN ECAP, CIRC, AND IMAG PROGRAMS, WHICH ARE CURRENTLY AVAILABLE IN FRANCE. MENTION IS ALSO MADE OF THE USE OF COMPONENT TESTS AND THE BENEFITS AFFORDED BY THESE METHODS TO THE SCREENING OF HIGH-RELIABILITY COMPONENTS.

*RELIABILITY ANALYSIS + COMPUTER, DIGITAL + TEST, COMPONENT + FAILURE, INSTRUMENT + *COMPUTER PROGRAM + FRANCE

9-35191

BLAGORODOV AM + VLADIMIRSKII VV + KUKAVADZE GK + KUZNETSOV BY + NOVIKOVA NV
THRESHOLD CERENKOV COUNTER WITH RECORDING OF THE ULTRAVIOLET PART OF THE SPECTRUM
7 PAGES, 7 FIGURES, 10 REFERENCES, INSTRUMENTS AND EXPERIMENTAL TECHNIQUES, NO. 4, PAGES 823-829 (JULY 1968)

A THRESHOLD CERENKOV COUNTER WITH RECORDING OF THE ULTRAVIOLET PART OF THE SPECTRUM IS DESCRIBED. A RESOLUTION OF $8 \times 10^{-5} \text{TH}$ IS OBTAINED AT A COUNTER LENGTH OF 3 M. THE COUNTER WAS TESTED ON A BEAM OF PI MESONS WITH A PULSE OF 3 GEV/C.

ACCELERATOR + *COUNTER + *INSTRUMENT, RADIATION MONITORING + INSTRUMENT, RECORDER + INSTRUMENT, COMPONENT + *INSTRUMENT, NUCLEAR + EQUIPMENT DESIGN + TEST, INSTRUMENT RESPONSE + GAS

9-35192

MEREDITH KEG
INCORPORATION OF BURNABLE POISONS IN NUCLEAR REACTORS
BERKELEY NUCLEAR LABORATORIES
CEGB TECHNICAL DISCLOSURE BULLETIN NO. 111 +. 3 PAGES, MAY 1968

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-35152 *CONTINUED*

IN THE METHOD PROPOSED, BURNABLE POISONS ARE ENCAPSULATED WITH A STAINLESS-STEEL SHEATH SHAPED TO A ROUND, RECTANGULAR, OR TAPE-LIKE SECTION, FORMED TO THE APPROPRIATE LENGTH AND SEALED AT EACH END. THIS PROPOSAL IS CONCERNED WITH THE METHODS OF ENGINEERING THE POISONS INTO THE REACTOR CORE.

REACTOR, GCR + *POISON, BURNABLE + CHEMICAL SHIM

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-32808 ALSO IN CATEGORY 18
ELECTRIC POWER SYSTEMS
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-12 +. 60 PAGES, 4 TABLES, SEFOR, PSAR, SUPPLEMENT 12, MARCH 11, 1968, DOCKET 50-231

TOPICS DESCRIBED AND DISCUSSED INCLUDE REQUIREMENTS OF NORMAL AND EMERGENCY ELECTRIC SYSTEMS, GROUNDING AND CATHODIC PROTECTION, COMMUNICATION SYSTEM, DISTRIBUTION, DC SYSTEM, AND PUMP-POWER SUPPLIES.

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

*ELECTRIC POWER, GENERAL + SYSTEM DESCRIPTION + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

10-34691 ALSO IN CATEGORY 17
MODIFICATION 69-1 DESCRIPTION AND HAZARD EVALUATION REPORT OF CHANGE TO THE ENGINEER OF THE DRESDEN UNIT 1 DIESEL GENERATOR COOLING SYSTEM
COMMONWEALTH EDISON COMPANY
3 PAGES, LETTER TO P.A. MORRIS, DRL, MARCH 28, 1969, DOCKET 50-10, TYPE--BWR, MFJ--G.E., AE--BECHTEL

AIR INTAKE AND DISCHARGE FOR THE DIESEL RADIATOR IS NOW ENCLOSED IN THE DRESDEN 2/3 BUILDING. THE WATER PUMP CAN PUMP THE WATER UP TO THE NEW RADIATOR LOCATION ON THE FLOOR ABOVE, 20 FT AWAY INSIDE A DUCT. AIR FLOW WILL BE FROM A 25-HP ELECTRIC FAN POWERED BY THE GENERATOR. FAN WILL BE CONNECTED TO THE MOTOR BY 3 NOTCHED STEEL CORD V-BELTS, PROVIDING AN EXTRA BELT AGAINST BREAKAGE. RELIABILITY IS EQUIVALENT AND HAZARDS NOT AFFECTED. AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE).

*MODIFICATION, SYSTEM OR EQUIPMENT + *GENERATOR, ENGINE + VENTILATION SYSTEM + REACTOR, BWR + DRESDEN 1 (BWR) + *AUXILIARY COOLING + FAILURE, EQUIPMENT

10-34863 ALSO IN CATEGORY 17
LOSS OF POWER TEST SHOWS PROCEDURAL MODIFICATION REQUIRED
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-34 +. 1 PAGE, P. 18, MAY 16, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

A COMPLETE LOSS-OF-POWER TEST WAS RUN TO DUPLICATE THE APRIL 17, 1968, LOSS OF OFF-SITE POWER. THE CHARGING PUMP AND DIESEL GENERATOR IC WERE TRIPPED MANUALLY. SHORTLY THEREAFTER DIESEL IC WAS RESTARTED AND PLACED ON THE BUS, BUT TRIPPED ON REVERSE POWER RELAY ACTION. THE AUTO-START SIGNAL DRIVES THE GOVERNOR FULL OPEN, THEN A TRIP RESETS ITS GOVERNOR TO THE NO LOAD CONDITION SO THAT TO PLACE IT BACK ON THE BUS WITH OTHER MACHINES STILL RUNNING, ITS GOVERNOR MUST BE DRIVEN OPEN TO ENABLE THE DIESEL TO PICK UP SOME LOAD AND PREVENT A REVERSE POWER CONDITION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS + FAILURE, EQUIPMENT + *EMERGENCY PROCEDURE + HADDAM NECK (PWR) + EMERGENCY POWER, ELECTRIC + ACCIDENT, LOSS OF POWER + ACCIDENT, LOAD REJECTION + REACTOR, PWR + TEST, SYSTEM OPERABILITY

10-34909 ALSO IN CATEGORY 17
SALT DRAIN CAUSED BY LOSS OF ONE PHASE OF ELECTRICAL POWER SUPPLY
OAK RIDGE NATIONAL LAB., TENN.
ORNL INCIDENT REPORT NO 69-2 +. 4 PAGES, MAY 20, 1969

A FUSE BLEW (DURING A RAIN, NO LIGHTNING OR OTHER CAUSE) AT THE 13.8-KV TO 480-V TRANSFORMER CAUSING AUTOMATIC SHUTDOWN. DIESELS WERE STARTED, AND WHEN EQUIPMENT WOULD NOT RESTART, OPERATORS FOUND OVERCURRENT RELAYS HAD TO BE RESET AT THE EQUIPMENT (BECAUSE ONE PHASE LOSS HAD OVERLOADED OTHER TWO PHASES, AND CONTROL-ROOM RESET HAD NOT BEEN PROVIDED). FUEL-DRAIN VALVE THAWED, DUMPING THE FUEL SALT INTO STORAGE TANKS. *** NOW INSTRUCTIONS ARE PREPARED TO RESTORE AIR COOLING TO THIS VALVE QUICKLY IN CASE OF FUTURE POWER LOSS.

*INCIDENT, GENERAL + *ACCIDENT, LOSS OF POWER + AUXILIARY COOLING SYSTEM + REACTOR, AEC OWNED + MSRE (RE) + VALVE + OPERATOR ACTION + SAFE FAILURE CRITERION + REACTOR, POWER + REACTOR, MOLTEN SALT

10-34922 ALSO IN CATEGORIES 12 AND 17
RELIABILITY OF YANKEE SAFETY INJECTION SYSTEM AND STATION SERVICE POWER
YANKEE ATOMIC ELECTRIC COMPANY
YAE-1075-R +. 10 PAGES, PP. 26-35, FEBRUARY 1969

BEFORE THE MARCH 1968 REFUELING, 320 WEEKLY, 80 MONTHLY, 6 ACTUAL OPERATIONAL, AND 3 PUMP-CAPACITY TESTS WERE MADE. SEVERAL DEFICIENCIES WERE FOUND, NONE PREVENTED OPERATION. (1) RAIN WOULD RUN UNDER THE DISHD TANK BOTTOM, COLLECT IN THE INSULATION, AND CAUSE ICE BUILDUP AROUND NORMALLY OPEN VALVES. (2) RECIRCULATION VALVE ON THE TANK FROZE DESPITE HEATING INSIDE TANK. (3) PRESSURE SHOCK FROM HIGH-HEAD PUMP DISTORTED MANUAL SHUTOFF VALVE INTERNALS IN RECIRCULATION LINE. (4) LEVEL INDICATION OF PUMP SUCTION WAS ERRONEOUS DURING FLOW. ***ONLY BLACKOUT WAS NOV. 1965 (37 MIN). LOAD-SHEDDING SCHEDULES HAVE ESTABLISHED.

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-34922 *CONTINUED*

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*CORE REFLOODING SYSTEM + *RELIABILITY, SYSTEM + INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, LIQUID LEVEL
DETECTION + YANKEE (PWR) + *TEST, SYSTEM OPERABILITY + ACCIDENT, LOSS OF POWER + FAILURE, EQUIPMENT + VALVE +
PUMP + REACTOR, PWR

10-35015 ALSO IN CATEGORY 17
PROPOSED REVISED PAGES, TECH SPEC CHANGE 26
PACIFIC GAS AND ELECTRIC COMPANY, CALIF.

3 PAGES, LETTER TO DRL, MAY 12, 1968, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(PG VI-7 AND -7A) PROVIDES SOURCES OF POWER NEEDED FOR OPERATION - (1) 2 OF 3 AVAILABLE OF UNIT 1
OR UNIT 2 OR ENGINE GENERATOR, AND (2) TWO 115-KV LINES AND AT LEAST 2 OF 4 60-KV LINES. ***
OPERATION WITH LESS THAN 2 ONSITE SOURCES IS PERMITTED IF (A) ONE ON-SITE AND ONE OFF-SITE SOURCE
AVAILABLE, AND (B) PLANT SYSTEMS REQUIRED FOR NORMAL OPERATION AND SAFE SHUTDOWN ARE OPERABLE AND
HAVE NO UNSAFE TRENDS. OPERATION IN THIS CONDITION LONGER THAN 12 HR REQUIRES COMPLIANCE
NOTIFICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + HUMBOLDT BAY (BWR) + *EMERGENCY POWER, ELECTRIC + *ELECTRIC POWER, ALTERNATE +
ACCIDENT, LOSS OF POWER + FAILURE, EQUIPMENT + REACTOR, BWR

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30442
AMATEAU MF + STEIGERWALD EA
FINAL REPORT, APRIL 1, 1966 - APRIL 1, 1967. TEST METHODS FOR DETERMINING FRACTURE TOUGHNESS OF METALLIC MATERIALS
TRW EQUIPMENT LABORATORIES, CLEVELAND, OHIO
AFML-TR-67-145 + AD-823,594 +. 69 PAGES, 20 FIGURES, REFERENCES, SEPTEMBER 1967

A PROGRAM WAS CONDUCTED TO STUDY (1) THE INFLUENCE OF GEOMETRICAL VARIABLES ON THE ABILITY OF THE DOUBLE CANTILEVER BEAM SPECIMEN TO MEASURE FRACTURE TOUGHNESS, (2) THE INFLUENCE OF CRACK SIZE ON K MEASURED FROM A SLOW NOTCH BEND TEST, AND (3) THE INFLUENCE OF TEST-SYSTEM STIFFNESS ON THE MAGNITUDE OF THE DISCONTINUOUS CRACK GROWTH WHICH ACCOMPANIES PLANE STRAIN CRACK PROPAGATION. THE RESULTS INDICATED COMPARABLE K VALUES OBTAINED BY METHODS 1 AND 2. VALID VALUES OF K WERE OBTAINED WHEN THE NET SECTION WIDTH, ARM HEIGHT, OR CRACK SIZE WAS 2.5 TIMES THE $(K/\sigma Y)^{1/2}$ SQUARED RATIO. ITEM NUMBER 3 WAS SHOWN TO BE PREDOMINANTLY CONTROLLED BY MATERIAL PROPERTIES.

*FRACTURE TOUGHNESS + STRUCTURAL INTEGRITY + ELASTICITY + PLASTICITY + TEST, DESTRUCTIVE

11-30822
GRIGORY SC
STUDIES OF THE FATIGUE STRENGTH OF PRESSURE VESSELS. FRACTURE TESTS OF ONE-HALF SCALE MODEL PRESSURE VESSELS
SOUTHWEST RESEARCH INSTITUTESWRI-1228-P-5-46 +. 134 PAGES, 70 FIGURES, 19 TABLES,
4 REFERENCES, APRIL 29, 1968

NINE 20-IN.-DIAMETER PRESSURE VESSELS WERE TESTED TO PROVIDE INFORMATION ON THE EFFECT OF SIZE ON LOW-CYCLE FATIGUE TO PREDICT THE SERVICE LIFE OF PRESURE VESSELS MUCH LARGER THAN THE FULL-SIZE PRESSURE VESSELS TESTED. THE PROJECT ALSO INCLUDED FATIGUE OF NOZZLES SUBJECT TO BENDING LOADS AND FAST FRACTURE TESTS.

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

*FRACTURE TOUGHNESS + *PRESSURE VESSEL + *PRESSURE, INTERNAL + NOZZLE + FAILURE, FATIGUE + *TEST, NONDESTRUCTIVE + STRESS STRAIN DATA + PM 2A (PWR) + REACTOR, PWR + REACTOR, MILITARY + FRACTURE TOUGHNESS

11-30852
GREEN AT
DETECTION OF INCIPIENT FAILURES IN PRESSURE VESSELS BY STRESS-WAVE EMISSIONS
AEROJET-GENERAL CORPORATION, SACRAMENTO, CALIFORNIA
15 PAGES, NUCLEAR SAFETY JOURNAL, 10(1), PAGES 4-18 (JANUARY-FEBRUARY 1969)

ADVANCES IN STRESS-WAVE EMISSION TECHNIQUES FOR DETECTING AND MONITORING FAILURE PROCESSES IN ENGINEERING MATERIALS HAVE CREATED CONSIDERABLE INTEREST IN THE APPLICATION IN SYSTEMS THAT WILL FORETELL INCIPIENT FAILURE OF A PRESSURE VESSEL. PROGRAMS ON VARIOUS ASPECTS OF THE TECHNOLOGY ARE BEING CARRIED OUT IN A RELATIVELY SMALL BUT RAPIDLY GROWING NUMBER OF DEVELOPMENT LABORATORIES. THESE PROGRAMS RANGE FROM PURE RESEARCH INTO THE BASIC PHENOMENA, SUCH AS IN MATERIALS EVALUATIONS PROGRAMS, TO THE DEVELOPMENT OF ENVIRONMENTALLY HARDENED SENSORS AND THE FABRICATION AND USE OF APPLICATION HARDWARE AND SYSTEMS. SOURCE LOCATION OF THE STRESS WAVE HAS BEEN DEMONSTRATED AS BEING WITHIN THE CAPABILITY OF PRESENT TECHNOLOGY. RESOLUTION OF THE SEVERITY OF THE LOCATED DEFECT HAS NOT BEEN COMPLETELY ACCOMPLISHED, ALTHOUGH SIGNIFICANT PROGRESS HAS BEEN MADE TOWARD THIS OBJECTIVE.

*PRESSURE VESSEL + FAILURE, PRESSURE VESSEL + *TEST, NONDESTRUCTIVE + *WAVE, STRESS + FLAW + SURVEILLANCE PROGRAM + INSTRUMENT, GENERAL

11-30854 ALSO IN CATEGORY 1
WIESENACK G
THE TECHNICAL DEMANDS OF SAFETY ON PRESSURE VESSELS IN NUCLEAR POWER PLANTS
9 PAGES, 10 FIGURES, 4 TABLES, 23 REFERENCES, TECHN. UBERWACH, 9(4), PAGES 122-128 (APRIL 1968)

A CONDENSATION OF A LECTURE PRESENTED BEFORE THE GERMAN STEAM BOILER BOARD. AFTER A REVIEW OF THE IMPORTANT REACTOR TYPES, THE CONSTRUCTION, MATERIALS, MANUFACTURE, AND DESIGN OF REACTOR PRESSURE VESSELS IS DISCUSSED. THE DISCUSSION CONCLUDES WITH THE STATUS OF GERMAN AND INTERNATIONAL NUCLEAR PRESSURE VESSEL CODES AND THE FUTURE WORK REQUIRED TO DEVELOP THEM.

*PRESSURE VESSEL + CODES AND STANDARDS + STEEL + GERMANY

11-30865
CONTAINER SHIP PROSPECTS
4 PAGES, FIGURES, 1 TABLE, NUCLEAR ENGINEERING INTERNATIONAL 14(152), PAGES 32-35 (JANUARY 1969)

RATHER SUPERFICIAL DISCUSSION OF APPLICATION OF AN INTEGRAL PRESSURIZED WATER REACTOR TO CONTAINER SHIPS. REACTOR USES HIGH-PRESSURE CONTAINMENT WHICH ASSUMES INSTANTANEOUS RELEASE OF PRIMARY WATER.

*REACTOR, MARITIME + *DESIGN CRITERIA + *ECONOMICS + *ACCIDENT ANALYSIS + *FORECAST

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-31461 ALSO IN CATEGORIES 3 AND 13

LONG JT
ENGINEERING FOR NUCLEAR FUEL REPROCESSING
OAK RIDGE NATIONAL LAB., TENN.
1023 PAGES, FIGURES, TABLES, REFERENCES, NEW YORK, GORDON AND BREACH SCIENCE PUBLISHERS INC., 1967

PRESENTS THE ENGINEERING ASPECTS OF THE REPROCESSING OF POWER-REACTOR FUELS. FLOWSHEETS, DESIGN AND SAFETY FEATURES, CRITICALITY, REMOTE HANDLING AND VIEWING EQUIPMENT, PROCESS EQUIPMENT FUEL STORAGE, AUXILIARY EQUIPMENT, MANAGEMENT AND OPERATION, AND COSTS ARE COVERED.

*FUEL REPROCESSING + *DESIGN CRITERIA + *WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, GAS + WASTE DISPOSAL, SOLID + WASTE DISPOSAL, LIQUID + *SOLVENT EXTRACTION PROCESS + REMOTE MANIPULATING AND VIEWING + *EQUIPMENT, GENERAL + *DISSOLUTION + CRITICALITY SAFETY + FUEL STORAGE + TRANSPORTATION AND HANDLING + DECONTAMINATION + ADMINISTRATIVE CONTROL + *ECONOMICS + *CONTAINMENT, FUEL REPROCESSING + HOT CELL + RADIOCHEMICAL PLANT SAFETY + *SHIPPING CONTAINER + *WASTE STORAGE

11-31465 ALSO IN CATEGORY 12

MILLER RW + LUSSIE WG
THE RESPONSE OF UO₂ FUEL RODS TO POWER BURSTS 5/16-INCH OD, PELLET AND POWDER FUEL, ZIRCALOY CLAD
PHILLIPS PETROLEUM COMPANY
IDO-ITR-103 +. JANUARY 1969, 43 FIGURES, 13 TABLES, 4 REFERENCES, 71P

FUEL RODS OF 0.3125-INCH OD WITH ZIRCALOY-2 CLADDING AND EITHER PELLET OR POWDER URANIUM DIOXIDE FUEL FORM ENRICHED TO 7% WERE FABRICATED BY GENERAL ELECTRIC COMPANY BY COMMERCIAL TECHNIQUES AND SUPPLIED FOR THE SUBASSEMBLY TESTING PROGRAM. THE FUEL RODS WERE INSERTED INDIVIDUALLY IN THE CDC REACTOR IN A WATER ENVIRONMENT AND SUBJECTED TO POWER BURSTS WITH HALF-WIDTHS OF ABOUT 12 TO 30 MSEC (ASYMPTOTIC PERIODS BETWEEN 3 AND 7 MSEC) RESULTING IN SUDDEN RELEASES OF ENERGY WITHIN THE URANIA RANGING FROM 190 CAL/G OF UO₂ TO 440 CAL/G OF UO₂. RESULTS INDICATE A THRESHOLD LESS THAN 250 CAL/G FOR PELLET FUEL BUT GREATER THAN 250 CAL/G FOR POWDER FUEL.

*REACTOR, POWER + *FUEL, PELLET TYPE + *FUEL, POWDER TYPE + *EXPERIMENT, GENERAL + URANIUM DIOXIDE + ZIRCONIUM + *FAILURE, FUEL ELEMENT + CONTAINMENT, GENERAL

11-31478

SANDERS MK
HEAVY WATER ORGANIC COOLED REACTOR. DEVELOPMENT OF SAP-STEEL PRESSURE TUBE TRANSITION JOINTS FOR THE HWOCR
ATOMICS INTERNATIONAL + COMBUSTION ENGINEERING
AI-CE-46(ADD.) +. 7 PAGES. JANUARY 15, 1968

IN THE ORIGINAL ISSUE OF AI-CE-46, THE INFORMATION PERTAINED TO THE DEVELOPMENT OF HOT-PRESSED TRANSITION JOINTS BETWEEN SAP AND STAINLESS STEEL. ADDITIONAL REPORTS WERE WRITTEN COVERING THE DEVELOPMENT OF ROLLED TRANSITION JOINTS AND THE FURTHER TESTING OF HOT PRESSED JOINTS. THIS ADDENDUM DISCUSSES BRIEFLY THE RESULTS OF THESE DEVELOPMENT TASKS EXCLUDED FROM AI-CE-46 AND REFERS THE READER TO THOSE DOCUMENTS WHICH PRESENT THE DETAILED DEVELOPMENT AND TEST DATA OF THESE EXCLUDED TASKS. THE TASKS EXCLUDED AND WHICH ARE DISCUSSED IN THIS ADDENDUM ARE (1) ROLLED JOINT DEVELOPMENT, (2) END THICKENING OF SAP TUBES, AND (3) OUT-OF-PILE LOOP TESTS.

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

*REACTOR, HWR + *REACTOR, ORGANIC COOLED + *PRESSURE, INTERNAL + HIGH TEMPERATURE + *FAILURE, TUBING + *FABRICATION + STEEL, STAINLESS + ALUMINUM + SINTERING + OUT OF PILE LOOPS AND EXPERIMENTS + CORROSION + WELDS + TUBING

11-31479

HOANG YS
STRUCTURAL, EXPANSION, AND BENDING EFFECTS IN THE FAST REACTOR. PART III APPLICATION TO NA-1 REACTOR
KERNFORSCHUNGSZENTRUM, KARLSRUHE (WEST GERMANY)
EURFNR-542 + KFK-539/3 + EUR-395(PT. 3) +. 38 PAGES, 15 FIGURES, 6 TABLES, JANUARY 1967

IT WAS FIRST SHOWN THAT THE CORE DESIGN OF THE NA-1 REACTOR LEADS TO A LARGE POSITIVE BOWING REACTIVITY LOWERING REACTIVITY COEFFICIENT, WHICH ALMOST OFFSETS THE LARGE NEGATIVE EXPANSION EFFECT. IN ADDITION, THE NECESSARY MINIMUM SPACING OF 6 MM IS TOO LARGE, WHILE THE MAXIMUM BENDING STRESSES AND THE MAXIMUM OUTWARD BENDING AND FANNING REMAIN WITHIN ACCEPTABLE LIMITS. THE HEAT STRESSES IN THE BOX WALL, HOWEVER, ARE UNACCEPTABLY LARGE (EXACT FIGURES NOT GIVEN).

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

*CORE COMPONENTS + *REACTOR, FAST + EURATOM + UNITED STATES + KARLSRUHE + COMPUTER PROGRAM + *STRESS ANALYSIS + *EXPANSION + DANGER COEFFICIENT + REACTIVITY EFFECT + THERMAL MECHANICAL EFFECT + MATHEMATICAL TREATMENT

11-31480

BLOOM EE
IN-REACTOR AND POSTIRRADIATION CREEP-RUPTURE PROPERTIES OF TYPE 304 STAINLESS STEEL AT 650 C
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2130 +. 23 PAGES, 13 FIGURES, MARCH 1968

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-31480 *CONTINUED*

THE CREEP-RUPTURE PROPERTIES OF TYPE-304 STAINLESS STEEL WERE DETERMINED IN THE UNIRRADIATED CONDITION AND FOR SPECIMENS TESTED BOTH DURING AND AFTER IRRADIATION. TESTS WERE PERFORMED AT 650 C AT STRESSES BETWEEN 15,000 AND 30,000 PSI. CREEP RATES FOR IRRADIATED SPECIMENS TESTED BOTH IN-REACTOR AND POSTIRRADIATION WERE ABOUT THE SAME AND CONSISTENTLY HIGHER THAN THOSE OF THE UNIRRADIATED ALLOY. BOTH DUCTILITY AND RUPTURE LIFE WERE REDUCED BY IRRADIATION.

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

*CREEP BEHAVIOR + *STEEL, STAINLESS + *HIGH TEMPERATURE + FAILURE, FATIGUE + EMBRITTLEMENT + STRESS STRAIN
DATA + RADIATION EFFECT

11-31481

ERDOGAN F

CRACK PROPAGATION THEORIES

LEHIGH UNIVERSITY, PA.

NASA-CR-901 +. 166 PAGES, 28 FIGURES, 3 TABLES, 133 REFERENCES, OCTOBER 1967

THIS ARTICLE CONSISTS OF TWO PARTS. IN THE FIRST PART, THE CRACK-PROPAGATION THEORIES FOR BRITTLE AND QUASI-BRITTLE SOLIDS FRACTURING UNDER A SINGLE APPLICATION OF THE EXTERNAL LOADS ARE CONSIDERED. THE EMPHASIS HAS BEEN ON THE DYNAMIC ASPECTS OF THE FRACTURE PHENOMENON AND THE RELATED QUANTITATIVE THEORIES. IN THE SECOND PART, THE THEORIES DEALING WITH THE FATIGUE CRACK PROPAGATION IN PLATES ARE CONSIDERED. AFTER A BRIEF REVIEW OF THE EXISTING MODELS, A SIMPLE MODEL BASED ON THE PLASTIC DEFORMATIONS AROUND THE CRACK TIP IS DISCUSSED IN DETAIL.

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

*COMPARISON, THEORY AND EXPERIENCE + PLASTICITY + *ANALYTICAL MODEL + EMBRITTLEMENT + *FAILURE, FATIGUE +
FAILURE MODE ANALYSIS + THEORETICAL INVESTIGATION + STRUCTURAL ANALYSIS, DYNAMIC

11-31483

GLASSER WJ + WHITING AR

SURVEILLANCE AND INSPECTION PROGRAMS FOR LACBWR REACTOR PRESSURE VESSEL AND ASSOCIATED PIPING AND EQUIPMENT
CORROSION PROGRAM

SOUTHWEST RESEARCH INSTITUTE

SWRI 1228P11-2 +. APRIL 11, 1968, 20P., 11 FIGURES, 5 TABLES

CONCERNED WITH THE CORROSION PROGRAM FOR LACBWR. THE PROGRAM WAS SET UP TO DETERMINE CORROSION RATES OF THE FORCED-CIRCULATION PIPING SYSTEM USING CORROSION COUPONS AND ULTRASONIC MEASUREMENTS. ALL PREVIOUS WORK CONCERNING CORROSION SPECIMEN FABRICATION, WEIGHING, AND INSTALLATION IS SUMMARIZED. INITIAL ULTRASONIC THICKNESS MEASUREMENTS OF SEVERAL SELECTED LOCATIONS IN THE FORCED-CIRCULATION SYSTEM ARE DESCRIBED AND RECORDED.

*SURVEILLANCE PROGRAM + *LACROSSE (BWR) + *PIPING + *PRESSURE VESSEL + *REACTOR, BWR + THICKNESS + CORROSION +
ACOUSTICS

11-31484

PRESTRESSED CONCRETE REACTOR VESSEL MODEL I SUPPLEMENTAL REPORT OF JUNE 30, 1967

GENERAY DYNAMICS

GA-7097(SUPPL.) +. 207 PAGES, FIGURES, TABLES, JUNE 30, 1967

THE DEVELOPMENT OF PRESTRESSED CONCRETE REACTOR VESSEL (PCRV) TECHNOLOGY AT GENERAL ATOMIC WAS UNDERTAKEN AS AN ADJUNCT TO THE OVERALL DEVELOPMENT OF THE HIGH-TEMPERATURE GAS-COOLED REACTOR. THE BASIS FOR EARLY INTEREST IN PCRVs FOR GAS-COOLED REACTORS STEMS FROM TWO PRINCIPAL CONSIDERATIONS. FIRST, THE BRITISH AND FRENCH GAS-COOLED REACTORS, IN GENERAL, HAVE A RELATIVELY LOW POWER DENSITY AND, THEREFORE, A RELATIVELY LARGE REACTOR SIZE FOR A GIVEN POWER RATING. A STEEL REACTOR VESSEL WOULD BE DIFFICULT, EXPENSIVE, AND TIME CONSUMING TO BUILD. SECOND, GAS-COOLED REACTORS HAVE SIZE AND COOLANT-PRESSURE REQUIREMENTS WHICH CAN BE SATISFIED BY A PCRV EMPLOYING THE MATERIALS AND GENERAL TECHNOLOGY ALREADY DEVELOPED FOR PRESTRESSED CONCRETE STRUCTURES.

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

*CONCRETE, PRESTRESSED + *REACTOR, HTGR + *PRESSURE VESSEL + MODEL TESTING + *EXAMINATION + *STRESS STRAIN
DATA + STEEL LINER + SEAL

11-31485

EIBER RJ + MAXEY WA + DUFFY AR + ATTERBURY TJ

INVESTIGATION OF THE INITIATION AND EXTENT OF DUCTILE PIPE RUPTURE. QUARTERLY PROGRESS REPORT FOR APRIL-JUNE
1968

BATTELLE MEMORIAL INSTITUTE

BMI-1847 +. JULY 1, 1968, 21P., 3 TABLES, 13 FIGURES

THIS PROGRAM INVOLVES FULL-SCALE PIPE-RUPTURE EXPERIMENTS UNDER SIMULATED PW AND BW CONDITIONS. THE OBJECTIVES ARE TO DEFINE THE SIZES OF DEFECTS REQUIRED TO INITIATE FRACTURES IN TYPICAL PWR AND BWR PRIMARY-COOLANT PIPING AND TO OBTAIN INFORMATION ON THE EXTENT OF PROPAGATION.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-31485 *CONTINUED*

THEORETICAL FORMULATIONS FOR PREDICTING THE FAILURE PRESSURE OF THROUGH-WALL AND SURFACE-FLAW DEFECTS ARE BEING EXAMINED FOR THEIR ABILITY TO PREDICT THE FAILURE PRESSURE OF VARIOUS DEFECT SIZES. THE RESULTS OF THE PROGRAM ARE EXPECTED TO PROVIDE INFORMATION RELATING TO THE CONDITIONS GOVERNING A RUPTURE IN THE PIPING SYSTEMS OF OPERATING REACTORS.

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

*EMBRITTEMENT + FAILURE, FATIGUE + STRESS STRAIN DATA + REACTOR, PWR + REACTOR, BWR + FAILURE MODE ANALYSIS + THEORETICAL INVESTIGATION + *FAILURE, PIPE + PRESSURE, INTERNAL

11-31486

EIBER RJ + MAXEY WA + DUFFY AR + ATTERBURY TJ
INVESTIGATION OF THE INITIATION AND EXTENT OF DUCTILE PIPE RUPTURE. QUARTERLY PROGRESS REPORT FOR OCT-DEC 1967
BATTELLE MEMORIAL INSTITUTE
BMT-1828 +. JANUARY 1, 1968, 18P., 3 TABLES, 13 FIGURES

THIS PROGRAM INVOLVES FULL-SCALE PIPE RUPTURE EXPERIMENTS UNDER SIMULATED PW AND-BW CONDITIONS. THE OBJECTIVES ARE TO DEFINE THE SIZES OF DEFECTS REQUIRED TO INITIATE FRACTURES IN TYPICAL PWR AND BWR PRIMARY-COOLANT PIPING AND TO OBTAIN INFORMATION ON THE EXTENT OF PROPAGATION.

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

*EMBRITTEMENT + FAILURE, FATIGUE + REACTOR, PWR + REACTOR, BWR + FAILURE MODE ANALYSIS + THEORETICAL INVESTIGATION + *FAILURE, PIPE + PRESSURE, INTERNAL + STRESS STRAIN DATA

11-31491

PEINADO CO
PCRV CAVITY LINER AND PENETRATION LINERS AND CLOSURES
GULF GENERAL ATOMIC, INC., CALIF.
GA-8511 +. 32 PAGES, 21 FIGURES, FEBRUARY 23, 1968

DESCRIBES PHYSICAL DETAILS AND OPERATING REQUIREMENTS OF THE COMPONENTS THAT COMPRISE THE PRESTRESSED CONCRETE REACTOR VESSEL (PCRV) CAVITY LINER AND THE PENETRATION LINERS AND CLOSURES. DISCUSSES THE DESIGN CRITERIA, THE MATERIAL REQUIREMENTS, AND THE CONSTRUCTION REQUIREMENTS ADOPTED FOR THESE COMPONENTS IN THE 330-MW(E) FORT ST. VRAIN REACTOR.

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

*PRESSURE VESSEL + *CONCRETE, PRESTRESSED + *STEEL LINER + *CONTAINMENT ISOLATION + NDT DATA + TUBING + SEAL + PRESSURE, INTERNAL + STRESS STRAIN DATA + MODEL TESTING + CONTAINMENT PENETRATION, GENERAL + RADIATION EFFECT + QUALITY ASSURANCE

11-32816

ALSO IN CATEGORY 18
CONTAINMENT DESIGN
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-7 +. 14 PAGES, SEFOR, PSAR, SUPPLEMENT 7, FEB. 14, 1968, DOCKET 50-231

A CONDENSATION OF THE MATERIAL IN THE PSAR SECTION VII OR CONTAINMENT DESIGN FOR THE PURPOSE OF CLARITY BY ELIMINATING REPETITION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *CONTAINMENT DESIGN + REACTOR, FAST + REACTOR, PULSEC + REACTOR, LMCR

11-33331

ALSO IN CATEGORIES 1 AND 17
O KEEFE W
PIPING
25 PAGES, POWER, PAGES 1-24 (MARCH 1969)

A BASIC PIPING GUIDE, PRESENTS NO DATA, DOES NOT DISCUSS VALVES FITTINGS OR JOINTS. GIVES BROAD VIEW OF PIPING SYSTEMS FOR ENGINEERS WITH OVERALL RESPONSIBILITY. CODES (2 PG.). BASIC METALLURGY, (6 PG.). PIPE FABRICATION (2 PG.). DESIGNING THE SYSTEM (8 PG.) JOINING PIPE AND TESTING JOINTS. *** GOOD TRAINING MATERIAL, NOT ORIENTED TO PARTICULAR REACTOR.

*PIPING + DESIGN STUDY + CODES AND STANDARDS + TEST, NONDESTRUCTIVE + TRAINING + MATERIAL + WELDING + REACTOR, POWER

11-33513

ALSO IN CATEGORY 18
COSTES D
RECOMMENDATIONS FOR THE DESIGN AND CALCULATION OF REACTOR VESSELS WITH A VIEW TOWARDS NUCLEAR SAFETY
COMMISSARIAT A L ENERGIE ATOMIQUE, SURETE DES PILES, FRANCE
15 PAGES, BULLETIN INFORMATION A.T.E.N. (ASS. TECH. ENERG. NUCL), NO. 72, PAGES 10-14 (JULY-AUGUST 1968)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-33513 *CONTINUED*

LISTS THE FOUR CLASSES OF PRESTRESSED CONCRETES WHICH ARE USED FOR REACTOR CONSTRUCTION. PROTECTION OF PRESTRESSING TENDONS FROM CORROSION IS DISCUSSED. GENERAL SAFETY FEATURES OF NUCLEAR VESSELS ARE OUTLINED. PROBLEMS ASSOCIATED WITH USE OF CONCRETES ARE DESCRIBED. A LIST OF PROBLEMS ASSOCIATED WITH THE PROTECTION OF THE PRESTRESSING TENDONS IS GIVEN. CONTAINMENT AND CIRCUIT INTEGRATION PROBLEMS ARE DISCUSSED.

*CONTAINMENT DESIGN + *CCONCRETE, PRESTRESSED + CONTAINMENT CONSTRUCTION + *FASTENER + *CONTAINMENT CORROSION PROTECTION + FRANCE

11-33514 ALSO IN CATEGORY 18

HAMADA K + HAYASHI T
STRESS ANALYSIS FOR DRYWELL OF REACTOR, PRIMARY CONTAINMENT VESSEL
HITACHI LTD., TOKYO
5 PAGES, HITACHI HYORON, 50(6), PAGES 13-17 (JUNE 1968)

GIVES A PROCEDURE WHEREBY THE BASIC DIFFERENTIAL EQUATIONS ARE SOLVED BY AN ELECTRONIC COMPUTER, AND THE RESULTS ARE DESCRIBED

*STRESS ANALYSIS + *CONTAINMENT VESSEL LOADING + *CONTAINMENT, PRESSURE SUPPRESSION + *ANALYTICAL TECHNIQUE, GENERAL + COMPUTER PROGRAM + JAPAN + CONTAINMENT DESIGN

11-33552

BOUCHET B + CHARLES R
MAGAZINE FOR THE STORAGE OF FUEL RODS FOR A NUCLEAR REACTOR
EURATOM
BRITISH PATENT 1,137,758 +. DECEMBER 27, 1968

REACTOR FUEL ELEMENTS - STORAGE MAGAZINE FOR, DESCRIPTION OF COOLANT-FILLED CYLINDRICAL-SHAPED RADIAL-ARRANGED TELESCOPING-ARM-LOADED. REACTOR LOADING MACHINES - FUEL ELEMENT STORAGE MAGAZINE FOR, DESCRIPTION OF COOLANT-FILLED CYLINDRICAL-SHAPED RADIAL-ARRANGED TELESCOPING-ARM-LOADED. REACTORS - FUEL ELEMENT STORAGE MAGAZINE FOR, DESCRIPTION OF COOLANT-FILLED CYLINDRICAL-SHAPED RADIAL-ARRANGED TELESCOPING-ARM-LOADED.

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

*FUEL ELEMENT + *STORAGE CONTAINER + FUEL HANDLING MACHINE + PATENT + UNITED KINGDOM + FRANCE + FUEL STORAGE

11-33557

BURTON JC + WALKER DJ + WALLIS E
NUCLEAR REACTOR FUEL HANDLING SYSTEMS
ENGLISH ELECTRIC CO., LTD.
BRITISH PATENT 1,136,251 +. DECEMBER 11, 1968

A FUEL HANDLING SYSTEM FOR GAS-COOLED REACTORS IS DESCRIBED, WHICH MAY BE USED FOR BOTH ON-LOAD AND OFF-LOAD OPERATION. THE SYSTEM COMPRISES A TRANSPORT FLASK IN THE FORM OF A TRANSPORTABLE PRESSURE VESSEL WITH A LID HAVING AT LEAST ONE APERTURE FOR THE PASSAGE OF FUEL ELEMENTS, AND AN ASSEMBLY FOR COUPLING THE ACCESS DUCT OF THE REACTOR SEALABLY TO THE FLASK LID. THE FLASK CONTAINS A ROTATABLE MAGAZINE INCLUDING AT LEAST ONE RING OF LONGITUDINALLY EXTRUDING MAGAZINE TUBES FOR HOLDING FUEL ELEMENTS.

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

*FUEL HANDLING + SYSTEM DESCRIPTION + REACTOR, GCR + ON LINE REFUELING + STORAGE CONTAINER + PATENT + UNITED KINGDOM + FUEL STORAGE

11-33558

PRESSURE SUPPRESSION SYSTEM FOR NUCLEAR REACTOR PLANTS
ALLMANN SVENSKA ELEKTRISKA AKTIEBOLAGET
BRITISH PATENT 1,135,826 +. DECEMBER 4, 1968

REACTORS, SUPERHEATING - PRESSURE SUPPRESSION SYSTEM FOR, DESCRIPTION OF SPRAY-COOLED STONE-PACKED. SPRAY COOLING SYSTEMS- DESCRIPTION OF SUPERHEATING REACTOR STONE-PACKED PRESSURE-SUPPRESSING SYSTEM.

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

SPRAY, GENERAL + *CONTAINMENT, PRESSURE SUPPRESSION + CONTAINMENT SPRAY + CORE SPRAY + PATENT + UNITED KINGDOM + SWEDEN

11-33560

BURTON JC
BOTTLING APPARATUS FOR NUCLEAR FUEL ELEMENTS AND THE LIKE
ENGLISH ELECTRIC CO., LTD.
BRITISH PATENT 1,136,252 +. DECEMBER 11, 1968

A BOTTLING APPARATUS IS DESCRIBED FOR USE IN FILLING AND SEALING BOTTLES FOR HOLDING IRRADIATED

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-33560 *CONTINUED*

MATTER SUCH AS NUCLEAR FUEL ELEMENTS. EACH BOTTLE IS AN ELONGATED THIN-WALLED CONTAINER, OPEN AT ONE END AND HAVING A SEATING IN THE OPEN END AND A SEPARATE END CLOSURE CAP WHICH CAN BE SEALED IN THE OPEN END BY DEFORMATION OF THE PERIPHERAL RIM OF THE OPEN END.

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

*STORAGE CONTAINER + FUEL ELEMENT + SYSTEM DESCRIPTION + PATENT + UNITED KINGDOM + RADIOCHEMICAL PROCESSING + FUEL STORAGE

11-33586 ALSO IN CATEGORY 18

VOLUME 5 - APPENDICES

DETROIT EDISON COMPANY

40 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS APPENDIXES TITLED PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS, OUTLINE OF PROPOSED TECHNICAL SPECIFICATIONS, LOADING CRITERIA, PROGRAM FOR QUALITY ASSURANCE, STACK-RELEASE-LIMIT CALCULATIONS, AND CONFORMANCE TO AEC GENERAL DESIGN CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*REPORT, PSAR + REACTOR, BWR + REACTOR DESCRIPTION + *CONTAINMENT INTEGRITY + FUEL MANAGEMENT + ULTRASONICS + FISSION PRODUCT RELEASE, GENERAL + AEC DESIGN CRITERIA + PRESSURE, INTERNAL

11-33736

SCOTTO F

IMPROVED SYSTEM OF HOOPING CABLES

CONF-670301 +. 4 PAGES, PG. 285-8 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INSTITUTION OF CIVIL ENGINEERS, 1968

A PARTICULAR PATTERN OF HOOPING CABLES IS DESCRIBED, WHICH NOT ONLY MINIMIZES THE OVALIZING EFFECTS OF THE ANCHORING HEAD REACTIONS AGAINST THE OUTSIDE SURFACE OF CYLINDRICAL WALLS BUT ALSO UTILIZES THESE REACTIONS TO PROVIDE ADDITIONAL PRESTRESSING FORCES. THE CONCEPTS OUTLINED HAVE BEEN APPLIED TO A PRESTRESSED PRESSURE VESSEL FOR A 300-MW(E) THTR.

*PRESSURE VESSEL + *CONCRETE, PRESTRESSED + CONTAINMENT CONSTRUCTION + CONTAINMENT STRUCTURE + *CONTAINMENT VESSEL LOADING + STRESS

11-33754 ALSO IN CATEGORY 18

GUIDE FOR THE QUALITY ASSURANCE PROGRAMS FOR THE CONSTRUCTION OF NUCLEAR GENERATING UNITS

COMMONWEALTH EDISON COMPANY

21 PAGES, AUG. 30, 1968, DOCKET 50-295/304, TYPE--WPR, MFG--WEST., AE--SGT + LUNDY

DEFINES THE OVERALL PROGRAM OBJECTIVES, DESCRIBES ACTIVITIES OF PROGRAM, IDENTIFIES RESPONSIBILITIES, DESCRIBES RULE OF CONSULTING SPECIALISTS, AND OUTLINES PROCEDURES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

ZION 2 (PWR) + REACTOR, PWR + *QUALITY ASSURANCE + *GUIDE + *CONTAINMENT DESIGN + ADMINISTRATIVE CONTROL + DESIGN CRITERIA + ZION 1 (PWR)

11-33931 ALSO IN CATEGORY 5

SIMON JJ + DAVIS MW + TUPPENY WH

EXPERIMENTAL DETERMINATION OF LIMITING HEAT TRANSFER COEFFICIENTS DURING THE QUENCHING OF THICK STEEL PLATES IN WATER

COMBUSTION ENGINEERING, WINDSOR, CONN.

CE-TECH-REPORT-A-68-10-1 +. 40 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 13, 1968

THE REPORT CONCLUDES THAT AN EFFECTIVE HEAT TRANSFER COEFFICIENT OF 300 BTU/HR-FT²-F PROVIDES A REALISTIC UPPER LIMIT FOR SIX-INCH-THICK STEEL PLATES QUENCHED IN HIGHLY AGITATED ROOM TEMPERATURE WATER. THIS VALUE IS DERIVED FROM ACTUAL TEST MEASUREMENTS IN WHICH THE STEEL PLATE IS QUENCHED OVER A WIDE RANGE (450 F TO 1750 F) OF STARTING TEMPERATURES.

AVAILABILITY - J.J. SIMON/M.W. DAVIS/M.H. TUPPENY, COMBUSTION ENGINEERING, INC., P.O. BOX 500, WINDSOR, CONN. 06095

*PRESSURE VESSEL + *HEAT TRANSFER EXPERIMENT + HEAT TRANSFER + HEAT TRANSFER, CONVECTION + PLATE + THERMAL MECHANICAL EFFECT

11-33950 ALSO IN CATEGORY 18

SMAARDYK A + DIVONA CJ + CLP RH + HUTTER E

DESIGN AND ANALYSIS OF INSTRUMENTED SUBASSEMBLY SYSTEM FOR EBR-II

ARGONNE NATIONAL LAB., ILLINOIS

ANL-7423 +. 48 PAGES, 21 FIGURES, 3 TABLES, 7 REFERENCES, JUNE 1

DESCRIBES THE RESEARCH, DESIGN, AND DEVELOPMENT WORK PERFORMED AFTER A FEASIBILITY STUDY OF INSTALLING AN INSTRUMENTED SUBASSEMBLY SYSTEM CAPABLE OF MEASURING PERTINENT OPERATING PARAMETERS

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-33950 *CONTINUED*

OF SPECIMEN FUELS AND RELATED COMPONENTS WHILE UNDER IRRADIATION IN THE EBR-II CORE. IMMEDIATE OBJECTIVE IS CONSTRUCTION OF A PROTOTYPE SYSTEM FOR INSTALLATION AND PERFORMANCE EVALUATION IN THE EBR-II DURING THE FIRST QUARTER OF CALENDAR YEAR 1969 FOR EVALUATING ADVANCED FUELS OF INTEREST TO THE AEC LMFBR PROGRAM.

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

*R AND D PROGRAM + *REACTOR, LMFBR + *DESIGN STUDY + *FUEL ELEMENT + *IRRADIATION TESTING + FUEL BURNUP + INSTRUMENT, IN CORE + EBR 1 AND 2 (RE) + REACTOR, FAST + REACTOR, TEST + REACTOR, LMCR + ANL

11-33953 ALSO IN CATEGORY 18

WOODFIELD FW

FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, NOVEMBER 1967

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-639 +. 58 PAGES, DECEMBER 10, 1967

ONE OF A SERIES. TOPICS - COOLANT SYSTEMS DEVELOPMENT, EQUIPMENT, INSTRUMENTATION, METALS AND MATERIALS, AND PROCESS AND MATERIALS SPECIFICATIONS. FISSION-PRODUCT DIFFUSION THROUGH 304 SS CLADDING AFTER 1052 HR AT 1200 F WAS LESS THAN 1 MIL. 304 SS IRRADIATED AT 1.7 X 10²² NVT AT 1000 F REVEALED MARKED INCREASE IN 0.2% OFFSET YIELD STRENGTH AND A DECREASE IN DUCTILITY.

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

*FFTF (TR) + REACTOR, TEST + *R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + BATTELLE NORTHWEST + REACTOR, FAST + REACTOR, LMCR + IRRADIATION TESTING + *STEEL, STAINLESS + *RADIATION EFFECT + MATERIAL + EQUIPMENT, GENERAL + FISSION PRODUCT TRANSPORT + METAL + CORROSION + COOLANT CHEMISTRY

11-33965 ALSO IN CATEGORY 18

NASH CR + PECKINPAUGH CL

FAST FLUX TEST FACILITY EVALUATION OF CONCEPTUAL FEATURES FOR THE REACTOR REFUELING SYSTEM

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-683 +. 37 PAGES, MARCH 1968

PRESENTS RESULTS OF EVALUATION OF ALTERNATIVE METHODS OF FUEL HANDLING. THE SODIUM-COOLED-CASH CONCEPT APPEARS MOST PROMISING BECAUSE OF CAPACITY TO REMOVE DECAY HEAT, NO INTERFACE PROBLEMS ON REACTOR SYSTEM AS DOES A GAS COOLING SYSTEM, AND EXCELLENT HEAT TRANSFER PROPERTIES OF SODIUM WHICH ALLOW GREATER STRETCH CAPABILITY.

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

FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + *REFUELING + *FUEL HANDLING MACHINE + *FUEL HANDLING + REMOTE MANIPULATING AND VIEWING + REACTOR, FAST + REACTOR, LMCR

11-33974 ALSO IN CATEGORIES 12 AND 18

VOLUME 2 - DESCRIPTION - COOLANT AND CONTAINMENT SYSTEM

DETROIT EDISON COMPANY

40 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS SECTIONS TITLED REACTOR COOLANT SYSTEM, CONTAINMENT AND CORE STANDBY COOLING SYSTEM. VESSEL DESIGN PRESS. AND TEMP. ARE 1250 PSIG AT 575 F. REFUELING BELLOWS PROVIDED TO SEAL VESSEL AND DRYWELL TO PERMIT FLOODING OF REACTOR WELL DURING REFUELING. PRESSURE-SUPPRESSION CONTAINMENT. DRYWELL DESIGNED FOR 56 PSIG INTERNAL AND 2 PSIG EXTERNAL. CORE STANDBY COOLING CONSISTS OF HIGH-PRESS. INJECTION, AUTOMATIC DEPRESSURIZATION, CORE SPRAY, AND LOW-PRESS. INJECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *SYSTEM DESCRIPTION + MAIN COOLING SYSTEM + CONTAINMENT, PRESSURE SUPPRESSION + FUEL, LIQUID METAL + CORE SPRAY + *SYSTEM DESCRIPTION + FERMI 2 (BWR)

11-33977 ALSO IN CATEGORIES 5 AND 18

DENIELOU G + ROZENHOLC M + STORRER F + VAUTREY + VELLENEUVE J

PHENIX - MAIN SAFETY CRITERIA - CONSEQUENCES FOR THE REACTOR DESIGN

CEA-CEN/CADARACHE/DRP, CEA-CEN/SACLAY/DRP, EURATOM-CEN/CADARACHE/DRP

12 PAGES, 3 FIGURES, 4 REFERENCES, PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DISCUSSES INFLUENCE OF SAFETY CONSIDERATIONS ON THE DESIGN OF PHENIX PROTOTYPE. DISCUSSES CORE COOLING FOR VARIOUS ACCIDENTS, CONTAINMENT OF FISSION PRODUCTS, AND MEANS FOR DETECTING LOCAL REACTIVITY AND TEMP. MEASUREMENTS.

AVAILABILITY - F. STORRER, EURATOM-CEN/CADARACHE/DRP

*DESIGN CRITERIA + *SAFETY PRINCIPLES AND PHILOSOPHY + DESIGN STUDY + *REACTOR, LMFBR + SODIUM + FRANCE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34000

SHIMIZU T + IWASAKI T

LOCAL STRESSES IN SUPPORT-SKIRT OF REACTOR PRESSURE VESSEL DUE TO ASYMMETRIC LOAD

HITACHI LTD., TOKYO

5 PAGES, HITACHI HYORON, 50(8), PAGES 1-5 (AUGUST 1968) (IN GERMAN)

STUDIES WERE MADE BY EXPERIMENT AND CALCULATION ON THE LOCAL STRESSES OCCURRING AT THE SUPPORT SKIRT WHEN A REACTOR PRESSURE VESSEL SUSTAINED A NON-AXIS-SYMMETRICAL LOAD DUE TO AN EARTHQUAKE. IN THE EXPERIMENT, LARGE LOCAL STRESS WAS FOUND TO OCCUR AT THE JOINT OF THE VESSEL BODY AND THE SKIRT. THE RESULT OF CALCULATION AGREED WELL WITH THE EXPERIMENT FOR A CYLINDRICAL SHELL MODEL OTHER THAN THE SUPPORT SKIRT, BUT IT DIFFERED CONSIDERABLY FOR THE SUPPORT SKIRT TO THE PRESSURE VESSEL IN THE POSITIONING OF THE SKIRT. THIS WAS PROBABLY DUE TO THE LARGE EFFECT OF RIBS ON THE STRESS DISTRIBUTION.

*PRESSURE VESSEL + *STRESS ANALYSIS + *COMPARISON, THEORY AND EXPERIENCE + *EARTHQUAKE + MODEL TESTING + *JAPAN

11-34001

UDALL MS

PRESTRESSED CONCRETE PRESSURE VESSELS. PROCEEDINGS OF A CONFERENCE LONDON 13-17 MARCH 1967

INSTITUTION OF CIVIL ENGINEERS, LONDON

CONF-67C301 +. 752 PAGES, 1968

THE 63 PAPERS PRESENTED, FOR WHICH SEPARATE ABSTRACTS WERE PREPARED, RELATE TO CURRENT PRACTICE, DESIGN PHILOSOPHY, PROPERTIES OF CONCRETE, PRESTRESSING STEELS, PRESTRESSING TENDONS, STRUCTURAL ANALYSIS, MODEL TESTS, STRESS CONCENTRATIONS, INSTRUMENTATION AND COMMISSIONING, LINERS, AND INSULATION AND COOLING SYSTEMS.

*DESIGN CRITERIA + *CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *UNITED KINGDOM + STEEL LINER + MODEL TESTING + STEEL + PROPERTY, PHYSICAL + INSTRUMENT, TESTING + THERMAL INSULATION

11-34002

ROCKENHAUSER W + NORTHUP TE + MARSH RO

PRESSURE TEST AND EVALUATION OF A MODEL PRESSURE VESSEL

GENERAL ATOMIC DIV., GENERAL DYNAMICS CORP., CALIF.

CONF-670301 +. 11 PAGES, PP. 385-95 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE TESTING OF A MODEL PRESSURE VESSEL IS DESCRIBED, AND COMPARISON OF TEST RESULTS WITH THOSE PREDICTED BY THEORETICAL ANALYSIS IS SUMMARIZED. THE MODEL WAS TESTED HYDRAULICALLY IN A SERIES OF INCREASING PRESSURE CYCLES UP TO 121 ATM. RESULTS SHOWED THAT STRAIN STATE IN A VESSEL SUBJECTED TO INTERNAL PRESSURE LOADING CAN BE PREDICTED WITH REASONABLE ACCURACY BY ELASTIC ANALYSIS IF SUITABLE MODIFICATIONS ARE MADE TO ACCOUNT FOR INELASTIC EFFECTS. IT WAS ALSO FOUND THAT CONVENTIONAL LIMIT-DESIGN TECHNIQUES CAN BE USED TO PREDICT THE APPROXIMATE FAILURE MODE AND PRESSURE LEVEL.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *MODEL TESTING + *COMPARISON, THEORY AND EXPERIENCE + *FAILURE MODE ANALYSIS + ELASTICITY + STRESS ANALYSIS + UNITED KINGDOM

11-34003

BURROW RD

PRESTRESSING TENDON SYSTEMS

TAYLOR WOODROW CONSTRUCTION LTD., SOUTHALL, ENGLAND

CONF-670301 +. 7 PAGES, PG. 251-7 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DISCUSSES SOME IMPORTANT ASPECTS OF THE CHOICE AND ARRANGEMENT OF PRESTRESSING TENDON SYSTEMS FOR PRESTRESSED CONCRETE PRESSURE VESSELS. THE SPECIFICATION, FUNCTIONAL REQUIREMENTS AND PERFORMANCE TESTING OF SUITABLE DUCTED PRESTRESSING SYSTEMS ARE DISCUSSED, AND SOME FACTORS AFFECTING SYSTEM BEHAVIOR ARE EXAMINED IN DETAIL. AN ALTERNATIVE METHOD OF PRESTRESSING IS ALSO DESCRIBED, WHICH PROVIDES VERY HIGH CONCENTRATIONS OF FORCE IN WIRE-WOUND EXTERNAL TENDON BANDS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DESIGN CRITERIA + *UNITED KINGDOM + SUPPORT STRUCTURE + QUALITY ASSURANCE

11-34004

ORR RS + HOLLAND DA

THEORETICAL ANALYSIS OF MODEL SPHERICAL VESSEL

CONF-670301 +. 10 PAGES, PG. 339-48 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DESCRIBES THE ELASTIC ANALYSIS OF A SPHERICAL, THICK-WALLED, PRESTRESSED CONCRETE PRESSURE VESSEL. THE METHOD WAS DERIVED FOR A GENERAL SIX-PANEL SPHERICAL PRESSURE. THE SHAPE OF THE VESSEL SUGGESTED THE UNUSUAL CO-ORDINATE SYSTEM ADOPTED, WHICH IN TURN REQUIRED THE DERIVATION OF THE EQUATIONS OF ELASTICITY IN THIS SYSTEM. THE SOLUTION OF THESE EQUATIONS IS BY DYNAMIC RELAXATION, WHICH WAS FIRST DEvised FOR THE ANALYSIS OF THE OLOBURY PRESSURE VESSEL AND HAS SINCE BEEN FOUND TO BE ACAPTABLE TO MANY OTHER PROBLEMS. THE APPLICATION OF THIS METHOD FOR THE SIX-PANEL SPHERE IS DESCRIBED. A COMPARISON IS MADE OF THE RESULTS PREDICTED BY THE ANALYSIS WITH THE MODEL RESULTS.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34004 *CONTINUED*

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + ELASTICITY + *STRESS ANALYSIS + *SPHERE + COMPARISON, THEORY AND EXPERIENCE + *MODEL TESTING + UNITED KINGDOM

11-34005

LEWIS CJ + BYE GP + CRISP RJ

LONG-TERM CREEP EFFECTS IN PRESSURE VESSELS

CENTRAL ELECTRICITY GENERATING BOARD, LONDON

CONF-670301 +. 9 PAGES, PG. 329-37 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE POSSIBLE EFFECT IS SHOWN, DURING SUBSEQUENT SHUTDOWN, OF CREEP STRAINS ARISING DURING OPERATION OF THE REACTOR. TEMPERATURE DISTRIBUTIONS THROUGH THE VESSEL WALLS WERE OBTAINED FOR A TYPICAL CYLINDRICAL VESSEL, BOTH FOR OPERATING AND TRANSIENT CONDITIONS. THESE TEMPERATURE DISTRIBUTIONS WERE CONSIDERED AS APPLIED TO A THICK CONCRETE SLAB RESTRAINED FROM BENDING, AND THE RESULTING THERMAL STRESSES COMPUTED. THE RESTRAINED SLAB IS SHOWN TO BE SIMILAR IN THERMAL STRESS BEHAVIOR TO THE SIDES OF A THICK-WALLED CYLINDER. IT IS DEMONSTRATED THAT UNDESIRABLE CREEP STRESSES CAN BE AVOIDED TO A GREAT EXTENT BY CONTROL OF COOLING WATER FLOW DURING SHUTDOWN PERIODS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *CREEP BEHAVIOR + TEMPERATURE GRADIENT + STRESS ANALYSIS + COOLING, GENERAL + UNITED KINGDOM

11-34006

ENGLAND GL

LONG-TERM THERMAL STRESSES IN PRESTRESSED CONCRETE STRUCTURES

KINGS COLL., LONDON

CONF-670301 +. 7 PAGES, PG. 349-55 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE INFLUENCE OF CREEP AND TEMPERATURE IS DISCUSSED WITH REFERENCE TO THE CALCULATION OF STRESSES IN PRESTRESSED CONCRETE STRUCTURES. IT IS SHOWN THAT UNDER CONDITIONS OF NON-UNIFORM TEMPERATURE AND STRESS, STRESS REDISTRIBUTION TAKES PLACE AND THAT THIS IS ACCOMPANIED BY CHANGES OF REDUNDANT FORCES AND MOMENTS WHICH THUS BECOME TIME-DEPENDENT QUANTITIES. IT IS CONCLUDED THAT THE STEADY-STATE STRESSES, TOGETHER WITH INITIAL STRESS VALUES, FORM UPPER AND LOWER BOUNDS. THEY ALSO PROVIDE A DATUM FROM WHICH THE BEHAVIOR OF A STRUCTURE ON COOLING AND UNLOADING CAN READILY BE ESTIMATED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *CREEP BEHAVIOR + TEMPERATURE GRADIENT + *STRESS ANALYSIS + COOLING, GENERAL + UNITED KINGDOM

11-34007

COMMON DK + HANNAH IW

SPECIFICATION OF CONCRETE VESSELS FOR GAS-COOLED REACTORS

CENTRAL ELECTRICITY GENERATING BOARD, LONDON

CONF-670301 +. 6 PAGES, PG. 73-8 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

CONCRETE-VESSEL SPECIFICATIONS FOR GAS-COOLED REACTORS (FROM PRESTRESSED CONCRETE PRESSURE VESSEL CONFERENCE).

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *REACTOR, GCR + *DESIGN CRITERIA + UNITED KINGDOM

11-34008

BROWNE RD + MCCURRICH LH

MEASUREMENT OF STRAIN IN CONCRETE PRESSURE VESSELS

TAYLOR WOODROW CONSTRUCTION LTD., SOUTHALL, ENGLAND

CONF-670301 +. 11 PAGES, PG. 615-25 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

GIVES REASONS FOR MEASURING STRAIN IN CONCRETE BOTH IN LABORATORY TESTS AND ON SITE. MEASUREMENTS ARE REQUIRED TO DETERMINE STRAINS AND STRESSES INDUCED BY SHRINKAGE, ELASTIC, AND CREEP DEFORMATION, AND THERMAL MOVEMENTS. THE TECHNIQUES AVAILABLE FOR STRAIN MEASUREMENT ARE DESCRIBED, AND THE EFFECT ON THE STRESS DISTRIBUTION OF EMBEDDING AN INSTRUMENT WITHIN THE CONCRETE IS STUDIED AND RELATED TO THE DESIGN OF GAUGES. SOME OF THE GAUGES AT PRESENT AVAILABLE ARE DESCRIBED AND EVALUATED, AND INFORMATION IS GIVEN ON THE PERFORMANCE OF THE GAUGES USED IN THE WYLFA PROGRAM.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *STRESS STRAIN DATA + ELASTICITY + CREEP BEHAVIOR + MEASUREMENT, STRAIN GAGE + UNITED KINGDOM + WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED

11-34009

HCLLAND JA

DYNAMIC RELAXATION APPLIED TO LOCAL EFFECTS

CONF-670301 +. 2 PAGES, PG. 587-95 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34009 *CONTINUED*

THE EVALUATION OF BEARING AND SPLITTING STRESSES IN ANCHORAGE ZONES, USING A THREE-DIMENSIONAL COMPUTATION, IS DESCRIBED, AND THE REASONS FOR SOME DISCREPANCIES IN CURRENT RESEARCH ARE SUGGESTED. AN ACCOUNT IS GIVEN OF THE FULL ELASTIC ANALYSIS OF THE STRESS DISTRIBUTION IN THE VICINITY OF A RADIAL PROTRUDING NOZZLE/SHELL INTERSECTION, INCLUDING STRESS DIFFUSION EFFECTS ASSOCIATED WITH PARTIAL PENETRATION WELLS. RESULTS ARE COMPARED WITH VALUES FOUND EXPERIMENTALLY.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + NOZZLE + ELASTICITY + *STRUCTURAL ANALYSIS, DYNAMIC + WELDS + SHELL + COMPARISON, THEORY AND EXPERIENCE + UNITED KINGDOM

11-34010

PROCTOR E + TOWNLEY CHA

STRAIN DISTRIBUTIONS AROUND OPENINGS IN PRESSURE VESSELS

CENTRAL ELECTRICITY GENERATING BOARD, BERKELEY, ENGLAND

CONF-670301 +. 9 PAGES, PG. 577-85 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

TO PROVIDE AN UNDERSTANDING OF THE EFFECTS OF LINER STIFFENING AND REINFORCEMENT LOCAL TO OPENINGS, TESTS WERE MADE ON TWO MODELS, CONSTRUCTED AT 1/4 SCALE. A CIRCULAR BLOWER OPENING AND A RECTANGULAR ACCESS OPENING WERE INVESTIGATED. THE TESTS AND THE GENERAL BEHAVIOR OF THE MODELS ARE DESCRIBED. STRAIN DISTRIBUTIONS UNDER VARIOUS LOADING CONDITIONS ARE SHOWN AND DISCUSSED, AND THE LIMITATIONS OF THE MODELS ARE DISCUSSED WITH RESPECT TO ACTUAL VESSEL BEHAVIOR.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *CONTAINMENT PENETRATION, GENERAL + *STRESS ANALYSIS + STEEL LINER + UNITED KINGDOM

11-34011

TAYLOR SJ

ANCHORAGE BEARING STRESSES

SIR ROBERT MCALPINE AND SONS LTD., LONDON

CONF-670301 +. 14 PAGES, PG. 563-76 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

REPORTS RESEARCH ON THE MAGNITUDE AND DISTRIBUTION OF THE TENSILE STRAINS IN THE ANCHORAGE ZONE, AND HOW THESE ARE AFFECTED BY IMPOSED STATES OF STRESS AND THE BENDING STIFFNESS OF THE ANCHORAGE. THE STRAINS MEASURED IN THE ANCHORAGE ZONE WERE HIGHER THAN THOSE PREDICTED BY THE CLASSICAL THEORIES. CONCLUDED THAT A FAILURE CRITERION FOR CONCRETE AS A TWO-PHASE MATERIAL CAN BE APPLIED TO THE ANCHORAGE PROBLEM WITH THE ANCHORAGE ITSELF AS THE STIFFER OF THE TWO PHASES.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *STRESS ANALYSIS + PROPERTY, PHYSICAL + UNITED KINGDOM

11-34012

TATE LA + SMITH JR

DESIGN OF VESSEL PENETRATIONS - CORRELATION OF THEORY AND PRACTICE

CONF-670301 +. 8 PAGES, PG. 555-62 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

GIVES RESULTS OF A THEORETICAL STRESS ANALYSIS FOR A LARGE PENETRATION IN A SPHERICAL VESSEL, TAKING INTO ACCOUNT THE EFFECT OF THE PENETRATED LINER AND BONDED REINFORCING STEEL. DESIGN METHODS FOR REINFORCED HOLES IN FLAT PLATES APPLICABLE TO SMALL PENETRATIONS IN SPHERICAL AND CYLINDRICAL VESSELS ARE DISCUSSED. EXPERIMENTAL WORK ON THREE-DIMENSIONAL AND TWO-DIMENSIONAL PHOTOELASTIC AND CONCRETE MODELS IS DESCRIBED AND THE RESULTS COMPARED WITH THEORY. APPLICATIONS TO THE DESIGN OF THE WYLFA REACTOR PRESSURE VESSEL ARE DISCUSSED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + STRESS ANALYSIS + *COMPARISON, THEORY AND EXPERIENCE + WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + UNITED KINGDOM + SPHERE + *CONTAINMENT PENETRATION, GENERAL + *DESIGN CRITERIA

11-34014

LEE CR + CHADOWSKI AJ + WILCS JR

BEHAVIOUR OF MODEL CONCRETE STRUCTURES UNDER TEMPERATURE LOADING

BUILDING RESEARCH STATION, WATFORD, ENGLAND

CONF-670301 +. 9 PAGES, PG. 517-25 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

AN INVESTIGATION OF THE BEHAVIOR OF MODELS OF THE CONCRETE PRIMARY SHIELDS AT HINKLEY POINT NUCLEAR POWER STATION PROVIDED INFORMATION ON MODEL TECHNIQUES APPLIED TO PROBLEMS OF TEMPERATURE LOADING. WHILE THE RESULTS CONFIRMED THAT MODEL TECHNIQUES CAN BE APPLIED TO PROBLEMS OF THIS NATURE AND SUGGEST THAT THE THEORETICAL ANALYSIS IS EQUALLY APPLICABLE TO TWO SIZES OF MODEL, THEY ALSO DEMONSTRATE THE CONSIDERABLE EXPERIMENTAL VARIATIONS WHICH MAY OCCUR, PARTICULARLY WITH LARGER MODELS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *MODEL TESTING + COMPARISON, THEORY AND EXPERIENCE + *THERMAL MECHANICAL EFFECT + UNITED KINGDOM

11-34016

LIDA M + AUSANGEE R

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34016 *CONTINUED*
SCALE MODELS FOR STRENGTH TESTING NUCLEAR PRESSURE VESSEL
ELECTRICITE DE FRANCE, PARIS
CONF-670301 +. 9 PAGES, PG. 497-505 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

SUMMARIZES THE MOST IMPORTANT PROBLEMS CONNECTED WITH PRESSURE VESSEL STRUCTURES, THE POSSIBILITIES OFFERED BY STRENGTH TEST MODELS TO STUDY THESE PROBLEMS, AND THEIR LIMITATIONS. THESE LIMITATIONS ARE ESSENTIALLY LINKED WITH THE DIFFICULTIES RAISED BY SCALING FACTOR, BY MEASUREMENT TECHNIQUES, AND BY THE LACK OF FLEXIBILITY OF THE MODELS. THESE QUESTIONS ARE EXAMINED, TOGETHER WITH THE SOLUTIONS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *MODEL TESTING + *STRUCTURAL INTEGRITY + UNITED KINGDOM

11-34017
PRICE DC + HINLEY MS
TESTING A 1/8TH SCALE CYLINDRICAL VESSEL
CONF-670301 +. 8 PAGES, PG. 489-96 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DESCRIBES TESTS TO STUDY THE BEHAVIOR OF A CYLINDRICAL CONCRETE PRESSURE VESSEL UNDER PRESTRESS AND VARIOUS CONDITIONS. THE TESTING PROGRAM COVERED PRESSURE TESTS (INCLUDING UNSYMMETRICAL HEATING) AT ZERO PRESSURE. CRACK PATTERNS ARE DISCUSSED. CONCLUDES THAT THE DESIGN METHOD ADOPTED ACCOUNTS SATISFACTORILY FOR THE BEHAVIOR OF THE VESSEL IN THE ELASTIC AND CRACKING STAGES, THAT THE ULTIMATE DESIGN GAVE AN ACCURATE ASSESSMENT OF THE FAILING PRESSURE OF THE SLAB, AND THAT PRESTRESS IN A CYLINDRICAL PRESSURE VESSEL END SLAB CAN BE ACHIEVED SATISFACTORILY USING A HELICAL CABLE SYSTEM ONLY.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *CYLINDER + *MODEL TESTING + UNITED KINGDOM

11-34020
RASHID YR + ROCKENHAUSER W
PRESSURE VESSEL ANALYSIS BY FINITE ELEMENT TECHNIQUES
GENERAL ATOMIC DIV., GENERAL DYNAMICS CORP., CALIF.
CONF-670301 +. 9 PAGES, PG. 375-83 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

OUTLINES BRIEFLY THE FINITE ELEMENT PROCEDURE FOR THE ANALYSIS OF TIME-DEPENDENT QUASI-STATIC STRUCTURES. RESTRICTING ATTENTION TO PRESTRESSED CONCRETE PRESSURE VESSELS, TWO TYPES OF ANALYSES ARE GIVEN - (A) AXISYMMETRIC ANALYSIS IN WHICH STEEL REINFORCEMENT, PRESTRESSING CABLES, AND LINER REMAIN ELASTIC, BUT CONCRETE IS ASSUMED TO BE A LINEAR VISCOELASTIC MATERIAL OBEYING THE SUPERPOSITION HYPOTHESIS, AND (B) THREE-DIMENSIONAL ELASTIC ANALYSIS. GIVES COMPARISONS OF EXPERIMENT WITH AXISYMMETRIC ELASTIC ANALYSIS OF A PRESTRESSED CONCRETE PRESSURE VESSEL MODEL.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + COMPARISON, THEORY AND EXPERIENCE + *STRUCTURAL ANALYSIS, DYNAMIC + UNITED KINGDOM + ELASTICITY

11-34021
LOCKETT GE + KINKEAD AN
PRESSURE VESSELS FOR HELIUM HIGH-TEMPERATURE REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, WINFRITH, ENGLAND
CONF-670301 +. 9 PAGES, PG. 35-43 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

PLANT LAYOUT FOR HTRS IS DISCUSSED, AND AN UNCONVENTIONAL VESSEL DESIGN IS DESCRIBED IN WHICH FLANGE-MOUNTED BOILER UNITS ARE HOUSED IN THE THICKNESS OF THE PRESSURE VESSEL WALL. NO ANALYSIS OF THE ELASTIC BEHAVIOR OF SUCH A SHAPE WAS KNOWN, AND A BRIEF DESCRIPTION IS GIVEN OF THE METHODS EMPLOYED IN THE PRELIMINARY DESIGN. A MORE DETAILED DISCUSSION OF THE PROBLEM IN THE BOILER DUCT ZONE IS INCLUDED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *REACTOR, HIGH + *HELIUM + DESIGN CRITERIA

11-34022
DAWSON P
DEVELOPMENT OF THE PRESTRESSING SYSTEM FOR THE WYLFA VESSELS
TAYLOR WOODROW CONSTRUCTION LTD. SOUTHALL, ENGLAND
CONF-670301 +. 7 PAGES, PG. 259-65 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE 36/0.6 IN. FREYSSINET PRESTRESSING SYSTEM DEVELOPED SPECIFICALLY FOR WYLFA NUCLEAR POWER STATION IS DESCRIBED. CRITERIA OUTLINED AND GENERAL DESCRIPTION GIVEN OF ITS PRINCIPAL COMPONENTS. PARTICULAR ATTENTION GIVEN TO THE ULTIMATE STRENGTH OF THE SYSTEM. TESTS, THEIR RESULTS, AND THE DEVELOPMENT ARE REPORTED. SUMMARY AND DISCUSSION PRESENTED OF THE NUMEROUS TESTS MADE TO ESTABLISH THE FRICTION COEFFICIENT BETWEEN STRANE DNA DUCT UNDER VARIOUS SURFACE CONDITIONS, AND MEASURES TAKEN TO PROTECT THE PRESTRESSING SYSTEM AGAINST CORROSION, BOTH BEFORE AND AFTER THE PRESTRESSING OPERATION.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + *DESIGN CRITERIA + UNITED KINGDOM

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34023
BARRETT NT + DAVIDSON I
DESIGN PHILOSOPHY AND SAFETY
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY, ENGLAND
CONF-670301 +. 7 PAGES, PG. 65-71 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS,
1968

DESCRIBES THE WAY IN WHICH A PRESTRESSED CONCRETE PRESSURE VESSEL MUST BEHAVE UNDER VARIOUS CONDITIONS FOR SAFETY. THIS IS THEN RELATED TO THE VARIOUS DESIGN CRITERIA WHICH ARE COMMONLY APPLIED, VIZ., THE ELASTIC BEHAVIOR UNDER OPERATING CONDITIONS, THE GRADUAL MODE OF FAILURE, AND THE ULTIMATE LOAD FACTOR. ATTENTION IS PAID TO THE LONG-TERM EFFECTS OF SHRINKAGE AND CREEP AND TO POSSIBLE CRACKING, OR LOSS OF TENDON CROSS SECTION. IT IS CONCLUDED THAT IN SOME RESPECTS THE VALIDITY OF THE DESIGN CRITERIA, IN REGARD TO THE POSSIBLE DEGREE OF INTEGRITY OF THE VESSEL TOWARD THE END OF ITS LIFE, IS INDIRECT, IF NOT INCOMPLETE. THIS CONCLUSION POINTS TO THE NEED FOR FURTHER EXPERIMENTS, WHICH HAVE BEEN COMMENCED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DESIGN CRITERIA + SAFETY PRINCIPLES AND PHILOSOPHY + UNITED KINGDOM

11-34025
ANTHONY RD
DEVELOPMENT OF STATUTORY REQUIREMENTS FOR REACTOR VESSELS
MINISTRY OF POWER, LONDON
CONF-670301 +. 6 PAGES, PG. 85-90 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS,
1968

EXAMINES THE SAFETY OF CONCRETE PRESSURE VESSELS IN RELATION TO THE SAFETY OF THE NUCLEAR PLANT AS A WHOLE. THE PRESTRESSED CONCRETE STRUCTURE IS ONE PART OF THE PRESSURE-RETAINING ENVELOPE, ALL PARTS OF WHICH MUST BE DESIGNED FOR SAFETY. AFTER A BRIEF CONSIDERATION OF THE PRESENT POSITION REGARDING SAFETY REGULATIONS, AND A COMPARISON OF STEEL AND PRESTRESSED CONCRETE PRESSURE VESSELS, THE VARIOUS COMPONENTS OF THE VESSEL ARE EXAMINED IN TURN, AND THE CAUSES OF POTENTIAL ACCIDENTS AND POSSIBLE SAFEGUARDS ARE CONSIDERED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *SAFETY PRINCIPLES AND PHILOSOPHY + STEEL + UNITED KINGDOM

11-34026
BENDER M
EFFECTS OF REACTOR COOLANT CONDITIONS UPON DESIGN AND SAFETY CRITERIA FOR CONCRETE VESSELS
OAK RIDGE NATIONAL LAB., TENN.
CONF-670301 +. 8 PAGES, PG. 91-8 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS,
1968

CONCRETE VESSELS HAVE BEEN SHOWN TO BE OF VALUE AS PRIMARY REACTOR VESSELS IN BOTH WATER-COOLED AND GAS-COOLED SYSTEMS. IN THE U.S.A. THE USE OF CONCRETE VESSELS HAS PROVIDED A PRACTICAL SOLUTION TO PROVISION FOR SECONDARY CONTAINMENT IN LARGE POWER REACTORS. THE TYPE OF COOLANT USED IN A DESIGN IS A MAJOR FACTOR IN ESTABLISHING THE REQUIREMENTS FOR THE STRUCTURE OF THE CONCRETE VESSEL. THE INHERENT REQUIREMENTS OF THE STRUCTURE ESTABLISHED BY THE COMPONENTS OF THE REACTOR SYSTEM AND ITS CHARACTERISTICS ARE EMPHASIZED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DESIGN CRITERIA + *SAFETY PRINCIPLES AND PHILOSOPHY + UNITED KINGDOM + *COOLING, GENERAL

11-34027
HAY JD + EADIE DM
PRACTICAL AND ECONOMIC DESIGN ASPECTS OF CYLINDRICAL PRESSURE VESSELS
CONF-670301 +. 6 PAGES, PG. 99-104 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DISCUSSES THE PART PLAYED BY THE DESIGNER OF PRESTRESSED CONCRETE PRESSURE VESSELS IN THE COMPLEX DESIGN OF A NUCLEAR REACTOR. THE VARIOUS STAGES OF A DETAILED DESIGN ARE OUTLINED, AND THE FACTORS AFFECTING THE CHOICE OF STRESSING SYSTEMS AND THE ARRANGEMENT OF TENDONS ARE DESCRIBED. SOME OF THE PROBLEMS OF THE DESIGN OF END SLABS ARE STUDIED, AND SOLUTIONS FOR DESIGNS WITHOUT TRANSVERSE TABLES ARE SUGGESTED. AN ECONOMIC STUDY AND COMPARISON OF VESSELS OF VARYING SIZE AND SHAPE AND FOR A RANGE OF PRESSURES IS MADE.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *ECONOMIC STUDY + *CYLINDER + *DESIGN CRITERIA + UNITED KINGDOM

11-34029
BISHOP RF + HORSEMAN RW + WHITE CM
LINER DESIGN AND CONSTRUCTION
CONF-670301 +. 10 PAGES, PG. 693-702 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE PURPOSE OF THE LINER IS EXAMINED, AND A REVIEW IS GIVEN OF POSSIBLE GENERAL FORMS OF CONSTRUCTION. THE LOADS INDUCED IN THE LINER BY CONCRETE STRESSING AND TEMPERATURE EFFECTS ARE DESCRIBED, AND THE POSSIBLE MODES OF FAILURE AGAINST WHICH IT IS NECESSARY TO DESIGN ARE EXAMINED. THE DESIGN OF PARTS OF THE LINER IS CONSIDERED, TOGETHER WITH THE FUNDAMENTAL BACKGROUND AND SUPPORTING EXPERIMENTAL WORK. A REVIEW OF THE DESIGN AGAINST FAILURE OF

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34029 *CONTINUED*

INDIVIDUAL PANELS AND ANCHORS AND ALSO THE DESIGN OF PENETRATIONS AND THE COOLING SYSTEM ARE INCLUDED. THE LINERS FOR THE OLDBURY AND WYLFA NUCLEAR POWER STATIONS AND THEIR CONSTRUCTION ARE DESCRIBED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *STEEL LINER + *DESIGN CRITERIA + *FABRICATION + UNITED KINGDOM + *STEEL + COOLING, GENERAL + OLDBURY (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + WYLFA (GCR) + FAILURE MODE ANALYSIS

11-34031

TORIELLI E + ROCCA F

THERMAL PROBLEMS IN PRESSURE VESSEL DESIGN

CONF-670301 +. 3 PAGES, PP. 735-7 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INSTITUTION OF CIVIL ENGINEERS, 1968

THE CRITERIA TO BE USED IN THE DEFINITION OF THE EFFECTIVE TEMPERATURE DIFFERENCES ACROSS THE WALLS OF A PRESTRESSED CONCRETE PRESSURE VESSEL ARE INDICATED, AND THE INFLUENCE OF THE VARIOUS PARAMETERS ON THE TEMPERATURE DIFFERENCE IS DISCUSSED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *TEMPERATURE GRADIENT + UNITED KINGDOM + *DESIGN CRITERIA + *CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *TEMPERATURE GRADIENT + UNITED KINGDOM + *DESIGN CRITERIA

11-34033

ROS MR + SPECK RE

LARGE TENDONS FOR PRESSURE VESSELS IN NUCLEAR POWER STATIONS

BUREAU BBR, ZURICH

CONF-670301 +. 7 PAGES, PP. 273-9 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. FOR CIVIL ENGINEERS, 1968

THE HIGH PRESTRESSING FORCES NECESSARY FOR NUCLEAR PRESSURE VESSELS ARE CONSIDERED, AND THE REQUIREMENTS OF THE ANCHORAGE, TENDON REPLACEMENT CAPABILITY, AND FRICTIONAL BEHAVIOR ARE DISCUSSED. THE BBRV PARALLEL WIRE TENDONS ARE COMPARED WITH TENDONS MADE FROM A NUMBER OF STRANDS AND WITH WIRE ROPES, AND THE MANUFACTURING PROCEDURE IS OUTLINED. THE BBRV ANCHOR HEADS AND SPECIAL JACKING EQUIPMENT ARE DESCRIBED. THE EFFICIENCY OF CURVED TENDONS IS DISCUSSED, AND TEST RESULTS ARE PRESENTED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DESIGN CRITERIA + *SUPPORT STRUCTURE + UNITED KINGDOM + QUALITY ASSURANCE

11-34035

ZIENKIEWICZ OC + WATSON M + CHEUNG YK

STRESS ANALYSIS BY THE FINITE ELEMENT METHOD - THERMAL EFFECTS

UNIVERSITY OF WALES, SWANSEA

CONF-670301 +. 6 PAGES, PAGES 357-62 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE PRINCIPLES OF THE FINITE ELEMENT METHOD IN THE DISPLACEMENT FORMULATION ARE BRIEFLY SUMMARIZED. SOME DETAILS OF DERIVATION OF STIFFNESS MATRICES FOR AXISYMMETRICAL AND THREE-DIMENSIONAL SOLIDS ARE PRESENTED, TOGETHER WITH RECENT AVERAGING PROCEDURES WHICH PERMIT A MORE ACCURATE ASSESSMENT OF STRESSES. SPECIAL ATTENTION IS FOCUSED ON THE INITIAL STRAIN PROBLEM, INCLUDING THERMAL EFFECTS. FOR EXAMPLE, ATTENTION IS FOCUSED ON THE VARIATION OF CREEP AND ELASTIC PROPERTIES WITH TEMPERATURE.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *STRESS ANALYSIS + *CREEP + PLASTICITY + ELASTICITY + UNITED KINGDOM + TEMPERATURE GRADIENT

11-34036

PROPERTIES OF CONCRETE IN REACTOR VESSELS

TAYLOR WOODROW CONSTRUCTION LTD., LONDON

CONF-670301 +. 21 PAGES, PAGES 131-51 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE CONCRETE PROPERTIES OF INTEREST IN REACTOR VESSEL DESIGN, INCLUDING COMPRESSION STRENGTH, CREEP, SHRINKAGE, THERMAL EXPANSION, AND THERMAL CONDUCTIVITY ARE EXAMINED WITH REFERENCE TO VESSEL CONDITIONS. THE EFFECTS OF RADIATION, AGE, TEMPERATURE, AND HUMIDITY ARE CONSIDERED. DETAILS ARE ALSO GIVEN OF THE CONCRETE PROPERTY TEST PROGRAM CARRIED OUT FOR THE WYLFA NUCLEAR POWER STATION. GIVES RESULTS OF THE LARGE NUMBER OF TESTS MADE ON THE EFFECTS OF TEMPERATURE FROM 60 TO 200 F, AND OF AGE, ON THE ELASTIC AND CREEP DEFORMATION BEHAVIOR UNDER LOAD OF THE ACTUAL LIMESTONE CONCRETE USED FOR THE WYLFA VESSELS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *CREEP + *THERMAL PROPERTY + *PROPERTY, PHYSICAL + RADIATION EFFECT + UNITED KINGDOM + WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + DEFORMATION + SIMULATION

11-34037

DAVIES IL + DAVIDSON I

CONCRETE PROPERTIES AFFECTING THE INTEGRITY OF PRESSURE VESSELS

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, FOULNESS, ENGLAND

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34037 *CONTINUED*

CONF-670301 +. 5 PAGES, PAGES 167-71 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

EXPLAINS THE REASONS FOR CARRYING OUT A SERIES OF EXPERIMENTS INTO THE FAILURE BEHAVIOR OF PRESTRESSED CONCRETE PRESSURE VESSELS. A DISCUSSION OF A SIMPLE ANALYSIS OF ULTIMATE PRESSURE-CARRYING CAPACITY BASED ON MECHANISM EQUILIBRIUM IS USED TO JUSTIFY THE CHOICE OF EXPERIMENTS, AND A BRIEF DESCRIPTION IS GIVEN OF THEIR NATURE.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *FAILURE MODE ANALYSIS + *PROPERTY, PHYSICAL + *STRUCTURAL INTEGRITY + UNITED KINGDOM

11-34039

HRONBY IW + VERDON GF + WONG YC
TESTING THE OLDBURY VESSEL MODEL

CENTRAL ELECTRICITY RESEARCH LABS. LEATHERHEAD, ENGLAND

CONF-670301 +. 8 PAGES, PAGES 461-8 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DESCRIBES TESTING OF A 1/8TH-SCALE MODEL OF THE PRESTRESSED CONCRETE PRESSURE VESSEL USED FOR THE OLDBURY NUCLEAR POWER STATION. THREE PHASES OF TESTING ARE DESCRIBED - ELASTIC (PRESTRESSING AND PRESSURE LOADING UP TO 442 PSI), THERMAL TESTING (THE EFFECT OF A 30 C TEMPERATURE GRADIENT ACROSS THE VESSEL WALL, WITH AND WITHOUT PRESSURE LOADING), AND AN ASSESSMENT OF LONG-TERM BEHAVIOR FROM A 60-DAY TEST UNDER COMBINED THERMAL AND PRESSURE LOADING, ULTIMATE TEST. THE MODEL WAS FULLY INSTRUMENTED, USING INTERNAL AND EXTERNAL STRAIN MEASURING DEVICES, SO THAT A DETAILED COMPARISON WITH EXPERIMENTAL MEASUREMENTS AND PREDICTED VALUES MIGHT BE MADE.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *OLDBURY (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + ELASTICITY + *MODEL TESTING + TEMPERATURE GRADIENT + COMPARISON, THEORY AND EXPERIENCE + UNITED KINGDOM + MEASUREMENT, STRAIN GAGE

11-34040

THORP CE

ELASTIC ANALYSIS OF THE DUNGENESS B VESSEL

CONF-670301 +. 11 PAGES, PAGES 363-73 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE PURPOSE AND LIMITATIONS OF THE ELASTIC ANALYSIS ARE BRIEFLY DISCUSSED, AND A DESCRIPTION IS GIVEN OF THE COMPUTER PROGRAMS USED. THE ASSESSMENT OF THE LOADS APPLIED BY THE TENDONS, GRAVITY, AND INTERNAL PRESSURES, AND OF THE EFFECT OF THERMAL GRADIENTS, ARE OUTLINED AND THE ASSUMPTIONS MADE IN COMPILING THE COMPUTER INPUT DATA ARE DESCRIBED. THE RESULTS OF THE ANALYTICAL WORK FOR THE VARIOUS LOADING CASES ARE SUMMARIZED AND THE ACCEPTABILITY CRITERIA FOR CONCRETE UNDER UNIAXIAL, BIAxIAL AND TRIAXIAL STATES OF STRESS ARE DISCUSSED. THE CRITICAL STRESSES ARE ASSESSED IN ACCORDANCE WITH THE CRITERIA, AND THE AMOUNTS OF BONDED REINFORCEMENT REQUIRED ARE INDICATED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DUNGENESS B (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + ELASTICITY + *STRESS ANALYSIS + COMPUTER PROGRAM + TEMPERATURE GRADIENT + DESIGN CRITERIA + UNITED KINGDOM

11-34041

LANGAN D

CORRELATION BETWEEN THEORY AND EXPERIMENT - WYLFA VESSEL

TAYLOR WOODROW CONSTRUCTION LTD., SOUTHALL, ENGLAND

CONF-670301 +. 12 PAGES, PAGES 435-36 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

EXPLAINS NEED FOR EXTENSIVE EXPERIMENTAL WORK TO SUPPORT AND CONFIRM THE ANALYSIS AND DESIGN OF THE WYLFA VESSEL AS WELL AS TO PROVIDE DATA TO SATISFY SPECIFIC REQUIREMENTS. PROBLEMS BRIEFLY PRESENTED, AND COMPREHENSIVE PROGRAM OF WORK DESCRIBED. SELECTED RESULTS SHOW THE AGREEMENT BETWEEN THEORY AND PRACTICE, WITH PARTICULAR EMPHASIS ON THE 1/12TH SCALE SPHERICAL MODEL. METHODS OF OVERCOMING PROBLEMS IN THE CORRELATION SUCH AS CREEP, THERMAL EFFECTS, AND GAUGE ERRORS ARE DISCUSSED, AND ASSESSMENTS MADE OF THE LIKELY EXPERIMENTAL ERRORS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + *COMPARISON, THEORY AND EXPERIENCE + *DESIGN CRITERIA + *STRESS ANALYSIS + MODEL TESTING + CREEP + THERMAL MECHANICAL EFFECT + UNITED KINGDOM + MEASUREMENT, STRAIN GAGE

11-34043

HARRIS AJ + HAY JD

RUPTURE DESIGN OF THE OLDBURY VESSELS

CONF-670301 +. 3 PAGES, PAGES 307-9 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DISCUSSES MODES OF FAILURE OF CYLINDRICAL VESSELS AND THE REQUIREMENTS OF THE TENDON LAYOUT. THE HELICAL ARRANGEMENT OF TENDONS ADOPTED FOR THE OLDBURY VESSELS, AND THE RELATION OF THIS LAYOUT TO ULTIMATE CONDITIONS ARE DESCRIBED. A SUMMARY OF THE CALCULATIONS FOR THE ULTIMATE LOAD DESIGN IS GIVEN.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *OLDBURY (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED +

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34043 *CONTINUED*

*DESIGN CRITERIA + *STRESS RUPTURE + *FAILURE MODE ANALYSIS + CYLINDER + UNITED KINGDOM

11-34044

ZBIROHOWSKI-KOSCIA + CARLTON DC

ANALYSIS OF VESSEL STRUCTURES WITH PARTICULAR REFERENCE TO WYLFA

TAYLOR WOODROW CONSTRUCTION LTD., SOUTHAL, ENGLAND

CONF-670301 +. 11 PAGES, PAGES 311-21 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INSTITUTION OF CIVIL ENGINEERS, 1968

DESCRIBES METHODS OF ELASTIC AND PLASTIC ANALYSES DEVELOPED FOR THE STUDY OF THE WYLFA PRESSURE VESSEL. THE ELASTIC ANALYSIS AND DESIGN WERE CARRIED OUT BY THE COMPUTER PROGRAMS SPECIALLY DEVELOPED FOR THE NONCYLINDRICAL PRESSURE VESSELS. REFERENCE IS MADE TO RELEVANT TESTS ON CONCRETE PRESSURE MODELS AT WORKING CONDITIONS, OVERLOAD CONDITIONS, AND AT FAILURE. CORRELATION BETWEEN THEORETICAL AND EXPERIMENTAL RESULTS IS EXAMINED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + ELASTICITY + PLASTICITY + *STRESS ANALYSIS + SPHERE + MODEL TESTING + FAILURE MODE ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + UNITED KINGDOM + COMPUTER PROGRAM

11-34045

FINNIGAN A

ULTIMATE ANALYSIS OF THE DUNGENESS B VESSEL

CONF-670301 +. 6 PAGES, PAGES 323-8 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

ALTERNATIVE FAILURE MECHANISMS OF A THICK CONCRETE CYLINDER WITH FLAT END SLABS ARE DESCRIBED, AND THE MOST PROBABLE MECHANISM OBTAINED FROM THE RELATIVE AMOUNTS OF PRESTRESSING, VERTICALLY IN THE WALLS, HORIZONTALLY AROUND THE END SLABS, AND AROUND THE WALLS. ULTIMATE STRENGTH OF THE CYLINDRICAL PORTION IS CALCULATED. MAJOR PROBLEM OF ASSESSING THE SHEAR RESISTANCE OF CRACKED CIRCUMFERENTIAL SECTIONS OF THE THICK END SLABS IS DISCUSSED. REFERENCE IS MADE TO THE MODEL TESTS UNDERTAKEN TO CONFIRM THE OVERALL FAILURE MECHANISM AND TO ESTABLISH THE LIKELIHOOD OF A PREMATURE SHEAR FAILURE OF THE THICK PERFORATED END SLABS.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *DUNGENESS B (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + FAILURE MODE ANALYSIS + *TENSILE PROPERTY + MODEL TESTING + UNITED KINGDOM

11-34046

HARVEY JTC

PRESTRESSING SYSTEM FOR REACTORS

CONF-670301 +. 6 PAGES, PAGES 267-72 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE STEPS LEADING TO THE DEVELOPMENT OF THE SOPHISTICATED 12/0.6 IN. FREYSSINET SYSTEM USED IN THE OLDUBURY VESSELS ARE DESCRIBED AND ALSO THE WAY THIS WAS LATER GROUPED INTO A TRIPLE 36/0.6 IN. ARRANGEMENT FOR THE WYLFA VESSELS. THE INFLUENCE ON THE ANCHORAGE EFFICIENCIES OF SUCH FACTORS AS STRAND CHARACTERISTICS, UNIQUE AND MIXED STRAND REELS, LUBRICATING AND COATING MATERIALS ARE EXAMINED STATISTICALLY. THE DESIGN OF THE 250 TON TENSIONING JACK IS DESCRIBED. REFERENCE IS MADE TO A NEW KILTON SYSTEM FOR CABLES OF 1000 TONS INITIAL TESTING FORCE, DUE TO BE COMPLETED BY 1970.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *OLDUBURY (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + *WYLFA (GCR) + STRUCTURAL ANALYSIS, DYNAMIC + STEEL + LUBRICATION + UNITED KINGDOM

11-34048

TAYLOR RS

THE WYLFA VESSELS

TAYLOR WOODROW CONSTRUCTION LTD., SOUTHAL, ENGLAND

CONF-670301 +. 7 PAGES, PAGES 13-19 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

DESCRIBES THE TWO 96-FT-DIA SPHERICAL PRESSURE VESSELS AT WYLFA. DETAILS ARE GIVEN OF THE MAIN FEATURES OF THE CONSTRUCTION INCLUDING THE CONCRETE WORK, THE PRESTRESSING SYSTEM, THE LINER AND COOLING/INSULATION SYSTEM, AND THE VARIOUS PENETRATIONS, WHICH RANGE IN SIZE UP TO 10 FT 3 IN. DIA. THE REASONS LEADING TO THE SELECTION OF THIS PARTICULAR DESIGN ARE GIVEN, AGAINST THE BACKGROUND OF PRIOR DEVELOPMENT WORK. THE METHOD AND SEQUENCE OF CONSTRUCTION ARE DESCRIBED, AND PARTICULAR REFERENCE IS MADE TO VARIOUS CONSTRUCTION PROBLEMS, AND THE MEANS BY WHICH THEY WERE SOLVED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *WYLFA (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + *DESIGN CRITERIA + *FABRICATION + STEEL LINER + THERMAL INSULATION + CONTAINMENT PENETRATION, GENERAL + UNITED KINGDOM

11-34050

LAMIRAL G + BONELLE R + VAUJOUR JA + ROUGIER A

PRESSURE VESSELS FOR ELECTRICITE DE FRANCE NUCLEAR POWER STATIONS

ELECTRICITE DE FRANCE, PARIS

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34050 *CONTINUED*

CONF-670301 +. 5 PAGES, PAGES 29-33 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE PRESTRESSING TECHNIQUE USED IS ILLUSTRATED BY A DESCRIPTION OF THE LAST THREE PRESSURE VESSELS CONSTRUCTED - ST. LAURENT II, BUGEY I, AND FESSENHEIM I. INFORMATION IS GIVEN ON THE GEOMETRY OF THE VESSELS, THE MATERIALS, AND THE PRESTRESSING METHODS. STUDIES ALREADY UNDERTAKEN SHOULD ENABLE THE PROPERTIES OF THE MATERIALS, AND THEIR CHANGE WITH TIME, TO BE DETERMINED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *FRANCE + *MATERIAL + *PROPERTY, PHYSICAL + UNITED KINGDOM

11-34053

HUGHES JW + FURBER BN + LAING GW + ARMSTRONG E
INSULATION DESIGN AND DEVELOPMENT FOR THE OLDBURY VESSELS
NUCLEAR POWER GROUP LTD., KNUTSFORD, ENGLAND + DARCHEM ENGINEERING LTD., STILLINGTON, ENGLAND
CONF-670301 +. 11 PAGES, PAGES 703-13 OF PRESTRESSED CONCRETE PRESSURE VESSELS, LONDON, INST. OF CIVIL ENGINEERS, 1968

THE DEVELOPMENT OF A STAINLESS-STEEL-FOIL INSULATION CONSTRUCTED TO FORM CELLS CONTAINING THE COOLANT GAS IS DESCRIBED. THE DOMINANT INFLUENCE OF GAS CIRCULATION AND LEAKAGE WITHIN THE INSULATION WAS DEMONSTRATED, AND IT WAS SHOWN THAT TESTS ON SMALL SAMPLES WERE COMPLETELY INADEQUATE. A THEORY WAS DERIVED AND USED TO EXTRAPOLATE RIG RESULTS TO THE CONDITIONS IN THE WALLS AND ROOF, AND TO THE MUCH COARSER CELL STRUCTURE OF THE REACTOR FLOOR. FUTURE DEVELOPMENT PROPOSALS ARE SUMMARIZED.

*CONCRETE, PRESTRESSED + *PRESSURE VESSEL + *OLDBURY (GCR) + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + *THERMAL INSULATION + *DESIGN CRITERIA + THEORETICAL INVESTIGATION + STEEL, STAINLESS + UNITED KINGDOM

11-34174

ALSO IN CATEGORY 18

RESPONSE TO QUESTION 4.1-3 - NDT AND VESSEL HEATUP METHOD

GEORGIA POWER COMPANY

1 PAGE, P. 4-1.3-1 OF AMENDMENT 2 TO HATCH LICENSE APPLICATION, JANUARY 24, 1969, DOCKET 50-321, TYPE--BWR, MFG--G.E., AE--SSI

DISCUSS PROVISIONS INCLUDED IN FACILITY TO RAISE COOLANT TEMP. FROM COLD SHUTDOWN TO HOT STANDBY CONDITIONS BY NON-NUCLEAR MEANS DURING STARTUP. *** (ANSWER) REACTORS ARE NEVER PRESSURIZED AT TEMPERATURES BELOW DUCTILE RANGES. AS DISCUSSED IN SECTION 4.2.3.3.3 OF THE PSAR, THIS TEMPERATURE IS BASED UPON THE NIL DUCTILITY TRANSITION TEMPERATURE (NDTT) OF THE MATERIAL PLUS THE WORST CASE NDTT SHIFT DATA AVAILABLE. TO THE INITIAL TEMPERATURE AND MOST PESSIMISTIC NDTT SHIFT DATA IS ADDED A MARGIN OF 60 F. THIS TEMPERATURE MARGIN IS ADEQUATE FOR STATICALLY LOADED STRUCTURES

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

EMBRITTEMENT

11-34443

ALSO IN CATEGORIES 5 AND 9

FORRESTER ER + THEVENOV VH

DESIGNING FOR EXPECTED FATIGUE LIFE

GENERAL MOTORS

9 PAGES, 21 REFERENCES, PP. 511-19 IN ANNALS OF ASSURANCE SCIENCES, PROCEEDINGS OF THE 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, SAN FRANCISCO, JULY 14-17, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(4), PAGE 68 (APRIL 1969)

DISCUSSION OF SOME OF THE PROCESSING AND OPERATIONAL FACTORS WHICH REDUCE FATIGUE STRENGTH. EMPHASIS IS PLACED ON THE FINITE FATIGUE LIFE REGION, OFTEN CALLED LOW-CYCLE FATIGUE, BECAUSE IN MANY LIGHTWEIGHT, HIGH-PERFORMANCE SYSTEMS, HARDWARE CANNOT BE DESIGNED FOR INFINITE LIFE. AN APPROACH FOR ESTIMATING THE PROBABILITY OF FATIGUE FAILURE ON THE BASIS OF THE SCATTER INHERENT IN MATERIAL PROPERTIES AND FATIGUE LIFE IS DESCRIBED.

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *FAILURE, FATIGUE + OPERATING EXPERIENCE + PROBABILITY

11-34638

ALSO IN CATEGORIES 5 AND 18

FORBES SG + WILSON TR

LOSS OF COOLANT ACCIDENT INVESTIGATIONS

PHILLIPS PETROLEUM COMPANY

ID0-17272 +. 163 PAGES, 84 FIGURES, 36 TABLES, 3 REFERENCES, JUNE 1968

DESCRIBES AND EVALUATES THE LOFT PROGRAM, USING THE SYSTEM ENGINEERING APPROACH. LICENSING PROBLEMS AND PROCESSES ARE DEFINED, INFORMATION REQUIREMENTS OF THE LOCA STUDY ARE GIVEN, DESIGN OF THE EXPERIMENTS REVIEWED. TOPICS - LOCA PROBLEM DEFINITION, INFORMATION REQUIREMENTS FOR PRIMARY SYSTEMS AND CONTAINMENT RESPONSE, FISSION PRODUCT BEHAVIOR, AND THE EXPERIMENTAL PROGRAM.

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

*ACCIDENT, LOSS OF COOLANT + *R AND D PROGRAM + FUEL, LIQUID METAL + CONTAINMENT, GENERAL + *SAFETY PROGRAM + FISSION PRODUCT TRANSPORT + FISSION PRODUCT RETENTION + FISSION PRODUCT RELEASE, GENERAL + ACCIDENT,

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34638 *CONTINUED*
CONSEQUENCES + *ACCIDENT ANALYSIS + SYSTEM OPERABILITY IN ACCIDENT

11-34640 ALSO IN CATEGORY 12
REYNOLDS MB
A FAILURE DIAGRAM FOR AXIALLY FLAWED PIPES
GENERAL ELECTRIC, PLEASANTON, CALIFORNIA
GEAP-5622 +. 14 PAGES, 1 FIGURE, 4 REFERENCES, APRIL 1968

THE RELATIONSHIP BETWEEN FLAW CONFIGURATION AND THE MAXIMUM PRESSURE LOAD WHICH CAN BE SUSTAINED BY AXIALLY FLAWED PIPES IS DISCUSSED. BOTH AXIAL THROUGH-WALL FLAWS AND PART-THROUGH FLAWS ARE CONSIDERED. A METHOD OF PLOTTING BURST STRENGTH VERSUS FLAW LENGTH DATA TO PRODUCE A USEFUL FAILURE DIAGRAM IS PRESENTED.

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

*REACTOR, POWER + *PIPING + TESTING + *PRESSURE, INTERNAL + *FLAW + *BURST PRESSURE + FAILURE, PIPE

11-34653 ALSO IN CATEGORY 17
PRELIMINARY REPORT ON THE INCIDENT WHICH OCCURRED ON 21ST JANUARY 1969 IN THE LUCENS EXPERIMENTAL NUCLEAR POWER STATION
SWISS ASSOCIATION FOR ATOMIC ENERGY, BERN
11 PAGES, NUCLEAR NEWSLETTER FROM SWITZERLAND, NO. 7, SPRING 1969

ON JANUARY 21, 1969 THE 30-MWTH REACTOR (LOCATED IN AN UNDERGROUND CAVERN 18 MILES NE OF LAUSANNE) WAS RETURNING TO POWER FOLLOWING A SCHEDULED THREE MONTHS SHUTDOWN AFTER THE INITIAL STARTUP PHASE. WHEN THE REACTOR REACHED 12 MW, WITH NO WARNING THE PRIMARY COOLANT GAS DEPRESSURIZED FROM 50 TO ABOUT 0.2 ATMOSPHERES PRESSURE IN 10 MINUTES (INDICATING A PRESSURE TUBE WAS BREACHED) AND THE HEAVY WATER MODERATOR LEVEL DROPPED GREATLY (INDICATING THE MODERATOR TANK WAS BREACHED).

*INCIDENT, GENERAL + *FUEL MELTDOWN + ACCIDENT, LOSS OF COOLANT + *CONTAINMENT, UNDERGROUND + *FAILURE, PIPE + REACTOR, PRESSURE TUBE + REACTOR, GCR + REACTOR, HWR + REACTOR, POWER + SWITZERLAND

11-34661 ALSO IN CATEGORY 18
SAMUELS G
FUEL ELEMENT DESIGN FOR BOILING POTASSIUM REACTORS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1344 +. 47 PAGES, 15 FIGURES, 9 TABLES, JANUARY 1966

A PARAMETRIC ANALYSIS WAS MADE OF INTERNAL TEMPERATURES, PRESSURES, AND FISSION PRODUCT ACTIVITY IN STAINLESS STEEL-CLAD UO-2 FUEL ELEMENTS, WITH PARTICULAR EMPHASIS ON THE MPRE FUEL ELEMENT DESIGN. FOR THE MAXIMUM POWER ELEMENT IN THE MPRE, THE CENTRAL UO-2 TEMPERATURE WAS CALCULATED TO BE 2580 F, THE FISSION GAS RELEASE RATE WAS 1.45%, AND THE EQUILIBRIUM ACTIVITY DIFFUSING FROM THE UO-2 WAS 2.9 CURIES PER ELEMENT. FOR A LEAKING ELEMENT IN WHICH THE HELIUM AND FISSION PRODUCTS WITHIN THE CAPSULE ARE REPLACED BY POTASSIUM VAPOR, IT MAY BE NECESSARY TO REDUCE THE REACTOR OUTPUT TO 70% OF FULL POWER TO PREVENT CENTRAL UO-2 TEMPERATURES FROM EXCEEDING 2900 F.

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

REACTOR, LMCR + POTASSIUM + ORNL + *FUEL ELEMENT + *DESIGN STUDY + FISSION PRODUCT RETENTION + FISSION GAS RELEASE + REACTOR, AIRCRAFT

11-34664 ALSO IN CATEGORIES 1 AND 5
BALL GL + KLINK AE
COMPARATIVE HYPOTHETICAL ACCIDENT ANALYSIS FOR FOUR INTERIM CORE DESIGNS FOR THE FAST TEST REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-208 +. 51 PAGES, JANUARY 1968

PRESENTS STUDY OF THE MAXIMUM ENERGY RELEASE VALUES WHICH MIGHT RESULT FROM A COMPLETE MELTDOWN COLLAPSE IN EACH OF FOUR CORE TYPES TENTATIVELY CONSIDERED FOR THE FAST TEST REACTOR. THIS COMPARATIVE EVALUATION WAS MADE TO PROVIDE AN EARLY ESTIMATE OF THE MAXIMUM ENERGY RELEASE FOR WHICH THEIR CONTAINMENT SHOULD BE DESIGNED. PROVIDES A QUANTITATIVE GUIDE TO THE RELATIVE CONTAINMENT REQUIREMENTS FOR EACH CORE CONCEPT. THE CORE TYPES CALCULATED WERE A 600-LITER PUO2-SS CERMET CORE, AN 800-LITER MIXED-OXIDE CORE, A 600-LITER MIXED-CARBIDE CORE AND A 600-LITER METAL ALLOY CORE. THE ENERGY RELEASE CALCULATIONS UTILIZED SIMPLIFIED SPHERICAL GEOMETRIES AND ASSUMED UNIFORM SODIUM-FREE CORE COMPOSITIONS.

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

REACTOR, FAST + REACTOR, TEST + DESIGN STUDY + *CORE MELTDOWN + FUEL MELTDOWN + ACCIDENT, FUEL SLUMP + ENERGY SOURCE + *ACCIDENT ANALYSIS + *CONTAINMENT DESIGN + DOPPLER COEFFICIENT

11-34669 ALSO IN CATEGORIES 6 AND 18
ROSSIN AD + CLASSNER A

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34669 *CONTINUED*
REACTOR DEVELOPMENT PROGRESS REPORT
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7553 +. 123 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1969

ONE OF A SERIES OF SIMILAR REPORTS. TOPICS - LMFBR DEVELOPMENT STUDIES, FAST REACTORS, GENERAL DEVELOPMENT STUDIES, NUCLEAR SAFETY, FUEL-MELTDOWN STUDIES WITH TREAT, CORE STRUCTURAL SAFETY, AND CONTAINMENT RESPONSE TO HIGH-ENERGY EXCURSION.

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

*R AND D PROGRAM + REACTOR, LMFBR + REACTOR, FAST + FUEL MELTDOWN + TREAT (PRR) + REACTOR, RESEARCH + CORE COMPONENTS + STRUCTURAL INTEGRITY + CONTAINMENT INTEGRITY + PRESSURE, INTERNAL + EXCURSION, LARGE + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

11-34673 ALSO IN CATEGORIES 7 AND 18
PATRIARCA P + RUCKER DJ
FUELS AND MATERIALS DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT FOR PERIOD ENDING DECEMBER 31, 1968
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4390 +. 308 PAGES, FIGURES, TABLES, REFERENCES, MAY 1969

ONE OF A SERIES OF SIMILAR REPORTS. TOPICS - FUELS AND CLADDINGS, COOLANTS, RADIATION DAMAGE TO STRUCTURAL MATERIALS, TECHNIQUES OF FABRICATION AND TESTING, ENGINEERING PROPERTIES OF REACTOR MATERIALS, DEVELOPMENT OF FAST REACTOR OXIDE FUELS, AND LMFBR FUELS, FISSION-GAS RELEASE, ZIRCONIUM METALLURGY, ALKALI-METAL CORROSION, TUNGSTEN METALLURGY, AND CLAD MATERIALS FOR SPACE HEAT SOURCES.

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

CLADDING + DIRECT ENERGY CONVERSION DEVICES + *R AND D PROGRAM + REACTOR, FAST + REACTOR, LMFBR + FUEL ELEMENT + FABRICATION + IRRADIATION TESTING + *ORNL + FISSION GAS RELEASE + CORROSION + ZIRCONIUM + TUNGSTEN

11-34686 ALSO IN CATEGORIES 2 AND 18
REVISICKS TO PSAR
JERSEY CENTRAL POWER AND LIGHT COMPANY + METROPOLITAN EDISON COMPANY
30 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 10 TO THREE MILE ISLAND LICENSE APPLICATION, JUNE 4, 1969,
DOCKET 50-320, TYPE--PWR, MFG--B+W, AE--BURNS + ROE

CONSISTS OF REVISED PAGES FOR PSAR WITH SUPPLEMENTAL INFORMATION ON THE REACTOR COOLANT-PUMP FLYWHEEL-DESIGN CRITERIA, PREOPERATIONAL ENVIRONMENTAL SURVEYS, FIRE PROTECTION IN CLASS-1 BUILDINGS, AND CLARIFICATION OF CORE INTERNALS EARTHQUAKE-DESIGN CRITERIA.

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

REPORT, PSAR + *THREE MILE ISLAND 1 (PWR) + REACTOR, PWR + *DESIGN CRITERIA + *PUMP + *MAIN COOLING SYSTEM + FIRE + CORE COMPONENTS + STRUCTURAL INTEGRITY + EARTHQUAKE ENGINEERING + SAFETY DEVICE

11-34695 ALSO IN CATEGORIES 5 AND 12
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
GEAP-5716 +. 157 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

COVERS QUARTERLY WORK ON (1) RELIABILITY ENGINEERING, (2) STRESS ANALYSIS, (3) FRACTURE MECHANICS, (4) FATIGUE, (5) EFFECT OF BWR ENVIRONMENT.

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

*REACTOR, POWER + *REACTOR, BWR + *COOLANT PURIFICATION SYSTEM + EXPERIMENT, GENERAL + *STRESS ANALYSIS + *FAILURE, FATIGUE + *RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + PIPING + TESTING + FRACTURE TOUGHNESS + STEEL + *FAILURE, PIPE + FAILURE, EQUIPMENT

11-34734 ALSO IN CATEGORY 5
EIBER RJ + MAXEY WA + DUFFY AR + ATTERBURY TJ
INVESTIGATION OF THE INITIATION AND EXTENT OF DUCTILE PIPE RUPTURE
BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO
BMI-1853 +. 8 PAGES, 3 FIGURES, NOVEMBER 1, 1968

THIS PROGRAM INVOLVES FULL-SCALE PIPE-RUPTURE EXPERIMENTS UNDER SIMULATED PW AND BW CONDITIONS. THE OBJECTIVES OF THE PROGRAM ARE TO DEFINE THE SIZES OF DEFECTS REQUIRED TO INITIATE FRACTURES IN TYPICAL PWR AND BWR PRIMARY COOLANT PIPING AND TO OBTAIN INFORMATION ON THE EXTENT OF PROPAGATION. THEORETICAL FORMULATIONS FOR PREDICTING THE FAILURE PRESSURE OF THROUGH WALL AND SURFACE FLAW DEFECTS OF VARIOUS SIZES. REPORT COVERS WORK JULY 1968 TO SEPTEMBER 1968. TWENTY FULL-SCALE EXPERIMENTS HAVE BEEN CONDUCTED TO DATE INVOLVING PIPING MATERIALS A106B AND TYPE 316 STAINLESS STEEL. EXPERIMENTAL RESULTS HAVE BEEN COMPARED WITH ANALYTICAL PREDICTIONS TO EVALUATE THE ACCURACY AND GENERAL TRENDS OF THE ANALYTICAL RELATIONSHIPS. TO DATE, TWO ANALYTICAL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34734 *CONTINUED*
RELATIONSHIPS HAVE BEEN EXAMINED.

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

REACTOR, PWR + REACTOR, BWR + *PIPING + *ACCIDENT, STEAM LINE RUPTURE + *FAILURE, PIPE

11-34759 ALSO IN CATEGORY 18
KLUSMANN AR + ROTTERDAM R + JASPERS G
THE FUEL ELEMENT OF THE GEESTHACHT KSH REACTOR
7 PAGES, 6 FIGURES, KERntechnik, 11(12), PAGES 92/98 (FEBRUARY 1969)

GHM IS BUILDING A 25 MW HIGH-TEMPERATURE NUCLEAR PLANT WITH A HELIUM TURBINE IN A DIRECT CYCLE NEAR HAMBURG. THE REACTOR CORE AND THE GRAPHITE FUEL RODS OF THIS PLANT ARE DESCRIBED. THE HEAVY METAL (100 KG OF 90% ENRICHED URANIUM, 1000 KG OF THORIUM) IS INCORPORATED IN GRAPHITE CONTAINERS AS BONDED COATED PARTICLE FUEL WITH POROUS OXIDE KERNELS AND COMPOSITE PYROCARBON AND SILICON-CARBIDE COATINGS. THE PARTICLE CONCEPT IS DESCRIBED AND THE CHOICE OF GRAPHITE EXPLAINED. THE EXPECTED FUEL ELEMENT PERFORMANCE UNDER NORMAL AND ACCIDENT CONDITIONS IS DISCUSSED. THE SPECIFIC FISSION-PRODUCT RELEASE RATES OF THE CORE FOR THIS FIRST NUCLEAR PLANT WITH A HELIUM TURBINE ARE GIVEN.

REACTOR, GCR + *REACTOR, HTGR + *REACTOR DESCRIPTION + FUEL ELEMENT + INTEGRITY + TURBINE + HELIUM + FISSION
PRODUCT RETENTION

11-34764 ALSO IN CATEGORY 18
DONNE CM + EISEMANN E + THUMMLER F + WIRTZ K
HIGH-TEMPERATURE GAS COOLING FOR FAST BREEDERS
6 PAGES, 4 FIGURES, KERntechnik, 11(2), PAGES 99-104 (FEBRUARY 1969)

THE MAIN PROBLEM FOR THE DEVELOPMENT OF GAS COOLED FAST REACTORS IS A RELIABLE FUEL ELEMENT. PRESENTLY THREE POSSIBILITIES FOR HIGH TEMPERATURE FUEL DESIGN ARE DISCUSSED. ALL THESE FUELS WOULD ALLOW GAS OUTLET TEMPERATURES ABOVE 720 C, WHICH ALLOWS THE USE OF A DIRECT GAS TURBINE CYCLE WITH A NET PLANT EFFICIENCY ABOVE 40%. IN ALL CASES THE COOLANT PRESSURE IS CONSIDERABLY HIGHER THAN THE PRESSURE NORMALLY USED IN THERMAL GAS COOLED REACTORS. THE SPECIAL SAFETY ASPECTS THAT APPEAR IN CONNECTION WITH GAS COOLED FAST REACTORS ARE BRIEFLY DISCUSSED.

*REACTOR, HTGR + REACTOR, GCR + REACTOR, FAST + *FUEL ELEMENT + *DESIGN STUDY + DESIGN CRITERIA + GERMANY

11-34895 ALSO IN CATEGORIES 5 AND 12
ALESIN VS + KUZNETSOV NM + SARKISOV
SUODOVYE YADERNYE REAKTORY
492 PAGES, IZKATEL'S SIVO SUDOSTROENIE, 1968

A BRIEF REVIEW OF NUCLEAR PHYSICS, HEAT-EXCHANGE MECHANICS, CONTROL SYSTEMS, CONSTRUCTION, AND DESIGN OF NUCLEAR MARITIME REACTORS. CONCEPTS OF BIOLOGICAL PROTECTION AND SHIELDING ARE DISCUSSED. THE BOOK CAN BE A HANDBOOK FOR ENGINEERS DESIGNING AND OPERATING NUCLEAR POWER PLANTS.

THERMAL ANALYSIS + *REACTOR, MARITIME + DESIGN CRITERIA + CONTROL SYSTEM + *REACTOR POWER

11-34896 ALSO IN CATEGORY 12
ON THE SAFETY OF THE FIRST NUCLEAR POWERED SHIP A REPORT OF THE COMMITTEE ON EXAMINATION OF REACTOR SAFETY
10 PAGES, GENSHIRYOKUSEN, NO. 51, PAGES 1280-9 (JANUARY 1968) (IN JAPANESE)

THE REPORT BY THE REACTOR SAFETY INSPECTION COMMITTEE TO THE AEC, CONCERNING THE SAFETY OF THE FIRST NUCLEAR-POWERED SHIP, IS GIVEN. INCLUDES AN OUTLINE OF THE CONSTRUCTION PROGRAM, SAFETY MEASURES, EVALUATIONS OF NORMAL RADIATION DOSES, VARIOUS POSSIBLE ACCIDENTS, HAZARD EVALUATIONS AND MATTERS OF DISTANCE IN CONNECTION WITH HAZARDS.

*REACTOR, MARITIME + *SAFETY EVALUATION + HAZARDS ANALYSIS + DISTANCE + PERSONNEL EXPOSURE, RADIATION

11-34907 ALSO IN CATEGORIES 2 AND 7 AND 18
NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY QUARTERLY REPORT, NOVEMBER 1968-
JANUARY 1969
BATTIELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-1C09 +. 161 PAGES, FIGURES, TABLES, MARCH 1969

(CONTAINMENT SYSTEM EXPERIMENT) SPRAY REMOVAL RATE FOR ELEMENTAL IODINE PREDICTED WITHIN 20% FOR THE FIRST FEW MINUTES. NAOH ADDITION NOT EFFECTIVE. NO ACOUSTIC EMISSION DURING BLOWDOWN FROM KNOWN FLAWS IN VESSEL HEAD (THERMAL POLLUTION). REPORT BNWL-999, SIMULATION TO YEAR 2000 OF PLANTS ON THE UPPER MISSISSIPPI, WAS ISSUED. OHIO RIVER SIMULATION HAS BEGUN.

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

R AND D PROGRAM + CSE + FAULT + SIMULATION + THERMAL POLLUTION + RIVER, GENERAL + ANALYTICAL MODEL +
*CONTAINMENT SPRAY + *ADDITIVE + *ACOUSTICS + BLOWDOWN + *PRESSURE VESSEL

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-34908 ALSO IN CATEGORIES 12 AND 17

SPENCER WF

A DISCUSSION AND EVALUATION OF REMOTE MAINTENANCE IN A REACTOR EXPERIMENT VERSUS CONVENTIONAL MAINTENANCE FOR A SIMILAR TASK

OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-2555 +. 7 PAGES, APRIL 10, 1969

DESCRIBES REPLACEMENT OF AN AIRLINE QUICK-DISCONNECT INSIDE REACTOR CONTAINMENT. CONVENTIONAL PLANT REPLACEMENT TIME WAS ESTIMATED AT 8.1 HR, MSRE TIME AS 263.1 HRS. ACTUAL TIME WAS 400 HR. ONE PAGE DESCRIBES ACTUAL JOB.

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

OPERATING EXPERIENCE + MSRE (RE) + *FAILURE, COMPONENT + *PNEUMATIC SYSTEM + *MAINTENANCE, REMOTE + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT

11-34910 ALSO IN CATEGORIES 5 AND 18

CARMICHAEL CF + MARKO SA

CONTEMPT-PS -- A DIGITAL COMPUTER CODE FOR PREDICTING THE PRESSURE-TEMPERATURE HISTORY WITHIN A PRESSURE-SUPPRESSION CONTAINMENT VESSEL IN RESPONSE TO A LOSS-OF-COOLANT ACCIDENT

PHILLIPS PETROLEUM COMPANY

IDO-17252 +. 74 PAGES, FIGURES, TABLES, APRIL 1969

REPORT DESCRIBES BOTH ANALYTICAL MODEL AND COMPUTER CODE. (FORTRAN IV OR SYMBOLIC LANGUAGE USED FOR IMB 7040-44). PROVISIONS FOR CONTAINMENT LEAKAGE (GROSS OR FROM PENETRATIONS), FAN COOLING, DRY- AND WET-WELL SPRAYS. FLOW MAY BE SONIC OR SUBSONIC THROUGH VENTS, AND DRY-WELL TEMPERATURES MUST STAY BELOW 460 F.

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

*CONTAINMENT, PRESSURE SUPPRESSION + *CONTAINMENT DESIGN + BLOWDOWN + REACTOR, BWR + CONTAINMENT SPRAY + CONTAINMENT PENETRATION, GENERAL + *ANALYTICAL MODEL + *COMPUTER PROGRAM + CONTAINMENT AIR COOLING + LEAK RATE

11-35173 ALSO IN CATEGORY 17

SELECTED ELK RIVER OPERATING EXPERIENCE FOR JAN. 1968

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-55 +. 23 PAGES, OPERATING REPORT NO. 63, JANUARY 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR WAS SHUT DOWN BY 2400 HR, JAN. 31 (CONTRACTUAL AUTHORITY EXPIRED FOR RCPC TO RETAIN TECHNICAL SUPPORT REQUIRED TO COMPLY WITH TECH. SPECS. INCORPORATED IN OPERATING AUTHORIZATION OPRA-3 14.2-29). REG. ROD VS POWER DURING POWER REDUCTION SHOWED NO CHANGE FROM THAT OBTAINED IN CYCLE-2 CALIBRATION. CYCLE-3 PRODUCTION WAS 10,499 MWD (64% OF THE EXPECTED 16,300 MWD). OPERATION BEYOND 16,300 MWD WOULD INVOLVE COASTDOWN (1.8 MWT DECREASE PER ADDITIONAL 1000 MWD OF BURNUP). *** CONTINUED SURVEILLANCE OF WATER ACCUMULATION IN LOWER CAVITY INDICATES THAT IT IS NOT FROM PRIMARY HEAT TRANSFER SYSTEM. *** IODINE CONCENTRATIONS IN PRIMARY COOLANT HAVE INCREASED STEADILY SINCE SEPT. 1967. OTHER FISSION-PRODUCT CONCENTRATIONS IN PRIMARY COOLANT ARE UNCHANGED FROM JUNE 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *WATER, GENERAL + CONTAINMENT, GENERAL + *MAIN COOLING SYSTEM + ANNULUS + *LICENSE STATUS + *FUEL BURNUP + *FUEL MANAGEMENT + ADMINISTRATIVE CONTROL + LEAK RATE + FISSION PRODUCT, IODINE

11-35179 ALSO IN CATEGORY 17

SELECTED ELK RIVER OPERATING EXPERIENCE

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-50 +. 25 PAGES, OPERATING REPORT NO. 58, AUGUST 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

AUGUST 23 SCHEDULED SHUTDOWN INCLUDED THE FOLLOWING - INVESTIGATE AND CORRECT PRIMARY SYSTEM LEAKAGE OF 40 GAL/DAY REPAIR LEAK ON FORMER DECAY HEAT PUMP DISCHARGE CHECK VALVE, CLEAN SUPERHEATER AIR HEATER, PERFORM TESTS AS REQUIRED BY ERR TECHNICAL SPECIFICATION. AFTER 18 HR AND 7 MIN., THE REACTOR WAS RETURNED TO SERVICE. *** RECOMBINER PERFORMANCE WAS IMPROVED BY REPLACING PLATINIZED ALUMINUM PELLET CATALYST WITH PLATINIZED HONEYCOMB CERAMIC DISKS. EFFICIENCY WAS MAINTAINED DURING PRESSURE AND TEMPERATURE CHANGES, AND SUPERHEAT TEMPERATURES ARE NEARLY TWICE AS HIGH.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + *MAINTENANCE AND REPAIR + *MODIFICATION, SYSTEM OR EQUIPMENT + PLATINUM + REACTOR, BWR + MAIN COOLING SYSTEM + LEAK + TESTING + RECOMBINER + REPORT, OPERATIONS

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30658
CHUSHKIN YV + DAVYDOV EF + SYUZEV VN + GUSEVA TM + KOLESOV VV + DERIBIZOV MD
RADIATION STABILITY OF SM-2 REACTOR PLATE FUEL ELEMENTS
4 PAGES, AT. ENERG. (USSR), 24, PAGES 432-5 (MAY 1968)

THE DATA OBTAINED BY INVESTIGATING SM-2 LAMINAR FUEL ELEMENTS MADE AS STRAIGHT PLATES 280 X 33, 4 X 0.8 MM BY SIZE ARE SUMMARIZED. GOOD STRUCTURAL STABILITY OF ALL FUEL ELEMENT COMPONENTS AND THE ABSENCE OF VISIBLE CHANGES OF THE FORM, CONTINUITY, GRAIN STRUCTURE, AND CONFIGURATION OF THE FUEL WERE NOTED. THE FUEL ELEMENTS SHOWED SUFFICIENT RELIABILITY.

*FUEL ELEMENT + *CLADDING + *NICKEL + URANIUM DIOXIDE + STRUCTURAL INTEGRITY + REACTOR, PWR + REACTOR, MILITARY + SM 2 (PWR) + URANIUM-235

12-30659 ALSO IN CATEGORY 5
FUEL ELEMENT HEAT TRANSFER ARRANGEMENT
LICENTIA PATENTVERWALTUNGS GMBH
U. S. PATENT 3,384,551 +. MAY 21, 1968

A CLADDING ARRANGEMENT FOR PROTECTING A TUBULAR FUEL ELEMENT AND INCLUDING AN INNER JACKET COVERING THE INNER SURFACE OF THE FUEL ELEMENT IS DESCRIBED. A CORROSION RESISTANT METAL LAYER COVERS THE FIRST JACKET OF ZIRCONIUM ALLOY, AND A SECOND JACKET COVERS THE OUTER SURFACE OF THE FUEL ELEMENT. THE ENDS OF THE FUEL ELEMENTS ARE PLUGGED WITH THE SAME ZIRCONIUM ALLOY.

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

*REACTOR, GENERAL + *FUEL ELEMENT + HEAT TRANSFER + *CLADDING + PATENT + ZIRCONIUM + ALLOY + GERMANY

12-30669 ALSO IN CATEGORY 5
TONG LS
EVALUATION OF THE DEPARTURE FROM NUCLEATE BOILING IN BUNDLES OF REACTOR FUEL RODS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH
9 PAGES, NUCL. SCI. ENG., 33, PAGES 7-15 (1968)

FLOW BOILING CRISIS IS CATEGORIZED INTO AT LEAST TWO TYPES (DEPARTURE FROM NUCLEATE BOILING (DNB) IN THE SUBCOOLED AND LOW-QUALITY REGION AND DRY-OUT IN THE HIGH-QUALITY REGION). TO ANALYZE THE DNB FLUX IN A ROD BUNDLE, THE FLOW CONDITIONS ARE EVALUATED BY A SUBCHANNEL ANALYSIS AND A SINGLE-CHANNEL DNB CORRELATION IS USED FOR PREDICTIONS. ROD-BUNDLE DNB DATA ARE PRESENTED TO VERIFY THE ABOVE STATEMENT. UNCERTAINTIES IN THE MEASURED DNB HEAT FLUXES ARE LISTED.

*REACTOR, GENERAL + FUEL ELEMENT + BUBBLE NUCLEATION + *NUCLEATE BOILING + EXPERIMENT, GENERAL

12-30671 ALSO IN CATEGORY 13
MINSART G + MOTTE F
ANALYSIS OF THE POSSIBILITY OF LARGE-SCALE IRRADIATION OF FAST REACTOR FUEL IN THE BR2 MATERIALS - TESTING REACTOR
CENTRE D ETUDE DE L ENERGIE NUCLEAIRE, MOL, BELG.
STI/PUB-165(VOL.1) + CONF-671043-(VOL.1) +. 22 PAGES, PAGES 327-48 OF FAST REACTOR PHYSICS. VOL. I., FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS, KARLSRUHE, GERMANY, 1968

DESCRIBES DEVICES USED IN THE BR2 REACTOR TO IRRADIATE FUEL PINS NA-COOLED UNDER FORCED CIRCULATION, AS PART OF A SERIES OF STUDIES ON FAST REACTOR FUEL DESIGNS. THE LOW-ENERGY COMPONENT OF THE NEUTRON SPECTRUM INCIDENT ON THESE DEVICES IS FILTERED OUT BY B AND CD SCREENS. ATTEMPTS HAVE BEEN MADE TO DESIGN AN IRRADIATION DEVICE OF GREATER POWER, WHICH WOULD ALLOW A FAST-REACTOR FUEL SUB-ASSEMBLY TO BE TESTED TO HIGH BURN-UP RATES, UNDER SPECIFIC SPECTRAL AND POWER CONDITIONS REPRESENTATIVE OF THE NEXT GENERATION OF FAST REACTORS.

*REACTOR, GENERAL + *IRRADIATION TESTING + *GERMANY + *BR 2 (RR) + FUEL ELEMENT + SODIUM + STRESS + FAILURE, FUEL ELEMENT + REACTOR, RESEARCH

12-30676 ALSO IN CATEGORIES 7 AND 13
DAVIS LP
DEPOSITION OF SUBMICRON-SIZE PARTICLES IN VENTILATION DUCTS
OAK RIDGE NATIONAL LABORATORY
8 PAGES, SURFACE CONTAMINATION, PAGES 131-38, NEW YORK, PERGAMON PRESS, 1966

A 54 SQ. IN. CONCRETE VENTILATION DUCT 1000 FT LONG, USED TO VENT SEVERAL HIGH-LEVEL RADIOACTIVITY FACILITIES TO A FAN BELOW A MAIN STACK, WAS USED TO STUDY THE DEPOSITION BEHAVIOR OF PARTICLES OF 0.001 TO 1.0 MICRON WITH CONCENTRATIONS RANGING FROM 1 TO 1000 MG/M3. AN EQUATION WAS DEVELOPED THAT PROVIDES A PLAUSIBLE MEANS OF PREDICTING DECREASES IN CONCENTRATION FOR THE CONCENTRATION INVESTIGATED, BUT THE CONTAMINATION ON THE DUCT WALLS CAN NOT BE OVERLOOKED.

*DEPOSITION + *PARTICULATE + AEROSOL + *VENTILATION SYSTEM + OFF GAS + STACK + *CONTAMINATION + *PARTICLE SIZE

12-30807
GORUYACHENKO VD + TRUNIN YF
STABILITY OF NUCLEAR POWER PLANT WITH CIRCULATING FUEL

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30807 *CONTINUED*

GORKY RESEARCH INSTITUTE OF PHYSICS AND TECHNOLOGY, USSR

8 PAGES, VESTSI AKADEMII NAVUK BELARUSKAI S.S.R., SERYYA FIZIKA-TEKHNICHNYKH NAVUK, NUMBER 3, PAGES 38-45 (1967)

EQUATIONS ARE WRITTEN FOR THE DYNAMICS OF THE ACTIVE ZONE OF THE REACTOR WHICH INCLUDES A HEAT EXCHANGER IN THE CIRCUIT. THESE EQUATIONS ARE TRANSFORMED TO DIMENSIONLESS FORM. THE TRIVIAL SOLUTION OF THE EQUATIONS CORRESPONDS TO A STEADY-STATE OPERATION OF THE REACTOR.

*REACTOR, POWER + USSR + MATHEMATICAL TREATMENT + *MOLTEN FUEL

12-30879 ALSO IN CATEGORY 13

BALKWILL JK

MECHANICAL ELEMENTS OPERATING IN SODIUM AND OTHER ALKALI METALS. VOL. I LITERATURE SURVEY

LIQUID METAL ENGINEERING CENTER

LMC-68-5 +. 124 PAGES, 17 TABLES, 77 REFERENCES, 1968

SEARCHED LITERATURE REPORTING INFORMATION PUBLISHED SINCE 1950 ON MECHANICAL DEVICES WITH RUBBING SURFACES OPERATING IN ALKALI METALS. SODIUM ENVIRONMENTS ARE EMPHASIZED, WITH DATA ALSO INCLUDED FROM POTASSIUM, NAK, AND LITHIUM EXPERIMENTS. THE CHARACTERISTICS OF POTENTIALLY USEFUL MATERIALS THAT ARE IMPORTANT IN LIQUID METAL APPLICATIONS ARE DISCUSSED. MATERIAL COMPATIBILITY AND FRICTION/WEAR TESTING PROGRAMS CONDUCTED SINCE 1950 ARE DESCRIBED. EXPERIMENTAL AND OPERATING EXPERIENCE WITH FULL-SIZE COMPONENTS IS PRESENTED.

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

*REACTOR, LMC + *SURVEY, GENERAL + POTASSIUM + SODIUM + LITHIUM + MATERIAL + CORROSION + ALLOY + *EXPERIMENT, GENERAL + OPERATING EXPERIENCE + BIBLIOGRAPHY

12-31332 ALSO IN CATEGORY 9

GARRICK BJ + GEKLER WC + BALDONADO OC + BEHRENS EH + SHIMIZU B

CLASSIFICATION AND PROCESSING OF RELIABILITY DATA FROM NUCLEAR POWER PLANTS

HOLMES + NARVER, INC.

HN-193 +. FEBRUARY 1968, 6 FIGURES, TABLES, 1 REFERENCE

METHODS FOR CLASSIFYING AND PROCESSING RELIABILITY DATA TO A POINT SUITABLE FOR USE IN A WORKING DATA COLLECTION PROGRAM HAVE BEEN DEVELOPED. THE CLASSIFICATION CODES ARE SCOPED PRIMARILY TO ACCOMMODATE THE DESIGNS AND COMPONENTS FOUND IN ENGINEERED SAFETY SYSTEMS. PARTICULAR EMPHASIS HAS BEEN GIVEN TO ENSURE OVERALL COMPATIBILITY BY LIAISON WITH THE CHORD-S PROGRAM AND THE LMRC PROGRAM. THE OBJECTIVE WAS TO REVIEW THE NEEDS OF EACH PROGRAM AND WHERE POSSIBLE TO DERIVE STANDARD FORMATS FOR DATA CLASSIFICATION. AN OPERATING DATA REDUCTION PROGRAM, FAILDARE, IS PRESENTED FOR CALCULATION OF RELIABILITY DATA FROM OPERATING EXPERIENCE ACCUMULATED AND CLASSIFIED ACCORDING TO THE CLASSIFICATION CODE.

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

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *ENGINEERED SAFETY FEATURE + DATA PROCESSING + CVTR (PWR) + *PROCEDURES AND MANUALS + REACTOR, PWR + REACTOR, PRESSURE TUBE + REACTOR, HWR + COMPUTER PROGRAM

12-31462

BOKROS JC + ENGLE GB + GOEDDEL WV + PRICE RJ + WHITE JL

ADVANCED GRAPHITE FUEL SYSTEMS

GULF GENERAL ATOMIC, INC., CALIF.

GA-7000 +. 50 PAGES, 30 FIGURES, 2 TABLES, 17 REFERENCES, MARCH 15, 1966

INVESTIGATIONS REPORTED DURING THIS PERIOD COVER THE EFFECT OF PITCH BINDER CONTENT ON THE STRUCTURE AND PROPERTIES OF MOLDED GRAPHITE BODIES PREPARED WITH VARIOUS FILLER MATERIALS (BEING INVESTIGATED IN COORDINATION WITH IRRADIATION EXPERIMENTS ON THE SAME MATERIALS). MICROGRAPHIC STUDIES OF THE STRUCTURES AND INTERACTIONS OF BINDER AND FILLER MATERIALS ARE BEING MADE AT VARIOUS STAGES OF CARBONIZATION AND GRAPHITIZATION. ANNEALING STUDIES ARE BEING MADE ON VARIOUS MODEL CARBONS AND IRRADIATED CARBONS. THE PROCESS OF CATALYTIC GRAPHITIZATION BY MEANS OF METAL ADDITIVES IS BEING STUDIED ON SELECTED CARBONS.

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

*REACTOR, GRAPHITE MODERATED + *GRAPHITE + *PROPERTY, PHYSICAL + *IRRADIATION TESTING + CARBON + CREEP + CREEP PROPERTY + FISSION RECOIL + DAMAGE

12-31463

ROM FE + FINNEGAN PM + McDONALD GE

VERY HIGH-BURNUP VAPOR-TRANSPORT FUEL-PIN CONCEPT FOR LONG-LIFE NUCLEAR REACTORS

NASA, LEWIS RESEARCH CENTER, OHIO

NASA-TN-D-4860 +. 30 PAGES, 8 FIGURES, 9 REFERENCES, OCTOBER 1968

A VERY-HIGH-BURNUP, VAPOR-TRANSPORT FUEL-PIN CONCEPT IS PRESENTED. SAMPLE CALCULATIONS USING THE DESIGN CHARTS GIVEN IN THE REPORT SHOW THAT FISSION DENSITIES IN THE RANGE OF 10(20TH TO 21ST)

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-31463 *CONTINUED*

FISSIONS PER CC ARE CONSERVATIVELY PREDICTED. THE FUEL WITHIN THE PIN CAN BE OPERATED AT SUFFICIENTLY HIGH INSIDE SURFACE TEMPERATURES SO THAT FUEL REDISTRIBUTION WILL OCCUR BY DESIGN. THIS FEATURE ACCOMMODATES AND RELIEVES THE ADVERSE EFFECTS OF NONUNIFORM POWER DISTRIBUTION, HOT SPOTS, AND NONUNIFORM BURNUP. CHANGES IN REACTOR REACTIVITY DUE TO HIGH BURNUP ARE MINIMIZED WITH THE VAPOR-TRANSPORT FUEL-PIN CONCEPT.

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

*REACTOR, SPACE + *FUEL ELEMENT + TRANSPORT THEORY + *HIGH TEMPERATURE + DESIGN STUDY + *THEORETICAL INVESTIGATION

12-31464 ALSO IN CATEGORY 13

REEVE KD + RAMM EJ

DEVELOPMENT OF STAGE I BERYLLIA, FUELLED BERYLLIA, AND SPHERICAL BERYLLIA-BASED FUEL ELEMENTS FOR THE HIGH-TEMPERATURE GAS-COOLED REACTOR FEASIBILITY STUDY

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/E-193 +. 43 PAGES, 21 FIGURES, 2 TABLES, REFERENCES, SEPTEMBER 1968

REQUIREMENTS OF BEO FOR USE AS MODERATOR, FUEL MATRIX, AND FISSION-PRODUCT-RETENTIVE COATING IN AN ALL-CERAMIC, DISPERSION-TYPE FUEL ELEMENT FOR USE IN A HIGH-TEMPERATURE GAS-COOLED REACTOR ARE DISCUSSED. REASONS FOR CHOOSING BRUSH UOX BEO POWDER, AND ISOSTATIC PRESSING FOR FABRICATING IT, ARE GIVEN. THE CHARACTERISTICS OF THIS POWDER AND THE EFFECTS OF MANY FABRICATION VARIABLES ON THE PROPERTIES OF THE SINTERED PRODUCT ARE DISCUSSED IN DETAIL. AS A RESULT OF THE WORK DESCRIBED, A PROCESS WAS CHOSEN FOR PRODUCING AN INTERIM-STANDARD SINTERED BEO, TO BE KNOWN AS STAGE-I BEO.

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

*REACTOR, HTGR + *AUSTRALIA + *BERYLLIUM + OXIDE + CERAMICS + *FUEL ELEMENT + EXPERIMENT, GENERAL + FUEL, POWDER TYPE + FISSION PRODUCT RETENTION + *FABRICATION + SINTERING + *FUEL ELEMENT

12-31465 ALSO IN CATEGORY 11

MILLER RW + LUSSIE WG

THE RESPONSE OF UO₂ FUEL RODS TO POWER BURSTS 5/16-INCH OD, PELLET AND POWDER FUEL, ZIRCALOY CLAD

PHILLIPS PETROLEUM COMPANY

100-ITR-103 +. JANUARY 1969, 43 FIGURES, 13 TABLES, 4 REFERENCES, 71P

FUEL RODS OF 0.3125-INCH OD WITH ZIRCALOY-2 CLADDING AND EITHER PELLET OR POWDER URANIUM DIOXIDE FUEL FORM ENRICHED TO 7% WERE FABRICATED BY GENERAL ELECTRIC COMPANY BY COMMERCIAL TECHNIQUES AND SUPPLIED FOR THE SUBASSEMBLY TESTING PROGRAM. THE FUEL RODS WERE INSERTED INDIVIDUALLY IN THE CDC REACTOR IN A WATER ENVIRONMENT AND SUBJECTED TO POWER BURSTS WITH HALF-WIDTHS OF ABOUT 12 TO 30 MSEC (ASYMPTOTIC PERIODS BETWEEN 3 AND 7 MSEC) RESULTING IN SUDDEN RELEASES OF ENERGY WITHIN THE URANIA RANGING FROM 190 CAL/G OF UO₂ TO 440 CAL/G OF UO₂. RESULTS INDICATE A THRESHOLD LESS THAN 250 CAL/G FOR PELLET FUEL BUT GREATER THAN 250 CAL/G FOR POWDER FUEL.

*REACTOR, POWER + *FUEL, PELLET TYPE + *FUEL, POWDER TYPE + *EXPERIMENT, GENERAL + URANIUM DIOXIDE + ZIRCONIUM + *FAILURE, FUEL ELEMENT + CONTAINMENT, GENERAL

12-31500 ALSO IN CATEGORY 13

CROOKER TW + LANGE EA

FATIGUE CRACK PROPAGATION IN A HIGH-STRENGTH STEEL UNDER CONSTANT CYCLIC LOAD WITH VARIABLE MEAN LOADS

NAVAL RESEARCH LABORATORY, WASHINGTON, D.C.

NRL-REPURI-6805 +. 20 PAGES, 7 FIGURES, 13 REFERENCES, NOVEMBER 29, 1968

FATIGUE CRACK PROPAGATION STUDIES WERE CONDUCTED ON A 9NI-4CO-0.25C HIGH-STRENGTH STEEL USING A CONSTANT CYCLIC LOAD AND VARIABLE MEAN LOADS. THE LOAD RATIO R WAS VARIED FROM +0.5 TO -1.0. FATIGUE CRACK GROWTH RATES WERE ANALYZED USING THE CRACK TIP STRESS-INTENSITY FACTOR K. RESULTS SHOW THAT MEAN LOADS EXERT A STRONG SECONDARY INFLUENCE ON FATIGUE CRACK PROPAGATION. DATA WERE FITTED TO TWO CRACK PROPAGATION EQUATIONS WHICH SEEK TO ACCOUNT FOR MEAN LOADS. BOTH EQUATIONS SIGNIFICANTLY REDUCED BUT DID NOT ELIMINATE THE LAYERED SCATTER CAUSED BY MEAN LOADS.

*REACTOR, GENERAL + *FUEL REPROCESSING + *PRESSURE VESSEL + *STEEL + FAILURE, FATIGUE + EXPERIMENT, GENERAL + TESTING

12-31501

ARNETT LM

QUANTITATIVE ANALYSIS OF REACTOR SAFETY

SAVANNAH RIVER LABORATORY, SOUTH CAROLINA

DP-1168 +. 54 PAGES, 4 FIGURES, NOVEMBER 1968

THE BEHAVIOR OF THE SAFETY MECHANISMS OF A NUCLEAR REACTOR IS MODELED, AND THE PROBABILITIES OF EACH INCIDENT WHOSE CONSEQUENCES ARE OF SAFETY CONCERN ARE CALCULATED BY EITHER OF TWO COMPUTER PROGRAMS. THE MODEL ACCOUNTS FOR SCHEDULED INSPECTION AND MAINTENANCE OF ALL MECHANICAL DEVICES.

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

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-31501 *CONTINUED*

*REACTOR, GENERAL + MATHEMATICAL TREATMENT + *SAFETY EVALUATION + INCIDENT, GENERAL + COMPUTER PROGRAM

12-31504

WALTAR AE

MELT-1, A SIMPLIFIED MELTDOWN CODE FOR FAST REACTOR SAFETY ANALYSIS

BATTELLE NORTHWEST, RICHLAND, WASHINGTON

BNWL-944 +. 75 PAGES, DECEMBER 1968

MELT-1 IS A COUPLED-NEUTRONICS/HEAT-TRANSFER CODE FOR USE IN ESTIMATING GROSS CORE BEHAVIOR DURING MAJOR FAST REACTOR EXCURSIONS. THE UNIQUE FEATURE OF THE CODE IS THE TREATMENT OF POSITIVE REACTIVITY FEEDBACKS DUE TO FUEL COLLAPSE AND SODIUM VOIDING. ALTHOUGH THE FEEDBACKS DUE TO FEEDBACK MODELS AND THE METHOD OF OBTAINING CORE TEMPERATURES ARE QUITE SIMPLIFIED, THE ABILITY OF THE CODE TO COUPLE THE FEEDBACK TERMS TO THE DRIVING FUNCTION IN THE POINT KINETICS EQUATIONS ALLOWS ONE TO MAKE REASONABLE ESTIMATES OF CORE CONDITIONS JUST PRIOR TO THE START OF CORE DISASSEMBLY.

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

*REACTOR, FAST + *COMPUTER PROGRAM + *CORE MELTDOWN + THEORETICAL INVESTIGATION

12-31505 ALSO IN CATEGORY 13

GOLDSMITH P + WELLS AC + COX LC

AEROSOL EMISSION FROM CHROMIUM ALLOYS WHEN HEATED IN AIR AND IN CARBON DIOXIDE/11 CARBON MONOXIDE

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL, BERKSHIRE

AERE-R-5426 +. 20 PAGES, 5 FIGURES, 4 TABLES, 6 REFERENCES, SEPTEMBER 1968

WHEN 80-20 NICKEL CHROMIUM ALLOY AND 20-23 STAINLESS STEEL ARE HEATED IN AIR, A COPIOUS SUPPLY OF SUBMICRON PARTICLES IS EMITTED FROM THE HOT ALLOYS AT TEMPERATURES OVER 850 C. THESE PARTICLES HAVE BEEN FOUND TO BE COMPOSED OF A MIXTURE OF CHROMIUM TRIOXIDE AND CHROMIUM SESQUIOXIDE IN THE RATIO 2-1. AT TEMPERATURES OF 1200 C AND BELOW, WELL OVER 90% OF THE EMISSION IS DUE TO THE PRODUCTION OF THIS SUBMICRON AEROSOL. AT 1250 C IN DRY AIR, AS MUCH AS 62% OF THE CHROMIUM LOSS FROM THE HEATED ALLOYS WAS IN THE FORM OF LARGE PARTICLES OF SCALE. MOISTURE INHIBITED THIS SCALING MECHANISM BUT ENHANCED THE SUBMICRON AEROSOL PRODUCTION RATE.

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*FUEL REPROCESSING + *REACTOR, LMR + *REACTOR, LMFBR + *AEROSOL + AEROSOL PRODUCTION + ALLOY + CHROMIUM + NICKEL + STEEL, STAINLESS + HIGH TEMPERATURE

12-31874 ALSO IN CATEGORIES 9 AND 17

THE EFFECT OF HUMAN ERROR AND STATIC COMPONENT FAILURE ON ENGINEERED SAFETY SYSTEM RELIABILITY

HOLMES + NARVER, INC.

HN-194 +. NOVEMBER 1967, 18 TABLES, 16 FIGURES

HUMAN ERROR AND STATIC-COMPONENT FAILURE ARE IMPORTANT VARIABLES IN SYSTEM RELIABILITY ESPECIALLY IF THESE FAILURES CAN LEAD TO SYSTEM FAILURE BY THEMSELVES OR IN CONNECTION WITH ONLY ONE OTHER FAILURE. THE RESULT OF THE STUDY INDICATES THAT NO GENERALIZATION CAN BE MADE AS TO WHEN A STATIC COMPONENT OR HUMAN FAILURE MUST BE INCLUDED UNLESS IT IS THAT THEY SHOULD BE IGNORED OR SEPARATELY TREATED.

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

*RELIABILITY ANALYSIS + *RELIABILITY, COMPONENT + *OPERATOR ACTION + *ENGINEERED SAFETY FEATURE + *COMPONENTS, MISCELLANEOUS + PROBABILITY + FAILURE, COMPONENT + FAILURE, FATIGUE + FAILURE, OPERATOR ERROR + FAILURE, PIPE

12-32641 ALSO IN CATEGORIES 7 AND 17

CHANGE 3 - IODINE FILTER ASSEMBLY

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO R. O. MEHANN, FAST, 1968, DOCKET 50-238, TYPE-PWR, MFG-B+W, AE-G.G. SHARP

PERMISSION WAS GRANTED TO REPLACE THE IODINE FILTER ASSEMBLY (PLYWOOD FRAME) WITH TWO METAL-DRAWER TYPE (MSA TYPE ASK-1473-652) CHARCOAL FILTERS IN SERIES. SECOND CHARCOAL FILTER REPLACES SILVER-PLATED COPPER RIBBONS. THIS CHANGE IS EXPECTED TO DECREASE PROBABILITY OF INTERNAL LEAKAGE AND MINIMIZE DEPOSITION OF ORGANIC MATERIAL ON CHARCOAL BED FINAL FILTER, RESULTING IN INCREASED REMOVAL EFFICIENCY OF IODINE, BOTH ELEMENTAL AND METHYL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545, (\$0.25 CENTS/PAGE)

*FILTER + DEPOSITION + *CHARCOAL + REACTOR, PWR + NS SAVANNAH (PWR) + TECHNICAL SPECIFICATIONS

12-32813 ALSO IN CATEGORIES 15 AND 18

PRIMARY SHIELD DESIGN AND EVALUATION

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-32813 *CONTINUED*

50231-8 +. 50 PAGES, FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 8, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CORE AND REFLECTOR SHIELD USED TO ATTENUATE RADIATION TO LEVEL WHERE CONCRETE CAN BE USED WITHOUT DAMAGE. SHIELD MATERIALS ARE STEEL, BORON CARBIDE, AND SERPENTINE. TOPICS INCLUDE FABRICATION, INSTALLATION, FIGURES, AND APPENDIX A CONTAINS TEMP.-DISTRIBUTION CALCULATIONS.

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

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + STEEL + *SYSTEM DESCRIPTION + *SYSTEM CAPABILITY + THERMAL MECHANICAL EFFECT + *RADIATION DAMAGE + CONCRETE + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

12-32814 ALSO IN CATEGORIES 15 AND 18
SHIELDING NUCLEAR DESIGN CALCULATIONS

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-9 +. 175 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 9, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CALCULATIONS OF NEUTRON AND GAMMA SOURCES AND ATTENUATION. DOSE RATES DURING AND AFTER OPERATION WERE CALCULATED TO SPECIFY SHIELD THICKNESSES AND COMPOSITIONS. ENERGY ABSORPTION RATES WERE CALCULATED TO PROVIDE COOLING REQUIREMENTS. DESCRIPTION OF SHIELD INCLUDED. A MORE DETAILED DESCRIPTION IS GIVEN IN SUPPLEMENT 8.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + SOURCE, RADIATION + *MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION + RADIATION SAFETY AND CONTROL + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

12-32903 ALSO IN CATEGORIES 5 AND 18

SIMULTANEOUS FAILURES - LOCA AND SAFEGUARD

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231 +. 7 PAGES, 1 FIGURE, SEFOR, PSAR, SUPPLEMENT 23, FEB. 20, 1969, DOCKET 50-231.

DESCRIBES MODIFICATIONS MADE TO MITIGATE CONSEQUENCES OF TWO SIMULTANEOUS FAILURES, I.E., A FAILURE IN THE PRIMARY COOLANT SYSTEM FOLLOWED BY A FAILURE OF ONE OF THE SYSTEMS OR COMPONENTS (ENGINEERED SAFEGUARDS FEATURES). GIVES SUMMARY OF PROTECTION AND INHERENT DESIGN FEATURES OF THESE SAFEGUARDS THAT ASSURE OPERABILITY IN THE ENVIRONMENT IN WHICH THEY ARE REQUIRED TO OPERATE FOLLOWING A PRIMARY SYSTEM FAILURE.

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

SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, LOSS OF COOLANT + *ENGINEERED SAFETY FEATURE + *FAILURE, SIMULTANEOUS + *MODIFICATION, SYSTEM OR EQUIPMENT + *SYSTEM OPERABILITY IN ACCIDENT + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

12-32904 ALSO IN CATEGORIES 5 AND 18

RESPONSE TO AEC QUESTION

GENERAL ELECTRIC

50231-26 +. 7 PAGES, SEFOR, PSAR, SUPPLEMENT 22, JANUARY 24, 1969, DOCKET 50-231

SUPPLEMENTARY INFORMATION GIVEN TO PREVIOUSLY ANSWERED QUESTIONS CONCERNING THE CONSEQUENCES OF COOLANT SYSTEM LEAKS AND RESULTING SYSTEM CHARACTERISTICS (SEE COMMENTS 1 IN SUPPLEMENT 18 AND PAGE 53 OF SUPPLEMENT 19), SPECIFIC TOPICS AND SMALL LEAKS IN MAIN COOLANT SYSTEM, AND EVALUATION OF EQUIPMENT NEEDED TO RECOVER FROM A GUILLOTINE PIPE FAILURE.

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

AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT, CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT, CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

12-33751 ALSO IN CATEGORIES 2 AND 18

MODIFICATIONS AND SAFETY EVALUATION OF EMERGENCY CORE COOLING SYSTEM

JERSEY CENTRAL POWER AND LIGHT COMPANY, MORRISTOWN, N.J.

75 PAGES, FIGURES, TABLES, AMENDMENT 8 TO OYSTER CREEK 1 LICENSE APPLICATION, AUG. 22, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 20-PAGE REPORT ON SMALL-BREAK-REGION CLAD TEMPS. AND FUEL-ROD PERFORATION SHOWING THAT PERCENTAGE OF RODS PERFORATED INDICATES CORE ADEQUATELY PROTECTED. OTHER ITEMS DISCUSSED - ELECTROMAGNETIC RELIEF VALVES, ON-SITE AC-DC POWER, INITIATION OF BOTH CORE SPRAYS, CLOSURE OF ISOLATION VALVES, ACTUATION OF ECCS, POST-ACCIDENT CONDITIONS, AND IN-SERVICE INSPECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-33751 *CONTINUED*

OYSTER CREEK 1 (BWR) + REACTOR, BWR + *ENGINEERED SAFETY FEATURE + *MODIFICATION, SYSTEM OR EQUIPMENT + *SAFETY EVALUATION + EMERGENCY COOLING CONSIDERATIONS + ELECTRIC POWER, GENERAL + FAILURE, FUEL ELEMENT + CONTAINMENT ISOLATION + ACCIDENT, CONSEQUENCES + SURVEILLANCE PROGRAM + EXAMINATION

12-33869

MCCULLOUGH CR + BROWN GM + HANCOCK RP + TURNER SE
INVESTIGATION OF THE USE OF AQUEOUS SOLUTIONS AS EMERGENCY COOLANTS
SOUTHERN NUCLEAR ENGINEERING, INC., DUNEDIN, FLORIDA
SNE-50 +. 129 PAGES, FIGURES, TABLES, REFERENCES, MARCH 31, 1969

WORK DESCRIBED WAS UNDERTAKEN WITH THE GENERAL OBJECTIVE OF INVESTIGATING THE POTENTIAL IMPROVEMENT IN EMERGENCY CORE COOLING WHICH MIGHT BE AFFORDED BY THE USE OF AQUEOUS SOLUTIONS RATHER THAN WATER. PRINCIPAL CONCLUSIONS SUMMARIZED ARE - (1) RESULTS OF TESTS CONFIRM THAT AQUEOUS SOLUTIONS OF CERTAIN CHEMICAL COMPOUNDS ARE MORE EFFECTIVE IN COOLING HEATED TEST ELEMENTS THAN DEMINERALIZED WATER OR BORIC ACID SOLUTIONS, (2) SODIUM HYDROXIDE WAS FOUND TO BE MOST EFFECTIVE OF THOSE TESTED, (3) USE OF AQUEOUS SOLUTIONS IN EMERGENCY CORE COOLING SYSTEMS CAN RESULT IN SIGNIFICANT ENHANCEMENT IN THE RATE OF COOLING UNDER CONDITIONS WHEN SUCH COOLING IS NEEDED, (4) EXTRAPOLATION OF THE TEST RESULTS TO AN ACTUAL REACTOR SYSTEM CANNOT BE MADE WITH CERTAINTY, NOR CAN ALL THE EFFECTS OF SYSTEM-RELATED PARAMETERS BE EVALUATED WITHOUT LARGER SCALE, MORE REALISTIC TESTS.

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

*CERAMICS + CLADDING + *FISSION PRODUCT RETENTION + *REACTOR, WATER + *EMERGENCY COOLING CONSIDERATIONS + ACCIDENT, LOSS OF COOLANT + URANIUM DIOXIDE + ZIRCALOY + STEEL, STAINLESS + TESTING + ADDITIVE + SODIUM + HYDROXIDE + *FUEL INTEGRITY + *REACTOR, POWER

12-33926

GEDEON L + LIETZKE AF
ANALYSIS OF CYLINDRICAL REACTOR FUEL PIN FOR CLAD STRESS CAUSED BY FISSION GASES
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-5178 +. 19 PAGES, 8 FIGURES, 5 REFERENCES, APRIL 1969

AN ANALYSIS OF A REACTOR FUEL PIN WITH A CENTRAL VOID IS PRESENTED WHICH CONSIDERS STRESSES IN THE CLAD CAUSED BY FISSION GAS PRESSURE. IT IS SHOWN THAT, FOR A GIVEN FUEL VOLUME, THE CLAD AND VOID VOLUMES MAY BE OPTIMIZED TO GIVE A MINIMUM STRESS IN THE CLAD. STRESS AND STRAIN IN THE CLAD MAY BE CALCULATED FROM EQUATIONS AND GRAPHS OF A STRESS PARAMETER AS A FUNCTION OF A HEAT GENERATION PARAMETER AND THE FUEL-TO-PIN VOLUME RATIO. AN ILLUSTRATIVE EXAMPLE IS PRESENTED SHOWING HOW THE ANALYSIS AND CREEP PROPERTIES OF THE CLAD MAY BE USED IN CONJUNCTION WITH REACTOR CRITICALITY CALCULATIONS.

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

*REACTOR, GENERAL + *STRESS + CLADDING + *FUEL ELEMENT + *FISSION GAS RELEASE + *CREEP + ANALYTICAL MODEL

12-33974

ALSO IN CATEGORIES 11 AND 18
VOLUME 2 - DESCRIPTION - COOLANT AND CONTAINMENT SYSTEM
DETROIT EDISON COMPANY
40 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS SECTIONS TITLED REACTOR COOLANT SYSTEM, CONTAINMENT AND CORE STANDBY COOLING SYSTEM. VESSEL DESIGN PRESS. AND TEMP. ARE 1250 PSIG AT 575 F. REFUELING BELLOWS PROVIDED TO SEAL VESSEL AND DRYWELL TO PERMIT FLOODING OF REACTOR WELL DURING REFUELING. PRESSURE-SUPPRESSION CONTAINMENT. DRYWELL DESIGNED FOR 56 PSIG INTERNAL AND 2 PSIG EXTERNAL. CORE STANDBY COOLING CONSISTS OF HIGH-PRESS. INJECTION, AUTOMATIC DEPRESSURIZATION, CORE SPRAY, AND LOW-PRESS. INJECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *SYSTEM DESCRIPTION + MAIN COOLING SYSTEM + CONTAINMENT, PRESSURE SUPPRESSION + FUEL, LIQUID METAL + CORE SPRAY + *SYSTEM DESCRIPTION + FERMI 2 (BWR)

12-34310

ALSO IN CATEGORIES 13 AND 16

DOAN PL
TORNADOES AND TORNADO EFFECT CONSIDERATIONS FOR NUCLEAR POWER PLANT STRUCTURES INCLUDING THE SPENT FUEL STORAGE POOL
UNITED ENGINEERS AND CONSTRUCTORS INC.
UE AND C APED-6807 +. 108 PAGES, FIGURES, TABLES, 43 REFERENCES, MARCH 1969

IN THIS PRESENTATION, THE TORNADO IS DESCRIBED PHENOMENOLOGICALLY BASED ON DOCUMENTED INFORMATION ON SEVERE STORMS. MATHEMATICAL CHARACTERIZATION OF A TORNADO FOR THE SAKE OF NUCLEAR PLANT DESIGN IS PRESENTED. THE PROBABILITY OF PLANT LIFETIME TORNADO RISK AND CHANCE OF RADIOACTIVITY ESCAPE TO ENVIRONS IS ASSESSED. MECHANISTIC CALCULATIONAL TECHNIQUES ARE PRESENTED TO DETERMINE THE EFFECTS ON PLANT STRUCTURES OF DYNAMIC WIND FORCES, STATIC PRESSURE DIFFERENTIALS AS WELL AS TORNADO GENERATED MISSILES. IT IS SHOWN THAT, AT HIGHLY CONSERVATIVE ASSUMPTIONS COUPLED WITH THE DESIGN TORNADO, THE SPENT FUEL STORAGE POOLS OF EXISTING LIGHT WATER REACTORS ARE QUITE

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34310 *CONTINUED*
ADEQUATELY DESIGNED TO INSURE SAFE CONTAINMENT OF FISSION PRODUCTS.

*REACTOR, POWER + CONTAINMENT PENETRATION, GENERAL + WIND PROFILE + METEOROLOGY + FUEL STORAGE + THEORETICAL INVESTIGATION

12-34355 ALSO IN CATEGORY 7
VERSHININ NV + FIRSOV VI + FIRSOV VI + MASHKO VE
RADIATION FACTORS IN THE PRODUCTION AND USE OF KRYPTON AND XENON
INST. OF OCCUPATIONAL HYGIENE AND OCCUPATIONAL DISEASES, MOSCOW
3 PAGES, GIG. TR. PROF. ZABOL., 11 42-4 (APRIL 1967)

MEASUREMENTS WERE TAKEN AND SAFETY RULES SUGGESTED AS A RESULT OF INSPECTION OF A KR-XE PRODUCTION PLANT TO ASCERTAIN FROM THE AMBIENT GAMMA-RAY DOSES THE EXTENT OF RADIATION HAZARDS CAUSED BY DISINTEGRATION OF THE FOLLOWING BY-PRODUCTS PRESENT IN FRESH KR MIXTURES (RN, RA B, AND RA C). IT WAS FOUND THAT IN INSTALLATIONS WHERE COMPRESSED KR CYLINDERS WERE FILLED, THE DOSE RATE TO PERSONNEL WAS 0.054 MR/HR, IN GASIFICATION PROCESSES 0.014 MR/HR, IN FURNACE ROOMS WHERE O₂ WAS BURNED OUT, 0.013 MR/HR, IN THE LOW PRESSURE GAS TANK AREA, 0.01 MR/HR, AND IN THE COMPRESSOR SECTION, 0.01 MR/HR.

*RADIOCHEMICAL PLANT SAFETY + *RADIATION SAFETY AND CONTROL + *KRYPTON + XENON + GAMMA EMITTER + RADON + RADIUM

12-34359 ALSO IN CATEGORY 7
WADACHI Y + YASUNAKA H
SURFACE MATERIALS OF NUCLEAR POWER AND RI HANDLING FACILITIES - PAINTS
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
5 PAGES, RADIOISOTOPES (TOKYO) L7, PAGES 573-7 (DEC. 1968)

RADIOACTIVE CONTAMINATION PROTECTIVE PAINT MUST HAVE SMALL CONTAMINABILITY AND LARGE DECONTAMINABILITY. USING URANYL(233)NITRATE ACIDIC AQUEOUS SOLUTION AS THE RADIOACTIVE CONTAMINANT, PAINTS AND COATING SURFACES WERE EXAMINED FOR CONDITIONS INFLUENCING THEIR PROTECTIVE QUALITIES. RESULTS SHOWED THAT SOME KINDS OF EPOXY RESIN PAINTS, VINYL CHLORIDE RESIN PAINTS, AND CHLORINATED RUBBER PAINT GAVE SMALL CONTAMINABILITIES AND LARGE DECONTAMINABILITIES. MICROSCOPIC OBSERVATION (168 MAGNIFICATIONS) INDICATED THAT COATING SURFACES WERE COMPACT AND ORDERED. PHENOL RESIN PAINT AND ACRYLIC RESIN PAINT GAVE COMPARATIVELY GOOD RESULTS.

SURFACE CONTAMINATION + *SURFACE, PAINTED + *DECONTAMINATION + *CONTAMINATION + COATING + *COATING, SURFACE

12-34366 ALSO IN CATEGORIES 7 AND 13
PARRISH EC + SCHNEIDER RW
REVIEW OF INSPECTION AND TESTING OF INSTALLED HIGH EFFICIENCY PARTICULATE AIR FILTERS AT ORNL - SUMMARY
OAK RIDGE NATIONAL LAB., TENN.
28 PAGES, 8 FIGURES, 12 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY AGENCY MEETING, N.Y., N.Y., AUGUST 26-30, 1968

IN MOST ATOMIC ENERGY INSTALLATIONS HEPA (HIGH-EFFICIENCY PARTICULATE AIR) FILTERS ARE USED IN VENTILATION EXHAUST OR OFF-GAS SYSTEMS AND CONSTITUTE THE PRIMARY MEANS OF PREVENTING THE RELEASE OF RADIOACTIVE PARTICULATE MATERIAL TO THE ATMOSPHERE. HEPA FILTERS ARE ALSO USED TO PROVIDE AIR, EXTREMELY LOW IN PARTICULATE MATERIAL, TO WORK AREAS, SUCH AS CLEAN BENCHES OR CLEAN ROOMS. THESE FILTERS, IF IN GOOD CONDITION, WILL REMOVE 0.3-MICRON PARTICLES FROM AN AIRSTREAM WITH A MINIMUM EFFICIENCY OF 99.97%. HOWEVER, OUR EXPERIENCE WITH FILTER SYSTEMS AT ORNL AND AT OTHER SITES INDICATES CLEARLY THAT SYSTEMS CONTAINING THESE FILTERS SHOULD BE ASSUMED TO BE INEFFICIENT UNLESS AN IN-PLACE TEST SHOWS OTHERWISE.

AVAILABILITY - E.C. PARRISH, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

OPERATING EXPERIENCE + *OPERATING EXPERIENCE SUMMARY + *FILTER INSPECTION + FILTER MAINTENANCE + FILTER OPERATION + FILTER SAFETY EVALUATION + *FILTER SYSTEM + FILTER, HIGH EFFICIENCY

12-34426
KIRSHNER JM
FLUERIC - 1. BASIC PRINCIPLES
HARRY DIAMOND LABORATORIES
HDL-TR-1418 +. 62 PAGES, FIGURES, 48 REFERENCES, NOV. 1968

AFTER A BRIEF HISTORICAL INTRODUCTION, THE PHYSICAL PHENOMENA UNDERLYING MOST FLUERIC DEVICES ARE DISCUSSED. BRIEF DESCRIPTIONS OF THE OPERATION OF PROPORTIONAL AND BINARY DEVICES OF VARIOUS KINDS ARE GIVEN INCLUDING WALL ATTACHMENT, MOMENTUM INTERACTION, VORTEX, AND TURBULENCE DEVICES.

AVAILABILITY - J.M. KIRSHNER, HARRY DIAMOND LABORATORIES, U.S. ARMY MATERIEL COMMAND, WASHINGTON, D. C. 20438

*REACTOR, GENERAL + *FLOW THEORY AND EXPERIMENTS + FLOW, ANNULAR + FLOW, VORTEX + FLOW, TURBULENT + EQUIPMENT, GENERAL + FLOW, LAMINAR + *BIBLIOGRAPHY + FLOW DISTRIBUTION + JET

12-34500 ALSO IN CATEGORY 13
BISHOP EC + NADLER RA + WHITLOW GA
VANADIUM ALLOY CLADDING DEVELOPMENT - QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1968

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34500 *CONTINUED*

WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTORS DIVISION, MADISON, PENNSYLVANIA
WARD - 3791 - 30 +. 62 PAGES, 21 FIGURES, 5 TABLES, 14 REFERENCES, FEBRUARY, 1969

OBJECTIVES ARE TO FURTHER THE DEVELOPMENT AND CHARACTERIZE THE PROPERTIES OF VANADIUM-BASED ALLOYS THAT MAY OFFER CERTAIN ADVANTAGES OVER STAINLESS STEEL FOR FUEL CLADDING IN A LIQUID-METAL-COOLED FAST BREEDER REACTOR. THE ALLOYS MUST HAVE SUFFICIENT STRENGTH TO CONTAIN THE FUEL AT TEMPERATURES UP TO 800 DEGREES CENTIGRADE, BE RESISTANT TO LIQUID-SODIUM CORROSION, BE COMPATIBLE WITH MIXED URANIUM-PLUTONIUM CERAMIC FUELS, BE RESISTANT TO EMBRITTLEMENT BY FAST-FLUX IRRADIATION, BE READILY FABRICATED INTO HIGH-QUALITY TUBING AT REASONABLE COST, AND HAVE ACCEPTABLE NUCLEAR PHYSICS CHARACTERISTICS.

AVAILABILITY - E. C. BISHOP, R. A. NADLER, AND G. A. WHITLOW, WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTORS DIVISION, P. O. BOX 158, MADISON, PENNSYLVANIA 15663

*FABRICATION + *REACTOR, POWER + *CLADDING + VANADIUM + *CREEP PROPERTY + ALLOY + *CORROSION + SODIUM + TUBING + ZIRCONIUM + FUEL ELEMENT

12-34616 ALSO IN CATEGORY 13

PEARSON CV

DEVELOPMENTS IN THE ELIMINATION OF BORON LOSS FROM UO₂ - STAINLESS STEEL DISPERSION FUEL PLATES FOR THE ARGONNE ADVANCED RESEARCH REACTOR MARK 1 CORE
ARGONNE NATIONAL LABORATORY, 9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS 60439
ANL - 7477 +. 68 PAGES, 22 FIGURES, 8 TABLES, 27 REFERENCES, OCTOBER 1968

REPORT TREATS ONLY THE PROBLEMS ENCOUNTERED IN DEVELOPING TECHNIQUES FOR CONTROLLING BORON LOSS DURING FABRICATION OF THE FUEL PLATES AND BRAZING OF THE FUEL SUBASSEMBLIES. AN ATTEMPT TO DERIVE A SUBSTITUTE MIXTURE OF OTHER HIGH CROSS-SECTION ELEMENTS PROVED UNSUCCESSFUL. BORON REMAINS MATERIAL TO USE AS THE BURNABLE POISON. EFFORTS WERE FOCUSED ON THE EFFECT OF CERTAIN VARIABLES IN THE UO₂-SS DISPERSIONS FABRICATION PROCESS. OBJECTIVE WAS TO DETERMINE WHERE THE REFERENCE FUEL-PLATE ADVERSELY AFFECTING THE FUEL QUALITY.

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

*REACTOR, RESEARCH + *AARR (RR) + *FABRICATION + *BORON + *POISON, BURNABLE + *FUEL ELEMENT + *FUEL, METALLIC TYPE + URANIUM DIOXIDE + STEEL, STAINLESS + REACTOR, FLUX TRAP + REACTOR, AEC OWNED

12-34617

MILLOT F

PRELIMINARY PROJECT NO. 2 OF THE CABRI OXIDE CORE

CENTRE D'ETUDES NUCLEAIRES DE CADARACHE

DEP/GTSP/CADARACHE - REPCRT NO. 12/67 +. 40 PAGES, FIGURES, TABLES, 5 REFERENCES, OCTOBER, 1967

ALTERNATE STUDY OF PRELIMINARY DESIGN OF CORE BY (1) INCREASING ENRICHMENT OF URANIUM, THE PURE FUEL BEING REPLACED BY A DISPERSION OF UO₂ GRAINS IN A MATRIX OF FRITTED BERYLLIA, (2) REPLACING THE ARRAY OF PDS BY A SINGLE PIN OF UO₂-BeO MIXTURE PROTECTED BY A ZIRCALOY SHEATH

AVAILABILITY - F. MILLOT, CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE

FRANCE + *REACTOR, POOL TYPE + *FUEL ELEMENT + URANIUM-235 + ZIRCALOY + *CLADDING + BERYLLIUM + URANIUM DIOXIDE + *DESIGN STUDY

12-34618 ALSO IN CATEGORY 13

HARMON DP

SUMMARY COMPILATION OF GULF GENERAL ATOMIC COATED PARTICLE IRRADIATION EXPERIMENTS

GULF GENERAL ATOMIC, SAN DIEGO, CALIFORNIA

GAMD - 9245 +. 24 PAGES, DECEMBER 30, 1968

PRESENTS SUMMARY TABLES DESCRIBING GULF GENERAL ATOMIC COATED-PARTICLE-IRRADIATION EXPERIMENTS, BOTH CURRENT AND COMPLETED, CONDUCTED ON THE PUBLIC SERVICE OF COLORADO AND HTGR BASE PROGRAMS. THE TABLES INCLUDE DESCRIPTIONS OF THE SAMPLES TESTED, IRRADIATION CONDITIONS (ACTUAL OR DESIGN), AND RESULTS OR POSTIRRADIATION EXAMINATION (FOR COMPLETED EXPERIMENTS). THESE TABLES CONTAIN THE BEST AVAILABLE DATA AS OF DECEMBER 1968 AND SUPERSEDE ALL PREVIOUS TABLES. HOWEVER, THEY ARE SUBJECT TO REVISION AS ADDITIONAL INFORMATION BECOMES AVAILABLE.

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

*REACTOR, GENERAL + *REACTOR, POWER + *COATED PARTICLE + *IRRADIATION TESTING + *REACTOR, HTGR + EXPERIMENT, GENERAL

12-34629

REYNOLDS MB

FAILURE BEHAVIOR IN ASTM A106B PIPE CONTAINING AXIAL THROUGH-WALL FLAWS

GENERAL ELECTRIC CO., PLEASANTON, CALIFORNIA

GEAP-5620 +. 20 PAGES, 6 FIGURES, 2 TABLES, 8 REFERENCES, APRIL 1968

RESULTS OF HYDROSTATIC TESTS AT 60 F ON FLAWED ASTM A106B PIPES IN THE DIAMETER RANGE OF 4 TO 12

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34639 *CONTINUED*

INCHES ARE PRESENTED. VARIATION OF LIMIT PRESSURE WITH FLAW LENGTH AND PIPE DIMENSIONS IS DESCRIBED FOR PIPES HAVING RADIUS-WALL THICKNESS PRODUCTS AS LOW AS 0.5 IN.2. DEVELOPMENT OF AN EMPIRICAL EQUATION TO PREDICT BEHAVIOR OF SMALL DIAMETER, DUCTILE PIPES HAVING AXIAL THROUGH-WALL FLAWS IS DISCUSSED.

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

*REACTOR, POWER + *PIPING + *FAILURE, PIPE + *FLAW + TESTING + STEEL + DEFORMATION

12-34640 ALSO IN CATEGORY 11

REYNOLDS MB

A FAILURE DIAGRAM FOR AXIALLY FLAWED PIPES

GENERAL ELECTRIC, PLEASANTON, CALIFORNIA

GEAP-5622 +. 14 PAGES, 1 FIGURE, 4 REFERENCES, APRIL 1968

THE RELATIONSHIP BETWEEN FLAW CONFIGURATION AND THE MAXIMUM PRESSURE LOAD WHICH CAN BE SUSTAINED BY AXIALLY FLAWED PIPES IS DISCUSSED. BOTH AXIAL THROUGH-WALL FLAWS AND PART-THROUGH FLAWS ARE CONSIDERED. A METHOD OF PLOTTING BURST STRENGTH VERSUS FLAW LENGTH DATA TO PRODUCE A USEFUL FAILURE DIAGRAM IS PRESENTED.

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

*REACTOR, POWER + *PIPING + TESTING + *PRESSURE, INTERNAL + *FLAW + *BURST PRESSURE + FAILURE, PIPE

12-34649 ALSO IN CATEGORIES 6 AND 18

KING LD

DISPOSABLE CORE FAST BURST REACTORS

LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

LA-DC-10055 +. 19 PAGES, 1968

A POSSIBLE MEANS FOR PRODUCING VERY LARGE FAST NEUTRON BURSTS APPEARS FEASIBLE THROUGH THE USE OF A MOBILE FUEL IN AN UNCONFINED GEOMETRY. THE FUEL IS DISPERSED BY INTERNAL ENERGY INTO A LARGE CAVITY FOR REUSE WITHOUT DAMAGE TO THE MAIN FACILITY. A STUDY OF SUCH A POTENTIAL SYSTEM HAS BEEN MADE USING A DESIGN CONCEPT DESIGNATED LIQUID EXCURSION PULSED REACTOR, OR LEPR. CALCULATIONS AND SOME PRELIMINARY EXPERIMENTS FOR SUCH A SYSTEM WHEN USING A URANYL SULFATE FUEL SOLUTION LOOK PROMISING. BURST INTENSITIES OF 10(9TH) - 10(20TH) MAY BE ACHIEVABLE WITH MINIMUM PULSE WIDTHS AT HALF MAXIMUM OF 35 MICROSEC. TWO SCHEMATIC DESIGNS OF SUCH A DEVICE ARE ILLUSTRATED.

AVAILABILITY - L.D.P. KING, LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

*DESIGN STUDY + *REACTOR, PULSED + REACTOR DESCRIPTION + *LIQUID FUEL + *DISPERSION + DISPLACEMENT, GENERAL

12-34650

SCHROEDER JH

SEARCHING FOR FAILED FUEL ELEMENTS AT THE GUNDREMMINGEN NUCLEAR POWER PLANT

KERNKRAFTWERK REW-BAYERNWERK GMBH (KRB), GUNDREMMINGEN

5 PAGES, 5 FIGURES, 2 TABLES, 5 REFERENCES, KERntechnik, 11(3), PAGES 139-143 (MARCH 1969)

IN THE COURSE OF A SHUT-DOWN OF THE GUNDREMMINGEN NUCLEAR POWER PLANT IN SUMMER 1967 A SEARCH FOR FAILED FUEL ELEMENTS WAS CARRIED OUT BY THE SO CALLED WET SIPPING METHOD. THE FINDINGS INDICATED THAT 47 FUEL ELEMENTS MAY HAVE CLADDING DEFECTS. THE SIPPING PROCEDURE IS DESCRIBED IN DETAIL.

GERMANY + *REACTOR, POWER + *REACTOR, BWR + *FAILURE, FUEL ELEMENT + *FAILURE, CLADDING + *OPERATING EXPERIENCE

12-34651

JANSEN F

HEAT TRANSFER IN THE AGR FUEL ELEMENT

BROWN BOVERI AND CIE, AG, MANNHEIM

6 PAGES, 4 FIGURES, KERntechnik, 11(3), PAGES 146-151 (MARCH 1969)

THE AGR FUEL ELEMENT CONSISTS OF A CLUSTER OF FUEL PINS. THESE ARE THINWALLED STAINLESS STEEL TUBES FILLED WITH CYLINDRICAL UO2 PELLETS. BY MEANS OF AN APPROPRIATE ARRANGEMENT OF THE PINS AND BY ROUGHENING THE PIN SURFACE (TRANSVERSE RIBS OF A LOW HEIGHT) THE QUANTITY OF HEAT EVACUATED FROM THE REACTOR IS INCREASED CONSIDERABLY AT THE COST OF A RELATIVELY SMALL INCREASE OF THE BLOWER POWER REQUIRED. THIS PAPER DESCRIBES THE HEAT TRANSFER EXPERIMENTS WHICH RESULTED IN THE OPTIMAL RIB DIMENSIONS AND PRESENTS AN EXAMPLE OF CALCULATIONS OF CANNING AND FUEL TEMPERATURES IN AN AGR FUEL ELEMENT.

UNITED KINGDOM + WINDSCALE + *REACTOR, POWER + *REACTOR, GCR + *FUEL ELEMENT + FUEL, PELLET TYPE + URANIUM DIOXIDE + *HEAT TRANSFER + *HEAT TRANSFER AUGMENTATION + *HEAT TRANSFER EXPERIMENT + STEEL, STAINLESS + CLADDING + EXPERIMENT, GENERAL + MATHEMATICAL TREATMENT

12-34652

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34652 *CONTINUED*
NELMS HA + SEGASER CL
SURVEY OF NUCLEAR REACTOR SYSTEM PRIMARY CIRCUIT HEAT EXCHANGERS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4399 +. 90 PAGES, 9 TABLES, REFERENCES, APRIL 1969

PROBLEMS RESULTING FROM EXCESSIVE TUBE VIBRATION IN CERTAIN PRIMARY-CIRCUIT HEAT EXCHANGERS IN REACTOR SYSTEMS FOR WHICH THE USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY IS TECHNICALLY RESPONSIBLE ARE EVALUATED IN THIS REPORT. THE RESULTS OF A DETAILED VIBRATION ANALYSIS THAT WAS BASED ON WELL-KNOWN PROCEDURES AND INFORMATION AVAILABLE IN THE LITERATURE TEND TO SUPPORT THE GENERAL CONCLUSION THAT IF THE DESIGNS FOR THESE EXCHANGERS HAD BEEN CRITICALLY EXAMINED FOR TUBE VIBRATION PRIOR TO FABRICATION, THE POSSIBILITY OF FAILURE WOULD HAVE BEEN JUDGED TOO GREAT TO ACCEPT AND THE PROBLEMS COULD HAVE BEEN AVERTED.

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

*REACTOR, POWER + *TUBING + *VIBRATION + *HEAT EXCHANGER + FABRICATION + *FAILURE, TUBING + *SURVEY, GENERAL

12-34674 ALSO IN CATEGORY 13
SCHMITT DH
FINAL TECHNICAL REPORT, APRIL - JUNE 1968, EXAMINATION OF FAST REACTOR FUELS
BABCOCK AND WILCOX COMPANY, NUCLEAR DEVELOPMENT CENTER, LYNCHBURG, VIRGINIA
BAW-3968-1 +. 125 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

TO DETERMINE THE CAPABILITIES OF THE BABCOCK AND WILCOX ANALYTICAL LABORATORY TO CHARACTERIZE FFTF FUELS, SINTERED UO₂-PUO₂ PELLETS WERE OBTAINED FROM THE PACIFIC NORTHWEST LABORATORY (PNL). THIS CHARACTERIZATION REQUIRED THE DEVELOPMENT AND STANDARDIZATION OF SEVERAL ANALYTICAL METHODS. RESULTS WERE OBTAINED FOR THE FOLLOWING MEASUREMENTS - ASSAY FOR URANIUM AND PLUTONIUM, ISOTOPIC ASSAY, GAS EVOLUTION, DENSITY, HOMOGENEITY AND SOLID SOLUTION.

AVAILABILITY - RESEARCH AND DEVELOPMENT DIVISION, NUCLEAR DEVELOPMENT CENTER, LYNCHBURG, VIRGINIA

*FABRICATION + *ANALYTICAL TECHNIQUE, GENERAL + *FUEL, PELLET TYPE + URANIUM DIOXIDE + PLUTONIUM DIOXIDE + *FUEL ELEMENT + REACTOR, FAST

12-34695 ALSO IN CATEGORIES 5 AND 11
REACTOR PRIMARY COOLANT SYSTEM RUPTURE STUDY
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
GEAP-5716 +. 157 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

COVERS QUARTERLY WORK ON (1) RELIABILITY ENGINEERING, (2) STRESS ANALYSIS, (3) FRACTURE MECHANICS, (4) FATIGUE, (5) EFFECT OF BWR ENVIRONMENT.

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

*REACTOR, POWER + *REACTOR, BWR + *COOLANT PURIFICATION SYSTEM + EXPERIMENT, GENERAL + *STRESS ANALYSIS + *FAILURE, FATIGUE + *RELIABILITY ANALYSIS + RELIABILITY, SYSTEM + PIPING + TESTING + FRACTURE TOUGHNESS + STEEL + *FAILURE, PIPE + FAILURE, EQUIPMENT

12-34696 ALSO IN CATEGORY 13
BOYD CL + MEYERS DJ + RAMSEY EB
THE FFTF FUEL EXAMINATION FACILITY
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
16 PAGES, 3 FIGURES, 1 TABLE, 10 REFERENCES, PP. 3-18 OF PROCEEDINGS OF THE 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE FUEL EXAMINATION FACILITY OF THE FAST FLUX TEST FACILITY (FFTF) WILL SERVE THE OPERATIONS STAFF AND EXPERIMENTERS WITH A RELIABLE MEANS, UNDER CONTROLLED CONDITIONS, FOR PERFORMING PROMPT NONDESTRUCTIVE EXAMINATION OF EXPERIMENTS AND OTHER COMPONENTS IRRADIATED IN THE FTR. EXAMINATION DATA WILL BE OBTAINED FROM SELECTED EXPERIMENTS THAT REQUIRE REACTOR REINSERTION, AND FROM EXPERIMENTS OR OTHER CORE COMPONENTS WHOSE IRRADIATION IS COMPLETE.

AVAILABILITY - C.L. BOYD + D.J. MEYERS + E.B. RAMSEY, BATTELLE MEMORIAL INSTITUTE PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

*FFTF (TR) + *REACTOR, GENERAL + HOT CELL + *DESIGN STUDY + *ALPHA FACILITIES + *GAMMA + *EXAMINATION + FUEL ELEMENT + IRRADIATION TESTING + VENTILATION SYSTEM + REMOTE MANIPULATING AND VIEWING + BIBLIOGRAPHY + REACTOR, TEST + REACTOR, FAST + REACTOR, LMCR + CORE COMPONENTS

12-34698
SUTHERLAND JD + MARKLEY RA + RITZ WC
FUEL-HANDLING SYSTEM DESIGN FOR THE WESTINGHOUSE 1000-MW(E) LMFBR STUDY
WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTORS DIVISION, BOX 158, MADISON, PENNSYLVANIA 15663
7 PAGES, 2 FIGURES, 1 TABLE, 8 REFERENCES, PP. 39-45 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A HOT-CELL REFUELING SYSTEM WAS SELECTED FOR THE WESTINGHOUSE 1000-MW(E) LMFBR PLANT STUDY. IN

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34698 *CONTINUED*

THIS SYSTEM, ALL REACTOR REFUELING OPERATIONS ARE CARRIED OUT REMOTELY INSIDE AN ARGON-FILLED HOT CELL. TO PREPARE THE REACTOR FOR REFUELING, A SHIELD PLUG IS REMOVED FROM THE REACTOR. FUEL IS THEN TRANSFERRED UNDER SODIUM BETWEEN THE REACTOR AND AN ADJACENT FUEL STORAGE TANK THROUGH A HORIZONTAL FUEL TRANSFER PORT CONNECTING THE TWO VESSELS.

AVAILABILITY - J.D. SUTHERLAND/R.A. MARKLEY/W.C. RITZ, WESTINGHOUSE ELECTRIC CORP., ADVANCED REACTORS DIV., BOX 158, MADISON, PA. 15663

*REACTOR, LMFBR + *DESIGN STUDY + *FUEL HANDLING + REMOTE MANIPULATING AND VIEWING + *MAINTENANCE, REMOTE + *CONTAINMENT ATMOSPHERE, INERT + HOT CELL + ARGON

12-34705

DULIN RV

FFTF INERT-GAS SELECTION STUDY

BATTELLE NORTHWEST LABORATORY, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352
16 PAGES, 1 TABLE, 30 REFERENCES, PP. 116-131 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE FFTF WILL BE A PRIME TEST FACILITY FOR FUELS AND MATERIALS FOR THE UNITED STATES LIQUID METAL FAST BREEDER REACTOR PROGRAM. CONCEPTUAL DESIGN OF THE FFTF INCLUDES A RANGE OF APPLICATIONS THAT WILL REQUIRE INERT GAS AS A COVER GAS FOR LIQUID-METAL SYSTEMS OR AS A PROTECTIVE ATMOSPHERE IN ENCLOSURES FOR SYSTEMS CONTAINING RADIOACTIVE SODIUM. BECAUSE OF THE WIDE RANGE OF APPLICATIONS AND THEIR DIVERSE REQUIREMENTS, EXTENSIVE CONCEPTUAL STUDY EFFORT WAS REQUIRED TO SELECT THE APPROPRIATE GAS OR GASES FOR EACH APPLICATION.

AVAILABILITY - R.V. DULIN, BATTELLE NORTHWEST LABORATORY, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

BIBLIOGRAPHY + *FFTF (TR) + *DESIGN CRITERIA + *CONTAINMENT ATMOSPHERE, INERT + DESIGN STUDY + ARGON + SODIUM + REACTOR, FAST + REACTOR, TEST + REACTOR, LMCR + MOLTEN FUEL

12-34706

ALSO IN CATEGORIES 3 AND 13 AND 17

JOHNSON KP + MATTE J

OPERATING EXPERIENCE WITH THE FERMI FUEL HANDLING CASK CAR

POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN + ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN

15 PAGES, 9 FIGURES, PP. 125-149 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY. REPL 34706 ABSTRACT THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY.

AVAILABILITY - K.P. JOHNSON, POWER REACTOR DEVELOPMENT COMPANY, P. O. BOX 725, MONROE, MICHIGAN 48161

*TRANSPORTATION AND HANDLING + *FERMI (LMFBR) + *FUEL HANDLING + *CASK OPERATING EXPERIENCE + FUEL HANDLING MACHINE + OPERATING EXPERIENCE + FAILURE, EQUIPMENT + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

12-34707

ALSO IN CATEGORY 3

WILLIAMS RO + HALLINAN GJ + KIRKBY RC

THE TECHNICAL EVOLUTION OF THE FERMI FUEL TRANSPORT FACILITY

ATOMICS INTERNATIONAL, CANOGA PARK, CALIF. + POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN

11 PAGES, 8 FIGURES, 4 REFERENCES, PP. 150-160 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT IS EQUIPPED WITH A FUEL TRANSPORT FACILITY WHICH FUNCTIONS TO WITHDRAW FUEL SUBASSEMBLIES AND SPECIAL CORE COMPONENTS FROM EITHER THE FUEL STORAGE OR REACTOR TRANSFER ROTOR, AND TO TRANSPORT AND DEPOSIT THE SUBASSEMBLY OR COMPONENT INTO THE OPPOSITE ROTOR. THIS PAPER DISCUSSES THE EVOLUTION OF THE FUEL TRANSPORT FACILITY FROM THE ORIGINAL MULTI-BARRELED MACHINE TO THE PRESENT SINGLE-BARREL MACHINE. THE DECISION TO PURCHASE THE NEW MACHINE WAS MADE AFTER REVIEW OF THE MAINTENANCE REQUIREMENTS NECESSITATED BY DESIGN DEFICIENCIES IN THE ORIGINAL MACHINE.

AVAILABILITY - R.O. WILLIAMS, JR., ATOMICS INTERNATIONAL, P.O. BOX 309, CANOGA PARK, CALIFORNIA 91304

*REACTOR, POWER + *FERMI (LMFBR) + REACTOR, LMFBR + *FUEL HANDLING MACHINE + FUEL HANDLING + TRANSPORTATION AND HANDLING + *CASK OPERATING EXPERIENCE + OPERATING EXPERIENCE + DESIGN CRITERIA + REMOTE MANIPULATING AND VIEWING + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

12-34708

ALSO IN CATEGORY 13

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34708 *CONTINUED*

DAVIS JR

EBR-II FUEL HANDLING EQUIPMENT

ARGONNE NATIONAL LAB., IDAHO FALLS, IDAHO

13 PAGES, 10 FIGURES, PP. 161-173 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

OVER SEVEN YEARS OF EXPERIENCE HAS BEEN GAINED WITH THE EBR-II FUEL HANDLING SYSTEM, AND SINCE MAY, 1963, FUEL HANDLING HAS BEEN CONDUCTED IN A HIGH-TEMPERATURE SODIUM ENVIRONMENT. NORMAL PROBLEMS WERE EXPERIENCED, BUT THE HANDLING OF FUEL DURING THIS PERIOD CAN BE CONSIDERED QUITE SUCCESSFUL. MODIFICATIONS TO INCREASE THE PERFORMANCE AND RELIABILITY OF THE FUEL HANDLING EQUIPMENT HAVE BEEN A CONTINUING EFFORT SINCE THE ORIGINAL SYSTEM CHECKOUT.

AVAILABILITY - JOE R. DAVIS, ARGONNE NATIONAL LAB., P.O. BOX 2528, IDAHO FALLS, IDAHO 83401

REACTOR, BREEDER + *FUEL HANDLING + SODIUM + HIGH TEMPERATURE + *OPERATING EXPERIENCE + *FUEL REPROCESSING + *PYROCHEMICAL + EQUIPMENT, GENERAL + STORAGE CONTAINER + *CONTROL SYSTEM + MAINTENANCE, REMOTE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST

12-34709

BENOIST E + MICHOT G + REYNES L + THEVENOT L

FUEL HANDLING MECHANISMS IN RAPSODIE AND PHENIX

COMMISSARIAT AL ENERGIE ATOMIQUE, CENTRE D ETUDES NUCLEAIRES DE CADARACHE, CADARACHE, FRANCE

10 PAGES, 4 FIGURES, 1 TABLE, PP. 174-183 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THIS TEXT DESCRIBES THE FUEL HANDLING MECHANISMS OF RAPSODIE. THEIR PRINCIPAL CHARACTERISTICS ARE PRESENTED, INCLUDING MODIFICATIONS DURING THE COURSE OF TWO YEARS OF OPERATION. THE FUEL HANDLING PRINCIPLES OF THE PHENIX REACTOR THAT DIFFER ARE ALSO DISCUSSED.

AVAILABILITY - E. BENOIST, COMMISSARIAT A L ENERGIE ATOMIQUE, CENTRE D ETUDES NUCLEAIRES DE CADARACHE, CADARACHE, FRANCE

FRANCE + *REACTOR, BREEDER + *FUEL HANDLING + MODIFICATION, SYSTEM OR EQUIPMENT + *OPERATING EXPERIENCE + *FUEL HANDLING MACHINE + DESIGN CRITERIA

12-34749

ALSO IN CATEGORIES 5 AND 13

TROPP AC

FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER - A DYNAMICISTS VIEW

WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA

AECL-3185 +. 20 PAGES, 7 FIGURES, 18 REFERENCES, JUNE 1968

THE REPORT PRESENTS A FEW EXPERIMENTAL OBSERVATIONS ON TYPICAL SOLIDS MOTION FROM WHICH CERTAIN GENERAL CONCLUSIONS ARE DRAWN REGARDING THE CONVECTIVE HEAT TRANSFER COEFFICIENT PERTINENT TO FUEL DESIGN FOR A LIQUID FLUIDIZED BED NUCLEAR REACTOR. THE AVAILABLE LITERATURE IS THEN REVIEWED AND THE THREE MAIN PUBLISHED CORRELATIONS ARE SHOWN TO DISAGREE. THE MOST PROBABLE REASONS FOR THE DISCREPANCIES ARE OUTLINED. AN EXPLANATION IS SUGGESTED TO ACCOUNT FOR THE APPARENT MAXIMA IN FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER COEFFICIENTS AT BED POROSITIES OF ABOUT 70%. FURTHER EXPERIMENTAL HEAT TRANSFER WORK IS STRONGLY RECOMMENDED.

AVAILABILITY - A.C. TRUPP, WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA

CANADA + *FUEL REPROCESSING + *FUEL CONVERSION + *ORE CONVERSION + HEAT TRANSFER + THEORETICAL INVESTIGATION + *REACTOR, GENERAL + FLUIDIZED BED VOLATILITY PROCESS

12-34757

KANEKO Y + AKINO F + KURCKAWA R + KITADATE K

MEASUREMENT OF CONTROL ROD WORTHS IN GRAPHITE MODERATED CORE

JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI

JAERI-1173 +. 29 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER, 1969

DESCRIBES A SYSTEMATIC COMPILATION OF EXPERIMENTAL DATA ON THE EFFECTIVENESS OF CONTROL ROD BY THE USE OF PULSED NEUTRON TECHNIQUE IN A GRAPHITE-MODERATED 20% ENRICHED URANIUM CRITICAL ASSEMBLY SHE. THE DATA USED FOR THE COMPILATION ARE COLLECTED FROM OVER 300 EXPERIMENTAL CASES. THE COMPILATION WAS MADE TO CHECK THE ACCURACY OF THE CONTROL-ROD-WORTH ANALYSIS SYSTEM APPLICABLE TO GRAPHITE-MODERATED AND HEAVY WATER-MODERATED REACTORS, WHICH IS UNDER DEVELOPEMENTS USING THE SN AND THE NORDHEIM-SCALETTER METHOD.

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

*REACTOR, GRAPHITE MODERATED + *REACTOR, HWR + *CONTROL ROD + JAPAN + *EXPERIMENT, GENERAL

12-34758

ALSO IN CATEGORY 13

NELSON RS

THE STABILITY OF GAS BUBBLES IN AN IRRADIATION ENVIRONMENT

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, BERKSHIRE

AERE-R-5915 +. 12 PAGES, 10 REFERENCES, OCTOBER 1968

THE DYNAMIC RE-SOLUTION OF SMALL GAS BUBBLES IN UO₂ IS DISCUSSED IN SOME DETAIL, BOTH FOR CONDITIONS WHEN THE DISSOLVED GAS CAN AND CANNOT DIFFUSE BACK INTO THE BUBBLES. IN ACCORD WITH EXPERIMENTAL OBSERVATIONS, THE MODEL PREDICTS THAT THE BUBBLE NUCLEATION DENSITY IS VIRTUALLY

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34758 *CONTINUED*

INDEPENDENT OF BOTH THE IRRADIATION TEMPERATURE AND THE FISSION RATE. FURTHER, THE MODEL ENABLES THE FRACTION OF GAS IN DYNAMIC SOLUTION AND THE FRACTION OF GAS CONTAINED WITHIN BUBBLES TO BE CALCULATED FOR DIFFERENT IRRADIATION TEMPERATURES

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*REACTOR, GENERAL + *FUEL REPROCESSING + *BUBBLE + *BUBBLE NUCLEATION + URANIUM DIOXIDE + IRRADIATION TESTING + FISSION PRODUCT RETENTION + UNITED KINGDOM

12-34782 ALSO IN CATEGORY 5

REILLY HJ + HANSELL JD + HEATH GL

A NEW METHOD FOR TREATMENT OF UNCERTAINTIES IN NUCLEAR REACTOR HEAT TRANSFER CALCULATIONS
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA-TM-X-1802 +. 16 PAGES, 8 FIGURES, 2 TABLES, 1 REFERENCE, MAY, 1969

A METHOD FOR PERFORMING PROBABILITY CALCULATIONS FOR FUEL CLAD SURFACE TEMPERATURES OF NUCLEAR REACTORS IS PRESENTED. THE METHOD PROPERLY TREATS FACTORS WHICH VARY SYSTEMATICALLY OVER THE WHOLE CORE, FACTORS WHICH VARY OVER A PLATE, AND THOSE THAT VARY AT A SPOT. ONE METHOD OF CHOOSING SPOT SIZE FOR PLATE-TYPE REACTORS IS SHOWN AND A MORE GENERAL METHOD IS DISCUSSED. THE METHOD IS NOT RESTRICTED TO NORMAL DISTRIBUTIONS. THE CALCULATED VALUE FOR PROBABILITY OF SUCCESS, THAT IS, SURFACE TEMPERATURE NOT EXCEEDING COOLANT SATURATION TEMPERATURE, IS IDENTIFIED AS STRICTLY APPLICABLE ONLY TO THE INSTANT OF REACTOR STARTUP.

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

*REACTOR, GENERAL + *REACTOR, POWER + CORE COMPONENTS + *TEMPERATURE GRADIENT + CLADDING + FUEL ELEMENT + PROBABILITY + FUEL, METALLIC TYPE + MATHEMATICAL TREATMENT

12-34783

FECYCH W

EXPERIENCE WITH BERYLLIUM SWELLING AND REPLACEMENT IN THE PLUM BROOK REACTOR
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON, D. C.

NASA-TM-X-1794 +. 12 PAGES, 5 FIGURES, TABLES, 2 REFERENCES, MAY, 1969

A DESCRIPTION IS GIVEN OF PROBLEMS ENCOUNTERED FROM DISTORTION AND FAILURE OF MAJOR REACTOR CORE COMPONENTS IN THE HIGH NEUTRON FLUENCE REGIONS OF THE PLUM BROOK REACTOR. REACTOR MATERIAL SURVEILLANCE PROGRAMS, THE FAILURE MODE OF THE COMPONENTS, COMPONENT REPLACEMENT METHODS, ASSOCIATED HEALTH HAZARDS, AND THE DISTORTION OF COMPONENTS AGAINST NEUTRON FLUENCE ARE DESCRIBED

*PLUM BROOK (TR) + *FAILURE, COMPONENT + CORE COMPONENTS + SURVEILLANCE PROGRAM + REACTOR, TEST + BERYLLIUM

12-34784 ALSO IN CATEGORY 9

ASTLEY ER

FAST FLUX TEST FACILITY - PERIODIC TECHNICAL REPORT - OCTOBER 1968 THROUGH FEBRUARY 1969
BATTELLE NORTHWEST, RICHLAND, WASHINGTON

BNWL-941 +. 200 PAGES, FIGURES, TABLES, MAY, 1969

COVERS PROGRAM MANAGEMENT, AND FFTF OPERATIONS, PLANT DESIGN, COMPONENTS, INSTRUMENTATION AND CONTROLS, SODIUM TECHNOLOGY, CORE DEVELOPMENT AND DESIGNS, SAFEGUARDS, AND CLADDING DEVELOPMENT

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

*FFTF (TR) + *SODIUM + *FUEL ELEMENT + *CORE COMPONENTS + *INSTRUMENT, CONTROL + DESIGN STUDY + SAFETY ANALYSIS + CORROSION + COOLANT CHEMISTRY + CLADDING + REACTOR, TEST + REACTOR, FAST + REACTOR, LMCR

12-34878

GITTERMAN, MORRIS

HELIUM PURIFICATION FOR HIGH TEMPERATURE GAS-COOLED REACTORS
GULF GENERAL ATOMIC, INCORPORATED, SAN DIEGO, CALIFORNIA

GA-9185 +. 18 PAGES, 5 FIGURES, 7 REFERENCES, JANUARY, 1969

THERE ARE TWO BASIC REQUIREMENTS FOR PURIFYING THE HELIUM USED AS THE PRIMARY COOLANT IN HIGH TEMPERATURE GAS-COOLED REACTORS - CONTROL OF FISSION PRODUCTS RELEASED FROM THE CORE, AND CONTROL OF CHEMICAL IMPURITIES. THE EFFECT OF THESE CONSIDERATIONS ON THE DESIGN OF THE HELIUM PURIFICATION SYSTEMS FOR PEACH BOTTOM NO. 1 AND FORT ST. VRAIN REACTORS IS CONSIDERED.

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

*REACTOR, POWER + *REACTOR, FTGR + *PEACH BOTTOM 1 (HTGR) + *FT. ST. VRAIN (HTGR) + *HELIUM + *COOLANT PURIFICATION SYSTEM + DESIGN CRITERIA + REACTOR, GCR + REACTOR, GRAPHITE MODERATED

12-34895 ALSO IN CATEGORIES 5 AND 11

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-34895 *CONTINUED*
ALESHIN VS + KUZNETSOV NM + SARKISOV
SUDOVYE YADERNYE REAKTORY
492 PAGES, IZKATEL'S STVC SUDOSTROENIE, 1968

A BRIEF REVIEW OF NUCLEAR PHYSICS, HEAT-EXCHANGE MECHANICS, CONTROL SYSTEMS, CONSTRUCTION, AND DESIGN OF NUCLEAR MARITIME REACTORS. CONCEPTS OF BIOLOGICAL PROTECTION AND SHIELDING ARE DISCUSSED. THE BOOK CAN BE A HANDBOOK FOR ENGINEERS DESIGNING AND OPERATING NUCLEAR POWER PLANTS.

THERMAL ANALYSIS + *REACTOR, MARITIME + DESIGN CRITERIA + CONTROL SYSTEM + *REACTOR POWER

12-34896 ALSO IN CATEGORY 11
ON THE SAFETY OF THE FIRST NUCLEAR POWERED SHIP A REPORT OF THE COMMITTEE ON EXAMINATION OF REACTOR SAFETY
10 PAGES, GENSHIRYOKUSEN, NO. 51, PAGES 1280-9 (JANUARY 1968) (IN JAPANESE)

THE REPORT BY THE REACTOR SAFETY INSPECTION COMMITTEE TO THE AEC, CONCERNING THE SAFETY OF THE FIRST NUCLEAR-POWERED SHIP, IS GIVEN. INCLUDES AN OUTLINE OF THE CONSTRUCTION PROGRAM, SAFETY MEASURES, EVALUATIONS OF NORMAL RADIATION DOSES, VARIOUS POSSIBLE ACCIDENTS, HAZARD EVALUATIONS AND MATTERS OF DISTANCE IN CONNECTION WITH HAZARDS.

*REACTOR, MARITIME + *SAFETY EVALUATION + HAZARDS ANALYSIS + DISTANCE + PERSONNEL EXPOSURE, RADIATION

12-34908 ALSO IN CATEGORIES 11 AND 17
SPENCER WF
A DISCUSSION AND EVALUATION OF REMOTE MAINTENANCE IN A REACTOR EXPERIMENT VERSUS CONVENTIONAL MAINTENANCE FOR A SIMILAR TASK
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2555 +. 7 PAGES, APRIL 10, 1969

DESCRIBES REPLACEMENT OF AN AIRLINE QUICK-DISCONNECT INSIDE REACTOR CONTAINMENT. CONVENTIONAL PLANT REPLACEMENT TIME WAS ESTIMATED AT 8.1 HR, MSRE TIME AS 263.1 HRS. ACTUAL TIME WAS 400 HR. ONE PAGE DESCRIBES ACTUAL JOB.

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

OPERATING EXPERIENCE + MSRE (RE) + *FAILURE, COMPONENT + *PNEUMATIC SYSTEM + *MAINTENANCE, REMOTE + REACTOR, AEC OWNED + REACTOR, MOLTEN SALT

12-34922 ALSO IN CATEGORIES 10 AND 17
RELIABILITY OF YANKEE SAFETY INJECTION SYSTEM AND STATION SERVICE POWER
YANKEE ATOMIC ELECTRIC COMPANY
YAEC-1075-R +. 10 PAGES, PP. 26-35, FEBRUARY 1969

BEFORE THE MARCH 1968 REFUELING, 320 WEEKLY, 80 MONTHLY, 6 ACTUAL OPERATIONAL, AND 3 PUMP-CAPACITY TESTS WERE MADE. SEVERAL DEFICIENCIES WERE FOUND, NONE PREVENTED OPERATION. (1) RAIN WOULD RUN UNDER THE DISHED TANK BOTTOM, COLLECT IN THE INSULATION, AND CAUSE ICE BUILDUP AROUND NORMALLY OPEN VALVES. (2) RECIRCULATION VALVE ON THE TANK FROZE DESPITE HEATING INSIDE TANK. (3) PRESSURE SHOCK FROM HIGH-HEAD PUMP DISTORTED MANUAL SHUTOFF VALVE INTERNALS IN RECIRCULATION LINE. (4) LEVEL INDICATION OF PUMP SUCTION WAS ERRONEOUS DURING FLOW. ***ONLY BLACKOUT WAS NOV. 1965 (37 MIN). LOAD-SHEEDING SCHEDULES HAVE ESTABLISHED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*CORE REFLOODING SYSTEM + *RELIABILITY, SYSTEM + INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, LIQUID LEVEL DETECTION + YANKEE (PWR) + *TEST, SYSTEM OPERABILITY + ACCIDENT, LOSS OF POWER + FAILURE, EQUIPMENT + VALVE + PUMP + REACTOR, PWR

12-35038 ALSO IN CATEGORY 13
PAULSON WA + SPRINGBERN RH
ESTIMATION OF FISSION-PRODUCT GAS PRESSURE IN URANIUM DIOXIDE CERAMIC FUEL ELEMENTS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-4823 +. 29 PAGES, 8 FIGURES, 6 TABLES, 19 REFERENCES, NOVEMBER, 1968

FISSION-PRODUCT GAS PRESSURE IN MACROSCOPIC VOIDS WAS CALCULATED OVER THE TEMPERATURE RANGE OF 1000 TO 2500 K FOR CLAD URANIUM DIOXIDE FUEL ELEMENTS OPERATING IN A FAST NEUTRON SPECTRUM. THE CALCULATED FISSION-PRODUCT YIELD FOR URANIUM-233 AND URANIUM-235 USED IN THE PRESSURE CALCULATIONS WERE BASED ON EXPERIMENTAL DATA COMPILED FROM VARIOUS SOURCES. THE CONTRIBUTIONS OF CESIUM, RUBIDIUM, AND OTHER CONDENSIBLE FISSION PRODUCTS ARE INCLUDED WITH THOSE OF THE GASES XENON AND KRYPTON. AT LOW TEMPERATURES, XENON AND KRYPTON ARE THE MAJOR CONTRIBUTORS TO THE TOTAL PRESSURE. AT HIGH TEMPERATURES, HOWEVER, CESIUM AND RUBIDIUM CAN MAKE A CONSIDERABLE CONTRIBUTION TO THE TOTAL PRESSURE.

*REACTOR, GENERAL + *REACTOR, POWER + *REACTOR, FAST + *FISSION PRODUCT RETENTION + PRESSURE, INTERNAL + CESIUM + RUBIDIUM + KRYPTON + URANIUM DIOXIDE + URANIUM-233 + URANIUM-235 + THEORETICAL INVESTIGATION + COMPARISON, THEORY AND EXPERIENCE + *FUEL ELEMENT + *FUEL REPROCESSING + XENON

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-35042 ALSO IN CATEGORY 13
CALDWELL CS + ZAMBERNARD MJ
DEVELOPMENT AND TESTING OF PUO2-UO2 FAST REACTOR FUELS FIFTEENTH QUARTERLY REPORT - OCTOBER-DECEMBER 1968
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
NUMEC-3524-62 +. 47 PAGES, FIGURES, TABLES, APRIL 1969

FUEL FABRICATION TECHNIQUES, CONTROL OF FABRICATION VARIABLES AND IRRADIATION BEHAVIOR ARE AN INHERENT PART OF THE PROGRAM. FUEL PRODUCTION IN QUANTITIES SUFFICIENT TO BE MEANINGFUL IS A SIGNIFICANT ASPECT OF THIS WORK WITH IRRADIATION TESTING SERVING AS THE ULTIMATE CRITERION. FABRICATION AND IRRADIATION TESTING OF A STATISTICALLY SIGNIFICANT NUMBER OF PROTOTYPIC FUEL RODS HAS ALSO BEEN INCLUDED IN THE PROGRAM TO PROVIDE FUEL PERFORMANCE DATA FOR THE FFTF PROJECT.

*FABRICATION + *REACTOR, FAST + TESTING + FUEL ELEMENT + PLUTONIUM DIOXIDE + URANIUM DIOXIDE + *IRRADIATION TESTING + QUALITY ASSURANCE + OXIDE + *NUMEC + FUEL, PELLET TYPE + GAMMA + CESIUM + ZIRCONIUM + NIOBIUM + FUEL, METALLIC TYPE + OXYGEN + *EXPERIMENT, GENERAL + EBR 1 AND 2 (RE)

12-35043 ALSO IN CATEGORY 13
DEVELOPMENT AND TESTING OF PUO2-UO2 FAST REACTOR FUELS - 14TH QUARTERLY REPORT - JULY-SEPTEMBER 1968
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
NUMEC-3524-58 +. 18 PAGES, FIGURES, TABLES, MARCH 1969

FUEL FABRICATION TECHNIQUES, CONTROL OF FABRICATION VARIABLES AND IRRADIATION BEHAVIOR ARE AN INHERENT PART OF THE PROGRAM. FUEL PRODUCTION IN QUANTITIES SUFFICIENT TO BE MEANINGFUL IS A SIGNIFICANT ASPECT OF THIS WORK WITH IRRADIATION TESTING SERVING AS THE ULTIMATE CRITERION. FABRICATION AND IRRADIATION TESTING OF A STATISTICALLY SIGNIFICANT NUMBER OF PROTOTYPIC FUEL RODS HAS ALSO BEEN INCLUDED IN THE PROGRAM TO PROVIDE FUEL PERFORMANCE DATA FOR THE FFTF PROJECT.

*FABRICATION + *REACTOR, FAST + TESTING + *FUEL ELEMENT + PLUTONIUM DIOXIDE + URANIUM DIOXIDE + *IRRADIATION TESTING + OXIDE + *NUMEC + FUEL, PELLET TYPE + GAMMA + CESIUM + ZIRCONIUM + NIOBIUM + FUEL, METALLIC TYPE + OXYGEN + *EXPERIMENT, GENERAL + *QUALITY ASSURANCE

12-35044 ALSO IN CATEGORY 13
LEE WT
CORROSION OF TYPE 18/18/2 STAINLESS STEEL IN 1200 DEGREE F. STATIC SODIUM
LMEC-69-11 +. 35 PAGES, 13 FIGURES, 2 TABLES, 12 REFERENCES, MAY 15, 1969

TO DETERMINE THE DEGREE OF CORROSION OR OTHER DEGRADATION THAT TYPE 18-18-2 STAINLESS STEEL (CR-NI-SI) WOULD EXPERIENCE IN A SODIUM ENVIRONMENT, 18 COUPONS WERE IMMERSSED IN 1200 F STATIC SODIUM FOR PERIODS UP TO 5060 HR. IN ADDITION, 12 TYPE 304 STAINLESS STEEL TABS WERE SIMULTANEOUSLY EXPOSED FOR COMPARISON. THE AVERAGE OXYGEN IMPURITY IN THE SODIUM WAS ABOUT 30 PPM. THE RESULTS OF THESE PRELIMINARY TESTS SHOW THAT TYPE 18-18-2 STAINLESS STEEL IS SUFFICIENTLY CORROSION-RESISTANT IN 1200F SODIUM TO WARRANT MORE THOROUGH EVALUATION.

*FUEL REPROCESSING + *REACTOR, LMFBR + *CORROSION + *SODIUM + *STEEL, STAINLESS + *EXPERIMENT, GENERAL + TESTING + HIGH TEMPERATURE

12-35148 ALSO IN CATEGORIES 7 AND 13
WILHELM JG
TESTING OF IODINE FILTERS FOR NUCLEAR INSTALLATIONS
GESELLSCHAFT FÜR KERNFORSCHUNG
20 PAGES, 7 FIGURES, 4 TABLES, 4 REFERENCES, NOVEMBER, 1968

FOR STANDARD LABORATORY ADSORBER TESTS A METHOD IS DISCUSSED FOR HUMIDIFICATION AND CONTROL OF GAS STREAMS UP TO 100 L R.H. AT ELEVATED TEMPERATURES. APPARATUS DESCRIBED. EXPERIMENTAL DATA ARE GIVEN FOR THE REMOVAL EFFICIENCY AND THE ADSORPTION OF WATER IN CHARCOAL SAMPLES FROM LONG-TIME TESTS UNDER 100 L R.H. THE OVERALL TEST PERIOD WAS UP TO 98 H, SIMULATING THE PHASE OF ELEVATED PRESSURE AND, THEREFORE, HIGH IODINE RELEASE FROM THE REACTOR CONTAINMENT. THE REPRODUCIBILITY OF LONG-TIME TESTS UNDER EXTREMELY HIGH RELATIVE HUMIDITY IS SHOWN AND DISCUSSED. A DESCRIPTION OF THE HARDWARE FOR IN-PLACE TESTS IS INCLUDED. RESULTS ARE GIVEN.

GERMANY + KARLSRUHE + *FUEL REPROCESSING + *FILTER + FILTRATION + TESTING + CHARCOAL + *EXPERIMENT, GENERAL + *REACTOR, POWER

12-35163 ALSO IN CATEGORY 17
REPORT ON THE APRIL 69 FAILURE OF A SHUTDOWN CONDENSER CONDENSATE VALVE TO OPEN DURING TECHNICAL SPECIFICATION PERIODIC TESTING
ALLIS-CHALMERS, BETHESDA, MARYLAND
4 PAGES, LETTER TO P.A. MORRIS, DRL, MAY 12, 1969, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

TAPPING THE VALVE CAUSED IT TO OPEN, AND REPEATED CYCLING FAILED TO REPRODUCE THE FAILURE - AS HAS HAPPENED IN THE PAST. LARGER SPRINGS WERE INSTALLED AND VARIOUS PRESSURES/FORCES MEASURED. REPEATED TESTS INDICATED SMALL LEAKAGE AND A TENDENCY FOR THE VALVES TO OPEN EASIER WITH USAGE (I.E., TO OPEN AGAINST HIGHER PRESSURE DIFFERENTIALS.)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS ANALYSIS + *FAILURE, EQUIPMENT + *VALVE + LACROSSE (BWR) + REACTOR, BWR + CONDENSATION

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-35165 ALSO IN CATEGORY 13
IWASAKI M + SAKURAI T + ISHIKAWA N + KOBAYASHI Y + C
OXIDATION PULVERIZATION OF UO₂ PELLETS
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
JAERI-1174 +. 9 PAGES, 10 FIGURES, 1 TABLE, 9 REFERENCES, MARCH 1969

THE RELATIONSHIP BETWEEN THE CONDITION OF THE OXIDATIVE PULVERIZATION OF UO₂ PELLET IN AIR AND THE PROPERTIES OF THE RESULTING POWDER, U3O8 WAS INVESTIGATED. THE PELLETS, SINTERED IN VACUUM AT 1450C, WERE OXIDIZED IN AIR IN A MUFFLE FURNACE AT TEMPERATURES BETWEEN 400 AND 800 C. THE PARTICLE SIZES DISTRIBUTED OVER A RANGE LESS THAN 10 MICRONS FOR THE POWDERS PRODUCED BY OXIDATION AT 400 AND 500, WHILE ABOVE 600 C, THE DISTRIBUTION TENDED TO SPREAD OVER A WIDER RANGE EXCEEDING 10 MICRONS. THE SURFACE AREA OF THE PRODUCED POWDER DECREASED WHEN THE POWDER WAS HEATED AT 700 OR 800 C, WITH NO CHANGE IN THE PARTICLE SIZE DISTRIBUTION OF THE POWDER.

JAPAN + *FABRICATION + *REACTOR, POWER + *FUEL, PELLET TYPE + OXIDATION + *URANIUM DIOXIDE + URANIUM OXIDE + *FUEL ELEMENT

12-35167 ALSO IN CATEGORY 13
LEE AKK + JOHNSON EF
THE PREDICTION OF GAS SOLUBILITY IN MOLTEN SALTS
PRINCETON UNIVERSITY, PRINCETON, NEW JERSEY
MATT-643 +. 14 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 1968

A METHOD IS PROPOSED FOR PREDICTING THE SOLUBILITY OF GASES IN MOLTEN SALTS. THE METHOD IS BASED ON AN APPLICATION OF THE SCALED-PARTICLE THEORY AND A THEORY OF CORRESPONDING STATES TO MOLTEN SALTS. CALCULATED VALUES FROM THE PROPOSED SOLUBILITY EQUATION ARE IN GOOD AGREEMENT WITH OBSERVED VALUES.

*REACTOR, MOLTEN SALT + *FUEL REPROCESSING + MATHEMATICAL TREATMENT + COMPARISON, THEORY AND EXPERIENCE + FISSION PRODUCT RETENTION

12-35168
GRAY DL + NEILL FH
DESIGN OF A LOOP FOR FISSION-PRODUCT DEPOSITION TESTS UP TO 1500 F
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2532 +. 36 PAGES, 15 FIGURES, JUNE 1969

THE ORIGINAL FISSION-PRODUCT DEPOSITION LOOP WAS MODIFIED TO PROVIDE CAPABILITY FOR SIMULATING MORE REALISTICALLY THE TEMPERATURE GRADIENTS IN AN ADVANCED GAS-COOLED REACTOR CIRCUIT. A HEATER AND COOLER WERE ADDED TO PERMIT OPERATION OF THE TEST SECTION TO 1500 F. BOTH THE ISOTHERMAL AND THERMAL GRADIENT TEST SECTIONS WERE LENGTHENED. THIS REPORT DESCRIBES THE OPERATING CONDITIONS AND DESIGN CAPABILITIES OF THE MODIFIED SYSTEM AND PRESENTS A COMPREHENSIVE DESCRIPTION OF THE LOOP COMPONENTS AND AUXILIARY SYSTEMS.

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

*REACTOR, GENERAL + TESTING + DESIGN CRITERIA + FISSION PRODUCT RELEASE, GENERAL + COOLANT PURIFICATION SYSTEM + *DEPOSITION

12-35170
BENNET RA + DE MYER SL
ANALYSIS OF FTR PHASE A CONTROL ROD EXPERIMENTS IN APR III ASSEMBLY 48 AND 48A
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-967 +. 30 PAGES, FIGURES, TABLES, 10 REFERENCES, APRIL 1969

CRITICAL EXPERIMENTS IN SUPPORT OF THE DESIGN OF THE FAST FLUX TEST REACTOR ARE TO BE CARRIED OUT IN THREE PARTS. PHASE A, THE FIRST OF THIS SERIES, WAS DEVOTED ESSENTIALLY TO A STUDY OF CONTROL ROD REACTIVITY WORTHS AND ROD INTERACTIONS. THIS REPORT PRESENTS THE RESULTS OF AN ANALYSIS OF THE DATA OBTAINED BY PERSONNEL OF ARGONNE NATIONAL LABORATORY ON ZPR-III ASSEMBLIES 48 AND 48A. DETAILS OF THE EXPERIMENTS ARE TO BE REPORTED BY ANL.

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

*REACTOR, FAST + FFTF (TR) + *CONTROL ROD + *EXPERIMENT, GENERAL + ZPR 3 (CAF) + CRITICAL ASSEMBLY FACILITY + CRITICALITY EXPERIMENT

12-35176 ALSO IN CATEGORIES 9 AND 17
ELK RIVER POISON INJECTION SYSTEM FAILURE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-51 +. 22 PAGES, OPERATING REPORT NO. 60, OCTOBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ON OCT. 19, SIGHT GLASS ON SODIUM PENTABORATE TANK WAS VALVED OUT TO REPAIR LEAK. NEW GLASS WAS INSTALLED AND PUT IN SERVICE. ON OCT. 21, REACTOR WAS SHUT DOWN FOR 17.6 HR BECAUSE LOW PRESSURE ALARM ON POISON-INJECTION SYSTEM LED TO FINDING LOWER SIGHT GLASS SHATTERED AND POISON-INJECTION-SYSTEM PRESSURE AT 400 PSIG (NORMAL, 2000 PSIG). ONLY A QUART OF LIQUID WAS LOST DUE TO SEATING

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-35176 *CONTINUED*

OF BALL CHECK VALVE, HOWEVER, UPPER CHECK VALVE WILL NOT HOLD AIR AND AIR BLANKET PRESSURE WAS LOST. NEW GAGE GLASS WAS INSTALLED AND SIGHTGLASS WILL BE USED ONLY WHEN LEVEL IS CHECKED. A SLIGHTLY WARPED COVER PLATE CAUSED THE GLASS FAILURE. WHEN NEW COVER PLATE ARRIVES AND IS INSTALLED, SIGHT GLASS WILL BE PUT BACK IN CONTINUOUS SERVICE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + *SHUTDOWN SYSTEM, SECONDARY + POISON, SOLUBLE + *INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, ALARM + PNEUMATIC SYSTEM + FAILURE, TUBING

12-35181 ALSO IN CATEGORY 17

PRESELECTED ELK RIVER OPERATING EXPERIENCE

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-47 +. 22 PAGES, OPERATING REPORT NO. 57, JULY 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

FAILURE OF A TYCON BASE FROM MAKEUP INJECTION PUMPS RELIEF VALVE TO PUMP SUCTION CAUSE THE INJECTION PUMPS TO AIR BIND. FOR ABOUT 80 MINUTES, MANUAL VENTING REQUIRED. NO UNTENDABLE OPERATING PROBLEMS WERE ENCOUNTERED. NEW HIGH-PRESSURE STAINLESS-STEEL FLEXIBLE HOSE INSTALLED. *** DURING INITIAL POWER ESCALATION OF RELOADED CORE, PEAK HEAT FLUX WAS KEPT BELOW SPECIFICATION LIMIT BY STOPPING POWER INCREASE AT 30 MW AND AGAIN AT 50 TO ALLOW XE TO BUILD IN. XE REACTIVITY HAS EFFECT OF MOVING RODS OUT, THUS PROVIDING MORE CORE VOLUME FOR POWER GENERATION AND LOWER HEAT FLUXES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

FAILURE, DESIGN ERROR + FAILURE, TUBING + REPORT, OPERATIONS + *INCIDENT, EQUIPMENT + REACTOR, BWR + PRESSURE, INTERNAL + WATER, GENERAL + PUMP + AIR + *FAILURE, EQUIPMENT + ELK RIVER (BWR)

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-30655

LEFORT G + MIQUEL P + DE RUBERCY M
INVESTIGATION AND TESTING OF THE EXTRACTION PROCEDURE USED IN THE JAPANESE PLANT
COMMISSARIAT A L ENERGIE ATOMIQUE, PARIS
12 PAGES, ENERG. NUCL. (PARIS), 10, PAGES 169-80 (MAY 1968)

AFTER A BRIEF REVIEW OF THE REASONS FOR TRYING, IN HIGH RADIOACTIVITY ENVIRONMENT, A PURIFICATION METHOD FOR OXIDE-TYPE IRRADIATED FUEL, THE OPTIMUM TECHNOLOGICAL CONDITIONS THUS EXPERIMENTALLY DEFINED ARE DESCRIBED. THE TESTS WERE CARRIED OUT WITH FUEL ELEMENTS, SOME OF WHICH HAD BEEN SUBMITTED TO HEAVY BURNUP.

*FUEL REPROCESSING + *SOLVENT EXTRACTION PROCESS + *JAPAN + EXPERIMENT, GENERAL + TESTING + URANIUM OXIDE + SAFETY EVALUATION

13-30656

BONNIAUD M + KERSALE M + ROZAND M
VITRIFICATION PILOT PLANT FOR FISSION PRODUCTS AT MARCOULE
9 PAGES, ENERG. NUCL. (PARIS), 10, PAGES 201-9 (MAY 1968)

THE PLANT USES THE SEMICONTINUOUS PROCESS OF POT VITRIFICATION INVOLVING CASTING OF GLASS INTO STORAGE CRUCIBLES AND REUSE OF THE POT. THE VITRIFICATION COMPLEX AT MARCOULE WAS INSTALLED IN AN EXTENSION OF THE PILOT IRRADIATED-FUEL PROCESSING PLANT, WHOSE OVERALL LAYOUT IT ADOPTS (WORKING AREAS, CELLS, ETC.) AND WHOSE SUPPORTING GENERAL SERVICES IT SHARES. IT IS COMPLETED BY AN INDEPENDENT GLASS-STORAGE BUILDING, PARTIALLY DUG IN AND AIR-COOLED.

*FUEL REPROCESSING + *WASTE DISPOSAL, GENERAL + FRANCE + *WASTE TREATMENT, FIXATION + GLASS + EQUIPMENT, GENERAL

13-30657

FAUGERAS P + STRATAKIS J
APPARATUS FOR DECANING FUEL ELEMENTS
COMMISSARIAT A L ENERGIE ATOMIQUE
U.S. PATENT 3,382,046 +. MAY 7, 1968

DESCRIBES APPARATUS FOR DECANING FUEL ELEMENTS BY A CONTINUOUS CHEMICAL PROCESS. THE PROCESS CONSISTS IN CONTINUOUSLY CIRCULATING THE CANNED FUEL ELEMENTS WITHIN THE APPARATUS, DISSOLVING THE CANS WITH A CONTINUOUS COCURRENT FLOW OF ACID ETCHING SOLUTION, AND RINSING THE DECANED FUEL ELEMENTS WITH A CCOUNTERCURRENT FLOW OF NEUTRAL RINSE.

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

*FUEL REPROCESSING + *PATENT + FRANCE + FUEL ELEMENT + *EQUIPMENT DESIGN

13-30668

CURILLON R + VIENNUT J
THE REPROCESSING PLANT IN JAPAN
9 PAGES, ENERG. NUCL. (PARIS), 10, PAGES 160-8 (MAY 1968)

SAINT-GOBAIN TECHNIQUES NOUVELLES WAS AWARDED THE COMPLETE DESIGN OF THE REPROCESSING PLANT TO BE BUILT IN JAPAN. THIS DESIGN IS ESSENTIALLY BASED ON THE MECHANICAL AND CHEMICAL PROCESS DEVELOPED BY THE C.E.A. IN FRANCE, BUT THIS PROJECT PRESENTS SEVERAL ORIGINAL CHARACTERISTICS, SUCH AS THE FUEL CHIPPING FACILITY, WHICH IS DESCRIBED BRIEFLY TOGETHER WITH THE PARTICULAR REQUIREMENTS FOR SAFETY, BUILDING LAYOUT AND CONSTRUCTION, DUE TO THE SPECIAL GEOGRAPHICAL CONDITIONS IN JAPAN.

*FUEL REPROCESSING + *JAPAN + DESIGN CRITERIA + SOLVENT EXTRACTION PROCESS

13-30671

ALSO IN CATEGORY 12

MINSART G + MOTTE F
ANALYSIS OF THE POSSIBILITY OF LARGE-SCALE IRRADIATION OF FAST REACTOR FUEL IN THE BR2 MATERIALS - TESTING REACTOR
CENTRE D ETUDE DE L ENERGIE NUCLEAIRE, MOL, BELG.
STI/PUB-165(VOL.1) + CONF-671043-(VOL.1) +. 22 PAGES, PAGES 327-48 OF FAST REACTOR PHYSICS. VOL. I., FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS, KARLSRUHE, GERMANY, 1968

DESCRIBES DEVICES USED IN THE BR2 REACTOR TO IRRADIATE FUEL PINS NA-COOLED UNDER FORCED CIRCULATION, AS PART OF A SERIES OF STUDIES ON FAST REACTOR FUEL DESIGNS. THE LOW-ENERGY COMPONENT OF THE NEUTRON SPECTRUM INCIDENT ON THESE DEVICES IS FILTERED OUT BY B AND CD SCREENS. ATTEMPTS HAVE BEEN MADE TO DESIGN AN IRRADIATION DEVICE OF GREATER POWER, WHICH WOULD ALLOW A FAST-REACTOR FUEL SUB-ASSEMBLY TO BE TESTED TO HIGH BURN-UP RATES, UNDER SPECIFIC SPECTRAL AND POWER CONDITIONS REPRESENTATIVE OF THE NEXT GENERATION OF FAST REACTORS.

*REACTOR, GENERAL + *IRRADIATION TESTING + *GERMANY + *BR 2 (RR) + FUEL ELEMENT + SODIUM + STRESS + FAILURE, FUEL ELEMENT + REACTOR, RESEARCH

13-30672

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-30672 *CONTINUED*
THE PROCESSING OF IRRADIATED FUELS IN SPAIN
3 PAGES, COM. NAZ. ENERG. NUCL., NOTIZ., 14(4), PAGES 57-9 (APRIL 1968)

DESCRIBES NUCLEAR FUEL REPROCESSING PLANT THAT ENTERED INTO SERVICE LATE LAST YEAR AT MONCLOA.

*FUEL REPROCESSING + SPAIN

13-30676 ALSO IN CATEGORIES 7 AND 12
DAVIS LP
DEPOSITION OF SUBMICRON-SIZE PARTICLES IN VENTILATION DUCTS
OAK RIDGE NATIONAL LABORATORY
8 PAGES, SURFACE CONTAMINATION, PAGES 131-38, NEW YORK, PERGAMON PRESS, 1966

A 54 SQ. IN. CONCRETE VENTILATION DUCT 1000 FT LONG, USED TO VENT SEVERAL HIGH-LEVEL RADIOACTIVITY FACILITIES TO A FAN BELOW A MAIN STACK, WAS USED TO STUDY THE DEPOSITION BEHAVIOR OF PARTICLES OF 0.001 TO 1.0 MICRON WITH CONCENTRATIONS RANGING FROM 1 TO 1000 MG/M3. AN EQUATION WAS DEVELOPED THAT PROVIDES A PLAUSIBLE MEANS OF PREDICTING DECREASES IN CONCENTRATION FOR THE CONCENTRATION INVESTIGATED, BUT THE CONTAMINATION ON THE DUCT WALLS CAN NOT BE OVERLOOKED.

*DEPOSITION + *PARTICULATE + AEROSOL + *VENTILATION SYSTEM + OFF GAS + STACK + *CONTAMINATION + *PARTICLE SIZE

13-30805 ALSO IN CATEGORY 7
PLECHATY L + KLICKA V
TREATMENT OF URANIUM MILL EFFLUENTS
6 PAGES, JADERNA ENERGIE, VOLUME 13, PAGES 7-12 (JANUARY 1967)(IN CZECH)

THE PROBLEM OF RADIOACTIVE POLLUTION FROM URANIUM MILL EFFLUENTS IS CONSIDERED. METHODS OF DECONTAMINATION FOR RADIUM, URANIUM, AND POLONIUM ARE BRIEFLY DESCRIBED. SOME DETAILED INFORMATION ABOUT EVAPORATION EQUIPMENT FOR TREATMENT OF URANIUM MILL EFFLUENTS IS GIVEN.

*RADIOCHEMICAL PROCESSING + *ATMOSPHERIC POLLUTION + EVAPORATION + DECONTAMINATION + FISSION PRODUCT RETENTION
+ PLANT PROTECTIVE SYSTEM + *RADIUM + URANIUM + *POLONIUM

13-30879 ALSO IN CATEGORY 12
BALKWILL JK
MECHANICAL ELEMENTS OPERATING IN SODIUM AND OTHER ALKALI METALS. VOL. I LITERATURE SURVEY
LIQUID METAL ENGINEERING CENTER
LMCC-68-5 +. 124 PAGES, 17 TABLES, 77 REFERENCES, 1968

SEARCHED LITERATURE REPORTING INFORMATION PUBLISHED SINCE 1950 ON MECHANICAL DEVICES WITH RUBBING SURFACES OPERATING IN ALKALI METALS. SODIUM ENVIRONMENTS ARE EMPHASIZED, WITH DATA ALSO INCLUDED FROM POTASSIUM, NAK, AND LITHIUM EXPERIMENTS. THE CHARACTERISTICS OF POTENTIALLY USEFUL MATERIALS THAT ARE IMPORTANT IN LIQUID METAL APPLICATIONS ARE DISCUSSED. MATERIAL COMPATIBILITY AND FRICTION/WEAR TESTING PROGRAMS CONDUCTED SINCE 1950 ARE DESCRIBED. EXPERIMENTAL AND OPERATING EXPERIENCE WITH FULL-SIZE COMPONENTS IS PRESENTED.

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

*REACTOR, LMCR + *SURVEY, GENERAL + POTASSIUM + SODIUM + LITHIUM + MATERIAL + CORROSION + ALLOY + *EXPERIMENT, GENERAL + OPERATING EXPERIENCE + BIBLIOGRAPHY

13-31460
HIGGINS GH + RABB DD + RODEAN HC
THEORETICAL AND EXPERIMENTAL STUDIES RELATING TO THE PURGING OF RADIOACTIVITY FROM A GAS WELL STIMULATED BY A NUCLEAR EXPLOSION
LAWRENCE RADIATION LAB., CALIF.
UCRL-50519 +. 22 PAGES, 14 FIGURES, 4 TABLES, 5 REFERENCES, DECEMBER 24, 1968

A PROPOSED SOLUTION IS TO PURGE THE CHIMNEY BEFORE PERMITTING THE GAS TO ENTER THE PIPELINE, AND TO PHASE-IN THE PRODUCTION OF THE WELL SO AS TO OBTAIN A DILUTION OF ACTIVITY TO AN ACCEPTABLE LEVEL. THE VARIATION IN THE RADIOACTIVITY CONCENTRATION DURING A PURGE IS PERTINENT TO THE PROBLEM. A PREVIOUS ANALYSIS WAS REVIEWED AND IT WAS DETERMINED THAT FURTHER STUDY ON THIS PROBLEM WAS NECESSARY. AFTER BEING REVISED AND EXTENDED, THE RESULTANT ESTIMATED VARIATION OF RADIOACTIVITY CONCENTRATIONS DURING WELL PRODUCTION FOR A RANGE OF CHIMNEY GEOMETRIES WAS PREPARED AND COMPARED WITH UNIFORM MIXING MODELS. THE REVISED ANALYSIS INDICATES THAT THE QUANTITY OF GAS WHICH MAY BE FLARED TO REMOVE SUBSTANTIALLY ALL THE RADIOACTIVITIES MAY BE ONLY ABOUT ONE-HALF THAT PREVIOUSLY ESTIMATED.

AVAILABILITY - G.H. HIGGINS, LAWRENCE RADIATION LAB., UNIVERSITY OF CALIFORNIA, LIVERMORE

*RADIOISOTOPE + *EXPLOSION + *THEORETICAL INVESTIGATION + *FISSION GAS RELEASE + *EXPERIMENT, GENERAL

13-31461 ALSO IN CATEGORIES 7 AND 11
LONG JT
ENGINEERING FOR NUCLEAR FUEL REPROCESSING

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-31461 *CONTINUED*

OAK RIDGE NATIONAL LAB., TENN.

1023 PAGES, FIGURES, TABLES, REFERENCES, NEW YORK, GORDON AND BREACH SCIENCE PUBLISHERS INC., 1967

PRESENTS THE ENGINEERING ASPECTS OF THE REPROCESSING OF POWER-REACTOR FUELS. FLOWSHEETS, DESIGN AND SAFETY FEATURES, CRITICALITY, REMOTE HANDLING AND VIEWING EQUIPMENT, PROCESS EQUIPMENT FUEL STORAGE, AUXILIARY EQUIPMENT, MANAGEMENT AND OPERATION, AND COSTS ARE COVERED.

*FUEL REPROCESSING + *DESIGN CRITERIA + *WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, GAS + WASTE DISPOSAL, SOLID + WASTE DISPOSAL, LIQUID + *SOLVENT EXTRACTION PROCESS + REMOTE MANIPULATING AND VIEWING + *EQUIPMENT, GENERAL + *DISSOLUTION + CRITICALITY SAFETY + FUEL STORAGE + TRANSPORTATION AND HANDLING + DECONTAMINATION + ADMINISTRATIVE CONTROL + *ECONOMICS + *CONTAINMENT, FUEL REPROCESSING + HOT CELL + RADIOCHEMICAL PLANT SAFETY + *SHIPPING CONTAINER + *WASTE STORAGE

13-31464 ALSO IN CATEGORY 12

REEVE KD + RAMM EJ

DEVELOPMENT OF STAGE I BERYLLIA, FUELLED BERYLLIA, AND SPHERICAL BERYLLIA-BASED FUEL ELEMENTS FOR THE HIGH-TEMPERATURE GAS-COOLED REACTOR FEASIBILITY STUDY

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/E-193 +. 43 PAGES, 21 FIGURES, 2 TABLES, REFERENCES, SEPTEMBER 1968

REQUIREMENTS OF BEO FOR USE AS MODERATOR, FUEL MATRIX, AND FISSION-PRODUCT-RETENTIVE COATING IN AN ALL-CERAMIC, DISPERSION-TYPE FUEL ELEMENT FOR USE IN A HIGH-TEMPERATURE GAS-COOLED REACTOR ARE DISCUSSED. REASONS FOR CHOOSING BRUSH UOX BEO POWDER, AND ISOSTATIC PRESSING FOR FABRICATING IT, ARE GIVEN. THE CHARACTERISTICS OF THIS POWDER AND THE EFFECTS OF MANY FABRICATION VARIABLES ON THE PROPERTIES OF THE SINTERED PRODUCT ARE DISCUSSED IN DETAIL. AS A RESULT OF THE WORK DESCRIBED, A PROCESS WAS CHOSEN FOR PRODUCING AN INTERIM-STANDARD SINTERED BEO, TO BE KNOWN AS STAGE-I BEO.

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

*REACTOR, HTGR + *AUSTRALIA + *BERYLLIUM + OXIDE + CERAMICS + *FUEL ELEMENT + EXPERIMENT, GENERAL + FUEL, POWDER TYPE + FISSION PRODUCT RETENTION + *FABRICATION + SINTERING + *FUEL ELEMENT

13-31498

QUARTERLY REPORT NO. I PLUTONIA/CURIA COMPATIBILITY TESTING

MCDONNELL DOUGLAS ASTRONAUTICS COMPANY

DAC-60777 +. 17 PAGES, 11 FIGURES, 1 TABLE, 14 REFERENCES, JANUARY 1969

SAFE USE OF RADIOISOTOPE FUELS REQUIRES KNOWLEDGE OF THE CAPABILITY OF MATERIALS TO CONTAIN THE FUEL. COMPATIBILITY TESTING OF ISOTOPE-CONTAINER MATERIAL COMBINATIONS AT OR ABOVE EXPECTED USE TEMPERATURES IS TO BE PERFORMED IN A NEW PROGRAM. BOTH PLUTONIA-238 AND CURIA-244 WILL BE EXPOSED AS LONG AS 10,000 HOURS IN CONTACT WITH SELECTED REFRACTORY ALLOYS AT 1800 AND 2000 C.

*RADIOISOTOPE + *ENERGY SOURCE + *CONTAINMENT, GENERAL + PLUTONIUM + CURIUM

13-31499 ALSO IN CATEGORY 1

PARTICLE ACCELERATOR SAFETY MANUAL

U.S. DEPT. OF HEALTH, ED., AND WELFARE, PUBLIC HEALTH SERVICE

MORP-68-12 +. 127 PAGES, 14 FIGURES, 33 REFERENCES, OCTOBER 1968

DESCRIBES (1) BRIEFLY EACH OF THE MORE COMMON ACCELERATORS, (2) PROVIDES A REVIEW OF THE MORE IMPORTANT HAZARDS (WITH EMPHASIS ON THE RADIATION SAFETY HAZARDS), AND (3) INDICATES SOME OF THE CONSIDERATIONS TO BE EVALUATED WHEN REVIEWING OR OBSERVING THE OPERATION OF A PARTICLE-ACCELERATOR FACILITY.

*RADIOISOTOPE + *ACCELERATOR + *SAFETY PRINCIPLES AND PHILOSOPHY + RADIATION SAFETY AND CONTROL

13-31500 ALSO IN CATEGORY 12

CROOKER TW + LANCE EA

FATIGUE CRACK PROPAGATION IN A HIGH-STRENGTH STEEL UNDER CONSTANT CYCLIC LOAD WITH VARIABLE MEAN LOADS
NAVAL RESEARCH LABORATORY, WASHINGTON, D.C.

NRL-REPORT-6805 +. 20 PAGES, 7 FIGURES, 13 REFERENCES, NOVEMBER 29, 1968

FATIGUE CRACK PROPAGATION STUDIES WERE CONDUCTED ON A 9NI-4CO-0.25C HIGH-STRENGTH STEEL USING A CONSTANT CYCLIC LOAD AND VARIABLE MEAN LOADS. THE LOAD RATIO R WAS VARIED FROM +0.5 TO -1.0. FATIGUE CRACK GROWTH RATES WERE ANALYZED USING THE CRACK TIP STRESS-INTENSITY FACTOR K. RESULTS SHOW THAT MEAN LOADS EXERT A STRONG SECONDARY INFLUENCE ON FATIGUE CRACK PROPAGATION. DATA WERE FITTED TO TWO CRACK PROPAGATION EQUATIONS WHICH SEEK TO ACCOUNT FOR MEAN LOADS. BOTH EQUATIONS SIGNIFICANTLY REDUCED BUT DID NOT ELIMINATE THE LAYERED SCATTER CAUSED BY MEAN LOADS.

*REACTOR, GENERAL + *FUEL REPROCESSING + *PRESSURE VESSEL + *STEEL + FAILURE, FATIGUE + EXPERIMENT, GENERAL + TESTING

13-31503

O HARE PAG

THE THERMODYNAMIC PROPERTIES OF SOME CHALCOGEN FLUORIDES

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-31503 *CONTINUED*
ARGONNE NATIONAL LABORATORY
ANL-7315 +. 95 PAGES, FIGURES, TABLES, 92 REFERENCES, JULY 1968

PRESENTS PHYSICAL AND THERMODYNAMIC DATA FOR 24 GASEOUS FLUORIDES OF THE OXYGEN-GROUP ELEMENTS. DATA ARE ALSO INCLUDED FOR LIQUID AND SOLID STATES WHERE ENTHALPIES OF VAPORIZATION AND FUSION ARE AVAILABLE. THE THERMODYNAMIC FUNCTIONS ARE TABULATED FROM 0 TO 2000 K.

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

*FUEL REPROCESSING + VOLATILITY PROCESS + FLUORIDE + PROPERTY, PHYSICAL

13-31505 ALSO IN CATEGORY 12
GOLDSMITH P + WELLS AC + COX LC
AEROSOL EMISSION FROM CHROMIUM ALLOYS WHEN HEATED IN AIR AND IN CARBON DIOXIDE/11 CARBON MONOXIDE
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL, BERKSHIRE
AERE-R-5426 +. 20 PAGES, 5 FIGURES, 4 TABLES, 6 REFERENCES, SEPTEMBER 1968

WHEN 80-20 NICKEL CHROMIUM ALLOY AND 20-23 STAINLESS STEEL ARE HEATED IN AIR, A COPIOUS SUPPLY OF SUBMICRON PARTICLES IS EMITTED FROM THE HOT ALLOYS AT TEMPERATURES OVER 850 C. THESE PARTICLES HAVE BEEN FOUND TO BE COMPOSED OF A MIXTURE OF CHROMIUM TRIOXIDE AND CHROMIUM SESQUIOXIDE IN THE RATIO 2-1. AT TEMPERATURES OF 1200 C AND BELOW, WELL OVER 90% OF THE EMISSION IS DUE TO THE PRODUCTION OF THIS SUBMICRON AEROSOL. AT 1250 C IN DRY AIR, AS MUCH AS 62% OF THE CHROMIUM LOSS FROM THE HEATED ALLOYS WAS IN THE FORM OF LARGE PARTICLES OF SCALE. MOISTURE INHIBITED THIS SCALING MECHANISM BUT ENHANCED THE SUBMICRON AEROSOL PRODUCTION RATE.

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*FUEL REPROCESSING + *REACTOR, LMCR + *REACTOR, LMFBR + *AEROSOL + AEROSOL PRODUCTION + ALLOY + CHROMIUM + NICKEL + STEEL, STAINLESS + HIGH TEMPERATURE

13-31578 ALSO IN CATEGORIES 5 AND 18
YOUNGBLOOD EL + MILES FW
HAZARDS EVALUATION FOR THE FLUIDIZED-BED VOLATILITY PILOT PLANT
OAK RIDGE NATIONAL LABORATORY, TENN.
ORNL-TM-2092 +. 133 PAGES, 27 FIGURES, 7 TABLES, 86 REFERENCES, JULY 1968

PLANT DEMONSTRATES RECOVERY AND PURIFICATION OF U AND PU FROM LOW-ENRICHED UO₂ FUEL BY FLUORIDE-VOLATILITY METHOD. UP TO 40 KG OF PU PROCESSED PER RUN. MCA IS NUCLEAR EXCURSION IN WHICH A PROCESS VESSEL CONTAINING PU AND FISSION PRODUCTS RUPTURES IN A CONTAINMENT CELL. FOR CHEMICAL EXPLOSION OF 6 MILLION CURIES OF MIXED FISSION PRODUCTS, DOSE OF 34 MILLIREMS RECEIVED DOWNWIND AND 14 MILLIREMS FOR 2-MIN EXPOSURE IN SECONDARY CONTAINMENT.

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

*HAZARDS ANALYSIS + *FUEL REPROCESSING + RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + CHEMICAL REACTION + EXPLOSION + FISSION PRODUCT RELEASE, GENERAL + URANIUM + PLUTONIUM + FUEL CONVERSION + *FLUIDIZED BED VOLATILITY PROCESS

13-33134
ANSWER TO CHANGE REQUEST IN TECHNICAL SPECIFICATIONS - DATED JANUARY 22, 1969 AND AS AMENDED MARCH 17, 1969
USAEC, DIVISION OF MATERIAL LICENSING
10 PAGES, LETTER - DIV. OF MATERIAL LICENSING TO NFS - MAY 6, 1969, DOCKET 50-201

APPROVED REQUEST AS AMENDED. ALLOWS RECEIPT OF HIGHER ENRICHMENT OF CERTAIN CATEGORIES OF FUELS, POSSESSION AND USE OF ADDITIONAL RADIOISOTOPES FOR CALIBRATION SOURCES, AND STORAGE MODIFICATION TO ACCOMMODATE BONUS SUPERHEATER FUEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*NFS + *FUEL REPROCESSING + *SOLVENT EXTRACTION PROCESS + *TECHNICAL SPECIFICATIONS + *FUEL STORAGE + URANIUM-235 + URANIUM + MOLYBDENUM + ALUMINUM + ALLOY + ZIRCALOY + RADIOISOTOPE + URANIUM DIOXIDE + ALLOY + THORIUM + OXIDE

13-33506
LONG JT
RADIOCHEMICAL PLANT DESIGN
45 PAGES, PAGES 859-903 OF ENGINEERING FOR NUCLEAR FUEL REPROCESSING, NEW YORK, GORDON AND BREACH, 1967

THE UNUSUAL DESIGN FEATURES THAT RESULTS FROM THE PRESENCE OF RADIOACTIVITY AND POTENTIAL CRITICALITY ARE DISCUSSED AS THEY AFFECT THE DESIGN OF THE REPROCESSING METHOD, PLANT LOCATING, PLANT LAYOUT, AND DETAILS OF MATERIAL SELECTION AND EQUIPMENT DESIGN.

*DESIGN CRITERIA + *FUEL REPROCESSING + *RADIOCHEMICAL PLANT SAFETY + RADIOCHEMICAL PROCESSING + *DESIGN STUDY + FABRICATION FACILITY + FUEL HANDLING + RADIATION SAFETY AND CONTROL + REMOTE MANIPULATING AND VIEWING

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34310 ALSO IN CATEGORIES 12 AND 16

DOAN PL
TORNADOES AND TORNADO EFFECT CONSIDERATIONS FOR NUCLEAR POWER PLANT STRUCTURES INCLUDING THE SPENT FUEL STORAGE POOL
UNITED ENGINEERS AND CONSTRUCTIONS INC.
UE AND C APED-6807 +. 108 PAGES, FIGURES, TABLES, 43 REFERENCES, MARCH 1969

IN THIS PRESENTATION, THE TORNADO IS DESCRIBED PHENOMENOLOGICALLY BASED ON DOCUMENTED INFORMATION ON SEVERE STORMS. MATHEMATICAL CHARACTERIZATION OF A TORNADO FOR THE SAKE OF NUCLEAR PLANT DESIGN IS PRESENTED. THE PROBABILITY OF PLANT LIFETIME TORNADO RISK AND CHANCE OF RADIOACTIVITY ESCAPE TO ENVIRONS IS ASSESSED. MECHANISTIC CALCULATIONAL TECHNIQUES ARE PRESENTED TO DETERMINE THE EFFECTS ON PLANT STRUCTURES OF DYNAMIC WIND FORCES, STATIC PRESSURE DIFFERENTIALS AS WELL AS TORNADO GENERATED MISSILES. IT IS SHOWN THAT, AT HIGHLY CONSERVATIVE ASSUMPTIONS COUPLED WITH THE DESIGN TORNADO, THE SPENT FUEL STORAGE POOLS OF EXISTING LIGHT WATER REACTORS ARE QUITE ADEQUATELY DESIGNED TO INSURE SAFE CONTAINMENT OF FISSION PRODUCTS.

*REACTOR, POWER + CONTAINMENT PENETRATION, GENERAL + WIND PROFILE + METEOROLOGY + FUEL STORAGE + THEORETICAL INVESTIGATION

13-34327

BOWDEY RD + DAHL WR + BEND RL
CONTINUOUS VIEWING WINDOW
THE DOW CHEMICAL COMPANY, GOLDEN, COLORADO 80401
RFP-1141 +. 5 PAGES 7 FIGURES, APRIL 11, 1969

DESCRIBED NEWLY DEVELOPED DEVICES FOR USE IN THE OPERATION OF VACUUM DEPOSITION CHAMBERS OR WELDING CHAMBERS. DURING PROCESSING OPERATIONS, A MAJOR DIFFICULTY AROSE IN TRYING TO KEEP THE CHAMBER VIEW PORTS CLEAN ENOUGH TO PERMIT GOOD OPERATOR VISIBILITY. TO ACHIEVE BETTER OPERATOR VISIBILITY AND TO SIMPLIFY CLEANING OF VIEW PORTS, A DEVICE WAS DEVELOPED WHICH HOLDS A FILM STRIP IN PLACE BY MEANS OF SPOOLS. THE FILM STRIP MADE OF MYLAR POLYESTER CAN BE EASILY WOUND FROM ONE SPOOL TO ANOTHER ACROSS THE CHAMBER WINDOW OPENING.

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

*FABRICATION + *RADIOISOTOPE + EQUIPMENT, GENERAL + *FUEL ELEMENT + REMOTE MANIPULATING AND VIEWING

13-34328

HARVEY MR + TETER AR + LEGGETT RL
FABRICATION OF OXIDE NUCLEAR FUEL PELLETS
THE DOW CHEMICAL COMPANY, GOLDEN COLORADO 80401
RFP-1255 +. 39 PAGES, 10 FIGURES, 11 TABLES, 12 REFERENCES, MARCH 21, 1969

A SMALL NUMBER OF URANIUM DIOXIDE AND MIXED URANIUM-PLUTONIUM DIOXIDE FUEL PELLETS WERE FABRICATED BY THE COLD PRESS AND SINTER TECHNIQUE. THE DIAMETRAL VARIATIONS OBSERVED WERE LESS THAN ± 0.003 IN. BASED ON A NOMINAL DIAMETER OF 0.345 IN. THE AVERAGE HOURGLASSING WAS 0.003 IN. FOR A LENGTH TO DIAMETER RATIO OF 1.5. IT WAS CONCLUDED FROM THIS DATA AND A LITERATURE SURVEY THAT THESE VARIATIONS COULD BE MAINTAINED ON A PRODUCTION BASIS AND THUS ELIMINATE CENTERLESS GRINDING FROM THE FABRICATION PROCESS.

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

*FABRICATION + *URANIUM DIOXIDE + *PLUTONIUM DIOXIDE + *FUEL, PELLET TYPE + SINTERING + *FUEL ELEMENT

13-34366 ALSO IN CATEGORIES 7 AND 12

PARRISH EC + SCHNEIDER RW
REVIEW OF INSPECTION AND TESTING OF INSTALLED HIGH EFFICIENCY PARTICULATE AIR FILTERS AT ORNL - SUMMARY
OAK RIDGE NATIONAL LAB., TENN.
28 PAGES, 8 FIGURES, 12 REFERENCES, PRESENTED AT THE INTERNATIONAL ATOMIC ENERGY AGENCY MEETING, N.Y., N.Y., AUGUST 26-30, 1968

IN MOST ATOMIC ENERGY INSTALLATIONS HEPA (HIGH-EFFICIENCY PARTICULATE AIR) FILTERS ARE USED IN VENTILATION EXHAUST OR OFF-GAS SYSTEMS AND CONSTITUTE THE PRIMARY MEANS OF PREVENTING THE RELEASE OF RADIOACTIVE PARTICULATE MATERIAL TO THE ATMOSPHERE. HEPA FILTERS ARE ALSO USED TO PROVIDE AIR, EXTREMELY LOW IN PARTICULATE MATERIAL, TO WORK AREAS, SUCH AS CLEAN BENCHES OR CLEAN ROOMS. THESE FILTERS, IF IN GOOD CONDITION, WILL REMOVE 0.3-MICRON PARTICLES FROM AN AIRSTREAM WITH A MINIMUM EFFICIENCY OF 99.97%. HOWEVER, OUR EXPERIENCE WITH FILTER SYSTEMS AT ORNL AND AT OTHER SITES INDICATES CLEARLY THAT SYSTEMS CONTAINING THESE FILTERS SHOULD BE ASSUMED TO BE INEFFICIENT UNLESS AN IN-PLACE TEST SHOWS OTHERWISE.

AVAILABILITY - E.C. PARRISH, OAK RIDGE NATIONAL LAB., OAK RIDGE, TENN.

OPERATING EXPERIENCE + *OPERATING EXPERIENCE SUMMARY + *FILTER INSPECTION + FILTER MAINTENANCE + FILTER OPERATION + FILTER SAFETY EVALUATION + *FILTER SYSTEM + FILTER, HIGH EFFICIENCY

13-34487

BENDIXSEN CL + OFFUTT GF

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34487 *CONTINUED*
RARE GAS RECOVERY FACILITY AT THE IDAHO CHEMICAL PROCESSING PLANT
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
IN-1221 +. 43 PAGES, 13 FIGURES, 7 TABLES, 2 REFERENCES, APRIL 1969

RADIOACTIVE KRYPTON AND XENON FROM SPENT NUCLEAR FUEL REPROCESSING OPERATIONS AT THE IDAHO CHEMICAL PROCESSING PLANT ARE REMOVED FROM OFF-GASES IN A CRYOGENIC RECOVERY UNIT. THE PROCESS EQUIPMENT USED AND EXPERIENCE FROM SEVERAL OPERATING PERIODS ARE DESCRIBED. A METHOD FOR PROCESSING HYDROGEN-RICH OFF-GAS IS ALSO PRESENTED.

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

*FUEL REPROCESSING + *OFF GAS + *DESIGN CRITERIA + *CRYOGENICS + IDAHO FALLS + NRTS + KRYPTON + XENON + EQUIPMENT, GENERAL + OPERATING EXPERIENCE + *WASTE TREATMENT, GAS + WASTE MANAGEMENT + WASTE TREATMENT, EQUIPMENT + NITROGEN + DISSOLVER

13-34500 ALSO IN CATEGORY 12
BISHOP EC. + NADLER RA + WHITLOW GA
VANADIUM ALLOY CLADDING DEVELOPMENT - QUARTERLY PROGRESS REPORT FOR THE PERIOD ENDING DECEMBER 31, 1968
WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTORS DIVISION, MADISON, PENNSYLVANIA
WARD - 3791 - 30 +. 62 PAGES, 21 FIGURES, 5 TABLES, 14 REFERENCES, FEBRUARY, 1969

OBJECTIVES ARE TO FURTHER THE DEVELOPMENT AND CHARACTERIZE THE PROPERTIES OF VANADIUM-BASED ALLOYS THAT MAY OFFER CERTAIN ADVANTAGES OVER STAINLESS STEEL FOR FUEL CLADDING IN A LIQUID-METAL-COOLED FAST BREEDER REACTOR. THE ALLOYS MUST HAVE SUFFICIENT STRENGTH TO CONTAIN THE FUEL AT TEMPERATURES UP TO 800 DEGREES CENTIGRADE, BE RESISTANT TO LIQUID-SODIUM CORROSION, BE COMPATIBLE WITH MIXED URANIUM-PLUTONIUM CERAMIC FUELS, BE RESISTANT TO EMBRITTLEMENT BY FAST-FLUX IRRADIATION, BE READILY FABRICATED INTO HIGH-QUALITY TUBING AT REASONABLE COST, AND HAVE ACCEPTABLE NUCLEAR PHYSICS CHARACTERISTICS.

AVAILABILITY - E. C. BISHOP, R. A. NADLER, AND G. A. WHITLOW, WESTINGHOUSE ELECTRIC CORPORATION, ADVANCED REACTORS DIVISION, P. O. BOX 158, MADISON, PENNSYLVANIA 15663

*FABRICATION + *REACTOR, POWER + *CLADDING + VANADIUM + *CREEP PROPERTY + ALLOY + *CORROSION + SODIUM + TUBING + ZIRCONIUM + FUEL ELEMENT

13-34616 ALSO IN CATEGORY 12
PEARSON CV
DEVELOPMENTS IN THE ELIMINATION OF BORON LOSS FROM UO₂ - STAINLESS STEEL DISPERSION FUEL PLATES FOR THE ARGONNE ADVANCED RESEARCH REACTOR MARK 1 CORE
ARGONNE NATIONAL LABORATORY, 9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS 60439
ANL - 7477 +. 68 PAGES, 22 FIGURES, 8 TABLES, 27 REFERENCES, OCTOBER 1968

REPORT TREATS ONLY THE PROBLEMS ENCOUNTERED IN DEVELOPING TECHNIQUES FOR CONTROLLING BORON LOSS DURING FABRICATION OF THE FUEL PLATES AND BRAZING OF THE FUEL SUBASSEMBLIES. AN ATTEMPT TO DERIVE A SUBSTITUTE MIXTURE OF OTHER HIGH CROSS-SECTION ELEMENTS PROVED UNSUCCESSFUL. BORON REMAINS MATERIAL TO USE AS THE BURNABLE POISON. EFFORTS WERE FOCUSED ON THE EFFECT OF CERTAIN VARIABLES IN THE UO₂-SS DISPERSIONS FABRICATION PROCESS. OBJECTIVE WAS TO DETERMINE WHERE THE REFERENCE FUEL-PLATE ADVERSELY AFFECTING THE FUEL QUALITY.

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

*REACTOR, RESEARCH + *AARR (RR) + *FABRICATION + *BORON + *POISON, BURNABLE + *FUEL ELEMENT + *FUEL, METALLIC TYPE + URANIUM DIOXIDE + STEEL, STAINLESS + REACTOR, FLUX TRAP + REACTOR, ACC OWNED

13-34618 ALSO IN CATEGORY 12
HARMON DP
SUMMARY COMPILATION OF GULF GENERAL ATOMIC COATED PARTICLE IRRADIATION EXPERIMENTS
GULF GENERAL ATOMIC, SAN DIEGO, CALIFORNIA
GAM - 9245 +. 24 PAGES, DECEMBER 30, 1968

PRESENTS SUMMARY TABLES DESCRIBING GULF GENERAL ATOMIC COATED-PARTICLE-IRRADIATION EXPERIMENTS, BOTH CURRENT AND COMPLETED, CONDUCTED ON THE PUBLIC SERVICE OF COLORADO AND HTGR BASE PROGRAMS. THE TABLES INCLUDE DESCRIPTIONS OF THE SAMPLES TESTED, IRRADIATION CONDITIONS (ACTUAL OR DESIGN), AND RESULTS OR POSTIRRADIATION EXAMINATION (FOR COMPLETED EXPERIMENTS). THESE TABLES CONTAIN THE BEST AVAILABLE DATA AS OF DECEMBER 1968 AND SUPERSEDE ALL PREVIOUS TABLES. HOWEVER, THEY ARE SUBJECT TO REVISION AS ADDITIONAL INFORMATION BECOMES AVAILABLE.

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

*REACTOR, GENERAL + *REACTOR, POWER + *COATED PARTICLE + *IRRADIATION TESTING + *REACTOR, HTGR + EXPERIMENT, GENERAL

13-34628 ALSO IN CATEGORY 17
AEC PRELIMINARY ESTIMATE PLACES RESTORATION AFTER ROCKY FLATS FIRE AT \$40-\$50 MILLION
U.S. ATOMIC ENERGY COMMISSION

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34628 *CONTINUED*
AEC PRESS RELEASE M-121 +. 2 PAGES, MAY 20, 1969

MAY 11 FIRE (NO CAUSE GIVEN) WILL COST \$50 MILLION, NOT INCLUDING REPROCESSING FOR PU. NO CFF-SITE DOSE OR RELEASE. ONE FIREMAN EXPOSED, RETURNED TO DUTY.

PLUTONIUM + ROCKY FLATS + *FIRE

13-34629 ALSO IN CATEGORIES 15 AND 17
RADIOLOGICAL EMERGENCY OPERATIONS - INSTRUCTORS MANUAL
REYNOLDS ELECTRICAL AND ENGINEERING CO.
TID-24518 +. 219 PAGES, REFERENCES, 1969

FOR AN 80-HR COURSE. COMPANION VOLUME TO STUDENTS MANUAL, GIVES REFERENCES, LESSON PLANS, TESTS, PRACTICAL EXERCISES. COURSE INTENDED TO TRAIN A WORKER IN RADIATION FIELD TO BE A MEMBER OF AN EMERGENCY TEAM. *** COVERS HEALTH PHYSICS INSTRUMENTATION, HANDLING OF RADIOISOTOPES, EMERGENCY-TEAM PHILOSOPHY AND PROCEDURES, EMERGENCY MONITORING. *** EVERY NUCLEAR FACILITY SHOULD HAVE A LIBRARY COPY.

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

*RADIATION SAFETY AND CONTROL + EMERGENCY PROCEDURE + RADIOLOGICAL ASSISTANCE + BIBLIOGRAPHY + TRAINING + SURVEY, RADIATION, EMERGENCY + MONITOR, PERSONNEL + REACTOR, BWR + REACTOR, PWR + REACTOR, RESEARCH + *HEALTH PHYSICS TRAINING

13-34648 ALSO IN CATEGORY 15
NFS - QUARTERLY REPORT FOR JANUARY 1, 1969 THROUGH MARCH 31, 1969
NUCLEAR FUEL SERVICES, INC., WEST VALLEY, N.Y.
14 PAGES, 7 TABLES, LETTER TO DML TRANSMITTING QUARTERLY REPORT, APRIL 28, 1969, DOCKET 50-201

COVERS OPERATIONS, UNPLANNED SHUTDOWNS, WASTE MANAGEMENT, FACILITY PERFORMANCE, AND MODIFICATIONS DURING REPORT PERIOD AS REQUIRED BY PROVISIONAL OPERATING LICENSE NO. CSF-1.

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

*NFS + *FUEL REPROCESSING + *SOLVENT EXTRACTION PROCESS + *REPORT, OPERATIONS + OPERATING EXPERIENCE + *WASTE MANAGEMENT + *MONITORING PROGRAM, ENVIRONMENTAL + FAILURE, CLADDING + FUEL ELEMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + VENTILATION SYSTEM

13-34657
EMMA LC + JOHNSON R + BARTLETT C + HATCH LP
DISPOSAL OF SOLID WASTES GENERATED IN FLUIDIZED-BED FLUORIDE VOLATILITY FUEL REPROCESSING
BROOKHAVEN NATIONAL LABORATORY, UPTON, NEW YORK
BNL-50139 (T-511) +. 9 PAGES, 1 FIGURE, 5 TABLES, 3 REFERENCES, OCTOBER 1968

SEVERAL METHODS WERE STUDIED FOR TREATMENT OF AL2O3 BED WASTE. OF THESE, DISPERSION OF THE RESIDUAL BED MATERIAL IN GLASS MATRICES WERE CONSIDERED THE MOST PROMISING. THIS PROCESS OF FIXATION IN A STABLE SOLID MASS PROVIDED THE ESSENTIAL PROPERTY OF IMMOBILITY FOR THE INDIVIDUAL PARTICLES AND THEIR ASSOCIATED FISSION PRODUCTS. ALSO, THE END PRODUCT HAD A RELATIVELY HIGH THERMAL CONDUCTIVITY, WHICH WOULD REDUCE THE PROBLEM OF RADIOLYTIC HEAT DISSIPATION IN FINAL STORAGE. OF THE SEVERAL VARIETIES OF GLASS INVESTIGATED, THOSE OF THE SODA-LIME SILICATE COMPOSITIONS APPEAR MOST SUITABLE.

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

*FUEL REPROCESSING + *WASTE DISPOSAL, GENERAL + *VOLATILITY PROCESS + *FLUIDIZED BED + FLUORIDE + *WASTE DISPOSAL, SOLID + GLASS + ALUMINUM + RADIOLYTIC GAS + FISSION PRODUCT RETENTION

13-34674 ALSO IN CATEGORY 12
SCHMITT DH
FINAL TECHNICAL REPORT, APRIL - JUNE 1968, EXAMINATION OF FAST REACTOR FUELS
BABCOCK AND WILCOX COMPANY, NUCLEAR DEVELOPMENT CENTER, LYNCHBURG, VIRGINIA
BAW-3968-1 +. 125 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

TO DETERMINE THE CAPABILITIES OF THE BABCOCK AND WILCOX ANALYTICAL LABORATORY TO CHARACTERIZE FFTF FUELS, SINTERED UO2-P2O5-2 PELLETS WERE OBTAINED FROM THE PACIFIC NORTHWEST LABORATORY (PNL). THIS CHARACTERIZATION REQUIRED THE DEVELOPMENT AND STANDARDIZATION OF SEVERAL ANALYTICAL METHODS. RESULTS WERE OBTAINED FOR THE FOLLOWING MEASUREMENTS - ASSAY FOR URANIUM AND PLUTONIUM, ISOTOPIC ASSAY, GAS EVOLUTION, DENSITY, HOMOGENEITY AND SOLID SOLUTION.

AVAILABILITY - RESEARCH AND DEVELOPMENT DIVISION, NUCLEAR DEVELOPMENT CENTER, LYNCHBURG, VIRGINIA

*FABRICATION + *ANALYTICAL TECHNIQUE, GENERAL + *FUEL, PELLET TYPE + URANIUM DIOXIDE + PLUTONIUM DIOXIDE + *FUEL ELEMENT + REACTOR, FAST

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34675
TOLSON GM
MPRE FUEL ELEMENTS - MANUFACTURE, INSPECTION, DRAWINGS, AND SPECIFICATIONS
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-3902 +. 122 PAGES, FIGURES, TABLES, JANUARY 1966

THE MEDIUM POWER REACTOR EXPERIMENT (MPRE) IS A PROTOTYPE OF A BOILING-POTASSIUM REACTOR IN A SINGLE-LOOP NUCLEAR POWER PLANT SUITABLE FOR A VARIETY OF SPACE MISSIONS. THE FUEL ELEMENTS CONSIST OF HIGHLY ENRICHED UO-2 PELLETS IN TYPE 316H STAINLESS STEEL TUBULAR CLADDING. BERYLLIUM OXIDE PELLETS ABOVE THE UO-2 SERVE AS A REFLECTOR AND IN CONJUNCTION WITH A GADOLINIUM ALUMINATE PELLET PROVIDE A THERMAL-NEUTRON SHIELD TO SUPPRESS ACTIVATION OF THE UPPER REGIONS OF THE REACTOR. THE REPORT DESCRIBES THE SPECIFICATIONS, METHODS OF MANUFACTURE AND INSPECTION OF THE COMPONENTS, AND ASSEMBLY AND INSPECTION OF THE FINISHED FUEL ELEMENT. APPENDICES CONTAIN AS-BUILT DRAWINGS AND SPECIFICATIONS AS WELL AS VENDOR MANUFACTURING AND INSPECTION PROCEDURES.

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

*FABRICATION + *URANIUM-235 + URANIUM DIOXIDE + DESIGN CRITERIA + BERYLLIUM + *REACTOR, SPACE + CLADDING + STEEL, STAINLESS + *FUEL ELEMENT

13-34696 ALSO IN CATEGORY 12
BOYD CL + MEYERS DJ + RAMSEY EB
THE FFTF FUEL EXAMINATION FACILITY
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
16 PAGES, 3 FIGURES, 1 TABLE, 10 REFERENCES, PP. 3-18 OF PROCEEDINGS OF THE 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE FUEL EXAMINATION FACILITY OF THE FAST FLUX TEST FACILITY (FFTF) WILL SERVE THE OPERATIONS STAFF AND EXPERIMENTERS WITH A RELIABLE MEANS, UNDER CONTROLLED CONDITIONS, FOR PERFORMING PROMPT NONDESTRUCTIVE EXAMINATION OF EXPERIMENTS AND OTHER COMPONENTS IRRADIATED IN THE FTR. EXAMINATION DATA WILL BE OBTAINED FROM SELECTED EXPERIMENTS THAT REQUIRE REACTOR REINSERTION, AND FROM EXPERIMENTS OR OTHER CORE COMPONENTS WHOSE IRRADIATION IS COMPLETE.

AVAILABILITY - C.L. BOYD + D.J. MEYERS + E.B. RAMSEY, BATTELLE MEMORIAL INSTITUTE PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

*FFTF (TRI) + *REACTOR, GENERAL + HOT CELL + *DESIGN STUDY + *ALPHA FACILITIES + *GAMMA + *EXAMINATION + FUEL ELEMENT + IRRADIATION TESTING + VENTILATION SYSTEM + REMOTE MANIPULATING AND VIEWING + BIBLIOGRAPHY + REACTOR, TEST + REACTOR, FAST + REACTOR, LMCR + CORE COMPONENTS

13-34697
WATSON CD + LOWRIE RS + GREENIER WS + WEST GA + CLINTON SD
HEAD-END PROCESSING OF SPENT LMFBR FUEL
OAK RIDGE NATIONAL LAB., TENN.
20 PAGES, 17 FIGURES, 2 TABLES, 19 REFERENCES, PP. 19-38 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE HEAD-END REPROCESSING STEPS AND EQUIPMENT FOR RECOVERING SPENT LMFBR FUEL AT A RATE OF FIVE METRIC TONS PER DAY WERE INVESTIGATED IN A CONCEPTUAL DESIGN STUDY. THE STEPS, WHICH CONSIST OF RECEIVING, CLEANING STORAGE, DISASSEMBLY, SINGULARIZATION, SHEARING, OXIDATION, AND LEACHING, WERE SCOPED AS TO THE PROBLEMS AND EQUIPMENT INVOLVED AND AS TO THE FEASIBILITY OF CARRYING OUT THE STEPS IN AN ALPHA-GAMMA-CONTAINED FACILITY. THE STUDY SHOWED THAT AN EXTENSIVE DEVELOPMENTAL AND EVALUATION PROGRAM WOULD BE REQUIRED TO ENSURE SATISFACTORY PERFORMANCE OF THE REMOTELY OPERABLE, HIGH-THROUGHPUT CONTINUOUS EQUIPMENT.

AVAILABILITY - C.D. WATSON, OAK RIDGE NATIONAL LAB., P.O. BOX X, OAK RIDGE, TENNESSEE 37830

*FUEL REPROCESSING + REACTOR, LMFBR + *REMOTE MANIPULATING AND VIEWING + *BIBLIOGRAPHY + *DESIGN STUDY + *EQUIPMENT, GENERAL + DISSOLUTION + SOLVENT EXTRACTION PROCESS + FUEL STORAGE

13-34699
ROBINSON RA + SCHAICH RW
CURIUM SOURCE FABRICATION FACILITY
OAK RIDGE NATIONAL LABORATORY, TENN.
7 PAGES, 8 FIGURES, PP. 49-55 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE CURIUM SOURCE FABRICATION FACILITY THAT WAS DESIGNED AT OAK RIDGE NATIONAL LABORATORY FOR PREPARING AND ENCAPSULATING MULTIGRAM QUANTITIES OF CM-242 AND CM-244 IS DESCRIBED. AFTER WORK IN CONNECTION WITH THE SNAP PROGRAM INDICATED THAT AN INERT-ATMOSPHERE CONDITION WOULD BE DESIRABLE BECAUSE OF AN OXIDATION PROBLEM, THE CELLS WERE FIRST TEMPORARILY CONVERTED AND THEN PERMANENTLY CONVERTED TO INERT-ATMOSPHERE UNITS. THE CHANGES THAT WERE INVOLVED ARE DESCRIBED. REPL 34699 ABOUT THE CURIUM SOURCE FABRICATION FACILITY THAT WAS DESIGNED AT OAK RIDGE NATIONAL LABORATORY FOR PREPARING AND ENCAPSULATING MULTIGRAM QUANTITIES OF CM-242 AND CM-244 IS DESCRIBED. AFTER WORK IN CONNECTION WITH THE SNAP PROGRAM INDICATED THAT AN INERT-ATMOSPHERE CONDITION WOULD BE DESIRABLE BECAUSE OF AN OXIDATION PROBLEM, THE CELLS WERE FIRST TEMPORARILY CONVERTED AND THEN PERMANENTLY CONVERTED TO INERT-ATMOSPHERE UNITS. THE CHANGES THAT WERE INVOLVED ARE DESCRIBED.

AVAILABILITY - J.O. LUDLOW, ARGONNE NATIONAL LAB., 9700 S. CASS AVE., ARGONNE, ILLINOIS 60439

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34659 *CONTINUED*

*RADIOISOTOPE + *CURIUM + *FABRICATION FACILITY + *ENERGY SOURCE + SNAP, GENERAL (SR) + CONTAINMENT ATMOSPHERE, INERT + HOT CELL + ORNL + REMOTE MANIPULATING AND VIEWING + TRANSURANIUM PROGRAM + REACTOR, SPACE + ALPHA EMITTER

13-34700

LUDLOW JO + COLEMAN LF + ECKELS TW + GRAAE JE + ROSS LE + SLAWECKI MA
STARTUP-UP OF SHIELDED FUEL EVALUATION FACILITY
ARGONNE NATIONAL LAB., ARGONNE, ILL.

6 PAGES, 7 FIGURES, 1 TABLE, 1 REFERENCE, PP. 56-61 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEM TECHNOLOGY, 1969

A SHIELDED FUEL EVALUATION FACILITY HAS BEEN BUILT FOR STUDIES OF IRRADIATED CERAMIC FUELS REQUIRING A HIGH-PURITY HELIUM ATMOSPHERE. THE SYSTEMS REQUIRED FOR FACILITY OPERATION HAVE BEEN TESTED AND, AFTER SOME CORRECTIONS, OPERATE SATISFACTORILY. REMOTE INSTALLATION OF MANIPULATOR SLAVE ARMS REVEALED SOME NEEDED CHANGES IN HANDLING EQUIPMENT. LIGHTING IN THE FACILITY IS SUFFICIENT FOR A OPERATION. THE FACILITY IS NOW READY FOR A HELIUM ATMOSPHERE AND FINAL LEAK TESTING. REPL 34700 ABSTA SHIELDED FUEL EVALUATION FACILITY HAS BEEN BUILT FOR STUDIES OF IRRADIATED CERAMIC FUELS REQUIRING A HIGH-PURITY HELIUM ATMOSPHERE. THE SYSTEMS REQUIRED FOR FACILITY OPERATION HAVE BEEN TESTED AND, AFTER SOME CORRECTIONS, OPERATE SATISFACTORILY. REMOTE INSTALLATION OF MANIPULATOR SLAVE ARMS REVEALED SOME NEEDED CHANGES IN HANDLING EQUIPMENT. LIGHTING IN THE FACILITY IS SUFFICIENT FOR A OPERATION. THE FACILITY IS NOW READY FOR A HELIUM ATMOSPHERE AND FINAL LEAK TESTING.

AVAILABILITY - J.O. LUDLOW, ARGONNE NATIONAL LAB., 9700 S. CASS AVE., ARGONNE, ILLINOIS 60439

*REACTOR, GENERAL + *IRRADIATION FACILITY + REMOTE MANIPULATING AND VIEWING + *CONTAINMENT ATMOSPHERE, INERT + HELIUM + FUEL ELEMENT + CERAMICS + ANL

13-34701

DEILY GJ

CONVERSION OF SRL BETA-GAMMA CELLS FOR PROCESSING 5 KG OF CM-244

SAVANNAH RIVER LAB., E.I. DU PONT DE NEMOURS AND CO., AIKEN, SOUTH CAROLINA

16 PAGES, FIGURES, TABLES, REFERENCES, PP. 62-77 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

SIX 15-YEAR-OLD BETA-GAMMA CELLS AT THE SAVANNAH RIVER LABORATORY WERE STRUCTURALLY IMPROVED TO PROVIDE ADEQUATE SHIELDING AND CONTAINMENT FOR MATERIALS WITH HIGH ALPHA ACTIVITIES. THE CONCRETE CELL FLOOR WAS REMOVED AND REPLACED WITH A STAINLESS-STEEL FLOOR, NEW ROOF SLABS, VENTILATION SYSTEM, WINDOWS, AND MANIPULATOR PORTS WERE INSTALLED. SATISFACTORY SHIELDING AND CONTAINMENT HAVE BEEN DEMONSTRATED DURING THE FIRST 101 OF A PROGRAM TO PROCESS 5 KG OF CM-244 IN THE CONVERTED CELLS.

AVAILABILITY - G.J. DEILY, SAVANNAH RIVER LABORATORY, E.I. DU PONT DE NEMOURS AND CO., AIKEN, SOUTH CAROLINA 29801

*RADIOISOTOPE + TRANSURANIUM PROGRAM + REMOTE MANIPULATING AND VIEWING + *HELIUM + *ENERGY SOURCE + HOT CELL + *FABRICATION FACILITY + SAVANNAH RIVER PLANT

13-34702

ALSO IN CATEGORY 17

STIMMELL GL + HOWARD NC

OPERATING EXPERIENCE OF GENERAL ELECTRICS ALPHA CELL

GENERAL ELECTRIC CO., VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIF.

5 PAGES, 3 FIGURES, 2 REFERENCES, PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ALPHA CELL AT GENERAL ELECTRICS VALLECITOS NUCLEAR CENTER HAS BEEN OPERATING SUCCESSFULLY SINCE APRIL 1967 WITH NO SHUTDOWNS FOR FACILITY REPAIRS OR MODIFICATIONS. THE DIFFICULTIES ENCOUNTERED DURING THE CELL OPERATION CONSIST OF INCONVENIENCES RESULTING FROM DESIGN LIMITATIONS IMPOSED BY THE EXISTING FACILITY.

AVAILABILITY - G.L. STIMMELL/N.C. HOWARD, GENERAL ELECTRIC COMPANY, VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIFORNIA 94566

*RADIOISOTOPE + *HOT CELL + *OPERATING EXPERIENCE + REMOTE MANIPULATING AND VIEWING + ALPHA EMITTER

13-34703

DOE WB + JACKSON WD

SOME CONTAINMENT BOX EXPERIENCE AT ARGONNE NATIONAL LABORATORY

ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS

5 PAGES, 3 FIGURES, 2 TABLES, 3 REFERENCES, PP. 83-87 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

INERT-GAS CONTAINMENT BOXES WERE USED IN BETA-GAMMA-CAVES FOR HANDLING PLUTONIUM-CONTAINING IRRADIATED FUELS. CALCULATION OF THE TOXICITY OF THE FUEL RELATIVE TO PREVIOUSLY HANDLED URANIUM FUELS SHOWED THERE SHOULD BE LITTLE INCREASE IN HAZARD. POSITIVE GAS PRESSURE WAS THEN USED IN THE BOX TO MAINTAIN ATMOSPHERE PURITY EVEN IN THE PRESENCE OF BOX LEAKS. RADIATION SURVEYS AFTER THIS KIND OF OPERATION SHOWED NEGLIGIBLE ESCAPE OF PLUTONIUM INTO THE CAVE.

AVAILABILITY - W.B. DOE/W.D. JACKSON, ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVENUE, ARGONNE, ILLINOIS

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-347C3 *CONTINUED*
60439

*REACTOR, GENERAL + *CONTAINMENT ATMOSPHERE, INERT + *GLOVE BOX + PLUTONIUM + ANL + REMOTE MANIPULATING AND VIEWING + HOT CELL + FUEL ELEMENT + EXAMINATION + *OPERATING EXPERIENCE + ALPHA FACILITIES

13-347C4 ALSO IN CATEGORY 17
HAMPSON DC + SALES WL + COLEMAN LF
OPERATING EXPERIENCE WITH AN ARGON ATMOSPHERE AT THE FUEL CYCLE FACILITY
ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
21 PAGES, 11 FIGURES, 6 TABLES, 8 REFERENCES, PP. 91-111 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A LARGE (66,000 FT³) ARGON-ATMOSPHERE (95% ARGON, 5% NITROGEN, LESS THAN 100 PPM WATER OR OXYGEN) CELL HAS BEEN OPERATED SUCCESSFULLY IN HIGH RADIATION FIELDS FOR OVER FIVE YEARS WITHOUT HUMAN ACCESS TO THE CELL. SINCE THIS SUCCESSFUL OPERATION IS PARTIALLY A RESULT OF TESTS AND EXPERIMENTS THAT WERE CONDUCTED PRIOR TO AND DURING THE DESIGN PHASE OF THE FACILITY, SUMMARIES OF THESE TESTS ARE INCLUDED WHERE APPROPRIATE.

AVAILABILITY - D.C. HAMPSON, ARGONNE NATIONAL LABORATORY, P.O. BOX 2528, IDAHO FALLS, IDAHO 83401

*FUEL REPROCESSING + *PYROCHEMICAL + NRTS + *OPERATING EXPERIENCE + *CONTAINMENT ATMOSPHERE, INERT + ARGON + DESIGN CRITERIA + REMOTE MANIPULATING AND VIEWING + EQUIPMENT, GENERAL

13-347C6 ALSO IN CATEGORIES 3 AND 12 AND 17
JOHNSON KP + MATTE J
OPERATING EXPERIENCE WITH THE FERMI FUEL HANDLING CASK CAR
POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN + ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN
15 PAGES, 9 FIGURES, PP. 135-149 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY. REPL 347C6 ABST THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY.

AVAILABILITY - K.P. JOHNSON, POWER REACTOR DEVELOPMENT COMPANY, P. O. BOX 725, MONROE, MICHIGAN 48161

*TRANSPORTATION AND HANDLING + *FERMI (LMFBR) + *FUEL HANDLING + *CASK OPERATING EXPERIENCE + FUEL HANDLING MACHINE + OPERATING EXPERIENCE + FAILURE, EQUIPMENT + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

13-347C8 ALSO IN CATEGORY 12
DAVIS JR
EBR-II FUEL HANDLING EQUIPMENT
ARGONNE NATIONAL LAB., IDAHO FALLS, IDAHO
13 PAGES, 10 FIGURES, PP. 161-173 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

OVER SEVEN YEARS OF EXPERIENCE HAS BEEN GAINED WITH THE EBR-II FUEL HANDLING SYSTEM, AND SINCE MAY, 1963, FUEL HANDLING HAS BEEN CONDUCTED IN A HIGH-TEMPERATURE SODIUM ENVIRONMENT. NORMAL PROBLEMS WERE EXPERIENCED, BUT THE HANDLING OF FUEL DURING THIS PERIOD CAN BE CONSIDERED QUITE SUCCESSFUL. MODIFICATIONS TO INCREASE THE PERFORMANCE AND RELIABILITY OF THE FUEL HANDLING EQUIPMENT HAVE BEEN A CONTINUING EFFORT SINCE THE ORIGINAL SYSTEM CHECKOUT.

AVAILABILITY - JOE R. DAVIS, ARGONNE NATIONAL LAB., P.O. BOX 2528, IDAHO FALLS, IDAHO 83401

REACTOR, BREEDER + *FUEL HANDLING + SODIUM + HIGH TEMPERATURE + *OPERATING EXPERIENCE + *FUEL REPROCESSING + *PYROCHEMICAL + EQUIPMENT, GENERAL + STORAGE CONTAINER + *CONTROL SYSTEM + MAINTENANCE, REMOTE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST

13-347I1 ALSO IN CATEGORY 3
MALECHA RF + COLEMAN LF + FINEMAN P + KELECTUS A + SLAWECKI MA
EBR-II INTRASITE SPENT-FUEL SHIPPING CASKS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
7 PAGES, 3 FIGURES, 1 REFERENCES, PP. 205-211 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A CHANGE IN THE STATUS OF THE EXPERIMENTAL BREEDER REACTOR II (EBR-II) FROM AN EXPERIMENTAL REACTOR TO A NEUTRON IRRADIATION FACILITY NECESSITATED THE CONSTRUCTION OF TWO DIFFERENT CASKS. THE LEAD-SHIELDED CASKS ARE TO BE USED TO TRANSFER SPENT FUEL TO AN ON-SITE STORAGE AREA. ONE CASK HAS BEEN DESIGNED AND BUILT WHICH PROVIDES AN WATER-COOLED FUEL CAVITY. THE SECOND CASK IS DESIGNED FOR BOTTOM LOADING AND INCORPORATES AN INTEGRAL, TOTALLY ENCLOSED, RECIRCULATING AIR

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34711 *CONTINUED*
COOLING SYSTEM FOR THE FUEL.

AVAILABILITY - R.F. MALECHA, ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVENUE, ARGONNE, ILLINOIS 60439

*TRANSPORTATION AND HANDLING + *SHIPPING CONTAINER + *DESIGN CRITERIA + REACTOR, BREEDER + REACTOR, LMCR + REACTOR, FAST

13-34712
EVANS EA + HANSON JE + CUNNINGHAM GW
TRENDS IN IRRADIATED FUELS AND MATERIALS EXAMINATION
BATTELLE MEMORIAL INST., PACIFIC NORTHWEST LAB., RICHLAND, WASHINGTON + U.S. ATOMIC ENERGY COMMISSION,
WASHINGTON, D.C.
3 PAGES, PP. 215-217 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

REFLECTIONS ON THE TRENDS IN IRRADIATED FUELS AND MATERIALS EXAMINATIONS SHOW THAT POST-IRRADIATION EXAMINATIONS ARE BECOMING MORE COMPLICATED, AND MORE DETAIL AND PRECISION ARE CONTINUOUSLY BEING DEMANDED FROM THEM. BECAUSE WE ARE ON THE THRESHOLD OF A DRAMATIC INCREASE IN THE SHEER NUMBER OF VERY WELL CHARACTERIZED FUEL AND MATERIAL SPECIMENS, CONSIDERABLE THOUGHT AND EMPHASIS MUST BE GIVEN TO REMOTE SYSTEMS TECHNOLOGY TO OBTAIN THE MAXIMUM INFORMATION FROM THESE IRRADIATION EXPERIMENTS.

AVAILABILITY - E.A. EVANS, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., P.O. BOX 999, RICHLAND, WASHINGTON 99352

*REACTOR, GENERAL + *IRRADIATION TESTING + *HOT CELL + MEASUREMENT, GENERAL + CONTAINMENT ATMOSPHERE, INERT + REMOTE MANIPULATING AND VIEWING

13-34714
ELLIOTT DE + TORBERT JF
RADIOGRAPHIC INSPECTION OF IRRADIATED FUEL ELEMENTS USING THE 22-MEV BETATRON
LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO
6 PAGES, 7 FIGURES, 6 REFERENCES, PP. 222-227 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

RADIOGRAPHIC TECHNIQUES FOR THE INSPECTION OF RADIOACTIVE REACTOR FUEL ELEMENTS HAVE BEEN DEVELOPED AND APPLIED OVER THE PAST SIX YEARS. THE 22-MEV ALLIS-CHALMERS BETATRON HAS PROVED TO AN EXCELLENT SOURCE FOR THIS RADIOGRAPHY. THE PROCEDURE PRODUCES BETTER RADIOGRAPHIC RESOLUTION THAN HAS BEEN DEVELOPED IN NEUTRON RADIOGRAPHY BUT CANNOT BE USED ON ASSEMBLIES WITH AS HIGH GAMMA ACTIVITY.

AVAILABILITY - D.E. ELLIOTT + J.F. TORBERT, LOS ALAMOS SCIENTIFIC LABORATORY, P.O. BOX 1663, LOS ALAMOS, NEW MEXICO 87544

*REACTOR, GENERAL + *IRRADIATION TESTING + *RADIOGRAPHY + *FUEL ELEMENT + TEST, NONDESTRUCTIVE + LASL

13-34715
HOLM DM + SANDERS WM + PARKER JL + COWAN HD
EXAMINATION OF FAST REACTOR FUEL ELEMENTS WITH A GE(LI) ANTICOINCIDENCE GAMMA-RAY SPECTROMETER
LOS ALAMOS SCIENTIFIC LABORATORY, P.O. BOX 1663, LOS ALAMOS, NEW MEXICO 87544
15 PAGES, 24 FIGURES, 1 TABLE, 4 REFERENCES, PP. 228-242 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE DISTRIBUTIONS OF INDIVIDUAL ISOTOPES IN IRRADIATED FAST REACTOR FUEL ELEMENTS HAS BEEN MEASURED BY GAMMA SCANNING WITH A GE(LI) ANTICOINCIDENCE DETECTOR SYSTEM. COMPLEX GAMMA-RAY SPECTRA FROM KNOWN REGIONS ON THE SAMPLES ARE ANALYZED ON A DIGITAL COMPUTER TO DETERMINE THE AREAS OF THE INDIVIDUAL FULL-ENERGY PEAKS. THE PEAK AREAS FROM EACH ISOTOPE ARE PLOTTED AS A FUNCTION OF POSITION ON THE SAMPLE. TEST FUEL FOR A LIQUID-PLUTONIUM REACTOR, EBR-II DRIVER FUEL, AND A DISK SAMPLE FROM AN OXIDE FAST REACTOR TEST FUEL WERE EXAMINED.

AVAILABILITY - DALE M. HOLM, LOS ALAMOS SCIENTIFIC LABORATORY, P.O. BOX 1663, LOS ALAMOS, NEW MEXICO 87544

*REACTOR, GENERAL + *SPECTROMETRY, GAMMA + *IRRADIATION TESTING + *FUEL ELEMENT + REACTOR, FAST + LASL

13-34716 ALSO IN CATEGORY 3
NATESH R + KOPROWSKI BJ + BUTLER EM + DONAHUE DA
TRANSFER AND ANALYSIS OF HIGHLY RADIOACTIVE MATERIALS IN A SHIELDED ELECTRON MICROPROBE
ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
10 PAGES, 12 FIGURES, 2 TABLES, 1 REFERENCES, PP. 243-252 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A PNEUMATIC TRANSFER SYSTEM HAS BEEN DESIGNED AND BUILT TO PROVIDE RAPID AND SAFE TRANSPORTATION FOR HIGHLY RADIOACTIVE BULK SAMPLES FROM A HOT-CELL STORAGE AREA TO A SHIELDED ELECTRON MICROPROBE. REMOTE SPECIMEN TRANSFER CAN BE ACCOMPLISHED BY THE MICROPROBE OPERATOR IN LESS THAN TWO MINUTES. EXPERIMENTS HAVE BEEN PERFORMED ON SPECIMENS OF IRRADIATED UO₂-PUO₂ FUEL IN THE SHIELDED PROBE TO DETERMINE THE CORRECTIONS FOR BACKGROUND RADIATION.

AVAILABILITY - R. NATESH, ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVENUE, ARGONNE ILLINOIS 60439

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34716 *CONTINUED*

*TRANSPORTATION AND HANDLING + *ELECTRON MICROSCOPY + *EQUIPMENT, GENERAL + *REACTOR, GENERAL + *IRRADIATION TESTING + FUEL ELEMENT + HOT CELL

13-34717

DEMASTRY JA + PETERSON SL + SHECKHERD JW

REMOTE MECHANICAL PROPERTY STUDIES OF FAST REACTOR MATERIALS

BATTELLE MEMORIAL INSTITUTE, COLUMBUS, OHIO

8 PAGES, 15 FIGURES, 3 REFERENCES, PP. 253-260 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

BATTELLE-COLUMBUS HAS DEVELOPED A NEW MECHANICAL TESTING FACILITY FOR USE IN STUDYING THE BEHAVIOR OF CLADDING AND STRUCTURAL MATERIALS. THIS FACILITY IS EQUIPPED TO STUDY TENSILE, STRESS RUPTURE, CREEP, FATIGUE, TUBE PRESSURIZATION, FRACTURE MECHANICS, AND INSTRUMENTED IMPACT PROPERTIES OVER A WIDE RANGE OF TEMPERATURES. EXAMPLES OF DATA OBTAINED FROM RECENT PROGRAMS ARE PRESENTED.

AVAILABILITY - J.A. DEMASTRY, BATTELLE MEMORIAL INSTITUTE, 505 KING AVENUE, COLUMBUS, OHIO

*REACTOR, GENERAL + *IRRADIATION TESTING + *HOT CELL + *TESTING + *CLADDING + STRESS RUPTURE + CREEP + OPERATING EXPERIENCE + MATERIAL + TENSILE PROPERTY + FRACTURE TOUGHNESS

13-34718

BARKER RW

A SYSTEM FOR BIAXIAL STRESS TESTING OF IRRADIATED FUEL CLADDING IN LIQUID-METAL OR GASEOUS ENVIRONMENTS

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

6 PAGES, 6 FIGURES, 6 REFERENCES, PP. 261-266 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE SYSTEM DESCRIBED IN THIS PAPER IS DESIGNED TO MEASURE THE STRESS-TO-RUPTURE PROPERTIES OF IRRADIATED FUEL CLADDING MATERIAL UNDER BIAXIAL TEMPERATURES FROM 427 TO 816 C (800 TO 1500 F) IN SODIUM AND IN INERT GAS WITH RUPTURE TIMES RANGING FROM 0.1 TO 10,000 HR. THE TESTING COMPLEX CONSISTS OF A SERIES OF LOW-COST TEST RIGS WHICH CONTAIN THE SPECIMEN AND TEST ENVIRONMENT. FORTY-EIGHT CONCURRENT TESTS MAY BE CONDUCTED IN SIX FURNACES.

AVAILABILITY - R.W. BARKER, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

*REACTOR, GENERAL + *IRRADIATION TESTING + *CLADDING + *STRESS RUPTURE + FUEL ELEMENT + EXPERIMENT, GENERAL

13-34719

HUNTER DO

ULTRASONIC PROPERTIES MEASUREMENTS ON IRRADIATED STRUCTURAL MATERIALS

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON

7 PAGES, 13 FIGURES, 2 TABLES, 25 REFERENCES, PP. 269-275 OF PROCEEDINGS ON REMOTE SYSTEMS TECHNOLOGY, 1969

REMOTE ULTRASONIC MEASUREMENTS HAVE BEEN MADE ON IRRADIATED STEEL. RESULTS ON SPECIMENS IRRADIATED AT TEMPERATURES LESS THAN 350 F INDICATE A FLUENCE DEPENDENCY. RESULTS FOR SOME 304 SPECIMENS IRRADIATED AT TEMPERATURES BETWEEN 700 AND 1000 F ALSO INDICATE A FLUENCE DEPENDENCY BUT MUST BE CONSIDERED PRELIMINARY. ULTRASONIC METHODS APPEAR POTENTIALLY USEFUL FOR ASSESSMENT OF RADIATION DAMAGE IN REACTOR SURVEILLANCE SPECIMENS. ADDITIONAL USEFULNESS MAY DEVELOP AS A SUPPLEMENTARY TOOL IN ASSESSING THE NATURE OF RADIATION DAMAGE AND RECOVERY IN STEEL SPECIMENS.

AVAILABILITY - D.O. HUNTER, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

*REACTOR, GENERAL + BIBLIOGRAPHY + *IRRADIATION TESTING + *MATERIAL + STEEL + EXAMINATION + *TEST, NONDESTRUCTIVE

13-34720

BRENDEN BB + HILDEBRAND BP

THE POTENTIAL OF HOLOGRAPHY FOR IRRADIATED MATERIALS EXAMINATION

BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON

6 PAGES 11 FIGURES, 22 REFERENCES, PP. 289-294 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

HOLOGRAPHY IS AN IMAGING TECHNIQUE THAT PERMITS INTERFEROMETRIC COMPARISONS OF A DIFFUSELY REFLECTING OBJECT OF COMPLEX CONFIGURATION WITH THE SAME OBJECT UNDER A DIFFERENT STRESS LOADING FOR PURPOSES OF STUDYING THE DISTRIBUTION OF STRAIN. HOLOGRAPHY HAS ALSO BEEN APPLIED WITH CONSIDERABLE SUCCESS TO ACOUSTICAL IMAGING. THE PROGRESS OF STRESS-CORROSION CRACKING CAN BE STUDIED BY APPLICATION OF A COMBINATION OF HOLOGRAPHIC INTERFEROMETRY, ACOUSTICAL HOLOGRAPHY, AND ACOUSTICAL EMISSION TECHNIQUES.

AVAILABILITY - B.B. BRENDEN/B.P. HILDEBRAND, BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LABORATORY, P.O. BOX 999, RICHLAND, WASHINGTON 99352

*REACTOR, GENERAL + *IRRADIATION TESTING + *TEST, NONDESTRUCTIVE + STRESS + CORROSION + BIBLIOGRAPHY

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34721

WATERBURY GR + METZ CF

CHARACTERIZING COMPOSITIONS OF IRRADIATED FUEL AT OPERATING TEMPERATURES--FUTURE NEEDS

LOSS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO

6 PAGES, 5 FIGURES, 1 TABLE, 3 REFERENCES, PP. 295-300 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE CAPABILITIES TO CHARACTERIZE THE COMPOSITIONS OF IRRADIATED FUELS ARE EXTENSIVE AND HAVE NOT LAGGED VERY FAR BEHIND THE NEEDS. FUTURE REQUIREMENTS MUST BE DEFINED TO STIMULATE WORK THAT WILL PROVIDE THE NECESSARY NEW ANALYTICAL TECHNIQUES AND METHODS. ONE REAL CHALLENGE IS THE EXAMINATION AND ANALYSIS OF IRRADIATED FUELS AT REACTOR OPERATING TEMPERATURES. THIS AND OTHER DEVELOPING PROBLEM AREAS ARE DISCUSSED TO PROVOKE CONSIDERATION OF FUTURE NEEDS.

AVAILABILITY - GLENN R. WATERBURY + CHARLES F. METZ, LOS ALAMOS SCIENTIFIC LABORATORY, P.O. BOX 1663, LOS ALAMOS, NEW MEXICO 87544

*REACTOR, GENERAL + *IRRADIATION TESTING + *FUEL ELEMENT + *CLADDING + HIGH TEMPERATURE + *PROPERTY, PHYSICAL + *CHEMICAL PROPERTY + EXPERIMENT, GENERAL

13-34749

ALSO IN CATEGORIES 5 AND 12

TRUPP AC

FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER - A DYNAMICISTS VIEW

WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA

AECL-3185 +. 20 PAGES, 7 FIGURES, 18 REFERENCES, JUNE 1968

THE REPORT PRESENTS A FEW EXPERIMENTAL OBSERVATIONS ON TYPICAL SOLIDS MOTION FROM WHICH CERTAIN GENERAL CONCLUSIONS ARE DRAWN REGARDING THE CONVECTIVE HEAT TRANSFER COEFFICIENT PERTINENT TO FUEL DESIGN FOR A LIQUID FLUIDIZED BED NUCLEAR REACTOR. THE AVAILABLE LITERATURE IS THEN REVIEWED AND THE THREE MAIN PUBLISHED CORRELATIONS ARE SHOWN TO DISAGREE. THE MOST PROBABLE REASONS FOR THE DISCREPANCIES ARE OUTLINED. AN EXPLANATION IS SUGGESTED TO ACCOUNT FOR THE APPARENT MAXIMA IN FLUIDIZED PARTICLE-TO-LIQUID HEAT TRANSFER COEFFICIENTS AT BED POROSITIES OF ABOUT 70%. FURTHER EXPERIMENTAL HEAT TRANSFER WORK IS STRONGLY RECOMMENDED.

AVAILABILITY - A.C. TRUPP, WHITESHELL NUCLEAR RESEARCH ESTABLISHMENT, PINAWA, MANITOBA, CANADA

CANADA + *FUEL REPROCESSING + *FUEL CONVERSION + *ORE CONVERSION + HEAT TRANSFER + THEORETICAL INVESTIGATION + *REACTOR, GENERAL + FLUIDIZED BED VOLATILITY PROCESS

13-34750

LORENZEN K + -

SPECIAL EQUIPMENT OF THE INSTITUTE FOR RADIOCHEMISTRY OF TECHNISCHE HOCHSCHULE MUNCHEN. PART I HOT LABORATORY

INSTITUTE FUR RADIOCHEMIE DER TECHNISCHE HOCHSCHULE MUNCHEN

BMWF-FEK-68-57 +. 12 PAGES, 11 FIGURES, 2 REFERENCES, DECEMBER 1968

THE INSTITUTE FOR RADIOCHEMISTRY OF TECHNISCHE HOCHSCHULE MUNCHEN WAS FITTED OUT WITH A HOT LABORATORY FOR INVESTIGATIONS WITH HIGH ACTIVITIES, IT WAS PROJECTED IN 1959/60 AND CONSTRUCTED FROM 1962 TO 1965. THE EQUIPMENT AND INSTALLATIONS FOR THE PERFORMANCE OF INVESTIGATIONS WITH STRONG RFTA-ACTIVE MATERIALS WERE INSTALLED SUBSEQUENTLY. PLANNING AND CONSTRUCTION OF THE HOT LAB INCLUDING SPECIAL EQUIPMENT ARE POINTED OUT.

*RADIOISOTOPE + *EQUIPMENT, GENERAL + *ALPHA FACILITIES

13-34758

ALSO IN CATEGORY 12

NELSON RS

THE STABILITY OF GAS BUBBLES IN AN IRRADIATION ENVIRONMENT

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, BERKSHIRE

AERE-R-5915 +. 12 PAGES, 10 REFERENCES, OCTOBER 1968

THE DYNAMIC RE-SOLUTION OF SMALL GAS BUBBLES IN UO₂ IS DISCUSSED IN SOME DETAIL, BOTH FOR CONDITIONS WHEN THE DISSOLVED GAS CAN AND CANNOT DIFFUSE BACK INTO THE BUBBLES. IN ACCORD WITH EXPERIMENTAL OBSERVATIONS, THE MODEL PREDICTS THAT THE BUBBLE NUCLEATION DENSITY IS VIRTUALLY INDEPENDENT OF BOTH THE IRRADIATION TEMPERATURE AND THE FISSION RATE. FURTHER, THE MODEL ENABLES THE FRACTION OF GAS IN DYNAMIC SOLUTION AND THE FRACTION OF GAS CONTAINED WITHIN BUBBLES TO BE CALCULATED FOR DIFFERENT IRRADIATION TEMPERATURES

AVAILABILITY - SCIENTIFIC ADMINISTRATION OFFICE, ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, DIDCOT, BERKSHIRE, ENGLAND

*REACTOR, GENERAL + *FUEL REPROCESSING + *BUBBLE + *BUBBLE NUCLEATION + URANIUM DIOXIDE + IRRADIATION TESTING + FISSION PRODUCT RETENTION + UNITED KINGDOM

13-34786

GROSVEAUX DE + WINSCH IC + MILLER WE + BERNSTEIN GJ + PIERCE RD

DESIGN AND APPLICATION OF CORROSION-RESISTANT HEATED TRANSFER TUBES FOR LIQUID METALS AND SALTS

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

ANL - 7522 +. 15 PAGES, 8 FIGURES, 2 TABLES, 8 REFERENCES, DECEMBER, 1968

PYROCHEMICAL PROCESSES UNDER DEVELOPMENT AT ARGONNE NATIONAL LABORATORY USE LIQUID METALS AND

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-34786 *CONTINUED*

MOLTEN HALIDE SALTS AS SOLVENTS TO SEPARATE MOLTEN FUEL MATERIALS FROM EACH OTHER AND FROM FISSION PRODUCTS. THESE SOLVENTS ARE MOVED BETWEEN PROCESS VESSELS BY PRESSURE-TRANSFERRING THROUGH RESISTANCE-HEATED TRANSFER TUBES OPERATING AT TEMPERATURES UP TO 850 DEGREES CENTIGRADE. THE TRANSFER TUBES ARE J- OR U- SHAPED AND ARE FABRICATED FROM GUN-DRILLED MOLYBDENUM-30 W/O TUNGSTEN BAR STOCK. THE TUBES ARE SHAPED BY HOT-BENDING THEM IN A JIG.

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

*FUEL REPROCESSING + *PYROCHEMICAL + *LIQUID FUEL + TUBING + CORROSION + *MOLTEN FUEL + DESIGN STUDY + EXPERIMENT, GENERAL

13-34894

ANDERSON JW + BOLT SE + CHANDLER JM
SAFETY ANALYSIS FOR THE THORIUM-URANIUM RECYCLE FACILITY
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
ORNL-4278 +. 158 PAGES, FIGURES, TABLES, REFERENCES, MAY, 1969

THIS REPORT PRESENTS A SAFETY ANALYSIS FOR THE THORIUM-URANIUM RECYCLE FACILITY AND THE PROPOSED OPERATIONS AND PROCEDURES. THE TOPICS COVERED ARE - (1) A DESCRIPTION OF THE BUILDING AND BUILDING SERVICES, THE CELL BANK PROCESSING AREA, AND PROCESS SERVICES, WITH SPECIAL EMPHASIS ON PROVISIONS FOR CONTAINMENT OF HAZARDOUS MATERIALS, (2) PROVISIONS FOR HANDLING LIQUID AND GASEOUS WASTE, (3) CONTAINMENT AND SAFEGUARDS FOR PROCESSING RADIOACTIVE MATERIALS, (4) OPERATING SAFEGUARDS, (5) CONTROL OF PERSONNEL EXPOSURE, AND (6) RADIATION CONTAMINATION CONTROL.

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

*FUEL ELEMENT + *FUEL REPROCESSING + *FABRICATION + *THORIUM + *URANIUM + *SAFETY ANALYSIS + ORNL + CONTAINMENT ANALYSIS + WASTE MANAGEMENT + WASTE TREATMENT, LIQUID + WASTE TREATMENT, GAS + RADIATION SAFETY AND CONTROL + CRITICALITY SAFETY + PROCEDURES AND MANUALS

13-35038

ALSO IN CATEGORY 12

PAULSON WA + SPRINGBORN RH
ESTIMATION OF FISSION-PRODUCT GAS PRESSURE IN URANIUM DIOXIDE CERAMIC FUEL ELEMENTS
NASA, LEWIS RESEARCH CENTER, CLEVELAND, OHIO
NASA-TN-D-4823 +. 29 PAGES, 8 FIGURES, 6 TABLES, 19 REFERENCES, NOVEMBER, 1968

FISSION-PRODUCT GAS PRESSURE IN MACROSCOPIC VOIDS WAS CALCULATED OVER THE TEMPERATURE RANGE OF 1000 TO 2500 K FOR CLAD URANIUM DIOXIDE FUEL ELEMENTS OPERATING IN A FAST NEUTRON SPECTRUM. THE CALCULATED FISSION-PRODUCT YIELD FOR URANIUM-233 AND URANIUM-235 USED IN THE PRESSURE CALCULATIONS WERE BASED ON EXPERIMENTAL DATA COMPILED FROM VARIOUS SOURCES. THE CONTRIBUTIONS OF CESIUM, RUBIDIUM, AND OTHER CONDENSIBLE FISSION PRODUCTS ARE INCLUDED WITH THOSE OF THE GASES XENON AND KRYPTON. AT LOW TEMPERATURES, XENON AND KRYPTON ARE THE MAJOR CONTRIBUTORS TO THE TOTAL PRESSURE. AT HIGH TEMPERATURES, HOWEVER, CESIUM AND RUBIDIUM CAN MAKE A CONSIDERABLE CONTRIBUTION TO THE TOTAL PRESSURE.

*REACTOR, GENERAL + *REACTOR, POWER + *REACTOR, FAST + *FISSION PRODUCT RETENTION + PRESSURE, INTERNAL + CESIUM + RUBIDIUM + KRYPTON + URANIUM DIOXIDE + URANIUM-233 + URANIUM-235 + THEORETICAL INVESTIGATION + COMPARISON, THEORY AND EXPERIENCE + *FUEL ELEMENT + *FUEL REPROCESSING + XENON

13-35041

SMITH CF
NONGASEOUS RADIOISOTOPES -- PROJECT GASBUGGY CHIMNEY GAS
UNIVERSITY OF CALIFORNIA, LAWRENCE RADIATION LAB, LIVERMORE, CALIFORNIA
VCRL-50634 +. 8 PAGES, 4 TABLES, 6 REFERENCES, APRIL 7, 1969

THE POSSIBILITY THAT PROJECT GASBUGGY CHIMNEY GAS MIGHT CONTAIN VOLATILE ORGANOMETALLIC OR HYDRIDE COMPOUNDS OF FISSION PRODUCT IODINE, ANTIMONY, TIN, TELLURIUM, AND RUTHENIUM HAS BEEN INVESTIGATED. NO EVIDENCE FOR THE PRESENCE OF ANY GAMMA-EMITTING RADIONUCLIDES WAS FOUND EXCEPT FOR RARE GASES.

AVAILABILITY - C. F. SMITH, LAWRENCE RADIATION LABORATORY, LIVERMORE, CALIFORNIA

*RADIOISOTOPE + *EXCAVATION, NUCLEAR + STRONTIUM + CESIUM + TESTING + NOBLE GAS

13-35042

ALSO IN CATEGORY 12

CALDWELL CS + ZAMBERNARD MJ
DEVELOPMENT AND TESTING OF PUO2-UO2 FAST REACTOR FUELS FIFTEENTH QUARTERLY REPORT - OCTOBER-DECEMBER 1968
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
NUMEC-3524-62 +. 47 PAGES, FIGURES, TABLES, APRIL 1969

FUEL FABRICATION TECHNIQUES, CONTROL OF FABRICATION VARIABLES AND IRRADIATION BEHAVIOR ARE AN INHERENT PART OF THE PROGRAM. FUEL PRODUCTION IN QUANTITIES SUFFICIENT TO BE MEANINGFUL IS A SIGNIFICANT ASPECT OF THIS WORK WITH IRRADIATION TESTING SERVING AS THE ULTIMATE CRITERION. FABRICATION AND IRRADIATION TESTING OF A STATISTICALLY SIGNIFICANT NUMBER OF PROTOTYPIC FUEL RODS HAS ALSO BEEN INCLUDED IN THE PROGRAM TO PROVIDE FUEL PERFORMANCE DATA FOR THE FFTF PROJECT.

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-35042 *CONTINUED*

*FABRICATION + *REACTOR, FAST + TESTING + FUEL ELEMENT + PLUTONIUM DIOXIDE + URANIUM DIOXIDE + *IRRADIATION TESTING + QUALITY ASSURANCE + OXIDE + *NUMEC + FUEL, PELLET TYPE + GAMMA + CESIUM + ZIRCONIUM + NIOBIUM + FUEL, METALLIC TYPE + OXYGEN + *EXPERIMENT, GENERAL + EBR 1 AND 2 (RE)

13-35043 ALSO IN CATEGORY 12

DEVELOPMENT AND TESTING OF PUO2-UO2 FAST REACTOR FUELS - 14TH QUARTERLY REPORT - JULY-SEPTEMBER 1968
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.

NUMEC-3524-58 +. 18 PAGES, FIGURES, TABLES, MARCH 1969

FUEL FABRICATION TECHNIQUES, CONTROL OF FABRICATION VARIABLES AND IRRADIATION BEHAVIOR ARE AN INTERENT PART OF THE PROGRAM. FUEL PRODUCTION IN QUANTITIES SUFFICIENT TO BE MEANINGFUL IS A SIGNIFICANT ASPECT OF THIS WORK WITH IRRADIATION TESTING SERVING AS THE ULTIMATE CRITERION. FABRICATION AND IRRADIATION TESTING OF A STATISTICALLY SIGNIFICANT NUMBER OF PROTOTYPIC FUEL RODS HAS ALSO BEEN INCLUDED IN THE PROGRAM TO PROVIDE FUEL PERFORMANCE DATA FOR THE FFTF PROJECT.

*FABRICATION + *REACTOR, FAST + TESTING + *FUEL ELEMENT + PLUTONIUM DIOXIDE + URANIUM DIOXIDE + *IRRADIATION TESTING + OXIDE + *NUMEC + FUEL, PELLET TYPE + GAMMA + CESIUM + ZIRCONIUM + NIOBIUM + FUEL, METALLIC TYPE + OXYGEN + *EXPERIMENT, GENERAL + *QUALITY ASSURANCE

13-35044 ALSO IN CATEGORY 12

LEE WT

CORROSION OF TYPE 18/18/2 STAINLESS STEEL IN 1200 DEGREE F. STATIC SODIUM
LMC-69-11 +. 35 PAGES, 13 FIGURES, 2 TABLES, 12 REFERENCES, MAY 15, 1969

TO DETERMINE THE DEGREE OF CORROSION OR OTHER DEGRADATION THAT TYPE 18-18-2 STAINLESS STEEL (CR-NI-SI) WOULD EXPERIENCE IN A SODIUM ENVIRONMENT, 18 COUPONS WERE IMMERSSED IN 1200 F STATIC SODIUM FOR PERIODS UP TO 5060 HR. IN ADDITION, 12 TYPE 304 STAINLESS STEEL TABS WERE SIMULTANEOUSLY EXPOSED FOR COMPARISON. THE AVERAGE OXYGEN IMPURITY IN THE SODIUM WAS ABOUT 30 PPM. THE RESULTS OF THESE PRELIMINARY TESTS SHOW THAT TYPE 18-18-2 STAINLESS STEEL IS SUFFICIENTLY CORROSION-RESISTANT IN 1200F SODIUM TO WARRANT MORE THOROUGH EVALUATION.

*FUEL REPROCESSING + *REACTOR, LMFBR + *CORROSION + *SODIUM + *STEEL, STAINLESS + EXPERIMENT, GENERAL + TESTING + HIGH TEMPERATURE

13-35148 ALSO IN CATEGORIES 7 AND 12

WILHELM JG

TESTING OF IODINE FILTERS FOR NUCLEAR INSTALLATIONS

GESELLSCHAFT FÜR KERNFORSCHUNG

20 PAGES, 7 FIGURES, 4 TABLES, 4 REFERENCES, NOVEMBER, 1968

FOR STANDARD LABORATORY ADSORBER TESTS A METHOD IS DISCUSSED FOR HUMIDIFICATION AND CONTROL OF GAS STREAMS UP TO 100% R.H. AT ELEVATED TEMPERATURES. APPARATUS DESCRIBED. EXPERIMENTAL DATA ARE GIVEN FOR THE REMOVAL EFFICIENCY AND THE ADSORPTION OF WATER IN CHARCOAL SAMPLES FROM LONG-TIME TESTS UNDER 100% R.H. THE OVERALL TEST PERIOD WAS UP TO 98 H, SIMULATING THE PHASE OF ELEVATED PRESSURE AND, THEREFORE, HIGH IODINE RELEASE FROM THE REACTOR CONTAINMENT. THE REPRODUCIBILITY OF LONG-TIME TESTS UNDER EXTREMELY HIGH RELATIVE HUMIDITY IS SHOWN AND DISCUSSED. A DESCRIPTION OF THE HARDWARE FOR IN-PLACE TESTS IS INCLUDED. RESULTS ARE GIVEN.

GERMANY + KARLSRUHE + *FUEL REPROCESSING + *FILTER + FILTRATION + TESTING + CHARCOAL + *EXPERIMENT, GENERAL + *REACTOR, POWER

13-35165 ALSO IN CATEGORY 12

IWASAKI M + SAKURAI T + ISHIKAWA N + KOBAYASHI Y + C

OXIDATION PULVERIZATION OF UO2 PELLETS

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

JAERI-1174 +. 9 PAGES, 10 FIGURES, 1 TABLE, 9 REFERENCES, MARCH 1969

THE RELATIONSHIP BETWEEN THE CONDITION OF THE OXIDATIVE PULVERIZATION OF UO2 PELLET IN AIR AND THE PROPERTIES OF THE RESULTING POWDER, U3O8 WAS INVESTIGATED. THE PELLETS, SINTERED IN VACUUM AT 1450C, WERE OXIDIZED IN AIR IN A MUFFLE FURNACE AT TEMPERATURES BETWEEN 400 AND 800 C. THE PARTICLE SIZES DISTRIBUTED OVER A RANGE LESS THAN 10 MICRONS FOR THE POWDERS PRODUCED BY OXIDATION AT 400 AND 500, WHILE ABOVE 600 C, THE DISTRIBUTION TENDED TO SPREAD OVER A WIDER RANGE EXCEEDING 10 MICRONS. THE SURFACE AREA OF THE PRODUCED POWDER DECREASED WHEN THE POWDER WAS HEATED AT 700 OR 800 C, WITH NO CHANGE IN THE PARTICLE SIZE DISTRIBUTION OF THE POWDER.

JAPAN + *FABRICATION + *REACTOR, POWER + *FUEL, PELLET TYPE + OXIDATION + *URANIUM DIOXIDE + URANIUM OXIDE + *FUEL ELEMENT

13-35167 ALSO IN CATEGORY 12

LEE AKK + JOHNSON EF

THE PREDICTION OF GAS SOLUBILITY IN MOLTEN SALTS

PRINCETON UNIVERSITY, PRINCETON, NEW JERSEY

MATT-643 +. 14 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 1968

A METHOD IS PROPOSED FOR PREDICTING THE SOLUBILITY OF GASES IN MOLTEN SALTS. THE METHOD IS BASED ON AN APPLICATION OF THE SCALED-PARTICLE THEORY AND A THEORY OF CORRESPONDING STATES TO MOLTEN

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-35167 *CONTINUED*
SALTS. CALCULATED VALUES FROM THE PROPOSED SOLUBILITY EQUATION ARE IN GOOD AGREEMENT WITH OBSERVED VALUES.

*REACTOR, MOLTEN SALT + *FUEL REPROCESSING + MATHEMATICAL TREATMENT + COMPARISON, THEORY AND EXPERIENCE + FISSION PRODUCT RETENTION

13-35187 ALSO IN CATEGORY 17
NONCOMPLIANCE WITH LICENSE REQUIREMENTS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO Z. SHAPIRO, NUREG, MARCH 17, 1969

JAN. 1969 INSPECTION SHOWED FOLLOWING NONCOMPLIANCE ITEMS - (1) VALVES ON LINES TO STEAM CONDENSATE TANK, RECYCLE OVERHEAD TANK, AND DRUM LOADING STATION NEAR GLEVE BOX 607 WERE NOT EQUIPPED WITH LOCKS. (2) CRITICALITY EVACUATION DRILL WAS NOT PERFORMED DURING 4TH QTR. OF 1968. (3) WORKERS PROCESSING PLUTONIUM FUEL WERE NOT IN ALL CASES WEARING HAND-MONITORING EQUIPMENT. (4) ADEQUATE SURVEYS IN UNRESTRICTED AREAS THROUGHOUT LEECHBURG FACILITY WERE NOT CONDUCTED DURING 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + SPECIAL NUCLEAR MATERIAL + *FAILURE, ADMINISTRATIVE CONTROL + *PERSONNEL PROTECTIVE DEVICE + *SURVEY, RADIATION, GENERAL + PLUTONIUM + FUEL REPROCESSING

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-28573 ALSO IN CATEGORIES 16 AND 17
LOW LC
NONCOMPLIANCE CITATION
U.S. ATOMIC ENERGY COMMISSION
LETTER TO U.S. RADIUM CORPORATION, SEPT. 19, 1968

A JULY 1968 INSPECTION REVEALED THAT (1) AIRBORNE TRITIUM CONCENTRATION SURVEYS WERE NOT MADE, (2) TRITIUM CONTAMINATION EXCEEDED LIMITS, (3) AIRBORNE RADON CONCENTRATION EXCEEDED LIMITS. IN ADDITION, WE NOTE (A) ROOF AND 3 DIRECTIONS ARE UNRESTRICTED AREAS, SO DIFFUSION CALCULATIONS ARE NOT APPROPRIATE. CALCULATIONS WERE NOT SUPPORTED BY METEOROLOGICAL DATA. (B) EACH STACK WAS CONSIDERED INDIVIDUALLY, THOUGH ALL STACKS MAY BE RELEASING AT SAME TIME. (C) TRITIUM IN IMPINGER WATER SAMPLES AND URINE SAMPLES WERE 30% BELOW ACTUAL CONCENTRATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. 20545 (\$0.25 CENTS/PAGE)

CYLINDER GAS + TRITIUM + RADIUM + RADON + CONTAMINATION + STACK + AIRBORNE RELEASE + DIFFUSION + BYPRODUCT MATERIAL

14-29868 ALSO IN CATEGORY 16
GUDIKSEN PH + FAIRHALL AW + REED RJ
ROLES OF MEAN MERIDIONAL CIRCULATION AND EDDY DIFFUSION IN THE TRANSPORT OF TRACE SUBSTANCES IN THE LOWER STRATOSPHERE
UNIVERSITY OF WASHINGTON
13 PAGES, 8 FIGURES, 2 TABLES, REFERENCES, J. OF GEOPHYSICAL RESEARCH 73(14), PAGES 4461-73 (JULY 15, 1968)

RECENT ESTIMATES OF MEAN MERIDIONAL MOTIONS AND EDDY DIFFUSION COEFFICIENTS IN THE LOWER STRATOSPHERE AND UPPER TROPOSPHERE ARE USED TO STUDY THE ROLES OF MEAN CIRCULATION AND EDDY MIXING IN DETERMINING THE SPREAD OF TUNGSTEN-185 INJECTED INTO THE LOWER STRATOSPHERE IN THE HARDTACK TEST SERIES OF 1958. THE MEAN MERIDIONAL CIRCULATION PLAYS A MINOR ROLE IN THE TRANSPORT PROCESS, ITS CHIEF CONTRIBUTION BEING TO RAISE THE CENTER OF MAXIMUM CONCENTRATION BY 2 TO 3 KM IN THE EQUATORIAL REGION, IN AGREEMENT WITH THE OBSERVATIONS.

COMPARISON, THEORY AND EXPERIENCE + *ATMOSPHERIC DIFFUSION, GLOBAL + ATMOSPHERIC CIRCULATION, GLOBAL + *STRATOSPHERE + TUNGSTEN + *NUCLEAR DETONATION

14-30189 ALSO IN CATEGORY 16
HEALY JW + BAKER RE
RADIOACTIVE CLOUD-DOSE CALCULATIONS
GENERAL ELECTRIC + USAEC, DIVISION OF REACTOR LICENSING
77 PAGES, FIGURES, TABLES, PAGES 301-377 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 7, JULY 1968

THE TECHNIQUES OF RADIATION-DOSE CALCULATION DISCUSSED IN THIS CHAPTER ARE PRESENTED AS AN INTRODUCTION TO SOME OF THE MAJOR ELEMENTS IN THIS FIELD. CONSIDERS THE EFFECTS OF EXTERNAL BETA AND GAMMA RADIATION FROM A PASSING CLOUD AND DOSE FROM INHALED AND INGESTED MATERIALS.

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

DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + INHALATION + INGESTION + CONCENTRATION, GROUND LEVEL + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + ALPHA EMITTER + BETA EMITTER + GAMMA EMITTER + METEOROLOGY

14-30457 ALSO IN CATEGORY 16
HAINES A + MUSGRAVE DC
TRITIUM CONTENT OF ATMOSPHERIC METHANE AND ETHANE
UNIVERSITY OF ARKANSAS, FAYETTEVILLE
7 PAGES, J. GEOPHYS. RES., 73, PAGES 1167-73 (FEB. 15, 1968)

SAMPLES OF LIQUID OXYGEN COLLECTED AT GROUND LEVEL NEAR NEOSHO, MISSOURI, HAVE BEEN PROCESSED FOR RECOVERY OF METHANE, AND THE TRITIUM CONTENT OF THESE SAMPLES IS DISCUSSED IN TERMS OF POSSIBLE SOURCES OF THIS RADIOACTIVITY. THE CONTINUING RELEASE OF LABELED METHANE BY NUCLEAR INDUSTRY IS SUGGESTED BY THE FACT THAT THE T/H RATIO HAS NOT CHANGED APPRECIABLY DURING THE PERIOD 1958 TO 1966, ALTHOUGH THIS INTERVAL IS COMPARABLE TO THE CHEMICAL LIFETIME EXPECTED FOR METHANE IN THE ATMOSPHERE.

*TRITIUM + *ATMOSPHERIC DIFFUSION, CLIMATOLOGY + *AIRBORNE RELEASE + ATMOSPHERIC POLLUTION

14-30459 ALSO IN CATEGORIES 7 AND 16
SMIRNEV LE + KONONOVA LN
URANIUM CONTENT OF ATMOSPHERIC AEROSOLS
4 PAGES, GEOCHEM. INT. 3, PAGES 909-12 (1966)

A STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT 1×10^{-10} TH) G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION. REPL 30459 AB STA STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT 1×10^{-10} TH) G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30455 *CONTINUED*
AEROSOL + *URANIUM + *AIREBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC POLLUTION + ANALYTICAL
TECHNIQUE, AIR + FILTER

14-30471 ALSO IN CATEGORY 7
DALLAGLIO M + GIANNOTTI G
DISTRIBUTION AND CIRCULATION OF BARIUM, RUBIDIUM, STRONTIUM, AND CAESIUM IN NATURAL WATERS AROUND THE CASACCIA
NUCLEAR CENTRE
CNEN, CASACCIA, ITALY
STI/PUB-156 + CONF-670512 +. 24 PAGES, PAGES 34-66 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, FROM
JOINT IAEA/ENEA SYMPOSIUM, VIENNA, INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA, 1967

TO STUDY THE PROBLEM OF GROUND DISPOSAL FOR RADIOACTIVE WASTE IT IS NECESSARY TO HAVE COMPLETE
KNOWLEDGE OF THE LOCAL HYDROLOGY WITH PARTICULAR REFERENCE TO THE VARIOUS HYDROLOGICAL CONDITIONS
AND THE CHEMICAL AND PHYSICAL ENVIRONMENTS THAT MAY BE AFFECTED BY THE NATURAL WATERS. THIS AREA
HAS A VARIETY OF HYDROLOGICAL AND GEOCHEMICAL ENVIRONMENTS, THE STUDY OF WHICH HAS PROVIDED
INFORMATION ON THE MIGRATION AND REGIONS OF RECONCENTRATION OF THE ELEMENTS EXAMINED. THE
RESEARCH WAS ALSO EXTENDED TO INCLUDE BA AND RB BECAUSE OF THE GEOCHEMICAL SIMILARITY BETWEEN
THESE ELEMENTS AND SR AND CS.

*WASTE DISPOSAL, TERRESTRIAL + *WASTE TREATMENT, FIXATION + FISSION PRODUCT TRANSPORT + BARIUM + RUBIDIUM +
STRONTIUM + CESIUM

14-30709
PROCESS FOR SOLIDIFYING RADIOACTIVE WASTES
SOCIETE EUROPEENNE POUR LE TRAITEMENT CHIMIQUE DES COMBUSTIBLES IRRADIES EUROCHEMIC
BRITISH PATENT 1,116,319 +. JUNE 6, 1968

DESCRIBES PROCESS FOR SOLIDIFYING RADIOACTIVE WASTES CONTAINING EITHER WATER-SOLUBLE FLUORIDE OR A
WATER-SOLUBLE MIXTURE OF FLUORIDE AND SULFATE, WITH OR WITHOUT UP TO ABOUT 3 MOLAR EQUIVALENTS OF
NITRATE FOR 1 MOLAR EQUIVALENT OF FLUORIDE AND/OR SULFATE. THE LEACHABILITY OF THE CAKE IS
REDUCED WITH AN IMPERMEABLE AND INSOLUBLE MATERIAL, WHICH ACTS AS A BARRIER BETWEEN THE CAKE AND
THE ENVIRONMENT.

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

*WASTE TREATMENT, FIXATION + WASTE STORAGE + *WASTE DISPOSAL, SOLID + *EVAPORATION + *CHEMICAL REACTION +
*PATENT

14-30917
AECS PLOWSHARE PROGRAM - UNDERGROUND NUCLEAR BLASTS FOR WASTE DISPOSAL
2 PAGES, COM. NAZ. ENERG. NUCL., NOTIZ 14(6), PAGES 70-1 (JUNE 1968)

CONSIDERATION IS BEING GIVEN TO THE USE OF UNDERGROUND NUCLEAR EXPLOSIONS TO CREATE CAVITIES FOR
FINAL DISPOSAL OF WASTES FROM NUCLEAR INDUSTRIES

*WASTE DISPOSAL, GENERAL + *NUCLEAR DETONATION + RADIATION SAFETY AND CONTROL + *PLOWSHARE PROGRAM + *USAEC +
TESTING

14-32421
POTTIER PE
CHEMICAL TREATMENT OF RADIOACTIVE WASTES
COMMISSARIAT A L ENERGIE ATOMIQUE
STI/DOC/10/89 +. 80 PAGES, 17 FIGURES, 4 TABLES, 99 REFERENCES, 1968

THIS IS THE THIRD MANUAL OF THREE COMMISSIONED BY THE IAEA ON THE THREE PRINCIPAL TECHNIQUES USED
IN CONCENTRATING RADIOACTIVE LIQUID WASTES, NAMELY CHEMICAL PRECIPITATION, EVAPORATION AND ION
EXCHANGE. CONTENTS - INTRODUCTION, PRINCIPLES OF COAGULATION-FLOCCULATION AND SEDIMENTATION AND
ASSOCIATED PROCESSES, PROCESSES AND EQUIPMENT, CONDITIONING AND DISPOSAL OF FLOCCULANT SLUDGE,
SAMPLING, LABORATORY WORK, FACTORS GOVERNING THE SELECTION OF PROCESSES, APPENDIX I (GLOSSARY),
APPENDIX II (CONVERSION TABLE). ENTIRELY IN ENGLISH.

*WASTE TREATMENT, LIQUID + *WASTE TREATMENT, ECONOMICS + *CHEMICAL REACTION + SEDIMENT + PRECIPITATION +
SAMPLING + WASTE DISPOSAL, LIQUID + OXIDATION + *EQUIPMENT, GENERAL + *DESIGN CRITERIA + *DECONTAMINATION +
IAEA

14-32678
SHELDRIK MG
DEEP-WELL DISPOSAL - ARE SAFEGUARDS BEING IGNORED
4 PAGES, CHEMICAL ENGINEERING, PAGES 74-77 (APRIL 7, 1969)

THE RAPID GROWTH OF DEEP-WELL DISPOSAL HAS CAUGHT MANY STATES WITHOUT PROPER LAWS. CRITICS CHARGE
THAT USERS SHOW POOR JUDGMENT IN WHAT THEY PUMP DOWN WELLS AND DO NOT TAKE PRECAUTIONS TO PREVENT
GROUNDWATER CONTAMINATION OR GEOLOGIC UPHEAVAL.

*WASTE DISPOSAL, LIQUID + *WASTE DISPOSAL, HYDRAULIC FRACTURING + RADIATION SAFETY AND CONTROL + *STATE
PROGRAM + *CONGRESSIONAL ACTIVITY + RADIATION PROTECTION, ORGANIZATION + GEOLOGICAL CONSIDERATION, GENERAL +

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-32678 *CONTINUED*
HYDROLOGICAL CONSIDERATION, GENERAL + *WATER POLLUTION + *WASTE DISPOSAL, BEDROCK

14-32825
CROCKER MC + BLANK FR
STUDY OF THE POSSIBLE CONTAMINATION OF GROUND WATER
TEXAS AGRICULTURAL AND MECHANICAL UNIV.
SC-CR-68-3678 +. 121 PAGES, 5 FIGURES, SEPTEMBER 1968

RADIOACTIVE MATERIAL IMPACTING ON THE LAND COULD BE LEACHED FROM THE SOIL AND ENTER GROUND-WATER CIRCULATION. THE RADIOACTIVE IONS BEING TRANSPORTED BY GROUND WATER WILL ENTER INTO ION EXCHANGE WITH EARTH MATERIALS TO AN EXTENT DEPENDING UPON THE DISTRIBUTION COEFFICIENT OF THE ION FOR THE EARTH MATERIALS. THIS REPORT DESCRIBES COLUMN EXPERIMENTS DONE TO STUDY THE TRANSPORT OF HIGH CONCENTRATIONS OF IONS AND SUMMARIZES PRIOR COLUMN STUDIES DONE FOR LAWRENCE RADIATION LABORATORY AT LIVERMORE. IT ALSO INCLUDES A SUMMATION OF PROPERTIES OF TYPICAL AQUIFERS OF THE WORLD.

*FALLOUT + *DEPOSITION + SURFACE WATER, NUCLIDE OCCURRENCE + *GROUND WATER, NUCLIDE OCCURRENCE + *SOIL, NUCLIDE OCCURRENCE + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *ION EXCHANGE + TRANSPORT PROPERTY + STRONTIUM + MATHEMATICAL TREATMENT + MODEL TESTING + SIMULATION + LRL + *HYDROLOGICAL CONSIDERATION, GENERAL + GEOLOGICAL CONSIDERATION, GENERAL

14-33103 ALSO IN CATEGORIES 1 AND 15
WOLFE DA + RICE TR
SAFE LEVELS OF RADIOACTIVITY IN AQUATIC ENVIRONMENTS
19 PAGES, FIGURES, TABLES, REFERENCES, SCIENTIA, CIII(9-10), PAGES 469-487 (1968)

AS NUCLEAR ENERGY SUPPLIES EVER-EXPANDING PROPORTIONS OF POWER REQUIREMENTS, THE DOSE OF BACKGROUND RADIATION TO MAN FROM HIS ENVIRONMENT WILL INCREASE. THE CONTINUOUS DISPOSAL OF RADIOACTIVE WASTES INTO AQUATIC ENVIRONMENTS SHOULD BE EVALUATED ON THE BASIS OF LONG-TERM POPULATION EFFECTS FROM CHRONIC EXPOSURE TO LOW-LEVEL RADIATION. IN THIS ARTICLE, WE DISCUSS THE IMPLICATIONS OF RADIOACTIVE WASTE DISPOSAL INTO AQUATIC ENVIRONMENTS, AND CONSIDER THOSE ASPECTS OF RADIATION PHYSIOLOGY, RADIOECOLOGY AND HEALTH PHYSICS USED IN DEVELOPING STANDARDS FOR THE ADEQUATE PROTECTION OF AQUATIC ECOSYSTEMS AND MAN FROM EXCESSIVE RADIATION.

WASTE DISPOSAL, OCEAN + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, LAKE + WASTE DISPOSAL, RIVER + RADIATION SAFETY AND CONTROL + ECOLOGICAL CONSIDERATION + ENVIRONMENTAL CONDITION + REACTOR, POWER + THERMAL POLLUTION + WATER POLLUTION + POPULATION EXPOSURE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, MAN + DIETARY HABIT + PROCEDURES AND MANUALS + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + ICRP + NCRP + FEDERAL RADIATION COUNCIL + DOSE

14-335C1 ALSO IN CATEGORY 16
EISENBUD M
SOURCES OF RADIOACTIVE POLLUTION. VOLUME I
27 PAGES, PAGES 121-47 OF AIR POLLUTION, VOLUME I, NEW YORK, ACADEMIC PRESS, 1968

THE POLLUTION HAZARDS OF VARIOUS TYPES OF NUCLEAR REACTORS ARE TREATED. CUMULATIVE DEPOSITION OF SR-90 AS OF THE END OF 1962 SHOWS THAT THE DEPOSITION IN NORTHERN LATITUDES IS MORE THAN 4 TIMES THAT BELOW THE EQUATOR. THE RELATIVELY NEW POTENTIAL SOURCE OF ATMOSPHERIC RADIOACTIVITY, THE USE OF NUCLEAR ENERGY FOR ROCKET PROPULSION, AND AS A SOURCE OF POWER FOR THE OPERATION OF SATELLITES AND SPACE PROBES, IS DISCUSSED.

AIR + RADIOACTIVITY RELEASE + ATMOSPHERIC DIFFUSION + TRANSPORT PROPERTY + COSMIC RADIATION + ELEMENTS AND ISOTOPES + RADIUM + CONCENTRATION, GROUND LEVEL + TROPOSPHERE + STRATOSPHERE + CARBON + REACTOR, POWER + HAZARD, RELATIVE + DEPOSITION + METEOROLOGY

14-33542 ALSO IN CATEGORIES 5 AND 18
KATO WY + RUSCH GK + DATES LR + TILL CE + VAN DOORNINCK J + CHEEVER CL
FINAL SAFETY ANALYSIS REPORT ON THE USE OF PLUTONIUM IN ZPR-6 AND -9
ARGONNE NATIONAL LAB.
ANL-7442 +. 303 PAGES, FIGURES, TABLES, REFERENCES, JULY 1, 1968

THE ZPR-6 AND -9 ARE SPLIT-TABLE CRITICAL FACILITIES USED FOR STUDY OF FAST-REACTOR PHYSICS SINCE JULY 1963. MODIFICATIONS WERE MADE SO THAT PLUTONIUM MAY BE USED AS FUEL TO PROVIDE EXPERIMENTAL PHYSICS DATA FOR THE LMFBR PROGRAM. THE DESIGN-BASIS ACCIDENT RESULTS IN MELTING AND BURNING 60 KG OF PU AND VAPORIZATION OF 22 KG OF SODIUM. OFF-SITE DOSE FROM NOBLE GASES AND RADIOIODINE ARE - 190 REMS AT 225 METERS AND 13 REMS AT 1500 METERS.

*REPORT, SAR + ZPR 6 (CAF) + ZPR 9 (CAF) + *CRITICAL ASSEMBLY FACILITY + R AND D PROGRAM + REACTOR, LMFBR + *ACCIDENT ANALYSIS + HAZARDS ANALYSIS + *PLUTONIUM

14-33544
BITTEL R
DISCUSSION OF FACTORS PROMOTING THE RADIOACTIVE CONTAMINATION OF CULTIVATED CROPS
CENTRE D ETUDES NUCLEAIRES, FONTENAY-AUX-ROSES
22 PAGES, 3 TABLES, 37 REFERENCES, ANN. AGRON., 16(3), PAGES 265-286 (1965)(IN FRENCH)

PLANTS TAKE UP FROM THE BIOSPHERE RADIOACTIVE ELEMENTS ORIGINATING FROM RADIOACTIVE FALLOUT AND

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-33544 *CONTINUED*

IRRIGATION WATER. THE MECHANISMS OF ABSORPTION ARE THE SAME AS THOSE OPERATING FOR STABLE ELEMENTS IN MINERAL NUTRITION. A PRELIMINARY AND PROBABLY INCOMPLETE INVENTORY OF CRITICAL CROPS INCLUDES A LARGE NUMBER OF PLANTS, SUCH AS MANY VEGETABLE CROPS, POTATO, BEAN, AND SOME FRUITS.

*CONTAMINATION + FALLOUT + WATER, IRRIGATION + *BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, MAN + *ECOLOGICAL CONSIDERATION + *SORPTION + *DEPOSITION + FRANCE

14-33545

BITTEL R + LEHR J

VARIOUS QUALITATIVE ASPECTS OF THE EFFECT OF SOIL ORGANIC MATTER ON THE BEHAVIOUR OF ARTIFICIAL RADIOISOTOPES IN SCIL

CENTRE D ETUDES NUCLEAIRES DE FONTENAY-AUX-ROSES

SM-106/30 +. 17 PAGES, 5 TABLES, 33 REFERENCES, PP. 497-513 OF ISOTOPES AND RADIATION IN SOIL ORGANIC-MATTER STUDIES, IAEA, 1968

WHILE HUMIFIED ORGANIC MATTER WITH LOW MOBILITY FIXES SOIL ELEMENTS IN THE FORM OF POORLY SOLUBLE COMPLEXES, SOLUBLE OR SLIGHTLY HUMIFIED ORGANIC MATTER AS FOUND IN ALL SOILS, BUT ESPECIALLY IN ACID AND REDUCING SOILS, COMBINES WITH SOIL ELEMENTS TO FORM COMPLEXES WHICH ARE FREQUENTLY SOLUBLE. THIS SIMPLE ORGANIC MATTER THEN TENDS TO INCREASE THE MOBILITY OF ELEMENTS USEFUL TO PLANTS. ORGANIC MATTER IS THEREFORE LIABLE TO MODIFY THE BEHAVIOUR OF SCIL ELEMENTS, ESPECIALLY TRACE ELEMENTS. THIS QUALITATIVE ASPECT IS DISCUSSED, WITH PARTICULAR REFERENCE TO COBALT AND ZINC.

AVAILABILITY - R. BITTEL/J. LEHR, CEA, CENTRE DE ETUDES NUCLEAIRES DE FONTENAY-AUX-ROSES, FRANCE

*SOIL + *SOIL PROPERTY + *SOIL, NUCLIDE OCCURRENCE + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + COBALT + ZINC + EFFLUENT

14-33548

BITTEL R + MANCEL J

CONTRIBUTION TO THE STUDY OF MAXIMUM LEVELS FOR LIQUID RADIOACTIVE WASTE DISPOSAL INTO CONTINENTAL AND SEA WATER

CENTRE D ETUDES NUCLEAIRES DE FONTENAY-AUX-ROSES (FRANCE)

CEA-R-3587 + EUR-3876F +. 31 PAGES, 1 FIGURES, 17 REFERENCES, OCTOBER 1968 (IN FRENCH)

IT IS PROPOSED TO SUBSTITUTE THE IDEA OF MAXIMUM LEVELS OF CONTAMINATION OF WATER TO MPC. IN AQUATIC FOOD CHAINS, THE KNOWLEDGE OF THE INGESTED QUANTITIES AND OF THE CONCENTRATION FACTORS FOOD/WATER PERMIT ONE TO DETERMINE THESE MAXIMUM LEVELS OR TO FIND OUT A LINEAR RELATION BETWEEN THE MAXIMUM LEVELS IN THE CASE OF TWO PRIMARY CARRIERS OF CONTAMINATION (CONTINENTAL AND SEA WATERS). THE NOTION OF CRITICAL FOOD CONSUMPTION, CRITICAL RADIOELEMENTS, AND FORMULA OF WASTE DISPOSAL ARE CONSIDERED IN THE SAME WAY, ATTACHING THE GREATEST POSSIBLE IMPORTANCE TO LOCAL SITUATIONS.

AVAILABILITY - DOCUMENTATION FRANCAISE, SECRETARIAT GENERAL DU GOUVERNEMENT, DIRECTION DE LA DOCUMENTATION, 31, QUAI VOLTAIRE, PARIS VII

WASTE DISPOSAL, GENERAL + WASTE DISPOSAL, OCEAN + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *INGESTION + *INHALATION + AIR + *BIOLOGICAL CONCENTRATION, FOOD + BIOLOGICAL CONCENTRATION, MAN + *BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + ICRP + FRANCE

14-33590

CONFERENCE ON MARINE ECOLOGY

COMMISSARIAT L ENERGIE ATOMIQUE

50 PAGES, FIGURES, TABLES, REFERENCES, HELD AT CHERBOURG, APRIL 22-25, 1964

COVERS GENERAL PROBLEMS POSED BY RADIOACTIVE CONTAMINANTS IN THE AIR, SOCIO-ECONOMIC FACTORS, PLUS ARTICLES ON METABOLISM OF RADIOELEMENTS, METHODS FOR EVALUATING PERMISSIBLE CONCENTRATION OF RADIOACTIVE EFFLUENTS (SEA DISPOSAL), BIOLOGICAL ACTION OF RADIOELEMENTS IN A MARINE ENVIRONMENT, ETC.

*ENVIRONMENTAL CONDITION + *ECOLOGICAL CONSIDERATION + CONTAMINATION + *ATMOSPHERIC POLLUTION + ECONOMICS + *POPULATION EXPOSURE + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + EFFLUENT + WASTE DISPOSAL, OCEAN + *BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS

14-33922

ALSO IN CATEGORY 15

DOURY A

RISK PRESENTED BY THE DIFFUSION OF LARGE QUANTITIES OF TRITIUM IN THE ATMOSPHERE

CEA, SERVICE DE CONTROLE DES RADIATIONS ET DE GENIE RADIOACTIF

CEA-N-489 +. 12 PAGES, 2 TABLES, 12 REFERENCES, JANUARY 1965 (IN FRENCH)

CONSIDERS THE RADIOLOGICAL HAZARD THAT ACCOMPANIES THE RELEASE OF TRITIUM TO THE ATMOSPHERE. PRESENTS TO ICRP THE ADMISSIBLE ON ACCEPTABLE CONTINUOUS RELEASE TO THE ATMOSPHERE.

TRITIUM + HAZARD, RELATIVE + ICRP + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + ATMOSPHERIC POLLUTION + FRANCE + RADIOACTIVITY RELEASE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-33923 ALSO IN CATEGORY 15

JAMMET H
ORGANIZATION OF THE MEANS AND METHODS OF ASSISTANCE AND TREATMENT RESULTING FROM ACCIDENTS IN NUCLEAR
ESTABLISHMENTS
CEA, PARIS
19 PAGES, PP. 321-49 OF PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ACCIDENTAL IRRADIATION AT PLACE OF WORK,
NICE, APRIL 26-29, 1966

CONSIDERS THE RADIOLOGICAL HAZARD THAT ACCOMPANIES THE RELEASE OF TRITIUM TO THE ATMOSPHERE.
PRESENTS TO ICRP THE ADMISSIBLE OR ACCEPTABLE CONTINUOUS RELEASE TO THE ATMOSPHERE.

*RADIATION PROTECTION, ORGANIZATION + *RADIATION INJURY TREATMENT + HEALTH PHYSICS TRAINING + *ACCIDENT,
GENERAL + IAEA + *ADMINISTRATIVE CONTROL + FRANCE

14-33927

RADIOACTIVITY TRANSPORT IN WATER - INTERACTION BETWEEN FLOWING WATER AND BED SEDIMENTS
CENTER FOR RESEARCH IN WATER RESOURCES, ENVIRONMENTAL HEALTH ENGINEERING RESEARCH LABORATORY
EHE-69-C3 + CRWR-36 +. 152 PAGES, FIGURES, TABLES, 61 REFERENCES, 1968

THE PURPOSE OF THIS RESEARCH WAS TO DETERMINE THE DELAY IN TRANSPORT OF RADIONUCLIDES CAUSE BY THE
INTERACTION BETWEEN FLOWING WATER AND BED SEDIMENTS. THIS INTERACTION PHENOMENON FOR CESIUM-137
WAS OBSERVED BY USING A SET OF FLUMES, EACH 50 FEET IN LENGTH AND A MODEL RIVER WHICH WAS 200
FEET LONG. A MATHEMATICAL MODEL WAS DEVELOPED DESCRIBING THE MIGRATION OF RADIONUCLIDES INTO THE
SEDIMENTS.

*TRANSPORT PROPERTY + *TRANSPORT THEORY + WATER, GENERAL + *SEDIMENT + *FLOW, GENERAL + CESIUM + RIVER,
GENERAL + *MODEL TESTING + *DIFFUSION COEFFICIENT + R AND D PROGRAM

14-33928

STUDIES ON THE EFFECTS OF RADIOACTIVITY IN THE SEA
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
IAEA PRESS RELEASE PR-69/25 +. 2 PAGES, MARCH 27, 1969

A NEW AGREEMENT BETWEEN THE INTERNATIONAL ATOMIC ENERGY AGENCY AND THE GOVERNMENT OF THE
PRINCIPALITY OF MONACO. ITS PURPOSES ARE NOW - (A) TO PROMOTE THE DEVELOPMENT OF REFERENCE
ANALYTICAL METHODS AND TECHNIQUES FOR INVESTIGATION THE EFFECTS OF RADIOACTIVITY ON MARINE BIOTA.
THESE DATA ARE NECESSARY FOR FUTURE EVALUATION OF HEALTH AND SAFETY ASPECTS OF RADIOACTIVITY IN
THE MARINE ENVIRONMENT. (B) TO PROMOTE THE ADOPTION OF THESE METHODS AND TECHNIQUES BY NATIONAL
AND INTERNATIONAL INSTITUTIONS THAT ARE STUDYING THE EFFECTS OF RADIOACTIVITY ON MARINE BIOTA AND
THE BEHAVIOUR OF RADIONUCLIDES IN THE MARINE ENVIRONMENT, SO AS TO ENSURE THE COMPARABILITY OF THE
RESULTS OF THIS INVESTIGATION.

*RADIATION EFFECT + *BIOTA + *OCEAN AND SEA + *AQUATIC ORGANISMS + *ANALYTICAL TECHNIQUE, GENERAL + SAFETY
EVALUATION + ENVIRONMENTAL CONDITION + *ADMINISTRATIVE CONTROL + IAEA + RESEARCH CONTRACT

14-34305 ALSO IN CATEGORIES 1 AND 17

BELL STATION THERMAL EFFECTS CASE STUDY
ATOMIC INDUSTRIAL FORUM, NEW YORK
135 PAGES, FIGURES, TABLES, 1968

PRESENTS A CASE STUDY OF A NUCLEAR-POWER-PLANT THERMAL-EFFECTS CONTROVERSY - THE CAYUGA LAKE CASE.
PRESENTS POLLUTION PROBLEMS. QUESTIONABLE ASSUMPTIONS, CITIZENS EFFORTS TO SAVE CAYUGA LAKE, AND
STATEMENTS AND EXHIBITS FROM JOINT LEGISLATIVE COMMITTEE HEARINGS.

REACTOR, BWR + *THERMAL POLLUTION + *BELL (BWR) + *WATER POLLUTION + *THERMAL CONSIDERATION + LAKE +
CONGRESSIONAL ACTIVITY + ENVIRONMENTAL CONDITION + REACTOR, POWER + *ECOLOGICAL CONSIDERATION + AQUATIC
ORGANISMS + STATE PROGRAM + RADIATION, PUBLIC EDUCATION + WATER, GENERAL + CODES AND STANDARDS

14-34340 ALSO IN CATEGORY 15

GUARDING AGAINST RADIOACTIVE CONTAMINATION
INTERNATIONAL ATOMIC ENERGY AGENCY
IAEA PRESS RELEASE 69/22 +. 1 PAGE, MARCH 20, 1969

ANNOUNCES A MEETING IN VIENNA OF THREE WORLD ORGANIZATIONS FOR A SCIENTIFIC SEMINAR. THE
ORGANIZATIONS ARE THE INTERNATIONAL ATOMIC ENERGY AGENCY, THE FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS, AND THE WORLD HEALTH ORGANIZATION. THE SEMINAR, STARTING ON MARCH 24,
1969, WILL INCLUDE TOPICS ON SOURCES OF RADIOACTIVITY IN THE ENVIRONMENT, THEIR ROUTE TO MAN,
PROTECTION STANDARDS AND CRITERIA, MONITORING PROGRAMS, EMERGENCY SITUATIONS, PUBLIC PROTECTION,
AND FUTURE TRENDS.

*RADIATION SAFETY AND CONTROL + *ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + ENVIRONMENTAL
CONDITION + *CODES AND STANDARDS + MONITORING PROGRAM, ENVIRONMENTAL + POPULATION EXPOSURE + *EMERGENCY
PROCEDURE

14-34353 ALSO IN CATEGORIES 7 AND 16
VILENSKII VD + KUZENKOV AF

CATEGORY 14
RADIOISOTOPE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-34353 *CONTINUED*
USING ATMOSPHERIC RADIOACTIVITY FOR INVESTIGATION OF AIR MASS MOVEMENTS
2 PAGES, AT. ENERG. (USSR), 25, PAGES 242-3 (SEPT. 1968)

AN ATTEMPT WAS MADE TO DETERMINE SIMULTANEOUSLY THE CONTENT OF SR-90 AND PB-210 AT VARIOUS ELEVATIONS OF UPPER TROPOSPHERE AND TO EVALUATE THE LARGE SCALE VERTICAL AIR MOTION EFFECTS OF THE MIGRATION OF THESE ISOTOPES IN THE ATMOSPHERE. AEROSOL SPECIMENS WERE TAKEN AT THE ELEVATION OF 9 TO 12 KM AROUND MOSCOW AND TBILISI REGIONS IN 1963.

AIRBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC DIFFUSION + *METEOROLOGY + *STRONTIUM + LEAD

14-34427 ALSO IN CATEGORY 15
A DOC. BIBLIOGRAPHY ON AIR AND WATER POLLUTION - VOLUME I OF II VOLUMES
DEFENSE DOCUMENTATION CENTER, VA.
AD-679210 +. 300 PAGES, OCTOBER 1968

THIS BIBLIOGRAPHY COVERS THE SUBJECTS OF POLLUTION OF AIR AND WATER, FROM BOTH NATURAL AND MAN-MADE SOURCES. THE 294 REFERENCES INCLUDE THE CAUSES OF POLLUTION, THEIR DETECTION, CONTROL, AND ELIMINATION FOR BOTH AIR AND WATER ENVIRONMENTS. ATMOSPHERIC POLLUTION IS TREATED AS IT OCCURS NOT ONLY IN THE AMBIENT AIR BUT ALSO IN CONFINED ENVIRONMENTS SUCH AS IN SUBMARINES AND SPACE VEHICLES. REFERENCES DATE FROM 1953, AND ARE UNCLASSIFIED.

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

*BIBLIOGRAPHY + *ATMOSPHERIC POLLUTION + *WATER POLLUTION + *AQUATIC ORGANISMS + *POPULATION EXPOSURE + AIR + WATER, GENERAL + EFFLUENT + FALLOUT + WASTE DISPOSAL, GENERAL + ADMINISTRATIVE CONTROL

14-34491 ALSO IN CATEGORY 15
DISPOSAL OF RADIOACTIVE WASTES FROM U. S. NAVAL NUCLEAR-POWERED SHIPS AND THEIR SUPPORT FACILITIES, 1967
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
4 PAGES, 3 TABLES, 2 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 10(4), PAGES 135 - 138 (APRIL, 1969)

SUMMARIZES DATA ON DISPOSAL OF RADIOACTIVE WASTES FROM U. S. NAVAL NUCLEAR-POWERED SHIPS AND THEIR SUPPORT FACILITIES AND SUMMARIZES RESULTS OF ENVIRONMENTAL MONITORING PERFORMED TO CONFIRM THE ADEQUACY OF WASTE DISPOSAL LIMITS AND PROCEDURES.

*REACTOR, MARITIME + *WASTE DISPOSAL, OCEAN + *MONITOR, ENVIRONMENTAL + PROCEDURES AND MANUALS + ADMINISTRATIVE CONTROL + *SEDIMENT + *COBALT + WASTE DISPOSAL, SOLID + USAEC + ANALYTICAL TECHNIQUE, GENERAL + SURVEY, RADIATION, USPHS

14-34492 ALSO IN CATEGORY 15
DATA SECTION I. MILK AND FOOD. SECTION II. WATER. SECTION III. AIR AND DEPOSITION. SECTION IV. OTHER DATA
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
44 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 10(4), PAGES 139 - 183 (APRIL 1969)

GIVES DATA RESULTS OF SURVEILLANCE PROGRAMS OF MILK AND FOOD, WATER, AIR AND DEPOSITION, AND OTHER MISCELLANEOUS RADIOLOGICAL DATA.

*SURVEILLANCE PROGRAM + *BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *SURFACE WATER, NUCLIDE OCCURRENCE + WATER POLLUTION + *ATMOSPHERIC POLLUTION + AIR + WATER, GENERAL + DEPOSITION + NUCLEAR DETONATION + TESTING + STRONTIUM + IODINE + *OPERATION + *USAEC + SURVEY, RADIATION, USPHS

14-34647 ALSO IN CATEGORY 15
HEARINGS BEFORE THE SUBCOMMITTEE ON RESEARCH, DEVELOPMENT, AND RADIATION OF THE JOINT COMMITTEE ON ATOMIC ENERGY, CONGRESS OF THE UNITED STATES, 91ST CONGRESS, FIRST SESSION
411 PAGES, RADIATION STANDARDS FOR URANIUM MINING, MARCH 18, 1969

A HEARING BEFORE CONGRESS COVERING STATEMENTS OF WITNESSES, STATEMENTS SUBMITTED FOR THE RECORD, AND OTHER MATERIAL INCLUDING CORRESPONDENCE SUBMITTED AND INSERTED IN THE RECORD. ALSO INCLUDED IS AN APPENDIX.

*URANIUM + *MINING + *CODES AND STANDARDS + *ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + STATE PROGRAM + *CONGRESSIONAL ACTIVITY + RADIATION SAFETY AND CONTROL + PARTICLE, RADIOACTIVE + INHALATION + PERSONNEL EXPOSURE, RADIATION + *FEDERAL RADIATION COUNCIL + *USAEC + ICRP + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

14-34869
ALLEN PW
VENTING AND FALLOUT PREDICTION
THE UNIVERSITY OF ARIZONA, TUCSON, ARIZONA
CONF-690312-1 +. 19 PAGES, MARCH 31, 1969

DISCUSSES PROBLEMS RELATIVE TO RELEASE AND ATMOSPHERIC TRANSPORT OF RADIOACTIVITY FROM NUCLEAR

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-34869 *CONTINUED*

DETONATIONS IN A RESEARCH PROGRAM FOR PEACEFUL PURPOSES. TECHNICAL REQUIREMENTS FOR DETERMINING PRODUCTION OF RADIONUCLIDES AND FOR EVALUATING POTENTIAL FOR ACCIDENTAL RELEASE, ADEQUATE DEPTH OF BURIAL, RADIATION ESTIMATES AND EXPOSURE ARE OF MAJOR CONCERN.

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

*NUCLEAR DETONATION + NUCLEAR EXPLOSION DEBRIS + *CONTAINMENT, PRESSURE VENTING + *FALLOUT + NEVADA TEST SITE + ADMINISTRATIVE CONTROL + METEOROLOGICAL SUPPORT + *GEOLOGICAL CONSIDERATION, GENERAL + POPULATION EXPOSURE + FEDERAL RADIATION COUNCIL + *AIR + *CONTAMINATION + TESTING + SURVEY, RADIATION, GENERAL + SURVEY, RADIATION, USPHS + TRANSPORT THEORY + ATMOSPHERIC POLLUTION + RADIATION SAFETY AND CONTROL + INSTRUMENT, RADIATION MONITORING + CYLINDER GAS

14-35033

STYRO PI

CONFERENCE ON THE RADIOACTIVE DEBRIS FALL-OUT

1 PAGE, FIZ ATMOS OKEANA 2(12), PG. 1323 (JUNE 1966)

DISCUSSES PROBLEMS OF INVESTIGATING THE SELF-CLEANSING OF THE ATMOSPHERE FROM RADIOACTIVE CONTAMINANTS. TOPICS OF DISCUSSION INVOLVED METEOROLOGICAL ASPECTS OF CLEANSING, THE SPEED OF DEPOSITION OF RADIOACTIVE SUBSTANCES TO EARTH, THE VARIATION AND CHARACTERISTICS OF RADIOACTIVE FALL-OUT, PROBLEMS OF WASHOUT OF RADIOACTIVITY, CONCENTRATION OF RADIOACTIVITY IN NEAR-SURFACE AIR, AND WASH-OUT OF RADIOISOTOPES ARTIFICIALLY INTRODUCED INTO A CLOUD.

ATMOSPHERIC POLLUTION + *AIR CLEANING + *WASHOUT + PRECIPITATION + *METEOROLOGY + CONTAMINATION + *DEPOSITION + CONCENTRATION, AREA + COSMIC RADIATION

14-35034

JENSEN JD

RADIOACTIVE WASTE LOCATION VIA INFRARED SCANNING TECHNIQUES

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON, PACIFIC NORTHWEST LABORATORY

BNWL-SA-1952 +. 5 PAGES, JULY 3, 1968

PROPOSES A WAY TO LOCATE AND MEASURE REMAINING PORTIONS OF SLUDGE IN STORAGE TANKS. DATA OBTAINED CAN BE USED TO COMPLEMENT DATA FROM OTHER SOURCES, SUCH AS VISUAL, PHOTOGRAPHIC, AND THERMOCOUPLE TEMPERATURE MONITORS. INFRARED IMAGING DATA CAN PROVIDE ADDITIONAL INFORMATION ABOUT SCANNED ENVIRONMENT.

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

*STORAGE CONTAINER + *WASTE STORAGE + *THERMAL CONSIDERATION + *DOSIMETRY, GENERAL + FUEL REPROCESSING + *FISSION PRODUCT RETENTION + WASTE MANAGEMENT + MEASUREMENT, GENERAL + MONITOR, ENVIRONMENTAL

14-35035

SMITH PW + HANSON GL

RADIOACTIVE WASTE MANAGEMENT POLICIES AND PRACTICES

ARH-SA-30 +. 42 PAGES, APRIL 2, 1969

REVIEWS PRACTICES AND IMPROVEMENT OF THE WASTE MANAGEMENT TECHNOLOGY SINCE 1904. DISCUSSES THE RADIOACTIVE WASTE MANAGEMENT POLICIES WHICH GUIDE THE ATOMIC ENERGY INDUSTRY TODAY AND THE WASTE MANAGEMENT PRACTICES CURRENTLY BEING USED.

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

*ADMINISTRATIVE CONTROL + *RADIATION SAFETY AND CONTROL + *FUEL REPROCESSING + *HANFORD SITE + WASTE DISPOSAL, GENERAL + REACTOR, PRODUCTION + NPR (PR) + PLUTONIUM + ARHCO

14-35036

INDUSTRIAL WASTES - RADIOACTIVE

21 PAGES, 104 REFERENCES, WATER POLLUTION CONTROL FEDERATION JOURNAL 40(6), PAGES-1199-1219 (JUNE 1968)

A LITERATURE REVIEW (1967) OF INDUSTRIAL WASTES - RADIOACTIVE, PUBLISHED IN THE WATER POLLUTION CONTROL FEDERATION JOURNAL. DISCUSSES MOST PHASES OF AND CITES REFERENCES TO PROGRESS IN THE GENERAL AREA OF WASTE DISPOSAL AND ENVIRONMENTAL CONTROL.

*WASTE DISPOSAL, GENERAL + RADIATION SAFETY AND CONTROL + *AIR + CONTAMINATION + *WATER POLLUTION + *BIBLIOGRAPHY + *WASTE MANAGEMENT + SOLVENT EXTRACTION PROCESS + ICRP + FOAM + ION EXCHANGE + EVAPORATION + WASTE TREATMENT, FIXATION + WASTE DISPOSAL, HYDRAULIC FRACTURING + WASTE DISPOSAL, ATMOSPHERIC + AQUATIC ORGANISMS + *CODES AND STANDARDS + MONITOR, ENVIRONMENTAL

14-35037

ALSO IN CATEGORY 15

WOOLDRIDGE CB

EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1967

BATTELLE MEMORIAL INSTITUTE PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-35037 *CONTINUED*
BNWL-983 +. 87 PAGES, 30 FIGURES, 13 TABLES, 19 REFERENCES, MARCH 1969

CONTROLLED RELEASES OF A VARIETY OF LOW-LEVEL RADIOACTIVE WASTES ARE MADE TO THE COLUMBIA RIVER, TO THE GROUND, AND TO THE ATMOSPHERE. THE MAJOR SOURCE OF LOW-LEVEL WASTES RELEASED TO THE ENVIRONMENT IN 1967 CONTINUED TO BE REACTOR COOLING WATER DISCHARGED TO THE COLUMBIA RIVER. EVALUATION OF THE COMBINED OFFSITE EFFECTS OF ALL RADIOACTIVE WASTE RELEASES DURING 1967 SHOWED THAT CONCENTRATIONS OF RADIONUCLIDES IN THE ENVIRONS AND RADIATION DOSES RECEIVED BY NEARBY POPULATION GROUPS WERE WELL WITHIN ACCEPTED LIMITS. ESTIMATES WERE MADE OF THE WHOLE BODY, GASTROINTESTINAL TRACT, AND THYROID DOSES AND THE ANNUAL INTAKE OF BONE-SEEKING NUCLIDES. DIET INFORMATION ACCUMULATED FROM PLANT EMPLOYEES PERMITTED CALCULATION OF BOTH AVERAGE DOSE VALUES AND DOSE DISTRIBUTION FOR RICHLAND RESIDENTS.

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

*MONITORING PROGRAM, ENVIRONMENTAL + *HANFORD SITE + RADIOACTIVITY RELEASE + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, TERRESTRIAL + *RIVER, COLUMBIA + REACTOR COOLANT + EFFLUENT + OFF SITE + RADIATION EFFECT + POPULATION EXPOSURE + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *BIOLOGICAL CONCENTRATION, MAN

14-35154
MCCLAIN WC
DISPOSAL OF RADIOACTIVE WASTES BY HYDRAULIC FRACTURING - PART V. SITE EVALUATIONS
OAK RIDGE NATIONAL LABORATORY, TENNESSEE
12 PAGES, 7 FIGURES, 15 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, 9(3), PAGES 315-326 (MARCH 1969)

ALTHOUGH HYDRAULIC FRACTURING HAS BEEN SHOWN TO BE A SAFE AND ECONOMIC METHOD OF WASTE DISPOSAL AT THE OAK RIDGE NATIONAL LABORATORY, IT WILL BE NECESSARY TO CARRY OUT AN EXTENSIVE SITE EXAMINATION PROGRAM BEFORE THE TECHNIQUE CAN BE USED AT ANY OTHER LOCATION. THE MOST DIFFICULT PART OF THIS SITE EXAMINATION IS PROVING THAT THE HYDRAULICALLY INDUCED FRACTURES IN THE UNDERGROUND ROCKS ARE HORIZONTAL OR NEARLY SO. A SITE-TESTING PROGRAM WHICH UTILIZES SEVERAL METHODS OF REMOTE DETERMINATION OF FRACTURE ORIENTATION IS DISCUSSED, BUT CONFIRMATORY CORE HOLES FROM THE SURFACE INTERSECTING THE TEST GROUT SHEETS WILL BE REQUIRED.

*WASTE DISPOSAL, HYDRAULIC FRACTURING + ORNL + *SITING, WASTE DISPOSAL + WASTE STORAGE + GEOLOGICAL CONSIDERATION, GENERAL + *GEOLOGICAL CONSIDERATION, STRATIGRAPHY + *PRESSURE DROP + *WASTE DISPOSAL, HYDRAULIC FRACTURING

14-35156 ALSO IN CATEGORY 15
CHILTON AB
FALLOUT AND WEAPONS RADIATION SHIELDING
INTERNATIONAL CIVIL DEFENSE ORGANIZATION
INTERNATIONAL CIVIL DEFENSE BULLETIN NO. 167 +. 10 PAGES, MAY 1969

DISCUSSES ANALYSIS AND/OR DESIGN OF STRUCTURES AGAINST THE GAMMA RADIATION EMITTED FROM THE FALLOUT OF RADIOACTIVE PARTICLES UPON THE SURFACE OF THE EARTH AFTER A NUCLEAR EXPLOSION. ALSO OF CONCERN IS THE INITIAL RADIATION OCCURRING WITHIN A MINUTE AFTER NUCLEAR EXPLOSION, INCLUDING ATTENDANT SECONDARY RADIATION.

*CIVIL DEFENSE + NUCLEAR DETONATION + *NUCLEAR ATTACK + *SHIELDING + GAMMA EMITTER + *FALLOUT + *SURFACE CONTAMINATION + HAZARD, RELATIVE + DEPOSITION + STRUCTURAL INTEGRITY + ADMINISTRATIVE CONTROL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-29652
ENVIRONMENTAL SAMPLING RESULTS
24 PAGES, 1 FIGURE, 9 TABLES, RADIOLOGICAL HEALTH NEWS 7(3), PAGES 1-24 (JULY 1968)

PRESENTS, IN TABULAR FORM, RESULTS OF A SAMPLING PROGRAM IN THE VICINITY OF SMUD RANCHO SEC0 NUCLEAR POWER PLANT. THE TIME CONCERNS THE MONTHS OF JANUARY, FEBRUARY, AND MARCH 1968. TYPICAL DATA COVERS SAMPLING FROM AIR, PRECIPITATION, WATER, SEWAGE, MILK, FALLOUT, AND DIET WITH RESPECT TO THEIR RADIONUCLIDE CONCENTRATION.

AVAILABILITY - STATE OF CALIFORNIA, DEPT. OF PUBLIC HEALTH, BUREAU OF RADIOLOGICAL HEALTH, 2151 BERKELEY WAY, BERKELEY, CALIF. 94704

*SURVEILLANCE PROGRAM + AIR + PRECIPITATION + WATER, GENERAL + BIOLOGICAL CONCENTRATION, MILK + FALLOUT + DIETARY HABIT + *SAMPLING

15-29746
DUOCINC J + KOCH G
ESTIMATION OF INTERNAL CONTAMINATION WITH PLUTONIUM BY PHYSICO-CHEMICAL ANALYSIS OF EXCRETA
CEN, MCL, BELGIUM
7 PAGES, JOURNAL BELGE RADIOLOGIE/BRUXELLES, VOLUME 51, PAGES 284-90 (1968) (IN FRENCH)

FOR A PERSON INTERNALLY CONTAMINATED BY PLUTONIUM, THE DIRECT MEASUREMENT OF THE ACTIVITY IS NOT USUALLY SUFFICIENT TO ESTIMATE THE BODY BURDEN. ON THE OTHER HAND, EXCRETA MEASUREMENTS ALLOW ACTIVITIES CORRESPONDING TO LOWER BODY BURDENS TO BE ASSESSED. THE GENERAL PRINCIPLES OF VARIOUS TYPES OF ANALYSES AND THE TECHNIQUES ARE DESCRIBED.

*PLUTONIUM + CONTAMINATION + MEASUREMENT, GENERAL + *BIOLOGICAL CONCENTRATION, MAN + *ANALYTICAL TECHNIQUE, GENERAL

15-29757
IMPROVEMENTS IN OR RELATING TO THERMOLUMINESCENT RADIATION DOSIMETERS
ISOTOPES, INC.
BRITISH PATENT 1,140,028 +. JANUARY 15, 1969

DESCRIBES THE DESIGN OF A LITHIUM FLUORIDE THERMOLUMINESCENT DOSIMETER.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

DOSIMETRY, THERMOLUMINESCENCE + LITHIUM + FLUORIDE + PERSONNEL PROTECTIVE DEVICE + PATENT + UNITED KINGDOM

15-29895
OHYA Y
ESTIMATION OF PERSONAL NEUTRON DOSE IN NUCLEAR ACCIDENTS
8 PAGES, 8 FIGURES, 6 TABLES, 14 REFERENCES, NIHON GENSHIRYOKU GAKKAISHI 9(4), PAGES 192-199 (1967)

IN CASE OF A NUCLEAR ACCIDENT, IT IS IMPORTANT TO QUICKLY KNOW PERSONAL EXPOSURE DOSES. IN SPITE OF THE RECENT ADVANCES IN PHYSICAL DOSIMETRY, THE DETECTION OF NEUTRON EXPOSURE DOSE IS NOT ALWAYS POSSIBLE BECAUSE OF THE ABSENCE OF AN ADEQUATE SYSTEM OF PHYSICAL DOSIMETRY. THE OBJECT OF THIS STUDY IS TO OBTAIN INFORMATION CONCERNING PERSONAL NEUTRON EXPOSURE DOSES ON HUMAN HAIR, NAILS, AND BLOOD, WITH THE VIEW TO DETERMINING A CONVENIENT METHOD OF DETECTING UNEXPECTED EXPOSURE.

*DOSE + NEUTRON + *ACCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + DOSIMETRY, GENERAL + *BIOLOGICAL CONCENTRATION, MAN + *FAST NEUTRON + *THERMAL NEUTRON + ANALYTICAL TECHNIQUE, GENERAL + ACTIVATION ENERGY

15-30105 ALSO IN CATEGORIES 16 AND 17
ALLKOFER DC
CONTAMINATION OF JET PLANES BY NUCLEAR EXPLOSIONS
4 PAGES, 3 FIGURES, 4 TABLES, 12 REFERENCES, ATOMPRAXIS 14, PAGES 473-76 (DEC. 1968)

IN PRESENT JET TRANSPORT FLIGHTS, PLANES COME INTO CONTACT WITH THE RADIOACTIVE FALLOUT FROM NUCLEAR EXPLOSIONS WHICH HAS ACCUMULATED IN THE STRATOSPHERE AND ARE ALSO EXPOSED TO AN INCREASED AMOUNT OF COSMIC RADIATION. THE CONCENTRATIONS OR RADIOACTIVITY DURING RECENT YEARS HAVE BEEN MEASURED. CONTAMINATION OF PLANES HAS BEEN MEASURED FOR SEVERAL YEARS. THE ARTICLE DISCUSSES THE RADIATION-PROTECTION QUESTIONS RESULTING FOR FLIGHT- AND GROUND-PERSONNEL.

*AIRCRAFT + NUCLEAR DETONATION + *FALLOUT + *STRATOSPHERE + *COSMIC RADIATION + CONTAMINATION + CONCENTRATION, MAXIMUM

15-30274
DONALD HG
BIBLIOGRAPHY ON NUCLEAR MEDICINE
U.S. ATOMIC ENERGY COMMISSION
TID-3319 +. 295 PAGES, BIBLIOGRAPHY FROM NUCLEAR SCIENCE ABSTRACTS VOLUME 21, JUNE 1968

CITATIONS TAKEN FROM NUCLEAR SCIENCE ABSTRACTS VOLUME 21 (CALENDAR YEAR 1967). 134 ON TREATMENT

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30274 *CONTINUED*

OF RADIATION SICKNESS, 374 ON RADIODIAGNOSIS, 491 ON RADIOTHERAPY. *** NOT IN TRADITIONAL AUTHOR ABSTRACT STYLE BUT HAS SELECTED KEY TERMS (E.G., ANTIBODIES, LIVER) WITH A DESCRIPTIVE SENTENCE FOR EACH AS APPROPRIATE TO THE REPORT.

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

BIBLIOGRAPHY + RADIATION DAMAGE + RADIATION EFFECT + RADIATION INJURY TREATMENT

15-30921 ALSO IN CATEGORY 17
OPPOLO JA + PELLAND EE + CAMPBELL CL
RADIUM CONTAMINATION INCIDENT IN IOWA
STATE HYGIENIC LAB., IOWA CITY, IOWA
2 PAGES, J. IOWA MEDICAL SOC., 56, PAGES 1226-8 (DECEMBER 1966)

A MINOR RADIUM CONTAMINATION INCIDENT IN IOWA IS DESCRIBED AND EVALUATED. THE CONTAMINATION WAS NOT WIDESPREAD, AND NO ONE SUSTAINED ANY SIGNIFICANT UPTAKE. DECONTAMINATION WAS SIMPLIFIED BY THE COMPLETE COOPERATION OF THE PHYSICIAN.

*RADIUM + CONTAMINATION + *INCIDENT, EXPOSURE + *RADIOLOGICAL ASSISTANCE + DECONTAMINATION + MONITOR, PERSONNEL

15-31521
RADIATION DOSE MEASUREMENTS, THEIR PURPOSE, INTERPRETATION AND REQUIRED ACCURACY IN RADIOLOGICAL PROTECTION
EUROPEAN NUCLEAR ENERGY AGENCY
597 PAGES, FIGURES, TABLES, REFERENCES, FROM SYMPOSIUM ON RADIATION DOSE MEASUREMENTS, STOCKHOLM, JUNE 1967

THE MAIN OBJECTIVES OF THE SYMPOSIUM WERE TO EXAMINE THE PURPOSE OF VARIOUS TYPES OF RADIATION DOSIMETRY AND THE PREFERRED MEASUREMENTS IN DIFFERENT CIRCUMSTANCES, AND TO CONSIDER THE INTERPRETATION AND ACCURACY REQUIRED. CONCLUDED THAT THE EFFECTIVENESS OF RADIATION PROTECTION PRACTICE IN NUCLEAR ESTABLISHMENTS HAD BEEN CLEARLY DEMONSTRATED. CONSISTS OF 597 PAGES, INCLUDING FIGURES, TABLES, AND INDEX.

DOSIMETRY, GENERAL + MONITOR, PERSONNEL + MONITOR, ENVIRONMENTAL + INSTRUMENT, RADIATION MONITORING + CONTAMINATION + HIGH RADIATION + NEUTRON + MONITOR, AREA + MONITOR, AIR + INHALATION + IODINE + MEASUREMENT, GENERAL + ERROR ANALYSIS + ENEA

15-31540
PIESCH E
PHOSPHATE GLASS DOSIMETERS FOR THE MEASUREMENT OF ORGAN DOSES WITH REDUCED BODY INFLUENCE
KERNFORSCHUNGSZENTRUM, KARLSRUHE (WEST GERMANY)
KFK-832 + CONF-680920-10 +. 25 PAGES, 13 FIGURES, 3 TABLES, 13 REFERENCES, AUGUST 1968

ACCORDING TO THE ICRP RECOMMENDATIONS, THE HAZARD TO A PERSON DEPENDS PRIMARILY ON THE CORRESPONDING ABSORBED DOSE IN THE ORGAN OF INTEREST. A PERSONNEL DOSIMETER CALIBRATED FOR EXPOSURE WILL NORMALLY INDICATE THE DOSE ON THE SURFACE ON THE BODY. PHOSPHATE-GLASS DOSIMETERS WILL BE DESCRIBED INDICATING DIRECTLY THE ABSORBED DOSE IN ALL INTERESTING CRITICAL ORGANS WITH REDUCED INFLUENCE OF BODY ORIENTATION TO RADIATION INCIDENCE FOR QUANTUM ENERGIES ABOVE 50 KEV.

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

*DOSIMETRY, GENERAL + *PHOSPHATE + *GLASS + *DOSE MEASUREMENT, INTERNAL + DOSE MEASUREMENT, EXTERNAL + BIOLOGICAL CONCENTRATION, MAN + INSTRUMENT, RADIATION MONITORING

15-31541
PIESCH E
ROUTINE DOSIMETRY WITH PHOSPHATE GLASSES
KERNFORSCHUNGSZENTRUM, KARLSRUHE (WEST GERMANY)
KFK-831 + CONF-680920-9 +. 28 PAGES, 13 FIGURES, 1 TABLE, 20 REFERENCES, AUGUST 1968

AT THE KARLSRUHE NUCLEAR RESEARCH CENTER, PHOSPHATE GLASSES WERE USED AS ROUTINE PERSONNEL DOSIMETERS FOR ALL PERSONS BUT ALSO AS LONG-TIME ACCUMULATING DOSIMETERS OUTSIDE THE INSTALLATIONS AND REACTORS IN THE VICINITY OF THE CENTER. THE KARLSRUHE SPHERICAL DOSIMETER CONSISTS OF A PERFORATED TIN-PLASTIC-BORON CASING AND A YOKOTA-TYPE GLASS WITH A LOWER GAMMA-EXPOSURE LIMIT OF ABOUT 40 MR FOR ONE YEAR OF DOSE ACCUMULATION. THE DOSIMETER READING IS ENERGY AND DIRECTION INDEPENDENT FOR QUANTUM ENERGY ABOVE 45 KEV AND SHOWS THE DOSE-EQUIVALENT OF THERMAL NEUTRONS.

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

*DOSIMETRY, GENERAL + *PHOSPHATE + *GLASS + MONITOR, PERSONNEL + *ACCIDENT, CRITICALITY + *GROSS GAMMA + *GROSS BETA + *THERMAL NEUTRON + FAST NEUTRON + GERMANY + INSTRUMENT, RADIATION MONITORING

15-32131 ALSO IN CATEGORY 17
KODAK ADOPTS DISCOVERY TECHNIQUE TO TEACH INDUSTRIAL RADIOGRAPHY
3 PAGES, MATERIALS EVALUATION, XXVI(3), MARCH 1968

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-32131 *CONTINUED*

ATLANTA, GA., SCHOOL GIVES 2-WEEK COURSES FOR CERTIFICATION UNDER AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING PROGRAM. ARTICLE DESCRIBES TRAINING DEVICES. *** BROCHURE AVAILABLE FROM EASTMAN KODAK (ROCHESTER, N.Y.) LISTS COURSES (ABOUT EVERY OTHER 3 WEEKS). LIMITED TO 16 PERSONS, \$300 EACH.

*RADIOGRAPHY + *TRAINING + HEALTH PHYSICS TRAINING

15-32813 ALSO IN CATEGORIES 12 AND 18

PRIMARY SHIELD DESIGN AND EVALUATION

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-8 +. 50 PAGES, FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 8, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CORE AND REFLECTOR SHIELD USED TO ATTENUATE RADIATION TO LEVEL WHERE CONCRETE CAN BE USED WITHOUT DAMAGE. SHIELD MATERIALS ARE STEEL, BORON CARBIDE, AND SERPENTINE. TOPICS INCLUDE FABRICATION, INSTALLATION, FIGURES, AND APPENDIX A CONTAINS TEMP.-DISTRIBUTION CALCULATIONS.

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

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + STEEL + *SYSTEM DESCRIPTION + *SYSTEM CAPABILITY + THERMAL MECHANICAL EFFECT + *RADIATION DAMAGE + CONCRETE + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

15-32814 ALSO IN CATEGORIES 12 AND 18

SHIELDING NUCLEAR DESIGN CALCULATIONS

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-9 +. 175 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 9, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CALCULATIONS OF NEUTRON AND GAMMA SOURCES AND ATTENUATION. DOSE RATES DURING AND AFTER OPERATION WERE CALCULATED TO SPECIFY SHIELD THICKNESSES AND COMPOSITIONS. ENERGY ABSORPTION RATES WERE CALCULATED TO PROVIDE COOLING REQUIREMENTS. DESCRIPTION OF SHIELD INCLUDED. A MORE DETAILED DESCRIPTION IS GIVEN IN SUPPLEMENT 8.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + SOURCE, RADIATION + *MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION + RADIATION SAFETY AND CONTROL + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

15-32824

HUMPHREYS KC

A REVIEW OF SOME PASSIVE DOSIMETRY METHODS USED IN RADIATION EFFECTS STUDIES WITH FAST BURST REACTORS EG AND G, INC., CALIF.

EGG-1183-2207 + CONF-690102-4 +. 40 PAGES, 11 FIGURES, 3 TABLES, 106 REFERENCES, MARCH 1969

SOME OF THE MORE IMPORTANT INSTRUMENTS AND METHODS USED TO DETERMINE NEUTRON FLUENCE, NEUTRON ENERGY SPECTRA, AND GAMMA-RAY DOSE DURING RADIATION EFFECTS EXPERIMENTS WITH FAST BURST REACTORS ARE DESCRIBED AND EVALUATED. GENERAL RADIATION MEASUREMENT PROBLEMS ENCOUNTERED BY RADIATION EFFECTS INVESTIGATORS ARE SUMMARIZED, AND THE FUNDAMENTAL PRINCIPLES ON WHICH VARIOUS MEASUREMENT TECHNIQUES ARE BASED ARE OUTLINED.

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

*DOSIMETRY, GENERAL + REACTOR, FAST BURST + *INSTRUMENT, RADIATION MONITORING + *RADIATION EFFECT + *NEUTRON + *DOSE + GAMMA EMITTER + *MEASUREMENT, GENERAL + COMPUTER PROGRAM + CHAMBER, ION

15-32907 ALSO IN CATEGORIES 1 AND 18

AEC QUESTIONS - 7 TOPICS

GENERAL ELECTRIC COMPANY

50231-21 +. 17 PAGES, 5 FIGURES, SEFOR, PSAR, SUPPLEMENT 20, SEPT. 1968, DOCKET 50-231

RESPONSES TO 7 QUESTIONS CONCERNING EMERGENCY TREATMENT OF INJURED PERSONNEL BOTH ON AND OFF SITE.

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

AEC QUESTION + REPORT, PSAR + REACTOR, LMFBR + EMERGENCY PROCEDURE + PERSONNEL EXPOSURE, RADIATION + OFF SITE + RADIOLOGICAL ASSISTANCE + SEFOR (RE) + RADIATION INJURY TREATMENT + RADIATION PROTECTION, ORGANIZATION

15-33103 ALSO IN CATEGORIES 1 AND 14

WOLFE DA + RICE TR

SAFE LEVELS OF RADIOACTIVITY IN AQUATIC ENVIRONMENTS

19 PAGES, FIGURES, TABLES, REFERENCES, SCIENTIA, CIII(9-10), PAGES 469-487 (1968)

AS NUCLEAR ENERGY SUPPLIES EVER-EXPANDING PROPORTIONS OF POWER REQUIREMENTS, THE DOSE OF BACKGROUND RADIATION TO MAN FROM HIS ENVIRONMENT WILL INCREASE. THE CONTINUOUS DISPOSAL OF

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-33103 *CONTINUED*

RADIOACTIVE WASTES INTO AQUATIC ENVIRONMENTS SHOULD BE EVALUATED ON THE BASIS OF LONG-TERM POPULATION EFFECTS FROM CHRONIC EXPOSURE TO LOW-LEVEL RADIATION. IN THIS ARTICLE, WE DISCUSS THE IMPLICATIONS OF RADIOACTIVE WASTE DISPOSAL INTO AQUATIC ENVIRONMENTS, AND CONSIDER THOSE ASPECTS OF RADIATION PHYSIOLOGY, RADIOECOLOGY AND HEALTH PHYSICS USED IN DEVELOPING STANDARDS FOR THE ADEQUATE PROTECTION OF AQUATIC ECOSYSTEMS AND MAN FROM EXCESSIVE RADIATION.

WASTE DISPOSAL, OCEAN + WASTE DISPOSAL, LIQUID + WASTE DISPOSAL, LAKE + WASTE DISPOSAL, RIVER + RADIATION SAFETY AND CONTROL + ECOLOGICAL CONSIDERATION + ENVIRONMENTAL CONDITION + REACTOR, POWER + THERMAL POLLUTION + WATER POLLUTION + POPULATION EXPOSURE + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + BIOLOGICAL CONCENTRATION, MAN + DIETARY HABIT + PROCEDURES AND MANUALS + MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + ICRP + NCRP + FEDERAL RADIATION COUNCIL + DOSE

15-33127

OZAIR V + ANDREWS DG

A SENSITIVE GEIGER-MUELLER DETECTOR READING FLUX AND DOSE RATE DIRECTLY
UNIVERSITY OF TORONTO, CANADA

7 PAGES, 5 FIGURES, 1 TABLE, 15 REFERENCES, NUCLEAR APPLICATIONS 6(3), PAGES 225-231 (MARCH 1969)

THE DEVELOPMENT OF AN EFFICIENT GAMMA RADIATION DETECTOR THAT READS DIRECTLY IN FLUX AND DOSE RATE HAS BEEN PARTIALLY SUCCESSFUL. IN THE PRESENT WORK, THE RESPONSE TO PHOTO-ELECTRIC AND COMPTON ELECTRONS HAS BEEN INCREASED SUBSTANTIALLY BY USING A MESH CATHODE INSTEAD OF A SOLID-WALLED CATHODE, TOGETHER WITH AN APPROPRIATE GAS FILLING AND AN ENLARGED ANODE. CHARACTERISTICS ARE ADJUSTED BY USE OF A SLIDING SLEEVE.

DESIGN CRITERIA + *COUNTER + *GROSS GAMMA + PERFORMANCE LIMIT + *INSTRUMENT, RADIATION MONITORING + DOSE + *MEASUREMENT, GENERAL

15-33500

ALSO IN CATEGORY 16

DRUILHET A + FONTAN J + PIASINI H + BLANC D

AN ORIGINAL METHOD FOR THE MEASUREMENT OF THE ATMOSPHERIC DIFFUSION USING A RADIOACTIVE GAS EMITTED FROM A POINT SOURCE

FACULTE DES SCIENCES, TOULOUSE

4 PAGES, COMPT. REND., SERIES A AND B, NUMBER 267, PAGES 741-4 (OCTOBER 7, 1968) (IN FRENCH)

THE METHOD IS BASED ON THE DETERMINATION OF A RADIOACTIVE GAS, RADON-220, EMITTED INTO THE ATMOSPHERE CONTINUOUSLY FROM A POINT SOURCE. IT MAKES IT POSSIBLE TO STUDY THE DIFFUSION OF MATTER IN THE BOUNDARY LAYER OF THE ATMOSPHERE. RADON PRODUCES NO POLLUTION OF THE AIR BECAUSE OF ITS SHORT HALF-LIFE AND LOW RADIOACTIVITY.

*SOURCE, POINT + EFFLUENT + GAS + *RADON + *ATMOSPHERIC DIFFUSION + FRANCE

15-33922

ALSO IN CATEGORY 14

DOURY A

RISK PRESENTED BY THE DIFFUSION OF LARGE QUANTITIES OF TRITIUM IN THE ATMOSPHERE
CEA, SERVICE DE CONTROLE DES RADIATIONS ET DE GENIE RADIOACTIF

CEA-N-489 +. 12 PAGES, 2 TABLES, 12 REFERENCES, JANUARY 1965 (IN FRENCH)

CONSIDERS THE RADIOLOGICAL HAZARD THAT ACCOMPANIES THE RELEASE OF TRITIUM TO THE ATMOSPHERE. PRESENTS TO ICRP THE ADMISSIBLE OR ACCEPTABLE CONTINUOUS RELEASE TO THE ATMOSPHERE.

TRITIUM + HAZARD, RELATIVE + ICRP + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + ATMOSPHERIC POLLUTION + FRANCE + RADIOACTIVITY RELEASE

15-33923

ALSO IN CATEGORY 14

JAMMET H

ORGANIZATION OF THE MEANS AND METHODS OF ASSISTANCE AND TREATMENT RESULTING FROM ACCIDENTS IN NUCLEAR ESTABLISHMENTS

CEA, PARIS

19 PAGES, PP. 321-49 OF PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ACCIDENTAL IRRADIATION AT PLACE OF WORK, NICE, APRIL 26-29, 1966

CONSIDERS THE RADIOLOGICAL HAZARD THAT ACCOMPANIES THE RELEASE OF TRITIUM TO THE ATMOSPHERE. PRESENTS TO ICRP THE ADMISSIBLE OR ACCEPTABLE CONTINUOUS RELEASE TO THE ATMOSPHERE.

*RADIATION PROTECTION, ORGANIZATION + *RADIATION INJURY TREATMENT + HEALTH PHYSICS TRAINING + *ACCIDENT, GENERAL + IAEA + *ADMINISTRATIVE CONTROL + FRANCE

15-33924

PRESS RELEASE - USHEW - RAY-ALERT

U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, WASHINGTON, D.C.

HEW-W87 +. 3 PAGES, MAY 14, 1965

ADVISES OWNERS OF COLOR TV RECEIVERS THAT PURCHASE OF A RADIATION MEASURING DEVICE WITH TRACE NAME, RAY-ALERT WOULD NOT ENSURE COMPLETE X-RAY SAFETY EVALUATION OF THEIR SETS.

*RADIATION PROTECTION, ORGANIZATION + MEASUREMENT, GENERAL + RADIOLOGICAL ASSISTANCE + *INSTRUMENT, GENERAL +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-33924 *CONTINUED*

*X-RAY + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + SURVEY, RADIATION, USPHS

15-33939

RADIOACTIVITY AND THE ENVIRONMENT
INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
IAEA PRESS RELEASE PR-69/24 +. 2 PAGES, MARCH 28, 1969

A SEMINAR OF INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA), THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO), AND THE WORLD HEALTH ORGANIZATION (WHO) HAS AS ITS SUBJECT THE AGRICULTURAL AND PUBLIC HEALTH ASPECTS OF ENVIRONMENTAL CONTAMINATION BY RADIOACTIVE MATERIALS. TOPICS DISCUSSED - FALLOUT AND OTHER SOURCES OF RADIOACTIVITY, GROWTH OF ATOMIC ENERGY INDUSTRY AND CONSEQUENT NEW HAZARDS, AND THE THREE ORGANIZATIONS RESPONSIBILITY TO DEVELOPING COUNTRIES.

HYDROLOGICAL CONSIDERATION, GENERAL

15-34321

ALSO IN CATEGORY 9

RADIATION MEASURING DEVICE - RAY ALERT
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, WASHINGTON
HEW-287 +. 5 PAGES, MAY 14, 1969

THE RAY-ALERT IS SCIENTIFICALLY SOUND AS A DEVICE FOR MEASURING EXPOSURE WHICH MAY RESULT FROM X-RADIATION FROM THE FRONT OF A TELEVISION RECEIVER PICTURE, BUT A SINGLE DEVICE OF SUCH SMALL SIZE CANNOT BE USED IN MAKING THE COMPLETE SURVEY WHICH MUST BE MADE OF EACH SURFACE OF A TV SET BEFORE IT CAN BE DETERMINED WHETHER THAT RECEIVER IS EMITTING X-RAYS ABOVE THE RECOMMENDED MAXIMUM FOR PERSONNEL SAFETY.

*INSTRUMENT, RADIATION MONITORING + MONITOR, AREA + X-RAY + *RADIATION, PUBLIC EDUCATION + *PERSONNEL EXPOSURE, RADIATION

15-34340

ALSO IN CATEGORY 14

GUARDING AGAINST RADIOACTIVE CONTAMINATION
INTERNATIONAL ATOMIC ENERGY AGENCY
IAEA PRESS RELEASE 69/22 +. 1 PAGE, MARCH 20, 1969

ANNOUNCES A MEETING IN VIENNA OF THREE WORLD ORGANIZATIONS FOR A SCIENTIFIC SEMINAR. THE ORGANIZATIONS ARE THE INTERNATIONAL ATOMIC ENERGY AGENCY, THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, AND THE WORLD HEALTH ORGANIZATION. THE SEMINAR, STARTING ON MARCH 24, 1969, WILL INCLUDE TOPICS ON SOURCES OF RADIOACTIVITY IN THE ENVIRONMENT, THEIR ROUTE TO MAN, PROTECTION STANDARDS AND CRITERIA, MONITORING PROGRAMS, EMERGENCY SITUATIONS, PUBLIC PROTECTION, AND FUTURE TRENDS.

*RADIATION SAFETY AND CONTROL + *ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + ENVIRONMENTAL CONDITION + *CODES AND STANDARDS + MONITORING PROGRAM, ENVIRONMENTAL + POPULATION EXPOSURE + *EMERGENCY PROCEDURE

15-34352

ALSO IN CATEGORY 7

YAMADA VM + CHARLSON RJ
PROPER SIZING OF THE SAMPLING INLET LINE FOR A CONTINUOUS AIR MONITORING STATION
UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON 98105
2 PAGES, 1 TABLE, REFERENCES, ENVIRONMENTAL SCIENCE AND TECHNOLOGY 3(5), PAGES 483-84 (MAY 1969)

SERIOUS ERRORS IN CONTINUOUS MONITORING DATA FOR AIR POLLUTANTS ARE TRACEABLE TO THE INTAKE SYSTEM. BUT THE PROPER SIZE AND FLOW RATE CAN BE EASILY ACHIEVED BY USING A LARGE DUCT AND A BLOWER FOR AIR MOVEMENT THAT WILL CORRECT DIFFUSIVE LOSS OF POLLUTANTS (PARTICULARLY PARTICULATES) TO THE TUBING WALLS.

FLOW ORIFICE + FLCW, GENERAL + FLOW, TURBULENT + *AEROSOL + *SAMPLING + *ANALYTICAL TECHNIQUE, AIR + *FLOW, TUBE

15-34356

ALSO IN CATEGORY 7

MAISIN JR
METABOLISM AND TOXICITY OF PLUTONIUM
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE, MOL, BELG.
10 PAGES, J. BELGE RADIOL., 51 274-83 (1968)

THE PROBLEM OF THE TOXICITY AND METABOLISM OF PLUTONIUM IS DISCUSSED AND THE MAIN CHANNELS OF PENETRATION AND ELIMINATION OF THIS NUCLIDE IN THE HUMAN BODY ARE REVIEWED. THE CONSEQUENCES OF A CONTAMINATION BY PU-239 ARE THEN EXAMINED AND THE BASIC PRINCIPLES FOR THE TREATMENT OF THE CONTAMINATION ARE STATED. THE PROBLEM OF ASSESSING THE PLUTONIUM BODY BURDEN IS ALSO DEALT WITH.

*MAXIMUM PERMISSIBLE BODY BURDEN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *CONTAMINATION + RADIATION SAFETY AND CONTROL + RADIATION EXPOSURE, RECORD KEEPING + *BIOLOGICAL CONCENTRATION, MAN + *PLUTONIUM

15-34426

ALSO IN CATEGORY 16

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-34426 *CONTINUE*

GOLDSTEIN RA

THE TERF PROGRAM AND ITS APPLICATIONS TO THE CALCULATION OF FALLOUT RADIATION DOSE
MATHEMATICAL APPLICATIONS GROUP, INC., WHITE PLAINS, NEW YORK
USNRDL-TRC-68-56 +. 75 PAGES, FIGURES, TABLES, JANUARY 1969

TERF IS A MONTE CARLO RADIATION TRANSPORT CODE FOR COMPUTING GAMMA-RAY DOSE DUE TO FALLOUT ON NON-UNIFORM TERRAIN. THE CODE AS DEVELOPED IN THIS STUDY INCORPORATES EXTENSIVE GEOMETRY CAPABILITIES INCLUDING THE UNIQUE ABILITY TO CONVERT ELEVATION CONTOUR LINE DATA INTO THREE-DIMENSIONAL TERRAIN REPRESENTATIONS. A VARIETY OF CALCULATIONS CONCERNED WITH THE EFFECTS ON THE DOSE OF VARIOUS TERRAIN FEATURES, STRUCTURES AND VEGETATION, ARE DESCRIBED.

AVAILABILITY - R.A. GOLDSTEIN, MATHEMATICAL APPLICATIONS GROUP, INC. WHITE PLAINS, NEW YORK

*TRANSPORT THEORY + *TRANSPORT PROPERTY + *FALLOUT + GAMMA EMITTER + DOSE + DEPOSITION + *DOSE CALCULATION, EXTERNAL + *COMPUTER PROGRAM + *CODES AND STANDARDS + *MONTE CARLO

15-34427

ALSO IN CATEGORY 14

A DDC BIBLIOGRAPHY ON AIR AND WATER POLLUTION - VOLUME I OF II VOLUMES
DEFENSE DOCUMENTATION CENTER, VA.
AD-679210 +. 300 PAGES, OCTOBER 1968

THIS BIBLIOGRAPHY COVERS THE SUBJECTS OF POLLUTION OF AIR AND WATER, FROM BOTH NATURAL AND MAN-MADE SOURCES. THE 294 REFERENCES INCLUDE THE CAUSES OF POLLUTION, THEIR DETECTION, CONTROL, AND ELIMINATION FOR BOTH AIR AND WATER ENVIRONMENTS. ATMOSPHERIC POLLUTION IS TREATED AS IT OCCURS NOT ONLY IN THE AMBIENT AIR BUT ALSO IN CONFINED ENVIRONMENTS SUCH AS IN SUBMARINES AND SPACE VEHICLES. REFERENCES DATE FROM 1953, AND ARE UNCLASSIFIED.

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

*BIBLIOGRAPHY + *ATMOSPHERIC POLLUTION + *WATER POLLUTION + *AQUATIC ORGANISMS + *POPULATION EXPOSURE + AIR + WATER, GENERAL + EFFLUENT + FALLOUT + WASTE DISPOSAL, GENERAL + ADMINISTRATIVE CONTROL

15-34431

PIESCH E

THE ACCURACY OF PERSONNEL DOSIMETER READINGS - A CRITICAL REVIEW OF INTERCOMPARISON MEASUREMENTS
KERNFORSCHUNGSZENTRUM KARLSRUHE
KFK-825 +. 27 PAGES, 7 FIGURES, 8 TABLES, 17 REFERENCES, DECEMBER 1968

THE PAPER REVIEWS THE RESULTS OF INTERCOMPARISON TEST EXPOSURES WITH FILM, TLD, AND RPL DOSIMETERS. A CAREFUL EXAMINATION OF THE RESULTS OF 12 INTERCOMPARISON TEST EXPOSURES DEMONSTRATES THAT THE FILM DOSIMETER - MOST FREQUENTLY USED IN ROUTINE MONITORING TODAY - HAS AN UNFAVORABLE MEASURING ACCURACY - +- 30 TO 50% IN ROUTINE EVALUATION. ABOVE ALL, NEW TLD AND RPL DOSIMETERS HAVE A MEASURING ACCURACY OF ALMOST +- 15% BECAUSE OF THEIR ENERGY AND DIRECTION INDEPENDENCE AND THEIR STABILITY AGAINST ENVIRONMENTAL INFLUENCES.

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

*DOSIMETRY, GENERAL + DOSIMETRY, PHOTOGRAPHIC + DOSE + *PERSONNEL PROTECTIVE DEVICE + *ERROR ANALYSIS + BNL + HANFORD SITE + SOLID STATE DEVICE + SAVANNAH RIVER PLANT + *INSTRUMENT CALIBRATION + PHOSPHATE + GLASS + NRDL + *ENERGY LEVEL

15-34491

ALSO IN CATEGORY 14

DISPOSAL OF RADIOACTIVE WASTES FROM U. S. NAVAL NUCLEAR-POWERED SHIPS AND THEIR SUPPORT FACILITIES, 1967
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
4 PAGES, 3 TABLES, 2 REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 10(4), PAGES 135 - 138 (APRIL, 1969)

SUMMARIZES DATA ON DISPOSAL OF RADIOACTIVE WASTES FROM U. S. NAVAL NUCLEAR-POWERED SHIPS AND THEIR SUPPORT FACILITIES AND SUMMARIZES RESULTS OF ENVIRONMENTAL MONITORING PERFORMED TO CONFIRM THE ADEQUACY OF WASTE DISPOSAL LIMITS AND PROCEDURES.

*REACTOR, MARITIME + *WASTE DISPOSAL, OCEAN + *MONITOR, ENVIRONMENTAL + PROCEDURES AND MANUALS + ADMINISTRATIVE CONTROL + *SEDIMENT + *COBALT + WASTE DISPOSAL, SOLID + USAEC + ANALYTICAL TECHNIQUE, GENERAL + SURVEY, RADIATION, USPHS

15-34492

ALSO IN CATEGORY 14

DATA SECTION I. MILK AND FOOD. SECTION II. WATER. SECTION III. AIR AND DEPOSITION. SECTION IV. OTHER DATA
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
44 PAGES, FIGURES, TABLES, REFERENCES, RADIOLOGICAL HEALTH DATA AND REPORTS, 10(4), PAGES 139 - 183 (APRIL 1969)

GIVES DATA RESULTS OF SURVEILLANCE PROGRAMS OF MILK AND FOOD, WATER, AIR AND DEPOSITION, AND OTHER MISCELLANEOUS RADIOLOGICAL DATA.

*SURVEILLANCE PROGRAM + *BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, FOOD + *BIOLOGICAL CONCENTRATION, MAN + *SURFACE WATER, NUCLIDE OCCURRENCE + WATER POLLUTION + *ATMOSPHERIC POLLUTION + AIR + WATER, GENERAL + DEPOSITION + NUCLEAR DETONATION + TESTING + STRONTIUM + IODINE + *OPERATION + *USAEC +

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-34492 *CONTINUED*
SURVEY, RADIATION, USPHS

15-34493 ALSO IN CATEGORY 17
RADIOLOGICAL EMERGENCY OPERATIONS, STUDENTS MANUAL
REYNOLDS ELECTRICAL AND ENGINEERING CO., INC., MERCURY, NEVADA
TID-24919 +. 425 PAGES, FIGURES, TABLES, REFERENCES, 1969

MANUAL FOR AN 80-HR COURSE TO TRAIN A RADIOLOGICAL EMERGENCY TEAM AT AN AEC INSTALLATION.
INCLUDES INFORMATION ON TERMINOLOGY, HEALTH PHYSICS INSTRUMENTATION, SAFE HANDLING OF ISOTOPES
(INCLUDING NUCLEAR WEAPONS), PROTECTIVE EQUIPMENT AND DECONTAMINATION, EMERGENCY-OPERATIONS
PHILOSOPHY AND S.O.P., PRESS RELEASES. *** A GOOD REFERENCE BOOK FOR ANY NUCLEAR-FACILITY
LIBRARY.

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

*TRAINING + RADIATION SAFETY AND CONTROL + RADIOLOGICAL ASSISTANCE + EMERGENCY PROCEDURE + REACTOR, PWR +
REACTOR, BWR + REACTOR, AEC OWNED + *HEALTH PHYSICS TRAINING + RADIATION, PUBLIC EDUCATION + INCIDENT,
RECOVERY FROM + REACTOR, POWER + REACTOR, RESEARCH

15-34629 ALSO IN CATEGORIES 13 AND 17
RADIOLOGICAL EMERGENCY OPERATIONS - INSTRUCTORS MANUAL
REYNOLDS ELECTRICAL AND ENGINEERING CO.
TID-24918 +. 219 PAGES, REFERENCES, 1969

FOR AN 80-HR COURSE. COMPANION VOLUME TO STUDENTS MANUAL, GIVES REFERENCES, LESSON PLANS, TESTS,
PRACTICAL EXERCISES. COURSE INTENDED TO TRAIN A WORKER IN RADIATION FIELD TO BE A MEMBER OF AN
EMERGENCY TEAM. *** COVERS HEALTH PHYSICS INSTRUMENTATION, HANDLING OF RADIOISOTOPES, EMERGENCY-
TEAM PHILOSOPHY AND PROCEDURES, EMERGENCY MONITORING. *** EVERY NUCLEAR FACILITY SHOULD HAVE A
LIBRARY COPY.

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

*RADIATION SAFETY AND CONTROL + EMERGENCY PROCEDURE + RADIOLOGICAL ASSISTANCE + BIBLIOGRAPHY + TRAINING +
SURVEY, RADIATION, EMERGENCY + MONITOR, PERSONNEL + REACTOR, BWR + REACTOR, PWR + REACTOR, RESEARCH + *HEALTH
PHYSICS TRAINING

15-34641
ANTOKU S
REPORT OF DOSIMETRY STUDIES
ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA, JAPAN
ABCC-TR-1-66 +. 62 PAGES, FEBRUARY 24, 1966

REPORT OF VISIT TO THE U.S.A. OF REPRESENTATIVE OF ABCC TO OBSERVE TECHNIQUES BEING USED IN
DOSIMETRY STUDIES IN THE U.S.A. ALSO FOR TRAINING IN THE FIELD OF RADIATION DOSIMETRY. DETAIL
OF EXPERIENCES AT SLOAN-KETTERING INSTITUTE, JOHNS HOPKINS UNIVERSITY, AND ROCKVILLE INSTITUTE OF
THE U.S. PUBLIC HEALTH SERVICE ARE GIVEN.

AVAILABILITY - SHIGETOSHI ANTOKU, ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA, JAPAN

*NUCLEAR ATTACK + JAPAN + *DOSIMETRY, GENERAL + *RADIOBIOLOGY + *X-RAY + POPULATION EXPOSURE + *RADIATION
EXPOSURE, RECORD KEEPING + *RADIATION INJURY TREATMENT + RADIATION DAMAGE + REPORT, TRIP + HEALTH PHYSICS
TRAINING + DOSE

15-34642
ENVIRONMENTAL RADIATION SURVEILLANCE REPORT NO. 11
NATIONAL CENTER FOR RADIOLOGICAL HEALTH, ROCKVILLE, MD.
NP-17672 +. 51 PAGES, SEPTEMBER 27, 1968

PRESENTS FIELD AND LABORATORY REPORTS OF GROSS BETA RADIOACTIVITY OF PARTICULATES IN AIR AND
PRECIPITATION FROM A SURVEILLANCE NETWORK OF THE U.S. PUBLIC HEALTH SERVICE.

*SURVEILLANCE PROGRAM + SURVEY, RADIATION, USPHS + *MONITOR, AIR + *MONITOR, ENVIRONMENTAL + *PRECIPITATION +
*GROSS BETA + PARTICLE, RADIOACTIVE + ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION +
RADIOLOGICAL ASSISTANCE + RADIATION SAFETY AND CONTROL

15-34643
GARST CM + WHITFIELD WJ
CONTAMINATION CONTROL - A STATE-OF-THE-ART REVIEW
SANDIA CORP., ALBUQUERQUE, N. MEXICO
SC-DC-68-2477 +. 17 PAGES, OCTOBER 1968

A REVIEW OF THE STATUS OF CONTAMINATION CONTROL COVERING THE AREAS OF SYSTEMS ANALYSIS, PRODUCT
DESIGN, FACILITIES AND EQUIPMENT MONITORING, AND PERSONNEL AS THEY ARE RELATED TO CONTAMINATION
CONTROL.

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-34643 *CONTINUED*

AVAILABILITY - D.M. GARST/W.J. WHITFIELD, SANDIA CORP., ALBUQUERQUE, NEW MEXICO

*RADIATION SAFETY AND CONTROL + *CONTAMINATION + AIR + GAS + LIQUID + SOLID + SURFACE CONTAMINATION + PARTICULATE + *HEALTH PHYSICS TRAINING + ENVIRONMENTAL CONDITION + *EQUIPMENT, GENERAL + INSTRUMENT, SURVEILLANCE + DESIGN CRITERIA + RADIATION, PUBLIC EDUCATION + RADIATION PROTECTION, ORGANIZATION + INSTRUMENT, RADIATION MONITORING

15-34644

NISH JG + PHELPS PL + KELLY JW

A RAPID FREQUENCY LINKED GAMMA RADIATION MONITORING SYSTEM

CALIFORNIA UNIV., LAWRENCE RADIATION LAB.

UCID-15382 +. 30 PAGES, JULY 19, 1968

DESCRIBES A SYSTEM TO MEASURE AND COLLECT GROSS GAMMA DOSE RATE INFORMATION FROM A LARGE AREA. IT IS ESSENTIALLY A PROTOTYPE SYSTEM, BEING DESIGNED TO EVALUATE THE FEASIBILITY OF MAKING ACCURATE, LARGE-SCALE FALLCUT PATTERN MEASUREMENTS. WHILE THIS SYSTEM WILL SPOT MONITOR AN AREA OF 10,000 SQUARE MILES WITH APPROXIMATELY 30 DATA COLLECTION POINTS, A PRIME OBJECTIVE OF THE DESIGN IS TO DEVELOP A GROUP OF STANDARDIZED COMPONENTS THAT WILL PERMIT EASY EXPANSION OF THE SYSTEM. THESE COMPONENTS ARE - REMOTE SENSORS, REPEATER STATIONS, DATA COLLECTION TRAILER.

AVAILABILITY - J. G. NISH, CALIFORNIA UNIVERSITY, LIVERMORE, LAWRENCE RADIATION LAB.

*MONITORING SYSTEM, RADIATION + GAMMA EMITTER + *GROSS GAMMA + FALLOUT + MEASUREMENT, GENERAL + MONITOR, TELEMETRY + BIBLIOGRAPHY + *INSTRUMENT, RADIATION MONITORING + *OPERATION + DATA PROCESSING + COMPUTER PROGRAM + LRL

15-34647

ALSO IN CATEGORY 14

HEARINGS BEFORE THE SUBCOMMITTEE ON RESEARCH, DEVELOPMENT, AND RADIATION OF THE JOINT COMMITTEE ON ATOMIC ENERGY, CONGRESS OF THE UNITED STATES, 91ST CONGRESS, FIRST SESSION
411 PAGES, RADIATION STANDARDS FOR URANIUM MINING, MARCH 18, 1969

A HEARING BEFORE CONGRESS COVERING STATEMENTS OF WITNESSES, STATEMENTS SUBMITTED FOR THE RECORD, AND OTHER MATERIAL INCLUDING CORRESPONDENCE SUBMITTED AND INSERTED IN THE RECORD. ALSO INCLUDED IS AN APPENDIX.

*URANIUM + *MINING + *CODES AND STANDARDS + *ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + STATE PROGRAM + *CONGRESSIONAL ACTIVITY + RADIATION SAFETY AND CONTROL + PARTICLE, RADIOACTIVE + INHALATION + PERSONNEL EXPOSURE, RADIATION + *FEDERAL RADIATION COUNCIL + *USAEC + ICRP + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC)

15-34648

ALSO IN CATEGORY 13

NFS - QUARTERLY REPORT FOR JANUARY 1, 1969 THROUGH MARCH 31, 1969

NUCLEAR FUEL SERVICES, INC., WEST VALLEY, N.Y.

14 PAGES, 7 TABLES, LETTER TO DML TRANSMITTING QUARTERLY REPORT, APRIL 28, 1969, DOCKET 50-201

COVERS OPERATIONS, UNPLANNED SHUTDOWNS, WASTE MANAGEMENT, FACILITY PERFORMANCE, AND MODIFICATIONS DURING REPORT PERIOD AS REQUIRED BY PROVISIONAL OPERATING LICENSE NO. CSF-1.

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

*NFS + *FUEL REPROCESSING + *SOLVENT EXTRACTION PROCESS + *REPORT, OPERATIONS + OPERATING EXPERIENCE + *WASTE MANAGEMENT + *MONITORING PROGRAM, ENVIRONMENTAL + FAILURE, CLADDING + FUEL ELEMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + VENTILATION SYSTEM

15-34769

JAWOROWSKI Z

STABLE AND RADIOACTIVE LEAD IN ENVIRONMENT AND HUMAN BODY

INSTITUTE OF NUCLEAR RESEARCH, WARSAW, POLAND

NEIC-RR-29 +. 88 PAGES, FIGURES, TABLES, REFERENCES, 1967

A MONOGRAPH ON STABLE AND RADIOACTIVE LEAD IN THE ENVIRONMENT AND HUMAN BODY. THE AIM OF THIS STUDY IS TO DETERMINE THE LEVEL OF LEAD IN TYPICAL COMPONENTS OF THE BIOSPHERE AND IN THE ORGANISM, AS WELL AS TO EXAMINE THEIR SOURCES AND TEMPORAL AND GEOGRAPHICAL DISTRIBUTION. STABLE LEAD CONTAMINATION OF THE ENVIRONMENT IS REPORTED TO HAVE BEEN DRASTICALLY INCREASED AND RADIOACTIVE LEAD CONTENT IN THE BIOSPHERE HAS ALSO INCREASED DURING THE LAST DECADE.

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

*SURVEILLANCE PROGRAM + *LEAD + *POPULATION EXPOSURE + PERSONNEL EXPOSURE, RADIATION + AIR + *CONTAMINATION + NUCLEAR EXPLOSION DEBRIS + SAFETY PRINCIPLES AND PHILOSOPHY + ENVIRONMENTAL CONDITION + MONITOR, TELEMETRY + HAZARD, RELATIVE + REACTOR, POWER + URANIUM + *INDUSTRIAL SAFETY + INHALATION + *BIOLOGICAL CONCENTRATION, MAN

15-34772

TOMONAGA M

STATISTICAL INVESTIGATION OF LEUKEMIA IN JAPAN

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-34772 *CONTINUED*

ATOMIC BOMB CASUALTY COMMISSION, HIROSHIMA, NAGASAKI, JAPAN
ABCC-TR-28-66 +. 13 PAGES, FIGURES, TABLES, REFERENCES, NOVEMBER 3, 1966

THE EPIDEMIOLOGY OF LEUKEMIA IN JAPAN IS PRESENTED. STUDIES ARE REPORTED ON NOT ONLY LEUKEMIA IN THE ATOMIC BOMB SURVIVORS OF THE TWO CITIES FROM THE VIEWPOINT OF RADIATION AND LEUKEMIA, BUT ALSO FROM THE VIEWPOINT OF GEOGRAPHICAL HEMATOLOGY. STATISTICAL DATA IS GIVEN ON (1) AGE DISTRIBUTION OF DEATH RATE FROM LEUKEMIA IN JAPAN, 1960, (3) TYPE DISTRIBUTION OF LEUKEMIA, (4) AGE DISTRIBUTION OF ACUTE LEUKEMIA.

*NUCLEAR ATTACK + *JAPAN + *BIOMEDICAL + *RADIOBIOLOGY + POPULATION EXPOSURE + PERSONNEL EXPOSURE, RADIATION + BIOLOGICAL CONCENTRATION, MAN + *RADIATION EXPOSURE, RECORD KEEPING + RADIATION IN PERSPECTIVE + *STATISTICAL ANALYSIS

15-34865

ALSO IN CATEGORY 17

RADIOGRAPHER RECEIVES ESTIMATED 25.19 R EXPOSURE
U.S. ATOMIC ENERGY COMMISSION + CRANE COMPANY
15 PAGES, LETTERS - AEC AND CRANE COMPANY- JANUARY 22, 1969, MARCH 25, 1969

ON JANUARY 8, 1969 A RADIOGRAPHER WAS EXPOSED TO A 43 CURIE IR-192 SOURCE AT VARYING DISTANCES BETWEEN 4-00 AND 6-30 A.M. HE WAS RADIOGRAPHING STEEL CASTINGS INSIDE A SHIELDED CELL, WHICH HAD A SINGLE SOURCE TUBE THAT COULD BE CONNECTED TO EITHER OF TWO SOURCES (43 AND 11 CURIES) IN SEPARATE SHIELDS (T.O. 402 AND T.O. 412). AT 4-00 A.M. HE USED THE 43 CURIE SOURCE AND PLACED THE FILM IN A AUTOMATIC DEVELOPER. HE CHANGED THE SOURCE TUBE FROM THE T.O. 402 TO THE T.O. 412 (DISCONNECTING THE LAST 6 FT 6 IN. SECTION FROM ONE UNIT AND CONNECTING IT TO THE OTHER) MADE EXPOSURES AND NOTED THE FILM WAS TOO DARK. HE NOTICED THE SURVEY METER ON THE CONTROL STATION WAS UPSCALE ON THE 0-10 MR/HR SCALE AND CALLED HIS SUPERVISOR. SINCE THE CONTROL LIGHTS SHOWED BOTH SOURCES IN SAFE POSITIONS BUT HIGH RADIATION WAS PRESENT, MANUFACTURER WAS CALLED. THE 43 C SOURCE WAS STUCK 18 IN. FROM THE SHIELD. THE EMPLOYEE WAS NOT AUTHORIZED BY AEC TO BE A RADIOGRAPHER, WAS NOT WEARING A FILM BADGE OR DOSIMETER, DID NOT USE THE SURVEY METER FOLLOWING SOURCE RETRACTION, AND THE GAMMA RADIATION MONITOR FOR THAT CELL WAS BEING CALIBRATED AND WAS NOT YET INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

FAILURE, ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + HOT CELL + *RADIOGRAPHY + *PERSONNEL EXPOSURE, RADIATION + CERTIFICATION + CONTROL SYSTEM + MONITOR, AREA + FAILURE, OPERATOR ERROR

15-34866

ALSO IN CATEGORY 17

TWO EXPOSED IN I-131 PROCESSING
CAMBRIDGE NUCLEAR CORPORATION
1 PAGE, LETTER TO AEC-DRL, MARCH 6, 1969

TWO INHALED I-131 ON FEB. 6 AND 14, 1969, WHILE DISPENSING I-131. THESE WERE NORMALLY PREPARED IN A WELL-VENTILATED HOOD SPECIFICALLY FOR THAT PURPOSE, ON FEB. 6 INDIVIDUAL A DISPENSED I-131 OUTSIDE THE HOOD BECAUSE THE REMOTE DISPENSER WAS INOPERABLE. THE NEXT DAY, A 0.43 MICRO-C THYROID CONTENT (1.5 RAD EQUIVALENT) WAS DETECTED ON A ROUTINE THYROID SCAN AND THE INDIVIDUAL REPRIMANDED. ON FEB. 14, INDIVIDUAL B DID THE SAME THING FOR THE SAME REASON, AND A ROUTINE THYROID SCAN INDICATED AN EQUIVALENT THYROID DOSE OF 0.95 RAD. ALL TECHNICIANS WERE WARNED NOT TO VIOLATE PROCEDURES AND REQUESTED TO INFORM THE RADIATION SAFETY OFFICER BEFORE A PROCEDURE IS CHANGED, AND REMINDED OF THE I-131 VOLATILITY HAZARD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

RADIOISOTOPE + *FAILURE, OPERATOR ERROR + FAILURE, EQUIPMENT + GLOVE BOX + *FISSION PRODUCT, IODINE + INHALATION + BIOMEDICAL + BYPRODUCT MATERIAL + *PERSONNEL EXPOSURE, RADIATION

15-34867

ALSO IN CATEGORY 17

LACK OF POSITIVE LOCK IN RADIOGRAPHY DEVICE CAUSES OVEREXPOSURE
U.S. DEPT. OF THE NAVY (NORFOLK NAVAL SHIPYARD)
2 PAGES, LETTER TO DL AND R, FEBRUARY 20, 1969

ON JANUARY 22, 1969, A RADIOGRAPHER AT THE NORFOLK, VIRGINIA, NAVAL SHIPYARD CHECKED HIS POCKET DOSIMETER, AFTER 6 EXPOSURES WITH A T.O. MODEL 576 USING A 96-CURIE CO-60 SOURCE, AND FOUND IT OFFSCALE. HIS FILM BADGE READ 4.22 REMS. INVESTIGATION REVEALED THIS MODEL, UNLIKE OTHERS, HAD NO POSITIVE LOCKING DEVICE. WHEN THE SOURCE WAS RETRACTED, IT WOULD CREEP OR SPRING OUT OF THE SHIELD UNLESS THE CRANK HANDLE WAS TIED. RADIATION LEVELS NEAR THE SOURCE TUBE END OF THE STORAGE DEVICE WOULD EXCEED 1 R/HR. THE DEVICE WAS RETURNED TO THE MANUFACTURER FOR INSTALLATION OF A LOCKING DEVICE, AND ALL RADIOGRAPHERS ISSUED PERSONAL RADIATION MONITORS WITH AUDIBLE ALARMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*RADIOGRAPHY + *INCIDENT, EXPOSURE + *PERSONNEL EXPOSURE, RADIATION + SHIELDING + COBALT + SAFETY DEVICE

15-34870

MATTHEWS PD

THE DETERMINATION OF THE QUANTITY OF RADIOACTIVITY CONTAINED IN A GASEOUS EFFLUENT AT THE NEVADA TEST SITE USING GAMMA DOSE-RATE MEASUREMENTS
SANDIA LABORATORIES, LIVERMORE, CALIFORNIA

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-34870 *CONTINUED*
SC-RR-68-559 +. 33 PAGES, 5 FIGURES, 3 TABLES 7 REFERENCES, DECEMBER, 1968

METHODS ARE PRESENTED WHICH MAY BE USED TO OBTAIN A QUANTITATIVE ESTIMATE OF RADIOACTIVE EFFLUENT ACTIVITY USING GAMMA DOSE-RATE MEASUREMENTS. A METHOD IS DISCUSSED BY WHICH ESTIMATES MAY BE MADE OF ACTIVITIES OF NOBLE GASES RELEASED THROUGH FILTERED EXHAUST SYSTEMS. IN ADDITION, THE ACTIVITIES, IN TERMS OF CURIES PER KILOTON FISSION YIELD FROM U-235 THERMAL FISSION, FOR SELECTED ISOTOPES OF THE XENON, KRYPTON, AND IODINE NUCLIDES ARE PLOTTED VERSUS TIME AFTER FISSION

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

MONITOR, GAS + *EFFLUENT + *SOURCE, LINE + *SOURCE, POINT + RADIOACTIVITY RELEASE + DOSIMETRY, GENERAL + GAMMA EMITTER + *MEASUREMENT, GENERAL + FILTER + *VENTILATION SYSTEM + *METEOROLOGY + *NEVADA TEST SITE

15-34871 ALSO IN CATEGORY 17
MICHAELSON M.
HOW SAFE ARE X-RAYS
3 PAGES, TODAY'S HEALTH, 46(6), PAGES 12,13,71 (JUNE 1968)

A NURSE, AFRAID OF RADIATION AFFECT ON THE UNBORN, REFUSED A CHEST X-RAY WHILE PREGNANT. LATER SHE WAS FOUND TO HAVE TB AND REQUIRED EXCESSIVE TREATMENT. ONE THIRD OF MEDICAL DECISIONS BY INTERNISTS ARE BASED ON DIAGNOSTIC X-RAYS. *** ARTICLE REVIEWS X-RADIATION AND LEUKEMIA, PHS SURVEY OF RADIOLOGY RADIATION LEVELS, AND PRECAUTIONS. MAKES THE POINT (WITHOUT SAYING IT) - TRUST YOUR PHYSICIAN TO KNOW WHEN TO USE X-RAYS.

RADIATION SAFETY AND CONTROL + *POPULATION EXPOSURE + RADIOLOGY + BIOMEDICAL + RADIATION, PUBLIC EDUCATION + X-RAY

15-34879
WOOLDRIDGE CB
ENVIRONMENTAL SURVEILLANCE IN THE VICINITY OF HANFORD FOR OCTOBER 1968
PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-778-10 +. 17 PAGES, DECEMBER 30, 1968

CONTAINS INFORMATION RELATED TO RADIOACTIVE MATERIALS IN THE COLUMBIA RIVER, THE ATMOSPHERE, AND SELECTED FOODS FOR OCTOBER, 1968. MEASUREMENTS OF THE COLUMBIA RIVER FLOW RATE, TEMPERATURE, AND CHEMICAL CHARACTERISTICS ARE ALSO SHOWN. DATA FOR THE PREVIOUS TWELVE MONTHS IS INCLUDED. THE CONCENTRATIONS OF MOST RADIONUCLIDES IN THE HANFORD ENVIRONS DURING OCTOBER, 1968, WERE AT OR BELOW COMPARABLE 1967 VALUES. THE AVERAGE SHORELINE EXPOSURE RATE AS MEASURED AT RINGOLD DURING OCTOBER WAS 100 MICROCROCENTGENS PER HOUR, SOMEWHAT HIGHER THAN USUAL.

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

*SURVEILLANCE PROGRAM + *RIVER, COLUMBIA + *ATMOSPHERIC POLLUTION + *MEASUREMENT, GENERAL + *FLOW, GENERAL + THERMAL CONSIDERATION + CHEMICAL TOXICITY + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + SCANDIUM + TRANSPORT THEORY + MONITOR, ENVIRONMENTAL + HANFORD SITE

15-34893
RADIOACTIVITY SURVEY DATA IN JAPAN
NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES
NP-16800 +. 20 PAGES, 10 FIGURES, 13 TABLES, REFERENCES, NOVEMBER 13, 1966

GIVES DATA FROM ROUTINE SURVEY WITH RESPECT TO DIETARY CONSUMPTION OF SR-90 AND CS-137. ALSO REPORTED IS DATA FROM FOURTH NUCLEAR TEST BY THE PEOPLES REPUBLIC OF CHINA (METEOROLOGICAL, DIETARY, AND FALLOUT DATA).

*SURVEILLANCE PROGRAM + JAPAN + *DIETARY HABIT + MAXIMUM PERMISSIBLE BODY BURDEN + *BIOLOGICAL CONCENTRATION, MAN + *BIOLOGICAL CONCENTRATION, MILK + STRONTIUM + CESIUM + IODINE + *METEOROLOGICAL SUPPORT + NUCLEAR DETONATION + TESTING + CHINA + FALLOUT + AIR

15-35037 ALSO IN CATEGORY 14
WOOLDRIDGE CB
EVALUATION OF RADIOLOGICAL CONDITIONS IN THE VICINITY OF HANFORD FOR 1967
BATTELLE MEMORIAL INSTITUTE PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-983 +. 87 PAGES, 30 FIGURES, 13 TABLES, 19 REFERENCES, MARCH 1969

CONTROLLED RELEASES OF A VARIETY OF LOW-LEVEL RADIOACTIVE WASTES ARE MADE TO THE COLUMBIA RIVER, TO THE GROUND, AND TO THE ATMOSPHERE. THE MAJOR SOURCE OF LOW-LEVEL WASTES RELEASED TO THE ENVIRONMENT IN 1967 CONTINUED TO BE REACTOR COOLING WATER DISCHARGED TO THE COLUMBIA RIVER. EVALUATION OF THE COMBINED OFFSITE EFFECTS OF ALL RADIOACTIVE WASTE RELEASES DURING 1967 SHOWED THAT CONCENTRATIONS OF RADIONUCLIDES IN THE ENVIRONS AND RADIATION DOSES RECEIVED BY NEARBY POPULATION GROUPS WERE WELL WITHIN ACCEPTED LIMITS. ESTIMATES WERE MADE OF THE WHOLE BODY, GASTROINTESTINAL TRACT, AND THYROID DOSES AND THE ANNUAL INTAKE OF BONE-SEEKING NUCLIDES. DIET INFORMATION ACCUMULATED FROM PLANT EMPLOYEES PERMITTED CALCULATION OF BOTH AVERAGE DOSE VALUES AND DOSE DISTRIBUTION FOR RICHLAND RESIDENTS.

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

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-35037 *CONTINUED*
COPY, \$0.65 MICROFICHE

*MONITORING PROGRAM, ENVIRONMENTAL + *HANFORD SITE + RADIOACTIVITY RELEASE + WASTE DISPOSAL, ATMOSPHERIC + WASTE DISPOSAL, RIVER + WASTE DISPOSAL, TERRESTRIAL + *RIVER, COLUMBIA + REACTOR COOLANT + EFFLUENT + OFF SITE + RADIATION EFFECT + POPULATION EXPOSURE + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *BIOLOGICAL CONCENTRATION, MAN

15-35155
LINDBECK SL + STEIGELMANN WH
CALIBRATION FOR GAMMA RADIATION DETECTION INSTRUMENTS
4 PAGES, 4 FIGURES, NUCLEAR ENGINEERING AND DESIGN 9(3), PAGES 311-314 (MARCH 1969).

THE U.S. ARMY OFFICE OF CIVIL DEFENSE RECENTLY INSTALLED A DEVICE FOR PRECISE CALIBRATION OF GAMMA RADIATION DETECTION INSTRUMENTS. THE NEW CALIBRATOR, DESIGNED AND BUILT BY NUS CORPORATION, WILL BE A PRIMARY STANDARD FOR A NATIONWIDE RADIOBIOLOGICAL INSTRUMENT MAINTENANCE AND CALIBRATION PROGRAM. THE CALIBRATOR A 500-CURIE CS/BAL37 SOURCE GIVES A UNIFORM BEAM OVER A RANGE OF DOSE RATES OF 0.002 TO 500 R/HR. MOTOR DRIVEN, TUNGSTEN ALLOY SHUTTERS, CONTROLLED EITHER MANUALLY OR BY AN ELECTRIC TIMER, PERMIT THREE BEAM INTENSITIES 1/1000, 1/150, OR FULL. LEAKAGE WITH ALL SHUTTERS CLOSED IS LESS THAN 2MR/HR AT 2 CM FROM THE SOURCE SHIELD. THE INSTRUMENT STAND, SPECIALLY BUILT TO MINIMIZE RADIATION SCATTER, IS FULLY ADJUSTABLE AND SUPPORTS A TELEVISION CAMERA FOR REMOTE OBSERVATION.

*INSTRUMENT CALIBRATION + *GROSS GAMMA + *MILITARY CONSIDERATION + RADIOBIOLOGY + *CODES AND STANDARDS + SOURCE, RADIATION + CESIUM + BARIUM + DOSIMETRY, GENERAL + CIVIL DEFENSE

15-35156 ALSO IN CATEGORY 14
CHILTON AB
FALLOUT AND WEAPONS RADIATION SHIELDING
INTERNATIONAL CIVIL DEFENSE ORGANIZATION
INTERNATIONAL CIVIL DEFENSE BULLETIN NO. 167 +. 10 PAGES, MAY 1969

DISCUSSES ANALYSIS AND/OR DESIGN OF STRUCTURES AGAINST THE GAMMA RADIATION EMITTED FROM THE FALLOUT OF RADIOACTIVE PARTICLES UPON THE SURFACE OF THE EARTH AFTER A NUCLEAR EXPLOSION. ALSO OF CONCERN IS THE INITIAL RADIATION OCCURRING WITHIN A MINUTE AFTER NUCLEAR EXPLOSION, INCLUDING ATTENDANT SECONDARY RADIATION.

*CIVIL DEFENSE + NUCLEAR DETONATION + *NUCLEAR ATTACK + *SHIELDING + GAMMA EMITTER + *FALLOUT + *SURFACE CONTAMINATION + HAZARD, RELATIVE + DEPOSITION + STRUCTURAL INTEGRITY + ADMINISTRATIVE CONTROL

15-35157
RADIATION CONTROL FOR HEALTH AND SAFETY ACT (PL-90-602)
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
4 PAGES, HEW PRESS RELEASE, JUNE 4, 1969

THE ACT REQUIRES THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE TO CARRY OUT AN ELECTRONIC PRODUCT RADIATION CONTROL PROGRAM, INCLUDING THE ESTABLISHMENT OF PRODUCT PERFORMANCE STANDARDS FOR RADIATION CONTROL IF HE DETERMINES SUCH STANDARDS TO BE NECESSARY FOR THE PROTECTION OF PUBLIC HEALTH AND SAFETY.

*RADIATION SAFETY AND CONTROL + *CONGRESSIONAL ACTIVITY + *CODES AND STANDARDS + *ADMINISTRATIVE CONTROL + POPULATION EXPOSURE + ENVIRONMENTAL CONDITION

15-35183 ALSO IN CATEGORY 17
RESPONSE TO JAN. 29, 1969 CITATION FOR RADIOGRAPHY NON-COMPLIANCE
DURIRON COMPANY
5 PAGES, LETTER TO L.D. LOW, USAEC, MARCH 17, 1969

AS RESULT OF AEC INVESTIGATION OF OCTOBER 9 AND 10, 1968, FOLLOWING ACTION WAS TAKEN - (1) DOSIMETER READINGS ARE RECORDED FIVE TIMES PER DAY (AT 8-10-1 AND 3 O CLOCK AND AT COMPLETION OF RADIOGRAPHIC OPERATIONS). (2) ACQUIRED TWO ADDITIONAL SURVEY METERS FOR GAMMA ROOM FOR BETTER RELIABILITY. (3) SURVEYS OF SOURCE TUBE AND CONTAINER ARE MADE AND RECORDED AS SEPARATE ITEMS IN ADDITION TO GAMMA-ROOM SURVEY ON ENTRY TO ROOM. (4) IN ADDITION TO EXISTING INTERLOCKING LIGHTS, A GA-25 GAMMA ALARM SYSTEM WAS INSTALLED TO APPRISE PERSONNEL UPON ENTRY TO GAMMA ROOM THAT CO-60 SOURCE IS PROPERLY SECURED IN SHIELD. (5) EXISTING PROCEDURES WILL BE AMENDED TO REFLECT CORRECTIVE ACTION TAKEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + *RADIOGRAPHY + *PERSONNEL PROTECTIVE DEVICE + GAMMA EMITTER + COBALT + RADIOISOTOPE + SOURCE, RADIATION + PROCEDURES AND MANUALS + MONITOR, AREA + INSTRUMENT, INTERLOCK

15-35185 ALSO IN CATEGORY 17
HAND OVEREXPOSURE OF 45 REMS BECAUSE OF LEAD-LINED GLOVE REMOVAL
ATLANTIC RESEARCH CORPORATION
2 PAGES, LETTER TO DIRECTOR, OML, APRIL 10, 1969

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-35185 *CONTINUED*

ON 4/4/69, A TECHNICIAN HANDLING 10 MC SR-90 WITH LEAD-LINED GLOVES DECIDED TO REMOVE THEM TO COMPLETE A PROCESS. EXPOSURE ESTIMATED AS 45 REMS. HE WAS A NEW EMPLOYEE AND HAD BEEN INSTRUCTED. HE WAS NOT WEARING WRIST OR HAND MONITOR. HIS BODY DOSIMETER SHOWED 20 MR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*PERSONNEL PROTECTIVE DEVICE + BYPRODUCT MATERIAL + RADIOISOTOPE + GLOVE BOX + BETA EMITTER + TRAINING +
*FAILURE, OPERATOR ERROR + *PERSONNEL EXPOSURE, RADIATION + STRONTIUM

15-35186 ALSO IN CATEGORY 17

ACKNOWLEDGEMENT OF ALPHA MIGRATION HAZARD USING POLONIUM-210

UNIVERSITY OF ILLINOIS

2 PAGES, LETTER TO DIRECTOR, DML, APRIL 11, 1969

SOURCE, CONSISTING OF HALF PIECE OF COPPER TUBING (CUT LENGTHWISE) 1.5 IN. DIA. BY 1 IN. LONG WITH 25 MC OF PO-210 PLATED ON INSIDE SURFACE AND FLASH-COATED WITH GOLD TO REDUCE ALPHA ENERGY BY 30%, WAS RECEIVED FROM MONSANTO ON 3/3/69. PACKAGE WAS OPENED 4/3/69, AND WIPE TEST FROM INSIDE OF PLASTIC BAG HOLDING SOURCE SHOWED ALPHA ACTIVITY OF 15 CPM (EQUIVALENT TO 0.02 NANOCURIE). SMEARS OF SOURCE SHOWED 200 TO 1000 CPM. SIMILAR BUT MORE INTENSE SOURCE WILL BE USED LATER IN HIGH VAC., THEREFORE THIS SOURCE WAS EVACUATED WITH MECHANICAL OIL PUMP. SMEARS FROM INSIDE GLASS DESICCATOR VARIED FROM 0.03 TO 2.3 NANOCURIES AFTER 2 AND 78 HR, RESP. MIGRATION RATE VS TIME AND PRESSURES TO 10(-6TH) TORR ARE PLANNED BEFORE DISPOSAL. NORMAL EXTENSIVE PRECAUTIONS PER LICENSE WILL BE USED FOR ANY FURTHER TESTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + *POLONIUM + *ALPHA EMITTER + *CONTAMINATION + *PRESSURE, SUBATMOSPHERIC + SOURCE, RADIATION + EXAMINATION

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-28573 ALSO IN CATEGORIES 14 AND 17
LOW LD
NONCOMPLIANCE CITATION
U.S. ATOMIC ENERGY COMMISSION
LETTER TO U.S. RADIUM CORPORATION, SEPT. 19, 1968

A JULY 1968 INSPECTION REVEALED THAT (1) AIRBORNE TRITIUM CONCENTRATION SURVEYS WERE NOT MADE, (2) TRITIUM CONTAMINATION EXCEEDED LIMITS, (3) AIRBORNE RADON CONCENTRATION EXCEEDED LIMITS. IN ADDITION, WE NOTE (A) ROOF AND 3 DIRECTIONS ARE UNRESTRICTED AREAS, SO DIFFUSION CALCULATIONS ARE NOT APPROPRIATE. CALCULATIONS WERE NOT SUPPORTED BY METEOROLOGICAL DATA. (B) EACH STACK WAS CONSIDERED INDIVIDUALLY, THOUGH ALL STACKS MAY BE RELEASING AT SAME TIME. (C) TRITIUM IN IMPINGER WATER SAMPLES AND URINE SAMPLES WERE 30% BELOW ACTUAL CONCENTRATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. 20545 (\$0.25 CENTS/PAGE)

CYLINDER GAS + TRITIUM + RADIUM + RADON + CONTAMINATION + STACK + AIRBORNE RELEASE + DIFFUSION + BYPRODUCT MATERIAL

16-29868 ALSO IN CATEGORY 14
GUDIKSEN PH + FAIRHALL AW + REED RJ
ROLES OF MEAN MERIDIONAL CIRCULATION AND EDDY DIFFUSION IN THE TRANSPORT OF TRACE SUBSTANCES IN THE LOWER STRATOSPHERE
UNIVERSITY OF WASHINGTON
13 PAGES, 8 FIGURES, 2 TABLES, REFERENCES, J. OF GEOPHYSICAL RESEARCH 73(14), PAGES 4461-73 (JULY 15, 1968)

RECENT ESTIMATES OF MEAN MERIDIONAL MOTIONS AND EDDY DIFFUSION COEFFICIENTS IN THE LOWER STRATOSPHERE AND UPPER TROPOSPHERE ARE USED TO STUDY THE ROLES OF MEAN CIRCULATION AND EDDY MIXING IN DETERMINING THE SPREAD OF TUNGSTEN-185 INJECTED INTO THE LOWER STRATOSPHERE IN THE HARDTACK TEST SERIES OF 1958. THE MEAN MERIDIONAL CIRCULATION PLAYS A MINOR ROLE IN THE TRANSPORT PROCESS, ITS CHIEF CONTRIBUTION BEING TO RAISE THE CENTER OF MAXIMUM CONCENTRATION BY 2 TO 3 KM IN THE EQUATORIAL REGION, IN AGREEMENT WITH THE OBSERVATIONS.

COMPARISON, THEORY AND EXPERIENCE + *ATMOSPHERIC DIFFUSION, GLOBAL + ATMOSPHERIC CIRCULATION, GLOBAL + *STRATOSPHERE + TUNGSTEN + *NUCLEAR DETONATION

16-30105 ALSO IN CATEGORIES 15 AND 17
ALLKOFER OC
CONTAMINATION OF JET PLANES BY NUCLEAR EXPLOSIONS
4 PAGES, 3 FIGURES, 4 TABLES, 12 REFERENCES, ATOMPRAXIS 14, PAGES 473-76 (DEC. 1968)

IN PRESENT JET TRANSPORT FLIGHTS, PLANES COME INTO CONTACT WITH THE RADIOACTIVE FALLOUT FROM NUCLEAR EXPLOSIONS WHICH HAS ACCUMULATED IN THE STRATOSPHERE AND ARE ALSO EXPOSED TO AN INCREASED AMOUNT OF COSMIC RADIATION. THE CONCENTRATIONS OR RADIOACTIVITY DURING RECENT YEARS HAVE BEEN MEASURED. CONTAMINATION OF PLANES HAS BEEN MEASURED FOR SEVERAL YEARS. THE ARTICLE DISCUSSES THE RADIATION-PROTECTION QUESTIONS RESULTING FOR FLIGHT- AND GROUND-PERSONNEL.

*AIRCRAFT + NUCLEAR DETONATION + *FALLOUT + *STRATOSPHERE + *COSMIC RADIATION + CONTAMINATION + CONCENTRATION, MAXIMUM

16-30182
METEOROLOGICAL FUNDAMENTALS FOR ATMOSPHERIC TRANSPORT AND DIFFUSION STUDIES
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
51 PAGES, FIGURES, TABLES, REFERENCES, PAGES 13-63 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 2, JULY 1968

THIS CHAPTER DEALS WITH SOME OF THE BASIC PHYSICAL ATMOSPHERIC PROCESSES AND THE WEATHER SYSTEMS THAT RESULT FROM THESE PROCESSES. ONE SECTION IS DEVOTED TO CLIMATOLOGY AND CONVENTIONAL WEATHER DATA. THE LATER SECTIONS DEAL, IN A GENERALLY QUALITATIVE WAY, WITH THE FUNDAMENTAL CONCEPTS RELATED TO TRANSPORT AND DIFFUSION STUDIES.

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

ATMOSPHERIC CIRCULATION + BREEZE, TOPOGRAPHICAL + BREEZE, SEA + METEOROLOGY + MIXING DEPTH + TEMPERATURE GRADIENT + WIND STATISTICS + ATMOSPHERIC DIFFUSION + PLUME BEHAVIOR, GENERAL + BIBLIOGRAPHY

16-30183
GIFFORD FA
AN OUTLINE OF THEORIES OF DIFFUSION IN THE LOWER LAYERS OF THE ATMOSPHERE
ATMOSPHERIC TURBULENCE AND DIFFUSION LABORATORY, OAK RIDGE, TENN.
52 PAGES, FIGURES, TABLES, PAGES 65-116 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 2, JULY 1968

PRESENTS THE MATHEMATICAL DEVELOPMENT OF THE DIFFUSION FORMULAS AND THEORIES USED IN METEOROLOGY. GIVES THE FORMULAS USED TO DETERMINE THE CONCENTRATIONS FOR VARIOUS ATMOSPHERIC CONDITIONS.

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

ATMOSPHERIC DIFFUSION + BOUNDARY LAYER + BREEZE, SEA + CONCENTRATION, GROUND LEVEL + CONCENTRATION, MAXIMUM +

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-30183 *CONT-INUED*

GAUSSIAN PLUME FORMULA + K THEORY + SUTTON DIFFUSION FORMULA + SOURCE, CONTINUOUS + SOURCE, AREA + WIND PROFILE + WIND STATISTICS + TURBULENCE, SHEAR (WIND) + TAYLOR THEORY + METEOROLOGY + EQUATION, GENERAL

16-30184

ISLITZER NF + SLADE DH

DIFFUSION AND TRANSPORT EXPERIMENTS

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

72 PAGES, FIGURES, TABLES, PAGES 117-188 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 4, JULY 1968

THIS CHAPTER AIMS TO ILLUSTRATE THE RELATION BETWEEN MEASURED METEOROLOGICAL DATA AND DIFFUSION AND TO ESTABLISH A SET OF DIFFUSION PARAMETERS THAT CAN BE ESTIMATED FROM METEOROLOGICAL OBSERVATIONS AT A GIVEN SITE.

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

COMPARISON, THEORY AND EXPERIENCE + ATMOSPHERIC DIFFUSION COEFFICIENT + *ATMOSPHERIC DIFFUSION EXPERIMENT + ATMOSPHERIC STABILITY + *CONCENTRATION, GROUND LEVEL + PLUME BEHAVIOR, GENERAL + *SOURCE, CONTINUOUS + *SOURCE, ELEVATED + *SOURCE, GROUND LEVEL + *SOURCE, LINE + SUTTON DIFFUSION FORMULA + GAUSSIAN PLUME FORMULA

16-30185

BRIGGS GA + VAN DER HOVEN I + ENGELMANN RJ + HALITSKY J

PROCESSES OTHER THAN NATURAL TURBULENCE AFFECTING EFFLUENT CONCENTRATIONS

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION + NEW YORK UNIVERSITY

14 PAGES, FIGURES, TABLES, PAGES 189-202 FROM CHAPTER 5 OF METEOROLOGY AND ATOMIC ENERGY, JULY 1968

COMPARES THE COMMONLY USED HEIGHT-OF-RISE FORMULAS WITH THE PUBLISHED DATA. THE EFFECTS OF EFFLUX VELOCITY AND BUOYANCY ON THE GROUND LEVEL CONCENTRATION ARE POINTED OUT. NONE OF THE EQUATIONS ARE UNIVERSALLY ACCEPTED, PRIMARILY BECAUSE OF THE LACK OF COMPREHENSIVE DATA.

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

COMPARISON, THEORY AND EXPERIENCE + BUOYANT RISE + CONCENTRATION, GROUND LEVEL + EFFLUENT + *HEIGHT OF RISE + SMOKE + STACK + *SOURCE, ELEVATED + *SOURCE, CONTINUOUS + SOURCE, INSTANTANEOUS + METEOROLOGY

16-30186

VAN DER HOVEN I + ENGELMANN RJ

DEPOSITION OF PARTICLES AND THE CALCULATION OF PRECIPITATION SCAVENGING

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

20 PAGES, FIGURES, TABLES, PAGES 202-221 FROM CHAPTER 5 OF METEOROLOGY AND ATOMIC ENERGY, JULY 1968

THESE SECTIONS DEAL WITH THE BASIC PROCESSES OF DEPOSITION AND SCAVENGING OF PARTICLES AND GASES FROM THE ATMOSPHERE. EXPERIMENTAL RESULTS GIVEN.

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

COMPARISON, THEORY AND EXPERIENCE + CONCENTRATION, GROUND LEVEL + DEPOSITION + FALLOUT + RAINOUT + WASHOUT + PRECIPITATION + PARTICLE SIZE DISTRIBUTION + SNOW

16-30187

HALITSKY J

GAS DIFFUSION NEAR BUILDINGS

NEW YORK UNIVERSITY

35 PAGES, FIGURES, PAGES 221-255 FROM CHAPTER 5 OF METEOROLOGY AND ATOMIC ENERGY, JULY 1968

THE USE OF CONVENTIONAL DIFFUSION FORMULAS FOR CALCULATING CONCENTRATION FIELDS PRODUCED BY SOURCES ON OR NEAR BUILDINGS OFTEN GIVES MISLEADING ANSWERS. EXPERIMENTAL DATA HAS BEEN OBTAINED FOR A FEW CONFIGURATIONS AND EXTRAPOLATED TO OTHER CONFIGURATIONS TO BETTER DEFINE THE EFFECTS OF BUILDINGS ON THE DIFFUSION PROCESS. REPL 30187 ABSTHE USE OF CONVENTIONAL DIFFUSION FORMULAS FOR CALCULATING CONCENTRATION FIELDS PRODUCED BY SOURCES ON OR NEAR BUILDINGS OFTEN GIVES MISLEADING ANSWERS. EXPERIMENTAL DATA HAS BEEN OBTAINED FOR A FEW CONFIGURATIONS AND EXTRAPOLATED TO OTHER CONFIGURATIONS TO BETTER DEFINE THE EFFECTS OF BUILDINGS ON THE DIFFUSION PROCESS.

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

COMPARISON, THEORY AND EXPERIENCE + ATMOSPHERIC DIFFUSION EXPERIMENT + *WIND TUNNEL EXPERIMENT + DISPERSION + EFFLUENT + *CONCENTRATION, GROUND LEVEL + *LEAKAGE, BERNOULLI EFFECT + SOURCE, VOLUME + WIND PROFILE

16-30188

MOSES H

METEOROLOGICAL INSTRUMENTS FOR USE IN THE ATOMIC ENERGY INDUSTRY

ARGONNE NATIONAL LABORATORY + BROOKHAVEN NATIONAL LABORATORY + UNIVERSITY OF MICHIGAN

44 PAGES, FIGURES, TABLES, PAGES 257-300 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 6, JULY 1968

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-30188 *CONTINUED*

A BROAD SURVEY OF THE METEOROLOGICAL INSTRUMENTS FOR USE IN THE ATOMIC ENERGY INDUSTRY IS PRESENTED. THE EMPHASIS IN THIS CHAPTER IS ON MEASURING AND RECORDING WIND DATA AND THE VERTICAL TEMPERATURE STRUCTURE. IN THE CASE OF WIND INSTRUMENTS, THE CHARACTERISTICS OF THE SENSORS ARE DISCUSSED IN SOME DETAIL.

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

WIND STATISTICS + TRACER, TETROON + SITE CLIMATOLOGY + SAFETY ANALYSIS REPORT, METEOROLOGY + ATMOSPHERIC STABILITY + INSTRUMENT, METEOROLOGICAL + INSTRUMENT, TEMPERATURE

16-30189 ALSO IN CATEGORY 14

HEALY JW + BAKER RE

RADIOACTIVE CLOUD-DOSE CALCULATIONS

GENERAL ELECTRIC + USAEC, DIVISION OF REACTOR LICENSING

77 PAGES, FIGURES, TABLES, PAGES 301-377 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 7, JULY 1968

THE TECHNIQUES OF RADIATION-DOSE CALCULATION DISCUSSED IN THIS CHAPTER ARE PRESENTED AS AN INTRODUCTION TO SOME OF THE MAJOR ELEMENTS IN THIS FIELD. CONSIDERS THE EFFECTS OF EXTERNAL BETA AND GAMMA RADIATION FROM A PASSING CLOUD AND DOSE FROM INHALED AND INGESTED MATERIALS.

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

DOSE CALCULATION, EXTERNAL + DOSE CALCULATION, INTERNAL + INHALATION + INGESTION + CONCENTRATION, GROUND LEVEL + BIOLOGICAL CONCENTRATION, MAN + BIOLOGICAL CONCENTRATION, ANIMAL + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + ALPHA EMITTER + BETA EMITTER + GAMMA EMITTER + METEOROLOGY

16-30190

FUQUAY JJ

ENVIRONMENTAL SAFETY ANALYSIS

BATTELLE NORTHWEST LABORATORY

21 PAGES, FIGURES, TABLES, REFERENCES, PAGES 379-399 FROM METEOROLOGY AND ATOMIC ENERGY, CHAPTER 8, JULY 1968

THE APPROACH IN THIS CHAPTER IS TO ILLUSTRATE SOME TYPES OF COMPUTATIONAL PROCEDURES THAT CAN BE USED AND TO CONSIDER THE SPECIFIC INPUT DATA NEEDED FOR THE METEOROLOGICAL SAFETY ANALYSIS. GROUND LEVEL CONCENTRATION, GROUND DEPOSITION, AND EXTERNAL GAMMA DOSE FROM CLOUD PASSAGE ARE CONSIDERED FOR INSTANTANEOUS, INTERMEDIATE, AND LONG-PERIOD RELEASES.

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

CONCENTRATION, GROUND LEVEL + SOURCE, INSTANTANEOUS + SOURCE, CONTINUOUS + SOURCE, ELEVATED + DEPOSITION + DOSE CALCULATION, EXTERNAL + SAFETY ANALYSIS REPORT, METEOROLOGY

16-30191

COOPER RE + RUSCHE BC

THE SRL METEOROLOGICAL PROGRAM AND OFF-SITE DOSE CALCULATIONS

SAVANNAH RIVER LABORATORY

DP-1163 +. 149 PAGES, FIGURES, TABLES, 8 REFERENCES, SEPTEMBER 1968

MICROMETEOROLOGICAL DATA FROM INSTRUMENTS MOUNTED ON A 1200-FOOT TV TOWER WERE RECORDED ONCE EACH 3 MIN FOR TWO YEARS. THE DATA WERE CONVERTED TO ORDINARY DISPERSION PARAMETERS USING CORRELATION EQUATIONS DEVELOPED BY BROOKHAVEN NATIONAL LABORATORY. THE DERIVED DISPERSION PARAMETERS AND RELEVANT MICROMETEOROLOGICAL DATA WERE USED TO DERIVE DOSE-FREQUENCY DISTRIBUTION FOR AN ASSUMED ACCIDENTAL RELEASE OF RADIONUCLIDES FROM A REACTOR OPERATING AT 1000 MW. THE DISTRIBUTIONS ARE PRESENTED FOR ASSUMED RELEASE HEIGHTS OF 230 AND 850 FEET (70 AND 260 METERS).

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

SAVANNAH RIVER (PR) + SITE CLIMATOLOGY + MICROMETEOROLOGY + *OFF SITE + *DOSE CALCULATION, EXTERNAL + *DOSE CALCULATION, INTERNAL + CONCENTRATION, GROUND LEVEL + *SOURCE, ELEVATED + WIND STATISTICS + ATMOSPHERIC DIFFUSION + INHALATION + IODINE + PARTICLE, RADIOACTIVE + REACTOR, PRODUCTION

16-30457 ALSO IN CATEGORY 14

HAINES A + MUSGRAVE BC

TRITIUM CONTENT OF ATMOSPHERIC METHANE AND ETHANE

UNIVERSITY OF ARKANSAS, FAYETTEVILLE

7 PAGES, J. GEOPHYS. RES., 73, PAGES 1167-73 (FEB. 15, 1968)

SAMPLES OF LIQUID OXYGEN COLLECTED AT GROUND LEVEL NEAR NEOSHO, MISSOURI, HAVE BEEN PROCESSED FOR RECOVERY OF METHANE, AND THE TRITIUM CONTENT OF THESE SAMPLES IS DISCUSSED IN TERMS OF POSSIBLE SOURCES OF THIS RADIOACTIVITY. THE CONTINUING RELEASE OF LABELED METHANE BY NUCLEAR INDUSTRY IS SUGGESTED BY THE FACT THAT THE T/H RATIO HAS NOT CHANGED APPRECIABLY DURING THE PERIOD 1958 TO 1966, ALTHOUGH THIS INTERVAL IS COMPARABLE TO THE CHEMICAL LIFETIME EXPECTED FOR METHANE IN THE ATMOSPHERE.

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-30457 *CONTINUED*
*TRITIUM + *ATMOSPHERIC DIFFUSION, CLIMATOLOGY + *AIRBORNE RELEASE + ATMOSPHERIC POLLUTION

16-30459 ALSO IN CATEGORIES 7 AND 14
SMIRNOV LE + KONONOVA LN
URANIUM CONTENT OF ATMOSPHERIC AEROSOLS
4 PAGES, GEOCHEM. INT. 3, PAGES 909-12 (1966)

A STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT 1×10^{-10} TH) G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION. REPL 30459 ABSTA STUDY OF U CONTENT OF THE TROPOSPHERE WAS DONE USING AEROSOL SAMPLES TAKEN BY AIRBORNE FILTERS. URANIUM CONCENTRATION AT THE END OF 1959 (ABOUT 1×10^{-10} TH) G/CM³) WAS APPROACHING THE NATURAL U CONCENTRATION.

AEROSOL + *URANIUM + *AIRBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC POLLUTION. + ANALYTICAL TECHNIQUE, AIR + FILTER

16-32915 ALSO IN CATEGORIES 2 AND 18
AEC QUESTIONS - 11 TOPICS
GENERAL ELECTRIC
50231-21 +. 150 PAGES, 25 FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 19, OCTOBER 1968, DOCKET 50-231

SEVENTY-THREE PAGES DEVOTED TO RESPONSES TO 11 AEC QUESTIONS ON CONTROL SYSTEM MODIFICATION, AUXILIARY POWER, REFUELING ACCIDENT, THE EXCURSION DEVICE (FRED) LEAKS, TRANSIENT TEST LOADS, NOZZLE FAILURE, FUEL-ROD PIN-HOLE LEAKS, SURVEILLANCE PROGRAM, THERMAL INSULATION, AND EFFECT OF SODIUM IN THE CORE DURING MHA. APPENDIX (43 PAGES) CONSISTS OF SITE METEOROLOGICAL DATA.

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

*AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, REFUELING + REACTOR DYNAMICS + CONTROL SYSTEM + EMERGENCY POWER, ELECTRIC + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + MAIN COOLING SYSTEM + LEAK + CONTAINMENT VESSEL LOADING + FAILURE, EQUIPMENT + NOZZLE + THERMAL INSULATION + SURVEILLANCE PROGRAM + SITE CLIMATOLOGY + ACCIDENT, HYPOTHETICAL

16-33500 ALSO IN CATEGORY 15
DRUILHET A + FONTAN J + BIASINI H + BLANC D
AN ORIGINAL METHOD FOR THE MEASUREMENT OF THE ATMOSPHERIC DIFFUSION USING A RADIOACTIVE GAS EMITTED FROM A POINT SOURCE
FACULTE DES SCIENCES, TOULOUSE
4 PAGES, COMPT. REND., SERIES A AND B, NUMBER 267, PAGES 741-4 (OCTOBER 7, 1968) (IN FRENCH)

THE METHOD IS BASED ON THE DETERMINATION OF A RADIOACTIVE GAS, RADON-220, EMITTED INTO THE ATMOSPHERE CONTINUOUSLY FROM A POINT SOURCE. IT MAKES IT POSSIBLE TO STUDY THE DIFFUSION OF MATTER IN THE BOUNDARY LAYER OF THE ATMOSPHERE. RADON PRODUCES NO POLLUTION OF THE AIR BECAUSE OF ITS SHORT HALF-LIFE AND LOW RADIOACTIVITY.

*SOURCE, POINT + EFFLUENT + GAS + *RADON + *ATMOSPHERIC DIFFUSION + FRANCE

16-33501 ALSO IN CATEGORY 14
EISENBLD M
SOURCES OF RADIOACTIVE POLLUTION. VOLUME 1
27 PAGES, PAGES 121-47 OF AIR POLLUTION, VOLUME 1, NEW YORK, ACADEMIC PRESS, 1968

THE POLLUTION HAZARDS OF VARIOUS TYPES OF NUCLEAR REACTORS ARE TREATED. CUMULATIVE DEPOSITION OF SR-90 AS OF THE END OF 1962 SHOWS THAT THE DEPOSITION IN NORTHERN LATITUDES IS MORE THAN 4 TIMES THAT BELOW THE EQUATOR. THE RELATIVELY NEW POTENTIAL SOURCE OF ATMOSPHERIC RADIOACTIVITY, THE USE OF NUCLEAR ENERGY FOR ROCKET PROPULSION, AND AS A SOURCE OF POWER FOR THE OPERATION OF SATELLITES AND SPACE PROBES, IS DISCUSSED.

AIR + RADIOACTIVITY RELEASE + ATMOSPHERIC DIFFUSION + TRANSPORT PROPERTY + COSMIC RADIATION + ELEMENTS AND ISOTOPES + RADIUM + CONCENTRATION, GROUND LEVEL + TROPOSPHERE + STRATOSPHERE + CARBON + REACTOR, POWER + HAZARD, RELATIVE + DEPOSITION + METEOROLOGY

16-33757 ALSO IN CATEGORIES 2 AND 18
REVISIONS TO PSAR
GULF GENERAL ATOMIC
160 PAGES, FIGURES, TABLES, AMEND. 3 TO FT. ST. VRAIN LICENSE APPLICATION, 1967, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS REVISED PAGES FOR PSAR TO REFLECT PROGRESS IN THE PLANT DESIGN. MAJOR REVISION IS THE METEOROLOGICAL REPORT ON THE SITE CLIMATOLOGY AND ATMOSPHERIC CONDITIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, PSAR + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + *SITE CLIMATOLOGY + SITING, REACTOR + *METEOROLOGY + REACTOR, GRAPHIC MODERATED

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-33920 ALSO IN CATEGORIES 4 AND 18

PARKER AJ + WEST WS + PYATT DW
AN AEROSPACE NUCLEAR SAFETY ANALYSIS OF A PM203 RADIOISOTOPIC THRUSTER
HITTMAN ASSOCIATES, INC. + GODDARD SPACE FLIGHT CENTER
18 PAGES, 19 FIGURES, 4 TABLES, 5 REFERENCES, PAGES 112-129 OF NUCLEONICS IN AEROSPACE, NEW YORK, PLENUM PRESS, 1968

GUTLINES ANALYSIS METHODS (QUITE IN DETAIL) WHICH GIVE PROBABILITY VALUES FOR VARIOUS KINDS OF DOSES WHICH MIGHT RESULT FROM AN ABORT OR REENTERING ROCKET. HEAT SHIELD WILL MAKE REENTRY INTACT POSSIBLE.

PROBABILITY + *HAZARDS ANALYSIS + SNAP, GENERAL (SR) + SHIELDING + *PROMETHIUM + ISOTOPIC GENERATOR

16-34310 ALSO IN CATEGORIES 12 AND 13

DOAN PL
TORNADOES AND TORNADO EFFECT CONSIDERATIONS FOR NUCLEAR POWER PLANT STRUCTURES INCLUDING THE SPENT FUEL STORAGE POOL
UNITED ENGINEERS AND CONSTRUCTORS INC.
UE AND C APED-6807 +. 108 PAGES, FIGURES, TABLES, 43 REFERENCES, MARCH 1969

IN THIS PRESENTATION, THE TORNADO IS DESCRIBED PHENOMENOLOGICALLY BASED ON DOCUMENTED INFORMATION ON SEVERE STORMS. MATHEMATICAL CHARACTERIZATION OF A TORNADO FOR THE SAKE OF NUCLEAR PLANT DESIGN IS PRESENTED. THE PROBABILITY OF PLANT LIFETIME TORNADO RISK AND CHANCE OF RADIOACTIVITY ESCAPE TO ENVIRONS IS ASSESSED. MECHANISTIC CALCULATIONAL TECHNIQUES ARE PRESENTED TO DETERMINE THE EFFECTS ON PLANT STRUCTURES OF DYNAMIC WIND FORCES, STATIC PRESSURE DIFFERENTIALS AS WELL AS TORNADO GENERATED MISSILES. IT IS SHOWN THAT, AT HIGHLY CONSERVATIVE ASSUMPTIONS COUPLED WITH THE DESIGN TORNADO, THE SPENT FUEL STORAGE POOLS OF EXISTING LIGHT WATER REACTORS ARE QUITE ADEQUATELY DESIGNED TO INSURE SAFE CONTAINMENT OF FISSION PRODUCTS.

*REACTOR, POWER + CONTAINMENT PENETRATION, GENERAL + WIND PROFILE + METEOROLOGY + FUEL STORAGE + THEORETICAL INVESTIGATION

16-34347 ALSO IN CATEGORY 7

DICKSON CR + START GE + MARKEE EH
AERODYNAMIC EFFECTS OF THE EBR-II REACTOR COMPLEX ON EFFLUENT CONCENTRATION
AIR RESOURCES LABORATORIES, ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
15 PAGES, 17 FIGURES, 2 TABLES, 9 REFERENCES, NUCLEAR SAFETY 10(3), PAGES 228-42 (MAY-JUNE 1969)

DISPERSION OF A TRACER RELEASED FROM THE DOWNWIND SIDE OF THE EXPERIMENTAL BREEDER REACTOR II (EBR-II) WAS MEASURED IN STABLE AND UNSTABLE ATMOSPHERES. THE TRACER, URANINE DYE, WAS SAMPLED ON FIVE CONCENTRIC SAMPLING ARCS BETWEEN 30 AND 600 M FROM THE RELEASE POINT. THE DIFFUSION RATE IN THE EBR-II WAKE CONVERGED TO THE FREE ATMOSPHERE RATE BETWEEN 400 AND 600 M DOWNWIND OF THE SOURCE POINT.

AEROSOL + TESTING + *EFFLUENT + *METEOROLOGY + *AIRBORNE RELEASE + ATMOSPHERIC DIFFUSION + TRACER, RADIOACTIVE + *EBR 1 AND 2 (RE) + REACTOR, FAST + REACTOR, LMCN + REACTOR, TEST

16-34353 ALSO IN CATEGORIES 7 AND 14

VILENSKII VO + KUZENKOV AF
USING ATMOSPHERIC RADIOACTIVITY FOR INVESTIGATION OF AIR MASS MOVEMENTS
2 PAGES, AT. ENERG. (USSR), 25, PAGES 242-3 (SEPT. 1968)

AN ATTEMPT WAS MADE TO DETERMINE SIMULTANEOUSLY THE CONTENT OF SR-90 AND PB-210 AT VARIOUS ELEVATIONS OF UPPER TROPOSPHERE AND TO EVALUATE THE LARGE SCALE VERTICAL AIR MOTION EFFECTS OF THE MIGRATION OF THESE ISOTOPES IN THE ATMOSPHERE. AEROSOL SPECIMENS WERE TAKEN AT THE ELEVATION OF 9 TO 12 KM AROUND MOSCOW AND TBILISI REGIONS IN 1963.

AIRBORNE RELEASE + *TROPOSPHERE + FALLOUT + ATMOSPHERIC DIFFUSION + *METEOROLOGY + *STRONTIUM + LEAD

16-34426 ALSO IN CATEGORY 15

GOLDSTEIN RA
THE TERF PROGRAM AND ITS APPLICATIONS TO THE CALCULATION OF FALLOUT RADIATION DOSE
MATHEMATICAL APPLICATIONS GROUP, INC., WHITE PLAINS, NEW YORK
USNRDL-TRC-68-56 +. 75 PAGES, FIGURES, TABLES, JANUARY 1969

TERF IS A MONTE CARLO RADIATION TRANSPORT CODE FOR COMPUTING GAMMA-RAY DOSE DUE TO FALLOUT ON NON-UNIFORM TERRAIN. THE CODE AS DEVELOPED IN THIS STUDY INCORPORATES EXTENSIVE GEOMETRY CAPABILITIES INCLUDING THE UNIQUE ABILITY TO CONVERT ELEVATION CONTOUR LINE DATA INTO THREE-DIMENSIONAL TERRAIN REPRESENTATIONS. A VARIETY OF CALCULATIONS CONCERNED WITH THE EFFECTS ON THE DOSE OF VARIOUS TERRAIN FEATURES, STRUCTURES AND VEGETATION, ARE DESCRIBED.

AVAILABILITY - R.A. GOLDSTEIN, MATHEMATICAL APPLICATIONS GROUP, INC. WHITE PLAINS, NEW YORK

*TRANSPORT THEORY + *TRANSPORT PROPERTY + *FALLOUT + GAMMA EMITTER + DOSE + DEPOSITION + *DOSE CALCULATION, EXTERNAL + *COMPUTER PROGRAM + *CODES AND STANDARDS + *MONTE CARLO

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-34454
MURAYAMA N + OKOSHI N
CONTINUOUS MEASUREMENT OF NATURAL RADIOACTIVITY IN THE NEAR-GROUND ATMOSPHERE BY IONIZATION CHAMBER
10 PAGES, KISHOCHO KENKYU JIHO, 20, PAGES 329-38 (JUNE 1968)

TWO MODIFIED KAWANO TYPE IONIZATION CHAMBERS FOR ALPHA-BETA-GAMMA AND BETA-GAMMA RAY MEASUREMENTS WERE CONSTRUCTED, AND LONG-TIME OBSERVATION OF NATURAL RADIOACTIVITY WAS CONTINUOUSLY CARRIED OUT AT THE MITO WEATHER STATION. DETAILS OF INSTRUMENT AND WORKING CHARACTERS, ESPECIALLY FEASIBILITY FOR ROUTINE OBSERVATION ARE DESCRIBED. CORRELATION OF NATURAL RADIOACTIVITY WITH METEOROLOGICAL ELEMENTS, IS SHOWN WITH A FEW EXAMPLES. IT IS FOUND THAT THE ABRUPT TEMPORARY DROP OF ALPHA-BETA-GAMMA RADIATION APPEARS IN ASSOCIATION WITH THE EARLY FORMATION OF NOCTURNAL TEMPERATURE INVERSION AT THE LOWER LEVELS.

INSTRUMENT, RADIATION MONITORING + METEOROLOGY + JAPAN + ATMOSPHERIC STABILITY + ALPHA EMITTER + BETA EMITTER + GAMMA EMITTER

16-34456
HUNT BC
EXPERIMENTS WITH A STRATOSPHERIC GENERAL CIRCULATION MODEL
WEAPONS RESEARCH ESTABLISHMENT, SALISBURY, AUSTRALIA
37 PAGES, MONDAY WEATHER REVIEW, 96, PAGES 503-39 (AUGUST 1968)

THE 18-LEVEL PRIMITIVE EQUATION, GENERAL CIRCULATION MODEL WAS USED TO STUDY THE DIFFUSION OF TWO IDEALIZED TRACERS IN THE STRATOSPHERE. ONE TRACER WAS DESIGNED TO SIMULATE BROADLY THE BEHAVIOR OF RADIOACTIVE TUNGSTEN AND THE OTHER WAS TAKEN AS A PHOTOCHEMICAL ZONE DISTRIBUTION. SCHEMATIC DIAGRAMS ILLUSTRATING THE PRINCIPAL FEATURES OF THE LARGE-SCALE DIFFUSION OF THE TWO TRACERS ARE GIVEN.

COMPUTER PROGRAM, METEOROLOGICAL + ATMOSPHERIC DIFFUSION, GLOBAL + STRATOSPHERE + ATMOSPHERIC CIRCULATION, GLOBAL + TROPOSPHERE + FALLOUT

16-34748
MUELLER HF
METEOROLOGICAL REQUIREMENTS AND OPERATIONAL FALLOUT PREDICTION TECHNIQUES FOR PLOWSHARE NUCLEAR DETONATIONS
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION, LAS VEGAS, NEV., AIR RESOURCES LAB.
CONF-650406-2 +. 30 PAGES, FROM SYMPOSIUM ON PUBLIC HEALTH ASPECTS OF PEACEFUL USES OF NUCLEAR EXPLOSIVES, 1968

METEOROLOGICAL SUPPORT REQUIREMENTS FOR PLOWSHARE NUCLEAR DETONATIONS ARE SHOWN TO DEPEND ON A NUMBER OF FACTORS. THE IMPORTANCE OF ADEQUATE SUPPORT TO THE EFFECTIVE PLANNING AND SAFE CONDUCT OF A NUCLEAR DETONATION IS DESCRIBED. AN EXAMPLE OF THE INFLUENCE OF ATMOSPHERIC CONDITIONS ON RADIOACTIVE CLOUD DEVELOPMENT AND LOCAL TRANSPORT AND FALLOUT OF RADIOACTIVE DEBRIS IS PRESENTED. AN OPERATIONAL TECHNIQUE CURRENTLY USED FOR NUCLEAR CRATERING FALLOUT PREDICTIONS IS DESCRIBED AND SHOWN TO PRODUCE RESULTS OF USEFUL ACCURACY.

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

*METEOROLOGICAL SUPPORT + *PLOWSHARE PROGRAM, CHARIOT + SAFETY ANALYSIS + ATMOSPHERIC DIFFUSION + FALLOUT

16-35175 ALSO IN CATEGORIES 7 AND 17
FISSION GAS ACTIVITY INCREASE AT ELK RIVER
RURAL COOPERATIVE POWER ASSOCIATION
GDO-651-53 +. 21 PAGES, OPERATING REPORT NO. 61, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

IODINE ACTIVITY DURING NOV. AGAIN INCREASED AS IT DID DURING OCT. AND LATTER PART OF SEPT. CONCENTRATION OF OTHER FISSION PRODUCTS IN PRIMARY COOLANT REMAIN UNCHANGED SINCE JUNE 1967 STARTUP. FISSION GAS AT TURBINE AIR EJECTOR AND CONTAINMENT EXHAUST DUCT WERE FROM LAST MONTH, VERIFYING THAT SOME FUEL DEFECTS EXIST. SECONDARY WATER ACTIVITY REMAINED NONDETECTABLE. *** WIND SPEED-AND-DIRECTION INDICATOR WAS RELOCATED TO ELIMINATE INFLUENCE OF BUILDING ON DATA. *** SINCE SEPT., RADIATION LEVELS AT VALVE RA-3-1 AND ASSOCIATED PIPING DOWNSTREAM OF REGENERATIVE HEAT EXCHANGER HAVE INCREASED TO 30 R/HR AND ARE ROPED OFF. RADIATION IS RESULT OF INCREASED CRUD COLLECTION HERE IN PREFILTERS IN PURIFICATION LOOPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *ACTIVITY BUILDUP + *IODINE + INSTRUMENT, METEOROLOGICAL + *FAILURE, CLADDING + *FISSION GAS RELEASE + *WIND STATISTICS + FAILURE, FUEL ELEMENT + *CRUD + INSTRUMENT, ABNORMAL INDICATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-14893

BYPASS VALVE PROBLEMS ON LOSS OF LOAD INCIDENT
CONSUMERS POWER COMPANY

7 PAGES, 1 TABLE, REPORT OF OPERATION OF BIG ROCK POINT NUCLEAR PLANT, MAY 1, 1966-OCTOBER 31, 1966, PAGES 1-7, DECEMBER 20, 1966, CCKET NO. 50-155

(AUGUST 8) THE 138-KV BREAKER OPENED DURING A STORM. A NONOPTIMUM SETTING OPENED THE TURBINE BYPASS VALVE TOO SLOWLY TO PREVENT A HIGH-PRESSURE SCRAM. THE TURBINE HELD THE STATION LOAD FOR 4 MIN (A SNEAK TRIP SIGNAL THROUGH THE INDICATING LIGHTS HELD THE BREAKER OPEN). THE TURBINE WAS MANUALLY TRIPPED WHEN PRESSURE DECREASED TO 960 PSIG. ON THE RESULTING LOSS OF STATION POWER, THE BYPASS VALVE OPENED BEFORE THE DC-OPERATED ISOLATION VALVE CLOSED, TURBINE RUPTURED DIAPHRAGM. THE PILOT VALVES FOR THE BYPASS VALVES DID NOT HAVE THE PROPER MAGNETIC BIAS, AND THE VALVE WAS TEMPORARILY GIVEN A DC-CLOSING SIGNAL ON LOSS OF POWER. LOCAL EVACUATION WAS CAUSED BY THE AIRBORNE ACTIVITY, WHICH TURBINE BUILDING VENTILATION SYSTEM CLEARED IN 4 HOURS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. (\$0.25 CENTS/PAGE)

REACTOR, BWR + BIG ROCK POINT (BWR) + *ACCIDENT, LOSS OF POWER + ACCIDENT, STEAM LINE RUPTURE + *INCIDENT, EQUIPMENT + TURBINE + *FAILURE, DESIGN ERROR + *REPORT, OPERATIONS SUMMARY + AIRBORNE RELEASE + VENTILATION SYSTEM + INSTRUMENT, ABNORMAL INDICATION

17-28573

ALSO IN CATEGORIES 14 AND 16

LOW LD

NONCOMPLIANCE CITATION

U.S. ATOMIC ENERGY COMMISSION

LETTER TO U.S. RADIUM CORPORATION, SEPT. 19, 1968

A JULY 1968 INSPECTION REVEALED THAT (1) AIRBORNE TRITIUM CONCENTRATION SURVEYS WERE NOT MADE, (2) TRITIUM CONTAMINATION EXCEEDED LIMITS, (3) AIRBORNE RADON CONCENTRATION EXCEEDED LIMITS. IN ADDITION, WE NOTE (A) ROOF AND 3 DIRECTIONS ARE UNRESTRICTED AREAS, SO DIFFUSION CALCULATIONS ARE NOT APPROPRIATE. CALCULATIONS WERE NOT SUPPORTED BY METEOROLOGICAL DATA. (B) EACH STACK WAS CONSIDERED INDIVIDUALLY, THOUGH ALL STACKS MAY BE RELEASING AT SAME TIME. (C) TRITIUM IN IMPINGER WATER SAMPLES AND URINE SAMPLES WERE 30% BELOW ACTUAL CONCENTRATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. 20545 (\$0.25 CENTS/PAGE)

CYLINDER GAS + TRITIUM + RADIUM + RADON + CONTAMINATION + STACK + AIRBORNE RELEASE + DIFFUSION + BYPRODUCT MATERIAL

17-29259

ALSO IN CATEGORY 9

UNPLANNED NUCLEAR TRANSIENT

U.S. ATOMIC ENERGY COMMISSION, WASH., D.C., 20545

ROE-68-16 +. 2 PAGES REACTOR SAFETY OPERATING EXPERIENCES, DECEMBER 24, 1968

PROCEDURE CALLED FOR PULLING RODS ON FAST SPEED TO 12 IN., SWITCH TO SLOW, AND WITHDRAW TO 14.7 IN. (70 SEC PERIOD). OPERATOR PULLED RODS ON FAST TO 14.5 IN., SWITCHED (BUT APPARENTLY DIDNT COMPLETE THE CONTACT), AND PRODUCED A 50 MSEC/12.5 MW TRANSIENT ON FURTHER ROD WITHDRAWAL. SINCE THIS IS A TRANSIENT TEST REACTOR WITH REMOTE CONTROL ROOM, NO DAMAGE WAS DONE. THIS REACTOR WAS DEPENDENT ON ADMINISTRATIVE CONTROL RATHER THAN INSTRUMENTATION. SINCE PROGRAM IS BEING TERMINATED, ONLY MINOR CONTROL SYSTEM MODIFICATION WAS MADE.

*REACTOR TRANSIENT + *FAILURE, OPERATOR ERROR + FAILURE, ADMINISTRATIVE CONTROL + REACTOR, FAST BURST + REACTOR, PULSED + REACTOR, AEC OWNED + ACCIDENT, CONTROL ROD WITHDRAWAL

17-29552

ALSO IN CATEGORY 3

STEEL DRUMS LEAKS U-235 AFTER NAIL PUNCTURE

NUCLEAR MATERIALS AND EQUIPMENT CORP.

1 PAGE, TWX TO NY COMPLIANCE (KIRKMAN), NOVEMBER 14, 1968

EARLY MORNING OF NOV. 13, 1968, NAILS PROTRUDING OUT OF A PALLET BEING LOADED ON A TRUCK PUNCTURED A 55-GAL POLYETHYLENE-LINED STEEL DRUM. 8 KG OF 2.78% ENRICHED U-235 IN NITRATE SOLUTION LEAKED ONTO THE TRAILER AND TERMINAL ROADBED. RESIDUAL CONTAMINATION (UP TO 5000 COUNTS/MIN PER 60 SQ. CM) WAS FOUND.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D. C. 20545, (\$0.25 CENTS/PAGE)

TRANSPORTATION AND HANDLING + *LEAK + *SHIPPING CONTAINER + SPECIAL NUCLEAR MATERIAL + URANIUM-235 + FAILURE, OPERATOR ERROR

17-301C5

ALSO IN CATEGORIES 15 AND 16

ALLKOFER DC

CONTAMINATION OF JET PLANES BY NUCLEAR EXPLOSIONS

4 PAGES, 3 FIGURES, 4 TABLES, 12 REFERENCES, ATOMPRAXIS 14, PAGES 473-76 (DEC. 1968)

IN PRESENT JET TRANSPORT FLIGHTS, PLANES COME INTO CONTACT WITH THE RADIOACTIVE FALLOUT FROM NUCLEAR EXPLOSIONS WHICH HAS ACCUMULATED IN THE STRATOSPHERE AND ARE ALSO EXPOSED TO AN INCREASED AMOUNT OF COSMIC RADIATION. THE CONCENTRATIONS OR RADIOACTIVITY DURING RECENT YEARS HAVE BEEN MEASURED. CONTAMINATION OF PLANES HAS BEEN MEASURED FOR SEVERAL YEARS. THE ARTICLE DISCUSSES

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30105 *CONTINUED*

THE RADIATION-PROTECTION QUESTIONS RESULTING FOR FLIGHT- AND GROUND-PERSONNEL.

*AIRCRAFT + NUCLEAR DETONATION + *FALLOUT + *STRATOSPHERE + *COSMIC RADIATION + CONTAMINATION + CONCENTRATION, MAXIMUM

17-30145 ALSO IN CATEGORY 1

HEAVY-WATER POWER REACTORS

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA

STI/PUB-163 + CONF-670917 +. 981 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF A SYMPOSIUM ON HEAVY-WATER POWER REACTORS HELD BY THE INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, SEPTEMBER 11-15, 1967

PROCEEDINGS OF A SYMPOSIUM ORGANIZED BY THE IAEA AND HELD IN VIENNA, 11-15 SEPTEMBER 1967. CONTENTS - EXPERIENCE WITH HEAVY-WATER POWER AND EXPERIMENTAL REACTORS AND PROJECTS (14 PAPERS). NEW AND ADVANCED POWER REACTOR DESIGNS AND CONCEPTS (8 PAPERS). DEVELOPMENT PROGRAMMES AND THORIUM CYCLE (9 PAPERS). ECONOMICS AND PROSPECTS OF HEAVY-WATER POWER REACTORS (7 PAPERS). PHYSICS AND FUEL MANAGEMENT (8 PAPERS). FUELS (5 PAPERS). SAFETY, CONTROLS AND ENGINEERING (6 PAPERS). PANEL DISCUSSION. EXCEPT FOR ONE RUSSIAN PAPER, WHICH IS PUBLISHED IN ENGLISH, EACH PAPER IS IN ITS ORIGINAL LANGUAGE (49 ENGLISH AND 8 FRENCH) AND IS PRECEDED BY AN ABSTRACT IN ENGLISH.

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

*IAEA + *REACTOR DESCRIPTION + *OPERATING EXPERIENCE + *REACTOR, POWER + *REACTOR, HWR + *REACTOR, RESEARCH + *R AND D PROGRAM + *ECONOMICS + *FUEL MANAGEMENT

17-30601 ALSO IN CATEGORY 9

TRIGA CONTROL ROD WORTHS

REED COLLEGE

2 PAGES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 14, 1968, DOCKET 50-288

COMPLIANCE POINTED OUT THAT OUR ROD WORTHS WERE ABOUT 20% GREATER THAN PREDICTED, SHIM AND SAFETY RODS BEING ABOUT 3.38% DK/K AND R ROD BEING 1.21% DK/K. REACTIVITY INSERTION RATES ARE ALL LESS THAN THE 0.12% DK/K PER SEC OF TECHNICAL SPECIFICATION LIMITS. SHUTDOWN MARGINS ARE 6.17% DK/K (COLD) AND 7.4% DK/K (HOT).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*CONTROL ROD WORTH + SHUTDOWN MARGIN + COMPARISON, THEORY AND EXPERIENCE + REACTOR, RESEARCH + TRIGA (RR) + *HIGH + MEASUREMENT, REACTIVITY + CYLINDER GAS

17-30603

EMERGENCY PLAN

UNIVERSITY OF VIRGINIA

2 PAGES, LETTER TO DRL, NOVEMBER 21, 1968, DOCKET 50-62

IN ACCIDENT, THE OPERATOR WILL SCRAM REACTOR AND LEAVE (THROUGH EMERGENCY UNDERWATER MANHOLE IF NECESSARY). CALL FACILITY SUPERVISION. POLICE WILL BLOCK OFF ROADS. WIND DIRECTION OBTAINED FROM CABLE TV STATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*EMERGENCY PROCEDURE + REACTOR, RESEARCH + INSTRUMENT, METEOROLOGICAL

17-30604

AFRRI-TRIGA ANNUAL REPORT, 1968

DEFENSE ATOMIC SUPPORT AGENCY

25 PAGES, LETTER TO DRL, NOVEMBER 12, 1968, DOCKET 50-170

NEW 1.5 MW HEAT EXCHANGER ADDED FOR POWER UPGRATING. FROM 1 OCT. 67 THRU SEPT. 68, REACTOR OPERATED 26.3 MW HR, 85% FOR R AND D. PROCEDURES CHANGED INCLUDE FIRE AND EVACUATION PLAN, TECHNICAL AND LEGAL ASPECTS OF REACTOR OPERATIONS, AND MAINTENANCE (BOTH ENCLOSED).

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + TRIGA (RR) + EMERGENCY PROCEDURE + MAINTENANCE AND REPAIR + POWER UPGRATING + PROCEDURES AND MANUALS

17-30605

ALSO IN CATEGORY 9

CHANGE 1 - ROUND-GROOVED CONTROL RODS

U.S. ATOMIC ENERGY COMMISSION

1 PAGE, LETTER TO J.L. MEEM, U. OF VIRGINIA, 1967, DOCKET 50-62

ALLOWS BORON-STEEL CONTROL RODS WITH ROUND GROOVES (RATHER THAN SQUARE) TO MINIMIZE CRACKING.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30605 *CONTINUED*
TECHNICAL SPECIFICATIONS + *CONTROL ROD + STRESS + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH +
FAULT + FAILURE, EQUIPMENT

17-30806
SNEPVANGERS JJM
INCIDENT FOLLOWING FAILURE OF A FUEL IRRADIATION CAPSULE IN THE HFR
REACTOR CENTRUM NEDERLAND, THE HAGUE
RCN-99 +. 52 PAGES, JULY 1968

ON MAY 7, AIRBORNE ACTIVITY DURING SPECIAL NUCLEAR HEATING EXPERIMENTS WITH EXPERIMENTS OUT OF
CORE LED TO FINDING ELLAS IRRADIATION FACILITY IN A HIGH FLUX REGION (POSITION NOT VERIFIED
DURING STARTUP CHECK) WITHOUT COOLING OR INSTRUMENTATION (TURNED OFF ON SHUTDOWN, SUPPOSEDLY
AFTER WITHDRAWING EXPERIMENT.)

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

REPORT, OPERATIONS ANALYSIS + *FAILURE, FUEL ELEMENT + *IRRADIATION FACILITY + FUEL MELTDOWN + REACTOR, TEST +
NETHERLANDS + FAILURE, OPERATOR ERROR + FAILURE, SEQUENTIAL + FISSION PRODUCT, IODINE + INCIDENT, HUMAN ERROR
+ REACTOR, LMFBR

17-30921 ALSO IN CATEGORY 15
OPPOLD JA + PELLAND EE + CAMPBELL CL
RADIUM CONTAMINATION INCIDENT IN IOWA
STATE HYGIENIC LAB., IOWA CITY, IOWA
2 PAGES, J. IOWA MEDICAL SOC., 56, PAGES 1226-8 (DECEMBER 1966)

A MINOR RADIUM CONTAMINATION INCIDENT IN IOWA IS DESCRIBED AND EVALUATED. THE CONTAMINATION WAS
NOT WIDESPREAD, AND NO ONE SUSTAINED ANY SIGNIFICANT UPTAKE. DECONTAMINATION WAS SIMPLIFIED BY
THE COMPLETE COOPERATION OF THE PHYSICIAN.

*RADIUM + CONTAMINATION + *INCIDENT, EXPOSURE + *RADIOLOGICAL ASSISTANCE + DECONTAMINATION + MONITOR, PERSONNEL

17-31356 ALSO IN CATEGORY 1
1968 USA RADIATION INCIDENT EXPERIENCE
U.S. ATOMIC ENERGY COMMISSION
5 PAGES, PG. 140-143, 152 OF MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS, JANUARY 1969

(PAGE 140) AEC INSPECTIONS TOTALED 2406 (MATERIALS) AND 489 (REACTORS) AND ISSUED A TOTAL OF 60 AND
27 CITATIONS RESPECTIVELY. ONE LICENSE WAS NOT RENEWED, AND ONE OPERATION WAS STOPPED. BLS
SURVEY SHOWED ATOMIC ENERGY HAS BETTER THAN AVERAGE WORK-INJURY EXPERIENCES. IN 1967, FILM-BADGE
READINGS SHOWED 4000 ABOVE 1 REM. *** OF 17 INCIDENTS, 8 WERE IN RADIOGRAPHY (800 REMS HAND, 36
WHOLE BODY) AND 7 WERE CONTAMINATIONS FROM LICENSED BY-PRODUCT MATERIAL. 31 AND 7 WERE
CONTAMINATIONS FROM LICENSED BY-PRODUCT MATERIAL. 31 SOURCES WERE LOST. *** IN AEC OPERATIONS,
ONE PERSON RECEIVED A 655-REM HAND DOSE, AND ANOTHER A 500-TO 1000- REM X-RAY HAND DOSE. ***
TWO SEMINARS ON MEDICAL CARE PLANNING WERE HELD FOR PHYSICIANS.

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

PERSONNEL EXPOSURE, RADIATION + CONTAMINATION + INCIDENT COMPILATION + REACTOR, RESEARCH + REACTOR, POWER + X-
RAY + INCIDENT, EXPOSURE + INDUSTRIAL SAFETY + RADIOGRAPHY + BYPRODUCT MATERIAL + COMPLIANCE

17-31525 ALSO IN CATEGORY 9
DUNNING TG + KANTOR ME + LGNG HA + SCHLICHT RW
PEACH BOTTOM CONTROL PERFORMANCE AND DYNAMIC BEHAVIOR
GULF GENERAL ATOMIC, INC., CALIF.
GAMD-7500 +. 96 PAGES, 49 FIGURES, 5 TABLES, OCTOBER 1, 1968

DESCRIBES THE TRANSIENT PERFORMANCE OF THE PEACH BOTTOM STATION AND THE EFFECTS OF THE CONTROL AND
SAFETY SYSTEMS ON OPERATION. A COMPARISON IS MADE WITH THE PREDICTED PERFORMANCE AS DETERMINED
FROM THE PEACH BOTTOM TRAINER-SIMULATOR. THE INFORMATION PRESENTED COVERS TESTING BEGUN IN EARLY
1967 FOLLOWING THE INITIAL STARTUP AND COMPLETED IN THE SUMMER OF 1968. THE RESULTS SHOW THAT
PLANT PERFORMANCE AGREES WELL WITH PREDICTIONS, AND IT CAN BE INFERRED THAT THE MATHEMATICAL
MODELS USED ARE REPRESENTATIVE OF ACTUAL PLANT DYNAMICS. FINALLY, PERFORMANCE FOLLOWING VARIOUS
SAFETY SYSTEM ACTIONS REVEALS NO CHARACTERISTICS THAT WOULD BE CONSIDERED UNDESIRABLE FROM EITHER
AN OPERATIONS OR ENGINEERING POINT OF VIEW.

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

REACTOR, HTGR + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + REACTOR SAFETY SYSTEM + *REACTOR CONTROL + SYSTEM
DESCRIPTION + INSTRUMENT, CONTROL + INSTRUMENT, PROCESS + SIMULATION + COMPARISON, THEORY AND EXPERIENCE +
*PEACH BOTTOM 1 (HTGR) + *OPERATING EXPERIENCE + TRAINING

17-31874 ALSO IN CATEGORIES 9 AND 12
THE EFFECT OF HUMAN ERROR AND STATIC COMPONENT FAILURE ON ENGINEERED SAFETY SYSTEM RELIABILITY
HOLMES + NARVER, INC.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-31874 *CONTINUED*
HN-194 +. NOVEMBER 1967, 18 TABLES, 16 FIGURES

HUMAN ERROR AND STATIC-COMPONENT FAILURE ARE IMPORTANT VARIABLES IN SYSTEM RELIABILITY ESPECIALLY IF THESE FAILURES CAN LEAD TO SYSTEM FAILURE BY THEMSELVES OR IN CONNECTION WITH ONLY ONE OTHER FAILURE. THE RESULT OF THE STUDY INDICATES THAT NO GENERALIZATION CAN BE MADE AS TO WHEN A STATIC COMPONENT OR HUMAN FAILURE MUST BE INCLUDED UNLESS IT IS THAT THEY SHOULD BE IGNORED OR SEPARATELY TREATED.

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

*RELIABILITY ANALYSIS + RELIABILITY, COMPONENT + *OPERATOR ACTION + *ENGINEERED SAFETY FEATURE + *COMPONENTS, MISCELLANEOUS + PROBABILITY + FAILURE, COMPONENT + FAILURE, FATIGUE + FAILURE, OPERATOR ERROR + FAILURE, PIPE

17-32131 ALSO IN CATEGORY 15
KODAK ADOPTS DISCOVERY TECHNIQUE TO TEACH INDUSTRIAL RADIOGRAPHY
3 PAGES, MATERIALS EVALUATION, XXVI(3), MARCH 1968

ATLANTA, GA., SCHOOL GIVES 2-WEEK COURSES FOR CERTIFICATION UNDER AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING PROGRAM. ARTICLE DESCRIBES TRAINING DEVICES. *** BROCHURE AVAILABLE FROM EASTMAN KODAK (ROCHESTER, N.Y.) LISTS COURSES (ABOUT EVERY OTHER 3 WEEKS). LIMITED TO 16 PERSONS, \$300 EACH.

*RADIOGRAPHY + *TRAINING + HEALTH PHYSICS TRAINING

17-32641 ALSO IN CATEGORIES 7 AND 12
CHANGE 3 - IODINE FILTER ASSEMBLY
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO R. O. MEHANN, FAST, 1968, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

PERMISSION WAS GRANTED TO REPLACE THE IODINE FILTER ASSEMBLY (PLYWOOD FRAME) WITH TWO METAL-DRAWER TYPE (MSA TYPE ASK-1473-652) CHARCOAL FILTERS IN SERIES. SECOND CHARCOAL FILTER REPLACES SILVER-PLATED COPPER RIBBONS. THIS CHANGE IS EXPECTED TO DECREASE PROBABILITY OF INTERNAL LEAKAGE AND MINIMIZE DEPOSITION OF ORGANIC MATERIAL ON CHARCOAL BED FINAL FILTER, RESULTING IN INCREASED REMOVAL EFFICIENCY OF IODINE, BOTH ELEMENTAL AND METHYL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545, (\$0.25 CENTS/PAGE)

*FILTER + DEPOSITION + *CHARCOAL + REACTOR, PWR + NS SAVANNAH (PWR) + TECHNICAL SPECIFICATIONS

17-32819 ALSO IN CATEGORIES 5 AND 18
FLUID FLOW AND VIBRATION TESTS ON 1/2 SCALE VESSEL MODEL
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-4 +. 60 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 4, DEC. 5, 1967, DOCKET 50-231

WATER, AT TEMPERATURES UP TO 265 F, WAS USED TO SIMULATE COOLANT CONDITIONS IN THE SODIUM-COOLED REACTOR, FLOWS WERE VARIED FROM 10 TO 100 PERCENT OF RATED REYNOLDS NUMBER IN THE REACTOR. DATA WAS OBTAINED ON RELATIVE CORE FLOW DISTRIBUTION, FLOW PATTERNS, PRESSURE LOSSES, AND VIBRATION CHARACTERISTICS OF THE CANTILEVER-MOUNTED CORE SHROUD. FLUID FLOW RESULTS PROVIDED INFORMATION NECESSARY FOR VERIFICATION OF FINAL DESIGN. VIBRATION RESULTS INDICATED NO SERIOUS EFFECTS OF AMPLITUDE OR STRESS IN THE FULL-SCALE REACTOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*PRESSURE VESSEL + *VIBRATION + *TEST, PRESSURE VESSEL + *TESTING + *FLOW, GENERAL + *MODEL TESTING + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + FLOW DISTRIBUTION + REACTOR COOLANT + METAL, LIQUID + SODIUM + PRESSURE DROP + FLOW THEORY AND EXPERIMENTS

17-32939 ALSO IN CATEGORY 18
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JUNE 1967
ARGONNE NATIONAL LABORATORY
ANL-7349 +. 140 PAGES, 24 FIGURES, TABLES, JUNE 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM + *ANL + FFTF (TR) + REACTOR, SAFETY RESEARCH + *R AND D PROGRAM

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32940 ALSO IN CATEGORY 18
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, DECEMBER 1967
ARGONNE NATIONAL LABORATORY
ANL-7403 +. 168 PAGES, FIGURES, TABLES, JANUARY 31, 1968

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT, FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM

17-32941 ALSO IN CATEGORY 18
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, SEPTEMBER 1967
ARGONNE NATIONAL LABORATORY
ANL-7382 +. 155 PAGES, FIGURES, TABLES, SEPTEMBER 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM

17-32942 ALSO IN CATEGORY 18
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, AUGUST 1967
ARGONNE NATIONAL LABORATORY
ANL-7371 +. 126 PAGES, 25 FIGURES, TABLES, AUGUST 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM + REACTOR COOLANT

17-32943 ALSO IN CATEGORY 18
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JULY 1967
ARGONNE NATIONAL LABORATORY
ANL-7357 +. 148 PAGES, 27 FIGURES, TABLES, JULY 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM

17-32945 ALSO IN CATEGORY 18
ARGONNE NATIONAL LABORATORY. REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JANUARY 1968

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32945 *CONTINUED*
ARGONNE NATIONAL LABORATORY
ANL-7419 +. 158 PAGES, FIGURES, TABLES, JANUARY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + REACTOR, RESEARCH + REACTOR, TEST + REACTOR
KINETICS + REACTOR, FAST + REACTOR, LMFBR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + TREAT (PRR)

17-32946 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, FEBRUARY 1968
ARGONNE NATIONAL LABORATORY
ANL-7427 +. 151 PAGES, FIGURES, TABLES, FEBRUARY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151, \$3.00
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*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-32947 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, MARCH 1968
ARGONNE NATIONAL LABORATORY
ANL-7438 +. 135 PAGES, FIGURES, TABLES, MARCH 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-32949 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, MAY 1968
ARGONNE NATIONAL LABORATORY
ANL-7457 +. 148 PAGES, FIGURES, TABLES, MAY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-32950 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JUNE 1968
ARGONNE NATIONAL LABORATORY
ANL-7460 +. 136 PAGES, FIGURES, TABLES, JUNE 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-32951 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, SEPTEMBER 1968
ARGONNE NATIONAL LABORATORY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32951 *CONTINUED*
ANL-7500 +. 139 PAGES, FIGURES, TABLES, SEPTEMBER 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS, AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY. NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR, TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-32952 ALSO IN CATEGORY 18
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, OCTOBER 1968
ARGONNE NATIONAL LABORATORY
ANL-7513 +. 144 PAGES, FIGURES, TABLES, OCTOBER 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS, AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY. NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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

*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR, TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMC + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

17-33331 ALSO IN CATEGORIES 1 AND 11
O KEEFE W
PIPING
25 PAGES, POWER, PAGES 1-24 (MARCH 1969)

A BASIC PIPING GUIDE, PRESENTS NO DATA, DOES NOT DISCUSS VALVES FITTINGS OR JOINTS. GIVES BROAD VIEW OF PIPING SYSTEMS FOR ENGINEERS WITH OVERALL RESPONSIBILITY. CODES (2 PG.). BASIC METALLURGY, (6 PG.). PIPE FABRICATION (2 PG.). DESIGNING THE SYSTEM (8 PG.) JOINING PIPE AND TESTING JOINTS. *** GOOD TRAINING MATERIAL, NOT ORIENTED TO PARTICULAR REACTOR.

*PIPING + DESIGN STUDY + CODES AND STANDARDS + TEST, NONDESTRUCTIVE + TRAINING + MATERIAL + WELDING + REACTOR, POWER

17-33504 ALSO IN CATEGORIES 5 AND 18
1058 DUNGENESS B - THE BOILER CONFLICT
2 PAGES, 5 FIGURES, ENGINEERING, VOLUME 206, PAGES 392-93 (SEPTEMBER 13, 1968)

CONFLICTING REQUIREMENTS TO WITHSTAND THE GAS-INDUCED VIBRATION AND CORROSION HAVE BEEN MET IN THE DESIGN OF THE BOILER TUBE SYSTEM FOR DUNGENESS B NUCLEAR POWER PLANT. A BRIEF DESCRIPTION IS GIVEN OF THE RESEARCH CARRIED OUT TO RESOLVE THE CONFLICT.

*VIBRATION + *CORROSION + *SUPPORT STRUCTURE + *HEAT EXCHANGER + DUNGENESS B (GCR) + REACTOR, GCR + UNITED KINGDOM + MAINTENANCE AND REPAIR + *MODIFICATION, SYSTEM OR EQUIPMENT + FLOW THEORY AND EXPERIMENTS

17-33505 ALSO IN CATEGORY 18
TRAUBE K + KORNBLICHER S
DESIGN FEATURES OF KWL
AEG-TELEFUNKEN, FRANKFURT AM MAIN
4 PAGES, NUCLEAR ENERGY INTERNATIONAL, VOLUME 13, PAGES 930-3 (NOVEMBER 1968)

THE 240 MW(E) BWR PLANT WITH OIL-FIRED SUPERHEATER IS DESCRIBED. DETAILS ARE GIVEN OF THE PRINCIPAL INNOVATIONS, WHICH INCLUDE AN INTERNAL CYCLONE STEAM SEPARATOR, CONTINUOUSLY ADJUSTABLE CONTROL ROD DRIVES, AND IN-CORE NEUTRON SENSITIVE THERMOCOUPLES. A CHRONOLOGICAL LIST OF THE PRINCIPAL EVENTS DURING FABRICATION OF THE REACTOR IS GIVEN, CHRONOLOGICAL LIST OF THE PRINCIPAL EVENTS DURING FABRICATION OF THE REACTOR IS GIVEN, AND THE EXPERIENCE GAINED DURING START UP IS SUMMARIZED.

REACTOR, POWER + REACTOR, BWR + *REACTOR STARTUP EXPERIENCE + *GERMANY + REACTOR DESCRIPTION

17-33509 ALSO IN CATEGORY 18
STRAUSS SD
BROWNS FERRY NUCLEAR PLANT MOVES AHEAD
2 PAGES, POWER, VOLUME 112, PAGES 82-3 (NOVEMBER 1968)

DESCRIBES CONSTRUCTION PROGRESS ON THE BROWNS FERRY POWER REACTOR.

*CONTAINMENT CONSTRUCTION + LICENSE STATUS + BROWNS FERRY (BWR) + REACTOR, BWR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-33550 ALSO IN CATEGORY 5
FUNAKAWA M
VIBRATION AND NOISES OF A HEAT EXCHANGER
KAWASAKI DOCKYARD CO., LTD., JAPAN
9 PAGES, FAPIG (TOKYO), NUMBER 49, PAGES 39-47 (JUNE 1968) (IN JAPANESE)

IN THE JAPC TOKAI POWER STATION, DAMAGE OCCURRED RECENTLY TO THE VAPORIZATION TUBES OF THE STEAM GENERATOR. TO PURSUE THE CAUSES FOR THIS ACCIDENT, STUDIES WERE CARRIED ON POSSIBLE FACTORS. FROM THE EXPERIMENT WITH MODEL TUBE GROUPS IN THE ATMOSPHERIC-PRESSURE AIR CHANNEL, IT WAS CONFIRMED THAT THE VIBRATIONS OF TUBES COULD BE MEASURED AND FATIGUE DAMAGE BE PRODUCED.

*STEAM GENERATOR + HEAT EXCHANGER + NOISE + *VIBRATION ANALYSIS + RESONANCE OVERLAP + FAILURE, FATIGUE + FAILURE, TUBING + JAPAN + REACTOR, POWER + OPERATING EXPERIENCE

17-33737
BWR FEEDWATER VALVES MAY BE ADJUSTED UNDER LICENSED OPERATORS DIRECTION
COMMONWEALTH EDISON COMPANY
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 15(20), PAGE 35 (MAY 19, 1969)

(LETTER TO DRL, JANUARY 3, 1969) IBEW ASKS IF UNLICENSED PERSON MAY MANIPULATE FEEDWATER-CONTROL VALVES ON DRESDEN I WHILE UNDER DIRECTION OF LICENSED OPERATOR IN CONTROL ROOM. *** (ANSWER, APRIL 29) ACCORDING TO 10 CFR 50 AND 55, AND DRESDEN I LICENSE, (1) THE VALVES ARE CONTROLS IN THE SENSE OF THE REGULATION, (2) UNLICENSED OPERATORS MAY MANIPULATE THEM UNDER THE DIRECTION OF LICENSED OPERATORS IN THE CONTROL ROOM.

*VALVE + HEAT EXCHANGER + TURBINE + FAILURE, OPERATOR ERROR + REGULATION, AEC + REACTOR, BWR + *ADMINISTRATIVE CONTROL + REACTIVITY EFFECT + REMOTE MANIPULATING AND VIEWING + TRAINING + *CERTIFICATION

17-33982
BICKEL W + ENGELMANN P + HAFELE W + WITTEK G
SAFETY CONSIDERATIONS FOR THE KARLSRUHE FAST CRITICAL FACILITY SNEAK
KERNFORSCHUNGSZENTRUM KARLSRUHE, INST. FUR ANGEWANDTE REAKTORPHYSIK
33 PAGES, 9 FIGURES, 1 TABLE, 7 REFERENCES, PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

SNEAK IS A FLEXIBLE FAST ZERO POWER REACTOR. IT IS THE FIRST FAST REACTOR AND THE FIRST WITH LARGE AMOUNTS OF PLUTONIUM FUEL IN GERMANY. IT HAS BEEN BUILT IN THE DENSELY POPULATED AREA OF KARLSRUHE. DUE TO THESE FACTS THE SAFETY ASPECTS OF SNEAK HAD TO BE EMPHASIZED. THE SAFETY FEATURES INCORPORATED IN THE DESIGN OF SNEAK AND THE ADMINISTRATIVE MEASURES TO GUARANTEE SAFE OPERATION OF THE REACTOR ARE DESCRIBED IN DETAIL. A SHORT REVIEW IS GIVEN OF THE OPERATION EXPERIENCE AND OF THE LICENSING PROCEDURE OF SNEAK.

AVAILABILITY - W. BICKEL/P. ENGELMANN/W. HAFELE/G. WITTEK, INST. FUR ANGEWANDTE REAKTORPHYSIK, KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY

R AND D PROGRAM + REACTOR, LMFBR + *SAFETY PRINCIPLES AND PHILOSOPHY + *DESIGN CRITERIA + SITING, REACTOR + *GERMANY + OPERATING EXPERIENCE SUMMARY + ADMINISTRATIVE CONTROL

17-34305 ALSO IN CATEGORIES 1 AND 14
BELL STATION THERMAL EFFECTS CASE STUDY
ATOMIC INDUSTRIAL FORUM, NEW YORK
135 PAGES, FIGURES, TABLES, 1968

PRESENTS A CASE STUDY OF A NUCLEAR-POWER-PLANT THERMAL-EFFECTS CONTROVERSY - THE CAYUGA LAKE CASE. PRESENTS POLLUTION PROBLEMS. QUESTIONABLE ASSUMPTIONS, CITIZENS EFFORTS TO SAVE CAYUGA LAKE, AND STATEMENTS AND EXHIBITS FROM JOINT LEGISLATIVE COMMITTEE HEARINGS.

REACTOR, BWR + *THERMAL POLLUTION + *BELL (BWR) + *WATER POLLUTION + *THERMAL CONSIDERATION + LAKE + CONGRESSIONAL ACTIVITY + ENVIRONMENTAL CONDITION + REACTOR, POWER + *ECOLOGICAL CONSIDERATION + AQUATIC ORGANISMS + STATE PROGRAM + RADIATION, PUBLIC EDUCATION + WATER, GENERAL + CODES AND STANDARDS

17-34325
HUNTSINGER M + HART RS
SAFETY EVALUATION OF PNPf MODIFICATIONS
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NAA-SR-12516 +. 344 PAGES, FIGURES, TABLES, REFERENCES, MAY 1, 1969

THE SAFETY ASPECTS OF THE RESTART AND CONTINUED OPERATION OF THE PIQUA NUCLEAR POWER FACILITY (PNPf) AFTER THE COMPLETION OF CERTAIN SYSTEM MODIFICATIONS WERE EVALUATED. THE BASIC CONCLUSION REACHED IS THAT WHILE SUBSTANTIAL SYSTEM MODIFICATIONS ARE BEING MADE, THE OVERALL SAFETY OF THE PLANT IS NOT SIGNIFICANTLY AFFECTED, AND THAT THE SAFETY ANALYSIS AND CONCLUSIONS OF THE ORIGINAL SAFEGUARDS REPORT REMAIN VALID AND UNCHANGED.

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

*PIQUA (OCR) + REACTOR, POWER + SAFETY PRINCIPLES AND PHILOSOPHY + *REPORT, SAR + *REPORT, OPERATIONS + *MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR, ORGANIC COOLED

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34459 ALSO IN CATEGORY 7

OSBORNE RN

AN IN-CORE FAILED-FUEL LOCATION AND MONITORING SYSTEM FOR BOILING-WATER REACTOR
GENERAL ELECTRIC, VALLECITOS

1 PAGE, ANS TRANS. 5(1), PAGE 50 (1962)

CONSIDERABLE IMPORTANCE TO FUELS-TESTING PROGRAMS IN ADDITION TO BEING AN INVALUABLE PIECE OF EQUIPMENT FOR LARGE POWER STATIONS. THE METHOD IS BASED ON THE DEGASSING NATURE OF BOILING-WATER REACTORS. SAMPLES OF COOLANT ARE COLLECTED FROM INDIVIDUAL FUEL CHANNELS AND THE GAS CONTENT ASSAYED BY GAMMA COUNTING FOR THEIR RELATIVE SPECIFIC ACTIVITIES, I.E. MICROCURIES OF FISSION GAS PER MILLILITER OF RADIOLYTIC GAS.

COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT + MONITOR, LIQUID + REACTOR, BWR + VBWR (BWR) + REACTOR, WATER + REACTOR, TEST

17-34460 ALSO IN CATEGORY 7

SMITH RR + DOE CB

A CLADDING-FAILURE MONITOR FOR LIQUID-METACOOLED REACTOR SYSTEMS
ARGONNE NATIONAL LABORATORY

1 PAGE, ANS TRANS 5(1), PAGE 50 (APRIL, 1962)

A MONITOR FOR ANNUNCIATING A CLADDING FAILURE IN A NA- OR NAK-COOLED REACTOR SYSTEM HAS BEEN DESIGNED, CONSTRUCTED, AND SUCCESSFULLY TESTED IN EBR-1. ALSO, A SIMPLE AND EXTREMELY EFFICIENT METHOD OF DISCRIMINATION HAS BEEN DEVELOPED UTILIZING THE SELECTIVE ELECTROSTATIC ISOLATION OF RARE-GAS DAUGHTER SPECIES FROM ALL OTHER INTERFERING ACTIVITIES.

MONITOR, GAS + *NAK + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT

17-34461 ALSO IN CATEGORY 7

OSBORNE RN

LOCATING FAILED FUEL IN WATER REACTORS
GENERAL ELECTRIC CO., PLEASANTON, CALIF.

3 PAGES, NUCLEONICS 19(7), PAGES 84, 86, AND 89 (JULY 1961)

DEVELOPED A METHOD OF LOCATING FAILED FUEL ELEMENTS IN WATER-COOLED REACTORS BY MEASURING THE RELATIVE AMOUNTS OF TE-132 SURFACE ACTIVITY THROUGH ITS I-132 DAUGHTER. THE METHOD IS USED DURING REACTOR SHUTDOWN AND HENCE IS QUITE USEFUL FOR REACTORS SUCH AS VALLECITOS BOILING WATER REACTOR THAT ARE NOT LARGE ENOUGH TO HAVE ELABORATE BUILT-IN FAILED-FUEL LOCATION SYSTEMS. IT ALSO CAN PROVIDE A CONFIRMATORY CHECK FOR FAILED FUEL IN LARGE REACTORS CONTAINING SUCH BUILT-IN SYSTEMS. THE TECHNIQUE HAS SUCCESSFULLY LOCATED DEFECTED ELEMENTS CONTAINING EITHER URANIUM OXIDE OR URANIUM-METAL ALLOY.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + VBWR (BWR) + OPERATING EXPERIENCE + REACTOR, WATER + REACTOR, BWR + REACTOR, TEST + *COOLANT CHEMISTRY

17-34462 ALSO IN CATEGORY 7

DREYER HS + POWELL HD

FAILED FUEL ELEMENT LOCATION IN THE ML-1
AEROJET

2 PAGES, 2 FIGURES, TRANS. AMER. NUCL. SOC., 6 307-8 (1963)

A SYSTEM FOR RAPID LOCATION OF A FAILED FUEL ELEMENT IN A MOBILE NUCLEAR POWER PLANT (THE ML-1) IS DESCRIBED. THE SYSTEM IS SIMPLE, POSITIVE AND SAFE, UTILIZES FIELD EQUIPMENT AND DOES NOT SIGNIFICANTLY INCREASE PLANT WEIGHT OR LOGISTICS REQUIREMENTS. THE LOCATING EQUIPMENT IS NOT PERMANENTLY ATTACHED TO THE REACTOR.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + REACTOR, PWR + REACTOR, MILITARY + IODINE + FISSION PRODUCT, IODINE + SAMPLING + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + ML 1 (GCR)

17-34465 ALSO IN CATEGORY 7

KIGER EI

FUEL-FAILURE DETECTION IN THE HWCTR
SAVANNAH RIVER LABORATORY

1 PAGE, ANS TRANS. 5(1), PAGE 48 (APRIL 1962)

FOUR SYSTEMS FOR DETECTING FAILED FUEL ELEMENTS ARE EMPLOYED IN THE HEAVY WATER COMPONENTS TEST REACTOR (HWCTR) - (1) LOW ENERGY GAMMA MONITOR (LEGM), (2) GAS FISSION-PRODUCT MONITOR (GFPM), (3) DELAYED NEUTRON MONITOR (DNM), AND (4) SCANNING LIQUID PHOTONEUTRON MONITOR (SLPM).

*COOLANT CHEMISTRY + *FAILURE, FUEL ELEMENT + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + OPERATING EXPERIENCE + DEUTERIUM + HWCTR (TR) + REACTOR, TEST + REACTOR, HWR + REACTOR, AEC OWNED

17-34466 ALSO IN CATEGORY 7

FOWLER IL + PEARSON A + WATT LA

HALOGEN BETA COUNTER MONITORS FOR CHALK RIVER REACTORS
ATOMIC ENERGY OF CANADA LIMITED, CHALK RIVER

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34466 *CONTINUED*

4 PAGES, 9 FIGURES, 5 REFERENCES, NUCLEONICS 17(1), PAGES 78,80,82-83 (JANUARY 1959)

GASEOUS-FISSION-PRODUCT MONITORS WERE PLANNED FOR THE DETECTION OF FAULTS IN ROD SHEATHINGS IN THE CHALK RIVER REACTORS. FOR THESE A BETA-SENSITIVE DETECTOR CAPABLE OF MEASURING A WIDE RANGE OF ACTIVITY WAS REQUIRED SO THAT FAULTS COULD BE DETECTED AS SOON AS THEY OCCURRED AND A MEASURE MADE OF THEIR RATE OF DEVELOPMENT. THE MONITOR DESCRIBED PROVIDES A VERY SIMPLE MEANS OF MEASURING A WIDE RANGE OF BETA AND GAMMA ACTIVITY. LIFE TESTS AND OPERATIONAL EXPERIENCE TO DATE HAVE BEEN GOOD. THE RANGE CAN BE FURTHER INCREASED WITHOUT SACRIFICE OF OVER-ALL SIMPLICITY BY ADDITIONAL MODIFICATION OF THE COUNTER ELECTRODE SHAPE. BY THIS MEANS, THE CHARACTERISTIC CAN BE MADE TO COVER AT LEAST 6 DECADES.

*COOLANT CHEMISTRY + FAILURE, FUEL ELEMENT + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT + BETA EMITTER + HALOGEN + CHALK RIVER

17-34468 ALSO IN CATEGORY 7

CHENOUDARD J

BEHAVIOR OF HEAVY WATER IN PILES OF THE C.E.A.

COMMISSARIAT A L'ENERGIE ATOMIQUE

6 PAGES, 2 FIGURES, 3 TABLES, 6 REFERENCES, PROCEEDINGS OF THE FIRST CONFERENCE ON THE PEACEFUL USES OF ATOMIC ENERGY (1955)

THE CHATILLON PILE CONTAINS 1880 KG OF NATURAL URANIUM AND 4.5 TONS OF HEAVY WATER. THE SACLAY PILE CONTAINS 3 TONS OF NATURAL URANIUM AND 7.2 TONS OF HEAVY WATER. THE MAXIMUM POWERS AND FLUXES OBTAINED ARE, RESPECTIVELY, 150 KW AND 2000 KW, 10^{12} AND 8×10^{12} NEUTRON FLUX. IN THESE TWO PILES WE HAVE CARRIED OUT (A) INVESTIGATIONS ON THE ISOTOPIC COMPOSITION OF HEAVY WATER, (B) INVESTIGATIONS OF THE GASES EVOLVED BY THE DECOMPOSITION OF THE IRRADIATED HEAVY WATER, AND OF THEIR RECOMBINATION, (C) PERIODICAL ANALYSES FOR IMPURITIES.

FRANCE + *RADIOLYTIC GAS + MONITOR, LIQUID + *COOLANT CHEMISTRY + *DEUTERIUM + REACTOR, WATER

17-34469 ALSO IN CATEGORY 7

CANZHA VD + EGOROV AI + KAMINKER DM + KOLYADIN AV + KONOPLEV KA + SAIKOV UA + SHAROV VT

AN ELECTROSPORETIC FILTER FOR PURIFYING WATER

7 PAGES, 6 FIGURES, 2 TABLES, REFERENCES, JOURNAL OF NUCLEAR ENERGY 20, PAGES 993-999 (1966)

AS THE RESULT OF CORROSION THERE FORMED IN THE WATER OF THE MAIN CIRCUIT OF THE REACTOR OF THE A.F. IOFFE PHYSICO-TECHNICAL INSTITUTE OF THE ACADEMY OF SCIENCES OF THE U.S.S.R. A HYDRATE OF ALUMINA THAT WAS DIFFICULT TO DISSOLVE. AN ELECTROPHORETIC FILTER OF SPECIAL DESIGN MADE IT POSSIBLE TO CLEAN THE COOLANT OF THE MAIN CIRCUIT COMPLETELY. THE FILTER HAS A TOTAL CAPACITY OF 10.7 LITERS, ITS HYDRAULIC RESISTANCE IS LOW, AND IT IS EASY TO SERVICE. THE EFFECTIVE DISCHARGE THROUGH THE FILTER IS 0.5 M³/HR. THE POWER EMPLOYED IS 0.3 KW.

FILTER, MEMBRANE + *WATER TREATMENT + FILTER + ELECTROSTATIC CHARGE + ELECTROSTATIC PRECIPITATION + OPERATING EXPERIENCE + *ALUMINUM + *OXIDE + REACTOR, WATER + COOLANT CHEMISTRY

17-34471 ALSO IN CATEGORY 7

PALMER AR + PORRITT R

THE DETERMINATION OF FISSION PRODUCT LEVELS IN HIFAR HEAVY WATER

AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT

AAEC/TM-427 +. 12 PAGES, 4 FIGURES, 3 TABLES, 1 REFERENCES, 1967

METHODS FOR THE DETERMINATION OF BA-140 AND I-131 ARE DESCRIBED. THESE METHODS ARE SUITABLE FOR ROUTINE MONITORING OF FISSION PRODUCT LEVELS IN THE HIFAR HEAVY WATER CIRCUIT. THE RESULTS OBTAINED OVER A FOUR-MONTH PERIOD ARE PRESENTED AND DISCUSSED.

MONITORING SYSTEM, RADIATION + *INSTRUMENT, COOLANT QUALITY + *COOLANT CHEMISTRY + *ANALYTICAL TECHNIQUE, CALIBRATION + *ANALYTICAL TECHNIQUE, WATER + OPERATING EXPERIENCE + *BARIUM + *IODINE + FISSION PRODUCT, IODINE + DEUTERIUM + REACTOR, WATER

17-34483 ALSO IN CATEGORY 9

GRIDLEY RL + GUPPY WH + PERKINS KT

EXPERIENCE IN THE USE OF A BWR NUCLEAR POWER PLANT TRAINING SIMULATOR

GENERAL ELECTRIC COMPANY, MORRIS, ILLINOIS, COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS, GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

8 PAGES, AMERICAN POWER CONFERENCE PAPER, APRIL 22, 1969

GENERAL ELECTRIC COMPANY DEVELOPED A BWR NUCLEAR POWER PLANT SIMULATOR FOR USE IN TRAINING PERSONNEL OF ELECTRIC UTILITIES WHO WILL OPERATE LARGE BOILING WATER REACTOR PLANTS. THE SIMULATOR IS PART OF A COMPREHENSIVE TRAINING PROGRAM TO DEVELOP OPERATOR PROFICIENCY IN NUCLEAR POWER PLANT STARTUP AND OPERATING PROCEDURES. THE SIMULATOR GIVES THE OPERATOR A CHANCE TO PRACTICE REGULAR STARTUPS, SHUTDOWNS, AND EMERGENCY MANEUVERS. HE CAN ALSO PRACTICE FOR CONDITIONS NOT EXPECTED AND FOR EVENTS THAT COULD NOT BE DUPLICATED WITHOUT DAMAGE TO THE REAL PLANT.

AVAILABILITY - R. L. GRIDLEY, MANAGER, BWR TRAINING CENTER, GENERAL ELECTRIC COMPANY, BOX 220, ROUTE 1, MORRIS, ILLINOIS, W. H. GUPPY, GENERAL STAFF ENGINEER, COMMONWEALTH EDISON COMPANY, 72 W. ADAMS STREET, ROOM L334, CHICAGO, ILLINOIS, K. T. PERKINS, MANAGER, FIELD ENGINEERING, GENERAL ELECTRIC COMPANY, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34483 *CONTINUED*
REACTOR, PWR + *REACTOR, TRAINING + SIMULATION + OPERATOR ACTION

17-34484 ALSO IN CATEGORY 9
DEDDENS JC
SIMULATOR TRAINING OF NUCLEAR POWER PLANT OPERATORS
BABCOCK AND WILCOX
TP9-7 +. 16 PAGES, 3 REFERENCES, 2 TABLES, APRIL 22, 1969

OPERATIONAL TRAINING ON A SIMULATOR IS A LOGICAL ALTERNATIVE TO TRAINING ON POWER REACTORS. BY SUPPLYING STARTUP EXPERIENCE TO OPERATOR TRAINEES, SIMULATOR TRAINING WILL PREVENT THE UTILITY INDUSTRY FROM SUSTAINING A SUBSTANTIAL LOSS IN GENERATING-PLANT AVAILABILITY.

AVAILABILITY - J. C. DEDDENS, MANAGER, SERVICE SECTION, NUCLEAR POWER GENERATION DEPT., BABCOCK AND WILCOX, LYNCHBURG, VIRGINIA 24505

*REACTOR, TRAINING + *SIMULATCN + OPERATOR ACTION + REACTOR, PWR + REVIEW

17-34493 ALSO IN CATEGORY 15
RADIOLOGICAL EMERGENCY OPERATIONS, STUDENTS MANUAL
REYNOLDS ELECTRICAL AND ENGINEERING CO., INC., MERCURY, NEVADA
TID-24919 +. 425 PAGES, FIGURES, TABLES, REFERENCES, 1969

MANUAL FOR AN 80-HR COURSE TO TRAIN A RADIOLOGICAL EMERGENCY TEAM AT AN AEC INSTALLATION. INCLUDES INFORMATION ON TERMINOLOGY, HEALTH PHYSICS INSTRUMENTATION, SAFE HANDLING OF ISOTOPES (INCLUDING NUCLEAR WEAPONS), PROTECTIVE EQUIPMENT AND DECONTAMINATION, EMERGENCY-OPERATIONS PHILOSOPHY AND S.O.P., PRESS RELEASES. *** A GOOD REFERENCE BOOK FOR ANY NUCLEAR-FACILITY LIBRARY.

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

*TRAINING + RADIATION SAFETY AND CONTROL + RADIOLOGICAL ASSISTANCE + EMERGENCY PROCEDURE + REACTOR, PWR + REACTOR, BWR + REACTOR, AEC OWNED + *HEALTH PHYSICS TRAINING + RADIATION, PUBLIC EDUCATION + INCIDENT, RECOVERY FROM + REACTOR, POWER + REACTOR, RESEARCH

17-346C5 ALSO IN CATEGORY 9
MACGREGOR RV
PREDICTIVE MAINTENANCE, FORLORN HOPE OF FORESEEABLE REALITY
DOUGLAS AIRCRAFT COMPANY, LONG BEACH, CALIFORNIA
AD - 664371 +. 31 PAGES, 1967. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5), PAGE 80 (MAY 1969)

CONSIDERATION IS GIVEN TO PREDICTING THE MAINTENANCE OF FUNCTIONAL SUBSYSTEMS AND COMPONENTS OF AIRCRAFT BASED ON THE THEORY THAT IT IS BETTER TO DETECT AND CORRECT DETERIORATING FUNCTIONAL CONDITIONS THAT TO ISOLATE AND CORRECT ACTIVE MALFUNCTIONS OR FAILURES. THE PREREQUISITES OF PREDICTIVE MAINTENANCE ARE DELINEATED, AND THE PROBLEMS OF IDENTIFYING AND SPECIFYING PROBABLE MODES AND MALFUNCTION OR FAILURE ARE ILLUSTRATED. A DISTINCTION IS DRAWN BETWEEN FUNCTIONAL PERFECTION AND MALFUNCTION, AND AN ASSESSMENT IS MADE OF THREE CHARACTERISTIC MODES OF MALFUNCTION AND THE TIME FACTOR WHICH IS INVOLVED. THE FUTURE APPLICATIONS OF PREDICTIVE MAINTENANCE ARE BRIEFLY MENTIONED IN RELATION TO AN ONBOARD COMPUTER THAT CAN PROVIDE INSTANTANEOUS MALFUNCTION DETECTION AND FAULT ISOLATION CAPABILITIES.

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

RELIABILITY ANALYSIS + *RELIABILITY + *MAINTENANCE AND REPAIR + COMPONENTS, MISCELLANEOUS + FAILURE, GENERAL + COMPUTER CONTROL + SAFETY PRINCIPLES AND PHILOSOPHY

17-346C6 ALSO IN CATEGORY 9
ELLIOTT TK
DEVELOPMENT OF FULLY PROCEDURALIZED TROUBLESHOOTING ROUTINES
WRIGHT - PATTERSON AFB, OHIO
AD - 664076 +. 64 PAGES, REFERENCES, NOVEMBER, 1967. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5), PAGE 82 (MAY 1969)

SEVERAL STUDIES OVER THE PAST DECADE HAVE SHOWN THAT PROCEDURALIZED TROUBLESHOOTING CAN PRODUCE ACCEPTABLE OR BETTER PERFORMANCE OF THIS COMPLEX MAINTENANCE TASK WHILE PERMITTING SUBSTANTIAL REDUCTION IN THE COSTLY TRAINING TYPICALLY ASSOCIATED WITH ITS ACCOMPLISHMENT. THE TERM PROCEDURALIZED TROUBLESHOOTING IS USUALLY APPLIED WHEN THE DECISION ABOUT WHERE THE SYSTEM THE TECHNICIAN IS TO CHECK NEXT, BASED ON THE RESULTS OF PREVIOUS CHECKS, IS MADE BY A PERFORMANCE AID WHICH DIRECTS HIS ACTIONS. EXAMPLES OF TROUBLESHOOTING PROCEDURES DEVELOPED FOR USE IN THE EVALUATION ARE PRESENTED AND DESCRIBED.

RELIABILITY ANALYSIS + *MAINTENANCE AND REPAIR + *TRAINING + ECONOMICS + SYSTEM DESCRIPTION

17-34610 ALSO IN CATEGORY 9

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34610 *CONTINUED*

ROELOFFS R

MINIMAX SURVEILLANCE SCHEDULES FOR REPLACEABLE UNITS

NEW YORK UNIVERSITY

12 PAGES, REFERENCES, NAVAL RES. LOGISTICS QUARTERLY, VOL. 14 NO. 4 (DECEMBER 1967). ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(5) PAGE 85 (MAY 1969)

AN ANALYSIS IS MADE OF THE PROBLEM OF FINDING OPTIMAL SCHEDULES FOR CHECKING AN OPERATING UNIT SUBJECT TO RANDOM FAILURE DETECTABLE ONLY BY INSPECTION OF THE UNIT. IT IS ASSUMED THAT ONLY PARTIAL INFORMATION, IN THE FORM OF A SINGLE PERCENTILE OF THE OTHERWISE UNKNOWN LIFE DISTRIBUTION OF THE UNIT IS AVAILABLE. IN A PREVIOUS PAPER SOME RESULTS WERE GIVEN FOR THE CASE WITH A FINITE TIME HORIZON. IN THIS WORK IT IS ASSUMED THAT THE UNIT IS REPLACEABLE AT WILL WITH A NEW, STATISTICALLY IDENTICAL UNIT, AND THE HORIZON IS INFINITE.

RELIABILITY ANALYSIS + *MAINTENANCE AND REPAIR + FAILURE, GENERAL + *THEORETICAL INVESTIGATION + *PROCEDURES AND MANUALS

17-34625 ALSO IN CATEGORY 5

SAXTON PLUTONIUM PROJECT - QUARTERLY PROGRESS LETTER FOR THE PERIOD ENDING SEPTEMBER 30, 1968

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

EURAC-2066 +. 12 PAGES, OCTOBER 1968

REACTOR OPERATIONS CONTINUED, AN OVERPOWER TEST WAS RUN. RODS RAN AT 21.5 KW/FT (PEAK) FOR 5 DAYS, INCREASE MADE FROM 19 KW/FT IN 20 MIN. AFTER EXAMINATION OF FUEL ELEMENT, TEST WAS REPEATED FOR 15 DAYS WITHOUT INCIDENT. PROFILOMETER MEASUREMENTS INDICATE FURTHER CLAD CREEPDOWN.

EURATOM + SAXTON (PWR) + REACTOR, PWR + *IRRADIATION TESTING + FUEL ELEMENT + R AND D PROGRAM + PLUTONIUM + *CREEP BEHAVIOR + PERFORMANCE LIMIT + POWER UPGRATING

17-34626

COE R

NUCLEAR POWER PLANTS IN OPERATION - 5 CASE HISTORIES

YANKEE ATOMIC ELECTRIC COMPANY

22 PAGES, FIGURES, TABLES, REFERENCES, NUCLEAR NEWS, 12(6), PAGES 41-62, (JUNE 1969)

OPERATING EXPERIENCE, PERFORMANCE, AND DESIGN PROBLEMS FOR DRESDEN 1, YANKEE, INDIAN POINT 1, HADDAM NECK AND SAN ONOFRE.

*OPERATING EXPERIENCE SUMMARY + FAILURE, EQUIPMENT + RELIABILITY, SYSTEM + REACTOR, BWR + REACTOR, PWR + INDIAN POINT 1 (PWR) + HADDAM NECK (PWR) + SAN ONOFRE (PWR) + DRESDEN 1 (BWR) + YANKEE (PWR)

17-34627 ALSO IN CATEGORY 9

KUSHKOWSKI P

CONNECTICUT - MONITORING SYSTEM RELIES ON TIME-SHARED COMPUTER

CONNECTICUT YANKEE ATOMIC POWER COMPANY

5 PAGES, 1 TABLE, NUCLEAR NEWS, 12(6), PAGES 63-67 (JUNE 1969)

DESCRIBES IBM-1800 SYSTEM, DEBUGGING, AND ANALYSES DONE ON TIME SHARE. SYSTEM MONITORS CONTROL-ROD POSITION DEVIATION FROM AVERAGE, PRINTS OUT DATA AFTER A REACTOR SCRAM, ANALYZES CORE OUTLET TEMPERATURES AND IN-CORE FLUX DATA. SYSTEM HAS OPERATOR ACCEPTANCE.

*DATA PROCESSING + HADDAM NECK (PWR) + *OPERATING EXPERIENCE SUMMARY + REACTOR POWER + REACTOR, PWR + INSTRUMENT, ALARM

17-34628 ALSO IN CATEGORY 13

AEC PRELIMINARY ESTIMATE PLACES RESTORATION AFTER ROCKY FLATS FIRE AT \$40-\$50 MILLION

U.S. ATOMIC ENERGY COMMISSION

AEC PRESS RELEASE M-121 +. 2 PAGES, MAY 20, 1969

MAY 11 FIRE (NO CAUSE GIVEN) WILL COST \$50 MILLION, NOT INCLUDING REPROCESSING FOR PU. NO OFF-SITE DOSE OR RELEASE. ONE FIREMAN EXPOSED, RETURNED TO DUTY.

PLUTONIUM + ROCKY FLATS + *FIRE

17-34629 ALSO IN CATEGORIES 13 AND 15

RADIOLOGICAL EMERGENCY OPERATIONS - INSTRUCTORS MANUAL

REYNOLDS ELECTRICAL AND ENGINEERING CO.

TID-24918 +. 219 PAGES, REFERENCES, 1969

FOR AN 80-HR COURSE. COMPANION VOLUME TO STUDENTS MANUAL, GIVES REFERENCES, LESSON PLANS, TESTS, PRACTICAL EXERCISES. COURSE INTENDED TO TRAIN A WORKER IN RADIATION FIELD TO BE A MEMBER OF AN EMERGENCY TEAM. *** COVERS HEALTH PHYSICS INSTRUMENTATION, HANDLING OF RADIOISOTOPES, EMERGENCY-TEAM PHILOSOPHY AND PROCEDURES, EMERGENCY MONITORING. *** EVERY NUCLEAR FACILITY SHOULD HAVE A LIBRARY COPY.

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

ACCESSION NUMBER 17-34610 TO 17-34629

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34629 *CONTINUED*

*RADIATION SAFETY AND CONTROL + EMERGENCY PROCEDURE + RADIOLOGICAL ASSISTANCE + BIBLIOGRAPHY + TRAINING + SURVEY, RADIATION, EMERGENCY + MONITOR, PERSONNEL + REACTOR, BWR + REACTOR, PWR + REACTOR, RESEARCH + *HEALTH PHYSICS TRAINING

17-34633 ALSO IN CATEGORY 18
MOLTEN SALT BREEDER REACTORS

OAK RIDGE NATIONAL LAB., TENN.
6 PAGES, NUCLEAR ENGINEERING INTERNATIONAL, 14, PAGES 420-425 (MAY 1969)

IN THIS SECOND ARTICLE ON MOLTEN-SALT REACTORS, DESIGN AND PERFORMANCE OF 1000 MW(E) BREEDERS, AND COMMERCIAL PROSPECTS OF SYSTEM ARE DISCUSSED. DESCRIBES OFF-GAS REMOVAL SYSTEM, FUEL SALT PROCESSING FOR PA-233 REMOVAL, REMOTE MAINTENANCE, SAFETY, AND COST ESTIMATES. (APRIL ISSUE OF NEI REVIEWED HISTORY OF PROJECT.)

*MSBR (RE) + *MSRE (RE) + REACTOR, MOLTEN SALT + REACTOR, POWER + REACTOR, LARGE + REACTOR, BREEDER + REACTOR, GRAPHITE MODERATED + REACTOR, THERMAL + *MOLTEN FUEL + *LIQUID FUEL + *DESIGN STUDY + OFF GAS + FUEL REPROCESSING + MAINTENANCE AND REPAIR + MAINTENANCE, REMOTE

17-34636 ALSO IN CATEGORY 18

SUMMARY OF TREAT SODIUM LOOP EXPERIMENTS ON BEHAVIOR OF SINGLE EBR-II MARK I PINS UNDER ACCIDENT CONDITIONS
12 PAGES, 10 FIGURES, 1 TABLE, 31 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, VOL. 7, PAGES 442-454 (MAY 1968)

PRESENTED IS A STUDY, EXPERIMENTALLY AND BY COMPUTATION, OF MECHANISMS OF FUEL FAILURE AND ASSOCIATED MOVEMENT OF FUEL AND COOLANT DURING CORE MELTDOWN ACCIDENT. THESE TWO PHENOMENA COULD LEAD TO EXTENSION OF ANY INITIAL FUEL FAILURE AND WOULD PROBABLY BE FACTORS CAUSING SERIOUS MELTDOWN. *** FUEL FAILURE EXPERIMENTS IN INSTRUMENTED SODIUM LOOPS WERE CONDUCTED AT VARIOUS CONDITIONS OF TEMP. AND FLOW OF SODIUM COOLANT. POWER BURSTS OF THE TREAT REACTOR, INTO WHICH LOOPS WERE INSERTED, WAS ADJUSTED TO SPECIFIED INTENSITIES. RESULTS OF TESTS AND ANALYSIS ARE PRESENTED.

*TREAT (PWR) + REACTOR, PULSED + REACTOR, TEST + REACTOR, LMC + REACTOR, FAST + *CORE MELTDOWN + *COMPARISON, THEORY AND EXPERIENCE + *IN PILE EXPERIMENT + *ACCIDENT ANALYSIS + *IN PILE LOOP + *SODIUM + *FAILURE, FUEL ELEMENT + *ANALYTICAL MODEL + MATHEMATICAL TREATMENT + COMPUTER PROGRAM + *EBR 1 AND 2 (RE)

17-34653 ALSO IN CATEGORY 11

PRELIMINARY REPORT ON THE INCIDENT WHICH OCCURRED ON 21ST JANUARY 1969 IN THE LUCENS EXPERIMENTAL NUCLEAR POWER STATION
SWISS ASSOCIATION FOR ATOMIC ENERGY, BERN
11 PAGES, NUCLEAR NEWSLETTER FROM SWITZERLAND, NO. 7, SPRING 1969

ON JANUARY 21, 1969 THE 30-MWTH REACTOR (LOCATED IN AN UNDERGROUND CAVERN 18 MILES NE OF LAUSANNE) WAS RETURNING TO POWER FOLLOWING A SCHEDULED THREE MONTHS SHUTDOWN AFTER THE INITIAL STARTUP PHASE. WHEN THE REACTOR REACHED 12 MW, WITH NO WARNING THE PRIMARY COOLANT GAS DEPRESSURIZED FROM 50 TO ABOUT 0.2 ATMOSPHERES PRESSURE IN 10 MINUTES (INDICATING A PRESSURE TUBE WAS BREACHED) AND THE HEAVY WATER MODERATOR LEVEL DROPPED GREATLY (INDICATING THE MODERATOR TANK WAS BREACHED).

*INCIDENT, GENERAL + *FUEL MELTDOWN + ACCIDENT, LOSS OF COOLANT + *CONTAINMENT, UNDERGROUND + *FAILURE, PIPE + REACTOR, PRESSURE TUBE + REACTOR, GCR + REACTOR, HWR + REACTOR, POWER + SWITZERLAND

17-34691 ALSO IN CATEGORY 10

MODIFICATION 69-1 DESCRIPTION AND HAZARD EVALUATION REPORT OF CHANGE TO THE ENGINE OF THE DRESDEN UNIT 1 DIESEL GENERATOR COOLING SYSTEM
COMMONWEALTH EDISON COMPANY
3 PAGES, LETTER TO P.A. MORRIS, DRL, MARCH 28, 1969, DOCKET 50-10, TYPE--BWR, MFJ--G.E., AE--BECHTEL

AIR INTAKE AND DISCHARGE FOR THE DIESEL RADIATOR IS NOW ENCLOSED IN THE DRESDEN 2/3 BUILDING. THE WATER PUMP CAN PUMP THE WATER UP TO THE NEW RADIATOR LOCATION ON THE FLOOR ABOVE, 20 FT AWAY INSIDE A DUCT. AIR FLOW WILL BE FROM A 25-HP ELECTRIC FAN POWERED BY THE GENERATOR. FAN WILL BE CONNECTED TO THE MOTOR BY 3 NOTCHED STEEL CORD V-BELTS, PROVIDING AN EXTRA BELT AGAINST BREAKAGE. RELIABILITY IS EQUIVALENT AND HAZARDS NOT AFFECTED. AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE).

*MODIFICATION, SYSTEM OR EQUIPMENT + *GENERATOR, ENGINE + VENTILATION SYSTEM + REACTOR, BWR + DRESDEN 1 (BWR) + *AUXILIARY COOLING + FAILURE, EQUIPMENT

17-34702 ALSO IN CATEGORY 13

STIMMELL GL + HOWARD NC
OPERATING EXPERIENCE OF GENERAL ELECTRICS ALPHA CELL
GENERAL ELECTRIC CO., VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIF.
5 PAGES, 3 FIGURES, 2 REFERENCES, PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ALPHA CELL AT GENERAL ELECTRICS VALLECITOS NUCLEAR CENTER HAS BEEN OPERATING SUCCESSFULLY SINCE APRIL 1967 WITH NO SHUTDOWNS FOR FACILITY REPAIRS OR MODIFICATIONS. THE DIFFICULTIES ENCOUNTERED DURING THE CELL OPERATION CONSIST OF INCONVENIENCES RESULTING FROM DESIGN LIMITATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34702 *CONTINUED*
IMPOSED BY THE EXISTING FACILITY.

AVAILABILITY - G.L. STIMMELL/N.C. HOWARD, GENERAL ELECTRIC COMPANY, VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIFORNIA 94566

*RADIOISOTOPE + *HOT CELL + *OPERATING EXPERIENCE + REMOTE MANIPULATING AND VIEWING + ALPHA EMITTER

17-34704 ALSO IN CATEGORY 13
HAMPSON DC + SALES WL + COLEMAN LF
OPERATING EXPERIENCE WITH AN ARGON ATMOSPHERE AT THE FUEL CYCLE FACILITY
ARGONNE NATIONAL LAB., ARGONNE, ILLINOIS
21 PAGES, 11 FIGURES, 6 TABLES, 8 REFERENCES, PP. 91-111 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

A LARGE (66,000 FT³) ARGON-ATMOSPHERE (95% ARGON, 5% NITROGEN, LESS THAN 100 PPM WATER OR OXYGEN) CELL HAS BEEN OPERATED SUCCESSFULLY IN HIGH RADIATION FIELDS FOR OVER FIVE YEARS WITHOUT HUMAN ACCESS TO THE CELL. SINCE THIS SUCCESSFUL OPERATION IS PARTIALLY A RESULT OF TESTS AND EXPERIMENTS THAT WERE CONDUCTED PRIOR TO AND DURING THE DESIGN PHASE OF THE FACILITY, SUMMARIES OF THESE TESTS ARE INCLUDED WHERE APPROPRIATE.

AVAILABILITY - D.C. HAMPSON, ARGONNE NATIONAL LABORATORY, P.O. BOX 2528, IDAHO FALLS, IDAHO 83401

*FUEL REPROCESSING + *PYROCHEMICAL + NRTS + *OPERATING EXPERIENCE + *CONTAINMENT ATMOSPHERE, INERT + ARGON + DESIGN CRITERIA + REMOTE MANIPULATING AND VIEWING + EQUIPMENT, GENERAL

17-34706 ALSO IN CATEGORIES 3 AND 12 AND 13
JOHNSON KP + MATTE J
OPERATING EXPERIENCE WITH THE FERMI FUEL HANDLING CASK CAR
POWER REACTOR DEVELOPMENT COMPANY, MONROE, MICHIGAN + ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICHIGAN
15 PAGES, 9 FIGURES, PP. 135-149 OF PROCEEDINGS OF 16TH CONFERENCE ON REMOTE SYSTEMS TECHNOLOGY, 1969

THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY. REPL 34706
THE ENRICO FERMI ATOMIC POWER PLANT WAS PROVIDED WITH A CASK CAR FOR TRANSPORTING SPENT FUEL BETWEEN THE REACTOR BUILDING AND THE FUEL AND REPAIR BUILDING. THIS CAR, A MULTI-STATION, SELF-CONTAINED UNIT, EXHIBITED A VARIETY OF PROBLEMS AND DEFECTS IN EARLY OPERATION. ANALYSIS OF THESE PROBLEMS AND THE AVAILABLE SOLUTIONS REQUIRED TO ACHIEVE SATISFACTORY PERFORMANCE UNDER DESIGNED OPERATING CONDITIONS LED TO CONSIDERATION OF REPLACING THE CASK CAR WITH A NEW FACILITY.

AVAILABILITY - K.P. JOHNSON, POWER REACTOR DEVELOPMENT COMPANY, P. O. BOX 725, MONROE, MICHIGAN 48161

*TRANSPORTATION AND HANDLING + *FERMI (LMFBR) + *FUEL HANDLING + *CASK OPERATING EXPERIENCE + FUEL HANDLING MACHINE + OPERATING EXPERIENCE + FAILURE, EQUIPMENT + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, BREEDER + REACTOR, FAST

17-34735 ALSO IN CATEGORY 9
DRESDEN NUCLEAR POWER STATION, 1966 ANNUAL REPORT
COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS
13 PAGES, 3 FIGURES, 1 TABLE, 7 REFERENCES, DRESDEN NUCLEAR POWER STATION ANNUAL REPORT, 1966

FORCED OUTAGES, 5 SCHEDULED SHUTDOWNS, 15 PERIODS OF REDUCED POWER (USUALLY TUBE LEAKS, ONCE TO MINIMIZE ADDITIONAL FUEL FAILURES). *** TEMPERATURE COEFFICIENT CHANGE FROM POSITIVE TO NEGATIVE IS NOW 280 RATHER THAN 80 F. *** ALL RECIRCULATION LOOPS WERE TAKEN OUT OF SERVICE IN TURN, TESTED FOR CRACKS AND DEFECTS. SEVERAL FOUND AND REPAIRED. *** TWO RODS WOULD NOT SCRAM ON TEST BECAUSE A TEFLON CORE ASSEMBLY TIP IN THE SCRAM SOLENOID VALVE HAD BROKEN OFF, PLUGGING THE AIR-RELIEF PORT. THE MANUAL SCRAM (WHICH OPERATES THE BACKUP SOLENOID) WAS EFFECTIVE IN CAUSING A SCRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM 1717 H ST., WASHINGTON, D. C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS SUMMARY + HEAT EXCHANGER + SCRAM, SPURIOUS + *FAILURE, SCRAM MECHANISM + VALVE + REDUNDANCE + REACTOR, BWR + FAILURE, TUBING + *FAULT + *PIPING + DRESDEN 1 (BWR) + MAIN COOLING SYSTEM + MAIN COOLING SYSTEM

17-34739 ALSO IN CATEGORY 9
MUELLER V + HRSTKA V + KALIVODA R
DYNAMICS OF THE PRIMARY CIRCUIT OF AN ATOMIC POWER PLANT WITH THE MAIN AND AUXILIARY CIRCULATION BLOWERS IN SERIES
SKODA (WORKS), PILSEN (CZECHOSLOVAKIA). NUCLEAR POWER PLANT DIV.
ZJE-34 +. 19 PAGES, SEPTEMBER 1968

THE PAPER INVESTIGATES THE DYNAMICS OF THE PRIMARY CIRCUIT OF AN A-1 TYPE ATOMIC POWER PLANT DURING SCRAM WHEN THE MAIN CIRCULATION BLOWERS ARE RUNNING OUT. A SUGGESTION OF A GAS CIRCUIT

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34739 *CONTINUED*

WITH THE MAIN AND AUXILIARY BLOWERS IN SERIES IS INVESTIGATED. ATTENTION IS FIRST OF ALL PAID TO THE PROBLEM OF AFTER-COOLING THE REACTOR BY MEANS OF AUXILIARY BLOWERS. THE PROBLEM WAS SOLVED BY ANALOG COMPUTER AP3-M FOR VARIOUS RUNNING-OUT TIMES OF THE MAIN CIRCULATION BLOWERS. THE RESULTS ACHIEVED WERE USED IN SELECTING A SUITABLE SCHEME FOR COOLING AN A-2 REACTOR.

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

REACTOR, GCR + THEORETICAL INVESTIGATION + *ACCIDENT, LOSS OF FLOW + CZECHOSLOVAKIA

17-34780

WITTKE DD

NUCLEAR TRAINING AT THE UNIVERSITY

UNIVERSITY OF NEBRASKA

3 PAGES, 1 TABLE, POWER ENGINEERING, 73(6) PAGES 34-36 (JUNE 1969)

BRIEF REVIEW OF WHAT THE UNIVERSITY CAN DO FOR A UTILITY GOING NUCLEAR (TRAIN OR EDUCATE 7 DIFFERENT GROUPS, FOR 10 HOURS TO 1 YEAR). BRIEF CASE HISTORY OF WHAT U OF NEBRASKA DID FOR OMAHA PUBLIC POWER DISTRICT. BULK OF ARTICLE DISCUSSES KIND OF TRAINING NEEDED FOR EACH GROUP.

*TRAINING + REACTOR, RESEARCH + REACTOR, PWR + REACTOR, BWR + REACTOR, POWER + DUCTILITY

17-34861

ALSO IN CATEGORIES 5 AND 9

DECREASE IN FUEL ELEMENT TEMPERATURE AT STEADY STATE FULL POWER

U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY

3 PAGES, LETTER TO P.A. MORRIS, USAEC-DRL, MAY 19, 1969, DOCKET 50-274

DURING INITIAL STARTUP OPERATIONS AT 1 MW, THE TEMPERATURE OF THE INSTRUMENTED FUEL ELEMENT IN B RING DECREASED FROM 510 C TO 360 C DURING A FOUR-WEEK PERIOD. VARIOUS TESTS (INCLUDING FOLLOWING THE TEMPERATURE DURING AN 80-HOUR RUN, OBSERVING PEAKS TEMPERATURES DECREASE DURING A SERIES OF 3.00 PULSES, AND ROTATING THE ELEMENT AT POWER) SUGGEST THAT A LARGER THAN USUAL FUEL-TO-CLAD GAP EXISTED INITIALLY, AND THAT THIS GAP DECREASED FOLLOWING PULSED OPERATION. THE TEMPERATURES CURRENTLY BEING MEASURED AGREE WITH PREDICTIONS IN THE HAZARDS SUMMARY REPORT.

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

*INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT + REACTOR, RESEARCH + TRIGA (RR) + *HEAT CONDUCTANCE, FUEL TO CLAD + REACTIVITY EFFECT, ANOMALOUS + INSTRUMENT, TEMPERATURE

17-34862

ALSO IN CATEGORIES 5 AND 6

SELECTED HADDAM NECK OPERATING EXPERIENCES

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-34 +. 22 PAGES, MAY 16, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SUCCESSFULLY UPGRATED FROM 490 TO 600 MW(E). INCORE FLUX MAPS SHOW DECREASES IN HOT CHANNEL FACTORS DESPITE THE POWER COOLANT TEMPERATURE INCREASE FROM 534 TO 545 F. ON APRIL 12, CONTROL ROD 28 DID NOT DROP ON A MANUAL SCRAM UNTIL MOVED OUTWARD SEVERAL TIMES BY THE ROD DRIVE. SIMILAR EXPERIENCE WITH SIMILAR MAGNETIC JACK CONTROL ROD DRIVES AT YANKEE HAVE RESULTED IN INSPECTIONS THAT REVEALED NO ABNORMALITIES. A TEMPORARY MALFUNCTION (POSSIBLY CRUD ACCUMULATION) WITHIN THE INTERNAL STEPPING MECHANISM CAN ONLY BE SUSPECTED. (INITIATED BY DILUTION SO THE CONTROL ROD GROUP INSERTED 20 STEPS (300 TO 280), WAITING 2 HOURS AND THEN REBORATING). A XENON TRANSIENT TEST AT 600 MW SHOWED THE TRANSIENT WAS DAMPED AT THE COMPLETION OF ONE CYCLE, HOT CHANNEL FACTOR ANALYSIS HAS NOT BEEN COMPLETED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*XENON OSCILLATION + *FAILURE, SCRAM MECHANISM + *POWER UPGRATING + HADDAM NECK (PWR) + HOT CHANNEL FACTOR + TEST, PLANT RESPONSE + OPERATING EXPERIENCE + CRUD + YANKEE (PWR) + REACTOR, PWR + REPORT, OPERATIONS

17-34863

ALSO IN CATEGORY 10

LOSS OF POWER TEST SHOWS PROCEDURAL MODIFICATION REQUIRED

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-34 +. 1 PAGE, P. 18, MAY 16, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

A COMPLETE LOSS-OF-POWER TEST WAS RUN TO DUPLICATE THE APRIL 17, 1968, LOSS OF OFF-SITE POWER. THE CHARGING PUMP AND DIESEL GENERATOR IC WERE TRIPPED MANUALLY. SHORTLY THEREAFTER DIESEL IC WAS RESTARTED AND PLACED ON THE BUS, BUT TRIPPED ON REVERSE POWER RELAY ACTION. THE AUTO-START SIGNAL DRIVES THE GOVERNOR FULL OPEN, THEN A TRIP RESETS ITS GOVERNOR TO THE NO LOAD CONDITION SO THAT TO PLACE IT BACK ON THE BUS WITH OTHER MACHINES STILL RUNNING, ITS GOVERNOR MUST BE DRIVEN OPEN TO ENABLE THE DIESEL TO PICK UP SOME LOAD AND PREVENT A REVERSE POWER CONDITION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS + FAILURE, EQUIPMENT + *EMERGENCY PROCEDURE + HADDAM NECK (PWR) + EMERGENCY POWER, ELECTRIC + ACCIDENT, LOSS OF POWER + ACCIDENT, LOAD REJECTION + REACTOR, PWR + TEST, SYSTEM OPERABILITY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34864 ALSO IN CATEGORY 5
FURTHER ELK RIVER WELD INSPECTIONS
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-74 +. 19 PAGES, 3 FIGURES, APRIL 1969, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ULTRASONIC RADIOGRAPHIC AND DYE PENETRANT INSPECTIONS OF WELDS IN PRIMARY STEAM AND FEEDWATER PIPING REVEALED MORE DEFECTS AND CRACKS. TENTATIVE GENERALIZATIONS INCLUDE (A) CRACKING APPEARS CONCENTRATED IN THE STEAM PHASE, (B) CRACKS OCCUR IN RANDOM ORIENTATION AND ARE INITIATED FROM EITHER THE INSIDE OR OUTSIDE OF THE PIPE, ARE MORE FREQUENT IN FURNACE SENSITIZED STAINLESS STEEL, AND ARE MOST FREQUENTLY ASSOCIATED WITH AREAS OF COLD WORK OR HIGH STRESS, (C) ULTRASONICS IS A MORE SENSITIVE DETECTOR THAN RADIOGRAPHY. HOWEVER, ORIENTATION IS A SERIOUS PROBLEM. THE LARGEST CRACK FOUND WAS 9 IN. LONG, ABOUT 25% OF THE CIRCUMFERENCE OF THE PIPE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS + MAIN COOLING SYSTEM + FAILURE, PIPE + WELDS + STEEL, STAINLESS + REACTOR, BWR +
*EXAMINATION + TEST, NONDESTRUCTIVE + *PIPING + *FAULT + ACOUSTICS

17-34865 ALSO IN CATEGORY 15
RADIOGRAPHER RECEIVES ESTIMATED 25.19 R EXPOSURE
U.S. ATOMIC ENERGY COMMISSION + CRANE COMPANY
15 PAGES, LETTERS - AEC AND CRANE COMPANY- JANUARY 22, 1969, MARCH 25, 1969

ON JANUARY 8, 1969 A RADIOGRAPHER WAS EXPOSED TO A 43 CURIE IR-192 SOURCE AT VARYING DISTANCES BETWEEN 4-00 AND 6-30 A.M. HE WAS RADIOGRAPHING STEEL CASTINGS INSIDE A SHIELDED CELL, WHICH HAD A SINGLE SOURCE TUBE THAT COULD BE CONNECTED TO EITHER OF TWO SOURCES (43 AND 11 CURIES) IN SEPARATE SHIELDS (T.O. 402 AND T.O. 412). AT 4-00 A.M. HE USED THE 43 CURIE SOURCE AND PLACED THE FILM IN A AUTOMATIC DEVELOPER. HE CHANGED THE SOURCE TUBE FROM THE T.O. 402 TO THE T.O. 412 (DISCONNECTING THE LAST 6 FT 6 IN. SECTION FROM ONE UNIT AND CONNECTING IT TO THE OTHER) MADE EXPOSURES AND NOTED THE FILM WAS TOO DARK. HE NOTICED THE SURVEY METER ON THE CONTROL STATION WAS UPSCALE ON THE 0-10 MR/HR SCALE AND CALLED HIS SUPERVISOR. SINCE THE CONTROL LIGHTS SHOWED BOTH SOURCES IN SAFE POSITIONS BUT HIGH RADIATION WAS PRESENT, MANUFACTURER WAS CALLED. THE 43 CURIE SOURCE WAS STUCK 18 IN. FROM THE SHIELD. THE EMPLOYEE WAS NOT AUTHORIZED BY AEC TO BE A RADIOGRAPHER, WAS NOT WEARING A FILM BADGE OR DOSIMETER, DID NOT USE THE SURVEY METER FOLLOWING SOURCE RETRACTION, AND THE GAMMA RADIATION MONITOR FOR THAT CELL WAS BEING CALIBRATED AND WAS NOT YET INSTALLED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

FAILURE, ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + HOT CELL + *RADIOGRAPHY + *PERSONNEL EXPOSURE, RADIATION + CERTIFICATION + CONTROL SYSTEM + MONITOR, AREA + FAILURE, OPERATOR ERROR

17-34866 ALSO IN CATEGORY 15
TWO EXPOSED IN I-131 PROCESSING
CAMBRIDGE NUCLEAR CORPORATION
1 PAGE, LETTER TO AEC-DRL, MARCH 6, 1969

TWO INHALED I-131 ON FEB. 6 AND 14, 1969, WHILE DISPENSING I-131. THESE WERE NORMALLY PREPARED IN A WELL-VENTILATED HOOD SPECIFICALLY FOR THAT PURPOSE, ON FEB. 6 INDIVIDUAL A DISPENSED I-131 OUTSIDE THE HOOD BECAUSE THE REMOTE DISPENSER WAS INOPERABLE. THE NEXT DAY, A 0.43 MICRO-C THYROID CONTENT (1.5 RAD EQUIVALENT) WAS DETECTED ON A ROUTINE THYROID SCAN AND THE INDIVIDUAL REPRIMANDED. ON FEB. 14, INDIVIDUAL B DID THE SAME THING FOR THE SAME REASON, AND A ROUTINE THYROID SCAN INDICATED AN EQUIVALENT THYROID DOSE OF 0.95 RAD. ALL TECHNICIANS WERE WARNED NOT TO VIOLATE PROCEDURES AND REQUESTED TO INFORM THE RADIATION SAFETY OFFICER BEFORE A PROCEDURE IS CHANGED, AND REMINDED OF THE I-131 VOLATILITY HAZARD.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

RADIOISOTOPE + *FAILURE, OPERATOR ERROR + FAILURE, EQUIPMENT + GLOVE BOX + *FISSION PRODUCT, IODINE +
INHALATION + BIOMEDICAL + BYPRODUCT MATERIAL + *PERSONNEL EXPOSURE, RADIATION

17-34867 ALSO IN CATEGORY 15
LACK OF POSITIVE LOCK IN RADIOGRAPHY DEVICE CAUSES OVEREXPOSURE
U.S. DEPT. OF THE NAVY (NORFOLK NAVAL SHIPYARD)
2 PAGES, LETTER TO DL AND R, FEBRUARY 20, 1969

ON JANUARY 22, 1969, A RADIOGRAPHER AT THE NORFOLK, VIRGINIA, NAVAL SHIPYARD CHECKED HIS POCKET DOSIMETER, AFTER 6 EXPOSURES WITH A T.O. MODEL 576 USING A 96-CURIE CO-60 SOURCE, AND FOUND IT OFFSCALE. HIS FILM BADGE READ 4.22 REMS. INVESTIGATION REVEALED THIS MODEL, UNLIKE OTHERS, HAD NO POSITIVE LOCKING DEVICE. WHEN THE SOURCE WAS RETRACTED, IT WOULD CREEP OR SPRING OUT OF THE SHIELD UNLESS THE CRANK HANDLE WAS TIED. RADIATION LEVELS NEAR THE SOURCE TUBE END OF THE STORAGE DEVICE WOULD EXCEED 1 R/HR. THE DEVICE WAS RETURNED TO THE MANUFACTURER FOR INSTALLATION OF A LOCKING DEVICE, AND ALL RADIOGRAPHERS ISSUED PERSONAL RADIATION MONITORS WITH AUDIBLE ALARMS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*RADIOGRAPHY + *INCIDENT, EXPOSURE + *PERSONNEL EXPOSURE, RADIATION + SHIELDING + COBALT + SAFETY DEVICE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34868 ALSO IN CATEGORY 5
PERFORMANCE EVALUATION OF THE CENTERMELT FUEL AFTER THE FIRST PERIOD OF IRRADIATION IN THE BIG ROCK POINT REACTOR
CONSUMERS POWER COMPANY
SR-10 +. 85 PAGES, 40 FIGURES, APRIL 7, 1969, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

SIX ELEMENTS (188 FUEL RODS, BOTH POWDER AND PELLET IN VARYING ENRICHMENTS) WERE OPERATED AT PEAK ROD POWERS UP TO 24.15 KW/FT. 3 RODS FAILED AFTER 3,000 MWD/T EXPOSURE (15% OF FUEL LIFETIME), WITH A UCHFR OF 1.9. ALL FAILURES WERE IN THE SAME LOCATION - IN THE HOT CORNER SHROUDED BY THE BUNDLE CORNER SUPPORT (UNIQUE TO DEVELOPMENTAL BUNDLES) AND DOWNSTREAM OF DIMPLES IN THE CORNER ANGLE (WITH UNIQUE SKI-JUMP CRUD). ONE HAD CLAD BULGES FROM ZRO₂ AND ZR HYDRIDE INSIDE THE CLAD WHERE WATER PENETRATED. ANOTHER HAD 1/6 OF THE CLAD CIRCUMFERENCE LOST DUE TO ACCELERATED CORROSION, AND CLAD TEMPERATURE REACHED 1400 F. NO MOLTEN BOUNDARY WAS EVIDENT, BUT MELTING NEARLY REACHED THE FUEL SURFACE BECAUSE THE FUEL-CLAD GAP RESISTANCE INCREASES, AND THE HIGHER OXYGEN CONTENT LOWERS BOTH THE CONDUCTIVITY AND THE MELTING POINT OF THE UO₂ FUEL. ***OTHERWISE MELT RADII AGREED WITH PREDICTIONS WITHIN 5%, RADII REPRESENT CONDITIONS ONLY IN THE LAST 12 HOURS. FUEL RODS WITH DEPLETED UO₂ WILL BE CURIAL POSITIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, OPERATIONS ANALYSIS + STOICHIOMETRY + *SURFACE FILM DEPOSIT + EURATOM + R AND D PROGRAM + BIG ROCK POINT (BWR) + REACTOR, BWR + *IRRADIATION TESTING + *CENTERLINE MELTING + HEAT CONDUCTANCE, FUEL TO CLAD + FUEL ELEMENT + FAILURE, CLADDING + ZIRCONIUM + HYDROXIDE

17-34871 ALSO IN CATEGORY 15
MICHAELSON M
HOW SAFE ARE X-RAYS
3 PAGES, TODAY'S HEALTH, 46(6), PAGES 12,13,71 (JUNE 1968)

A NURSE, AFRAID OF RADIATION AFFECT ON THE UNBORN, REFUSED A CHEST X-RAY WHILE PREGNANT. LATER SHE WAS FOUND TO HAVE TB AND REQUIRED EXCESSIVE TREATMENT. ONE THIRD OF MEDICAL DECISIONS BY INTERNISTS ARE BASED ON DIAGNOSTIC X-RAYS. *** ARTICLE REVIEWS X-RADIATION AND LEUKEMIA, P+S SURVEY OF RADIOLOGY RADIATION LEVELS, AND PRECAUTIONS. MAKES THE POINT (WITHOUT SAYING IT) - TRUST YOUR PHYSICIAN TO KNOW WHEN TO USE X-RAYS.

RADIATION SAFETY AND CONTROL + *POPULATION EXPOSURE + RADIOLOGY + BIOMEDICAL + RADIATION, PUBLIC EDUCATION + X-RAY

17-34902
CERTAIN ACCOUNTS ON THE UTILIZATION OF THE THAI RESEARCH REACTOR
OFFICE OF ATOMIC ENERGY FOR PEACE, BANGKOK, THAILAND
THAI-AEC-10 +. 9 PAGES, 1967

PREPARED FOR IAEA MEETING, OCTOBER 1967, IN JAPAN. (OPERATION) SINCE JUNE, OPERATION HAS BEEN 40 HOURS A WEEK. (RESONANCE INTEGRALS) MEASURED FOR VARIOUS ISOTOPES. (NEUTRON FLUX) MEASURED FOR CRY IRRADIATION TUBE AND PNEUMATIC TUBE. (HEALTH PHYSICS) AIR ACTIVITY REACHES A PLATEAU 2 HOURS AFTER STARTUP AND IS RB-88 AND CS-138 (HYDROLOGY) BR-82 PRODUCED IN REACTOR IS USED AS A WELL-WATER TRACER. (RADIOCHEMICAL) VARIOUS COOPERATIONS WITH HOSPITALS LISTED. (ISOTOPE PRODUCTION) K-42, NA-24, BR, I-131 AND P-32 ARE BEING USED, OTHERS STUDIED FOR USAGE.

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

REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + IAEA + THAILAND + THAILAND

17-34905
SELECTED SAN ONOFRE OPERATING EXPERIENCE
SAN ONOFRE NUCLEAR GENERATING STATION, CALIF.
NYO-3270-22 +. 7 PAGES, FEBRUARY 1969, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

LEAKING PRESSURIZER SAFETY VALVE WAS REPAIRED AND OUTAGE ENDED JAN. 7. ON JAN. 9, A 2-DAY OUTAGE BEGAN TO STOP OIL LEAK PAST TURBINE AUTOSTOP PISTON. CARRYOVER (USING SODIUM ION) LIMITED LOAD TO 405 MWE DESPITE REDUCING WATER LEVEL IN STEAM GENERATOR TO 30% FROM 40%.

REPORT, OPERATIONS + STEAM GENERATOR + *PRESSURE RELIEF + SAN ONOFRE (PWR) + *LEAK + TURBINE + *VALVE + PRESSURIZER + REACTOR, PWR

17-34906 ALSO IN CATEGORY 5
LESURF JE + BRYANT PE
EFFECT OF WATER CHEMISTRY ON THE OXIDATION OF ZIRCONIUM ALLOYS UNDER REACTOR RADIATION
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)
AECL-2797 +. 16 PAGES, 4 FIGURES, 3 TABLES, 10 REFERENCES, FEBRUARY 1968

BOILING ENHANCES THE OXIDATION OF ZIRCALOY-2 CLADDING AS WELL AS THE ZR-2.5% NB ALLOY. BOTH OXIDATION AND DAMAGING RADIATION ARE REQUIRED FOR CORROSION OF ZR-2. THE 2.5% NB ALLOY SENSITIVITY IS DUE TO ITS METALLURGICAL STRUCTURE, NOT TO RADIATION. AMMONIA ADDITION PREVENTS THE APPEARANCE OF MOLECULAR OXYGEN, SO THAT HIGH ZR-2 CORROSION RATES IN BWRS MAY BE REDUCED, ALONG WITH HYDROGEN PICKUP. *** IN-PILE TESTS IN VARIOUS IN- AND OUT-OF-REACTOR LOOPS ARE SUMMARIZED.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34906 *CONTINUED*

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

*COOLANT CHEMISTRY + CORROSION + ZIRCALOY + REACTOR, PWR + FAILURE, CLADDING + IN PILE LOOP + *BOILING +
CANADA + REACTOR, BWR

17-34908 ALSO IN CATEGORIES 11 AND 12

SPENCER WF

A DISCUSSION AND EVALUATION OF REMOTE MAINTENANCE IN A REACTOR EXPERIMENT VERSUS CONVENTIONAL MAINTENANCE FOR
A SIMILAR TASK

OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-2555 +. 7 PAGES, APRIL 10, 1969

DESCRIBES REPLACEMENT OF AN AIRLINE QUICK-DISCONNECT INSIDE REACTOR CONTAINMENT. CONVENTIONAL
PLANT REPLACEMENT TIME WAS ESTIMATED AT 8.1 HR, MSRE TIME AS 263.1 HRS. ACTUAL TIME WAS 400 HR.
ONE PAGE DESCRIBES ACTUAL JOB.

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

OPERATING EXPERIENCE + MSRE (RE) + *FAILURE, COMPONENT + *PNEUMATIC SYSTEM + *MAINTENANCE, REMOTE + REACTOR,
AEC OWNED + REACTOR, MOLTEN SALT

17-34909 ALSO IN CATEGORY 10

SALT DRAIN CAUSED BY LCSS OF ONE PHASE OF ELECTRICAL POWER SUPPLY

OAK RIDGE NATIONAL LAB., TENN.

ORNL INCIDENT REPORT NO 69-2 +. 4 PAGES, MAY 20, 1969

A FUSE BLEW (DURING A RAIN, NO LIGHTNING OR OTHER CAUSE) AT THE 13.8-KV TO 480-V TRANSFORMER
CAUSING AUTOMATIC SHUTDOWN. DIESELS WERE STARTED, AND WHEN EQUIPMENT WOULD NOT RESTART,
OPERATORS FOUND OVERCURRENT RELAYS HAD TO BE MRESET AT THE EQUIPMENT (BECAUSE ONE PHASE LOSS HAD
OVERLOADED OTHER TWO PHASES, AND CONTROL-ROOM RESET HAD NOT BEEN PROVIDED). FUEL-DRAIN VALVE
THAWED, DUMPING THE FUEL SALT INTO STORAGE TANKS. *** NOW INSTRUCTIONS ARE PREPARED TO RESTORE
AIR COOLING TO THIS VALVE QUICKLY IN CASE OF FUTURE POWER LOSS.

*INCIDENT, GENERAL + *ACCIDENT, LOSS OF POWER + AUXILIARY COOLING SYSTEM + REACTOR, AEC OWNED + MSRE (RE) +
VALVE + OPERATOR ACTION + SAFE FAILURE CRITERION + REACTOR, POWER + REACTOR, MOLTEN SALT

17-34912

FORD JC

SELECTED ETR OPERATIONS EXPERIENCE

IDAHO NUCLEAR CORP., IDAHO FALLS, IDAHO

IN-1206 +. 30 PAGES, 5 FIGURES, 1 TABLE, APRIL 17, 1969

SEVERAL REACTOR SCRAMS OR SHUTDOWNS OR DELAYS RESULTED FROM IN PILE LOOP PROBLEMS. ONE EXPERIMENT
CAUSED AN INCREASED TANTALUM CONTENT IN REACTOR COOLING WATER.

AVAILABILITY - J.D. FORS, IDAHO NUCLEAR CORP., IDAHO FALLS, IDAHO

REPORT, OPERATIONS + REACTOR, AEC OWNED + REACTOR, TEST

17-34917 ALSO IN CATEGORY 7

CARROTHERS MR + WRIGHT CAH

USE OF A DEACTIVATED HANFORD REACTOR CONTROL CENTER FOR AN OPERATOR TRAINING SIMULATOR

DOUGLAS UNITED NUCLEAR, INC., RICHLAND, WASHINGTON

DUN-5381 +. 25 PAGES, FIGURES, TABLES, JANUARY 30, 1969

AN ANALOG SIMULATOR LOCATED IN THE D REACTOR CONTROL ROOM UTILIZES THE INSTALLED REACTOR
INSTRUMENTATION AND PROVIDES THE VOLTAGE SIGNALS FOR DISPLAYING THE REACTOR KINETICS AND
SIMULATING WHAT WOULD BE SEEN DURING ACTUAL REACTOR OPERATIONS. THE PROGRAM FOR THE COMPUTER
DEVICE CONSISTS OF EIGHT INTER-DEPENDENT ANALOG CIRCUITS COUPLED TOGETHER TO DISPLAY A THREE-
DIMENSIONAL SOLUTION TO THE REACTOR KINETICS EQUATIONS. THIS PARTICULAR PROGRAM IS APTLY SUITED
TO ANALOG SIMULATION OF THE RCD SYSTEMS, HEAT TRANSFER, AND FLUX AND TEMPERATURE MONITORING
SYSTEMS IN A PRODUCTION REACTOR. THE FACILITY IS USED AS A SUPPLEMENT TO TRAINING PROGRAMS FOR
CERTIFIED REACTOR OPERATORS.

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

COMPUTER, ANALOG + ANALOG SIMULATION + *TRAINING + REACTOR, POWER + *SIMULATION + ANALYTICAL MODEL + HANFORD
SITE

17-34919 ALSO IN CATEGORIES 5 AND 9

TECHNICAL SPECIFICATIONS FOR THE BABCOCK AND WILCOX TEST REACTOR

BABCOCK AND WILCOX, LYNCHBURG, VA.

BAW-287-4 +. 25 PAGES, FIGURES, TABLES, 14 REFERENCES, APRIL 18, 1969, DUCKE 1 50-200

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-34919 *CONTINUED*

REVISED SUBMITTAL FOR UPGRATING FROM 6 MW TO 14. EXTENSIVE BASES FOR DETERMINING LIMITING SAFETY SYSTEM SITTING AND BURNOUT POWER FOR 4 CORE CONFIGURATIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + *POWER UPGRATING + REACTOR, TEST + *PERFORMANCE LIMIT + *REACTOR POWER + REACTOR, FLUX TRAP + REACTOR, RESEARCH

17-34920

ALSO IN CATEGORIES 5 AND 18

SUPPLEMENT 4 TO THE BAWTR SAFETY ANALYSIS REPORT
BABCOCK AND WILCOX, LYNCHBURG, VA.

BAW-208-4 +. 25 PAGES, FIGURES, TABLES, 23 REFERENCES, APRIL 18, 1969, DOCKET 50-200

PROVIDES INFORMATION ON 3 MAJOR CHANGES IN SUPPORT OF A REQUEST FOR TECHNICAL SPECIFICATION CHANGE - (1) POWER UPGRATING FROM 6 MW TO 14. (2) REGULATING-ROD FUEL-ELEMENT CHANGE FROM 10 TO 19, ADDING 0.0066 REACTIVITY AND SLIGHTLY INCREASING THE HOT-SPOT PEAK FACTOR. (3) REPLACING THE CENTRAL PWR LOOP WITH A CENTRAL FILLER WITH 5 HOLES, USING 785 GPM. *** REPORT ANALYZES POWER UPGRATING (DESIGN-BASIS ACCIDENT IS FLOW BLOCKAGE OF 1 FUEL ELEMENT, SITE IS ADEQUATE TO MEET FULL CORE MELTDOWN AT 12 MW), CONSIDERING FLOW INSTABILITY AND LOSS-OF-FLOW ACCIDENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, SAR + *POWER UPGRATING + *FLOW STABILITY + ACCIDENT, LOSS OF FLOW + REACTOR, TEST + TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + REACTOR, RESEARCH

17-34922

ALSO IN CATEGORIES 10 AND 12

RELIABILITY OF YANKEE SAFETY INJECTION SYSTEM AND STATION SERVICE POWER
YANKEE ATOMIC ELECTRIC COMPANY

YAEC-1075-R +. 10 PAGES, PP. 26-35, FEBRUARY 1969

BEFORE THE MARCH 1968 REFUELING, 320 WEEKLY, 80 MONTHLY, 6 ACTUAL OPERATIONAL, AND 3 PUMP-CAPACITY TESTS WERE MADE. SEVERAL DEFICIENCIES WERE FOUND, NONE PREVENTED OPERATION. (1) RAIN WOULD RUN UNDER THE DISHED TANK BOTTOM, COLLECT IN THE INSULATION, AND CAUSE ICE BUILDUP AROUND NORMALLY OPEN VALVES. (2) RECIRCULATION VALVE ON THE TANK FROZE DESPITE HEATING INSIDE TANK. (3) PRESSURE SHOCK FROM HIGH-HEAD PUMP DISTORTED MANUAL SHUTOFF VALVE INTERNALS IN RECIRCULATION LINE. (4) LEVEL INDICATION OF PUMP SUCTION WAS ERRONEOUS DURING FLOW. ***ONLY BLACKOUT WAS NOV. 1965 (37 MIN). LOAD-SHEDDING SCHEDULES HAVE ESTABLISHED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*CORE REFLOODING SYSTEM + *RELIABILITY, SYSTEM + INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, LIQUID LEVEL DETECTION + YANKEE (PWR) + *TEST, SYSTEM OPERABILITY + ACCIDENT, LOSS OF POWER + FAILURE, EQUIPMENT + VALVE + PUMP + REACTOR, PWR

17-35015

ALSO IN CATEGORY 10

PROPOSED REVISED PAGES, TECH SPEC CHANGE 26

PACIFIC GAS AND ELECTRIC COMPANY, CALIF.

3 PAGES, LETTER TO DRL, MAY 12, 1968, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECTHEL

(PG VI-7 AND -7A) PROVIDES SOURCES OF POWER NEEDED FOR OPERATION - (1) 2 OF 3 AVAILABLE OF UNIT 1 OR UNIT 2 OR ENGINE GENERATOR, AND (2) TWO 115-KV LINES AND AT LEAST 2 OF 4 60-KV LINES. *** OPERATION WITH LESS THAN 2 ON-SITE SOURCES IS PERMITTED IF (A) ONE ON-SITE AND ONE OFF-SITE SOURCE AVAILABLE, AND (B) PLANT SYSTEMS REQUIRED FOR NORMAL OPERATION AND SAFE SHUTDOWN ARE OPERABLE AND HAVE NO UNSAFE TRENDS. OPERATION IN THIS CONDITION LONGER THAN 12 HR REQUIRES COMPLIANCE NOTIFICATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

TECHNICAL SPECIFICATIONS + HUMBOLDT BAY (BWR) + *EMERGENCY POWER, ELECTRIC + *ELECTRIC POWER, ALTERNATE + ACCIDENT, LOSS OF POWER + FAILURE, EQUIPMENT + REACTOR, BWR

17-35017

KNAUF K + ROETHEMEYER +

REACTIVITY MEASUREMENTS AND NUCLEAR POWER CALIBRATION OF THE 5 X 5 CORE CONFIGURATION OF THE FMRB.

7 PAGES, PTB MITT., VOL. 78, PG. 362-8 (OCTOBER 1968)

THE COMMISSIONING PROGRAM OF THE MEASURING AND RESEARCH REACTOR (FMRB) INVOLVES THE INITIAL TESTS WITH A 5 X 5 CORE CONFIGURATION. A DESCRIPTION IS GIVEN OF THIS CRITICAL EXPERIMENT, REACTIVITY MEASUREMENTS AND NUCLEAR POWER CALIBRATION. REACTIVITY HAS BEEN MEASURED BY ASYMPTOTIC PERIOD AND ROD DROP. POWER WAS DETERMINED BY THERMAL NEUTRON FLUX DY-WIRES.

*MEASUREMENT, REACTIVITY + *FLUX DISTRIBUTION + CRITICAL ASSEMBLY FACILITY + REACTOR STARTUP TESTING + GERMANY

17-35019

ALSO IN CATEGORY 6

JAERSCKY R + SCHULZE J

COMMISSIONING AND START-UP OF KWL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35019 *CONTINUED*
AEG-TELEFUNKEN, FRANKFURT AM MAIN
6 PAGES, NUCL. ENG. INT., VOL. 13, PG. 939-44 (NOVEMBER 1968)

DETAILS ARE GIVEN OF THE PREOPERATIONAL TESTS AND OF THE TESTS AT ZERO POWER AND UP TO FULL LOAD. THE REACTOR PHYSICS PROGRAM INCLUDED SAFETY AND CORE DESIGN VERIFICATION AT ZERO POWER, TEMPERATURE COEFFICIENT MEASUREMENTS AND CONTROL CHECKS DURING POWER BUILD-UP, AND OPTIMIZATION OF THE ROD PATTERNS IN THE POWER RANGE.

*TEST, PREOPERATIONAL + *REACTOR STARTUP TESTING + *REACTOR STARTUP EXPERIENCE + REACTOR, BWR + CONTROL ROD PROGRAM + GERMANY

17-35021
PENELLE G
GENERAL CONSIDERATIONS ON PREVENTION OF CRITICAL ACCIDENTS
CEN, MCL, BELGIUM
6 PAGES, J. BELGE. RADIOL., VOL. 51, PG. 291-6 (1968)

THE PHYSICAL PHENOMENA CAUSING A CRITICAL STATE IN A FISSILE ENVIRONMENT IS REVIEWED AND THE VARIOUS FACTORS WHICH CAN BE USED TO AVOID THE OCCURRENCE OF CRITICALITY ARE DISCUSSED. PRACTICAL PROBLEMS FACING THE PERSON IN CHARGE OF SECURITY IN THE USE OF FISSILE MATERIALS ARE CONSIDERED.

FUEL STORAGE + *CRITICALITY SAFETY + SAFETY PRINCIPLES AND PHILOSOPHY

17-35022 ALSO IN CATEGORY 5
MILLER RS + ROLL JB + JORDAN KR + ROLIN JL + KUBIT CJ
OPERATING EXPERIENCE WITH THE SAXTON REACTOR PARTIAL PLUTONIUM CORE II
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PA.
17 PAGES, NUCL. MET., MET. SOC. AIME, VOL. 13, PG. 129-45 (1968)

OPERATION OF THE SAXTON REACTOR WITH NINE CENTRAL FUEL ASSEMBLIES CONTAINING 6.6 WTI PUO₂ IN NATURAL UO₂ AND CLAD WITH ZIRCALOY-4 CONTINUES. OBSERVED NUCLEAR, THERMAL-HYDRAULIC, AND FUEL MATERIALS PERFORMANCE HAVE AGREED VERY WELL WITH THAT PREDICTED. THE RESULTS OF THE POST-IRRADIATION EXAMINATION AND EVALUATION OF TWO PELLET AND TWO VIPAC FUEL RODS, REMOVED FROM THE CENTRAL 3 X 3 SUBASSEMBLY AT A PEAK BURNUP OF 6100 MWD/MTM, ARE DISCUSSED.

*REFUELING + IRRADIATION TESTING + *PLUTONIUM DIOXIDE + EXAMINATION + FUEL, POWDER TYPE + REACTOR, PWR

17-35023 ALSO IN CATEGORY 5
ROLSTAC E + KJAERHEIM G
BWR BURN-OUT EXPERIMENTS
7 PAGES, NUCL. ENG. INT., VOL. 13, PG. 1021-7 (DECEMBER 1968)

RESULTS OF EXPERIMENTS USING FOUR DIFFERENT DETECTORS TO MAP THE CRITICAL HEAT TRANSFER CONDITION ON SIX DIFFERENT TEST ASSEMBLIES WITH NATURAL AND FORCED COOLING. PRINCIPLES USED WERE THERMOCOUPLE TEMPERATURE MEASUREMENT AT AN ARTIFICIALLY INDUCED HOT SPOT, VARIATION OF THE INSULATION OF A CABLE EMBEDDED IN AXIAL GROOVES IN THE FUEL SURFACE, FUEL ELONGATION MEASUREMENT BY DIFFERENTIAL TRANSFORMER, AND VARIATION OF THE CLADDING RESISTANCE. CRITICAL CONDITIONS WERE APPROACHED EITHER BY INCREASING POWER OR BY REDUCING FLOW. A BURNOUT MECHANISM IS PROPOSED, AND THE DETECTORS COMPARED.

*BURNOUT HEAT FLUX + FUEL ELEMENT + REACTOR, BWR + *INSTRUMENT, CONTROL + INSTRUMENT, TEMPERATURE + FAILURE, CLADDING + EXPANSION + HEAT FLUX, CRITICAL

17-35024
BIBLIOGRAPHY OF LITERATURE RECEIVED FROM TRIGA REACTOR USERS
GULF GENERAL ATOMIC, SAN DIEGO, CALIFORNIA
9 PAGES, APRIL 1969

NO. 2 IN A SERIES, 81 REPORTS (MANY THESES ON TRIGA OR ABOUT TRIGA PROPERTIES).

AVAILABILITY - A.T. MCMAIN, TRIGA REACTOR PROGRAM, GULF GENERAL ATOMIC, P.O. BOX 608, SAN DIEGO, CALIF. 92112
TRIGA (RR) + REACTOR, RESEARCH + *BIBLIOGRAPHY

17-35025 ALSO IN CATEGORY 5
SECTION X - TECHNICAL SPECIFICATIONS
ARMY MATERIALS AND MECHANICS RESEARCH CENTER
47 PAGES, SECTION X OF SAFETY ANALYSIS REPORT, MAY 1, 1969, DOCKET 50-47

FOR POWER UPGRATING TO 5 MW, A 1490-GPM OPEN-POOL RESEARCH REACTOR. ORR TEMPERATURE DATA FOR FUEL ELEMENTS IN AIR USED TO SHOW THAT WATER FOR COOLING NEED NOT BE PROVIDED LONGER THAN 16 HR AFTER SHUTDOWN. *** SPECIFICATION AND BASES ARE IN CURRENT (NEW) MODEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35025 *CONTINUED*

*TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + POWER UPRATING + EMERGENCY COOLING CONSIDERATIONS + REACTOR, POOL TYPE

17-35026 ALSO IN CATEGORY 9

UNSAFE FAILURE OF LIQUID LEVEL SCRAM SENSOR

UNIVERSITY OF FLORIDA

4 PAGES, LETTER TO J. SHAPAKER, DRL, MAY 12, 1969, DOCKET 50-83

A CONVENTIONAL DEVICE (MAGNETIC FLOAT OPERATES A REED SWITCH AS THE FLOAT DROPS PAST SWITCH) WAS FOUND INOPERATIVE ON INSPECTION. CORROSION OF THE ALUMINUM STEM (WHICH WAS SUPPOSED TO BE MARINE BRONZE, ACCORDING TO DESIGN SPECS) HELD THE FLOAT UP SO A SCRAM COULD NOT OCCUR. *** STEM REPLACED WITH NONMAGNETIC STAINLESS STEEL, AND TESTS WERE CHANGED FROM YEARLY TO QUARTERLY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*FAILURE, COMPONENT + *CORROSION + FAILURE, INSTALLATION ERROR + SURVEILLANCE PROGRAM + TEST, SYSTEM OPERABILITY + REACTOR, RESEARCH + INSTRUMENT, LIQUID LEVEL DETECTION + SAFE FAILURE CRITERION + REDUNDANCE + QUALITY ASSURANCE + ARGONAUT (TNG)

17-35027

SELECTED YANKEE OPERATING EXPERIENCE

YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.

8 PAGES, YANKEE OPERATION REPORT, NO. 100, MAY 23, 1969, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

STRETCHOUT CAUSED POWER TO REDUCE FROM 179 TO 162 MWE DURING THE MONTH. THERE WAS A 114 HOUR SHUTDOWN FOR REPAIR OF LEAKS IN AN INSTRUMENTATION THIMBLE. INITIAL REPAIR WAS BY GRINDING OUT AND REWELDING EXISTING SEAL WELDS. LATER WEEPAGE TYPE LEAKAGE WAS FOUND INDICATING FAILURE AT THIMBLE BACKUP SEAL. WIRE TUBES WERE DISCONNECTED AND PIPES CAPPED. *** PRIMARY TO SECONDARY LEAK INCREASED FROM 58 TO 118 GAL/DAY.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + *INSTRUMENT, IN CORE + YANKEE (PWR) + FAILURE, TUBING + STEAM GENERATOR + *LEAK + REACTOR, PWR

17-35028

NS SAVANNAH TECHNICAL SPECIFICATIONS

FIRST ATOMIC SHIP TRANSPORT, INC., NEW YORK, N.Y.

82 PAGES, MAY 23, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

REPLACES OLD SPECIFICATIONS WITH NEW STYLE. POWER LIMITS BASED ON W-3 CORRELATION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*TECHNICAL SPECIFICATIONS + HEAT TRANSFER CORRELATION + REACTOR, MARITIME + REACTOR, PWR + NS SAVANNAH (PWR)

17-35029 ALSO IN CATEGORY 6

SMIT J + BRUGGINK JC

CRITICAL EXPERIMENTS FOR THE SKN DODEWAARD NUCLEAR POWER STATION PERFORMED IN THE KRITO FACILITY OF RCN AT

PETTEN

REACTOR CENTRUM NEDERLAND, PETTEN

RCN-102 +. 29 PAGES, NOVEMBER 1968

AFTER DETERMINING MINIMUM CRITICAL FUEL LOADING, VARIATION OF THE REACTIVITY EFFECT OF SEVERAL ELEMENTS WAS FOUND NEGLIGIBLE. IN MOST CASES, THE EXPERIMENTAL HORIZONTAL POWER DISTRIBUTION IS IN CLOSE AGREEMENT WITH THE THEORETICAL. THE TEMPERATURE COEFFICIENT HAS BEEN MEASURED IN A CORE WITHOUT CONTROL ROD FOLLOWERS, AND FROM CALCULATIONS WHERE THE FOLLOWERS WERE TAKEN INTO ACCOUNT, COEFFICIENT IS NEGATIVE ABOVE 25 C.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

POWER DISTRIBUTION + TEMPERATURE COEFFICIENT + REACTOR, BWR + CRITICAL ASSEMBLY FACILITY + NETHERLANDS + POWER DISTRIBUTION

17-35160

AMENDMENT 4 TO LICENSE DPR-II

U.S. ATOMIC ENERGY COMMISSION

36 PAGES, LETTER TO L.O. MEYER, NORTHERN STATES POWER CO., MAY 14, 1969, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

ALLOWS POSSESSION OF DEACTIVATED PATHFINDER REACTOR, AND INCLUDES TECHNICAL SPECIFICATIONS (CHANGE 19). FUEL STORED IN FUEL POOL, REACTOR MAY NOT OPERATE. ELECTRICITY, VENTILATION, RADIATION MONITORING STILL TO BE PROVIDED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35160 *CONTINUED*

*TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + REACTOR, BWR + PATHFINDER (ISR) + FUEL STORAGE + REACTOR, INTERNAL SUPERHEAT

17-35161

CHANGES IN 1968 TO UCLA TRAINING REACTOR
UNIVERSITY OF CALIFORNIA, LOS ANGELES, CALIF.

1 PAGE, LETTER TO P.A. MORRIS, DRL, FEBRUARY 10, 1969, DOCKET 50-142

- (1) LEAD SHOT IN VOID SPACES OF SHIELDING CANNED OR REPLACED WITH LEAD BRICK TO PREVENT MOVEMENT.
- (2) CONTROL-ROD-BLADE SHROUDS EXTENDED TO ALLOW INSPECTION WITHOUT DISMANTLING GRAPHITE ISLAND.
- (3) FUEL-ELEMENT BOLTS MADE HEAVIER. (4) SHIELD-TANK LEAK WELDED. (5) ROOMS IN ADDITION WERE INTERCONNECTED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

PRESSURE VESSEL + REACTOR, RESEARCH + ARGONAUT (TNG) + SHIELDING + CONTROL ROD + FASTENER + FUEL ELEMENT + LEAK

17-35162

ALSO IN CATEGORY 9

SPURIOUS SCRAM, POWER OSCILLATION AT UMRR
UNIVERSITY OF MISSOURI

2 PAGES, LETTER TO DRL, FEBRUARY 14, 1969, DOCKET 50-186

- (1) ON JAN. 29, THE REG. ROD STARTED OSCILLATING ± 0.5 IN. WHILE IN AUTO CONTROL (POWER LEVEL HELD WITHIN ± 0.5) DUE TO SHORTED CAPACITOR IN THE SERVO AMPLIFIER. WHEN OPERATION IN MANUAL PROVED NORMAL, OPERATOR TRIED RETURN TO AUTOMATIC, BUT SCRAM OCCURRED DUE TO FAULTY RELAY CONTACTS. OPERATORS INSTRUCTED NOT TO TEST MALFUNCTIONS WITH REACTOR OPERATING. (2) ON FEB. 7, SCRAM OCCURRED BECAUSE ONE LEAD OF ROD-DRIVE C HAD WORN INSULATION, SHORTING TO GROUND. THIS ALSO CAUSED ERRATIC INDICATION OF SOURCE-RANGE SCALER, CFF-GAS RECORDER, AND CONDUCTIVITY METERS, WHICH STOPPED WHEN ROD DRIVES STOPPED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, RESEARCH + UMRR (RR) + REACTIVITY EFFECT, ANOMALOUS + SCRAM, SPURIOUS + CONTROL ROD DRIVE + ELECTRICAL CONDUCTION + INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, POWER RANGE + CONTROLLER + REACTOR POWER + FAILURE, COMPONENT + BOILING

17-35163

ALSO IN CATEGORY 12

REPORT ON THE APRIL 69 FAILURE OF A SHUTDOWN CONDENSER CONDENSATE VALVE TO OPEN DURING TECHNICAL SPECIFICATION PERIODIC TESTING

ALLIS-CHALMERS, BETHESDA, MARYLAND

4 PAGES, LETTER TO P.A. MORRIS, DRL, MAY 12, 1969, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

- TAPPING THE VALVE CAUSED IT TO OPEN, AND REPEATED CYCLING FAILED TO REPRODUCE THE FAILURE - AS HAS HAPPENED IN THE PAST. LARGER SPRINGS WERE INSTALLED AND VARIOUS PRESSURES/FORCES MEASURED. REPEATED TESTS INDICATED SMALL LEAKAGE AND A TENDENCY FOR THE VALVES TO OPEN EASIER WITH USAGE (I.E., TO OPEN AGAINST HIGHER PRESSURE DIFFERENTIALS.)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS ANALYSIS + *FAILURE, EQUIPMENT + *VALVE + LACROSSE (BWR) + REACTOR, BWR + CONDENSATION

17-35172

ALSO IN CATEGORY 3

SELECTED ELK RIVER OPERATING EXPERIENCE FOR APRIL, 1968
RURAL COOPERATIVE POWER ASSOCIATION

COO-651-59 +. 20 PAGES, OPERATING REPORT NO. 66, APRIL 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR HAS REMAINED SHUTDOWN SINCE JAN. 31, 1968 AND NOW AWAITS APPROVAL OF 250-PSIG HYDROTEST. BF3 CHAMBER FOR STARTUP CHANNEL WAS FULLY INSERTED WHERE LOWER STARTUP CRITERIA LIMIT OF 120 CPM WILL OCCUR AT END OF JUNE (DECAY OF 60-D HALF-LIFE OF SB-BE NEUTRON SOURCE). *** THREE STEEL-LINED CONCRETE DRY-WASTE SHIPPING CASKS, REDESIGNED TO ACCOMMODATE STANDARD 55-GAL DRUMS, WERE RECEIVED. REDESIGN OBLVIATES TRANSFERRAL FROM DRUM TO CASK. *** ENGINE GENERATOR (50 KW) FAILED TO START. ADJUSTMENT OF CARBURETOR LINKAGE AND SOLENOID SHUTOFF VALVE RESULTED IN TROUBLE-FREE STARTS. *** SHIPPING CASK (30 TON) WAS LOADED WITH 28 IRRADIATED ELEMENTS (FOUR KNOWN LEAKERS), INSTRUMENTED WITH THERMOCOUPLES TO MEASURE EQUILIBRIUM TEMPERATURE, LEAK TESTED AT 5 PSIG, INTERNAL CASK ENVIRONMENT SAMPLED, EXTERIOR DECONTAMINATED AND AEC SHIPPING APPROVAL OBTAINED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + REACTOR, BWR + *SOURCE, NEUTRON + ANTIMONY + BERYLLIUM + *WASTE HANDLING + WASTE DISPOSAL, SOLID + SHIPPING CONTAINER + *FAILURE, DESIGN ERROR + *FAILURE, EQUIPMENT + EMERGENCY POWER, ELECTRIC + *GENERATOR, ENGINE + *FUEL HANDLING + DECONTAMINATION + *TEST, PRESSURE VESSEL + *PRESSURE, INTERNAL + OPERATING EXPERIENCE

17-35173

ALSO IN CATEGORY 11

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35173 *CONTINUED*

SELECTED ELK RIVER OPERATING EXPERIENCE FOR JAN. 1968

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-55 +. 23 PAGES, OPERATING REPORT NO. 63, JANUARY 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR WAS SHUT DOWN BY 2400 HR, JAN. 31 (CONTRACTUAL AUTHORITY EXPIRED FOR RCPA TO RETAIN TECHNICAL SUPPORT REQUIRED TO COMPLY WITH TECH. SPECS. INCORPORATED IN OPERATING AUTHORIZATION DPRA-3 14.2-29). REG. ROD VS POWER DURING POWER REDUCTION SHOWED NO CHANGE FROM THAT OBTAINED IN CYCLE-2 CALIBRATION. CYCLE-3 PRODUCTION WAS 10,499 MWD (64% OF THE EXPECTED 16,300 MWD). OPERATION BEYOND 16,300 MWD WOULD INVOLVE COASTDOWN (1.8 MW DECREASE PER ADDITIONAL 1000 MWD OF BURNUP). *** CONTINUED SURVEILLANCE OF WATER ACCUMULATION IN LOWER CAVITY INDICATES THAT IT IS NOT FROM PRIMARY HEAT TRANSFER SYSTEM. *** IODINE CONCENTRATIONS IN PRIMARY COOLANT HAVE INCREASED STEADILY SINCE SEPT. 1967. OTHER FISSION-PRODUCT CONCENTRATIONS IN PRIMARY COOLANT ARE UNCHANGED FROM JUNE 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *WATER, GENERAL + CONTAINMENT, GENERAL + *MAIN COOLING SYSTEM + ANNULUS + *LICENSE STATUS + *FUEL BURNUP + *FUEL MANAGEMENT + ADMINISTRATIVE CONTROL + LEAK RATE + FISSION PRODUCT, IODINE

17-35174 ALSO IN CATEGORY 9

SELECTED ELK RIVER OPERATING EXPERIENCE FOR NOVEMBER 1967

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-53 +. 21 PAGES, OPERATING REPORT NO. 61, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

LOAD WAS TRANSFERRED TO BOILER 3 FOR ONE DAY TO WASH SOOT FROM SUPERHEATER AIR PREHEATER. REACTOR WAS NOT SHUTDOWN, SO PRIMARY PRESSURE WAS MAINTAINED, THEREBY REDUCING MAGNITUDE OF PRESSURE-TEMPERATURE TRANSIENT ON FUEL ELEMENTS. REACTOR WAS USED FOR OPERATOR TRAINING. *** N NOV. 11, SHORTED ARC-SUPPRESSOR CAPACITOR ESTABLISHED A BYPASS CIRCUIT AROUND CONTROL RELAY TO NO. 2 EVAPORATOR FEEDWATER VALVE MOTOR. QUICK OPERATOR ACTION IN THROTTLING MANUAL UPSTREAM VALVE PREVENTED SERIOUS CONSEQUENCES. *** REPEATED FAILURES OF SODIUM PENTABORATE TANK SIGHT GLASS IS NOW ATTRIBUTED BY MANUFACTURERS REPRESENTATIVE TO SEVERAL HIGH SPOTS AND BURRS ON METAL SEAT INSTEAD OF PREVIOUSLY ASSUMED WARPED COVER PLATE. NEW IDENTICAL UNIT WITH SAFETY SHIELD WAS ORDERED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *FAILURE, INSTRUMENT + *FAILURE, FABRICATION ERROR + *INSTRUMENT, LIQUID LEVEL DETECTION + ELECTRICAL CONDUCTION + *FAILURE, GENERAL + ELECTRIC ARC + MAINTENANCE AND REPAIR + *OPERATOR ACTION + INSTRUMENT, RELAY

17-35175 ALSO IN CATEGORIES 7 AND 16

FISSION GAS ACTIVITY INCREASE AT ELK RIVER

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-53 +. 21 PAGES, OPERATING REPORT NO. 61, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

IODINE ACTIVITY DURING NOV. AGAIN INCREASED AS IT DID DURING OCT. AND LATTER PART OF SEPT. CONCENTRATION OF OTHER FISSION PRODUCTS IN PRIMARY COOLANT REMAIN UNCHANGED SINCE JUNE 1967 STARTUP. FISSION GAS AT TURBINE AIR EJECTOR AND CONTAINMENT EXHAUST DUCT WERE FROM LAST MONTH, VERIFYING THAT SOME FUEL DEFECTS EXIST. SECONDARY WATER ACTIVITY REMAINED NONDETECTABLE. *** WIND SPEED-AND-DIRECTION INDICATOR WAS RELOCATED TO ELIMINATE INFLUENCE OF BUILDING ON DATA. *** SINCE SEPT., RADIATION LEVELS AT VALVE RA-3-1 AND ASSOCIATED PIPING DOWNSTREAM OF REGENERATIVE HEAT EXCHANGER HAVE INCREASED TO 30. R/HR AND ARE ROPED OFF. RADIATION IS RESULT OF INCREASED CRUD COLLECTION HERE IN PREFILTERS IN PURIFICATION LOOPS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *ACTIVITY BUILDUP + *IODINE + INSTRUMENT, METEOROLOGICAL + *FAILURE, CLADDING + *FISSION GAS RELEASE + *WIND STATISTICS + FAILURE, FUEL ELEMENT + *CRUD + INSTRUMENT, ABNORMAL INDICATION

17-35176 ALSO IN CATEGORIES 9 AND 12

ELK RIVER POISON INJECTION SYSTEM FAILURE

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-51 +. 22 PAGES, OPERATING REPORT NO. 60, OCTOBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ON OCT. 19, SIGHT GLASS ON SODIUM PENTABORATE TANK WAS VALVED OUT TO REPAIR LEAK. NEW GLASS WAS INSTALLED AND PUT IN SERVICE. ON OCT. 21, REACTOR WAS SHUT DOWN FOR 17.6 HR BECAUSE LOW PRESSURE ALARM ON POISON-INJECTION SYSTEM LED TO FINDING LOWER SIGHT GLASS SHATTERED AND POISON-INJECTION-SYSTEM PRESSURE AT 400 PSIG (NORMAL, 2000 PSIG). ONLY A QUART OF LIQUID WAS LOST DUE TO SEATING OF BALL CHECK VALVE, HOWEVER, UPPER CHECK VALVE WILL NOT HOLD AIR AND AIR BLANKET PRESSURE WAS LOST. NEW GAGE GLASS WAS INSTALLED AND SIGHTGLASS WILL BE USED ONLY WHEN LEVEL IS CHECKED. A SLIGHTLY WARPED COVER PLATE CAUSED THE GLASS FAILURE. WHEN NEW COVER PLATE ARRIVES AND IS INSTALLED, SIGHT GLASS WILL BE PUT BACK IN CONTINUOUS SERVICE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35176 *CONTINUED*

REACTOR, BWR + REPORT, OPERATIONS + *FAILURE, EQUIPMENT + FAILURE, FABRICATION ERROR + *SHUTDOWN SYSTEM, SECONDARY + POISON, SOLUBLE + *INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, ALARM + PNEUMATIC SYSTEM + FAILURE, TUBING

17-35177 ALSO IN CATEGORY 6

SELECTED ELK RIVER OPERATING EXPERIENCE FOR OCTOBER 1967

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-52 +. 22 PAGES, OPERATING REPORT NO. 60, OCTOBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

WHILE REACTOR WAS SHUT DOWN (17.6 HR DUE TO POISON-INJECTION-SYSTEM LEAK), (1) SUPERHEATER AIR PREHEATER WAS CLEANED, (2) SEVERAL PRIMARY TO CONTAINMENT ATMOSPHERE LEAKS WERE REPAIRED, (3) BYPASS VALVE PS 2-1 WAS REPACKED AND ADJUSTING NUT ON CHECK VALVE RA-11 WAS TIGHTENED. *** AFTER STARTUP, CORRECTED CENTER ROD POSITIONS FOR EQUILIBRIUM XENON AND 50(PA-233 POISONING WERE IN EXCELLENT AGREEMENT WITH COMPUTER CALCULATION (JAI-67-8). COMPARISON OF BACK POSITION AT BEGINNING OF CORE LIFE WITH BANK POSITION OF AUG. 23 CRITICAL AGREES WELL WITH 42 CENTS PER 1000 MW LOSS RATE AT END OF CYCLE 2 (JAI-67-5). *** SINCE LAST WEEK IN SEPT., I-131 CONC. INCREASED TENFOLD, I-133 BY FACTOR OF 5, AND TWO-HOUR GROSS IODINE LEVEL BY FACTOR OF TWO. INCREASES IN ACTIVITIES ARE MOST LIKELY RESULT OF MINOR FUEL ELEMENT CLADDING DEFECTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + MAINTENANCE AND REPAIR + *XENON + FUEL BURNUP + REACTIVITY, EXCESS + COMPARISON, THEORY AND EXPERIENCE + PROTACTINIUM + IODINE + *RELEASE RATE + *FAILURE, CLADDING + SHUTDOWN COOLING SYSTEM + FAILURE, GENERAL + ACTIVITY BUILUP + FUEL ELEMENT + REPORT, OPERATIONS

17-35178 ALSO IN CATEGORY 6

ON-LINE COMPARATIVE CHECK OF CORE PHYSICS

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-51 +. 19 PAGES, OPERATING REPORT NO. 59, SEPTEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR ON LINE ENTIRE MONTH, AND, BECAUSE OF LOAD FOLLOWING OPERATION, REACTOR DID NOT REMAIN AT 58 MW LONG ENOUGH AT ANY ONE TIME TO OBTAIN EQUILIBRIUM XENON. HOWEVER, OBSERVED ROD POSITION WERE CORRECTED TO EQUILIBRIUM XENON. *** BYPASSING FW HEATER 4 RESULTED IN COLDER FEEDWATER, WHOSE EFFECTS VERIFIED NORMAL CORE HYDRAULICS BEHAVIOR BY COMPARISON WITH THE BYPASSING DRYING CYCLE-2-CORE OPERATION. THE DECREASED CORE VOID CONTENT WITH COLDER PRIMARY FEED WATER GIVES SAME REACTIVITY INCREASE, REQUIRING ROD INSERTION TO MAINTAIN 58 MW, NOW AS FOR THE CYCLE-2 CASE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + *TEST, ON LINE + *HYDRAULIC EFFECT + *VOID FRACTION + REACTOR, BWR + COMPARISON, THEORY AND EXPERIENCE + *REACTIVITY EFFECT, VOID + FLOW, CONVECTION + REACTOR PHYSICS + TURBINE + HEAT EXCHANGER + OPERATING EXPERIENCE

17-35179 ALSO IN CATEGORY 11

SELECTED ELK RIVER OPERATING EXPERIENCE

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-50 +. 25 PAGES, OPERATING REPORT NO. 58, AUGUST 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

AUGUST 23 SCHEDULED SHUTDOWN INCLUDED THE FOLLOWING - INVESTIGATE AND CORRECT PRIMARY SYSTEM LEAKAGE OF 40 GAL/DAY REPAIR LEAK ON FORMER DECAY HEAT PUMP DISCHARGE CHECK VALVE, CLEAN SUPERHEATER AIR HEATER, PERFORM TESTS AS REQUIRED BY ERR TECHNICAL SPECIFICATION. AFTER 18 HR AND 7 MIN., THE REACTOR WAS RETURNED TO SERVICE. *** RECOMBINER PERFORMANCE WAS IMPROVED BY REPLACING PLATINIZED ALUMINUM PELLET CATALYST WITH PLATINIZED HONEYCOMB CERAMIC DISKS. EFFICIENCY WAS MAINTAINED DURING PRESSURE AND TEMPERATURE CHANGES, AND SUPERHEAT TEMPERATURES ARE NEARLY TWICE AS HIGH.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, OPERATIONS + *MAINTENANCE AND REPAIR + *MODIFICATION, SYSTEM OR EQUIPMENT + PLATINUM + REACTOR, BWR + MAIN COOLING SYSTEM + LEAK + TESTING + RECOMBINER + REPORT, OPERATIONS

17-35180

CRUD BREAKTHROUGH IN PRIMARY COOLANT CLEAN-UP SYSTEM

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-50 +. 25 PAGES, OPERATING REPORT NO. 58, AUGUST 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

EARLY IN JULY, RESIN FROM DEMINERALIZER LOOP 1 WAS REPLACED DUE TO INADEQUATE GROSS BETA DECONTAMINATION FACTOR. DURING CHANGEOUT, LOOP-2 GROSS BETA D.F. ALSO BECAME INADEQUATE. RESEARCH IN AUGUST SHOWED LOW D.F. WAS CAUSED BY INSOLUBLE CRUD (APPEARING DURING JUNE STARTUP) INSTEAD OF IONIC PARTICLES. RESIN IRN-150 ACTS AS HOLDUP FILTER FOR CRUD FOR 30 HR AFTER WHICH CRUD BURST OCCURS. PREFILTERS AND AFTER-FILTERS (5 MICRON) WERE CHANGED ON LOOP 2, AND D.F. ROSE TO 585 TO 1, BUT AFTER 5 DAYS DECREASED TO 90 TO 1. CRUD BURST IS PROBABLY A ONE-TIME OCCURRENCE AND NOT OF CONTINUOUS NATURE. PARTICLE SIZE ESTIMATED AT LESS THAN 5 MICRONS. THREE METHODS CONSIDERED FOR REDUCING CRUD LEVEL ARE - (1) CHEMICAL CLEAN-UP OF PRIMARY SYSTEM DURING NEXT

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35180 *CONTINUED*
SHUTDOWN, (2) INSTALLATION OF SMALLER-PORE-SIZE FILTERS, (3) MORE FREQUENT CHANGES OF PREFILTERS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + REPORT, OPERATIONS + *CRUD + *DECONTAMINATION FACTOR + COOLANT CHEMISTRY + *COOLANT PURIFICATION SYSTEM + PARTICLE SIZE + *FILTER LIFE + *FILTER, PREFILTER + FILTER INSTALLATION + FILTER EFFICIENCY + FAILURE, DESIGN ERROR + RESIN

17-35181 ALSO IN CATEGORY 12
PRESELECTED ELK RIVER OPERATING EXPERIENCE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-47 +. 22 PAGES, OPERATING REPORT NO. 57, JULY 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

FAILURE OF A TYGCN BASE FROM MAKEUP INJECTION PUMPS RELIEF VALVE TO PUMP SUCTION CAUSE THE INJECTION PUMPS TO AIR BIND. FOR ABOUT 80 MINUTES, MANUAL VENTING REQUIRED. NO UNTENDABLE OPERATING PROBLEMS WERE ENCOUNTERED. NEW HIGH-PRESSURE STAINLESS-STEEL FLEXIBLE HOSE INSTALLED. *** DURING INITIAL POWER ESCALATION OF RELOADED CORE, PEAK HEAT FLUX WAS KEPT BELOW SPECIFICATION LIMIT BY STOPPING POWER INCREASE AT 30 MW AND AGAIN AT 50 TO ALLOW XE TO BUILD IN. XE REACTIVITY HAS EFFECT OF MOVING RODS OUT, THUS PROVIDING MORE CORE VOLUME FOR POWER GENERATION AND LOWER HEAT FLUXES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

FAILURE, DESIGN ERROR + FAILURE, TUBING + REPORT, OPERATIONS + *INCIDENT, EQUIPMENT + REACTOR, BWR + PRESSURE, INTERNAL + WATER, GENERAL + PUMP + AIR + *FAILURE, EQUIPMENT + ELK RIVER (BWR)

17-35182
PRESELECTED ELK RIVER OPERATING EXPERIENCE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-46 +. 36 PAGES, OPERATING REPORT NO. 56, JUNE 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

(1) REACTOR RELOADED WITH 152 ELEMENTS INSTEAD OF 148, TO REDUCE HEAT FLUX AND ELEMENT EXPOSURE. ROD POSITIONS AT CRITICALITY WERE WITHIN 0.3 INCH OF THAT CALCULATED. (2) PLANT MODIFICATIONS INCLUDED EVAPORATOR MOISTURE SEPARATOR RELOCATION TO IMPROVE CARRYOVER, REMOVAL OF OBSOLETE GAS-RECOMBINER PIPING AND VALVES, AND INSTALLATION OF SEPARATE SERVICE WATER HEADER TO CONTAINMENT. (3) CONTAINMENT LEAK RATE WAS WITHIN ACCEPTABLE LIMITS. EIGHT MINOR LEAKS AT PRIMARY SYSTEM HYDRO TESTED AT 1375 PSIG AND 270 F. REACTOR VESSEL NOW HAS HAD 35.78 PRESSURE-TEMPERATURE CYCLES. (5) IN JUNE, 0.157 CURIE OF B-G ACTIVITY WAS RELEASED TO MISSISSIPPI RIVER, AND 0.055 CURIE KENTUCKY BURIAL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REACTOR, BWR + *REFUELING + REPORT, OPERATIONS + *MAINTENANCE AND REPAIR + WASTE DISPOSAL, LIQUID + MODIFICATION, SYSTEM OR EQUIPMENT + TEST, LEAK RATE + TEST, PRESSURE VESSEL + REACTOR STARTUP TESTING + RECOMBINER + ELK RIVER (BWR) + PRESSURE VESSEL

17-35183 ALSO IN CATEGORY 15
RESPONSE TO JAN. 29, 1969 CITATION FOR RADIOGRAPHY NON-COMPLIANCE
DURIRON COMPANY
5 PAGES, LETTER TO L.D. LOW, USAEC, MARCH 17, 1969

AS RESULT OF AEC INVESTIGATION OF OCTOBER 9 AND 10, 1968, FOLLOWING ACTION WAS TAKEN - (1) DOSIMETER READINGS ARE RECORDED FIVE TIMES PER DAY (AT 8-10-1 AND 3 O CLOCK AND AT COMPLETION OF RADIOGRAPHIC OPERATIONS). (2) ACQUIRED TWO ADDITIONAL SURVEY METERS FOR GAMMA ROOM FOR BETTER RELIABILITY. (3) SURVEYS OF SOURCE TUBE AND CONTAINER ARE MADE AND RECORDED AS SEPARATE ITEMS IN ADDITION TO GAMMA-ROOM SURVEY ON ENTRY TO ROOM. (4) IN ADDITION TO EXISTING INTERLOCKING LIGHTS, A GA-25 GAMMA ALARM SYSTEM WAS INSTALLED TO APPRISE PERSONNEL UPON ENTRY TO GAMMA ROOM THAT CO-60 SOURCE IS PROPERLY SECURED IN SHIELD. (5) EXISTING PROCEDURES WILL BE AMENDED TO REFLECT CORRECTIVE ACTION TAKEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + *RADIOGRAPHY + *PERSONNEL PROTECTIVE DEVICE + GAMMA EMITTER + COBALT + RADIOISOTOPE + SOURCE, RADIATION + PROCEDURES AND MANUALS + MONITOR, AREA + INSTRUMENT, INTERLOCK

17-35184
LEAKY COBALT 60 IRRADIATOR
CASE WESTERN RESERVE UNIVERSITY
1 PAGE, LETTER TO DIRECTOR, DML, APRIL 17, 1969

ONE OF TWO CO-60 IRRADIATORS WAS FOUND TO BE LEAKING AND SURFACE WAS CONTAMINATED WHEN TESTED APRIL 10, 1969. THIS IRRADIATOR HAD NOT BEEN USED FOR EIGHT MONTHS. NO PLANNED OR ANTICIPATED FUTURE USE OF EITHER IRRADIATOR IS CONTEMPLATED. PRESENTLY OBTAINING APPROVAL FOR DISPOSAL OF THESE TWO IRRADIATORS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-35184 *CONTINUED*

*SOURCE, RADIATION + BYPRODUCT MATERIAL + RADIOISOTOPE + *CONTAMINATION + TEST, LEAK RATE + GAMMA EMITTER + COBALT + *LEAK + CONTAINMENT, SOURCE

17-35185 ALSO IN CATEGORY 15

HAND OVEREXPOSURE OF 45 REMS BECAUSE OF LEAD-LINED GLOVE REMOVAL.
ATLANTIC RESEARCH CORPORATION
2 PAGES, LETTER TO DIRECTOR, DML, APRIL 10, 1969

CN 4/4/69, A TECHNICIAN HANDLING 10 MC SR-90 WITH LEAD-LINED GLOVES DECIDED TO REMOVE THEM TO COMPLETE A PROCESS. EXPOSURE ESTIMATED AS 45 REMS. HE WAS A NEW EMPLOYEE AND HAD BEEN INSTRUCTED. HE WAS NOT WEARING WRIST OR HAND MONITOR. HIS BODY DOSIMETER SHOWED 20 MR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*PERSONNEL PROTECTIVE DEVICE + BYPRODUCT MATERIAL + RADIOISOTOPE + GLOVE BOX + BETA EMITTER + TRAINING + *FAILURE, OPERATOR ERROR + *PERSONNEL EXPOSURE, RADIATION + STRONTIUM

17-35186 ALSO IN CATEGORY 15

ACKNOWLEDGEMENT OF ALPHA MIGRATION HAZARD USING POLONIUM-210
UNIVERSITY OF ILLINOIS
2 PAGES, LETTER TO DIRECTOR, DML, APRIL 11, 1969

SOURCE, CONSISTING OF HALF PIECE OF COPPER TUBING (CUT LENGTHWISE) 1.5 IN. DIA. BY 1 IN. LONG WITH 25 MC OF PO-210 PLATED ON INSIDE SURFACE AND FLASH-COATED WITH GOLD TO REDUCE ALPHA ENERGY BY 30%, WAS RECEIVED FROM MONSANTO ON 3/3/69. PACKAGE WAS OPENED 4/3/69, AND WIPE TEST FROM INSIDE OF PLASTIC BAG HOLDING SOURCE SHOWED ALPHA ACTIVITY OF 15 CPM (EQUIVALENT TO 0.02 NANOCURIE). SMEARS OF SOURCE SHOWED 200 TO 1000 CPM. SIMILAR BUT MORE INTENSE SOURCE WILL BE USED LATER IN HIGH VAC., THEREFORE THIS SOURCE WAS EVACUATED WITH MECHANICAL OIL PUMP. SMEARS FROM INSIDE GLASS DESICCATOR VARIED FROM 0.03 TO 2.3 NANOCURIES AFTER 2 AND 78 HR, RESP. MIGRATION RATE VS TIME AND PRESSURES TO 10(-6TH) TORR ARE PLANNED BEFORE DISPOSAL. NORMAL EXTENSIVE PRECAUTIONS PER LICENSE WILL BE USED FOR ANY FURTHER TESTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + *POLONIUM + *ALPHA EMITTER + *CONTAMINATION + *PRESSURE, SUBATMOSPHERIC + SOURCE, RADIATION + EXAMINATION

17-35187 ALSO IN CATEGORY 13

NONCOMPLIANCE WITH LICENSE REQUIREMENTS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO Z. SHAPIRO, NUMEC, MARCH 17, 1969

JAN. 1969 INSPECTION SHOWED FOLLOWING NONCOMPLIANCE ITEMS - (1) VALVES ON LINES TO STEAM CONDENSATE TANK, RECYCLE OVERHEAD TANK, AND DRUM LOADING STATION NEAR GLOVE BOX 607 WERE NOT EQUIPPED WITH LOCKS. (2) CRITICALITY EVACUATION DRILL WAS NOT PERFORMED DURING 4TH QTR. OF 1968. (3) WORKERS PROCESSING PLUTONIUM FUEL WERE NOT IN ALL CASES WEARING HAND-MONITORING EQUIPMENT. (4) ADEQUATE SURVEYS IN UNRESTRICTED AREAS THROUGHOUT LEECHBURG FACILITY WERE NOT CONDUCTED DURING 1968.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

BYPRODUCT MATERIAL + SPECIAL NUCLEAR MATERIAL + *FAILURE, ADMINISTRATIVE CONTROL + *PERSONNEL PROTECTIVE DEVICE + *SURVEY, RADIATION, GENERAL + PLUTONIUM + FUEL REPROCESSING

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-00894
LOWENSTEIN R
ACRS REQUIREMENTS IN REGARD TO LICENSING OF REACTORS
U.S. ATOMIC ENERGY COMMISSION
1 PAGE, SEPTEMBER 11, 1963

ALL APPLICATIONS FOR CONSTRUCTION PERMITS AND OPERATING LICENSES FOR POWER AND TESTING REACTORS, AND FOR OTHER UTILIZATION FACILITIES, MUST BE REFERRED TO THE ACRS FOR A REPORT PRIOR TO ISSUANCE OF THE PERMIT OR LICENSE. THE ACRS WILL CONDUCT REVIEWS FOR TWO DAYS OF THE FIRST COMPLETE WEEK OF EACH MONTH OF THE YEAR. WE NOW REQUEST THAT LICENSEES FURNISH THE TECHNICAL MATERIAL FOR THE ACRS TO THE DIVISION OF LICENSING AND REGULATION AT LEAST 45 DAYS BEFORE THE ACRS MEETING. SOME ACCOMMODATIONS CAN BE MADE TO WAIVE THE GUIDELINE DATES INDICATED ABOVE IN SPECIAL CASES.

*ACRS + REGULATION, AEC + CONSTRUCTION PERMIT PROCESS + OPERATING LICENSE PROCESS + REACTOR, POWER + *SAFETY REVIEW + RESPONSE TIME + REACTOR, TEST

18-18965
FINAL SAFETY ANALYSIS REPORTS VOLUMES 1, 2, AND 3
FLORIDA POWER AND LIGHT CO.
800 PAGES, FIGURES, TABLES, REFERENCES, SUPPLEMENT 17 TO TURKEY POINT 3 AND 4 LICENSE APPLICATION, MAY 12, 1969, DOCKETS 50-250/251, TYPE--PWR, MFG--WEST., AE--BECHTEL

FINAL SAR SUBMITTED IN SUPPORT OF APPLICATION FOR OPERATING LICENSE FOR THE TWO PWR UNITS EACH DESIGNED FOR 2200 MW(1)/760 MW(E).

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

*REPORT, SAR + LICENSE STATUS + *OPERATING LICENSE PROCESS + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR) + REACTOR, PWR + APPLICATION FOR AEC LICENSE

18-29575 ALSO IN CATEGORY 1
WIESENACK G
NUCLEAR POWER PLANTS AND VERSATILE NUCLEAR POWER INSTALLATIONS
6 PAGES, VDI (VER. DEUT. ING.) 2., 110 PAGES, 141-6 (FEBRUARY 1968) (IN GERMAN)

A SURVEY OF WORLD NUCLEAR POWER PLANTS AND INSTALLED NUCLEAR POWER IS GIVEN. SAFETY QUESTIONS CONSIDERED BRIEFLY. INSTALLED NUCLEAR POWER CAPACITY THEN DISCUSSED ACCORDING TO COUNTRY (EURATOM, BELGIUM, WEST GERMANY, FRANCE, GREAT BRITAIN, ITALY, JAPAN, AND USA). OTHER COUNTRIES DISCUSSED AS A WHOLE. SHIPBOARD AND SPACE REACTORS DISCUSSED BRIEFLY.

*REACTOR DESCRIPTION + REACTOR, POWER + ECONOMICS

18-30006
VOLUME 1 REACTOR DESCRIPTION
DETROIT EDISON COMPANY
75 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

REACTOR IS A BWR RATED AT 3293 MWT/1157 MWE, OPERATIONAL FEB. 1974, LOCATED ON LAKE ERIE 30 MILES SW OF DETROIT, MICHIGAN. FUELED BY UO₂ PELLETS IN ZR-2 TUBES. CONTROLLED BY BORON CARBIDE POWDER IN SS TUBES (CRUCIFORM) AND SODIUM PENTABORATE CHEMICAL SHIM. AVERAGE POWER DENSITY IS 50.8 KW/LITER, OPERATING PRESSURE IS 1020 PSIA. THERMAL OUTPUT, 7.049 KW/FT. THIS VOLUME CONTAINS SECTIONS TITLED INTRODUCTION AND SUMMARY SITE, AND REACTOR.

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

*REPORT, PSAR + REACTOR DESCRIPTION

18-30144 ALSO IN CATEGORIES 1 AND 5
DESCRIPTION AND HAZARD ANALYSIS OF JAPAN RESEARCH REACTOR
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
JAERI-6003 +. 97 PAGES, 83 FIGURES, 36 TABLES, 19 REFERENCES, 1961

GIVES A GENERAL DESCRIPTION OF THE SAFEGUARD ANALYSIS ON THE JAPAN RESEARCH REACTOR NO. 2 (JRR-2), LOCATED AT THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, JAPAN. THE REACTOR IS ESSENTIALLY A HETEROGENEOUS TYPE RESEARCH REACTOR, USING AN ENRICHED-U MTR-TYPE FUEL, MODERATED AND COOLED BY HEAVY WATER. THE TARGET POWER LEVEL AND NEUTRON FLUX ARE 10 MW AND 10 TO THE 14TH N/CM SQUARED/SEC. THE REACTOR IS QUITE SIMILAR TO THE CP-5 AT THE ARGONNE NATIONAL LABORATORY, EXCEPT IN THE FOLLOWING TWO POINTS - (1) THE THERMAL OUTPUT IS DESIGNED TO BE 10 MW, AND (2) THE THERMAL SHIELD EMPLOYS LAMINATED LAYERS OF STAINLESS STEEL AND LIGHT WATER. THE REACTOR IS HOUSED IN A GAS-TIGHT CONTAINMENT BUILDING AND INCORPORATES MANIFOLD SAFETY DEVICES. MOREOVER, AN EMERGENCY COOLING SYSTEM IS PROVIDED TO PREVENT THE FUEL ELEMENTS FROM MELTING DOWN, EVEN IN A CATASTROPHE.

AVAILABILITY - TECHNICAL LIBRARY, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA NAKA-GUN, IBARAKI-KEN, JAPAN

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30144. *CONTINUED*
*REACTOR, RESEARCH + *JAPAN + *REPORT, PSAR + REACTOR, HWR

18-31578 ALSO IN CATEGORIES 5 AND 13
YOUNGBLOOD EL + MILES FW
HAZARDS EVALUATION FOR THE FLUIDIZED-BED VOLATILITY PILOT PLANT
OAK RIDGE NATIONAL LABORATORY, TENN.
ORNL-TM-2092 +. 133 PAGES, 27 FIGURES, 7 TABLES, 86 REFERENCES, JULY 1968

PLANT DEMONSTRATES RECOVERY AND PURIFICATION OF U AND PU FROM LOW-ENRICHED UO₂ FUEL BY FLUORIDE-VOLATILITY METHOD. UP TO 40 KG OF PU PROCESSED PER RUN. MCA IS NUCLEAR EXCURSION IN WHICH A PROCESS VESSEL CONTAINING PU AND FISSION PRODUCTS RUPTURES IN A CONTAINMENT CELL. FOR CHEMICAL EXPLOSION OF 6 MILLION CURIES OF MIXED FISSION PRODUCTS, DOSE OF 34 MILLIREMS RECEIVED DOWNWIND AND 14 MILLIREMS FOR 2-MIN EXPOSURE IN SECONDARY CONTAINMENT.

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

*HAZARDS ANALYSIS + *FUEL REPROCESSING + RADIOCHEMICAL PLANT SAFETY + *RADIOCHEMICAL PROCESSING + CHEMICAL REACTION + EXPLOSION + FISSION PRODUCT RELEASE, GENERAL + URANIUM + PLUTONIUM + FUEL CONVERSION + *FLUIDIZED BED VOLATILITY PROCESS

18-32658
TRANSMITTAL OF FINAL SAFETY ANALYSIS REPORT
DUKE POWER COMPANY
AMENDMENT 7 TO OCONEE 1, 2, AND 3 LICENSE APPLICATION, MAY 29, 1969, DOCKETS 50-269/270/287, TYPE--PWR, MFG--B+W, AE--DUKE

TRANSMITS 2 VOLS. OF FSAR IN SUPPORT OF APPLICATION FOR OPERATING LICENSE FOR 3-UNIT STATION ON SHORE OF LAKE KEOWEE, IN OCONEE COUNTY, SOUTH CAROLINA. UNIT 1 TO BE OPERABLE MAY 1971, UNIT 2 MAY 1972, AND UNIT 3 IN JUNE 1973. POWER LEVELS ARE 2584 MWT/886 MWE.

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

REPORT, SAR + REACTOR, PWR + OPERATING LICENSE PROCESS

18-32807 ALSO IN CATEGORY 9
REFLECTOR CONTROL SYSTEM
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-11 +. 160 PAGES, 24 FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 11, FEBRUARY 29, 1968, DOCKET 50-231

DESCRIBES CONTROL SYSTEM AND DISCUSSES THE VARIOUS COMPONENTS FROM DESIGN TO INSTALLATION AND TESTING. SYSTEM HAS BEEN SUBJECTED TO MORE THAN 800,000 INCHES OF TRAVEL AT NORMAL DRIVE SPEEDS AND 130,000 INCHES AT SCRAM SPEED, WHICH IS APPROXIMATELY 12 TIMES EXPECTED USAGE, AND HAS NEVER FAILED TO FUNCTION. GUIDE-PAID DEVELOPMENT AND TEST PROGRAM DEMONSTRATED PADS AND RAILS HAVE LIFE EXPECTANCY CONSIDERABLY LONGER, AND AT LOADS HIGHER THAN EXPECTED OPERATING CONDITIONS.

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

*CONTROL SYSTEM + *REFLECTOR + *SYSTEM DESCRIPTION + CONTROL ROD + CONTRCL ROD DRIVE + TESTING + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32808 ALSO IN CATEGORY 10
ELECTRIC POWER SYSTEMS
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-12 +. 60 PAGES, 4 TABLES, SEFOR, PSAR, SUPPLEMENT 12, MARCH 11, 1968, DOCKET 50-231

TOPICS DESCRIBED AND DISCUSSED INCLUDE REQUIREMENTS OF NORMAL AND EMERGENCY ELECTRIC SYSTEMS, GROUNDING AND CATHODIC PROTECTION, COMMUNICATION SYSTEM, DISTRIBUTION, DC SYSTEM, AND PUMP-POWER SUPPLIES.

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

*ELECTRIC POWER, GENERAL + SYSTEM DESCRIPTION + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32809
IRRADIATED FUEL STORAGE
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-12 +. 28 PAGES, FIGURES, SEFOR, PSAR, SUPPLEMENT 13, MARCH 11, 1968, DOCKET 50-231

DESIGN OF STORAGE EQUIPMENT IS DISCUSSED, AND ADDITIONAL INFORMATION GIVEN CONCERNING EQUIPMENT DESIGN AND SAFETY ANALYSIS. HOWEVER, FOR CLARITY, SOME OF THE INFORMATION THERE HAS BEEN REPEATED IN THIS SUPPLEMENT. THE ANALYSIS OF COOLING HAS BEEN REVISED BASED ON MORE DETAILED

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32809 *CONTINUED*
CALCULATION OF HEAT GENERATION AND HEAT LOSSES IN THIS SYSTEM.

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

*FUEL STORAGE + *SYSTEM DESCRIPTION + *COOLING, GENERAL + *HEAT TRANSFER ANALYSIS + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32810

QUALITY CONTROL FOR SODIUM SYSTEM
GENERAL ELECTRIC

50231-14 +. 12 PAGES, 2 FIGURES, SEFOR, PSAR, SUPPLEMENT 14, MARCH 11, 1968, DOCKET 50-231

DESCRIBES THE QUALITY-CONTROL PROGRAM FOR THE COMPONENTS AND ASSEMBLIES WHICH COMPRISE THE COOLANT SYSTEMS. REQUIREMENTS BEGAN WITH INITIAL PLANT DESIGN AND CARRIED THROUGH ALL PHASES OF MATERIAL PROCUREMENT, EQUIPMENT FABRICATION AND PLANT CONSTRUCTION. FOR THE MAJOR COMPONENTS, INCLUDING HEAT EXCHANGERS AND ELECTROMAGNETIC PUMPS, GE HAS BEEN RESPONSIBLE FOR THE DESIGN SPECIFICATIONS, EQUIPMENT PROCUREMENT AND FOR APPROVAL OF VENDOR FABRICATION PROCEDURES USED FOR QUALITY CONTROL ACCEPTANCE. SOME SODIUM COMPONENTS - PRINCIPALLY PIPING, FITTINGS, TANKS AND VALVES - WERE PROCURED BY THE ARCHITECT ENGINEER, IN THESE CASES BOTH GENERAL ELECTRIC AND THE ARCHITECT-ENGINEER APPROVED THE FABRICATION AND TEST PROCEDURES FOR QUALITY CONTROL.

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

*MAIN COOLING SYSTEM + *MATERIAL + PUMP + HEAT EXCHANGER + REACTOR COOLANT + SODIUM + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + *QUALITY ASSURANCE + EQUIPMENT, GENERAL

18-32811

MAIN SODIUM PIPING, PUMPS, AND HEAT EXCHANGERS
GENERAL ELECTRIC

50231-12 +. 150 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 15, MARCH 11, 1968, DOCKET 50-231

COMPLEMENTS INFORMATION IN SECT. 5.2 OF PSAR, AND INCLUDES DESCRIPTIONS, DESIGN CRITERIA, AND TYPICAL CALCULATIONS. ALL MATERIAL IN CONTACT WITH NA OR NA VAPOR IS 304 STAINLESS STEEL OR EQUIVALENT.

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

*MAIN COOLING SYSTEM + REACTOR COOLANT + *SODIUM + PIPING + PUMP + HEAT EXCHANGER + MATERIAL + *SYSTEM DESCRIPTION + STRESS ANALYSIS + STEEL, STAINLESS + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32813

ALSO IN CATEGORIES 12 AND 15
PRIMARY SHIELD DESIGN AND EVALUATION
GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-8 +. 50 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 8, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CORE AND REFLECTOR SHIELD USED TO ATTENUATE RADIATION TO LEVEL WHERE CONCRETE CAN BE USED WITHOUT DAMAGE. SHIELD MATERIALS ARE STEEL, BORON CARBIDE, AND SERPENTINE. TOPICS INCLUDE FABRICATION, INSTALLATION, FIGURES, AND APPENDIX A CONTAINS TEMP.-DISTRIBUTION CALCULATIONS.

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

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + STEEL + *SYSTEM DESCRIPTION + *SYSTEM CAPABILITY + THERMAL MECHANICAL EFFECT + *RADIATION DAMAGE + CONCRETE + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32814

ALSO IN CATEGORIES 12 AND 15
SHIELDING NUCLEAR DESIGN CALCULATIONS
GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-9 +. 175 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 9, FEBRUARY 1968, DOCKET 50-231

DESCRIBES CALCULATIONS OF NEUTRON AND GAMMA SOURCES AND ATTENUATION. DOSE RATES DURING AND AFTER OPERATION WERE CALCULATED TO SPECIFY SHIELD THICKNESSES AND COMPOSITIONS. ENERGY ABSORPTION RATES WERE CALCULATED TO PROVIDE COOLING REQUIREMENTS. DESCRIPTION OF SHIELD INCLUDED. A MORE DETAILED DESCRIPTION IS GIVEN IN SUPPLEMENT 8.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *SHIELDING + SOURCE, RADIATION + *MATHEMATICAL STUDY + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION + RADIATION SAFETY AND CONTROL + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32815 ALSO IN CATEGORY 5
CORE DESIGN AND ANALYSIS
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-10 +. 175 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 10, FEB. 29, 1968, DOCKET 50-231

CONTAINS DETAILED DESCRIPTION OF MECHANICAL DESIGN AND ANALYSIS OF CORE. EXPANDED VERSION OF INFORMATION IN SECT. IV OF PSAR. THE MECHANICAL ANALYSIS IS DESCRIBED IN SECTION I, DESIGN IN SECTION II. SECTION III CONTAINS ADDITIONAL PHYSICS INFORMATION WHICH SUPPLEMENTS PSAR. A SUMMARY OF CODES USED IN DESIGN OF CORE IS INCLUDED. SUMMARIES OF THE MORE SIGNIFICANT RESULTS OF R AND D EFFORT HAVE EITHER BEEN TRANSMITTED AS SEPARATE SUPPLEMENTS (SUPPLEMENTS 1, 3, AND 4), ARE SUMMARIZED IN APPENDIX OF THIS SUPPLEMENT OR ARE REFERRED TO.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE).

*THERMAL ANALYSIS + *HYDRAULIC ANALYSIS + *HEAT TRANSFER ANALYSIS + *FUEL ELEMENT + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

18-32816 ALSO IN CATEGORY 11
CONTAINMENT DESIGN
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-7 +. 14 PAGES, SEFOR, PSAR, SUPPLEMENT 7, FEB. 14, 1968, DOCKET 50-231

A CONDENSATION OF THE MATERIAL IN THE PSAR SECTION VII OR CONTAINMENT DESIGN FOR THE PURPOSE OF CLARITY BY ELIMINATING REPETITION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *CONTAINMENT DESIGN + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR

18-32817 ALSO IN CATEGORY 2
ADDITIONAL INFORMATION ON SEISMIC DESIGN
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-6 +. 6 PAGES, 1 FIGURE, 2 TABLES, SEFOR, PSAR, SUPPLEMENT 6, FEB. 14, 1968, DOCKET 50-231

RESULTS OF DYNAMIC AND STATIC SEISMIC ANALYSIS GIVEN. TABLE LISTS LOADING OF ALL MAJOR EQUIPMENT (PUMPS, CRANES, TANK, AND HEAT EXCHANGERS). RESULTS FOR 109-FT STACK ARE - PERIOD 0.71 SEC, MAX. DISPLACEMENT 1.82 IN., AND MAX. MOMENT 31.8 FT. K.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + *STRUCTURAL ANALYSIS, DYNAMIC + *EARTHQUAKE ENGINEERING + *STRESS ANALYSIS + INTERACTION, SOIL AND STRUCTURE + *STACK + REACTOR, LMCR + REACTOR, PULSED + REACTOR, FAST + *EQUIPMENT, GENERAL

18-32818
FUEL QUALITY CONTROL AND INSPECTION
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-5 +. 50 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 5, JAN. 18, 1968, DOCKET 50-231

CONTAINS CORE-1 FUEL SPECIFICATIONS. DESCRIBES FUEL INSPECTION AND QC REQUIREMENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + PLUTONIUM + NITRATE + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + *CODES AND STANDARDS + *DESIGN CRITERIA + *QUALITY ASSURANCE + FUEL, LIQUID METAL

18-32819 ALSO IN CATEGORIES 5 AND 17
FLUID FLOW AND VIBRATION TESTS ON 1/2 SCALE VESSEL MODEL
GENERAL ELECTRIC CO., SAN JOSE, CALIF.
50231-4 +. 60 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 4, DEC. 5, 1967, DOCKET 50-231

WATER, AT TEMPERATURES UP TO 265 F, WAS USED TO SIMULATE COOLANT CONDITIONS IN THE SODIUM-COOLED REACTOR, FLOWS WERE VARIED FROM 10 TO 100 PERCENT OF RATED REYNOLDS NUMBER IN THE REACTOR. DATA WAS OBTAINED ON RELATIVE CORE FLOW DISTRIBUTION, FLOW PATTERNS, PRESSURE LOSSES, AND VIBRATION CHARACTERISTICS OF THE CANTILEVER-MOUNTED CORE SHROUD. FLUID FLOW RESULTS PROVIDED INFORMATION NECESSARY FOR VERIFICATION OF FINAL DESIGN. VIBRATION RESULTS INDICATED NO SERIOUS EFFECTS OF AMPLITUDE OR STRESS IN THE FULL-SCALE REACTOR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

*PRESSURE VESSEL + *VIBRATION + *TEST, PRESSURE VESSEL + *TESTING + *FLOW, GENERAL + *MODEL TESTING + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + FLOW DISTRIBUTION + REACTOR COOLANT + METAL, LIQUID + SODIUM + PRESSURE DROP + FLOW THEORY AND EXPERIMENTS

18-32820 ALSO IN CATEGORY 9

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32820 *CONTINUED*

SPECIFICATION AND ELEMENTARY DIAGRAMS OF REACTOR SAFETY SYSTEM

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-2 +. 75 PAGES, FIGURES, TABLES, REFERENCES, SEFOR, PSAR, SUPPLEMENT 2, DEC. 5, 1967, DOCKET 50-231

GIVES DETAILED DRAWINGS OF ELECTRICAL MAKEUP OF SAFETY SYSTEM. SYSTEM IS DESCRIBED,
SPECIFICATIONS AND QUALITY ASSURANCE ARE GIVEN.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

*REACTOR SAFETY SYSTEM + *DESIGN CRITERIA + SYSTEM DESCRIPTION + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR +
REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED

18-32821 ALSO IN CATEGORY 6

MOCKUP EXPERIMENTS IN ZPR-3

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-1 +. 40 PAGES, FIGURES, TABLES, 24 REFERENCES, SEFOR, PSAR, SUPPLEMENT 1, DEC. 5, 1967, DOCKET 50-231

ANALYSES OF A SERIES OF CRITICAL EXPERIMENTS AND APPLICATION OF RESULTS TO THE SEFOR DESIGN ARE
DISCUSSED. CRITICAL-MASS VALUES WERE DETERMINED FOR 1-, 2-, AND 3-SEGMENT FUEL DESIGNS TO HELP
ESTABLISH THE PLUTONIUM ATOM FRACTION. REACTIVITY EFFECTS OF AXIAL FUEL EXPANSION WERE MEASURED
WHICH LED TO SELECTION OF THE 2-SEGMENT DESIGN FOR SEFOR. MEASUREMENTS OF THE REACTIVITY WORTH
OF THE RADIAL REFLECTOR ESTABLISHED THE ADEQUACY OF THE REFLECTOR CONTROL SYSTEM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

*MOCKUP + *CRITICALITY EXPERIMENT + REACTOR PHYSICS + CRITICAL MASS + REACTIVITY COEFFICIENT + MEASUREMENT,
REACTIVITY + DOPPLER COEFFICIENT + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + REACTOR, FAST + REACTOR,
PULSED + REACTOR, LMCR

18-32877

RESPONSES TO AEC QUESTIONS

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231-20 +. 56 PAGES, 11 FIGURES, 3 TABLES, SEFOR, PSAR, SUPPLEMENT 18, AUG. 6, 1968, DOCKET 50-231

CONTAINS RESPONSES TO 19 QUESTIONS CONCERNING PIPE BREAK, TORNADO, SPENT FUEL STORAGE TANK PLUG
DROP, FASTENERS, PREOPERATIONAL CHECKS, ETC.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H. ST., WASH., D. C., 20545, \$0.25 CENTS/PAGE

AEC QUESTION + REPORT, PSAR + SEFOR (RE) + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, FAST + REACTOR, PULSED

18-32903 ALSO IN CATEGORIES 5 AND 12

SIMULTANEOUS FAILURES - LOCA AND SAFEGUARD

GENERAL ELECTRIC CO., SAN JOSE, CALIF.

50231 +. 7 PAGES, 1 FIGURE, SEFOR, PSAR, SUPPLEMENT 23, FEB. 20, 1969, DOCKET 50-231.

DESCRIBES MODIFICATIONS MADE TO MITIGATE CONSEQUENCES OF TWO SIMULTANEOUS FAILURES, I.E., A
FAILURE IN THE PRIMARY COOLANT SYSTEM FOLLOWED BY A FAILURE OF ONE OF THE SYSTEMS OR COMPONENTS
(ENGINEERED SAFEGUARDS FEATURES). GIVES SUMMARY OF PROTECTION AND INHERENT DESIGN FEATURES OF
THESE SAFEGUARDS THAT ASSURE OPERABILITY IN THE ENVIRONMENT IN WHICH THEY ARE REQUIRED TO OPERATE
FOLLOWING A PRIMARY SYSTEM FAILURE.

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

SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, LOSS OF COOLANT + *ENGINEERED SAFETY FEATURE +
*FAILURE, SIMULTANEOUS + *MODIFICATION, SYSTEM OR EQUIPMENT + *SYSTEM OPERABILITY IN ACCIDENT + REACTOR, FAST
+ REACTOR, PULSED + REACTOR, LMCR

18-32904 ALSO IN CATEGORIES 5 AND 12

RESPONSE TO AEC QUESTION

GENERAL ELECTRIC

50231-26 +. 7 PAGES, SEFOR, PSAR, SUPPLEMENT 22, JANUARY 24, 1969, DOCKET 50-231

SUPPLEMENTARY INFORMATION GIVEN TO PREVIOUSLY ANSWERED QUESTIONS CONCERNING THE CONSEQUENCES OF
COOLANT SYSTEM LEAKS AND RESULTING SYSTEM CHARACTERISTICS (SEE COMMENTS 1 IN SUPPLEMENT 18 AND
PAGE 53 OF SUPPLEMENT 19), SPECIFIC TOPICS AND SMALL LEAKS IN MAIN COOLANT SYSTEM, AND
EVALUATION OF EQUIPMENT NEEDED TO RECOVER FROM A GUILLOTINE PIPE FAILURE.

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

AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT,
CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR,
PULSED + AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + *ACCIDENT, LOSS OF COOLANT + *ACCIDENT,
CONSEQUENCES + *INCIDENT, RECOVERY FROM + *EQUIPMENT, GENERAL + REACTOR, FAST + REACTOR, LMCR + REACTOR,
PULSED

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32907 ALSO IN CATEGORIES 1 AND 15
AEC QUESTIONS - 7 TOPICS
GENERAL ELECTRIC COMPANY
50231-21 +. 17 PAGES, 5 FIGURES, SEFOR, PSAR, SUPPLEMENT 20, SEPT. 1968, DOCKET 50-231

RESPONSES TO 7 QUESTIONS CONCERNING EMERGENCY TREATMENT OF INJURED PERSONNEL BOTH ON AND OFF SITE.

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

AEC QUESTION + REPORT, PSAR + REACTOR, LMFBR + EMERGENCY PROCEDURE + PERSONNEL EXPOSURE, RADIATION + OFF SITE
+ RADIOLOGICAL ASSISTANCE + SEFOR (RE) + RADIATION INJURY TREATMENT + RADIATION PROTECTION, ORGANIZATION

18-32915 ALSO IN CATEGORIES 2 AND 16
AEC QUESTIONS - 11 TOPICS
GENERAL ELECTRIC
50231-21 +. 150 PAGES, 25 FIGURES, TABLES, SEFOR, PSAR, SUPPLEMENT 19, OCTOBER 1968, DOCKET 50-231

SEVENTY-THREE PAGES DEVOTED TO RESPONSES TO 11 AEC QUESTIONS ON CONTROL SYSTEM MODIFICATION, AUXILIARY POWER, REFUELING ACCIDENT, THE EXCURSION DEVICE (FRED) LEAKS, TRANSIENT TEST LOADS, NOZZLE FAILURE, FUEL-ROD PIN-HOLE LEAKS, SURVEILLANCE PROGRAM, THERMAL INSULATION, AND EFFECT OF SODIUM IN THE CORE DURING MHA. APPENDIX (43 PAGES) CONSISTS OF SITE METEOROLOGICAL DATA.

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

*AEC QUESTION + SEFOR (RE) + REACTOR, LMFBR + REPORT, PSAR + ACCIDENT, REFUELING + REACTOR DYNAMICS + CONTROL SYSTEM + EMERGENCY POWER, ELECTRIC + REACTOR, FAST + REACTOR, PULSED + REACTOR, LMCR + MAIN COOLING SYSTEM + LEAK + CONTAINMENT VESSEL LOADING + FAILURE, EQUIPMENT + NOZZLE + THERMAL INSULATION + SURVEILLANCE PROGRAM + SITE CLIMATOLOGY + ACCIDENT, HYPOTHETICAL

18-32939 ALSO IN CATEGORY 17
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JUNE 1967
ARGONNE NATIONAL LABORATORY
ANL-7349 +. 140 PAGES, 24 FIGURES, TABLES, JUNE 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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

*R AND D PROGRAM + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM + *ANL + FFTF (TR) + REACTOR, SAFETY RESEARCH + *R AND D PROGRAM

18-32940 ALSO IN CATEGORY 17
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, DECEMBER 1967
ARGONNE NATIONAL LABORATORY
ANL-7403 +. 168 PAGES, FIGURES, TABLES, JANUARY 31, 1968

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT, FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151, \$3.00
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*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM

18-32941 ALSO IN CATEGORY 17
ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, SEPTEMBER 1967
ARGONNE NATIONAL LABORATORY
ANL-7382 +. 155 PAGES, FIGURES, TABLES, SEPTEMBER 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32941 *CONTINUED*

ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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18-32942 ALSO IN CATEGORY 17

ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, AUGUST 1967

ARGONNE NATIONAL LABORATORY

ANL-7371 +. 126 PAGES, 25 FIGURES, TABLES, AUGUST 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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18-32943 ALSO IN CATEGORY 17

ANL - REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JULY 1967

ARGONNE NATIONAL LABORATORY

ANL-7357 +. 148 PAGES, 27 FIGURES, TABLES, JULY 1967

SECTION TITLES - PLUTONIUM UTILIZATION, EBWR, LIQUID-METAL FAST-BREEDER REACTORS, GENERAL REACTOR TECHNOLOGY, ADVANCED SYSTEMS RESEARCH AND DEVELOPMENT, AND NUCLEAR SAFETY. SEARCH FOR LOCATION OF FISSION-GAS RELEASE IN EBR-2 CONTINUES. LMFBR TOPICS INCLUDE EBR-2 OPERATION, PHYSICS, COMPONENT AND FUEL DEVELOPMENT, PROGRESS ON FFTF. NUCLEAR SAFETY TOPICS INCLUDE ACCIDENT ANALYSIS, COOLANT DYNAMICS, FUEL MELTDOWN STUDIES WITH TREAT, TREAT OPERATIONS, CONTAINMENT BY ENERGY ABSORPTION, AND PLUTONIUM VOLATILITY STUDIES.

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*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + FISSION GAS RELEASE + REACTOR, FAST + REACTOR, LMCR + REACTOR, TEST + REACTOR, PULSED + REACTOR, SAFETY RESEARCH + FFTF (TR) + REACTOR COOLANT + HYDRODYNAMIC ANALYSIS + FUEL MELTDOWN + TREAT (PRR) + CONTAINMENT, GENERAL + PLUTONIUM

18-32945 ALSO IN CATEGORY 17

ARGONNE NATIONAL LABORATORY. REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JANUARY 1968

ARGONNE NATIONAL LABORATORY

ANL-7419 +. 158 PAGES, FIGURES, TABLES, JANUARY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS, AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY. NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS

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18-32946 ALSO IN CATEGORY 17

REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, FEBRUARY 1968

ARGONNE NATIONAL LABORATORY

ANL-7427 +. 151 PAGES, FIGURES, TABLES, FEBRUARY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS, AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY. NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32947 ALSO IN CATEGORY 17
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, MARCH 1968
ARGONNE NATIONAL LABORATORY
ANL-7438 +. 135 PAGES, FIGURES, TABLES, MARCH 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

18-32949 ALSO IN CATEGORY 17
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, MAY 1968
ARGONNE NATIONAL LABORATORY
ANL-7457 +. 148 PAGES, FIGURES, TABLES, MAY 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

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TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

18-32950 ALSO IN CATEGORY 17
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, JUNE 1968
ARGONNE NATIONAL LABORATORY
ANL-7460 +. 136 PAGES, FIGURES, TABLES, JUNE 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151, \$3.00
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*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

18-32951 ALSO IN CATEGORY 17
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, SEPTEMBER 1968
ARGONNE NATIONAL LABORATORY
ANL-7500 +. 139 PAGES, FIGURES, TABLES, SEPTEMBER 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151, \$3.00
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TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

18-32952 ALSO IN CATEGORY 17
REACTOR DEVELOPMENT PROGRAM PROGRESS REPORT, OCTOBER 1968
ARGONNE NATIONAL LABORATORY
ANL-7513 +. 144 PAGES, FIGURES, TABLES, OCTOBER 1968

ONE OF A SERIES OF PROGRESS REPORTS. TOPICS - LIQUID-METAL FAST-BREEDER REACTORS, FUEL, PHYSICS,
AND COMPONENT DEVELOPMENT, EBR-2 OPERATION, GENERAL REACTOR TECHNOLOGY, AND NUCLEAR SAFETY.
NUCLEAR SAFETY SUBJECTS - REACTOR KINETICS, TREAT OPERATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA., 22151, \$3.00
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*R AND D PROGRAM + *ANL + *REACTOR, LMFBR + REPORT, OPERATIONS + TREAT (PRR) + REACTOR, RESEARCH + REACTOR,
TEST + REACTOR KINETICS + REACTOR, FAST + REACTOR, LMCR + REACTOR, PULSED + REACTOR, SAFETY RESEARCH

18-33504 ALSO IN CATEGORIES 5 AND 17

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33504 *CONTINUED*
1058 DUNGENESS B - THE BOILER CONFLICT
2 PAGES, 5 FIGURES, ENGINEERING, VOLUME 206, PAGES 392-93 (SEPTEMBER 13, 1968)

CONFLICTING REQUIREMENTS TO WITHSTAND THE GAS-INDUCED VIBRATION AND CORROSION HAVE BEEN MET IN THE DESIGN OF THE BOILER TUBE SYSTEM FOR DUNGENESS B NUCLEAR POWER STATION. A BRIEF DESCRIPTION IS GIVEN OF THE RESEARCH CARRIED OUT TO RESOLVE THE CONFLICT.

*VIBRATION + *CORROSION + *SUPPORT STRUCTURE + *HEAT EXCHANGER + DUNGENESS B (GCR) + REACTOR, GCR + UNITED KINGDOM + MAINTENANCE AND REPAIR + *MODIFICATION, SYSTEM OR EQUIPMENT + FLOW THEORY AND EXPERIMENTS

18-33505 ALSO IN CATEGORY 17
TRAUBE K + KORNBLICHER S
DESIGN FEATURES OF KWL
AEG-TELEFUNKEN, FRANKFURT AM MAIN
4 PAGES, NUCLEAR ENERGY INTERNATIONAL, VOLUME 13, PAGES 930-3 (NOVEMBER 1968)

THE 240 MW(E) BWR PLANT WITH OIL-FIRED SUPERHEATER IS DESCRIBED. DETAILS ARE GIVEN OF THE PRINCIPAL INNOVATIONS, WHICH INCLUDE AN INTERNAL CYCLONE STEAM SEPARATOR, CONTINUOUSLY ADJUSTABLE CONTROL ROD DRIVES, AND IN-CORE NEUTRON SENSITIVE THERMOCOUPLES. A CHRONOLOGICAL LIST OF THE PRINCIPAL EVENTS DURING FABRICATION OF THE REACTOR IS GIVEN, CHRONOLOGICAL LIST OF THE PRINCIPAL EVENTS DURING FABRICATION OF THE REACTOR IS GIVEN, AND THE EXPERIENCE GAINED DURING START UP IS SUMMARIZED.

REACTOR, POWER + REACTOR, BWR + *REACTOR STARTUP EXPERIENCE + *GERMANY + REACTOR DESCRIPTION

18-33508
GAWANDE H
THE STADE NUCLEAR POWER STATION - LAYOUT INSTALLATION ENGINEERING
NORDWESTDEUTSCHE KRAFTWERKE AKTIENGESellschaft, HAMBURG
9 PAGES, ATOM UND STROM, VOLUME 14, PAGES 93-101 (JULY-AUGUST 1968) (IN GERMAN)

THE LAYOUT OF THE STADE 660 MW NUCLEAR POWER STATION IS DESCRIBED. THE PRIMARY INSTALLATION FOR THE PRESSURE-WATER REACTOR, THE SECONDARY INSTALLATIONS, THE MEASURING, SUPERVISION AND CONTROL ARRANGEMENTS AS WELL AS THE REGULATION BEHAVIOR OF THE REACTOR ARE DESCRIBED. FINALLY, A REVIEW IS GIVEN ON CONSTRUCTION ENGINEERING AND ON THE ELECTRICAL INSTALLATIONS.

*CONTAINMENT CONSTRUCTION + *REACTOR DESCRIPTION + REACTOR, PWR + *GERMANY

18-33509 ALSO IN CATEGORY 17
STRAUSS SD
BROWNS FERRY NUCLEAR PLANT MOVES AHEAD
2 PAGES, POWER, VOLUME 112, PAGES 82-3 (NOVEMBER 1968)

DESCRIBES CONSTRUCTION PROGRESS ON THE BROWNS FERRY POWER REACTOR.

*CONTAINMENT CONSTRUCTION + LICENSE STATUS + BROWNS FERRY (BWR) + REACTOR, BWR

18-33513 ALSO IN CATEGORY 11
COSTES D
RECOMMENDATIONS FOR THE DESIGN AND CALCULATION OF REACTOR VESSELS WITH A VIEW TOWARDS NUCLEAR SAFETY
COMMISSARIAT A L ENERGIE ATOMIQUE, SURETE DES PILES, FRANCE
15 PAGES, BULLETIN INFORMATION A.T.E.N. (ASS. TECH. ENERG. NUCL), NO. 72, PAGES 10-14 (JULY-AUGUST 1968)

LISTS THE FOUR CLASSES OF PRESTRESSED CONCRETES WHICH ARE USED FOR REACTOR CONSTRUCTION. PROTECTION OF PRESTRESSING TENDONS FROM CORROSION IS DISCUSSED. GENERAL SAFETY FEATURES OF NUCLEAR VESSELS ARE OUTLINED. PROBLEMS ASSOCIATED WITH USE OF CONCRETES ARE DESCRIBED. A LIST OF PROBLEMS ASSOCIATED WITH THE PROTECTION OF THE PRESTRESSING TENDONS IS GIVEN. CONTAINMENT AND CIRCUIT INTEGRATION PROBLEMS ARE DISCUSSED.

*CONTAINMENT DESIGN + *CONCRETE, PRESTRESSED + CONTAINMENT CONSTRUCTION + *FASTENER + *CONTAINMENT CORROSION PROTECTION + FRANCE

18-33514 ALSO IN CATEGORY 11
HAMADA K + HAYASHI T
STRESS ANALYSIS FOR DRYWELL OF REACTOR, PRIMARY CONTAINMENT VESSEL
HITACHI LTD., TOKYO
5 PAGES, HITACHI HYDRO, 50(6), PAGES 13-17 (JUNE 1968)

GIVES A PROCEDURE WHEREBY THE BASIC DIFFERENTIAL EQUATIONS ARE SOLVED BY AN ELECTRONIC COMPUTER, AND THE RESULTS ARE DESCRIBED

*STRESS ANALYSIS + *CONTAINMENT VESSEL LOADING + *CONTAINMENT, PRESSURE SUPPRESSION + *ANALYTICAL TECHNIQUE, GENERAL + COMPUTER PROGRAM + JAPAN + CONTAINMENT DESIGN

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33515

KYOS MW + ADKINS CR + MURLEY TE.

AN EXAMINATION OF METHODS FOR CALCULATING THE DOPPLER COEFFICIENT IN FAST BREEDER REACTORS

WESTINGHOUSE ELECTRIC CORPORATION, MADISON, PENNSYLVANIA

NBS-SPEC.-UBL.-299 (VOL. 1) + CNF-680307-(VOL. 1) +. 8 PAGES, PAGES 337-44 OF NEUTRON CROSS SECTIONS AND TECHNOLOGY, NATIONAL BUREAU OF STANDARDS, 1968

THE UNRESOLVED RESONANCE REGION IS TREATED RIGOROUSLY THROUGH THE GENERATION OF INDIVIDUAL PSEUDO RESONANCES USING RANDOM SAMPLING TECHNIQUES WITHIN THE FRAMEWORK OF A SINGLE LEVEL BREIT-WIGNER FORMALISM. A PROCEDURE IS USED WHICH ENSURES THAT PARAMETERS YIELD RESONANCE INTEGRALS CONSISTENT WITH BRAD GROUP MEASURED DATA. THE RESONANCE STRUCTURE OF EACH ISOTOPE IS THEN COMPLETE OVER THE ENERGY RANGE OF INTEREST FOR DOPPLER CALCULATIONS. THIS RESONANCE DATA IS USED IN CONJUNCTION WITH AN ULTRAFINE GROUP INTEGRAL TRANSPORT THEORY CODE. THE VALIDITY OF THE USUAL APPROXIMATE METHODS IS EXAMINED BY COMPARING WITH THIS MORE REFINED METHOD OF CALCULATION. A NUMERICAL COMPARISON IS MADE FOR A PLUTONIUM-URANIUM CARBIDE-FUELED, SODIUM-COOLED FAST BREEDER REACTOR.

*REACTOR PHYSICS + *DOPPLER COEFFICIENT + NEUTRON INTERACTION + RESONANCE OVERLAP + REACTOR, LMFBR + R AND D PROGRAM

18-33519

CONSTRUCTION COMPLETION DATE

USAEC DIVISION OF REACTOR LICENSING

2 PAGES, LETTER - DRL TO ROCHESTER GAS AND ELECTRIC CO. - MAY 13, 1969, DOCKET 50-244, TYPE--WPR, MFG--WEST., AE--GILBERT ASSOC.

COMPLETION DATE EXTENDED FROM JUNE 1 TO NOV. 1, 1969.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

CONSTRUCTION PERMIT PROCESS + LICENSE STATUS + GINNA (PWR) + REACTOR, PWR

18-33538

ALSO IN CATEGORY 1

ORGANIZATIONAL CHANGES

JERSEY CENTRAL POWER AND LIGHT CO. + METROPOLITAN EDISON CO.

30 PAGES, FIGURES, TABLES, AMENDMENT 9 TO THREE MILE ISLAND LICENSE APPLICATION, MAY 2, 1969, DOCKET 50-320, TYPE--PWR, MFG--B+W, AE--BURNS + ROE

SUBMITS ORGANIZATIONAL CHANGES TO REFLECT FULL RESPONSIBILITY FOR ENGINEERING, DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE (NOW WITH METROPOLITAN EDISON CO). INFORMATION IS IN THE FORM OF REVISED PAGES FOR PSAR.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545, (\$0.25 CENTS/PAGE)

*STAFFING + THREE MILE ISLAND 2 (PWR) + REACTOR, PWR + REPORT, PSAR

18-33542

ALSO IN CATEGORIES 5 AND 14

KATO WY + RUSCH GK + DATES LR + TILL CE + VAN DOORNINCK J + CHEEVER CL

FINAL SAFETY ANALYSIS REPORT ON THE USE OF PLUTONIUM IN ZPR-6 AND -9

ARGONNE NATIONAL LAB.

ANL-7442 +. 303 PAGES, FIGURES, TABLES, REFERENCES, JULY 1, 1968

THE ZPR-6 AND -9 ARE SPLIT-TABLE CRITICAL FACILITIES USED FOR STUDY OF FAST-REACTOR PHYSICS SINCE JULY 1963. MODIFICATIONS WERE MADE SO THAT PLUTONIUM MAY BE USED AS FUEL TO PROVIDE EXPERIMENTAL PHYSICS DATA FOR THE LMFBR PROGRAM. THE DESIGN-BASIS ACCIDENT RESULTS IN MELTING AND BURNING 60 KG OF PU AND VAPORIZATION OF 22 KG OF SODIUM. OFF-SITE DOSE FROM NOBLE GASES AND RADIOIODINE ARE - 190 REMS AT 225 METERS AND 13 REMS AT 1500 METERS.

*REPORT, SAR + ZPR 6 (CAF) + ZPR 9 (CAF) + *CRITICAL ASSEMBLY FACILITY + R AND D PROGRAM + REACTOR, LMFBR + *ACCIDENT ANALYSIS + HAZARDS ANALYSIS + *PLUTONIUM

18-33586

ALSO IN CATEGORY 11

VOLUME 5 - APPENDICES

DETROIT EDISON COMPANY

40 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS APPENDIXES TITLED PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS, OUTLINE OF PROPOSED TECHNICAL SPECIFICATIONS, LOADING CRITERIA, PROGRAM FOR QUALITY ASSURANCE, STACK-RELEASE-LIMIT CALCULATIONS, AND CONFORMANCE TO AEC GENERAL DESIGN CRITERIA.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*REPORT, PSAR + REACTOR, BWR + REACTOR DESCRIPTION + *CONTAINMENT INTEGRITY + FUEL MANAGEMENT + ULTRASONICS + FISSION PRODUCT RELEASE, GENERAL + AEC DESIGN CRITERIA + PRESSURE, INTERNAL

18-33751

ALSO IN CATEGORIES 2 AND 12

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33751 *CONTINUED*

MODIFICATIONS AND SAFETY EVALUATION OF EMERGENCY CORE COOLING SYSTEM

JERSEY CENTRAL POWER AND LIGHT COMPANY, MORRISTOWN, N.J.

75 PAGES, FIGURES, TABLES, AMENDMENT 8 TO OYSTER CREEK 1 LICENSE APPLICATION, AUG. 22, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 20-PAGE REPORT ON SMALL-BREAK-REGION CLAD TEMPS. AND FUEL-ROD PERFORATION SHOWING THAT PERCENTAGE OF RODS PERFORATED INDICATES CORE ADEQUATELY PROTECTED. OTHER ITEMS DISCUSSED - ELECTROMAGNETIC RELIEF VALVES, ON-SITE AC-DC POWER, INITIATION OF BOTH CORE SPRAYS, CLOSURE OF ISOLATION VALVES, ACTUATION OF ECCS, POST-ACCIDENT CONDITIONS, AND IN-SERVICE INSPECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

OYSTER CREEK 1 (BWR) + REACTOR, BWR + *ENGINEERED SAFETY FEATURE + *MODIFICATION, SYSTEM OR EQUIPMENT + *SAFETY EVALUATION + EMERGENCY COOLING CONSIDERATIONS + ELECTRIC POWER, GENERAL + FAILURE, FUEL ELEMENT + CONTAINMENT ISOLATION + ACCIDENT, CONSEQUENCES + SURVEILLANCE PROGRAM + EXAMINATION

18-33754 ALSO IN CATEGORY 11

GUIDE FOR THE QUALITY ASSURANCE PROGRAMS FOR THE CONSTRUCTION OF NUCLEAR GENERATING UNITS

COMMONWEALTH EDISON COMPANY

21 PAGES, AUG. 30, 1968, DOCKET 50-295/304, TYPE--WPR, MFG--WEST., AE--SGT + LUNDY

DEFINES THE OVERALL PROGRAM OBJECTIVES, DESCRIBES ACTIVITIES OF PROGRAM, IDENTIFIES RESPONSIBILITIES, DESCRIBES ROLE OF CONSULTING SPECIALISTS, AND OUTLINES PROCEDURES.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

ZION 2 (PWR) + REACTOR, PWR + *QUALITY ASSURANCE + *GUIDE + *CONTAINMENT DESIGN + ADMINISTRATIVE CONTROL + DESIGN CRITERIA + ZION 1 (PWR)

18-33757 ALSO IN CATEGORIES 2 AND 16

REVISIONS TO PSAR

GULF GENERAL ATOMIC

160 PAGES, FIGURES, TABLES, AMEND. 3 TO FT. ST. VRAIN LICENSE APPLICATION, 1967, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS REVISED PAGES FOR PSAR TO REFLECT PROGRESS IN THE PLANT DESIGN. MAJOR REVISION IS THE METEOROLOGICAL REPORT ON THE SITE CLIMATOLOGY AND ATMOSPHERIC CONDITIONS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (25 CENTS/PAGE)

REPORT, PSAR + FT. ST. VRAIN (HTGR) + REACTOR, HTGR + *SITE CLIMATOLOGY + SITING, REACTOR + *METEOROLOGY + REACTOR, GRAPHITE MODERATED

18-33796

VOLUME 4 - SYSTEM DESCRIPTIONS AND SAFETY ANALYSIS

DETROIT EDISON COMPANY

75 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS SECTIONS TITLED ELECTRICAL POWER, RADIOACTIVE WASTE, AUXILIARY, POWER CONVERSION, STATION STRUCTURES AND SHIELDING, CONDUCT OF OPERATIONS, AND PLANT SAFETY ANALYSIS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *REACTOR DESCRIPTION + *SAFETY ANALYSIS + *HAZARDS ANALYSIS + SYSTEM DESCRIPTION + ELECTRIC POWER, GENERAL + WASTE DISPOSAL, GENERAL + SHIELDING + AUXILIARY COOLING SYSTEM + FERMI 2 (BWR)

18-33814 ALSO IN CATEGORY 9

VOLUME 3 - DESCRIPTION - INSTRUMENTATION AND CONTROL

DETROIT EDISON COMPANY

50 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

DESCRIBES THE I AND C SYSTEM. SAFETY OBJECTIVE, SAFETY DESIGN BASIS, AND DESCRIPTION GIVEN FOR EACH OF THE SYSTEMS, WHICH INCLUDE REACTOR PROTECTION CONTAINMENT AND VESSEL ISOLATION CONTROL, CORE STANDBY COOLING SYSTEMS, NEUTRON MONITORING, REFUELING INTERLOCKS, REACTOR MANUAL CONTROL, VESSEL INSTRUMENTATION, FLOW CONTROL, AND PROCESS MONITOR. NUCLEAR SYSTEM STABILITY ANALYSIS IS DESCRIBED.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *REACTOR DESCRIPTION + *SYSTEM DESCRIPTION + *INSTRUMENT, CONTROL + REACTOR SAFETY SYSTEM + INSTRUMENT, PROTECTIVE + SAFETY PRINCIPLES AND PHILOSOPHY + FERMI 2 (BWR)

18-33919 ALSO IN CATEGORIES 1 AND 4

BLAKE VE

AEROSPACE NUCLEAR SAFETY

SANDIA LABS., ALBUQUERQUE, NEW MEXICO

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33919 *CONTINUED*
5 PAGES, 5 FIGURES, PP. 107-111 OF NUCLEONICS IN AEROSPACE, PLENUM PRESS, NEW YORK, 1968

SUMMARIZES SPACE POWER ORGANIZATION, GUIDE (SAFETY DOCUMENTATION REQUIREMENTS FOR SPACE NUCLEAR POWER SYSTEMS), AND USES AN ISOTOPIC POWER GENERATOR HAZARDS FLOW CHART TO DEMONSTRATE PROBABILITY METHOD OF CALCULATING EXPOSURE

*REPORT, SAR + *SAFETY ANALYSIS + REACTOR, SPACE + FAULT TREE ANALYSIS + *PROBABILITY + SNAP, GENERAL (SR) + ISOTOPIC GENERATOR + GUIDE

18-33920 ALSO IN CATEGORIES 4 AND 16
PARKER AJ + WEST WS + PYATT DW
AN AEROSPACE NUCLEAR SAFETY ANALYSIS OF A PM203 RADIOISOTOPIC THRUSTER
HITTMAN ASSOCIATES, INC. + GODDARD SPACE FLIGHT CENTER
18 PAGES, 19 FIGURES, 4 TABLES, 5 REFERENCES, PAGES 112-129 OF NUCLEONICS IN AEROSPACE, NEW YORK, PLENUM PRESS, 1968

OUTLINES ANALYSIS METHODS (QUITE IN DETAIL) WHICH GIVE PROBABILITY VALUES FOR VARIOUS KINDS OF DOSES WHICH MIGHT RESULT FROM AN ABORT OR REENTERING ROCKET. HEAT SHIELD WILL MAKE REENTRY INTACT POSSIBLE.

PROBABILITY + *HAZARDS ANALYSIS + SNAP, GENERAL (SR) + SHIELDING + *PRCMETHIUM + ISOTOPIC GENERATOR

18-33921 ALSO IN CATEGORY 4
ANNON GH + FASTON CR
POPULATION EXPOSURE RISK FROM RANDOM RE-ENTRY OF ISOTOPIC POWER DEVICES
DOUGLAS AIRCRAFT CO., SANTA MONICA, CALIFORNIA
8 PAGES, 4 FIGURES, 6 TABLES, 13 REFERENCES, PAGES 130-137 OF NUCLEONICS IN AEROSPACE, NEW YORK, PLENUM PRESS, 1968

PROBABILITY TECHNIQUES USED TO ESTIMATE LUNG DOSE (104 TO 350 PEOPLE WOULD RECEIVE GREATER THAN 15 REMS WITH PROBABILITIES OF 0.00015 TO 0.00026) BASED ON A 1-CURIE RELEASE OF PU-238 OR 30 CURIES OF SR-90, WITH RANDOM REENTRY FROM AN EARTH ORBIT.

*POPULATION EXPOSURE + PLUTONIUM + STRONTIUM + ISOTOPIC GENERATOR + *HAZARDS ANALYSIS + PROBABILITY + SNAP, GENERAL (SR)

18-33932 ALSO IN CATEGORY 1
MEUSER MH + PERRY JA
FABRICATION, CONSTRUCTION, AND INSTALLATION QUALITY ASSURANCE REQUIREMENTS FOR THE FFTF
BATTELLE-NORTHWEST, RICHLAND, WASH.
BNWL-511 +. 56 PAGES, MARCH 15, 1968

STATES GENERAL REQUIREMENTS FOR QUALITY ASSURANCE FOR PACIFIC NORTHWEST LABORATORY (PNL) CONTRACTORS INVOLVED IN PROCUREMENT, FABRICATION, CONSTRUCTION, INSTALLATION, OR TESTING EFFORT FOR THE FFTF PROJECT. THE SECTION 1.0, INTRODUCTION, THROUGH SECTION 14.0, PROGRAM DOCUMENTATION, ARE AEC/PNL BASELINES. A GLOSSARY DEFINING TERMS IS INCLUDED AS APPENDIX A.

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

FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *FABRICATION + *CONTAINMENT CONSTRUCTION + REACTOR, FAST + REACTOR, LMCN + QUALITY ASSURANCE

18-33933
FERMI 2 CONSTRUCTION PERMIT APPLICATION
USAEC DIVISION OF REACTOR LICENSING
2 PAGES, LETTER - DRL TO DETROIT EDISON CO. - MAY 21, 1969, DOCKET 50-341

ACKNOWLEDGES RECEIPT OF APPLICATION FOR CONSTRUCTION PERMIT FOR FERMI 2, BWR TO BE LOCATED ON WESTERN SHORE OF LAKE ERIE IN FRENCHTOWN TOWNSHIP, MONROE COUNTY, MICHIGAN, 30 MILES SW OF DETROIT. POWER IS TO BE 3293 MWT AND 1157 MWE.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

APPLICATION FOR AEC LICENSE + CONSTRUCTION PERMIT PROCESS + REACTOR, BWR

18-33934
SHIBATA H
ASEISMIC DESIGN OF NUCLEAR POWER PLANTS. DEVELOPMENTS OF THESE TEN YEARS
TOKYO UNIVERSITY, JAPAN
21 PAGES, SEISAN-KENKYU, 20(8), PAGES 6-16 (AUGUST 1968) (IN JAPANESE)

VARIOUS ASPECTS AND PROBLEMS IN THE ASEISMIC DESIGN OF NUCLEAR POWER STATIONS ARE DESCRIBED CHRONOLOGICALLY FOR THE PAST TEN YEARS IN RELATION WITH STUDIES IN THE TOKYO UNIV. (THE PRESENT STATE OF ASEISMIC DESIGN OF NUCLEAR POWER STATIONS, AND THE COURSE OF STUDIES ON THE ASEISMIC DESIGN OF STRUCTURES, MACHINERY, DUCTS, AND PIPES.)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33934 *CONTINUED*

*EARTHQUAKE + *CONTAINMENT DESIGN + *DESIGN CRITERIA + *REACTOR, POWER + *JAPAN + *REVIEW

18-33546

TAUBE M + KOWALEW A + POTURAJ-GUTNIAK S + MIELCARSKI M

CONCEPT OF THE SAMA AND WARS BOILING SALT REACTORS

ORNL-TR-1855 +. 7 PAGES, TRANSLATED FROM KERNENERGIE, 10, PAGES 184-6 (1967)

IN ALL PROBABILITY THE FUTURE DEVELOPMENT OF NUCLEAR ENERGY WILL BE BASED ON FAST REACTORS. IT IS NOT IMPOSSIBLE THAT BOILING REACTORS USING SALTS AS NUCLEAR FUEL AND WITH DIRECT BOILING WILL HAVE A SPECIAL ROLE IN THAT DEVELOPMENT. THIS REPORT PRESENTS A CONCEPT FOR TWO SUCH REACTORS. THEIR CHARACTERISTICS AND SOME OF THEIR PROPERTIES ARE COMPARED MUTUALLY AS WELL AS WITH FAST REACTORS UTILIZING NON-BOILING MOLTEN SALTS AS FUEL.

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

BOILING + *DESIGN STUDY + *REACTOR, MOLTEN SALT + REACTOR, BREEDER + POLAND + REACTOR, FAST

18-33947

PLANT DESIGN DIVISION PROGRESS REPORT, JULY 1 - SEPTEMBER 30, 1968

ATOMIC ENERGY OF CANADA LTD., CHALK RIVER (ONTARIO)

PR-PD-6P +. 27 PAGES, SEPTEMBER 1968

ONE OF A SERIES. TOPICS ARE - FUEL HANDLING FOR PWRS, DEVELOPMENT STUDIES ON FRICTION AND WEAR, CREEP, VALVES AND FLOW REGULATORS, PRESSURE-TUBE SAG, NPD FUELING PROBLEM, EXPLOSIVE BRAZING, STRAIN GAGES FOR IN-REACTOR EXPERIMENTS, AND PROOF TESTS OF PRESSURE-TUBE FLANGES.

*R AND D PROGRAM + MEASUREMENT, GENERAL + MEASUREMENT, STRAIN GAGE + INSTRUMENT, IN CORE + *AECL + FUEL HANDLING + ABLATION + WELDING + FLANGE + NPD 2 (HWR) + REFUELING

18-33548

ALSO IN CATEGORY 5

AASE DT

STEAM-COOLED FAST BREEDER REACTORS

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-SA-2063 +. 25 PAGES, AUGUST 27, 1968, FROM TOPICAL MEETING ON FAST REACTORS AND THE UNIVERSITIES, TROY, N.Y.

DESCRIBES THE CONCEPTUAL DEVELOPMENT. INCENTIVES FOR STEAM COOLING ARE - SIMPLICITY POSSIBILITY OF FLOODING REACTOR WITH WATER DURING REFUELING AND MAINTENANCE OPERATIONS FOR VISIBILITY, AND USE OF WATER SPRAY SYSTEMS FOR EMERGENCY COOLING. DISCUSSES RESULTS OF A PARAMETRIC STUDY TO DETERMINE OPTIMUM CORE SIZE, SHAPE, ETC., AND DISCUSSES ELEMENTS OF BASIC NEUTRONICS, FUELS AND MATERIALS, AND THERMAL HYDRAULICS.

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

*DESIGN STUDY + REACTOR COOLANT + *STEAM + REACTOR, FAST + *REACTOR, SCBR + BATTELLE NORTHWEST + *REACTOR PHYSICS + THEORETICAL INVESTIGATION + HYDRAULIC ANALYSIS + THERMAL ANALYSIS

18-33950

ALSO IN CATEGORY 11

SMAARDYK A + DIVONA CJ + CLP RH + HUTTER E

DESIGN AND ANALYSIS OF INSTRUMENTED SUBASSEMBLY SYSTEM FOR EBR-II

ARGONNE NATIONAL LAB., ILLINOIS

ANL-7423 +. 48 PAGES, 21 FIGURES, 3 TABLES, 7 REFERENCES, JUNE 1

DESCRIBES THE RESEARCH, DESIGN, AND DEVELOPMENT WORK PERFORMED AFTER A FEASIBILITY STUDY OF INSTALLING AN INSTRUMENTED SUBASSEMBLY SYSTEM CAPABLE OF MEASURING PERTINENT OPERATING PARAMETERS OF SPECIMEN FUELS AND RELATED COMPONENTS WHILE UNDER IRRADIATION IN THE EBR-II CORE. IMMEDIATE OBJECTIVE IS CONSTRUCTION OF A PROTOTYPE SYSTEM FOR INSTALLATION AND PERFORMANCE EVALUATION IN THE EBR-II DURING THE FIRST QUARTER OF CALENDAR YEAR 1969 FOR EVALUATING ADVANCED FUELS OF INTEREST TO THE AEC LMFBR PROGRAM.

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

*R AND D PROGRAM + *REACTOR, LMFBR + *DESIGN STUDY + *FUEL ELEMENT + *IRRADIATION TESTING + FUEL BURNUP + INSTRUMENT, IN CORE + EBR 1 AND 2 (RE) + REACTOR, FAST + REACTOR, TEST + REACTOR, LMCR + ANL

18-33951

WOODFIELD FW

FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY REPORT, DECEMBER 1967

BATTELLE-NORTHWEST, RICHLAND, WASH.

BNWL-666 +. 47 PAGES, JANUARY 10, 1968

ONE OF A SERIES. TOPICS ARE COOLANT CHEMISTRY DEVELOPMENT - CORROSION AND CHEMISTRY, EQUIPMENT DEVELOPMENT - FACILITIES AND PROTOTYPES, INSTRUMENTATION, METALS AND MATERIALS DEVELOPMENT -

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33951 *CONTINUED*

METALS IRRADIATION AND PROPERTIES - FABRICATION - CODES AND STANDARDS, PROCESS AND MATERIAL SPECIFICATIONS.

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

*FFTF (TR) + REACTOR, TEST + *R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + BATTELLE NORTHWEST + COOLANT CHEMISTRY + CORROSION + METAL + FABRICATION + CODES AND STANDARDS + INSTRUMENT, GENERAL

18-33952

WOODFIELD FW

FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-747 +. 53 PAGES, MARCH 1968

ONE OF A SERIES. TOPICS ARE COOLANT CHEMISTRY DEVELOPMENT - CORROSION AND CHEMISTRY, EQUIPMENT DEVELOPMENT - FACILITIES AND PROTOTYPES, INSTRUMENTATION, METALS AND MATERIALS DEVELOPMENT - METALS IRRADIATION AND PROPERTIES - FABRICATION - CODES AND STANDARDS, PROCESS AND MATERIAL SPECIFICATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151 \$3.00
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*FFTF (TR) + REACTOR, TEST + *R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + BATTELLE NORTHWEST + COOLANT CHEMISTRY + CORROSION + METAL + FABRICATION + CODES AND STANDARDS + INSTRUMENT, GENERAL

18-33953

ALSO IN CATEGORY 11

WOODFIELD FW

FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, NOVEMBER 1967

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-639 +. 58 PAGES, DECEMBER 10, 1967

ONE OF A SERIES. TOPICS - COOLANT SYSTEMS DEVELOPMENT, EQUIPMENT, INSTRUMENTATION, METALS AND MATERIALS, AND PROCESS AND MATERIALS SPECIFICATIONS. FISSION-PRODUCT DIFFUSION THROUGH 304 SS CLADDING AFTER 1052 HR AT 1200 F WAS LESS THAN 1 MIL. 304 SS IRRADIATED AT 1.7×10^{22} NVT AT 1000 F REVEALED MARKED INCREASE IN 0.2% OFFSET YIELD STRENGTH AND A DECREASE IN DUCTILITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151 \$3.00
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*FFTF (TR) + REACTOR, TEST + *R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + BATTELLE NORTHWEST + REACTOR, FAST + REACTOR, LMCR + IRRADIATION TESTING + *STEEL, STAINLESS + *RADIATION EFFECT + MATERIAL + EQUIPMENT, GENERAL + FISSION PRODUCT TRANSPORT + METAL + CORROSION + COOLANT CHEMISTRY

18-33964

ALSO IN CATEGORY 6

HAGAN JW + WORTH GA + PADILLA A

PARAMETRIC SCRAM TRANSIENT ANALYSES FOR THE FFTF FAST TEST REACTOR

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-657 +. 27 PAGES, NOVEMBER 1967

PARAMETRIC ANALYSES OF THE TRANSIENT CHARACTERISTICS FOR VARIOUS ASSUMED RAMP REACTIVITY INPUTS WHICH ARE TERMINATED BY TRIP OF REACTOR SAFETY SYSTEM HAVE BEEN PERFORMED AND RESULTS OF STUDIES ARE DESCRIBED. IN EACH CASE REACTOR WAS ASSUMED AT OPERATING CONDITIONS AT INITIATION OF RAMP. THESE RESULTS WILL BE USED IN EVALUATION OF TRANSIENT SENSITIVITIES TO VARIOUS DESIGN PARAMETERS FOR ESTABLISHING DESIGN TRADE-OFFS AND SYSTEM LIMITS. SYSTEM VARIABLES INCLUDED IN STUDY WERE, MAGNITUDE OF RAMP REACTIVITY INSERTION, SYSTEM RESPONSE TIME, SAFETY ROD ACCELERATION RATE, AND MAGNITUDE OF DOPPLER COEFFICIENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00
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FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *THEORETICAL INVESTIGATION + *REACTOR TRANSIENT + *REACTOR STABILITY + REACTOR PHYSICS + REACTOR CONTROL + REACTIVITY EFFECT + RESPONSE TIME + DOPPLER COEFFICIENT + REACTOR, FAST + REACTOR, LMCR

18-33965

ALSO IN CATEGORY 11

NASH CR + PECKINPAUGH CL

FAST FLUX TEST FACILITY EVALUATION OF CONCEPTUAL FEATURES FOR THE REACTOR REFUELING SYSTEM

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-683 +. 37 PAGES, MARCH 1968

PRESENTS RESULTS OF EVALUATION OF ALTERNATIVE METHODS OF FUEL HANDLING. THE SODIUM-COOLED-CASH CONCEPT APPEARS MOST PROMISING BECAUSE OF CAPACITY TO REMOVE DECAY HEAT, NO INTERFACE PROBLEMS ON REACTOR SYSTEM AS DOES A GAS COOLING SYSTEM, AND EXCELLENT HEAT TRANSFER PROPERTIES OF SODIUM WHICH ALLOW GREATER STRETCH CAPABILITY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00
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CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33965 *CONTINUED*

FFTF (TR) + REACTOR, TEST + R AND D PROGRAM + REACTOR, LMFBR + *DESIGN STUDY + *REFUELING + *FUEL HANDLING MACHINE + *FUEL HANDLING + REMOTE MANIPULATING AND VIEWING + REACTOR, FAST + REACTOR, LMCR

18-33966

FINCH LM + PETERSON RE + TOYODA KG
EVALUATION OF FFTF REACTOR ASSEMBLY DEVELOPMENT AND TESTING PROGRAM
PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-614 +. 293 PAGES, 5 FIGURES, 19 TABLES, NOVEMBER 1967

PRESENTS AN OVERALL REACTOR ASSEMBLY ENGINEERING DEVELOPMENT AND TESTING PROGRAM REQUIRED TO SUPPORT THE FFTF DESIGN AND CONSTRUCTION, WHICH INCLUDES IDENTIFICATION OF DESIGN PROBLEMS WHERE DATA MUST BE OBTAINED BY EXPERIMENTATION, DESCRIPTIONS AND TECHNICAL JUSTIFICATION OF PROPOSED TESTS, AN OVERALL TEST SCHEDULE COMMENSURATE WITH THE FFTF SCHEDULE, AND IDENTIFICATION OF TESTING FACILITIES TO BE USED.

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*FFTF (TR) + REACTOR, TEST + *DESIGN STUDY + *R AND D PROGRAM + REACTOR, LMFBR + REACTOR, FAST + REACTOR, LMCR

18-33967

BASKIN KP + SESONSKE A
AN ANALYSIS OF SUPPLEMENTARY INFORMATION REQUESTED DURING REACTOR LICENSING
SOUTHERN CALIFORNIA EDISON COMPANY + PURDUE UNIVERSITY
13 PAGES, 14 FIGURES, 2 TABLES, NUCLEAR SAFETY 10(3), PAGES 197-209 (MAY-JUNE 1969)

APPLICANTS FOR POWER-REACTOR CONSTRUCTION PERMITS ARE ASKED MANY QUESTIONS BY THE AEC. IN ORDER TO IDENTIFY THE SUBJECT AND TO DETERMINE THE CONTENT OF THESE QUESTIONS, A STUDY WAS MADE OF 21 REACTOR CASES. 2400 QUESTIONS WERE EVALUATED AND CATEGORIZED, AND A QUALITATIVE ANALYSIS OF THE TOTAL QUESTIONS PER APPLICATION FOR REACTORS THAT HAVE RECEIVED THEIR CONSTRUCTION PERMIT INDICATES THAT IN GENERAL THERE IS LESS SUPPLEMENTARY INFORMATION REQUIRED FOR BWRs THAN FOR PWRs, AND THERE IS NO SIGNIFICANT TREND REGARDING THE QUANTITY OF INFORMATION ASKED FOR OVER THE TIME PERIOD CONSIDERED.

*AEC QUESTION + *CONSTRUCTION PERMIT PROCESS + *OPERATING LICENSE PROCESS + *REVIEW + *INFORMATION RETRIEVAL + REGULATION, AEC + REACTOR, POWER

18-33974

ALSO IN CATEGORIES 11 AND 12
VOLUME 2 - DESCRIPTION - COOLANT AND CONTAINMENT SYSTEM
DETROIT EDISON COMPANY
40 PAGES, FIGURES, TABLES, REFERENCES, PRELIMINARY SAR FOR FERMI 2, APRIL 29, 1969, DOCKET 50-341

CONTAINS SECTIONS TITLED REACTOR COOLANT SYSTEM, CONTAINMENT AND CORE STANDBY COOLING SYSTEM. VESSEL DESIGN PRESS. AND TEMP. ARE 1250 PSIG AT 575 F. REFUELING BELLOW PROVIDED TO SEAL VESSEL AND DRYWELL TO PERMIT FLOODING OF REACTOR WELL DURING REFUELING. PRESSURE-SUPPRESSION CONTAINMENT. DRYWELL DESIGNED FOR 56 PSIG INTERNAL AND 2 PSIG EXTERNAL. CORE STANDBY COOLING CONSISTS OF HIGH-PRESS. INJECTION, AUTOMATIC DEPRESSURIZATION, CORE SPRAY, AND LOW-PRESS. INJECTION.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

REPORT, PSAR + REACTOR, BWR + *SYSTEM DESCRIPTION + MAIN COOLING SYSTEM + CONTAINMENT, PRESSURE SUPPRESSION + FUEL, LIQUID METAL + CORE SPRAY + *SYSTEM DESCRIPTION + FERMI 2 (BWR)

18-33975

VOLUME 1 - REACTOR DESCRIPTION
DUKE POWER COMPANY
50 PAGES, FIGURES, TABLES, REFERENCES, FINAL SAR FOR OCONEE 1, 2, AND 3, MAY 29, 1969, DOCKETS 50-269/270/287,
TYPE--PWR, MFG--B+W, AE--DUKE

CONTAINS SECTIONS TITLED PRINCIPAL DESIGN CRITERIA, QUALITY ASSURANCE, SYSTEMS DESIGN CRITERIA FOR NATURAL PHENOMENA, SITE AND ENVIRONMENT, REACTOR, REACTOR COOLANT SYSTEM, IN-SERVICE INSPECTION STRUCTURES, STRUCTURAL DESIGN BASIS, AND ENGINEERED SAFEGUARDS. THE MORE SIGNIFICANT DESIGN REVISIONS SINCE PSAR INCLUDE - ECCS IS ACTUATED BY HIGH REACTOR-BUILDING PRESSURE AND LOW COOLANT-SYSTEM PRESSURE, AN INTERMEDIATE-RANGE HIGH START-UP RATE SIGNAL PREVENTS FURTHER ROD WITHDRAWAL, IN-CORE DETECTORS HAVE READOUT IN CONTROL ROOM, BUILDING COOLERS SERVE BOTH NORMAL AND EMERGENCY COOLING FUNCTIONS, ECCS PIPING ARRANGED TO MEET CRITERION 44.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

*REPORT, SAR + REACTOR, PWR + *REACTOR DESCRIPTION + OCONEE 1, 2, AND 3 (PWR)

18-33977

ALSO IN CATEGORIES 5 AND 11
DENIELOU G + ROZENHOLC M + STORRER F + VAUTREY + VELLENEUVE J
PHENIX - MAIN SAFETY CRITERIA - CONSEQUENCES FOR THE REACTOR DESIGN
CEA-CEN/CADARACHE/DRP, CEA-CEN/SACLAY/DRP, EURATOM-CEN/CADARACHE/DRP

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-33977 *CONTINUED*

12 PAGES, 3 FIGURES, 4 REFERENCES, PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DISCUSSES INFLUENCE OF SAFETY CONSIDERATIONS ON THE DESIGN OF PHENIX PROTOTYPE. DISCUSSES CORE COOLING FOR VARIOUS ACCIDENTS, CONTAINMENT OF FISSION PRODUCTS, AND MEANS FOR DETECTING LOCAL REACTIVITY AND TEMP. MEASUREMENTS.

AVAILABILITY - F. STORRER, EURATOM-CEN/CADARACHE/DRP

*DESIGN CRITERIA + *SAFETY PRINCIPLES AND PHILOSOPHY + DESIGN STUDY + *REACTOR, LMFBR + SODIUM + FRANCE

18-33981

AZZONI P + ROSELLI G + ZONA R

GENERAL CONSIDERATIONS ON FAST REACTOR SAFETY CRITERIA WITH PARTICULAR REGARD TO PEC REACTOR
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, PROGRAMMA REATTORI VELOCI, BOLOGNA, ITALY

42 PAGES, 5 FIGURES, 1 TABLE, 23 REFERENCES, PAPER PRESENTED AT THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

ILLUSTRATES THE WORK SCHEME USED IN THE SAFETY ANALYSIS OF THE PEC REACTOR. THE ACCIDENT CAUSES ARE CLASSED AND CAUSITRY IS WRITTEN DOWN WITH THE AIM OF ANALYZING THE HAZARDS FOR THE SURROUNDING POPULATION, THE OPERATIONS STAFF AND THE PRESERVATION OF THE PLANT. SOME CONSIDERATIONS ABOUT THE ACCIDENT STUDY AND THE PROBABILISTIC APPROACH TO THE HAZARD EVALUATION ARE CARRIED OUT.

AVAILABILITY - P. AZZONI/G. ROSELLI/R. ZONA, COMITATO NAZIONALE PER L ENERGIA NUCLEARE, PROGRAMMA REATTORI VELOCI, BOLOGNA, ITALY

*SAFETY ANALYSIS + ANALYTICAL TECHNIQUE, GENERAL + *SAFETY PRINCIPLES AND PHILOSOPHY + REACTOR, FAST + *ITALY
+ ACCIDENT ANALYSIS

18-34174

ALSO IN CATEGORY 11

RESPONSE TO QUESTION 4.1-3 - NDT AND VESSEL HEATUP METHOD

GEORGIA POWER COMPANY

1 PAGE, P. 4-1.3-1 OF AMENDMENT 2 TO HATCH LICENSE APPLICATION, JANUARY 24, 1969, DOCKET 50-321, TYPE--BWR, MFG--G.E., AE--SSI

DISCUSS PROVISIONS INCLUDED IN FACILITY TO RAISE COOLANT TEMP. FROM COLD SHUTDOWN TO HOT STANDBY CONDITIONS BY NON-NUCLEAR MEANS DURING STARTUP. *** (ANSWER) REACTORS ARE NEVER PRESSURIZED AT TEMPERATURES BELOW DUCTILE RANGES. AS DISCUSSED IN SECTION 4.2.3.3.3 OF THE PSAR, THIS TEMPERATURE IS BASED UPON THE NIL DUCTILITY TRANSITION TEMPERATURE (NDTT) OF THE MATERIAL PLUS THE WORST CASE NDTT SHIFT DATA AVAILABLE. TO THE INITIAL TEMPERATURE AND MOST PESSIMISTIC NDTT SHIFT DATA IS ADDED A MARGIN OF 60 F. THIS TEMPERATURE MARGIN IS ADEQUATE FOR STATICALLY LOADED STRUCTURES

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

EMBRITTEMENT

18-34344

VOLUME 2 - REACTOR DESCRIPTION AND SAFETY ANALYSIS

DUKE POWER COMPANY

75 PAGES, FIGURES, TABLES, REFERENCES, FINAL SAR FOR OCONEE 1, 2, AND 3, MAY 29, 1969, DOCKETS 50-269/270/287, TYPE--PWR, MFG--B+W, AE--DUKE

CONTAINS SECTIONS TITLED INSTRUMENTATION AND CONTROL, ELECTRICAL SYSTEMS, AUXILIARY AND EMERGENCY SYSTEMS, STEAM AND POWER CONVERSION SYSTEM, RADIOACTIVE WASTES AND RADIATION PROTECTION, CONDUCT OF OPERATIONS, TECHNICAL QUALIFICATIONS, INITIAL TESTS AND OPERATION, SAFETY ANALYSIS, AND TECHNICAL SPECIFICATIONS. SAFETY ANALYSIS DIVIDED INTO CORE AND COOLANT BOUNDARY PROTECTION ANALYSIS, AND STANDBY SAFEGUARD ANALYSIS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)C

*REPORT, SAR + REACTOR, PWR + *SAFETY ANALYSIS + ACCIDENT ANALYSIS + UKAEA + DOSE + OFF SITE + ACCIDENT, LOSS OF COOLANT + *REACTOR DESCRIPTION + OCONEE 1, 2, AND 3 (PWR)

18-34501

JENSEN KJ + SWANSON E

UTILITY APPLICATION OF MOLTEN SALT BREEDER REACTOR

NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA + BLACK AND VEATCH, KANSAS CITY, MISSOURI

10 PAGES, 5 FIGURES, 7 REFERENCES, PAPER PRESENTED BEFORE THE THIRTY-FIRST ANNUAL MEETING OF THE AMERICAN POWER CONFERENCE CHICAGO, ILLINOIS, APRIL 22-24, 1969

THE MOLTEN SALT BREEDER REACTOR CONCEPT, BASED ON THE AIRCRAFT REACTOR TEST AND MORE RECENTLY SUCCESSFUL OPERATION OF MOLTEN SALT REACTOR EXPERIMENT, IS UNDER STUDY BY THE UTILITIES AS A CONTENDER WITH FAST BREEDER REACTORS (LMFBR) FOR POWER AND CONSERVATION OF NATURAL RESOURCES. LOW BREEDING RATIO OF MSBR (1.6 VS 1.3 TO 1.45 FOR LMFBR) IS OFFSET BY ITS LOWER SPECIFIC INVENTORY (1.0 TO 1.4 VS 3 TO 5 KG FISSION MATERIAL/MWE FOR LMFBR). ALSO MSBR CAN USE U233, U235,

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18-34501 *CONTINUED*

OR PU AS INITIAL FUEL. ***MSBR UTILIZES MOLTEN SALT, UF₄, THF₄, BEF₂, LIF (0.3, 12.0, 16.0, 71.7 MOLE %), WITH LIQUIDS TEMPERATURE OF 930F AND VAPOR PRESS OF 0.1 MM HG. AT 1300 F, AS FUEL AND HEAT TRANSFER MEDIUM. A SECOND SALT LOOP TRANSFERS THIS ENERGY TO CONVENTIONAL OR SUPERCRITICAL STEAM GENERATORS. PA REMOVAL BY REDUCTIVE-EXTRACTIONS IN LIQUID BISMUTH IS REQUIRED FOR BREEDING. PRELIMINARY SCHEDULE PERMITTING 1976 STARTUP OF 300 TO 500-MWE PROTOTYPE PLANT IS PRESENTED.

AVAILABILITY - R. J. JENSEN, NORTHERN STATES POWER COMPANY, MINNEAPOLIS, MINNESOTA + EINAR SWANSON, BLACK + VETCH, KANSAS CITY, MISSOURI

*REACTOR, MOLTEN SALT + *REACTOR, LMFBR + REACTOR, BREEDER + ORNL + *MSRE (RE) + *MSBR (RE) + FUEL CONVERSION + FUEL REPROCESSING + *COMPARISON, REACTOR CHARACTERISTICS + *MOLTEN FUEL + SYSTEM DESCRIPTION

18-34632

EADO Y

FAST BREEDER DEVELOPMENT PROGRAM IN JAPAN

CENTRAL RESEARCH INSTITUTE OF ELECTRIC POWER INDUSTRY

2 PAGES, NUCLEAR ENGINEERING INTERNATIONAL, 14, PAGES 413-414 (MAY 1969)

IN 1966, SPECIAL COMMITTEE FOR POWER REACTOR DEVELOPMENT PROJECTS STARTED GATHERING TOP-LEVEL PEOPLE FROM UTILITY, MANUFACTURING, ACADEMIC, AND GOVERNMENT GROUPS TO STUDY EBR PROGRAM, SAFETY, FUEL, SODIUM TECHNOLOGY AND HAVE DEVELOPED SCHEDULE FOR COMMERCIAL FAST BREEDER REACTORS IN 1980S. COMMITTEE WAS ENLARGED AND ABSORBED ATOMIC FUEL CORP. TO FORM POWER REACTOR AND NUCLEAR DEVELOPMENT CORP., WHICH IS NOW RESPONSIBLE FOR NATIONAL FBR EFFORT. MOST SERIOUS PROBLEM IS HOW TO GATHER EXPERIENCED EXPERTS WITHOUT JEOPARDIZING MANUFACTURING SUCH AS LIGHT-WATER REACTORS. JAPAN FERMI REACTOR COMMITTEE RUN BY CENTRAL RESEARCH INSTITUTE OF ELECTRIC POWER INDUSTRY HAS STATIONED MORE THAN 20 ENGINEERS IN DETROIT IN EFFORT TO CLOSE EXISTING TECHNOLOGY GAP THROUGH INTERNATIONAL COOPERATIVE ARRANGEMENTS.

*REACTOR, LMFBR + REACTOR, FAST + REACTOR, BREEDER + REACTOR, POWER + *JAPAN + REACTOR, LMCR

18-34633

ALSO IN CATEGORY 17

MOLTEN SALT BREEDER REACTORS

OAK RIDGE NATIONAL LAB., TENN.

6 PAGES, NUCLEAR ENGINEERING INTERNATIONAL, 14, PAGES 420-425 (MAY 1969)

IN THIS SECOND ARTICLE ON MOLTEN-SALT REACTORS, DESIGN AND PERFORMANCE OF 1000 MW(E) BREEDERS, AND COMMERCIAL PROSPECTS OF SYSTEM ARE DISCUSSED. DESCRIBES OFF-GAS REMOVAL SYSTEM, FUEL SALT PROCESSING FOR PA-233 REMOVAL, REMOTE MAINTENANCE, SAFETY, AND COST ESTIMATES. (APRIL ISSUE OF NEI REVIEWED HISTORY OF PROJECT.)

*MSBR (RE) + *MSRE (RE) + REACTOR, MOLTEN SALT + REACTOR, POWER + REACTOR, LARGE + REACTOR, BREEDER + REACTOR, GRAPHITE MODERATED + REACTOR, THERMAL + *MOLTEN FUEL + *LIQUID FUEL + *DESIGN STUDY + OFF GAS + FUEL REPROCESSING + MAINTENANCE AND REPAIR + MAINTENANCE, REMOTE

18-34634

BENJAMIN M

INTRODUCTORY SURVEY OF BASIC DESIGN AND FUEL-ELEMENT CONSIDERATIONS FOR ALRGE, FAST SODIUM-COOLED REACTORS

DEPT. OF NUCLEAR ENGINEERING, IOWA STATE UNIV., AMES, IOWA

11 PAGES, 12 FIGURES, 5 TABLES, 14 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, 7, PAGES 399-410 (MAY 1968)

BASIC DESIGN AND FUEL ELEMENT CONSIDERATIONS IN THE DEVELOPMENT OF LARGE, FAST BREEDER POWER REACTORS ARE ANALYZED ON BASIS OF EXPERIMENTAL AND CALCULATED RESULTS. DOPPLER REACTIVITY EFFECT, SODIUM VOID (OR LOSS) REACTIVITY EFFECT AND STRUCTURAL EXPANSION REACTIVITY EFFECT ARE ANALYZED. BREEDING RATIO AND GAIN, AND ALSO DOUBLING TIME OF FUEL PRODUCTION ARE PRESENTED. THERMAL AND STRUCTURAL CONSIDERATIONS OF FUEL ELEMENT DESIGN ARE OUTLINED. FOR ECONOMY, AS WELL AS BREEDING, DEVELOPMENT OF A CERAMIC (ESPECIALLY CARBIDE) PLUTONIUM FUEL SYSTEM WITH HIGHER POWER DENSITY AND SPECIFIC POWER FOR THE LARGE, FAST POWER REACTOR SYSTEM IS DESIRABLE.

REACTOR, BREEDER + REACTOR, FAST + *REACTOR, LARGE + REACTOR, POWER + *DOPPLER EFFECT + *VOID COEFFICIENT + SAFETY ANALYSIS + *REACTIVITY EFFECT, VOID + *SODIUM COEFFICIENT + *DOPPLER COEFFICIENT + URANIUM + PLUTONIUM + CARBIDE + *REACTIVITY EFFECT, EXPANSION + FUEL EXPANSION COEFFICIENT + CORE MELTDOWN + CERAMICS + *FISSION GAS RELEASE + REACTOR, LMFBR

18-34635

MACFARLANE DR + MCNEAL NA + MENELEY DA + SANATHANAN CK

SODIUM BOILING TRANSIENTS IN OXIDE-FUELED FAST REACTORS

ARGONNE NATIONAL LABORATORY, 9700 S. CASS AVE., ARGONNE, ILLINOIS

16 PAGES, 22 FIGURES, 5 TABLES, 11 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, VOL. 7, PAGES 411-426 (MAY 1968)

METHODS AND RESULTS OF THEORETICAL INVESTIGATION OF DYNAMIC RESPONSE OF LARGE OXIDE-FUELED FAST REACTOR CORES DURING TRANSIENT OVER-POWER OR UNDER-FLOW SITUATIONS WHICH RESULT IN BULK BOILING OF COOLANT ARE PRESENTED. VALIDITY OF ANALYSIS IS RESTRICTED TO REGIME BEFORE CLADDING MELTS OR FAILS. MODEL FOR PREDICTING COOLANT BOILING (SODIUM VOIDING) BEHAVIOR HAS BEEN INCORPORATED INTO CLOSED LOOP CALCULATION WHICH INCLUDES REACTOR KINETICS WITH SODIUM VOIDING AND DOPPLER REACTIVITY FEEDBACKS. RESULTS OF CALCULATIONS FOR REACTIVITY RAMP FOR TWO CORES WITH DIFFERENT GEOMETRY ARE PRESENTED. RESULTS OF CALCULATIONS FOR A FLOW COASTDOWN TRANSIENT ARE ALSO PRESENTED. SOME LIMITATIONS OF MODEL AND METHOD ARE DISCUSSED BRIEFLY.

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SAFETY ANALYSIS AND DESIGN REPORTS

18-34635 *CONTINUED*

*REACTOR, LMFBR + REACTOR, FAST + *VOID COEFFICIENT + *REACTIVITY, EXCESS + REACTOR TRANSIENT + *SODIUM COEFFICIENT + DOPPLER COEFFICIENT + *ANALYTICAL MODEL + *MATHEMATICAL TREATMENT + *BOILING + HEAT TRANSFER, BOILING + FLOW THEORY AND EXPERIMENTS + *SODIUM

18-34636 ALSO IN CATEGORY 17

SUMMARY OF TREAT SODIUM LOOP EXPERIMENTS ON BEHAVIOR OF SINGLE EBR-II MARK I PINS UNDER ACCIDENT CONDITIONS 12 PAGES, 10 FIGURES, 1 TABLE, 31 REFERENCES, NUCLEAR ENGINEERING AND DESIGN, VOL. 7, PAGES 442-454 (MAY 1968)

PRESENTED IS A STUDY, EXPERIMENTALLY AND BY COMPUTATION, OF MECHANISMS OF FUEL FAILURE AND ASSOCIATED MOVEMENT OF FUEL AND COOLANT DURING CORE MELTDOWN ACCIDENT. THESE TWO PHENOMENA COULD LEAD TO EXTENSION OF ANY INITIAL FUEL FAILURE AND WOULD PROBABLY BE FACTORS CAUSING SERIOUS MELTDOWN. *** FUEL FAILURE EXPERIMENTS IN INSTRUMENTED SODIUM LOOPS WERE CONDUCTED AT VARIOUS CONDITIONS OF TEMP. AND FLOW OF SODIUM COOLANT. POWER BURSTS OF THE TREAT REACTOR, INTO WHICH LOOPS WERE INSERTED, WAS ADJUSTED TO SPECIFIED INTENSITIES. RESULTS OF TESTS AND ANALYSIS ARE PRESENTED.

*TREAT (PRR) + REACTOR, PULSED + REACTOR, TEST + REACTOR, LMCRR + REACTOR, FAST + *CORE MELTDOWN + *COMPARISON, THEORY AND EXPERIENCE + *IN PILE EXPERIMENT + *ACCIDENT ANALYSIS + *IN PILE LOOP + *SODIUM + *FAILURE, FUEL ELEMENT + *ANALYTICAL MODEL + MATHEMATICAL TREATMENT + COMPUTER PROGRAM + *EBR 1 AND 2 (RE)

18-34637

LONG J

AN OPTIMIZATION METHOD OF REACTOR SIZING WHICH ACCOUNTS FOR SYSTEM AND TECHNOLOGICAL CONSTRAINTS GENERAL ELECTRIC CO., CINCINNATI, OHIO

11 PAGES, 6 FIGURES, NUCLEAR ENGINEERING AND DESIGN, VOL. 7, PAGES 470-480 (MAY 1968)

METHOD IS PRESENTED TO DETERMINE (1) VALUE OF REACTOR DIMENSIONS WHICH PROVIDE THE DESIRED OBJECTIVE (OPTIMIZATION FUNCTION) TO BE MET WITHIN TECHNOLOGICAL AND SYSTEM INPUT CONSTRAINTS, (2) LIMITING TECHNOLOGICAL AND SYSTEM INPUT CONSTRAINTS, (3) QUANTITATIVE MEASURES OF BENEFITS TO BE ACCRUED BY DEVELOPMENT WORK AND/OR CHANGES IN SYSTEM INPUTS. METHOD HAS BEEN APPLIED TO A FAST SPECTRUM, REFLECTOR CONTROLLED, LIQUID METAL COOLED, CERMET FUEL SPACE POWER REACTOR TO ILLUSTRATE ITS POTENTIAL

*ANALYTICAL MODEL + *MATHEMATICAL TREATMENT + *MATHEMATICAL STUDY + *REACTOR, GENERAL + REACTOR, POWER + *PERFORMANCE LIMIT + DESIGN CRITERIA + *SYSTEM CAPABILITY

18-34638 ALSO IN CATEGORIES 5 AND 11

FORBES SG + WILSON TR

LOSS OF COOLANT ACCIDENT INVESTIGATIONS

PHILLIPS PETROLEUM COMPANY

100-17272 +. 163 PAGES, 84 FIGURES, 36 TABLES, 3 REFERENCES, JUNE 1968

DESCRIBES AND EVALUATES THE LOFT PROGRAM, USING THE SYSTEM ENGINEERING APPROACH. LICENSING PROBLEMS AND PROCESSES ARE DEFINED, INFORMATION REQUIREMENTS OF THE LOCA STUDY ARE GIVEN, DESIGN OF THE EXPERIMENTS REVIEWED. TOPICS - LOCA PROBLEM DEFINITION, INFORMATION REQUIREMENTS FOR PRIMARY SYSTEMS AND CONTAINMENT RESPONSE, FISSION PRODUCT BEHAVIOR, AND THE EXPERIMENTAL PROGRAM.

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

*ACCIDENT, LOSS OF COOLANT + *R AND D PROGRAM + FUEL, LIQUID METAL + CONTAINMENT, GENERAL + *SAFETY PROGRAM + FISSION PRODUCT TRANSPORT + FISSION PRODUCT RETENTION + FISSION PRODUCT RELEASE, GENERAL + ACCIDENT, CONSEQUENCES + *ACCIDENT ANALYSIS + SYSTEM OPERABILITY IN ACCIDENT

18-34649 ALSO IN CATEGORIES 6 AND 12

KING LD

DISPOSABLE CORE FAST BURST REACTORS

LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

LA-DC-10055 +. 19 PAGES, 1968

A POSSIBLE MEANS FOR PRODUCING VERY LARGE FAST NEUTRON BURSTS APPEARS FEASIBLE THROUGH THE USE OF A MOBILE FUEL IN AN UNCONFINED GEOMETRY. THE FUEL IS DISPERSED BY INTERNAL ENERGY INTO A LARGE CAVITY FOR REUSE WITHOUT DAMAGE TO THE MAIN FACILITY. A STUDY OF SUCH A POTENTIAL SYSTEM HAS BEEN MADE USING A DESIGN CONCEPT DESIGNATED LIQUID EXCURSION PULSED REACTOR, OR LEPR. CALCULATIONS AND SOME PRELIMINARY EXPERIMENTS FOR SUCH A SYSTEM WHEN USING A URANYL SULFATE FUEL SOLUTION LOOK PROMISING. BURST INTENSITIES OF 10(19TH) - 10(20TH) MAY BE ACHIEVABLE WITH MINIMUM PULSE WIDTHS AT HALF MAXIMUM OF 35 MICROSEC. TWO SCHEMATIC DESIGNS OF SUCH A DEVICE ARE ILLUSTRATED.

AVAILABILITY - L.D.P. KING, LOS ALAMOS SCIENTIFIC LAB., NEW MEXICO

*DESIGN STUDY + *REACTOR, PULSED + REACTOR DESCRIPTION + *LIQUID FUEL + *DISPERSION + DISPLACEMENT, GENERAL

18-34654 ALSO IN CATEGORIES 5 AND 6

WELFARE FG

THE EFFECT OF STEAM DENSITY ON REACTIVITY IN THREE STEAM COOLED FAST REACTOR REACTORS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-34654 *CONTINUED*
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-2582 +. 17 PAGES, 1 FIGURE, 4 TABLES, 9 REFERENCES, MAY 23, 1969

EFFECT OF CHANGES IN STEAM DENSITY ON REACTIVITY HAS BEEN CALCULATED FOR THREE STEAM COOLED BREEDER REACTORS OF 3600, 2500, AND 1200 PSI OPERATING PRESSURE. WHEN FLOODED AT END OF LIFE THE SYSTEMS SHOW REACTIVITY INCREASES OF 4%, 1%, AND 1% FOR HIGH, INTERMEDIATE, AND LOW-PRESSURE SYSTEMS. WHEN VOIDED AT BEGINNING OF LIFE THE SYSTEMS SHOW INCREASES IN REACTIVITY OF 0.5%, 2% AND 0.9%. WHEN VOIDED AT END OF LIFE INTERMEDIATE, AND LOW-PRESSURE SYSTEMS SHOW INCREASES IN REACTIVITY OF 1.9% AND 0.7% RESPECTIVELY AND HIGH-PRESSURE SYSTEM SHOWS DECREASE IN REACTIVITY OF 3.8%.

*REACTIVITY EFFECT + ACCIDENT, LOSS OF COOLANT + *STEAM QUALITY + *REACTIVITY EFFECT, VOID + *REACTIVITY EFFECT, PRESSURE + REACTOR DYNAMICS + ACCIDENT, STEAM LINE RUPTURE + ACCIDENT, COLD COOLANT + ACCIDENT, LOAD REJECTION + REACTOR, BREEDER + REACTOR, FAST + REACTOR, POWER + *REACTOR, SCBR

18-34655
BALENT R + FALCON JA
ATOMICS INTERNATIONAL FAST BREEDER REACTOR PROGRAM
ATOMICS INTERNATIONAL, CANOGA PARK, CALIFORNIA
NP-17784 +. 16 PAGES, 1968

ATOMICS INTERNATIONAL HAS COMPLETED CONCEPTUAL DESIGN OF 500-MWE SODIUM-COOLED DEMONSTRATIONS FBR PLANT. CONTRACT HAS BEEN SIGNED WITH GENERAL PUBLIC UTILITIES CORP (N.Y.) FOR PARTICIPATION IN DEVELOPMENT AND TEST PROGRAM LEADING TO DECISION BY 1970 FOR CONSTRUCTION OF A 350- TO 500-MWE PLANT IN NORTHEASTERN PENNSYLVANIA. SIGNIFICANT STUDIES INVOLVED IN SELECTION OF SYSTEMS AND COMPONENTS ALONG WITH DESCRIPTION OF PLANT ARE REPORTED. OVERALL ENGINEERING AND TEST PROGRAM IS OUTLINED. FUTURE 1000-MWE AND LARGER FBR PLANTS WILL INCORPORATE MANY OF SAME FEATURES OF DEMONSTRATION PLANT.

*ATOMICS INTERNATIONAL + *REACTOR, BREEDER + *REACTOR, FAST + *REACTOR, LMFBR + REACTOR, POWER + *SODIUM + *DESIGN STUDY + URANIUM OXIDE + PUMP + CONTAINMENT, GENERAL + *REACTOR DESCRIPTION + PLUTONIUM OXIDE

18-34658
THE ANALYSIS OF MIXED CARBIDE REACTORS FOR THE AEC LMFBR TASK FORCE STUDIES. FINAL REPORT
WESTINGHOUSE ELECTRIC CORP., MADISON, PA. ADVANCED REACTORS DIV.
WCAP-3791-11 +. 76 PAGES, REFERENCES, OCTOBER 1967

TWO CONCEPTUAL DESIGNS FOR 1000-MWE, MIXED URANIUM-PLUTONIUM CARBIDE REACTORS ARE PRESENTED, ONE IS A REFERENCE REACTOR BASED ON 1980 TECHNOLOGY, AND THE OTHER IS AN ADVANCED REACTOR PREDICATED ON TECHNOLOGY POSTULATED FOR 1995. FOR EACH DESIGN THE PHYSICS PARAMETERS REQUIRED TO CALCULATE FUEL COSTS OVER THE LIFE OF THE PLANT HAVE BEEN CALCULATED, INCLUDING THE FEED AND DISCHARGE MASSES OF THE URANIUM AND PLUTONIUM ISOTOPES FOR EACH CYCLE, FROM THE FIRST TO EQUILIBRIUM. DESIGN HAS FIVE IDENTICAL MODULES USED TO MAKE THE REACTIVITY EFFECT OF CCSODIUM VOIDING APPROXIMATELY ZERO. NONVENTED FUEL RODS HAVE AVERAGE DISCHARGE BURNUP OF 80,000 MWD/T. CHROMIUM-STABILIZED, MIXED CARBIDE FUEL IS USED AND THE FUEL PELLETS ARE SODIUM-BONDED TO THE STAINLESS STEEL CLADDING. A LIMIT OF 2350 DEG. F FOR FUEL CENTER TEMPERATURE IS USED, ALONG WITH A LIMIT OF 1300 DEG. F FOR THE CLADDING SURFACE TEMPERATURE. THE MIXED-MEAN SODIUM OUTLET TEMPERATURE IS 1000 DEG. F.

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

REACTOR, LMFBR + REACTOR, LMCR + REACTOR, FAST + *DESIGN STUDY + FUEL BURNUP + THERMAL ANALYSIS + HYDRAULIC ANALYSIS

18-34659 ALSO IN CATEGORY 5
LAVERNE MF
ANALYSIS OF THE HOT SPOT PROBLEM IN THE MPRE
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1371 +. 22 PAGES, 7 FIGURES, 4 REFERENCES, DECEMBER 1966

AN ANALYSIS OF THE FLOW DISTRIBUTION IN MPRE-TYPE ROD BUNDLES HAS BEEN MADE IN ORDER TO ASSESS THE EXTENT TO WHICH NONUNIFORM VAPOR GENERATION AFFECTS THE FLOWS AND THUS THE DEVELOPMENT OF POTENTIAL HOT SPOTS IN SUCH BUNDLES. A COMPUTER PROGRAM EMBODYING THE ANALYSIS HAS BEEN WRITTEN AND TESTED. RESULTS OF COMPUTER RUNS INDICATE THAT THE FLOW CHANNEL COUPLINGS CHARACTERISTIC OF THE MPRE-TYPE CORE GREATLY DIMINISH THE EFFECTS OF DISSYMMETRY.

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

*HOT SPOT FACTOR ANALYSIS + *HEAT TRANSFER ANALYSIS + REACTOR, LMCR + REACTOR, FAST + REACTOR, AIRCRAFT + ORNL + DESIGN STUDY + *FLOW DISTRIBUTION + COMPUTER PROGRAM + COMPUTER, ANALOG

18-34660 ALSO IN CATEGORY 9
BURKE CW + DITTO SJ + WALKER CS
AN ANALOG COMPUTER STUDY OF THE CONTROL CHARACTERISTICS OF THE MEDIUM POWER REACTOR EXPERIMENT SYSTEM INCLUDING THE TURBINE-GENERATOR
OAK RIDGE NATIONAL LAB., TENN.

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-3466C *CONTINUED*
ORNL-TM-1494 +. 22 PAGES, 7 FIGURES, 5 REFERENCES, MAY 6, 1966

THE STABILITY AND CONTROL CHARACTERISTICS OF THE MEDIUM POWER REACTOR EXPERIMENT (MPRE), INCLUDING THE TURBINE-GENERATOR UNIT AND THE REACTOR SYSTEM, WERE INVESTIGATED BY MEANS OF AN ANALOG COMPUTER. THE GENERATOR TERMINAL VOLTAGE AND FREQUENCY WERE CONTROLLED FOR TWO TYPES OF ELECTRICAL LOADS. ONE LOAD WAS ENTIRELY RESISTIVE AND THE OTHER WAS SIMILAR TO THAT IMPOSED BY INDUCTION MOTORS DRIVING PUMPS. TWO CONTROL SCHEMES WERE USED. IN CONTROL SCHEME NO. 1, THE GENERATOR TERMINAL VOLTAGE-ERROR SIGNAL WAS THE INPUT TO A CONTROLLER WHICH REGULATED THE REACTOR CONTROL-PLUG POSITION, AND THE GENERATOR FREQUENCY-ERROR SIGNAL WAS THE INPUT TO A CONTROLLER WHICH REGULATED THE GENERATOR FIELD CURRENT. THE CONTROLLER INPUT SIGNALS WERE INTERCHANGED FOR SCHEME NO. 2.

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

*REACTOR CONTROL + REACTOR, FAST + REACTOR, LMCR + ORNL + DESIGN STUDY + *COMPUTER, ANALOG + MATHEMATICAL STUDY + *INSTRUMENT, CONTROL + *CONTROL SYSTEM + RESPONSE TIME + *REACTOR, AIRCRAFT

18-34661 ALSO IN CATEGORY 11
SAMUELS G
FUEL ELEMENT DESIGN FOR BOILING POTASSIUM REACTORS
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1344 +. 47 PAGES, 15 FIGURES, 9 TABLES, JANUARY 1966

A PARAMETRIC ANALYSIS WAS MADE OF INTERNAL TEMPERATURES, PRESSURES, AND FISSION PRODUCT ACTIVITY IN STAINLESS STEEL-CLAD UO-2 FUEL ELEMENTS, WITH PARTICULAR EMPHASIS ON THE MPRE FUEL ELEMENT DESIGN. FOR THE MAXIMUM POWER ELEMENT IN THE MPRE, THE CENTRAL UO-2 TEMPERATURE WAS CALCULATED TO BE 2580 F, THE FISSION GAS RELEASE RATE WAS 1.45%, AND THE EQUILIBRIUM ACTIVITY DIFFUSING FROM THE UO-2 WAS 2.9 CURIES PER ELEMENT. FOR A LEAKING ELEMENT IN WHICH THE HELIUM AND FISSION PRODUCTS WITHIN THE CAPSULE ARE REPLACED BY POTASSIUM VAPOR, IT MAY BE NECESSARY TO REDUCE THE REACTOR OUTPUT TO 70% OF FULL POWER TO PREVENT CENTRAL UO-2 TEMPERATURES FROM EXCEEDING 2900 F.

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

REACTOR, LMCR + POTASSIUM + ORNL + *FUEL ELEMENT + *DESIGN STUDY + FISSION PRODUCT RETENTION + FISSION GAS RELEASE + REACTOR, AIRCRAFT

18-34662
SMITH OL + PERRY AM
SOME CALCULATIONS PERFORMED ON A SERIES OF CONCEPTUAL FAST-NEUTRON REACTORS FUELED WITH HIGHLY ENRICHED UO-2 OR PUC-2 AND REFLECTED WITH CARBON, BERYLLIUM METAL, OR BERYLLIUM OXIDE
OAK RIDGE NATIONAL LAB., TENN.
ORNL-TM-1620 +. 36 PAGES, 11 FIGURES, 8 TABLES, FEBRUARY 1967

AS PART OF THE INITIAL DESIGN PHASE OF THE MPRE PROGRAM, THIS REPORT PRESENTS A NEUTRONIC FEASIBILITY STUDY OF A COMPACT, LIGHT-WEIGHT REACTOR FUELED WITH HIGHLY ENRICHED URANIUM OR PLUTONIUM, COOLED WITH BOILING POTASSIUM AND REFLECTED WITH BERYLLIUM OXIDE. AT THE TIME THIS STUDY WAS MADE A SERIES OF BERYLLIUM- AND CARBON-REFLECTED, UO-2-FUELED CRITICAL EXPERIMENTS WAS ANTICIPATED. THE FIRST PART OF THIS REPORT DESCRIBES A SET OF ONE-DIMENSIONAL CALCULATIONS PERFORMED TO GIVE BASIC NEUTRONIC DATA FOR USE IN DESIGNING THE EXPERIMENTS. THE SECOND PART GIVES THE RESULTS OF A GENERALIZED PARAMETRIC INVESTIGATION OF THE BASIC REACTOR CONCEPT.

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

REACTOR, LMCR + ORNL + REACTOR COOLANT + POTASSIUM + *DESIGN STUDY + *REACTOR, AIRCRAFT

18-34667 ALSO IN CATEGORIES 5 AND 6
FRISCH W
STABILITY PROBLEMS OF STEAM-COOLED FAST REACTORS
KERNFORSCHUNGSZENTRUM, KARLSRUHE
KFK-759 + EUR-3730D + EURFNR-583 +. 106 PAGES, 26 FIGURES, 2 TABLES, 23 REFERENCES, APRIL 1963

DESCRIBES THE DYNAMIC CORRELATIONS OF CORE DYNAMICS CONSIDERING FIRST, NEUTRON KINETICS AND POWER REDUCTION, AND SECOND, THERMODYNAMICS AND REACTIVITY FEEDBACK.

AVAILABILITY - C.L. STORRS + W.P. STAKER + R.C. NOYES, COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT

*REACTOR, SCBR + REACTOR, FAST + REACTOR COOLANT + STEAM + GERMANY + *REACTOR STABILITY + *REACTOR DYNAMICS + DESIGN STUDY + *MATHEMATICAL TREATMENT + HEAT TRANSFER ANALYSIS + THERMODYNAMICS

18-34668
STORRS CL + STAKER WP + NOYES RC
THE HIGH PERFORMANCE BREEDER AS A PRIMARY DEVELOPMENT GOAL
COMBUSTION ENGINEERING, INC., WINDSOR, CONNECTICUT
8 PAGES, 6 FIGURES, 5 TABLES, 2 REFERENCES, PRESENTED AT THE AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 22-24, 1969

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SAFETY ANALYSIS AND DESIGN REPORTS

18-34668 *CONTINUED*

CONCLUDES THAT THE PRINCIPAL REQUIREMENTS FOR LMFBR SAFETY ARE - (1) A STABLE CORE WITH PROTECTIVE AND COOLING SYSTEMS OF HIGH RELIABILITY. (2) THE PREFERRED FUEL SYSTEM IS HYPERSTOICHIOMETRIC SODIUM-BONDED MIXED PLUTONIUM-URANIUM CARBIDE. (3) THE PREFERRED CORE CONFIGURATION IS A MODERATELY PANCACKED CYLINDER WITH A HEIGHT-TO-DIAMETER RATIO OF ABOUT 1 TO 4. (4) THE CHARACTERISTICS AND PERFORMANCE EXPECTED OF 1980 REACTORS ARE - FUEL CYCLE COST (0.38 MILL/KWH), DOUBLING TIME (7 YEARS), AND SPECIFIC INVENTORY (3.5 KG FISSILE/MWE). REPL 34668 ABSTCONCLUDES THAT THE PRINCIPAL REQUIREMENTS FOR LMFBR SAFETY ARE - (1) A STABLE CORE WITH PROTECTIVE AND COOLING SYSTEMS OF HIGH RELIABILITY. (2) THE PREFERRED FUEL SYSTEM IS HYPERSTOICHIOMETRIC SODIUM-BONDED MIXED PLUTONIUM-URANIUM CARBIDE. (3) THE PREFERRED CORE CONFIGURATION IS A MODERATELY PANCACKED CYLINDER WITH A HEIGHT-TO-DIAMETER RATIO OF ABOUT 1 TO 4. (4) THE CHARACTERISTICS AND PERFORMANCE EXPECTED OF 1980 REACTORS ARE - FUEL CYCLE COST (0.38 MILL/KWH), DOUBLING TIME (7 YEARS), AND SPECIFIC INVENTORY (3.5 KG FISSILE/MWE).

REACTOR, LMFBR + REACTOR, FAST + REACTOR, BREEDER + *DESIGN STUDY

18-34669 ALSO IN CATEGORIES 6 AND 11

ROSSIN AD + GLASSNER A
REACTOR DEVELOPMENT PROGRESS REPORT
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7553 +. 123 PAGES, FIGURES, TABLES, REFERENCES, FEB. 1969

CNE OF A SERIES OF SIMILAR REPORTS. TOPICS - LMFBR DEVELOPMENT STUDIES, FAST REACTORS, GENERAL DEVELOPMENT STUDIES, NUCLEAR SAFETY, FUEL-MELTDOWN STUDIES WITH TREAT, CORE STRUCTURAL SAFETY, AND CONTAINMENT RESPONSE TO HIGH-ENERGY EXCURSION.

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

*R AND D PROGRAM + REACTOR, LMFBR + REACTOR, FAST + FUEL MELTDOWN + TREAT (PRR) + REACTOR, RESEARCH + CORE COMPONENTS + STRUCTURAL INTEGRITY + CONTAINMENT INTEGRITY + PRESSURE, INTERNAL + EXCURSION, LARGE + REACTOR, PULSEC + REACTOR, SAFETY RESEARCH

18-34670

FORTESCUE P
GAS-COOLED FAST BREEDER REACTOR DEVELOPMENT. DESIGN OF A 330-MW DEMONSTRATION POWER PLANT
GULF GENERAL ATOMIC, INCORPORATED, SAN DIEGO, CALIFORNIA
GA-9289 +. 5 TABLES, 6 REFERENCES, APRIL 24, 1969, PRESENTED AT AMERICAN POWER CONFERENCE, CHICAGO, ILLINOIS, APRIL 22-24, 1969

PRESENTS RESULTS OF A 6-MONTH DESIGN STUDY. EMPHASIS ON DESIGN BASIS AND GENERAL CHARACTERISTICS. GIVES DESIGN RULES AND BASIC PLANT FORM. CONCLUSIONS SUMMARIZED IN TABLES TITLED INFLUENCE OF CORE SIZE (ENRICHMENT OF 0.142), INFLUENCE OF ENRICHMENT, INFLUENCE OF ORIFICING MODE, AND OPERATING CONDITIONS. SPECIFIC POWER 0.58 MW/KG FISSILE, HEAT RATE 16 KW OF 1250 PSI, OUTLET TEMP. OF 604 C, AND PLANT EFFICIENCY OF 36%.

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

*REACTOR, FAST, GAS COOLED + *DESIGN STUDY + REACTOR, FAST + REACTOR, FAST, GAS COOLED

18-34671

GAS-COOLED FAST BREEDER REACTOR. QUARTERLY PROGRESS REPORT, AUGUST 1 - OCTOBER 31, 1968
GULF GENERAL ATOMIC, INC., SAN DIEGO, CALIF.
GA-8895 +. 87 PAGES, FIGURES, TABLES, 13 REFERENCES, DECEMBER 2, 1968

CNE OF A SERIES OF SIMILAR REPORTS. TOPICS - PROGRAM PLANNING, CORE DEVELOPMENT, CLADDING AND STRUCTURAL MATERIALS, SPACER DEVELOPMENT, FUEL-ROD EVALUATION, IRRADIATION TESTING, AND PROPOSED IRRADIATION TESTS.

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

REACTOR, FAST + REACTOR, GCR + *R AND D PROGRAM + REACTOR, FAST, GAS COOLED

18-34673

ALSO IN CATEGORIES 7 AND 11

PATRIARCA P + RUCKER DJ
FUELS AND MATERIALS DEVELOPMENT PROGRAM. QUARTERLY PROGRESS REPORT FOR PERIOD ENDING DECEMBER 31, 1968
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4390 +. 308 PAGES, FIGURES, TABLES, REFERENCES, MAY 1969

CNE OF A SERIES OF SIMILAR REPORTS. TOPICS - FUELS AND CLADDINGS, COOLANTS, RADIATION DAMAGE TO STRUCTURAL MATERIALS, TECHNIQUES OF FABRICATION AND TESTING, ENGINEERING PROPERTIES OF REACTOR MATERIALS, DEVELOPMENT OF FAST REACTOR OXIDE FUELS, AND LMFBR FUELS, FISSION-GAS RELEASE, ZIRCONIUM METALLURGY, ALKALI-METAL CORROSION, TUNGSTEN METALLURGY, AND CLAD MATERIALS FOR SPACE HEAT SOURCES.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-34673 *CONTINUED*

CLADDING + DIRECT ENERGY CONVERSION DEVICES + *R AND D PROGRAM + REACTOR, FAST + REACTOR, LMFBR + FUEL ELEMENT + FABRICATION + IRRADIATION TESTING + *ORNL + FISSION GAS RELEASE + CORROSION + ZIRCONIUM + TUNGSTEN

18-34683

FERMI 2 - APPLICATION FOR CONSTRUCTION PERMIT
DETROIT EDISON COMPANY

30 PAGES FIGURES, TABLES, REFERENCES, LETTER - DETROIT EDISON COMPANY TO DRL - APRIL 29, 1969, DOCKET 50-341

CONTAINS APPLICANTS FINANCIAL AND TECHNICAL QUALIFICATIONS, FACILITY DESCRIPTION, AND 1968 ANNUAL REPORT OF DETROIT EDISON CO.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

*APPLICATION FOR AEC LICENSE + CONSTRUCTION PERMIT PROCESS + REACTOR, BWR + FERMI 2 (BWR)

18-34684

ALSO IN CATEGORIES 1 AND 2

GENERATING STATIONS EMERGENCY PLAN

COMMONWEALTH EDISON COMPANY, CHICAGO, ILLINOIS

50 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 12 TO DRESDEN 2 AND AMENDMENT 13 TO DRESDEN 3 LICENSE APPLICATION, MAY 20, 1969, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

SETS FORTH THE PLAN OBJECTIVES AND DESCRIBES THE RELATED EMERGENCY ORGANIZATION INCLUDING ASSIGNMENTS OF AUTHORITY AND RESPONSIBILITY, PROVIDES FOR DETECTING AND EVALUATING EMERGENCY CONDITIONS, ESTABLISHING PROTECTIVE ACTION LEVELS, AND PROTECTIVE MEASURES WHEN SUCH LEVELS ARE EXCEEDED, COMMUNICATIONS, LIAISON WITH OFF-SITE SUPPORT GROUPS INCLUDING FEDERAL, STATE AND LOCAL GOVERNMENTAL AUTHORITIES, DOCUMENT REVIEW AND CONTROL, PERIODIC EMERGENCY PREPAREDNESS ASSESSMENT, AND TRAINING OF THE PARTICIPATING PERSONNEL.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

*EMERGENCY PROCEDURE + *PROCEDURES AND MANUALS + INCIDENT, RECOVERY FROM + STAFFING + ADMINISTRATIVE CONTROL + RADIATION SAFETY AND CONTROL + RADIATION PROTECTION, ORGANIZATION + RADIOLOGICAL ASSISTANCE + DRESDEN 2 (BWR) + DRESDEN 3 (BWR) + REACTOR, BWR + CONSTRUCTION PERMIT PROCESS

18-34685

AEC QUESTIONS ON SEQUOYAH 1 AND 2

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

25 PAGES, LETTER - DRL TO TVA - MAY 27, 1969, DOCKET 50-327/328, TYPE--PWR, MFG--WEST., AE--TVA

CONTAINS LIST OF 157 QUESTIONS TO BE ANSWERED ON FOLLOWING SUBJECTS - PRESSURE VESSEL, GEOLOGICAL AND SEISMIC CONDITIONS, CORE THERMAL HYDRAULIC ANALYSIS AND ASSURANCE. (QUESTIONS ONLY, NO ANSWERS.)

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

*AEC QUESTION + REPORT, PSAR + REACTOR, PWR + SEQUOYAH 1 (PWR) + SEQUOYAH 2 (PWR)

18-34686

ALSO IN CATEGORIES 2 AND 11

REVISIONS TO PSAR

JERSEY CENTRAL POWER AND LIGHT COMPANY + METROPOLITAN EDISON COMPANY

30 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 10 TO THREE MILE ISLAND LICENSE APPLICATION, JUNE 4, 1969, DOCKET 50-320, TYPE--PWR, MFG--B&W, AE--BURNS + ROE

CONSISTS OF REVISED PAGES FOR PSAR WITH SUPPLEMENTAL INFORMATION ON THE REACTOR COOLANT-PUMP FLYWHEEL-DESIGN CRITERIA, PREOPERATIONAL ENVIRONMENTAL SURVEYS, FIRE PROTECTION IN CLASS-1 BUILDINGS, AND CLARIFICATION OF CORE INTERNALS EARTHQUAKE-DESIGN CRITERIA.

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

REPORT, PSAR + *THREE MILE ISLAND 1 (PWR) + REACTOR, PWR + *DESIGN CRITERIA + *PUMP + *MAIN COOLING SYSTEM + FIRE + CORE COMPONENTS + STRUCTURAL INTEGRITY + EARTHQUAKE ENGINEERING + SAFETY DEVICE

18-34688

AEC QUESTIONS OF FINAL DESIGN OF PALISADES POINT

USAEC DIV. OF REACTOR LICENSING

25 PAGES, LETTER - DRL TO CONSUMERS POWER CO. - MAY 28, 1969, DOCKET 50-255, TYPE--PWR, MFG--COMB., AE--BECHTEL

CONTAINS LIST OF 122 QUESTIONS TO BE ANSWERED - 10 GENERAL, 4 ON SITE AND ENVIRONS, 4 REACTOR, 3 COOLANT SYSTEM, 39 STRUCTURES, , 4 SAFETY FEATURES, 13 I AND C, 4 EMERGENCY POWER, 1 AUXILIARY SYSTEMS, 6 WASTE DISPOSAL, 9 CONDUCT OF OPERATION, 6 INITIAL TESTS, AND 19 ON THE ACCIDENT ANALYSIS. (NO ANSWERS, QUESTIONS ONLY.)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C., 20545 (\$0.25 CENTS/PAGE)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-34688 *CONTINUED*

*AEC QUESTION + PALISADES POINT (PWR) + REACTOR, PWR + REPORT, SAR + *REACTOR DESCRIPTION + *ACCIDENT ANALYSIS
+ *OPERATING LICENSE PROCESS

18-34689

AEC QUESTIONS ON FINAL DESIGN OF QUAD CITIES 1 AND 2
USAEC DIVISION OF REACTOR LICENSING, WASHINGTON, D.C.

20 PAGES, LETTER - DRL TO COMMONWEALTH EDISON CO. - MAY 28, 1969, DOCKET 50-254/265, TYPE--BWR, MFJ--G.E., AE--
SGT + LUNDY

CONTAINS A LIST OF 135 QUESTIONS TO BE ANSWERED ON THE SUBJECTS OF TESTING AND SURVEILLANCE,
CONTAINMENT, I AND C, AND ENGINEERED SAFEGUARDS. (QUESTIONS ONLY, NO ANSWERS.)

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

*AEC QUESTION + REPORT, SAR + OPERATING LICENSE PROCESS + REACTOR, BWR + QUAD CITIES 1 (BWR) + QUAD CITIES 2
(BWR)

18-34690

CONSTRUCTION COMPLETION DATE OF LOWELL TECH REACTOR

3 PAGES, LETTER - COMMONWEALTH OF MASSACHUSETTS - MAY 16, 1969, DOCKET 50-223

REQUESTS EXTENSION OF CONSTRUCTION COMPLETION DATE FROM JUNE 1969 TO OCTOBER 31, 1970. DELAYED
CAUSED BY INABILITY OF CONTRACTOR TO GET CARPENTERS AND LABORERS, LABOR DISPUTE AND STEEL STRIKE.

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

*CONSTRUCTION PERMIT PROCESS + REACTOR, POOL TYPE + REACTOR, TRAINING

18-34759

ALSO IN CATEGORY 11

KLUSMANN AR + ROTTERDAM R + JASPERS G

THE FUEL ELEMENT OF THE GEESTHACHT KSH REACTOR

7 PAGES, 6 FIGURES, KERntechnik, 11(12), PAGES 92/98 (FEBRUARY 1969)

GHM IS BUILDING A 25 MW HIGH-TEMPERATURE NUCLEAR PLANT WITH A HELIUM TURBINE IN A DIRECT CYCLE
NEAR HAMBURG. THE REACTOR CORE AND THE GRAPHITE FUEL RODS OF THIS PLANT ARE DESCRIBED. THE
HEAVY METAL (100 KG OF 90% ENRICHED URANIUM, 1000 KG OF THORIUM) IS INCORPORATED IN GRAPHITE
CONTAINERS AS BONDED COATED PARTICLE FUEL WITH POROUS OXIDE KERNELS AND COMPOSITE PYROCARBON AND
SILICON-CARBIDE COATINGS. THE PARTICLE CONCEPT IS DESCRIBED AND THE CHOICE OF GRAPHITE
EXPLAINED. THE EXPECTED FUEL ELEMENT PERFORMANCE UNDER NORMAL AND ACCIDENT CONDITIONS IS
DISCUSSED. THE SPECIFIC FISSION-PRODUCT RELEASE RATES OF THE CORE FOR THIS FIRST NUCLEAR PLANT
WITH A HELIUM TURBINE ARE GIVEN.

REACTOR, GCR + *REACTOR, HTGR + *REACTOR DESCRIPTION + FUEL ELEMENT + INTEGRITY + TURBINE + HELIUM + FISSION
PRODUCT RETENTION

18-34761

BAMMERT K + KREY G + KUPER KD

PERFORMANCE OF HIGH-TEMPERATURE REACTOR AND HELIUM TURBINE

11 PAGES, 9 FIGURES, KERntechnik, 11(2), PAGES 77-87 (FEBRUARY 1969)

THE CONTROL OF A NUCLEAR POWER PLANT WITH HIGH-TEMPERATURE REACTOR AND HELIUM TURBINE, ITS PART-
LOAD BEHAVIOUR, AND THE CONTROL ACTION ARE DESCRIBED. THE SPECIAL CASES OF REACTOR SCRAM, SHUT-
DOWN OF THE TURBINE AND LOAD RELEASE AS WELL AS STARTING UP AND TURNING OFF OF THE PLANT ARE
TAKEN INTO CONSIDERATION. THE INVESTIGATIONS HAVE SHOWN THAT THE APPROVED CONTROL DEVICE OF THE
CLOSED-CYCLE AIR TURBINE CAN BE ADOPTED LARGELY FOR THE CONTROL OF THE HELIUM TURBINE WITH HIGH-
TEMPERATURE REACTOR.

REACTOR, HTGR + REACTOR, GCR + *CONTROL SYSTEM + *REACTOR CONTROL + TURBINE + HELIUM + GERMANY

18-34762

BOHM E + EHRET A + GEPPERT H + HAUCH W + KUPER KD

THE 25 MW SCHLESWIG-HOLSTEIN NUCLEAR POWER PLANT (GEESTHACHT II)

GUTEHOFFNUNGSHUTTE STERKRACE AG (GHM), OBERHAUSEN (RHEINLAND)

8 PAGES, 4 FIGURES, KERntechnik, 11(2), PAGES 69-76, (FEBRUARY 1969)

THE 25 MW SCHLESWIG-HOLSTEIN NUCLEAR POWER PLANT WILL DEMONSTRATE FOR THE FIRST TIME IN THE WORLD
THE COUPLING OF A HIGH-TEMPERATURE REACTOR WITH A HELIUM TURBINE IN A CLOSED CYCLE. THE REACTOR
CORE CONSISTS OF PRISMATIC GRAPHITE FUEL ELEMENTS CONTAINING THORIUM AND HIGHLY ENRICHED URANIUM
IN THE FORM OF COATED PARTICLES. THE HELIUM COOLANT IS SIMULTANEOUSLY WORKING MEDIUM OF THE
HELIUM TURBINE DESIGNED TO OPERATE ON A SINGLE SHAFT ARRANGEMENT WITH DOUBLE INTERCOOLING.

*REACTOR, HTGR + REACTOR, GCR + TURBINE + HELIUM + GERMANY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-34763 ALSO IN CATEGORY 5
DIBELIUM G + FORSTER S
GAS-COOLED REACTORS WITH GAS-TURBINES USING HELIUM NEON, OR CARBON-DIOXIDE
6 PAGES, 10 FIGURES, KERntechnik, 11(2), PAGES 105-110 (FEBRUARY 1969)

GAS TURBINE CYCLES AND THEIR COMPONENTS FOR VARIOUS TYPES OF GAS COOLED REACTORS USING DIFFERENT GASES ARE COMPARED. AS REACTORS THE ADVANCED GAS COOLED REACTORS, THE HIGH TEMPERATURE REACTOR AND THE FAST REACTOR ARE CONSIDERED. AS WORKING FLUID HELIUM, NEON OR CARBON DIOXIDE ARE USED. THE PRESENT ANALYSIS IS AIMED TO FIND THE BEST SUITED WORKING FLUID FOR THE CYCLE IN EACH CASE OF REACTOR TYPE AND THE MOST FAVORABLE CYCLE DATA FOR THE LOWEST GENERATING COSTS. WITHIN THE OPTIMIZING CALCULATIONS THE CYCLE DATA ARE VARIED AND THE CORRESPONDING HEAT EXCHANGER SURFACES AS WELL AS THE MAIN DIMENSIONS OF THE TURBOSET ARE DETERMINED. FROM THE COSTS FOR THESE COMPONENTS TOGETHER WITH THE FUEL CYCLE COSTS A REPRESENTATIVE PART OF THE GENERATING COSTS CAN BE ESTIMATED. THE MINIMUM OF THIS PART OF THE GENERATING COSTS IS TAKEN AS CRITERION FOR THE CHOICE OF THE CYCLE DATA AND THE PLANT COMPONENTS.

*REACTOR COOLANT + HELIUM + NEON + CARBON DIOXIDE + *DESIGN STUDY + REACTOR, HTGR + REACTOR, GCR + REACTOR, FAST + GERMANY

18-34764 ALSO IN CATEGORY 11
DONNE DM + EISEMANN E + THUMMLEK F + WIRTZ K
HIGH-TEMPERATURE GAS COOLING FOR FAST BREEDERS
6 PAGES, 4 FIGURES, KERntechnik, 11(2), PAGES 99-104 (FEBRUARY 1969)

THE MAIN PROBLEM FOR THE DEVELOPMENT OF GAS COOLED FAST REACTORS IS A RELIABLE FUEL ELEMENT. PRESENTLY THREE POSSIBILITIES FOR HIGH TEMPERATURE FUEL DESIGN ARE DISCUSSED. ALL THESE FUELS WOULD ALLOW GAS OUTLET TEMPERATURES ABOVE 720 C, WHICH ALLOWS THE USE OF A DIRECT GAS TURBINE CYCLE WITH A NET PLANT EFFICIENCY ABOVE 40%. IN ALL CASES THE COOLANT PRESSURE IS CONSIDERABLY HIGHER THAN THE PRESSURE NORMALLY USED IN THERMAL GAS COOLED REACTORS. THE SPECIAL SAFETY ASPECTS THAT APPEAR IN CONNECTION WITH GAS COOLED FAST REACTORS ARE BRIEFLY DISCUSSED.

*REACTOR, HTGR + REACTOR, GCR + REACTOR, FAST + *FUEL ELEMENT + *DESIGN STUDY + DESIGN CRITERIA + GERMANY

18-34765
THE CONTROVERSY OVER THE FUTURE DEVELOPMENT OF THE GERMAN FAST BREEDER
35 PAGES, FIGURES, TABLES, REFERENCES, ATOMWIRTSCHAFT - ATOMTECHNIK, PG. 187-220, APRIL 1969

THE RESULT OF A REAPPRAISAL WAS THAT ON 5/2/69 THE GERMAN MINISTER FOR SCIENTIFIC RESEARCH DECIDED THAT THE STEAM-COOLED, FAST BREEDER PROJECT SHOULD BE STOPPED, THAT THE WORK IN INDUSTRY SHOULD BE BROUGHT TO AN END, AND THAT ONLY A FEW SPECIAL DEVELOPMENTS, MAINLY IN CONNECTION WITH FUEL RODS, SHOULD CONTINUE WITHIN THE BASIC PROGRAM OF THE NUCLEAR RESEARCH CENTRE KARLSRUHE.

*REACTOR, LMFBR + REACTOR, SCBR + *R AND D PROGRAM + GERMANY

18-34766
SCHULTEN R
THE IMMEDIATE FUTURE OF THE HIGH-TEMPERATURE REACTOR
5 PAGES, ATOMWIRTSCHAFT - ATOMTECHNIK, PG. 176-180, APRIL, 1969

IN GERMANY THE AVR REACTOR WAS BUILT AS THE FIRST STEP IN THE HTR LINE AND IMPORTANT AND POSITIVE EXPERIENCE HAS ALREADY BEEN ACQUIRED USING IT. THE DEVELOPED THORIUM, HIGH-TEMPERATURE REACTOR PROJECT THTR IS THE SECOND STEP. THE 25 MWE NUCLEAR POWER STATION GEESTHACHT 11 TO BE BUILT BY THE GHM AT GEESTHACHT NEAR HAMBURG IS A FIRST DEMONSTRATION PROJECT FOR AN HTR WITH A HELIUM TURBINE. A FIVE YEAR PROJECT STUDY FOR THE RESEARCH AND DEVELOPMENT WORK ON A GAS TURBINE COMBINED WITH AN HTR IS BEING CARRIED OUT WHICH ALSO INCLUDES THE PLANNING WORK FOR A COMMERCIAL 600 MWE HTR WITH HELIUM TURBINES.

GERMANY + REACTOR, GCR + *REACTOR, HTGR + *R AND D PROGRAM

18-34767
HAFFLE W
THE IMMEDIATE FUTURE OF THE SODIUM-COOLED BREEDER
3 PAGES; 1 TABLE, 6 REFERENCES, ATOMWIRTSCHAFT - ATOMTECHNIK, PAGES 174-176 (APRIL 1969)

AFTER THE DECISION TO DROP THE DEVELOPMENT WORK FOR A STEAM-COOLED, FAST BREEDER REACTOR AS AN INDEPENDENT PROJECT, EFFORT IS CONCENTRATING ON THE DEVELOPMENT LINE OF SODIUM-COOLED FAST BREEDERS. NATURALLY THE FIRST PROTOTYPE REACTOR IS IN THE FOREFRONT OF INTEREST. THE DESIGN WORK IS THE RESPONSIBILITY OF THE CONSORTIUM SIEMENS/INTERATOM-BELGONUCLEAIRE/NERATOM AND IS AT AN ADVANCED STAGE. AT THE END OF 1969 OR THE BEGINNING OF 1970 THE CONSORTIUM WILL BE IN A POSITION TO DELIVER A FIRM QUOTATION.

*REACTOR, LMFBR + *R AND D PROGRAM + *GERMANY

18-34897 ALSO IN CATEGORY 5
SAFETY ANALYSIS SUMMARY OF BABCOCK AND WILCOX'S CNSG MARITIME REACTOR
BABCOCK AND WILCOX, LYNCHBURG, VIRGINIA

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-34897 *CONTINUED*
BAW-1321 +. 100 PAGES, FIGURES, TABLES, REFERENCES, FEBRUARY 1968

A SAFETY ANALYSIS OF AN INTEGRATED REACTOR DESIGN IS PRESENTED FOR A PRE LICENSE APPLICATION REVIEW. THE REACTOR IS INTENDED FOR APPLICATION IN A HIGHER-POWERED SHIP.

*REACTOR, MARITIME + *SAFETY EVALUATION + CONTAINMENT, PRESSURE RELIEF + SAFETY REVIEW

18-34907 ALSO IN CATEGORIES 2 AND 7 AND 11
NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY QUARTERLY REPORT, NOVEMBER 1968-
JANUARY 1969
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-1009 +. 161 PAGES, FIGURES, TABLES, MARCH 1969

(CONTAINMENT SYSTEM EXPERIMENT) SPRAY REMOVAL RATE FOR ELEMENTAL IODINE PREDICTED WITHIN 20(FOR THE FIRST FEW MINUTES. NAOH ADDITION NOT EFFECTIVE. NO ACOUSTIC EMISSION DURING BLOWDOWN FROM KNOWN FLAWS IN VESSEL HEAD (THERMAL POLLUTION). REPORT BNWL-999, SIMULATION TO YEAR 2000 OF PLANTS ON THE UPPER MISSISSIPPI, WAS ISSUED. OHIO RIVER SIMULATION HAS BEGUN.

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

R AND D PROGRAM + CSE + FAULT + SIMULATION + THERMAL POLLUTION + RIVER, GENERAL + ANALYTICAL MODEL +
*CONTAINMENT SPRAY + *ADDITIVE + *ACOUSTICS + BLOWDOWN + *PRESSURE VESSEL

18-34910 ALSO IN CATEGORIES 5 AND 11
CARMICHAEL CF + MARKO SA
CONTEMPT-PS -- A DIGITAL COMPUTER CODE FOR PREDICTING THE PRESSURE-TEMPERATURE HISTORY WITHIN A PRESSURE-
SUPPRESSION CONTAINMENT VESSEL IN RESPONSE TO A LOSS-OF-COOLANT ACCIDENT
PHILLIPS PETROLEUM COMPANY
100-17252 +. 74 PAGES, FIGURES, TABLES, APRIL 1969

REPORT DESCRIBES BOTH ANALYTICAL MODEL AND COMPUTER CODE. (FORTRAN IV OR SYMBOLIC LANGUAGE USED FOR IMB 7040-44). PROVISIONS FOR CONTAINMENT LEAKAGE (GROSS OR FROM PENETRATIONS), FAN COOLING, DRY- AND WET- WELL SPRAYS. FLOW MAY BE SONIC OR SUBSONIC THROUGH VENTS, AND DRY- WELL TEMPERATURES MUST STAY BELOW 460 F.

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

*CONTAINMENT, PRESSURE SUPPRESSION + *CONTAINMENT DESIGN + BLOWDOWN + REACTOR, BWR + CONTAINMENT SPRAY +
CONTAINMENT PENETRATION, GENERAL + *ANALYTICAL MODEL + *COMPUTER PROGRAM + CONTAINMENT AIR COOLING + LEAK RATE

18-34920 ALSO IN CATEGORIES 5 AND 17
SUPPLEMENT 4 TO THE BAWTR SAFETY ANALYSIS REPORT
BARCOCK AND WILSON, LYNCHBURG, VA.
BAW-208-4 +. 25 PAGES, FIGURES, TABLES, 23 REFERENCES, APRIL 18, 1969, DOCKET 50-200

PROVIDES INFORMATION ON 3 MAJOR CHANGES IN SUPPORT OF A REQUEST FOR TECHNICAL SPECIFICATION CHANGE - (1) POWER UPGRATING FROM 6 MW TO 14. (2) REGULATING-ROD FUEL-ELEMENT CHANGE FROM 10 TO 17, ADDING 0.0066 REACTIVITY AND SLIGHTLY INCREASING THE HOT-SPOT PEAK FACTOR. (3) REPLACING THE CENTRAL PWR LOOP WITH A CENTRAL FILLER WITH 5 HOLES, USING 785 GPM. *** REPORT ANALYZES POWER UPGRATING (DESIGN-BASIS ACCIDENT IS FLOW BLOCKAGE OF 1 FUEL ELEMENT, SITE IS ADEQUATE TO MEET FULL CORE MELTDOWN AT 12 MW), CONSIDERING FLOW INSTABILITY AND LOSS-OF-FLOW ACCIDENTS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

REPORT, SAR + *POWER UPGRATING + *FLOW STABILITY + ACCIDENT, LOSS OF FLOW + REACTOR, TEST + TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + REACTOR, RESEARCH

18-35016
BAUST E
SYSTEMATIC SAFETY ASPECTS OF THE PEBBLE BED-HTR
BROWN BOVERI/KRUPP REAKTORBAU GMBH, MANNHEIM, GERMANY
2 PAGES, ATOMWIRT., ATOMTICH., VOL. 14, PG. 32-33 (JANUARY 1969)

THE DESIGN FEATURES OF THE THORIUM HIGH TEMPERATURE REACTOR (THTR) ARE DISCUSSED. SAFETY ASPECTS ARE DESCRIBED. FUEL MELTING, HELIUM STABILITY, PROMPT TEMPERATURE COEFFICIENT OF REACTIVITY, PRESTRESSED CONCRETE PRESSURE VESSEL, AND CONTINUOUS FUELING ARE CONSIDERED.

*SAFETY ANALYSIS + DOPPLER COEFFICIENT + REACTOR, PEBBLE BED + REACTOR, GCR + CONCRETE, PRESTRESSED + PRESSURE VESSEL + FUEL MELTDOWN + FLOW STABILITY + GERMANY

18-35020
DEUBLEIN O
LINGEN A SURVEY OF THE GERMAN KWL PLANT
AEG-TELEFUNKEN, FRANKFURT AM MAIN

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-35020 *CONTINUED*
17 PAGES, NUCL. ENG. INT., VOL. 13, PG. 929-45 (NOVEMBER 1968)

A BRIEF HISTORY OF THE PROJECT IS GIVEN TO INTRODUCE A SERIES OF 4 ARTICLES WHICH DESCRIBE THE DESIGN FEATURES, FUEL, INSTRUMENTATION AND CONTROL, AND COMMISSIONING AND START-UP OF THE KWL PLANT. A FOLDED CHART GIVES A CUT-AWAY VIEW OF THE REACTOR AND LISTS THE MAIN PARAMETERS

*REACTOR DESCRIPTION + REACTOR, BWR + GERMANY

18-35039 ALSO IN CATEGORY 6
STEWART JE
PARAMETRIC EVALUATION OF THE INFLUENCE OF ²³⁹PU AND FISSION PRODUCT CAPTURE CROSS SECTIONS ON LMFBR PERFORMANCE
BABCOCK AND WILCOX, LYNCHBURG, VA.
BAW-3867-7 +. 69 PAGES, TABLES, REFERENCES, MARCH, 1969

THIS STUDY INVESTIGATED LARGE UNCERTAINTIES, OVER THE ENTIRE SPECTRUM, IN THE CAPTURE CROSS SECTIONS OF PU-239 AND LUMPED PLUTONIUM FISSION FRAGMENTS. EMPHASIS WAS PLACED ON DETERMINING THE EFFECTS OF THE UNCERTAINTIES ON THE DEPLETION AND FUEL MANAGEMENT CHARACTERISTICS OF TWO LMFBR CORE SIZES. COMPARISONS WERE MADE FOR THE APPROACH TO EQUILIBRIUM AND PARTICULARLY FOR THE EQUILIBRIUM CYCLE ITSELF.

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*CROSS SECTION + NEUTRON + PLUTONIUM + MEASUREMENT, GENERAL + REACTOR PHYSICS + *FUEL BURNUP + FUEL MANAGEMENT
+ REACTOR, LMFBR + R AND D PROGRAM

CATEGORY 19
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19-33968
APPLEBY ER
POWER REACTOR DESIGNS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-936(VOL.2) +. 302 PAGES, JANUARY 1969

A COMPILATION OF DOMESTIC AND FOREIGN REACTORS BOTH CONCEPTUAL AND OPERATING. INFORMATION IS DESCRIPTIVE (GIVES OWNER, DESIGNER, TYPE COOLANT, TYPE CLADDING, CONTROL, CONTAINMENT TEMPERATURES AND PRESSURES, ETC.). TYPES OF REACTORS LISTED ARE LIQUID-METAL REACTORS, ORGANIC COOLED, PWR, STEAM OR SUPERCRITICAL-WATER COOLED, AND NUCLEAR AUXILIARY POWER SYSTEM. INDEX IS INCLUDED.

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*COMPARISON, REACTOR CHARACTERISTICS + *REACTOR, POWER + INFORMATION RETRIEVAL + *R AND D PROGRAM + *DESIGN STUDY + BATTELLE NORTHWEST + *BIBLIOGRAPHY + REACTOR, LMFBR + REACTOR, LMCR + REACTOR, PWR + REACTOR, SCBR + DIRECT ENERGY CONVERSION DEVICES

INFORMATION AT NSIC IS DIVIDED INTO 19 CATEGORIES. AN ITEM OF INFORMATION MAY BE KEYED TO AS MANY AS THREE OF THESE. A COLLECTION OF SELECTORS OR KEYWORDS IS USED TO DENOTE THE MAIN SAFETY RELATED POINTS COVERED IN AN ARTICLE. THE FOLLOWING INDEX IS AN ALPHABETICAL LISTING OF SELECTORS GIVING REFERENCES TO EACH ARTICLE WHICH WAS KEYED TO IT. THE CATEGORY NUMBER IS GIVEN FIRST, FOLLOWED BY THE ACCESSION NUMBER. THE ACCESSION NUMBERS ARE USED TO LOCATE BIBLIOGRAPHIC ITEMS WITHIN A CATEGORY.

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6-34398	6-34918	6-35146	9-34398		18-33508	18-33509	18-33513	18-33932	
9-34918	9-35146	18-34501	19-33968		CONTAINMENT CORROSION PROTECTION				
COMPARISON, THEORY AND EXPERIENCE					11-33513	18-33513			
2-33079	2-33111	2-34777	6-33122		CONTAINMENT DESIGN				
6-34384	6-34385	6-34386	6-34387		1-34664	5-34664	5-34910	11-32816	
6-34388	6-34391	6-34392	6-34393		11-33513	11-33514	11-33754	11-34664	
6-34398	6-34399	6-34740	6-35177		11-34910	18-32816	18-33513	18-33514	
6-35178	9-29876	9-30601	9-31525		18-33754	18-33934	18-34910		
9-33122	9-33124	9-34384	9-34385		CONTAINMENT INTEGRITY				
9-34386	9-34387	9-34388	9-34391		6-34669	11-33586	11-34669	18-33586	
9-34392	9-34393	9-34398	9-34399		18-34669				
9-34604	9-34740	11-31481	11-34000		CONTAINMENT ISOLATION				
11-34002	11-34004	11-34009	11-34012		2-33751	11-31491	12-33751	18-33751	
11-34014	11-34020	11-34039	11-34041		CONTAINMENT LEAKAGE CONTROL				
11-34044	12-35036	12-35167	13-35038		7-29402				
13-35167	14-29868	16-29868	16-30184		CONTAINMENT PENETRATION, GENERAL				
16-30185	16-30186	16-30187	17-30601		5-34910	11-31491	11-34010	11-34012	
17-31525	17-34636	17-35177	17-35178		11-34040	11-34910	12-34310	13-34310	
18-34636					16-34310	18-34910			

CONTAINMENT PENETRATION, PIPE				18-34669	18-34686		
1-34450				CORE MELTDOWN			
CONTAINMENT SPRAY				1-34664	5-34664	5-35150	11-34664
2-34907	5-34910	7-34907	11-33558	12-31504	17-34636	18-34634	18-34636
11-34907	11-34910	18-34907	18-34910	CORE REFLOODING SYSTEM			
CONTAINMENT STRUCTURE				10-34922	12-34922	17-34922	
11-33736				CORE SPRAY			
CONTAINMENT VESSEL LOADING				11-33558	11-33974	12-33974	18-33974
2-32915	11-33514	11-33736	16-32915	CORROSION			
18-32915	18-33514			4-34362	5-33504	5-34906	7-30820
CONTAINMENT, FUEL REPROCESSING				7-34362	7-34372	7-34422	7-34673
3-31461	11-31461	13-31461		9-34784	9-35026	11-31478	11-31483
CONTAINMENT, GENERAL				11-33953	11-34673	12-30879	12-34500
5-34638	11-31465	11-34638	11-35173	12-34784	12-35044	13-30879	13-34500
12-31465	13-31498	17-32939	17-32940	13-34720	13-34786	13-35044	17-33504
17-32941	17-32942	17-32943	17-35173	17-34906	17-35026	18-33504	18-33951
18-32939	18-32940	18-32941	18-32942	18-33952	18-33953	18-34673	
18-32943	18-34638	18-34655		COSMIC RADIATION			
CONTAINMENT, PRESSURE RELIEF				14-33501	14-35033	15-30105	16-30105
5-34897	18-34897			16-33501	17-30105		
CONTAINMENT, PRESSURE SUPPRESSION				COUNTER			
5-34910	11-33514	11-33558	11-33974	6-34393	9-29872	9-29885	9-34393
11-34910	12-33974	18-33514	18-33974	9-35188	9-35189	9-35191	15-33127
18-34910				CREEP			
CONTAINMENT, PRESSURE VENTING				4-34646	7-34646	11-34035	11-34036
14-34869				11-34041	12-31462	12-33926	13-34717
CONTAINMENT, SOURCE				CREEP BEHAVIOR			
9-35031	17-35184			4-34646	5-34625	7-34646	11-31480
CONTAINMENT, UNDERGROUND				11-34005	11-34006	11-34008	17-34625
11-34653	17-34653			CREEP PROPERTY			
CONTAMINATION				4-34646	7-34646	12-31462	12-34500
1-31356	7-30676	7-34356	7-34359	13-34500			
12-30676	12-34359	13-30676	14-28573	CRITICAL ASSEMBLY FACILITY			
14-33544	14-33590	14-34869	14-35033	5-33542	6-30678	6-35029	7-30678
14-35036	15-29746	15-30105	15-30921	12-35170	14-33542	17-35017	17-35029
15-31531	15-34356	15-34643	15-34769	18-33542			
15-35186	16-28573	16-30105	17-28573	CRITICAL MASS			
17-30105	17-30921	17-31356	17-35184	6-32821	18-32821		
17-35186				CRITICALITY EXPERIMENT			
CONTROL ROD				6-30678	6-32821	6-34753	6-34880
9-30605	9-32807	9-33549	9-33561	7-30678	12-35170	18-32821	
9-33562	12-34757	12-35170	17-30605	CRITICALITY SAFETY			
17-35161	18-32807			3-31461	6-30678	6-34630	7-30678
CONTROL ROD DRIVE				7-30804	9-34630	11-31461	13-31461
9-32807	9-33554	9-33556	9-33563	13-34894	17-35021		
9-33721	9-34622	9-35162	17-35162	CROSS SECTION			
18-32807				6-30814	6-35039	18-35039	
CONTROL ROD INTERACTION				CRUD			
9-34738				5-34862	6-34862	7-35175	16-35175
CONTROL ROD PROGRAM				17-34862	17-35175	17-35180	
6-35019	9-33551	17-35019		CRYOGENICS			
CONTROL ROD SCRAM MECHANISM				13-34487			
9-33556				CSE			
CONTROL ROD WORTH				2-34907	7-34907	11-34907	18-34907
9-30601	9-34481	9-34738	17-30601	CURIUM			
CONTROL SYSTEM				13-31498	13-34699	13-34701	
2-32915	4-34744	5-34895	6-34394	CVTR (PWR)			
6-34740	9-32807	9-33549	9-33555	6-34397	9-31332	9-34397	12-31332
9-33563	9-34319	9-34394	9-34480	CYLINDER			
9-34622	9-34660	9-34740	9-34744	11-34017	11-34027	11-34043	
11-34895	12-34708	12-34895	13-34708	CYLINDER GAS			
15-34865	16-32915	17-34865	18-32807	9-30601	14-28573	14-34869	16-28573
18-32915	18-34660	18-34761		17-28573	17-30601		
CONTRCLER				CZECHOSLOVAKIA			
9-35162	17-35162			9-34739	17-34739		
CONVECTIVE BOILING				DAMAGE			
5-34676	5-34677	5-34726	5-35150	2-33106	12-31462		
COOLANT CHEMISTRY				DANGER COEFFICIENT			
4-34361	5-34906	7-30826	7-34361	11-31479			
7-34459	7-34461	7-34461	7-34462	DATA PROCESSING			
7-34465	7-34466	7-34468	7-34469	6-34387	6-34388	6-34390	6-34747
7-34471	9-34784	11-33953	12-34784	9-29879	9-31332	9-34387	9-34388
17-34459	17-34461	17-34461	17-34462	9-34390	9-34448	9-34627	9-34747
17-34465	17-34466	17-34468	17-34469	12-31332	15-34644	17-34627	
17-34471	17-34906	17-35180	18-33951	DECAY HEAT			
18-33952	18-33953			7-34345	7-34421		
COOLANT COEFFICIENT				DECONTAMINATION			
5-33944	6-33944	6-34751		3-31461	3-35172	7-30679	7-30805
COOLANT PURIFICATION SYSTEM				7-34359	11-31461	12-34359	13-30805
5-34695	11-34695	12-34695	12-34878	13-31461	14-32421	15-30921	17-30921
12-35168	17-35180			17-35172			
COOLING, GENERAL				DECONTAMINATION FACTOR			
1-34306	1-34307	1-34308	1-34309	7-30679	17-35180		
1-34450	1-34620	6-34395	9-34395	DECONTAMINATION SPRAY			
11-34005	11-34006	11-34026	11-34029	7-30679			
18-32809				DEFORMATION			
CORE COMPONENTS				2-33575	11-34036	12-34639	
2-34686	5-34727	5-34768	5-34782	DELAYED NEUTRON			
6-34669	6-34727	9-34727	9-34784	6-34980	9-34663		
11-31479	11-34669	11-34686	12-34696	DEPOSITION			
12-34782	12-34783	12-34784	13-34696	7-30676	7-30803	7-32641	7-34419

12-30676	12-32641	12-35168	13-30676	15-31540			
14-32825	14-33501	14-33544	14-34492	DOSIMETRY, GENERAL			
14-35033	14-35156	15-34426	15-34492	14-35034	15-29895	15-31531	15-31540
15-35156	16-30186	16-30190	16-33501	15-31541	15-32824	15-34431	15-34641
16-34426	17-32641			15-34870	15-35155		
DESALINATION				DOSIMETRY, PHOTOGRAPHIC			
1-30146				15-34431			
DESIGN CRITERIA				DOSIMETRY, THERMOLUMINESCENCE			
2-33105	2-33116	2-33512	2-33575	15-29757			
2-33576	2-34686	2-34776	2-34777	DRESDEN 1 (BWR)			
2-35193	2-35194	3-31461	3-34707	9-34735	10-34691	17-34626	17-34691
3-34711	5-33977	5-34768	5-34895	17-34735			
9-32820	11-30865	11-31461	11-33754	DRESDEN 2 (BWR)			
11-33977	11-34001	11-34003	11-34007	1-34684	2-34684	18-34684	
11-34012	11-34021	11-34022	11-34023	DRESDEN 3 (BWR)			
11-34026	11-34027	11-34029	11-34031	1-34684	2-34684	18-34684	
11-34031	11-34033	11-34040	11-34041	DUCTILITY			
11-34043	11-34048	11-34053	11-34686	17-34780			
11-34764	11-34895	12-34705	12-34707	DUNGENESS B (GCR)			
12-34709	12-34878	12-34895	12-35168	1-33497	5-33504	11-34040	11-34045
13-30668	13-31461	13-33506	13-34487	17-33504	18-33504		
13-34675	13-34704	13-34711	14-32421	EARTH MATERIAL, DYNAMIC PROPERTY			
15-33127	15-34643	17-33982	17-34704	2-33435	2-33456	2-33499	2-33507
18-32818	18-32820	18-33754	18-33934	EARTH TREMOR, INDUCED			
18-33977	18-34637	18-34686	18-34764	2-33079	2-33105	2-33106	2-33499
DESIGN STUDY				2-33571	2-33578	2-34775	
1-33331	1-34664	4-34744	5-33948	EARTHQUAKE			
5-33977	5-34488	5-34659	5-34664	11-34000	18-33934		
5-34667	5-34727	5-34763	5-34768	EARTHQUAKE ENGINEERING			
6-34649	6-34665	6-34667	6-34727	2-32817	2-33117	2-33507	2-33575
6-34747	9-29872	9-34442	9-34444	2-34686	11-34686	18-32817	18-34686
9-34660	9-34727	9-34744	9-34747	EARTHQUAKE EPICENTER			
9-34784	11-33331	11-33950	11-33953	2-33117	2-33571	2-33572	
11-33965	11-33977	11-34661	11-34664	EARTHQUAKE RECORDS			
11-34764	12-31463	12-34617	12-34649	2-33079	2-33117	2-33572	2-33573
12-34696	12-34698	12-34705	12-34784	2-33574	2-34779		
13-33506	13-34696	13-34697	13-34786	EARTHQUAKE, GENERAL			
17-33331	17-34633	18-33946	18-33948	2-33079	2-33105	2-33106	2-33111
18-33950	18-33951	18-33952	18-33953	2-33116	2-33117	2-33435	2-33456
18-33965	18-33966	18-33977	18-34633	2-33499	2-33507	2-33546	2-33571
18-34649	18-34655	18-34658	18-34659	2-33572	2-33573	2-33574	2-33575
18-34660	18-34661	18-34662	18-34667	2-33576	2-33577	2-33578	2-34733
18-34668	18-34670	18-34763	18-34764	2-34775	2-34776	2-34777	2-34779
19-33968				2-35193	2-35194		
DESTRUCTIVE TRANSIENT				ERR 1 AND 2 (RE)			
5-34693	6-34693			7-34347	11-33950	12-35042	13-35042
DEUTERIUM				16-34347	17-34636	18-33950	18-34636
7-34465	7-34468	7-34471	17-34465	ECOLOGICAL CONSIDERATION			
17-34468	17-34471			1-29782	1-30451	1-33103	1-34305
DIETARY HABIT				1-34306	1-34308	1-34309	1-34341
1-33103	14-33103	15-29652	15-33103	1-34620	14-33103	14-33544	14-33590
15-34893				14-34305	15-33103	17-34305	
DIFFUSION				ECONOMIC STUDY			
4-34420	7-30820	7-30826	7-34346	11-34027			
7-34411	7-34420	14-28573	16-28573	ECONOMICS			
17-28573				1-29575	1-30145	1-30733	1-33497
DIFFUSION COEFFICIENT				2-34776	2-34777	3-31461	9-24885
14-33927				9-34319	9-34446	9-34606	9-34608
DILUTION				9-35145	11-30865	11-31461	13-31461
1-34309				14-33590	17-30145	17-34606	18-29575
DIRECT ENERGY CONVERSION DEVICES				EFFLUENT			
7-34673	11-34673	18-34673	19-33968	7-34347	14-33545	14-33590	14-34427
DISPERSION				14-35037	15-33500	15-34427	15-34870
6-34649	12-34649	16-30187	18-34649	15-35037	16-30185	16-30187	16-33500
DISPLACEMENT, GENERAL				16-34347			
2-34775	6-34649	12-34649	18-34649	ELASTICITY			
DISSOLUTION				2-33507	11-30442	11-34002	11-34004
3-31461	11-31461	13-31461	13-34697	11-34008	11-34009	11-34020	11-34035
DISSOLVER				11-34039	11-34040	11-34044	
13-34487				ELECTRIC ARC			
DISTANCE				9-35174	17-35174		
11-34896	12-34896			ELECTRIC POWER, ALTERNATE			
DOPPLER COEFFICIENT				10-35015	17-35015		
1-34664	5-34664	6-32821	6-33964	ELECTRIC POWER, GENERAL			
6-34613	6-34614	6-34755	6-34756	2-33751	10-32808	12-33751	18-32808
6-34892	11-34664	18-32821	18-33515	18-33751	18-33796		
18-33964	18-34634	18-34635	18-35016	ELECTRICAL CONDUCTION			
DOPPLER EFFECT				9-35162	9-35174	17-35162	17-35174
6-34753	6-34755	6-34756	18-34634	ELECTRON MICROSCOPY			
DOSE				3-34716	7-34350	7-34415	13-34716
1-33109	14-33103	15-29895	15-32824	ELECTROSTATIC CHARGE			
15-33103	15-33127	15-34426	15-34431	7-34408	7-34400	7-34401	7-34403
15-34641	16-34426	18-34344		7-34404	7-34405	7-34406	7-34409
DOSE CALCULATION, EXTERNAL				7-34411	7-34415	7-34469	17-34469
14-30189	15-34426	16-30189	16-30190	ELECTROSTATIC PRECIPITATION			
16-30191	16-34426			7-34400	7-34401	7-34403	7-34404
DOSE CALCULATION, INTERNAL				7-34405	7-34411	7-34415	7-34469
14-30189	16-30189	16-30191		17-34469			
DOSE MEASUREMENT, EXTERNAL				ELEMENTS AND ISOTOPES			
15-31540				14-33501	16-33501		
DOSE MEASUREMENT, INTERNAL				ELK RIVER (BWR)			

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17-30105				18-34634	18-34661	18-34673	
FAST NEUTRON				FISSION PRODUCT ACTIVITY, GROSS			
15-29895	15-31541			7-30821	7-34421		
FASTENER				FISSION PRODUCT RELEASE, GENERAL			
11-33513	17-35161	18-33513		4-34361	5-31578	5-34638	7-30677
FAULT				7-30804	7-30820	7-30826	7-34346
2-33116	2-33499	2-33499	2-33572	7-34361	11-33586	11-34638	12-35168
2-33574	2-34907	5-34864	7-34907	13-31578	18-31578	18-33586	18-34638
9-30605	9-34735	11-34907	17-30605	FISSION PRODUCT RETENTION			
17-34735	17-34864	18-34907		5-34638	7-29402	7-30805	7-34346
FAULT TREE ANALYSIS				11-34638	11-34661	11-34759	12-31464
1-33919	4-33919	18-33919		12-33869	12-34758	12-35038	12-35167
FEDERAL RADIATION COUNCIL				13-30805	13-31464	13-34657	13-34758
1-33103	14-33103	14-34647	14-34869	13-35038	13-35167	14-35034	18-34638
15-33103	15-34647			18-34661	18-34759		
FERMI (LMFBR)				FISSION PRODUCT TRANSPORT			
3-34706	3-34707	9-29877	12-34706	4-34361	5-34638	7-30471	7-30803
12-34707	13-34706	17-34706		7-34361	7-34422	11-33953	11-34638
FERMI 2 (BWR)				14-30471	18-33953	18-34638	
9-33814	11-33974	12-33974	18-33796	FISSION PRODUCT, IODINE			
18-33814	18-33974	18-34683		4-34361	6-30815	7-29402	7-30815
FFTF (TR)				7-34361	7-34462	7-34471	11-35173
1-33932	6-33964	9-34784	11-33953	15-34866	17-30806	17-34462	17-34471
11-33965	12-34696	12-34705	12-34784	17-34866	17-35173		
12-35170	13-34696	17-32939	17-32940	FISSION RECOIL			
17-32941	17-32942	17-32943	18-32939	7-34345	7-34346	12-31462	
18-32940	18-32941	18-32942	18-32943	FLANGE			
18-33932	18-33951	18-33952	18-33953	18-33947			
18-33964	18-33965	18-33966		FLAW			
FILM BOTTLING				11-30852	11-34640	12-34639	12-34640
5-34676	5-34677			FLOW CORRELATION			
FILTER				5-34724	5-34726	6-34390	9-34390
7-30459	7-32641	7-34349	7-34350	FLOW DISTRIBUTION			
7-34403	7-34418	7-34469	7-35148	5-32819	5-33930	5-34494	5-34497
12-32641	12-35148	13-35148	14-30459	5-34659	12-34428	17-32819	18-32819
15-34870	16-30459	17-32641	17-34469	18-34659			
FILTER EFFICIENCY				FLOW ORIFICE			
17-35180				7-34352	15-34352		
FILTER IMPACTION				FLOW STABILITY			
7-33408	7-34414			5-34725	5-34920	17-34920	18-34920
FILTER INSPECTION				18-35016			
7-34366	12-34366	13-34366		FLOW THEORY AND EXPERIMENTS			
FILTER INSTALLATION				5-32819	5-33504	5-34768	7-30679
17-35180				12-34428	17-32819	17-33504	18-32819
FILTER LIFE				18-33504	18-34635		
17-35180				FLOW, ANNULAR			
FILTER MAINTENANCE				5-34681	5-35150	12-34428	
7-34366	12-34366	13-34366		FLOW, AXIAL			
FILTER OPERATION				5-34681			
7-34366	12-34366	13-34366		FLOW, CONVECTION			
FILTER SAFETY EVALUATION				6-35178	9-31875	17-35178	
7-34366	12-34366	13-34366		FLOW, CRITICAL			
FILTER SYSTEM				5-34724			
7-34366	12-34366	13-34366		FLOW, CROSS			
FILTER THEORY, DIFFUSION				5-34681			
7-30803	7-34416	7-34417		FLOW, GENERAL			
FILTER THEORY, IMPACTION				1-34450	5-32819	6-34395	7-34352
7-34416	7-34417			9-34395	14-33927	15-34352	15-34879
FILTER THEORY, INTERCEPTION				17-32819	18-32819		
7-34416	7-34417			FLOW, LAMINAR			
FILTER, BED				12-34428			
7-34418				FLOW, PULSATING			
FILTER, COMMERCIAL				5-30007	6-30007		
7-34349	7-34350			FLOW, TUBE			
FILTER, FIRER				5-34724	7-34352	15-34352	
7-34416	7-34417	7-34418		FLOW, TURBULENT			
FILTER, GLASS				5-34497	5-34682	5-34694	5-35153
7-34416	7-34417			7-34352	12-34428	15-34352	
FILTER, HIGH EFFICIENCY				FLOW, TWO PHASE			
7-34366	12-34366	13-34366		5-34496	5-34724	5-34726	5-35150
FILTER, MEMBRANE				FLOW, VORTEX			
7-34349	7-34350	7-34469	17-34469	12-34428			
FILTER, MILLIPORE				FLUCTUATION			
7-34349	7-34350			6-34395	9-34395		
FILTER, PREFILTER				FLUIDIZED BED			
17-35180				13-34657			
FILTER, TRAP				FLUIDIZED BED VOLATILITY PROCESS			
4-34361	7-34361			5-31578	5-34749	12-34749	13-31578
FILTRATION				13-34749	18-31578		
7-35148	12-35148	13-35148		FLUORIDE			
FIN				13-31503	13-34657	15-29757	
5-34676	5-34677			FLUX DISTRIBUTION			
FIRE				6-30815	7-30815	17-35017	
2-34686	11-34686	13-34628	17-34628	FLUX TILT			
18-34686				6-30815	7-30815		
FISSION GAS RELEASE				FLUX, INTEGRATED			
3-30919	7-34346	7-34673	7-35175	9-29878			
11-34661	11-34673	12-33926	13-31460	FOAM			
16-35175	17-32939	17-32940	17-32941	7-29402	14-35036		
17-32942	17-32943	17-35175	18-32939	FORECAST			
18-32940	18-32941	18-32942	18-32943	9-29886	11-30865		

FORESHOCK				18-34501	18-34633		
2-33572				FUEL STORAGE			
FOUNDATION ENGINEERING				3-31461	11-31461	11-33552	11-33557
2-33575				11-33560	12-34310	13-31461	13-33134
FRACTURE TOUGHNESS				13-34310	13-34697	16-34310	17-35021
5-34695	11-30442	11-30822	11-30822	17-35160	18-32809		
11-34695	12-34695	13-34717		FUEL, LIQUID METAL			
FRANCE				5-34638	11-33974	11-34638	12-33974
1-30733	1-33497	5-33553	5-33977	18-32818	18-33974	18-34638	
5-34875	6-34875	6-34877	7-34468	FUEL, METALLIC TYPE			
9-33553	9-33556	9-33559	9-35190	5-34782	12-34616	12-34782	12-35042
11-33513	11-33552	11-33977	11-34050	12-35043	13-34616	13-35042	13-35043
12-34617	12-34709	13-30656	13-30657	FUEL, PELLET TYPE			
14-33544	14-33548	14-33922	14-33923	11-31465	12-31465	12-34651	12-34674
15-33500	15-33922	15-33923	16-33500	12-35042	12-35043	12-35165	13-34328
17-34468	18-33513	18-33977		13-34674	13-35042	13-35043	13-35165
FREQUENCY SPECTRA				FUEL, POWDER TYPE			
6-34384	9-34384			5-35022	11-31465	12-31464	12-31465
FT. ST. VRAIN (HTGR)				13-31464	17-35022		
2-33757	9-34481	12-34878	16-33757	GADOLINIUM			
18-33757				9-34737			
FUEL BURNUP				GAMMA			
6-34665	6-35039	6-35177	7-30821	6-34392	6-34393	9-33125	9-34392
7-34421	11-33950	11-35173	17-35173	9-34393	12-34696	12-35042	12-35043
17-35177	18-33950	18-34658	18-35039	13-34696	13-35042	13-35043	
FUEL CONVERSION				GAMMA EMITTER			
5-31578	5-34723	5-34749	12-34749	7-34345	7-34355	9-29874	12-34355
13-31578	13-34749	18-31578	18-34501	14-30189	14-35156	15-32824	15-34426
FUEL ELEMENT				15-34644	15-34870	15-35156	15-35183
3-34716	5-30659	5-30669	5-32815	16-30189	16-34426	16-34454	17-35183
5-34625	5-34693	5-34768	5-34782	17-35184			
5-34861	5-34868	5-34875	5-35023	GAS			
6-34693	6-34875	6-35177	7-34373	9-34742	9-35191	15-33500	15-34643
7-34673	9-31524	9-34784	9-34861	16-33500			
11-33552	11-33560	11-33950	11-34661	GAUSSIAN PLUME FORMULA			
11-34673	11-34759	11-34764	12-30658	16-30183	16-30184		
12-30659	12-30669	12-30671	12-31463	GENERATOR, ENGINE			
12-31464	12-31464	12-33926	12-34500	3-35172	10-34691	17-34691	17-35172
12-34616	12-34617	12-34651	12-34674	GEOLOGICAL CONSIDERATION, GENERAL			
12-34696	12-34782	12-34784	12-35030	2-33111	2-33573	2-33574	14-32678
12-35042	12-35043	12-35165	13-30657	14-32825	14-34869	14-35154	
13-30671	13-31464	13-31464	13-34327	GEOLOGICAL CONSIDERATION, GEOPHYSICAL			
13-34328	13-34500	13-34616	13-34648	2-33571	2-33579		
13-34674	13-34675	13-34696	13-34700	GEOLOGICAL CONSIDERATION, STRATIGRAPHY			
13-34703	13-34714	13-34715	13-34716	14-35154			
13-34718	13-34721	13-34894	13-35038	GERMANY			
13-35042	13-35043	13-35165	15-34648	1-30854	3-30919	5-30659	5-34667
17-34625	17-34861	17-34868	17-35023	5-34760	5-34763	6-34667	6-35019
17-35161	17-35177	18-32815	18-33950	7-35148	9-33549	11-30854	11-34764
18-34661	18-34673	18-34759	18-34764	12-30659	12-30671	12-34650	12-35148
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5-33944	6-33944			17-33982	17-35017	17-35017	18-32505
FUEL ELEMENT CLUSTER				18-33508	18-34667	18-34761	18-34762
9-33561				18-34763	18-34764	18-34765	18-34766
FUEL EXPANSION COEFFICIENT				18-34767	18-35016	18-35020	
5-33944	6-33944	18-34634		GINNA (PWR)			
FUEL HANDLING				18-33519			
3-34706	3-34707	3-35172	11-33557	GLASS			
11-33965	12-34698	12-34706	12-34707	13-30656	13-34657	15-31540	15-31541
12-34708	12-34709	13-33506	13-34706	15-34431			
13-34708	17-34706	17-35172	18-33947	GLOVE BOX			
18-33965				13-34703	15-34866	15-35185	17-34866
FUEL HANDLING MACHINE				17-35185			
3-34706	3-34707	9-35145	11-33552	GRAPHITE			
11-33965	12-34706	12-34707	12-34709	4-34354	7-30820	7-30826	7-34372
13-34706	17-34706	18-33965		8-34433	12-31462		
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7-30677	7-30820	12-33869		15-31541	15-34642		
FUEL MANAGEMENT				GROSS GAMMA			
1-30145	6-35039	11-33586	11-35173	15-31541	15-33127	15-34644	15-35155
17-30145	17-35173	18-33586	18-35039	GROUND MOTION			
FUEL MELTDOWN				2-33111	2-33116	2-33435	2-33499
1-34664	5-34664	6-34669	6-34892	2-33575	2-33578	2-33579	2-34733
7-34367	7-34368	11-34653	11-34664	GROUND WATER, NUCLIDE OCCURRENCE			
11-34669	17-30806	17-32939	17-32940	14-32825			
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FUEL REPROCESSING				HADDAM NECK (PWR)			
3-31461	5-31578	5-34749	7-35148	5-34862	6-34862	9-34627	10-34863
11-31461	12-31500	12-31505	12-34708	17-34626	17-34627	17-34862	17-34863
12-34749	12-34758	12-35038	12-35044	HALOGEN			
12-35148	12-35167	13-30655	13-30656	7-34466	17-34466		
13-30657	13-30668	13-30672	13-31461	HANFORD SITE			
13-31500	13-31503	13-31505	13-31578	9-34917	14-35035	14-35037	15-34431
13-33134	13-33506	13-34487	13-34648	15-34879	15-35037	17-34917	
13-34657	13-34697	13-34704	13-34708	HAZARD, RELATIVE			
13-34749	13-34758	13-34786	13-34894	14-33501	14-33922	14-35156	15-33922
13-35038	13-35044	13-35148	13-35167	15-34769	15-35156	16-33501	
13-35187	14-35034	14-35035	15-34648	HAZARDS ANALYSIS			
17-34633	17-34704	17-35187	18-31578	2-33106	2-33577	2-34777	4-33920

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11-34896	12-34896	13-31578	14-33542	13-34701	13-34702	13-34703	13-34712
16-33920	18-31578	18-33542	18-33796	13-34716	13-34717	15-34865	17-34702
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17-32131	17-34493	17-34629		5-34862	6-34862	17-34862	
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5-34861	5-34868	9-34861	17-34861	5-34659	18-34659		
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5-34677	5-34725	6-35170	9-34735	7-34465	17-34465		
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HEAT FLUX, DRYOUT				HYDRAULIC EXPERIMENT			
5-35150				5-35152			
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5-33930				6-33122	9-33122		
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5-30659	5-33930	5-33931	5-34343	5-33930	5-34343	5-34494	5-34497
5-34488	5-34494	5-34496	5-34676	5-34694	5-34725	5-35153	17-32939
5-34677	5-34678	5-34679	5-34680	17-32940	17-32941	17-32942	17-32943
5-34681	5-34682	5-34731	5-34749	18-32939	18-32940	18-32941	18-32942
5-34760	5-34898	5-34899	5-35147	18-32943			
5-35150	5-35151	5-35153	11-33931	HYDROGEN			
12-30659	12-34651	12-34749	13-34749	4-34362	6-33122	7-34362	9-33122
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5-34676	5-34677	5-34680	5-34681	HYDROXIDE			
5-34682	5-34875	5-35147	5-35150	5-34868	12-33869	17-34868	
5-35151	5-35153	6-34667	6-34875	IAEA			
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5-33931	5-34494	5-34496	5-34676	13-34487			
5-34677	5-34678	5-34679	5-34681	IN CORE MEASUREMENT			
5-34682	5-34898	5-34899	5-35151	9-29878	9-31524	9-33125	
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5-34496	5-34676	5-34677	5-34679	IN PILE LOOP			
5-34681	5-34682	5-34728	5-34898	5-34722	5-34906	17-34636	17-34906
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11-34908	12-34698	12-34708	12-34908		5-32819	11-31484	11-31491	11-34000	
13-34708	17-34633	17-34908	18-34633		11-34001	11-34002	11-34004	11-34014	
MANGANESE					11-34016	11-34017	11-34039	11-34041	
7-34422					11-34044	11-34045	14-32825	14-33927	
MASS TRANSFER					17-32819	18-32819			
5-34676	5-34677	5-35153	7-34422		MODERATOR				
MATERIAL					4-34354	6-33122	9-33122		
1-33331	11-33331	11-33953	11-34050		MODIFICATION, SYSTEM OR EQUIPMENT				
12-30879	13-30879	13-34717	13-34719		2-33751	5-32903	5-33504	9-30605	
17-33331	18-32810	18-32811	18-33953		10-34691	11-35179	12-32903	12-33751	
MATHEMATICAL STUDY					12-34709	13-34648	15-34648	17-30605	
2-35194	5-34724	5-34875	6-34875		17-33504	17-34325	17-34691	17-35179	
9-34660	12-32814	15-32814	18-32814		17-35182	18-32903	18-33504	18-33751	
18-34637	18-34660				MOLTEN FUEL				
MATHEMATICAL TREATMENT					12-30807	12-34705	13-34786	17-34633	
2-33546	2-33576	2-33578	2-34775		18-34501	18-34633			
2-35193	4-34744	4-34746	5-34488		MOLYBDENUM				
5-34611	5-34667	5-34760	5-34782		13-33134				
6-34665	6-34667	6-34746	6-35146		MONITOR, AIR				
9-33124	9-34435	9-34436	9-34438		15-31531	15-34642			
9-34439	9-34441	9-34446	9-34604		MONITOR, AREA				
9-34607	9-34608	9-34611	9-34744		9-34321	15-31531	15-34321	15-34865	
9-34746	9-35146	11-31479	12-30807		15-35183	17-34865	17-35183		
12-31501	12-32814	12-34651	12-34782		MONITOR, ENVIRONMENTAL				
12-35167	13-35167	14-32825	15-32814		14-34491	14-35034	14-35036	15-31531	
17-34636	18-32814	18-34635	18-34636		15-34491	15-34642	15-34879		
18-34637	18-34667				MONITOR, GAS				
MAXIMUM PERMISSIBLE BODY BURDEN					7-34460	15-34870	17-34460		
1-33103	7-34356	14-33103	15-33103		MONITOR, GENERAL				
15-34356	15-34893				2-34733				
MAXIMUM PERMISSIBLE CONCENTRATION (MPC)					MONITOR, LIQUID				
1-33103	7-34356	14-33103	14-33548		7-34459	7-34468	17-34459	17-34468	
14-33590	14-33922	14-34647	14-35037		MONITOR, PERSONNEL				
15-33103	15-33922	15-33924	15-34356		13-34629	15-30921	15-31531	15-31541	
15-34647	15-34879	15-35037			15-34629	17-30921	17-34629		
MEASUREMENT, GENERAL					MONITOR, TELEMETRY				
2-33079	2-34733	2-34775	2-35194		15-34644	15-34769			
5-34693	6-34693	6-34754	6-34880		MONITORING PROGRAM, ENVIRONMENTAL				
6-35039	9-34437	9-34438	13-34712		13-34648	14-34340	14-35037	15-34340	
14-35034	15-29746	15-31531	15-32824		15-34648	15-35037			
15-33127	15-33924	15-34644	15-34870		MONITORING SYSTEM, RADIATION				
15-34879	18-33947	18-35039			5-33553	7-34471	9-33553	15-34644	
MEASUREMENT, NOISE					17-34471				
6-34384	6-34385	6-34388	6-34391		MONTE CARLO				
6-34392	6-34394	6-34395	6-34397		6-34613	6-34614	15-34426	16-34426	
6-34398	6-34399	9-34384	9-34385		MSBR (RE)				
9-34388	9-34391	9-34392	9-34394		17-34633	18-34501	18-34633		
9-34395	9-34397	9-34398	9-34399		MSRE (RE)				
MEASUREMENT, REACTIVITY					10-34909	11-34908	12-34908	17-34633	
6-32821	6-34393	6-34980	9-30601		17-34908	17-34909	18-34501	18-34633	
9-34393	17-30601	17-35017	18-32821		MTR (TR)				
MEASUREMENT, STRAIN GAGE					9-31524				
11-34008	11-34039	11-34041	18-33947		NAK				
MEASUREMENT, SUBCRITICALITY					7-34460	17-34460			
6-34630	9-34630				NCRP				
METAL					1-33103	14-33103	15-33103		
7-30826	11-33953	18-33951	18-33952		NDT DATA				
18-33953					11-31491				
METAL, LIQUID					NEON				
4-34746	5-32819	5-34496	5-34497		5-34763	18-34763			
5-34677	5-34678	5-34681	5-34682		NERVA PROGRAM				
6-34746	9-29877	9-34746	17-32819		6-34387	9-34387			
18-32819					NETHERLANDS				
METEOROLOGICAL SUPPORT					6-34399	6-35029	9-34399	17-30806	
14-34869	15-34893	16-34748			17-35029				
METEOROLOGY					NEUTRON				
2-33757	7-34347	7-34353	12-34310		6-30815	6-34393	6-34394	6-35039	
13-34310	14-30189	14-33501	14-34353		7-30815	7-30821	9-29872	9-29874	
14-35033	15-34870	16-30187	16-30188		9-34393	9-34394	15-29895	15-31531	
16-30185	16-30189	16-33501	16-33757		15-32824	18-35039			
16-34310	16-34347	16-34353	16-34454		NEUTRON INTERACTION				
18-33757					18-33515				
MICROEARTHQUAKE					NEVADA TEST SITE				
2-33572					14-34869	15-34870			
MICROMETEOROLOGY					NFS				
16-30191					13-33134	13-34648	15-34648		
MILITARY CONSIDERATION					NICKEL				
15-35155					12-30658	12-31505	13-31505		
MINING					NIOBIUM				
14-34647	15-34647				12-35042	12-35043	13-35042	13-35043	
MIST					NITRATE				
7-30679					18-32818				
MIXING DEPTH					NITROGEN				
16-30182					4-34420	7-34420	9-34742	13-34487	

NOBLE GAS				ORE CONVERSION			
13-35041				5-34749	12-34749	13-34749	
NOISE				ORGANIC IODIDE			
5-33550	9-34607	17-33550		7-29402			
NOISE ANALYSIS				ORNL			
6-34384	6-34384	6-34385	6-34387	5-34659	7-34673	9-34660	11-34661
6-34388	6-34389	6-34391	6-34392	11-34673	13-34699	13-34894	14-35154
6-34393	6-34394	6-34395	6-34396	18-34501	18-34659	18-34660	18-34661
6-34397	6-34398	6-34399	6-34918	18-34662	18-34673		
9-33124	9-33125	9-34384	9-34384	ORR (RR)			
9-34385	9-34387	9-34388	9-34389	6-34396	9-34396		
9-34391	9-34392	9-34393	9-34394	OSCILLATOR, REACTIVITY			
9-34395	9-34396	9-34397	9-34398	6-34918	6-34918	9-34918	9-34918
9-34399	9-34918			OUT OF PILE LOOPS AND EXPERIMENTS			
NOISE CROSS CORRELATION				5-34722	7-34422	11-31478	
6-34384	6-34385	6-34387	6-34388	OXIDATION			
6-34389	6-34390	6-34394	6-34399	7-34367	7-34368	8-34433	12-35165
9-33124	9-33125	9-34384	9-34385	13-35165	14-32421		
9-34387	9-34388	9-34389	9-34390	OXIDE			
9-34394	9-34399			4-34420	7-34420	7-34469	12-31464
NOZZLE				12-35042	12-35043	13-31464	13-33134
2-32915	11-30822	11-34009	16-32915	13-35042	13-35043	17-34469	
18-32915				OXYGEN			
NPD 2 (HWR)				1-29782	1-34309	1-34620	4-34420
18-33947				7-34420	7-34422	9-34742	12-35042
NPR (PR)				12-35043	13-35042	13-35043	
14-35035				OYSTER CREEK 1 (BWR)			
NRDL				2-33751	12-33751	18-33751	
15-34431				PALISADES POINT (PWR)			
NRTS				18-34688			
5-34727	6-34727	9-34727	13-34487	PARTICLE SIZE			
13-34704	17-34704			7-30676	7-33408	7-34350	7-34351
NRX (TR)				7-34360	7-34405	7-34406	7-34409
6-34387	9-34387			7-34411	7-34412	7-34413	7-34414
NS SAVANNAH (PWR)				9-34737	12-30676	13-30676	17-35180
7-32641	12-32641	17-32641	17-35028	PARTICLE SIZE DISTRIBUTION			
NUCLEAR ATTACK				7-33408	7-34400	7-34401	7-34403
14-35156	15-34641	15-34772	15-35156	7-34405	7-34406	7-34407	7-34409
NUCLEAR DETONATION				7-34410	7-34411	7-34412	7-34413
14-29868	14-30917	14-34492	14-34869	7-34414	7-34414	7-34415	16-30186
14-35156	15-30105	15-34492	15-34893	PARTICLE, RADIOACTIVE			
15-35156	16-29868	16-30105	17-30105	14-34647	15-34642	15-34647	16-30191
NUCLEAR EXPLOSION DEBRIS				PARTICULATE			
14-34869	15-34769			7-30676	7-34406	7-34414	12-30676
NUCLEATE BOILING				13-30676	15-34643		
5-30669	5-34496	5-34676	5-34677	PATENT			
5-34899	6-34396	9-34396	12-30669	5-30659	5-33553	7-34373	9-33551
NUMEC				9-33553	9-33554	9-33555	9-33556
12-35042	12-35043	13-35042	13-35043	9-33559	9-33561	9-33562	9-33563
OCEAN AND SEA				9-33721	11-33552	11-33557	11-33558
1-30451	1-34308	14-33928		11-33560	12-30659	13-30657	14-30709
OCCONEE 1, 2, AND 3 (PWR)				15-29757			
18-33975	18-34344			PATHFINDER (ISR)			
OFF GAS				17-35160			
3-30919	7-30676	12-30676	13-30676	PEACH BOTTOM 1 (HTGR)			
13-34407	17-34693	18-34693		9-31525	12-34678	17-31525	
OFF SITE				PERFORMANCE LIMIT			
1-32907	14-35037	15-32907	15-35037	5-34625	5-34919	9-34919	15-33127
16-30191	18-32907	18-34344		17-34625	17-34919	18-34637	
OLDBURY (GCR)				PERSONNEL EXPOSURE, RADIATION			
1-33497	11-34029	11-34039	11-34043	1-31356	1-32907	9-34321	11-34896
11-34046	11-34053			12-34896	14-34647	15-29895	15-32907
ON LINE REFUELING				15-34321	15-34647	15-34769	15-34772
11-33557				15-34865	15-34866	15-34867	15-35185
OPERATING EXPERIENCE				17-31356	17-34865	17-34866	17-34867
1-30145	3-34706	3-34707	3-35172	17-35185	18-32907		
5-33550	5-34443	5-34862	6-34630	PERSONNEL PROTECTIVE DEVICE			
6-34862	6-35178	7-34366	7-34461	13-35187	15-29757	15-34431	15-35183
7-34465	7-34469	7-34471	9-29885	15-35185	17-35183	17-35185	17-35187
9-31525	9-34443	9-34630	11-34443	PHASE CHANGE			
11-34908	12-30879	12-34366	12-34650	5-34676	5-34677	5-34899	5-35150
12-34706	12-34707	12-34708	12-34709	PHOSPHATE			
12-34908	13-30879	13-34366	13-34487	15-31540	15-31541	15-34431	
13-34648	13-34702	13-34703	13-34704	PIPING			
13-34706	13-34708	13-34717	15-34648	1-33331	5-34485	5-34695	5-34730
17-30145	17-31525	17-33550	17-34461	5-34734	5-34864	9-34735	11-31483
17-34465	17-34469	17-34471	17-34702	11-33331	11-34640	11-34695	11-34734
17-34704	17-34706	17-34862	17-34908	12-34639	12-34640	12-34695	17-33331
17-35172	17-35178			17-34735	17-34864	18-32811	
OPERATING EXPERIENCE SUMMARY				PIQUA (OCR)			
7-34366	9-34627	12-34366	13-34366	17-34325			
17-33982	17-34626	17-34627		PLANT PROTECTIVE SYSTEM			
OPERATING LICENSE PROCESS				7-30805	13-30805		
18-00894	18-18965	18-32658	18-33967	PLASTICITY			
18-34688	18-34689			11-30442	11-31481	11-34035	11-34044
OPERATION				PLATE			
14-34492	15-34492	15-34644		5-33931	11-33931		
OPERATOR ACTION				PLATINUM			
9-31874	9-34483	9-34484	9-35174	11-35179	17-35179		
10-34909	12-31874	17-31874	17-34483	PLOWSHARE PROGRAM			
17-34484	17-34909	17-35174		1-30146	14-30917		

<p> PLOWSHARE PROGRAM, CHARIOT 16-34748 PLUM BROOK (TR) 12-34783 PLUME BEHAVIOR, GENERAL 16-30182 16-30184 PLUTONIUM 4-33921 5-31578 5-33542 5-34625 6-34391 6-35039 7-30821 7-34356 7-34421 9-34391 13-31498 13-31578 13-34628 13-34703 13-35187 14-33542 14-35035 15-29746 15-34356 17-32939 17-32940 17-32941 17-32942 17-32943 17-34625 17-34628 17-35187 18-31578 18-32818 18-32939 18-32940 18-32941 18-32942 18-32943 18-33542 18-33921 18-34634 18-35039 PLUTONIUM DIOXIDE 5-35022 7-34360 12-34674 12-35042 12-35043 13-34328 13-34674 13-35042 13-35043 17-35022 PLUTONIUM OXIDE 18-34655 PM 2A (PMR) 11-30822 PNEUMATIC SYSTEM 9-33368 9-35176 11-34908 12-34908 12-35176 17-34908 17-35176 POISON, BURNABLE 9-34481 9-34737 9-35192 12-34616 13-34616 POISON, SOLUBLE 9-35176 12-35176 17-35176 POLAND 18-33946 POLONIUM 7-30805 13-30805 15-35186 17-35186 POOL BOILING 5-34682 5-34899 5-35152 POPULATION EXPOSURE 1-29782 1-33103 4-33921 14-33103 14-33590 14-34340 14-34869 14-35037 15-33103 15-34340 15-34427 15-34641 15-34769 15-34772 15-34871 15-35037 15-35157 17-34871 18-33921 POROUS DIFFUSION 8-34433 POTASSIUM 4-34746 6-34746 9-34746 11-34661 12-30879 13-30879 18-34661 18-34662 POWER COEFFICIENT 5-33944 6-33944 POWER DISTRIBUTION 6-35029 6-35029 9-34481 17-35029 17-35029 POWER UPGRATING 5-34625 5-34862 5-34919 5-34920 5-35025 6-34862 9-34919 17-30604 17-34625 17-34862 17-34919 17-34920 17-35025 18-34920 PRECIPITATION 14-32421 14-35033 15-29652 15-34642 16-30186 PRESSURE DROP 5-32819 5-34482 14-35154 17-32819 18-32819 PRESSURE RELIEF 17-34905 PRESSURE TRANSIENT 6-34386 9-34386 PRESSURE VESSEL 1-30854 2-34907 5-32819 5-33931 7-34907 11-30822 11-30852 11-30854 11-31483 11-31484 11-31491 11-33736 11-33931 11-34000 11-34001 11-34002 11-34003 11-34004 11-34005 11-34006 11-34007 11-34008 11-34009 11-34010 11-34011 11-34012 11-34014 11-34016 11-34017 11-34020 11-34021 11-34022 11-34023 11-34025 11-34026 11-34027 11-34029 11-34031 11-34031 11-34033 11-34035 11-34036 11-34037 11-34039 11-34040 11-34041 11-34043 11-34044 11-34045 11-34046 11-34048 11-34050 11-34053 11-34907 12-31500 13-31500 17-32819 17-35161 17-35182 18-32819 18-34907 18-35016 PRESSURE, INTERNAL 3-35172 6-34669 11-30822 11-31478 11-31485 11-31486 11-31491 11-33586 11-34640 11-34669 12-34640 12-35038 </p>	<p> 12-35181 13-35038 17-35172 17-35181 18-33586 18-34669 PRESSURE, SUBATMOSPHERIC 15-35186 17-35186 PRESSURIZER 17-34905 PROBABILITY 1-33919 4-33919 4-33920 4-33921 5-34443 5-34782 9-29886 9-31874 9-34436 9-34438 9-34441 9-34443 9-34445 9-34448 9-34604 9-34605 9-34607 9-34612 9-35189 11-34443 12-31874 12-34782 16-33920 17-31874 17-34605 18-33919 18-33920 18-33921 PROCEDURES AND MANUALS 1-33103 1-34684 2-34684 5-34631 9-31332 9-34439 9-34608 9-34610 9-34612 12-31332 13-34894 14-33103 14-34491 15-33103 15-34491 15-35183 17-30604 17-34610 17-35183 18-34684 PROMETHIUM 4-33920 16-33920 18-33920 PROMPT NEUTRON 6-34385 9-34385 PROPERTY, PHYSICAL 4-34354 5-34760 11-34001 11-34011 11-34036 11-34037 11-34050 12-31462 13-31503 13-34721 PROTACTINIUM 6-35177 17-35177 PULSED NEUTRON TECHNIQUE 6-34388 6-34389 9-34388 9-34389 PUMP 2-34686 5-34722 10-34922 11-34686 12-34922 12-35181 17-34922 17-35181 18-32810 18-32811 18-34655 18-34686 PYROCHEMICAL 12-34708 13-34704 13-34708 13-34786 17-34704 QUAD CITIES 1 (BWR) 18-34689 QUAD CITIES 2 (BWR) 18-34689 QUALITY ASSURANCE 1-33932 9-35026 11-31491 11-33754 11-34003 11-34033 12-35042 12-35043 13-35042 13-35043 17-35026 18-32810 18-32818 18-33754 18-33932 R AND D PROGRAM 1-30145 1-33932 2-34907 5-33542 5-34625 5-34638 5-34868 6-33964 6-34669 6-35039 7-34673 7-34907 9-29875 9-35144 11-33950 11-33953 11-33965 11-34638 11-34669 11-34673 11-34907 14-33542 14-33927 17-30145 17-32939 17-32939 17-32940 17-32941 17-32942 17-32943 17-32945 17-32946 17-32947 17-32949 17-32950 17-32951 17-32952 17-33982 17-34625 17-34868 18-32939 18-32939 18-32940 18-32941 18-32942 18-32943 18-32945 18-32946 18-32947 18-32949 18-32950 18-32951 18-32952 18-33515 18-33542 18-33932 18-33947 18-33950 18-33951 18-33952 18-33953 18-33964 18-33965 18-33966 18-34638 18-34669 18-34671 18-34673 18-34765 18-34766 18-34767 18-34907 18-35039 19-33968 RADIATION DAMAGE 4-34646 7-34346 7-34646 12-32813 15-30274 15-32813 15-34641 18-32813 RADIATION EFFECT 4-34646 7-34346 7-34422 7-34646 9-33123 11-31480 11-31491 11-33953 11-34036 14-33928 14-35037 15-30274 15-32824 15-35037 18-33953 RADIATION EXPOSURE, RECORD KEEPING 7-34356 15-34356 15-34641 15-34772 RADIATION IN PERSPECTIVE 15-34772 RADIATION INJURY TREATMENT 1-32907 14-33923 15-30274 15-32907 15-33923 15-34641 18-32907 RADIATION PROTECTION, ORGANIZATION 1-32907 1-34684 2-34684 7-34358 14-32678 14-33923 14-34340 14-34647 15-32907 15-33923 15-33924 15-34340 15-34642 15-34643 15-34647 18-32907 18-34684 RADIATION SAFETY AND CONTROL 1-30147 1-30734 1-31499 1-33103 </p>
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1-34684	2-34684	7-34355	7-34356	5-32819	5-33948	5-34495	5-34667
7-34358	12-32814	12-34355	13-31499	5-34763	5-34768	6-34386	6-34667
13-33506	13-34629	13-34894	14-30917	9-34386	14-35037	15-35037	17-32819
14-32678	14-33103	14-34340	14-34647	17-32939	17-32940	17-32941	17-32942
14-34869	14-35035	14-35036	15-32814	17-32942	17-32943	18-32810	18-32811
15-33103	15-34340	15-34356	15-34493	18-32819	18-32939	18-32940	18-32941
15-34629	15-34642	15-34643	15-34647	18-32942	18-32942	18-32943	18-33948
15-34871	15-35157	17-34493	17-34629	18-34662	18-34667	18-34763	
17-34871	18-32814	18-34684		REACTOR DESCRIPTION			
RADIATION, PUBLIC EDUCATION				1-29575	1-30145	5-34727	6-34649
1-34305	9-34321	14-34305	15-34321	6-34727	9-33814	9-34727	11-33586
15-34493	15-34643	15-34871	17-34305	11-34759	12-34649	17-30145	17-33505
17-34493	17-34871			18-29575	18-30006	18-33505	18-33508
RADIOACTIVITY RELEASE				18-33586	18-33796	18-33814	18-33975
14-33501	14-33922	14-35037	15-33922	18-34344	18-34649	18-34655	18-34688
15-34870	15-35037	16-33501		18-34759	18-35020		
RADIOBIOLOGY				REACTOR DYNAMICS			
15-34641	15-34772	15-35155		2-32915	4-34746	5-34654	5-34667
RADIOCHEMICAL PLANT SAFETY				6-34386	6-34392	6-34397	6-34654
3-31461	5-31578	7-34355	7-34358	6-34667	6-34745	6-34746	6-34752
11-31461	12-34355	13-31461	13-31578	9-34386	9-34392	9-34397	9-34746
13-33506	18-31578			16-32915	18-32915	18-34654	18-34667
RADIOCHEMICAL PROCESSING				REACTOR KINETICS			
5-31578	7-30805	11-33560	13-30805	5-34875	6-34398	6-34752	6-34756
13-31578	13-33506	18-31578		6-34875	6-34877	6-34892	6-34980
RADIOGRAPHY				9-34398	17-32945	17-32946	17-32947
1-31356	13-34714	15-32131	15-34865	17-32949	17-32950	17-32951	17-32952
15-34867	15-35183	17-31356	17-32131	18-32945	18-32946	18-32947	18-32949
17-34865	17-34867	17-35183		18-32950	18-32951	18-32952	
RADIOISOTOPE				REACTOR PHYSICS			
1-30146	1-31499	7-30821	13-31460	5-33948	5-34723	5-34875	6-32821
13-31498	13-31499	13-33134	13-34327	6-33964	6-34665	6-34745	6-34754
13-34699	13-34701	13-34702	13-34750	6-34755	6-34756	6-34875	6-34877
13-35041	15-34866	15-35183	15-35185	6-34980	6-35039	6-35178	17-35178
17-34702	17-34866	17-35183	17-35184	18-32821	18-33515	18-33948	18-33964
17-35185				18-35039			
RADIOLOGICAL ASSISTANCE				REACTOR POWER			
1-32907	1-34684	2-34684	13-34629	4-34744	4-34746	5-34895	5-34919
15-30921	15-32907	15-33924	15-34493	6-34395	6-34746	9-34395	9-34627
15-34629	15-34642	17-30921	17-34493	9-34744	9-34746	9-34919	9-35162
17-34629	18-32907	18-34684		11-34895	12-34895	17-34627	17-34919
RADIOLOGY				17-35162			
15-34871	17-34871			REACTOR SAFETY SYSTEM			
RADIOCLYTIC GAS				1-30147	2-33105	2-33116	2-34777
7-34372	7-34468	13-34657	17-34468	9-31525	9-32820	9-33814	17-31525
RADIOISOTOPE, INDUCED				18-32820	18-33814		
7-30804	7-30821	7-34421		REACTOR STABILITY			
RADIUM				5-34667	6-33964	6-34390	6-34667
7-30805	7-34355	12-34355	13-30805	6-35146	9-34390	9-35146	18-33964
14-28573	14-33501	15-30921	16-28573	18-34667			
16-33501	17-28573	17-30921		REACTOR STARTUP EXPERIENCE			
RADCN				6-35019	17-33505	17-35019	18-33505
7-34355	12-34355	14-28573	15-33500	REACTOR STARTUP TESTING			
16-28573	16-33500	17-28573		6-35019	17-35017	17-35019	17-35182
RAINFOUT				REACTOR TEST FACILITY			
14-30186				6-30678	7-30678		
REACTIVITY COEFFICIENT				REACTOR TRANSIENT			
5-33944	6-32821	6-33944	6-34756	5-34693	6-33964	6-34693	6-34752
6-34880	9-33555	10-32821		6-34756	9-29299	17-29299	18-33964
REACTIVITY EFFECT				18-34635			
5-34654	5-34723	5-34728	6-30678	REACTOR, AEC OWNED			
6-30814	6-33122	6-33964	6-34357	5-34727	6-34396	6-34727	7-34465
6-34385	6-34654	6-34728	6-34752	9-29299	9-29876	9-31524	9-31875
6-34892	7-30678	9-33122	9-33124	9-34396	9-34727	9-35144	10-34909
9-34357	9-34385	9-34738	11-31479	11-34908	12-34616	12-34908	13-34616
17-33737	18-33964	18-34654		15-34493	17-29299	17-34465	17-34493
REACTIVITY EFFECT, ANOMALOUS				17-34908	17-34909	17-34912	
5-34861	9-34861	9-35162	17-34861	REACTOR, AIRCRAFT			
17-35162				5-34659	9-34660	11-34661	18-34659
REACTIVITY EFFECT, EXPANSION				18-34660	18-34661	18-34662	
5-33944	6-33944	18-34634		REACTOR, BREEDER			
REACTIVITY EFFECT, PRESSURE				3-34706	3-34707	3-34711	5-34654
5-34654	6-34654	18-34654		6-34654	6-34753	12-34706	12-34707
REACTIVITY EFFECT, VOID				12-34708	12-34709	13-34706	13-34708
5-34654	5-34728	6-30814	6-34654	13-34711	17-34633	17-34706	18-33946
6-34728	6-35178	17-35178	18-34634	18-34501	18-34632	18-34633	18-34634
18-34654				18-34654	18-34655	18-34668	
REACTIVITY, EXCESS				REACTOR, BWR			
6-30678	6-35177	7-30678	17-35177	1-34305	1-34684	2-33751	2-34684
18-34635				3-35172	5-34485	5-34488	5-34695
REACTOR CONTROL				5-34728	5-34734	5-34864	5-34868
4-34744	4-34746	6-33122	6-33964	5-34906	5-34910	5-35023	6-34728
6-34357	6-34387	6-34390	6-34394	6-35019	6-35029	6-35177	6-35178
6-34397	6-34740	6-34745	6-34746	7-34459	7-34461	7-35175	9-33814
6-34918	9-29876	9-31525	9-33122	9-34735	9-35174	9-35176	10-34691
9-33549	9-33555	9-34319	9-34357	10-35015	11-31483	11-31485	11-31486
9-34387	9-34390	9-34394	9-34397	11-33586	11-33974	11-34695	11-34734
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18-34660	18-34761			12-35176	12-35181	13-34629	14-34305
REACTOR COOLANT				15-34493	15-34629	16-35175	17-14893

17-33505	17-33509	17-33737	17-34305	12-31462	12-34757	12-34878	16-33757
17-34459	17-34461	17-34493	17-34626	17-31525	17-34633	18-33757	18-34633
17-34629	17-34691	17-34735	17-34780	REACTOR, HTGR			
17-34864	17-34868	17-34906	17-35015	2-33512	2-33757	5-34760	5-34763
17-35019	17-35023	17-35029	17-35160	9-31525	9-34481	9-35145	11-31484
17-35163	17-35172	17-35173	17-35174	11-34021	11-34759	11-34764	12-31464
17-35175	17-35176	17-35177	17-35178	12-34618	12-34878	13-31464	13-34618
17-35179	17-35180	17-35181	17-35182	16-33757	17-31525	18-33757	18-34759
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18-33796	18-33814	18-33933	18-33974	18-34766			
18-34683	18-34684	18-34689	18-34910	REACTOR, HWR			
18-35020							
REACTOR, FAST							
1-33932	1-34664	2-32817	2-32915	1-30144	1-30145	5-30144	6-34387
3-34706	3-34707	3-34711	5-32815	6-34665	7-34465	9-31332	9-34387
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5-34664	5-34667	5-34723	5-34763	REACTOR, INTERNAL SUPERHEAT			
6-30678	6-30814	6-32821	6-33944	17-35160			
6-33964	6-34384	6-34654	6-34667	REACTOR, LARGE			
6-34669	6-34751	6-34753	6-34756	17-34633	18-34633	18-34634	
6-34892	7-30678	7-30821	7-34347	1-33932	2-32817	2-32915	3-34706
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18-33132							

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REACTOR, ORGANIC COOLED				18-32946	18-32947	18-32949	18-32950
6-34665	11-31478	17-34325		18-32951	18-32952	18-34669	18-34920
REACTOR, PEBBLE BED				REACTOR, SAFETY RESEARCH			
18-35016				2-33577	5-34693	5-34727	5-34728
REACTOR, POOL TYPE				6-34669	6-34693	6-34727	6-34728
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18-34690				17-32942	17-32943	17-32945	17-32946
REACTOR, POWER				17-32947	17-32949	17-32950	17-32951
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6-34399	6-34654	7-35148	9-34394	5-33948	5-34654	5-34667	5-34768
9-34399	9-34917	10-34909	11-31465	6-34654	6-34667	18-33948	18-34654
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12-30807	12-31465	12-33869	12-34310	REACTOR, SPACE			
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12-34707	12-34782	12-34878	12-35038	9-34740	9-34744	9-34746	12-31463
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18-34634	18-34637	18-34654	18-34655	12-34784	13-34696	13-34708	16-34347
19-33968				17-30806	17-32939	17-32940	17-32941
REACTOR, PRESSURE TUBE				17-32942	17-32943	17-32945	17-32946
5-34898	6-34387	6-34397	9-31332	17-32947	17-32949	17-32950	17-32951
9-34387	9-34397	11-34653	12-31332	17-32952	17-34459	17-34461	17-34465
17-34653				17-34636	17-34912	17-34919	17-34920
REACTOR, PRODUCTION				18-00894	18-32939	18-32940	18-32941
14-35035	16-30191			18-32942	18-32943	18-32945	18-32946
REACTOR, PULSED				18-32947	18-32949	18-32950	18-32951
2-32817	2-32915	5-32815	5-32819	18-32952	18-33932	18-33950	18-33951
5-32903	5-32904	5-32904	6-32821	18-33952	18-33953	18-33964	18-33965
6-34649	6-34669	6-34753	9-29299	18-33966	18-34636	18-34920	
9-32807	9-32820	10-32808	11-32816	REACTOR, THERMAL			
11-34669	12-32813	12-32814	12-32903	6-34384	6-34665	7-30821	9-34384
12-32904	12-32904	12-34649	15-32813	17-34633	18-34633		
15-32814	16-32915	17-29299	17-32819	REACTOR, TRAINING			
17-32939	17-32940	17-32941	17-32942	6-34384	6-34395	9-34384	9-34395
17-32943	17-32945	17-32946	17-32947	9-34483	9-34484	17-34483	17-34484
17-32949	17-32950	17-32951	17-32952	18-34690			
17-34636	18-32807	18-32808	18-32809	REACTOR, WATER			
18-32810	18-32811	18-32813	18-32814	5-34488	5-34875	6-34875	6-34918
18-32815	18-32816	18-32817	18-32818	6-34918	7-34459	7-34461	7-34468
18-32819	18-32820	18-32821	18-32877	7-34469	7-34471	9-34742	9-34918
18-32903	18-32904	18-32904	18-32915	9-34918	12-33869	17-34459	17-34461
18-32939	18-32940	18-32941	18-32942	17-34468	17-34469	17-34471	
18-32943	10-32945	18-32946	18-32947	RECOMBINER			
18-32949	18-32950	18-32951	18-32952	11-35179	17-35179	17-35182	
18-34636	18-34649	18-34669		REDUNDANCE			
REACTOR, PWR				9-34440	9-34445	9-34446	9-34735
1-33538	2-34686	2-34776	5-34343	9-35026	17-34735	17-35026	
5-34488	5-34625	5-34727	5-34734	REFLECTOR			
5-34862	5-34906	5-35022	6-34397	9-32807	18-32807		
6-34727	6-34862	7-32641	7-34462	REFUELING			
9-31332	9-31875	9-34397	9-34483	5-35022	9-34738	11-33965	17-35022
9-34484	9-34627	9-34727	9-35144	17-35182	18-33947	18-33965	
10-34863	10-34922	11-30822	11-31485	REFUELING, ON LINE			
11-31486	11-33754	11-34686	11-34734	9-35145			
12-30658	12-31332	12-32641	12-34922	REGULATION, AEC			
13-34629	15-34493	15-34629	17-32641	1-30451	17-33737	18-00894	18-33967
17-34462	17-34483	17-34484	17-34493	REGULATION, GENERAL			
17-34625	17-34626	17-34627	17-34629	1-30734			
17-34780	17-34862	17-34863	17-34905	RELEASE RATE			
17-34906	17-34922	17-35022	17-35027	6-35177	17-35177		
17-35028	18-18965	18-32658	18-33508	RELIABILITY ANALYSIS			
18-33519	18-33538	18-33754	18-33975	1-33497	5-34443	5-34485	5-34695
18-34344	18-34685	18-34686	18-34688	9-31332	9-31874	9-34435	9-34436
19-33968				9-34437	9-34438	9-34443	9-34444
REACTOR, RESEARCH				9-34448	9-34604	9-34605	9-34606
1-30144	1-30145	1-31356	5-30144	9-34607	9-34608	9-34610	9-34612
5-34861	5-34919	5-34920	5-35025	9-35190	11-34443	11-34695	12-31332
6-34669	6-34880	9-30601	9-30605	12-31874	12-34695	17-31874	17-34605
9-33125	9-34861	9-34919	9-35026	17-34606	17-34610		
9-35162	11-34669	12-30671	12-34616	RELIABILITY, COMPONENT			
13-30671	13-34616	13-34629	15-34493	5-34443	5-34611	5-34725	9-29886
15-34629	17-30145	17-30601	17-30603	9-31332	9-31874	9-34441	9-34443
17-30604	17-30605	17-31356	17-32945	9-34604	9-34608	9-34611	9-34612
17-32946	17-32947	17-32949	17-32950	11-34443	12-31332	12-31874	17-31874
17-32951	17-32952	17-34493	17-34629	RELIABILITY, SYSTEM			
17-34780	17-34861	17-34902	17-34919	5-34485	5-34695	9-34435	9-34437

9-34438	9-34439	9-34440	9-34442	SAFETY ANALYSIS			
9-34445	9-34446	9-34604	10-34922	1-33919	4-33919	5-34728	6-34630
11-34695	12-34695	12-34922	17-34626	6-34728	9-34444	9-34630	9-34784
17-34922				12-34784	13-34894	16-34748	18-33796
REMOTE MANIPULATING AND VIEWING				18-33919	18-33981	18-34344	18-34634
3-31461	3-34707	9-33368	9-33559	18-35016			
11-31461	11-33965	12-34696	12-34698	SAFETY ANALYSIS REPORT, METEOROLOGY			
12-34707	13-31461	13-33506	13-34327	16-30188	16-30190		
13-34696	13-34697	13-34699	13-34700	SAFETY DEVICE			
13-34701	13-34702	13-34703	13-34704	2-34686	11-34686	15-34867	17-34867
13-34712	17-33737	17-34702	17-34704	18-34686			
18-33965				SAFETY EVALUATION			
REPORT, OPERATIONS				2-33751	5-34897	7-30804	11-34896
3-35172	5-34862	5-34864	6-34862	12-31501	12-33751	12-34896	13-30655
6-35177	6-35178	7-35175	9-35174	14-33928	17-35160	18-33751	18-34897
9-35176	10-34863	11-35173	11-35179	SAFETY MARGIN			
11-35179	12-35176	12-35181	13-34648	9-34444			
15-34648	16-35175	17-32939	17-32940	SAFETY PRINCIPLES AND PHILOSOPHY			
17-32941	17-32942	17-32943	17-32945	1-31499	2-33512	5-33977	9-33814
17-32946	17-32947	17-32949	17-32950	9-34442	9-34444	9-34605	11-33977
17-32951	17-32952	17-34325	17-34862	11-34023	11-34025	11-34026	13-31499
17-34863	17-34864	17-34905	17-34912	15-34769	17-33982	17-34325	17-34605
17-35027	17-35172	17-35173	17-35174	17-35021	18-33814	18-33977	18-33981
17-35175	17-35176	17-35177	17-35178	SAFETY PROGRAM			
17-35179	17-35179	17-35180	17-35181	5-34638	11-34638	18-34638	
17-35182	18-32939	18-32940	18-32941	SAFETY REVIEW			
18-32942	18-32943	18-32945	18-32946	1-33497	5-34897	6-34630	9-34630
18-32947	18-32949	18-32950	18-32951	18-00894	18-34897		
18-32952				SAMPLING			
REPORT, OPERATIONS ANALYSIS				7-34349	7-34350	7-34351	7-34352
5-34868	12-35163	17-30806	17-34868	7-34404	7-34415	7-34462	14-32421
17-35163				15-29652	15-34352	17-34462	
REPORT, OPERATIONS SUMMARY				SAN ONOFRE (PWR)			
9-34735	17-14893	17-30604	17-34735	17-34626	17-34905		
17-34902				SAVANNAH RIVER (PR)			
REPORT, PSAR				16-30191			
1-30144	1-32907	1-33538	2-32817	SAVANNAH RIVER PLANT			
2-32915	2-33757	2-34686	5-30144	13-34701	15-34431		
5-32815	5-32819	5-32903	5-32904	SAXTON (PWR)			
5-32904	6-32821	9-32807	9-32820	5-34625	6-34397	9-34397	17-34625
9-33814	10-32808	11-32816	11-33586	SCANDIUM			
11-33974	11-34686	12-32813	12-32814	15-34879			
12-32903	12-32904	12-32904	12-33974	SCRAM, SPURIOUS			
15-32813	15-32814	15-32907	16-32915	9-34735	9-35162	17-34735	17-35162
16-33757	17-32819	18-30006	18-30144	SEAL			
18-32807	18-32808	18-32809	18-32810	11-31484	11-31491		
18-32811	18-32813	18-32814	18-32815	SEDIMENT			
18-32816	18-32817	18-32818	18-32819	14-32421	14-33927	14-34491	15-34491
18-32820	18-32821	18-32877	18-32903	SEFOR (RE)			
18-32904	18-32904	18-32907	18-32915	1-32907	2-32817	2-32915	5-32815
18-33538	18-33586	18-33757	18-33796	5-32819	5-32903	5-32904	5-32904
18-33814	18-33974	18-34685	18-34686	6-32821	6-34753	9-32807	9-32820
REPORT, SAR				10-32808	11-32816	12-32813	12-32814
1-33919	4-33919	5-33542	5-34920	12-32903	12-32904	12-32904	15-32813
14-33542	17-34325	17-34920	18-18965	15-32814	15-32907	16-32915	17-32819
18-32658	18-33542	18-33919	18-33975	18-32807	18-32808	18-32809	18-32810
18-34344	18-34688	18-34689	18-34920	18-32811	18-32813	18-32814	18-32815
REPORT, TRIP				18-32816	18-32817	18-32818	18-32819
15-34641				18-32820	18-32821	18-32877	18-32903
RESEARCH CONTRACT				18-32904	18-32904	18-32907	18-32915
14-33928				SEICHE			
RESIN				2-33573			
17-35180				SEISMIC ZONE			
RESONANCE OVERLAP				2-33572	2-33573	2-34776	2-34777
5-33550	17-33550	18-33515		SEISMOLOGY			
RESPONSE TIME				2-33106	2-33111	2-33116	2-33117
5-34631	6-33964	9-34660	18-00894	2-33435	2-33546	2-33571	2-33574
18-33964	18-34660			2-33579	2-34733	2-34775	2-34776
REV IEW				2-34777	2-34779	2-35193	
6-34398	6-35146	7-34346	8-34433	SEQUOYAH 1 (PWR)			
9-33549	9-34398	9-34436	9-34484	18-34685			
9-35146	17-34484	18-33934	18-33967	SEQUOYAH 2 (PWR)			
RIVER, COLUMBIA				18-34685			
14-35037	15-34879	15-35037		SERVOMECHANISM			
RIVER, GENERAL				9-33368	9-33559		
1-30451	1-34308	1-34450	2-34907	SHELL			
7-34907	11-34907	14-33927	18-34907	11-34009			
ROCK MECHANICS				SHIELDING			
2-33499	2-33546	2-33579		4-33920	9-34481	9-35145	12-32813
ROCKY FLATS				12-32814	14-35156	15-32813	15-32814
13-34628	17-34628			15-34867	15-35156	16-33920	17-34867
ROSSI ALPHA				17-35161	18-32813	18-32814	18-33796
6-34388	6-34398	9-34388	9-34398	18-33920			
ROVER PROGRAM				SHIPPING CONTAINER			
9-34622				3-29552	3-31461	3-34711	3-35172
RUBIDIUM				11-31461	13-31461	13-34711	17-29552
7-30471	12-35038	13-35038	14-30471	17-35172			
RUTHENIUM				SHOCK ISOLATION			
4-34361	7-34361			2-33577			
SAFE FAILURE CRITERION				SHOCK WAVE			
9-35026	10-34909	17-34909	17-35026	2-33105	2-33111	2-33578	2-34733

2-34775	2-35193	5-34343	5-34343	SOURCE, RADIATION			
SHUTDOWN COOLING SYSTEM				12-32814	15-32814	15-35155	15-35183
6-35177	17-35177			15-35186	17-35183	17-35184	17-35186
SHUTDOWN MARGIN				18-32814			
6-34754	9-30601	17-30601		SOURCE, VOLUME			
SHUTDOWN SYSTEM, SECONDARY				16-30187			
9-35176	12-35176	17-35176		SPACE DEPENDENT DYNAMICS			
SIMULATION				6-34745			
2-34907	6-30678	7-30678	7-30803	SPAIN			
7-34907	9-29876	9-31525	9-34483	13-30672			
9-34484	9-34917	11-34036	11-34907	SPECIAL NUCLEAR MATERIAL			
14-32825	17-31525	17-34483	17-34484	3-29552	13-35187	17-29552	17-35187
17-34917	18-34907			SPECTROMETRY, ALPHA			
SINTERING				9-29873			
11-31478	12-31464	13-31464	13-34328	SPECTROMETRY, GAMMA			
SITE CLIMATOLOGY				13-34715			
2-32915	2-33757	16-30188	16-30191	SPERT, ALL (S-RR)			
16-32915	16-33757	18-32915	18-33757	5-34693	6-34693		
SITE CRITERIA, EARTHQUAKE				SPHERE			
2-33435	2-33577	2-34777		11-34004	11-34012	11-34044	
SITING, OFF SHORE				SPRAY, GENERAL			
2-34777				7-30679	11-33558		
SITING, REACTOR				SRE (RE)			
1-34450	2-33757	16-33757	17-33982	6-34390	9-34390		
18-33757				STACK			
SITING, URBAN				2-32817	7-30676	12-30676	13-30676
2-33512				14-28573	16-28573	16-30185	17-28573
SITING, WASTE DISPOSAL				18-32817			
14-35154				STAFFING			
SM 2 (PWR)				1-33538	1-34684	2-34684	18-33538
12-30658				18-34684			
SMOKE				STATE PROGRAM			
7-34406	16-30185			1-34305	1-34306	1-34307	1-34309
SNAP 8 (SR)				1-34341	1-34342	1-34620	14-32678
6-34390	9-34390			14-34305	14-34647	15-34647	17-34305
SNAP, GENERAL (SR)				STATISTICAL ANALYSIS			
1-33919	4-33919	4-33920	4-33921	7-34407	9-29886	9-34437	9-34607
13-34699	16-33920	18-33919	18-33920	9-35189	15-34772		
18-33921				STATISTICAL CORRELATION			
SNOW				7-34407			
16-30186				STEAM			
SODIUM				5-33948	5-34631	5-34667	5-34723
4-34361	5-32819	5-33977	5-34722	5-34726	5-34768	6-34667	7-34367
5-34725	5-34731	6-30814	7-34360	7-34368	7-34372	7-34419	8-34433
7-34361	7-34422	9-29877	9-34784	9-31875	18-33948	18-34667	
11-33977	12-30671	12-30879	12-33869	STEAM GENERATOR			
12-34500	12-34705	12-34708	12-34784	1-34620	5-33550	17-33550	17-34905
12-35044	13-30671	13-30879	13-34500	17-35027			
13-34708	13-35044	17-32819	17-34636	STEAM QUALITY			
18-32810	18-32811	18-32819	18-33977	5-34654	6-34654	18-34654	
18-34635	18-34636	18-34655		STEEL			
SODIUM COEFFICIENT				1-30854	5-34695	11-30854	11-34001
6-34751	18-34634	18-34635		11-34025	11-34029	11-34046	11-34695
SOIL				12-31500	12-32813	12-34639	12-34695
14-33545				13-31500	13-34719	15-32813	18-32813
SOIL MECHANICS				STEEL LINEK			
2-33456	2-33499	2-33507	2-33546	11-31484	11-31491	11-34001	11-34010
SOIL PROPERTY				11-34029	11-34048		
14-33545				STEEL, STAINLESS			
SOIL, NUCLIDE OCCURRENCE				5-34864	7-34422	11-31478	11-31480
14-32825	14-33545			11-33953	11-34053	12-31505	12-33869
SOIL, RADIONUCLIDE MOVEMENT THROUGH				12-34616	12-34651	12-35044	13-31505
14-32825	14-33545			13-34616	13-34675	13-35044	17-34864
SOLID				18-32811	18-33953		
5-34680	15-34643			STOICHIOMETRY			
SOLID STATE DEVICE				5-34868	17-34868		
15-34431				STORAGE CONTAINER			
SOLVENT EXTRACTION PROCESS				11-33552	11-33557	11-33560	12-34708
3-31461	11-31461	13-30655	13-30668	13-34708	14-35034		
13-31461	13-33134	13-34648	13-34697	STRATOSPHERE			
14-35036	15-34648			14-29868	14-33501	15-30105	16-29868
SORPTION				16-30105	16-33501	16-34456	17-30105
14-33544				STRESS			
SOURCE MECHANISM				9-30605	11-33736	12-30671	12-33926
6-34630	9-34630			13-30671	13-34720	17-30605	
SOURCE, AREA				STRESS ANALYSIS			
16-30183				2-32817	2-33111	2-33456	2-33507
SOURCE, CONTINUOUS				2-33575	2-33577	2-33578	2-34775
16-30183	16-30184	16-30185	16-30190	2-34776	2-34777	2-35193	2-35194
SOURCE, ELEVATED				5-34485	5-34611	5-34695	5-34731
16-30184	16-30185	16-30190	16-30191	9-34611	11-31479	11-33514	11-34000
SOURCE, GROUND LEVEL				11-34002	11-34004	11-34005	11-34006
16-30184				11-34010	11-34011	11-34012	11-34035
SOURCE, INSTANTANEOUS				11-34040	11-34041	11-34044	11-34695
16-30185	16-30190			12-34695	18-32811	18-32817	18-33514
SOURCE, LINE				STRESS CORROSION			
15-34870	16-30184			4-34362	7-34362		
SOURCE, NEUTRON				STRESS RUPTURE			
3-35172	17-35172			11-34043	13-34717	13-34718	
SOURCE, POINT				STRESS STRAIN DATA			
15-33500	15-34870	16-33500		4-34646	5-34485	7-34646	11-30822

11-31480	11-31484	11-31485	11-31486	TEST, DESTRUCTIVE			
11-31491	11-34008			11-30442			
STRONTIUM				TEST, DOP FILTER			
4-33921	4-34361	7-30460	7-30471	7-34411	7-34412		
7-30826	7-34353	7-34361	13-35041	TEST, INSTRUMENT RESPONSE			
14-30471	14-32825	14-34353	14-34492	6-34630	9-29874	9-34630	9-35188
15-34492	15-34893	15-35185	16-34353	9-35191			
17-35185	18-33921			TEST, LEAK RATE			
STRUCTURAL ANALYSIS, DYNAMIC				17-35182	17-35184		
2-32817	6-34747	9-34747	11-31481	TEST, NONDESTRUCTIVE			
11-34009	11-34020	11-34046	18-32817	1-33331	5-34864	9-31524	9-35031
STRUCTURAL INTEGRITY				11-30822	11-30852	11-33331	13-34714
2-33575	2-33577	2-34686	2-34776	13-34719	13-34720	17-33331	17-34864
2-34777	2-35193	5-34725	6-34669	TEST, ON LINE			
9-35145	11-30442	11-34016	11-34037	6-35178	17-35178		
11-34669	11-34686	12-30658	14-35156	TEST, PHYSICS			
15-35156	18-34669	18-34686		6-34877	6-34918	9-34918	
SUPPORT STRUCTURE				TEST, PLANT RESPONSE			
5-33504	11-34003	11-34033	17-33504	5-34862	6-34862	17-34862	
18-33504				TEST, PREOPERATIONAL			
SURFACE CONTAMINATION				6-35019	17-35019		
7-30460	7-34359	12-34359	14-35156	TEST, PRESSURE VESSEL			
15-34643	15-35156			3-35172	5-32819	17-32819	17-35172
SURFACE FILM DEPOSIT				17-35182	18-32819		
5-34868	17-34868			TEST, SYSTEM OPERABILITY			
SURFACE WATER, NUCL IDE OCCURRENCE				9-29878	9-35026	10-34863	10-34922
14-32825	14-34492	15-34492		12-34922	17-34863	17-34922	17-35026
SURFACE, GENERAL				TESTING			
7-30803				5-32819	5-34695	6-34388	6-34390
SURFACE, PAINTED				7-29402	7-34347	7-35148	9-32807
7-34359	12-34359			9-34388	9-34390	9-34622	11-34640
SURVEILLANCE PROGRAM				11-34695	11-35179	12-31500	12-33869
2-32915	2-33751	9-35026	11-30852	12-34639	12-34640	12-34695	12-35042
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DUNNING TG				FORBES SG			
9-31525	17-31525			5-34638	11-34638	18-34638	
DUOCINO J				FORD JA			
15-29746				9-29877			
DUTRAIVE P				FORD JD			
6-34877				17-34912			
DWYER OE				FORRESTER ER			
5-34681				5-34443	9-34443	11-34443	
EADIE DM				FORSTER S			
11-34027				5-34763	18-34763		
EADO Y				FORTESCUE P			
18-34632				18-34670			
EAST LV				FORTIN M			
9-29872				9-33559			
EASTON CR				FOSTER ES			
4-33921	18-33921			2-33435			
ECKELS TW				FOWLER IL			
13-34700				7-34466	17-34466		
ECKERT ERG				FOWLER PH			
5-34677	5-35151			9-34448			
EDWARDS DK				FOX JC			
5-35147				5-34723			
EGOROV AI				FRANK ER			
7-34469	17-34469			7-34349	7-34350		
EHRET A				FRANKLIN AG			
18-34762				2-33456			
EIBER RJ				FREVERT L			
5-34734	11-31405	11-31486	11-34734	6-34747	9-34747		
EISEMANN E				FRISCH W			
11-34764	18-34764			5-34667	6-34667	18-34667	
EISENBUD M				FRY ZB			
14-33501	16-33501			2-33507			
EISNER JH				FUJIE Y			
5-34768				6-34880			
ELINGS VB				FUKUMOTO T			
9-35188				7-30679			
ELLIOTT DE				FUNAKAWA M			
13-34714				5-33550	17-33550		
ELLIOTT TK				FUQUAY JJ			
9-34606	17-34606			16-30190			
EMMA LC				FURBER RN			
13-34657				11-34053			
ENGELMANN P				GARELIS E			
17-33982				6-34389	9-34389		
ENGELMANN RJ				GARRICK BJ			

9-31332	12-31332		12-33869	
GARST DM			HANNAH IW	
15-34643			11-34007	
GAWANDE H			HANSELL JD	
18-33508			5-34782	12-34782
GEDEON L			HANSON GL	
12-33926			14-35035	
GEKLER WC			HANSON JE	
2-34776	9-31332	12-31332	13-34712	
GEORGE CH			HARMON DP	
6-33122	9-33122		12-34618	13-34618
GEPPERT H			HARRIS AJ	
18-34762			11-34043	
GIANNOTTI G			HART RS	
7-30471	14-30471		17-34325	
GIFFORD FA			HARVEY JTC	
16-30183			11-34046	
GILMAN JD			HARVEY MR	
5-34485			13-34328	
GITTERMAN, MORRIS			HATCH LP	
12-34878			13-34657	
GLASSER WJ			HAUCH W	
11-31483			18-34762	
GLASSNER A			HAUGEN EB	
6-34669	11-34669	18-34669	9-34444	
GOEDDEL WV			HAY JD	
12-31462			11-34027	11-34043
GOLDSMITH P			HAYASHI T	
12-31505	13-31505		11-33514	18-33514
GOLDSTEIN RA			HAYS DF	
15-34426	16-34426		5-34680	
GOLDSTEIN RJ			HEALY JW	
5-34677	5-35151		14-30189	16-30189
GORYACHENKO VO			HEATH GL	
12-30807			5-34782	12-34782
GOTOH S			HELLER F	
6-34385	9-34385		7-34421	
GOZANI T			HENRY HY	
9-29874			7-34411	
GRAAE JE			HENRY RE	
13-34700			5-34724	
GRANGE JM			HESS GM	
9-35190			6-34391	9-34391
GRAY DL			HESSE WP	
12-35168			9-35188	
GREEN AT			HETTINGER H	
11-30852			6-34357	9-34357
GRIDLEY RL			HIATT RM	
9-34483	17-34483		5-34488	
GRIGORY SC			HIGGINS GH	
11-30822			13-31460	
GROENIER WS			HILDEBRAND BP	
13-34697			9-29875	13-34720
GROSVENOR DE			HINLEY MS	
13-34786			11-34017	
GUNTAKSEN PH			HOANG YS	
14-29868	16-29868		11-31419	
GUPPY WH			HOFFMAN HW	
9-34483	17-34483		5-34682	
GUPTA D			HOGERTON JF	
7-34421			1-30147	
GUSEV AS			HOLEMAN RH	
9-34607			5-34723	
GUSEVA TM			HOLLAND DA	
12-30658			11-34004	
HAFELE W			HOLLAND JA	
17-33982	18-34767		11-34009	
HACAN JW			HOLM DM	
6-33964	18-33964		13-34715	
HAGE W			HONKA EK	
6-34357	9-34357		6-34387	9-34387
HAINES A			HORAI K	
14-30457	16-30457		2-33579	
HALES JM			HORSEMAN RW	
7-34419			11-34029	
HALITSKY J.			HOWARD NC	
16-30185	16-30187		13-34702	17-34702
HALLINAN GJ			HRONBY IW	
3-34707	12-34707		11-34039	
HAMADA K			HRSTKA V	
11-33514	18-33514		9-34739	17-34739
HAMADA N			HUGHES JW	
7-30679			11-34053	
HAMMON N			HUMPHREYS KC	
2-33106			15-32824	
HAMMON S			HUNT BG	
2-33106			16-34456	
HAMPSON DC			HUNTER DO	
13-34704	17-34704		13-34719	
HANCOCK RP			HUNTSINGER M	

17-34325				2-33435			
HUTCHINS WH				KELLY JW			
2-33576				15-34644			
HUTTER E				KENDRICK ED			
11-33950	18-33950			9-29879			
HWANG CL				KENNEDY RP			
9-34439				2-34776			
IBELE WE				KENNEY ES			
5-34677	5-35151			6-34392	9-33125	9-34392	
IDRISS IM				KERSALE M			
2-33546				13-30656			
IONESCU E				KIGER EI			
7-30677				7-34465	17-34465		
ISHIKAWA N				KING KW			
12-35165	13-35165			2-34733			
ISLITZER NF				KING LD			
16-30184				6-34649	12-34649	18-34649	
ISRAEL SL				KINKEAD AN			
5-34725				11-34021			
IWASAKI M				KIRKBY RC			
12-35165	13-35165			3-34707	12-34707		
IWASAKI T				KIRSHNER JM			
11-34000				12-34428			
JACKSON WD				KITADATE K			
13-34703				12-34757			
JACOBSON, LJ				KJAERHEIM G			
9-34608				5-35023	17-35023		
JAERSCKY R				KLICK AE			
6-35019	17-35019			1-34664	5-34664	11-34664	
JAMMET H				KLICKA V			
14-33923	15-33923			7-30805	13-30805		
JANSEN F				KLINGLER WB			
12-34651				9-35144			
JASPERS G				KLOONTZ RL			
11-34759	18-34759			7-34360			
JAUMCTTE A				KLOPFER G			
5-34898				5-34494			
JAWOROWSKI Z				KLUSHANN AR			
15-34769				11-34759	18-34759		
JENNY JA				KNAUF K			
9-34446				17-35017			
JENSEN JD				KOBAYASHI Y			
14-35034				12-35165	13-35165		
JENSEN RJ				KOCH G			
18-34501				15-29746			
JOHNSON EF				KOLESOV VV			
12-35167	13-35167			12-30658			
JOHNSON JA				KOLYADIR AV			
6-34386	9-34386			7-34469	17-34469		
JOHNSON KP				KONONOVA LN			
3-34706	12-34706	13-34706	17-34706	7-30459	14-30459	16-30459	
JOHNSON R				KONOPLEV KA			
13-34657				7-34469	17-34469		
JORDAN KR				KOPROWSKI BJ			
5-35022	17-35022			3-34716	13-34716		
JOSE CJ				KORNATILCHER S			
9-34742				17-33505	18-33505		
JOVANOVIC S				KOVACEVICH EA			
6-34398	9-34398			7-34422			
K				KOWALEW A			
8-34433				18-33946			
KAGE H				KREY G			
6-34395	9-34395			18-34761			
KALIVODA R				KRIZEK R			
9-34739	17-34739			2-33456			
KAMINKER DM				KUBIT CJ			
7-34469	17-34469			5-35022	17-35022		
KANABROCKI E				KUBO M			
7-34351				6-34394	9-34394		
KANEKO Y				KUKAVADZE GK			
12-34757				9-35191			
KANTOR ME				KUPER KD			
9-31525	17-31525			18-34761	18-34762		
KASHCHEEV VM				KUROKAWA R			
5-34694				12-34757			
KATAOKA H				KUSHKOWSKI P			
6-34394	9-34394			9-34627	17-34627		
KATC WY				KUZENKOV AF			
5-33542	6-34753	14-33542	18-33542	7-34353	14-34353	16-34353	
KATSURAGI S				KUZNETSOV BY			
6-30814				9-35191			
KAUFMANN E				KUZNETSOV NM			
1-30734				5-34895	11-34895	12-34895	
KECECIOGLU D				KWAN LT			
9-34444				2-34776			
KEITH RLG				KYOS MW			
7-34345				18-33515			
KELECIUS A				LAING GW			
3-34711	13-34711			11-34053			
KELLER MD				LAMIRAL G			

11-34050				MACFARLANE DR			
LANG RM				6-34751	18-34635		
9-34622				MACGREGOR RV			
LANGAN D				9-34605	17-34605		
11-34041				MACNEAL N			
LANGE EA				6-34751			
12-31500	13-31500			MAISIN JR			
LARSCN JM				7-34356	15-34356		
9-29873				MALAKHOF V			
LAVERNE ME				9-34481			
5-34659	6-34740	9-34740	18-34659	MALECHA RF			
LEBERRE F				3-34711	13-34711		
5-34875	6-34875			MALINAUSKAS AP			
LEE AKK				8-34433			
12-35167	13-35167			MALMBORG FB			
LEE CR				5-34725			
11-34014				MANCEL J			
LEE WT				14-33548			
12-35044	13-35044			MANTELL CL			
LEFCRT G				4-34354			
13-30655				MARCINIAK TJ			
LEGGETT RL				9-29876			
13-34328				MARKEE EH			
LEHR J				7-34347	16-34347		
14-33545				MARKLEY RA			
LEIRVIK RM				12-34698			
9-33561				MARKO SA			
LEONARD JH				5-34910	11-34910	18-34910	
9-33123				MARSH RO			
LEONT'YEV LP				11-34002			
9-34612				MARTINET M			
LESURF JE				6-34357	9-34357		
5-34906	17-34906			MASHKO VE			
LEVINE HS				7-34355	12-34355		
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LEWIS DJ				3-34706	12-34706	13-34706	17-34706
11-34005				MATTHEWS PO			
LICHTENBERGER HV				15-34870			
9-33562				MAXEY WA			
LIDA M				5-34734	11-31485	11-31486	11-34734
11-34016				MAXWELL AA			
LIETZKE AF				2-33507			
12-33926				MCCLAIN WC			
LIGOU J				14-35154			
6-34357	9-34357			MCCORMICK WC			
LILWALL RC				9-34435			
2-33117	2-33571			MCCULLOUGH CR			
LINDBECK SL				12-33869			
15-35155				MCCURRICH LH			
LIU BH				11-34008			
7-34405	7-34407			MCDONALD GE			
LIU BY				12-31463			
7-33408	7-34401	7-34409	7-34410	MCKEE PW			
7-34411	7-34415			1-34306	1-34309		
LIU Y				MCNAIR A			
7-34412				7-24245			
LIU YH				MCNEAL NA			
7-34404				18-34635			
LOCKETI GE				MEEK ME			
11-34021				7-30821			
LODGE JP				MENELEY DA			
7-34349	7-34350			6-34751	18-34635		
LOFTHOUSE JH				MEREDITH KEG			
6-34630	9-34630			9-35192			
LONG HA				MESHTI T			
9-31525	17-31525			9-29877			
LONG J				METZ CF			
18-34637				13-34721			
LONG JK				MEUSER MH			
5-33944	6-33944	6-34753		1-33932	18-33932		
LONG JT				MEYER P			
3-31461	11-31461	13-31461	13-33506	6-34389	9-34389		
LORENZEN K				MEYER RA			
13-34750				6-34892			
LOW LD				MEYER RT			
14-28573	16-28573	17-28573		4-34420	7-34420		
LOWENSTEIN R				MEYERS DJ			
18-00894				12-34696	13-34696		
LOWRIE RS				MICHAELSON M			
13-34697				15-34871	17-34871		
LUDLCW JO				MICHOT G			
13-34700				12-34709			
LUHLEICH H				MIELCARSKI M			
7-30820				18-33946			
LUSSIE WG				MILES FW			
11-31465	12-31465			5-31578	13-31578	18-31578	
LYNCH JJ				MILES JR			
7-29402				11-34014			
MACFARLAND WJ				MILLER CO			
9-34436				9-34442			

MILLER CS			OHANIAN MJ				
5-34727	6-34727	9-34727	6-34388	9-34388			
MILLER LB			OHTA Y				
6-34613	6-34755		15-29895				
MILLER RS			OKOSHI N				
5-35022	17-35022		16-34454				
MILLER RW			OLP RH				
11-31465	12-31465		11-33950	18-33950			
MILLER WE			OLSSON JE				
13-34786			9-34437				
MILLET F			ONDREJCIN RS				
12-34617			4-34362	7-34362			
MINE H			OPPOLD JA				
9-34440			15-30921	17-30921			
MINSART G			ORR RS				
12-30671	13-30671		11-34004				
MICHEL P			OSAKI S				
13-30655			9-34440				
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7-30679			7-34459	7-34461	17-34459	17-34461	
MOORE CE			OZAIR V				
7-34351			15-33127				
MOORE FL			PADILLA A				
7-34370			6-33964	18-33964			
MOREWITZ HA			PALMER AR				
7-34360			7-34471	17-34471			
MORRISON RJ			PARA AF				
9-35188			9-35189				
MOSES H			PARKER AJ				
16-30188			4-33920	16-33920	18-33920		
MOTTE F			PARKER JL				
12-30671	13-30671		13-34715				
MUELLER HF			PARNIANPOUR H				
16-34748			7-34418				
MUELLER V			PARRISH EC				
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MURAYAMA N			PATRIARCA P				
16-34454			7-34673	11-34673	18-34673		
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18-33515			12-35038	13-35038			
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14-30457	16-30457		7-34466	17-34466			
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12-34500	13-34500		12-34616	13-34616			
NAHAVANDI AN			PECKINPAUGH CL				
5-34343			11-33965	18-33965			
NASH CR			PEDERSEN KB				
11-33965	18-33965		6-34754				
NATESH R			PEINADO CO				
3-34716	13-34716		11-31491				
NAVARRO R			PEKRUL PJ				
2-34733			6-34390	9-34390			
NEILL FH			PELLAND EE				
12-35168			15-30921	17-30921			
NELMS HA			PENELLE G				
12-34652			17-35021				
NELSON RS			PENNDRF K				
12-34758	13-34758		7-30820				
NEWMAN DJ			PERKINS KT				
9-34441			9-34483	17-34483			
NICHOLS FA			PERRY AM				
4-34646	7-34646		18-34662				
NICHOLSON RB			PERRY JA				
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NISH JG			PETERSON RE				
15-34644			18-33966				
NISHIKAWA Y			PETERSON SL				
7-34358			13-34717				
NOLAN DJ			PHelps PL				
5-34725			15-34644				
NOMCFILOV EV			PICHE WT				
5-34694			2-33572				
NOMURA T			PIEKAAR HW				
6-34385	9-34385		7-34416				
NORTH DC			PIERCE RD				
9-33561			13-34786				
NORTHUP TE			PIESCH E				

POWELL HD				13-34700		
7-34462	17-34462			ROSSIN AD		
POWELL JE				6-34669	11-34669	18-34669
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PRABHU LH				11-34759	18-34759	
9-34742				ROUGIER A		
PRESTON RG				11-34050		
2-34775				ROUX DP		
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11-34017				ROWE DS		
PRICE RJ				5-34728	6-34728	
12-31462				ROZAND M		
PRIOR WJ				13-30656		
1-33497				ROZENHOLC M		
PROCTOR E				5-33977	11-33977	18-33977
11-34010				RUBEL P		
PURANDARE HD				9-29886		
9-34738				RUCKER DJ		
PYATT DW				7-34673	11-34673	18-34673
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RABB DD				5-33542	14-33542	18-33542
13-31460				RUSCHE BC		
RAMM EJ				16-30191		
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RAMSEY EB				6-30815	7-30815	
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RANDALL RL				7-34469	17-34469	
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RASHID YR				12-35165	13-35165	
11-34020				SALES WL		
RASTOGI BP				13-34704	17-34704	
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REED RJ				11-34661	18-34661	
14-29868	16-29868			SAN LT		
REEVE KD				9-34439		
12-31464	13-31464			SANATHANAN CI		
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9-33549				SANDERS MK		
REYNES L				11-31478		
12-34709				SANDERS WM		
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RHOCE RR				7-30804		
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1-33103	14-33103	15-33103		SASTRY VR		
RIDER BF				6-35146	9-35146	
7-30821				SATAKE M		
RINALDINI C				2-33105		
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RITZ WC				5-34676		
12-34698				SAXE RF		
RUBINSON JC				6-34396	9-34396	
4-34744	4-34746	6-34746	9-34744	SCHAICH RW		
9-34746				13-34699		
ROBINSON LE				SCHIERECK FC		
5-34722				7-34417		
ROBINSON RA				SCHLICHT RW		
13-34699				9-31525	17-31525	
ROCCA F				SCHMITT DH		
11-34031				12-34674	13-34674	
ROCKENHAUSER W				SCHNEIDER RW		
11-34002	11-34020			7-34366	12-34366	13-34366
RODEAN HC				SCHROEDER JH		
13-31460				12-34650		
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5-33553	9-33553			18-34766		
ROLIN JL				SCHULTZ MA		
5-35022	17-35022			6-34393	9-34393	
ROLL JB				SCHULZE J		
5-35022	17-35022			6-35019	17-35019	
ROLSTAD E				SCOTT CJ		
5-35023	17-35023			5-35151		
ROM FE				SCOTTO F		
12-31463				11-33736		
ROOS B				SEED HB		
7-30826				2-33546		
ROS MR				SEGASER CL		
11-34033				12-34652		
ROSELLI G				SEIFRITZ W		
18-33981				6-34384	9-33124	9-34384
ROSENTHAL HB				SELBY CL		
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ROSS LE				SENTYURIN IG		

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18-33967				STEPHAN LA		
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SHANNON DW				5-34679		
7-34422				STEWART JE		
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7-34469	17-34469			STIMMELL GL		
SHECKHERD JW				13-34702	17-34702	
13-34717				STORMARK E		
SHEESLEY DC				6-34398	9-34398	
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SHELDORICK MG				5-33977	11-33977	18-33977
14-32678				STORRS CL		
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18-33934				STRAIT BG		
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SHIMIZU T				13-30657		
11-34000				STRAUSS SD		
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5-35153				SUETTERLIN L		
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