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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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OCTOBER 1969

OAK RIDGE NATIONAL LABORATORY
OAK RIDGE, TENNESSEE
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Price: Printed Copy \$3.00; Microfiche \$0.65

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FOREWORD

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

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

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PARTS AND METHOD OF INDEXING ABSTRACTS

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CATEGORY SCOPE NOTES

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

1. GENERAL SAFETY CRITERIA

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

2. SITING OF NUCLEAR FACILITIES

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

3. TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

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

4. AEROSPACE SAFETY

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

5. ACCIDENT ANALYSIS

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

6. REACTOR TRANSIENTS, KINETICS, AND STABILITY

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

7. FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

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

8. SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

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

9. NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

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

10. ELECTRICAL POWER SYSTEMS

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

11. CONTAINMENT OF NUCLEAR FACILITIES

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

12. PLANT SAFETY FEATURES - 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

1-03475
COTTRELL WB
RADIATION IN PERSPECTIVE - THE POTENTIAL HAZARD FROM RADIATION
OAK RIDGE NATIONAL LAB., TENN.
3 PAGES, 2 REFERENCES, NUCLEAR SAFETY, 5(3), PAGES 226-228 (SPRING 1964)

FIRST ARTICLE IN SERIES. COMPARES PHYSIOLOGICAL RISK FROM RADIATION EXPOSURE TO THOSE FROM CHEMICALS, INCLUDING THOSE USED IN THERAPY, HOUSEHOLD, INDUSTRY, FOOD, PLUS THOSE FOUND IN SMOG, TOBACCO, ETC. MANY ARE MUTAGENIC TOWARD FRUIT FLIES, NEUROSPORA, HIGHER PLANTS, BACTERIA (NO RESULTS SHOWN FOR MAN). AGREES THAT RADIATION IS MUTAGENIC TOWARD HUMANS BUT POINTS OUT THAT CONSERVATISM OF FEDERAL REGULATIONS PROVIDES VERY HIGH SAFETY INDEX NOT ONLY FOR GERM CELLS BUT FOR SOMATIC CELLS (E.G., ABOUT 5300 TIMES AS HIGH AS THAT FOR SOMATIC EFFECTS OF CARBON MONOXIDE).

HAZARD, RELATIVE + *RADIATION IN PERSPECTIVE + REGULATION, AEC + RADIATION, PUBLIC EDUCATION

1-03627
STARR C
RADIATION IN PERSPECTIVE - ATOMIC POWER AND THE PUBLIC INTEREST
ATOMICS INTERNATIONAL
8 PAGES, 5 REFERENCES, NUCLEAR SAFETY 5(4), PAGES 325-332, (SUMMER 1964)

SECOND ARTICLE IN SERIES. COMPARES AND EVALUATES FOSSIL-FUELED AND NUCLEAR-FUELED POWER PLANTS IN TERMS OF HAZARD TO PUBLIC. FINDS THAT 3×10^4 (-3RD) DEATH/MW-YEAR RESULTS FROM FOSSIL-FUELED PLANTS, WHILE THE FIGURES FOR ATOMIC POWER PLANTS IS 2×10^4 (-8TH) DEATH/MW-YEAR (150,000 TIMES SAFER). ON BASIS OF MOST PESSIMISTIC PROBABILITY ESTIMATE, NUCLEAR PLANT MAY STILL BE 10 TIMES SAFER. CONCLUDES THAT ON EVERY COUNT, INCLUDING COST AND SAFETY, PUBLIC WELFARE IS BEST SERVED BY CONTINUED DEVELOPMENT AND CONSTRUCTION OF ATOMIC POWER PLANTS. INSURANCE DISCUSSED.

*RADIATION IN PERSPECTIVE + *REACTOR, POWER + INSURANCE + *ATMOSPHERIC POLLUTION + RADIATION, PUBLIC EDUCATION

1-05193
STERNER JH
RADIATION IN PERSPECTIVE - ATOMIC ENERGY FOR SOCIETY AND THE BALANCE BETWEEN HAZARD AND GAIN
EASTMAN KODAK COMPANY
4 PAGES, NUCLEAR SAFETY 6(2), PAGES 142-145, (WINTER 1964-1965)

FOURTH IN SERIES OF ARTICLES, THIS ONE CONSISTING OF TWO PAPERS. FIRST IS PHILOSOPHICAL DISCUSSION ABOUT INCONSISTENCY IN VIEWPOINT OF PUBLIC - LIKELY TO REGARD ATOMIC POWER WITH SUSPICION AND FEAR WHILE ACCEPTING OR IGNORING A CHEMICAL OPERATION OF EQUAL OR GREATER RISK. FEARS THAT THIS MAY RESULT IN DISCRIMINATORY AND EVEN CAPRICIOUS CONTROLS, TO OUR GENERAL DETRIMENT. DISCUSSES LACK OF INTEREST IN ESTABLISHING CLEAR BASIS FOR LIMITING TETRAETHYL LEAD IN GASOLINE DESPITE WIDE VARIETY OF DISEASES ATTRIBUTED TO LEAD. EARLY PUBLIC OUTCRY ABOUT DEATHS IN ITS MANUFACTURE ALMOST DENIED ITS USE.

*RADIATION IN PERSPECTIVE + *LEAD + BIOLOGICAL CONCENTRATION, MAN + INDUSTRIAL SAFETY + ATMOSPHERIC POLLUTION + RADIATION, PUBLIC EDUCATION

1-05231 ALSO IN CATEGORY 18
SAFETY - A WAY OF LIFE WITH THE ATOM
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, PRESS RELEASE FS-8-65, MARCH 7, 1965

TO FURTHER IMPROVE PUBLIC AWARENESS OF THE EXTENT TO WHICH SAFETY IS PRACTICED IN THE NUCLEAR FIELD, THE AEC HAS RELEASED RESULTS OF A COMPREHENSIVE ANALYSIS OF SAFETY IN THE GOVERNMENT PROGRAM DURING 22 YEARS OF OPERATION (1943 THROUGH 1964). SEVERITY AND FREQUENCY OF ACCIDENTS DISCUSSED AS YARDSTICKS FOR DETERMINING RELATIVE SAFETY. STATISTICS SHOW THAT FROM THE VERY FIRST PHASE OF THE WORK TO THE PRESENT STAGE THE RESULTS IN PROTECTING HEALTH AND GENERAL SAFETY HAVE BEEN MAGNIFICENT. THE ATOM CAN BE SUCCESSFULLY EXPLOITED WITHOUT UNDUE HAZARD TO PUBLIC OR EMPLOYEES.

*RADIATION IN PERSPECTIVE + *ACCIDENT ANALYSIS + RADIATION, PUBLIC EDUCATION

1-05462
MCCULLOUGH CR
RADIATION IN PERSPECTIVE - SIGNIFICANCE OF THE CONTRIBUTION OF ATOMIC ENERGY TO PUBLIC HEALTH HAZARDS
NUCLEAR UTILITY SERVICES, INC.
5 PAGES, 2 TABLES, 13 REFERENCES, NUCLEAR SAFETY, 6(1), PAGES 31-37 (FALL 1964) A JOINT MEETING OF THE AMERICAN NUCLEAR SOCIETY AND THE ATOMIC INDUSTRIAL FORUM, NEW YORK, NOVEMBER 18-22, 1963

THIRD IN SERIES OF ARTICLES. THIS ONE TAKES UP PROBLEM OF CREATING AN INFORMED PUBLIC AND ENCOURAGING A WELL-BALANCED VIEW OF SAFETY OF REACTORS. CALCULATES THAT THOSE LIVING NEAR LARGE REACTORS WILL UNDERGO A LIFE-SHORTENING OF LESS THAN 0.25 DAY IN 70 YEARS. NATURAL BACKGROUND RADIATION SHORTENS IT BY 28-49 DAYS. TABULATES SHORTENING OF LIFE SPAN DUE TO NONRADIATION FACTORS (E.G., 2 PACKS OF CIGARETTES DAILY CUTS OFF 10 YEARS, CITY DWELLERS LOSE 5 YEARS, COMPARED WITH RURAL PEOPLE, ETC.). AS TO GENETIC MUTATIONS, RADIATION ACCOUNTS FOR ONLY 5%. AS TO ACCIDENTS, TABULATION SHOWS THAT THOSE DUE TO RADIATION ACCOUNT FOR ONLY 0.19 DEATH PER 100,000, WHILE MOTOR VEHICLES ACCOUNT FOR 20.5 DEATHS PER 100,000 (1961 DATA). CONCLUDES THAT

CATEGORY 1
GENERAL SAFETY CRITERIA

1-05462 *CONTINUED*

NUCLEAR-POWER RECORD IS EXCELLENT AND THAT WE SHOULD FOCUS PUBLIC ATTENTION ON IMPORTANT FACTORS IN OUR HEALTH/ACCIDENT PROBLEM.

ACCIDENT, GENERAL + *RADIATION IN PERSPECTIVE + RADIATION, PUBLIC EDUCATION

1-07194

EISENBUD M

RADIATION IN PERSPECTIVE - EXPLOSION OF SOME RADIOLOGICAL MYTHS
NEW YORK UNIVERSITY MEDICAL CENTER

5 PAGES, 2 REFERENCES, NUCLEAR SAFETY 6(4), PAGES 380-385, (SUMMER 1965)

FIFTH IN SERIES OF ARTICLES. DEALS WITH FALLACIES UNDERLYING FIVE OFTEN QUOTED REASONS WHY REACTORS SHOULD NOT BE BUILT NEAR POPULATION CENTERS - (1) NOT ENOUGH EXPERIENCE. (2) THE AIR AND WATER WILL BECOME RADIOACTIVE. (3) ALL UNNECESSARY RADIATION EXPOSURE SHOULD BE AVOIDED. (4) VERY LITTLE IS KNOWN ABOUT EFFECTS OF SMALL DOSES OF IONIZING RADIATION. (5) THERE IS NO SUCH THING AS A SAFE DOSE. *** GOOD EVEN-HANDED ANALYSIS OF EACH POINT. ENDS BY COMPARING REACTOR PLANT WITH FOSSIL-FUELED PLANT, SHOWING THAT FOR A VERY SMALL PHYSIOLOGICAL PRICE (A FEW MILLIROENTGENS PER YEAR), THE PUBLIC CAN AVOID A WHOLE SPECTRUM OF NOXIOUS AGENTS EMITTED BY FOSSIL-FUELED PLANTS.

REACTOR, POWER + *RADIATION IN PERSPECTIVE + *RADIATION, PUBLIC EDUCATION

1-11409

ALSO IN CATEGORY 15

JANKOWSKI FJ

RADIATION IN PERSPECTIVE - EFFECT OF LOW-INTENSITY RADIATION ON MAN
RUTGERS UNIVERSITY

3 PAGES, 1 FIGURE, 1 TABLE, NUCLEAR SAFETY 7(1), PAGES 12-14, (FALL 1965)

SIXTH IN SERIES OF ARTICLES, PART A. THE RATIO OF RADIATION-DOSE-RATE THRESHOLD FOR SOMATIC DAMAGE TO THE NORMAL BACKGROUND DOSE RATE IS OF THE ORDER OF A FEW HUNDRED (100 TO 500). THIS IS IN THE RANGE OF THE RATIO OF HARMFUL CONCENTRATION OF SEVERAL CHEMICALS TO THE AMOUNT NEEDED OR BELIEVED TO BE NEEDED FOR HEALTH. THIS OBSERVATION RAISES THE QUESTION AS TO WHETHER ALL RADIATION IS HARMFUL, A QUESTION WHICH HAS BEEN RAISED BEFORE AND WHICH IS UNDER INVESTIGATION. IT ALSO SUGGESTS FURTHER EXPERIMENTS AT LOW OR VERY LOW (BELOW BACKGROUND) DOSE RATES.

RADIATION IN PERSPECTIVE + *DOSE + RADIATION DAMAGE + *RADIATION EFFECT + *PERSONNEL EXPOSURE, RADIATION + RADIATION, PUBLIC EDUCATION

1-11410

STERNER JH

RADIATION PERSPECTIVE - ATOMIC ENERGY FOR SOCIETY AND THE BALANCE BETWEEN HAZARD AND GAIN
EASTMAN KODAK COMPANY

5 PAGES, REFERENCES, NUCLEAR SAFETY 7(1), PAGES 14-18 (FALL 1965)

SIXTH IN SERIES OF ARTICLES, PART B. HEALTH PROBLEMS CREATED BY THE PEACEFUL USES OF ATOMIC ENERGY ARE NOT SIGNIFICANTLY DIFFERENT, QUANTITATIVELY OR QUALITATIVELY, FROM MANY OF THE OTHER ENVIRONMENTAL HEALTH PROBLEMS CONFRONTING SOCIETY. IT IS ONLY THAT INORDINATE CONCERN BY THE GENERAL PUBLIC TENDS TO OVEREMPHASIZE THE HIGHLY PUBLICIZED HAZARDS INHERENT IN THE USE OF ATOMIC ENERGY, WITHOUT APPROPRIATE CONSIDERATION FOR GAINS WHICH MAY BE DERIVED. SOCIETY MAY THUS BE DEPRIVED OF THE SUBSTANTIAL PROFITS THAT CAN ACCURE FROM ORDERLY DEVELOPMENT OF THE INDUSTRY. THE EXPERIENCE OF ABOUT A THOUSAND NUCLEAR REACTOR YEARS HAS DEVELOPED A PERFORMANCE RECORD FOR THE INDUSTRY WHICH IS EXCELLENT IN COMPARISON WITH THAT OF OTHER MAJOR INDUSTRIES. NO INJURY HAS BEEN IDENTIFIED IN INDIVIDUALS OR GROUPS EXPOSED TO ALLOWABLE OPERATIONAL LEVELS OF RADIATION, BASED ON THE SAME KIND OF RISK ASSESSMENT AS HAS BEEN APPLIED IN THE EVALUATION OF OTHER OCCUPATIONAL AND ENVIRONMENTAL HEALTH HAZARDS.

*COMPARISON, THEORY AND EXPERIENCE + HAZARD, RELATIVE + *RADIATION IN PERSPECTIVE + POPULATION EXPOSURE + *REACTOR, GENERAL + *RADIATION, PUBLIC EDUCATION

1-27062

ALSO IN CATEGORIES 2 AND 11

CONSIDERATION AFFECTING STEAM POWER PLANT SITE SELECTION
OFFICE OF SCIENCE AND TECHNOLOGY

132 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 5, 1969

DISCUSSES VARIOUS ASPECTS OF POWER PLANT SITING WHICH AFFECT BOTH INDUSTRY AND THE GENERAL PUBLIC. IT CONTAINS CHAPTERS ON (1) NEED FOR SITES, (2) PHYSICAL REQUIREMENTS, (3) NUCLEAR SITING, (4) AIR-POLLUTION FACTORS, (5) WATER-POLLUTION CONTROL, (6) SPORT AND AESTHETIC CONSIDERATIONS, (7) RURAL DEVELOPMENT, (8) RELIABILITY, (9) TRANSMISSION, (10) MULTIPURPOSE SITING, (11) THE ROLE OF STATES IN SITING. ALSO INCLUDES APPENDICES ON (A) NUCLEAR PLANT ENGINEERING, (B) ENVIRONMENTAL RESEARCH FOR NUCLEAR SITING, (C) NUCLEAR SAFETY R AND D, (D) AIR POLLUTANTS, (3) SULFUR DIOXIDE R AND D, (F) METEOROLOGY.

ECOLOGICAL CONSIDERATION + THERMAL POLLUTION + *SITING, REACTOR + ENVIRONMENTAL CONDITION + REACTOR, POWER + METEOROLOGICAL SUPPORT + ATMOSPHERIC POLLUTION + RADIATION IN PERSPECTIVE + SULFUR DIOXIDE + R AND D PROGRAM + REGULATION, STATE + HYDROLOGICAL CONSIDERATION, GENERAL + *SITING, GENERAL + RIVER, GENERAL + RADIATION, PUBLIC EDUCATION + QUALITY ASSURANCE

CATEGORY 1
GENERAL SAFETY CRITERIA

1-29570 ALSO IN CATEGORY 18
KORNBICHLER H
SAFETY TECHNIQUES IN NUCLEAR POWER STATIONS WITH BOILING WATER REACTORS
FACHGEBIET KERNEAKTOREN, FRANKFURT AM MAIN
4 PAGES, ATOMWIRT., ATOMTECH., 13, PAGES 50-53 (JANUARY 1968) (IN GERMAN)

SAFETY STANDARDS BY WHICH THE WUERGASSEN POWER REACTOR IS BEING DESIGNED ARE GIVEN. THESE ARE PREPARED AS GENERAL STANDARDS FOR BOILING WATER REACTORS. BASIC CONSIDERATIONS USED IN POSTULATING THE MAXIMUM CREDIBLE ACCIDENT ARE TABULATED.

*DESIGN CRITERIA + REACTOR, BWR + *SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, MAXIMUM CREDIBLE (MCA)

1-29573 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 + ECONOMICS + REACTOR, POWER

1-29893 ALSO IN CATEGORIES 13 AND 15
FOSTER RF
ENVIRONMENTAL STUDIES
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-894 +. P.4.1, OCTOBER 1968

STUDIED DISPOSAL OF REACTOR OFF-GAS INTO SOIL SYSTEMS TO DETERMINE GAS MOVEMENT IN THE FIELD. RESULTS REPORTED. SIMULATION MODELING OF THERMAL GENERATION IN SELECTED RIVER SYSTEMS, TO INVESTIGATE THE EFFECTS OF FUTURE NUCLEAR POWER PLANTS ON TEMPERATURES OF THE UPPER MISSISSIPPI BASIN, WAS CONTINUED, AND PROGRESS IS REPORTED. ALSO FIELD DATA WERE OBTAINED FOR A TEST SIMULATION OF THE THERMAL REGIME OF THE PHELPS COUNTY (NEBRASKA) IRRIGATION CANAL, DOWNSTREAM FROM THE CANADA POWER PLANT, TO PROVIDE INFORMATION RELATIVE TO USE OF IRRIGATION WATERS FOR COOLING OF POWER REACTORS.

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

REACTOR, POWER + *WATER, IRRIGATION + MODEL TESTING + REACTOR, BWR + R AND D PROGRAM + TRACER, GAS + RIVER, GENERAL + BATTELLE NORTHWEST + *XENON + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GAS + *THERMAL POLLUTION + *FUEL REPROCESSING + NRTS + DRESDEN 3 (BWR) + DRESDEN 2 (BWR)

1-29980 ALSO IN CATEGORIES 17 AND 18
PROPOSED WATER-REACTOR SAFETY SCHOOL
1 PAGE, 1 REFERENCE, NUCLEAR SAFETY 9(6), P. 522, NOV.-DEC. 1968

A JULY 1, 1968, QUESTIONNAIRE WAS SENT TO 100 UTILITIES AND UNIVERSITIES ASKING FOR EXPRESSIONS OF INTEREST IN A SERIES OF 3 MONTH SAFETY COURSES TO BE GIVEN AT NATIONAL REACTOR TESTING STATION FOR THOSE PARTICIPATING IN NUCLEAR POWER. *** COURSES WOULD INCLUDE NATURE OF REACTOR ACCIDENTS (24 HR), REACTOR SAFEGUARDS (24 HR), ACCIDENT ANALYSIS (48 HR), SAFEGUARDS TECHNOLOGY (40 HR), AND CLASS PROJECTS (66 HR).

REACTOR, PWR + *SAFETY ANALYSIS + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *TRAINING + *CERTIFICATION + *STAFFING + REACTOR, POWER

1-30111 ALSO IN CATEGORIES 17 AND 18
GUIDE TO CONTENT OF TECHNICAL SPECIFICATIONS FOR NUCLEAR REACTORS
50 PAGES, NOVEMBER 1968

(ASSOCIATED WITH 10 CFR 50 REVISIONS PUBLISHED IN FEDERAL REGISTER DECEMBER 17, 1968, PG. 18610). DISCUSSES BOTH TECHNICAL AND ADMINISTRATIVE MATTERS (FOCAL POINTS FOR ANALYSES SHOULD BE THE PHYSICAL BARRIERS PROVIDING THE DEFENSE IN DEPTH, ANALYSES SHOULD BE BASED ON CURRENT KNOWLEDGE AND UNDERSTANDING OF SAFETY NEEDS AND TECHNIQUES). EACH MAJOR SECTION (SAFETY LIMITS AND SETTINGS, LIMITING CONDITIONS FOR OPERATION, SURVEILLANCE REQUIREMENTS, DESIGN FEATURES, AND ADMINISTRATIVE CONTROLS) IS DISCUSSED SEPARATELY TO INDICATE ATTITUDE IN CONTENT.

AVAILABILITY - USAEC DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

REACTOR, RESEARCH + *GUIDE + *TECHNICAL SPECIFICATIONS + REACTOR, POWER

1-30112 ALSO IN CATEGORIES 17 AND 18
TECHNICAL SPECIFICATIONS FOR FACILITY LICENSES, SAFETY ANALYSIS REPORTS
33 FEDERAL REGISTER 18610, DECEMBER 17, 1968

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30112 *CONTINUED*

(EFFECTIVE JAN. 17, 1969.) REVISED TO EMPHASIZE TECHNICAL MATTERS RELATED TO (1) PREVENTION OF ACCIDENTS, (2) MITIGATION OF CONSEQUENCES TO IDENTIFY SUBJECTS OF TECHNICAL SPECIFICATIONS AT CONSTRUCTION PERMIT STAGE. REQUIRES BOTH A PSAR AND AN FSAR AND DEFINES THEIR RELATION TO TECHNICAL SPECIFICATIONS AND SUPPORTING ANALYSES. TS CHANGES FOLLOWING INITIAL OPERATION ARE CLARIFIED, AND ACRS REVIEW MADE PERMISSIVE.

*TECHNICAL SPECIFICATIONS + REPORT, SAR + REPORT, PSAR + SAFETY REVIEW + ACRS + *REGULATION, AEC + SAFETY ANALYSIS

1-30129 ALSO IN CATEGORIES 14 AND 15
JACOBS OG
SOURCES OF TRITIUM AND ITS BEHAVIOR UPON RELEASE TO THE ENVIRONMENT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
TID-24635 + ORNL-NSIC-39 +. 90P., DEC. 1968

AN ATTEMPT IS MADE IN THIS STATE-OF-THE-ART-REPORT TO SUMMARIZE SOME OF THE IMPORTANT PROPERTIES OF TRITIUM AND TO USE THESE PROPERTIES IN PREDICTING THE IMPACT OF DIVERSE RELEASES OF TRITIUM ON LOCAL AND WORLDWIDE POPULATIONS. DESPITE INADEQUACIES OF PRESENT INFORMATION ON THE BEHAVIOR OF TRITIUM, WE CAN CONCLUDE, IN OUR PRESENT POWER ECONOMY, TRITIUM PUSES NO SEVERE WORLDWIDE EXPOSURE PROBLEMS. HOWEVER, IT WILL CONTINUE TO OFFER HANDLING AND ENVIRONMENTAL CONTAMINATION PROBLEMS. ALSO REPORTED IS INFORMATION CONCERNING SOURCES, ENRICHMENT, MONITORING, MOVEMENT, AND PROJECTED PRODUCTION OF TRITIUM.

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

DEPOSITION + SURFACE CONTAMINATION + DISPERSION + TROPOSPHERE + DIFFUSION + TRITIUM + RADIOACTIVITY RELEASE + DILUTION + GROUND WATER, GENERAL + EVAPORATION + OCEAN AND SEA + RAINOUT + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL + CONDENSATION + REACTOR, POWER + FUEL REPROCESSING + HYDROLOGICAL CONSIDERATION, GENERAL + THERMAL CONSIDERATION + ENVIRONMENTAL CONDITION + CHROMATOGRAPHY + STRATOSPHERE + INSTRUMENT, RADIATION MONITORING

1-30133 ALSO IN CATEGORY 15
TAPE GF
ENVIRONMENTAL ASPECTS OF OPERATION OF CENTRAL POWER PLANTS
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
AEC PRESS RELEASE NO. S-54-68 +. 18 PAGES, 7 FIGURES, DECEMBER 20, 1968

CONSIDERS ENVIRONMENTAL RELATIONS TO THE GROWTH OF THE INCREASINGLY IMPORTANT POWER INDUSTRY, THE SIGNIFICANT ENVIRONMENTAL CONSEQUENCES THAT MUST BE FACED IN CONSIDERING THE LOCATIONS OF CENTRAL POWER STATIONS. THE PROBLEM OF WASTE DISPOSAL, EFFICIENCY OF PLANT OPERATION, THERMAL POLLUTION, BIOLOGICAL PRODUCTIVITY THROUGH INDUCED UPWELLING IN THE OCEAN, AND OTHER ASPECTS OF RESEARCH ARE DISCUSSED.

*THERMAL CONSIDERATION + *SITING, OFF SHORE + SITING, GENERAL + OCEAN AND SEA + *STEAM GENERATOR + *ENVIRONMENTAL CONDITION + WATER, GENERAL + *REACTOR, POWER + WATER, IRRIGATION + CONGRESSIONAL ACTIVITY + USAEC + WATER POLLUTION + WASTE DISPOSAL, GENERAL + *AQUATIC ORGANISMS + *THERMAL POLLUTION + *BIOTA

1-30137
WALKER CS
CONFERENCE ON INCIPIENT FAILURE DIAGNOSIS FOR ASSURING SAFETY AND AVAILABILITY OF NUCLEAR POWER PLANTS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
8 PAGES, NUCL. SAFETY, 9 PAGES 218-25, MAY-JUNE 1968

A CONFERENCE ON THE POSSIBLE CONTRIBUTION OF INCIPIENT FAILURE DETECTION TO THE SAFETY AND RELIABILITY OF NUCLEAR POWER PLANTS WAS HELD IN GATLINBURG, TENN., OCT. 30-NOV. 1, 1967. THE PAPERS AND DISCUSSIONS COVERED THE TOPICS OF ON-LINE TESTING, METHODOLOGY OF TESTING, SYMPTOMATIC EXAMINATION OF REACTOR CORE BEHAVIOR, METHODS TO DETECT INCIPIENT FAILURES IN NONNUCLEAR APPLICATIONS, AND HISTORIES OF REACTOR INCIDENTS. ON-LINE TECHNIQUES FOR TESTING REACTOR PROTECTION INSTRUMENT SYSTEMS HAVE BEEN DEVELOPED AND, IN SOME INSTANCES, APPLIED. VARIOUS ACOUSTICAL METHODS GIVE PROMISE OF DETECTING INCIPIENT FAILURES IN VESSELS, PIPES, AND MECHANICAL OPERATING EQUIPMENT, SUCH AS PUMPS.

*FAILURE, GENERAL + TEST, SYSTEM OPERABILITY + PROCEDURES AND MANUALS + TEST, ON-LINE + *FAILURE, INCIPIENT

1-30138
AEC AMENDS ITS INDEMNITY REGULATIONS
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
AEC PRESS RELEASE NO. L-253 +. 3 PAGES, OCTOBER 30, 1968

UNDER THE AMENDMENTS TO PART 140 OF AEC REGULATIONS, CRITERIA ARE ESTABLISHED BY WHICH THE COMMISSION WOULD MAKE A DETERMINATION OF AN EXTRAORDINARY NUCLEAR OCCURRENCE, AND THE WAIVERS OF DEFENSES WILL BE INCORPORATED IN THE NUCLEAR LIABILITY INSURANCE POLICY AND IN THE INDEMNITY AGREEMENTS WITH LICENSES. THE CRITERIA FOR THE DETERMINATION ARE TWOFOLD. IT WOULD HAVE TO BE DETERMINED, FIRST, THAT AN EVENT HAD CAUSED THE DISCHARGE OF SUBSTANTIAL AMOUNTS OF RADIOACTIVITY MATERIAL OFFSITE OR HAD CAUSED SUBSTANTIAL RADIATION LEVELS OFFSITE AND, SECOND, THAT SUBSTANTIAL DAMAGE TO PERSONS OR PROPERTY HAD RESULTED. BOTH CRITERIA WOULD HAVE TO BE MET BEFORE A POSITIVE DETERMINATION COULD BE MADE.

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30138 *CONTINUED*

*INCIDENT, GENERAL + *INSURANCE + *REGULATION, AEC + *LIABILITY

1-30139

COMPILATION OF NATIONAL AND INTERNATIONAL NUCLEAR STANDARDS (EXCLUDING U.S. ACTIVITIES)
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-NSIC-50 +. 75P., SEPTEMBER 1968

ALL NATIONAL AND INTERNATIONAL NUCLEAR STANDARDS ACTIVITIES KNOWN TO THIS COMMITTEE, EXCEPT FOR THE U.S. WORK, ARE PRESENTED IN TABULAR FORM. THE STANDARDS ACTIVITIES OF ALL NATIONAL ORGANIZATIONS, TECHNICAL SOCIETIES, ETC., AS WELL AS REGULATIONS ESTABLISHED BY GOVERNMENT AGENCIES, ARE LISTED IN ALPHABETICAL ORDER BY COUNTRY. MANY OF THE SO-CALLED STANDARD ACTIVITIES LISTED FOR THE VARIOUS COUNTRIES ARE LEGAL REGULATIONS RATHER THAN VOLUNTARY STANDARDS. SUCH REGULATIONS ARE INCLUDED BECAUSE OF THEIR RELEVANCE TO OUR INTERESTS. COMPARABLE ACTIVITIES OF INTERNATIONAL ORGANIZATIONS ARE ALSO LISTED.

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

*CODES AND STANDARDS + *BIBLIOGRAPHY + *INTERNATIONAL

1-30140

MCMILLAN FL
PRICING SCHEDULES FOR TRA TEST REACTORS
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
IN-1213 +. 22P., JULY 1968

GIVES ALL THE RULES, POLICIES, FORMULAS, DEFINITION OF TERMS, CONSTANTS, AND TABLES NECESSARY FOR THE CALCULATION OF IRRADIATION UNITS (IU) FOR EACH IRRADIATION FACILITY IN THE TRA TEST REACTORS. IUS ARE THE BASIS OF REACTOR COST ALLOCATION OF PRICING. THE REASON FOR THIS REVISION IS TO UPDATE POSITIONS, SHOW CHANGES IN FLUX DISTRIBUTION IN THE ETR, AND TO INCLUDE ATR. THESE PRICING SCHEDULES WERE EFFECTIVE JULY 1, 1968.

*ECONOMICS + *IRRADIATION FACILITY + *IDAHO FALLS

1-30141

BIGGS JB
NUCLEAR STATION WASTE HEAT CAN EXTEND THE ST. LAWRENCE SEAWAY SEASON
ATOMIC ENERGY OF CANADA LTD.
1 PAGE, 1 FIGURE, 2 REFERENCES, ANS TRANS. 11(1), PAGE 3, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND THE CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

BY THE YEAR 2000 THE QUANTITY OF USEABLE WASTE HEAT AVAILABLE FROM BASE-LOAD THERMAL ELECTRIC PLANTS WILL HAVE REACHED 100,000 MW. WITH SUITABLE SITE SELECTION, THIS UNINTERRUPTED SUPPLY OF WASTE HEAT COULD BE USED TO EXTEND THE NAVIGATION SEASON ON THE ST. LAWRENCE SEAWAY BY LIMITING THE FORMATION OF ICE. INCREASED ELECTRICAL OUTPUT FROM HYDROELECTRIC UTILITIES COULD ALSO BE ACHIEVED. TWO APPROACHES ARE CONSIDERED. EACH DEALS WITH ICE WHICH PREVENTS NAVIGATION IN RIVERS AND SMALL LAKES. THE FIRST EXTENDS THE SEASON TO THE END OF DECEMBER, THE SECOND TO THE END OF JANUARY.

*REACTOR, POWER + *CANADA + *THERMAL CONSIDERATION + THERMAL POLLUTION

1-30142

GOODWIN EC
NUCLEAR POWER REACTORS AND THE DEVELOPING COUNTRIES
CANADIAN GENERAL ELECTRIC CORP.
1 PAGE, ANS TRANS. 11(1), PAGE 4, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND THE CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

NUCLEAR POWER WILL BE CONSIDERED BY MANY DEVELOPING COUNTRIES WISHING TO INCREASE THEIR GENERATING CAPACITY, AND AMONG ITS MANY ADVANTAGES ARE THE BETTER USE OF INDIGENOUS ENERGY RESOURCES, INCREASED TECHNOLOGICAL INTEREST, THE ABSENCE OF ATMOSPHERIC POLLUTION, AND THE OPPORTUNITY TO DEVELOP NEW TYPES OF MANUFACTURING. THE DEGREE TO WHICH LOCAL INDUSTRY IN A DEVELOPING COUNTRY CAN SUPPLY EQUIPMENT FOR ITS NUCLEAR POWER REACTORS, OR WHETHER THESE WOULD ALL HAVE TO BE 100% IMPORTED, IS A MATTER OF CONCERN TO THEM.

*ECONOMICS + *REACTOR, POWER + *DEVELOPING COUNTRIES

1-30143

TECKMAN H
THE IMPACT OF NUCLEAR POWER ON SYSTEM PLANNING
ONTARIO HYDRO, TORONTO, ONTARIO
2 PAGES, ANS TRANS. 11(1), PAGES 4-5, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

THE PRINCIPLES OF ECONOMIC COMPARISON ARE WELL KNOWN AND ARE NOT THE SUBJECT OF THIS PAPER. IT DEALS ONLY WITH THE UNCERTAINTIES INTRODUCED INTO THE SYSTEM PLANNING PROCESS BY THE HEAVY-WATER

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30143 *CONTINUED*

REACTOR PLANT BEING DEVELOPED IN ONTARIO AS AN ALTERNATIVE TO COAL-FIRED THERMAL CAPACITY. THE CAPITAL COST IS SUBSTANTIALLY HIGHER, BUT THE ENERGY PRODUCTION COST IS SUBSTANTIALLY LOWER. AS A RESULT, THEIR ECONOMIC COMPARISON IS VERY SENSITIVE TO ESTIMATES OF CAPITAL COSTS, CARRYING CHARGES ON CAPITAL, ENERGY-PRODUCTION COSTS, CAPACITY FACTOR, AND PRICE ESCALATION.

*ECONOMIC STUDY + *REACTOR, POWER + *CANADA + REACTOR, HWR

1-30148

NUCLEAR LAW BULLETIN. SUPPLEMENT TO NO. 1
69 PAGES, NUCLEAR LAW BULLETIN, SUPPLEMENT NO. 1, PAGES 1-69 (FEB. 1968)

PRESENTS A SUPPLEMENT TO THE FIRST ISSUE OF THE NUCLEAR LAW BULLETIN. TOPICS INCLUDE UNITED KINGDOM (ACT OF 1965 ON NUCLEAR INSTALLATIONS) AND NORWAY (DRAFT ACT ON THE USES OF ATOMIC ENERGY).

*NORWAY + *LAW + *UNITED KINGDOM

1-30149

NUCLEAR LAW BULLETIN. SECOND SUPPLEMENT TO NO. 1
17 PAGES, NUCLEAR LAW BULLETIN, SUPPLEMENT NO. 2, PAGES 1-10 (APRIL 1968)

A SUPPLEMENT TO THE FIRST ISSUE OF THE NUCLEAR LAW BULLETIN IS PRESENTED. DEVOTED TO COMING INTO FORCE OF THE PARIS CONVENTION AND TO THE FRENCH BILL ON THIRD-PARTY LIABILITY IN THE FIELD OF NUCLEAR ENERGY.

*FRANCE + *LIABILITY + *LAW

1-30151

INTERNATIONAL COMPARISON OF NUCLEAR POWER COSTS
INTERNATIONAL ATOMIC ENERGY AGENCY
STI/PUB/164 +. 334 PAGES, FIGURES, TABLES, REFERENCES, 1968

THE SYMPOSIUM HELD IN LONDON FROM 9 TO 13 OCT. 1967 TOOK SOME FIRST STEPS TOWARDS SOLVING PROBLEMS OF NUCLEAR POWER COSTS. SEVERAL OF THE 21 PAPERS CLEARLY OUTLINED THE UNAVOIDABLE LIMITATIONS OF GENERAL NUCLEAR POWER COST FIGURES QUOTED OUTSIDE THE NATIONAL CONTEXT. OTHERS DEALT WITH METHODS OF COST ESTIMATIONS WITHIN THE FRAMEWORK OF A PARTICULAR ELECTRICAL POWER SYSTEM AND IN SOME CASES AGAINST THE BACKGROUND OF A WHOLE NATIONAL ECONOMY. SEVERAL COMMUNICATIONS WERE DEVOTED TO SPECIFIC INSTANCES OF CAPITAL AND FUEL COSTS EXTRAPOLATIONS ON AN INTERNATIONAL BASIS FOR A GIVEN REACTOR TYPE.

AVAILABILITY - INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA, (\$7.00)

*ECONOMICS + *REACTOR, POWER + *IAEA + ECONOMIC STUDY

1-30171

ALSO IN CATEGORY 17

GIAMBUSSO A
AEC ASSESSES UTILITY NUCLEAR STAFF NEEDS, TRAINING CAPACITY
ATOMIC INDUSTRIAL FORUM, INC., NEW YORK
3 PAGES, NUCLEAR INDUSTRY, VOL 15(11,12), PP. 15-17 (DEC. 1968)

SUMMARY OF ANS-AIF 68 MEETING PAPER BY GIAMBUSSO. DRAFT AEC GUIDELINES ON STAFF QUALIFICATIONS WILL BE READY IN EARLY 69. ESTIMATES GIVEN OF NEEDED OPERATORS AND ENGINEERS THRU 1976. SIMULATOR TRAINING OF OPERATORS IS USEFUL, BUT EXTENT TO BE SUBSTITUTED FOR ACTUAL EXPERIENCE NOT DETERMINED. ONLY 5 NUCLEAR ENGINEERS GRADUATED BY MIT IN 1968, WERE HIRED BY UTILITIES, AND THEN BY UTILITIES ALREADY HAVING REACTORS.

REACTOR, BWR + REACTOR, PWR + SIMULATION + *TRAINING + *CERTIFICATION + *STAFFING

1-30172

ALSO IN CATEGORY 17

PUBLIC RELATIONS NEED UNQUESTIONED BUT METHODS DEBATABLE
ATOMIC INDUSTRIAL FORUM, INC., NEW YORK
4 PAGES, NUCLEAR INDUSTRY, VOL. 15(11,12), PP.50-53 (DEC. 1968)

REVIEW OF ANS-AIF NOV. 68 PANEL REMARKS. SWISS EXPERIENCE IS THAT MASSIVE PROGRAMS ARE NOT NEEDED, PERHAPS BECAUSE OF SWISS RESPECT FOR AUTHORITY. CONWAY RECOMMENDED EVERY EFFORT TO INFORM THAT SMALL PORTION OF THE U.S. PUBLIC WHO WISH TO BE INFORMED. UK EXPERIENCE IS THAT CONCERN WITH RADIATION BEGAN GENERAL CONCERN WITH ENVIRONMENT. TAYLOR HOPED REACTORS WILL NOT BE SOLD PUBLIC LIKE SOAP. LEO (FRANCE) RECOMMENDED INFORMATION CENTERS SHOW REACTORS AT SAME TIME AS DISCUSSION (SO PEOPLE WON'T FORGET) AND NOT USE ALARMING TERMINOLOGY.

*RADIATION, PUBLIC EDUCATION + REACTOR, POWER + OPERATING EXPERIENCE SUMMARY

1-30247

ALSO IN CATEGORY 17

SPENT FUEL STORAGE AT B AND W REACTOR

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30247 *CONTINUED*
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO W.M. BREAZELE, B AND W CO., DEC. 19, 1968, DOCKET 50-200

ALLOWS STORAGE OF SPENT FUEL OUTSIDE REACTOR CONTAINMENT UNDER PROVISIONS OF SNM-778, REMOVING TECHNICAL SPECIFICATION LIMITATION OF 40 ELEMENTS, THUS ALLOWING STORAGE UP TO 140 ELEMENTS.

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

SPECIAL NUCLEAR MATERIAL + REACTOR, TEST + REACTOR, RESEARCH + *FUEL STORAGE + *CONTAINMENT, GENERAL + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

1-30250 ALSO IN CATEGORIES 15 AND 17
AEC AMENDS REPORTING REQUIREMENTS FOR RADIATION EXPOSURE INFORMATION
U.S. ATOMIC ENERGY COMMISSION
AEC PRESS RELEASE L-285 +. 1 PAGE, DECEMBER 18, 1968

10 CFR 20 AMENDMENTS WERE PUBLISHED IN THE FEDERAL REGISTER (DEC. 19, 1968) TO REQUIRE ANNUAL REPORTS TO THE AEC (FROM INDUSTRIAL OPERATIONS) OF INDIVIDUAL DOSES FOR CENTRALIZED RECORD KEEPING.

REACTOR, RESEARCH + REACTOR, POWER + REGULATION, AEC + *RADIATION EXPOSURE, RECORD KEEPING + BYPRODUCT MATERIAL

1-30271
GRENDON A
PUBLIC REACTIONS TO NUCLEAR FACILITIES
UNIVERSITY OF CALIFORNIA, BERKLEY
6 PAGES, AMERICAN JOURNAL OF PUBLIC HEALTH, VOLUME 57, PAGES 1263-8 (AUGUST 1967)

MOST OF THE NUCLEAR FACILITIES THAT HAVE BEEN OR ARE BEING CONSTRUCTED IN THE UNITED STATES MET WITH LITTLE OR NO OPPOSITION FROM THE PUBLIC. IN THE FEW CONSPICUOUS INSTANCES OF ADVERSE PUBLIC REACTION, THE LEADERS OF THE OPPOSITION SOUGHT TO MAKE THE MOST OF FEAR AS AN INSTRUMENT BY WHICH TO AROUSE SUPPORT FOR THEIR POINT OF VIEW. PUBLIC HEALTH AGENCIES CAN EDUCATE THE PUBLIC ABOUT NUCLEAR POWER AND ITS BENEFITS, AND THE AUTHOR PROPOSES THAT THEY ASSUME AN ACTIVE ROLE.

*RADIATION IN PERSPECTIVE + *RADIATION, PUBLIC EDUCATION + *REACTOR, POWER

1-30275 ALSO IN CATEGORY 18
FEDERAL COMMITTEE ON NUCLEAR SAFETY AND PEACEFUL DEVELOPMENT
7 PAGES, BILL INTRODUCED TO H. OF REP. CREATING FEDERAL COMMITTEE, FEB. 27, 1968

FORMED BY 2 REPRESENTATIVES, 2 SENATORS, 4 CABINET MEMBERS, AND 7 MEMBERS OF THE GENERAL PUBLIC SPECIALLY QUALIFIED. (DUTIES) DETERMINE IF CURRENT CIVILIAN NUCLEAR PROGRAM IS RESPONSIVE TO PUBLIC NEED (COMPETITION NOT SUBSIDIZED, HEALTH HAZARDS, PRIORITIES, ACCELERATION OF USE OF NUCLEAR DETONATIONS). ***BILL REFERRED TO JCAE.

REACTOR, POWER + ECONOMICS + *CONGRESSIONAL ACTIVITY + SAFETY REVIEW + PLOWSHARE PROGRAM

1-30276 ALSO IN CATEGORIES 2 AND 18
PUBLISHED BRIEF 21,334, SIEGEL VS USAEC AND FLORIDA POWER AND LIGHT COMPANY
PAUL SIEGEL, ATTORNEY
55 PAGES, BRIEF ON LAW SUIT, MARCH 1, 1968

CONTAINS ARGUMENTS AND AUTHORITIES ON QUESTIONS. (1) MUST AEC TAKE INTO ACCOUNT ATTACKS AND SABOTAGE BY ENEMY, (2) DID AEC ORDER TO ASLB TO NOT CONSIDER ENEMY ATTACK DENY PETITIONER THE PUBLIC HEARING PROVIDED BY LAW, (3) WAS AEC-ASLB FINDING FOR CONSTRUCTION PERMIT SUPPORTED BY SUBSTANTIAL EVIDENCE.

CIRCUIT COURT OF APPEALS, WASHINGTON, D.C.

*NUCLEAR ATTACK + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + ASLB + REACTOR, PWR + LAW + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR)

1-30277 ALSO IN CATEGORIES 2 AND 18
SIEGEL P
BRIEF OF INTERVENOR PAUL SIEGEL IN SUPPORT OF TURKEY POINT EXCEPTIONS
U.S. ATOMIC ENERGY COMMISSION
21 PAGES, 1967, DOCKET 50-250 AND 251, TYPE--PWR, MFG--WEST., AE--BECHTEL

BRIEF SEEKS REVIEW OF ASLB APRIL 26, 1967, ORDER ALLOWING TURKEY POINT CONSTRUCTION PERMIT. GROUNDS ARE THAT AEC SHOULD NOT EXCLUDE FROM CONSIDERATION THE SUBJECT OF INTENTIONAL EFFORTS BY AN ENEMY OF THE U.S. TO HARM THE REACTORS. ***INCLUDES OPENING REMARKS TO ASLB, LETTER TO AEC OF 10 MARCH 1967.

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

CIVIL DEFENSE + *NUCLEAR ATTACK + FALLOUT + LAW + ASLB + REACTOR, PWR + CONSTRUCTION PERMIT PROCESS + TURKEY

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30277 *CONTINUED*
POINT 3 (PWR) + TURKEY POINT 4 (PWR)

1-30409 ALSO IN CATEGORY 18
SHOREHAM CONSTRUCTION DEFERRED TWO YEARS
LONG ISLAND LIGHTING CO.
2 PAGES, LETTER FROM LONG IS. LIGHTING CO. TO AEC DRL, DEC. 3, 1968, DOCKET 50-322

NEED FOR ADDITIONAL GENERATING CAPACITY IN 1972 (SHOREHAM WAS SCHEDULED FOR MAY 1973.) REQUIRES THAT A 380-MWE OIL-FIRED UNIT BE ADDED. REVISED PLANS CALL FOR AN 800-MWE BWR (ORIGINALLY 540) FOR OPERATION IN MAY 1975.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)
REACTOR, BWR + *REACTOR POWER + *MODIFICATION, SYSTEM OR EQUIPMENT + SHOREHAM (BWR) + *LICENSE STATUS

1-30446
WISE KR + WADDEL WW
HEAVY WATER MODERATED REACTOR DESIGN STUDIES STATE-OF-THE-ART SURVEY
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-854 +. 100 PAGES, 2 TABLES, REFERENCES, OCTOBER 1968

SURVEY INCLUDES (1) A LIST AND DESCRIPTION OF THE HEAVY WATER MODERATED POWER REACTORS EITHER OPERATING OR UNDER CONSTRUCTION, (2) LIST OF DESIGN STUDIES WITH EXCEPTION OF REACTORS USING ORGANIC COOLANT, (3) DISCUSSION OF THE REACTOR TYPES, AS DETERMINED BY COOLANT, INDICATING DEVELOPMENT TRENDS AND (4) DISCUSSION OF COMMON DESIGN FEATURES SUCH AS PRESSURE TUBES, ON-LINE REFUELING, AND O2O LOSS RATES.

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

INFORMATION RETRIEVAL + REACTOR, PRESSURE TUBE + SURVEY, GENERAL + *REACTOR, HWR + REFUELING, ON LINE + *DESIGN STUDY + *COMPARISON, REACTOR CHARACTERISTICS + REVIEW

1-30453 ALSO IN CATEGORY 17
THUNE HP
HOW TO INVESTIGATE ACCIDENTS
SAFETY DIVISION, POST OFFICE DEPARTMENT, WASHINGTON, D. C.
INDUSTRIAL SUPERVISOR FOR JAN. 1969, VOL. XXXVIII(1), PG 8,9

(APPROACH USEFUL TO ALL FROM LESSONS LEARNED IN INDUSTRIAL SAFETY ASSOCIATED WITH U.S. POST OFFICE.) NINE-STEP PROCEDURE FOR USE OF INVESTIGATING SUPERVISOR. (1) LOOK FOR UNSAFE CONDITIONS AS WELL AS UNSAFE ACTS. (2) GO TO THE SCENE PROMPTLY BEFORE CLUES ARE LOST. (3) LISTEN FOR CLUES FROM BYSTANDER CONVERSATION. (4) STUDY THE EVIDENCE TO FIND UNDERLYING CAUSES. (5) ENCOURAGE WORKERS TO VOLUNTEER IDEAS FOR PREVENTION. (6) CONFER WITH TECHNICAL EXPERTS WHO SUPPLIED THE MACHINERY. (7) WRITE UP THE COMPLETE REPORT. (8) FOLLOW UP IN REDESIGN AND TRAINING. (9) PUBLICIZE CORRECTIVE ACTIONS SO WORKERS KNOW MANAGEMENT CARES.

INCIDENT, NONNUCLEAR + REACTOR, BWR + *ACCIDENT ANALYSIS + INDUSTRIAL SAFETY + REACTOR, PWR + INFORMATION RETRIEVAL + *OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + *TRAINING

1-30578 ALSO IN CATEGORIES 7 AND 11
COTTRELL WB
ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPTEMBER-OCTOBER 1968
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2425 +. JANUARY 1969, 156 PAGES

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

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

1-30579 ALSO IN CATEGORIES 7 AND 11
COTTRELL WB
ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR MAY-JUNE 1968

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30579 *CONTINUED*
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2283 +. JULY 30, 1968, 170 PAGES

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

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

1-30634 ALSO IN CATEGORIES 15 AND 18
AEC QUESTION - QUAD CITIES 1 AND 2 AND MEDICAL EMERGENCY PLANS
U.S. ATOMIC ENERGY COMMISSION, DIV. REACTOR LICENSING
1 PAGE, LETTER FROM DRL TO COMMONWEALTH EDISON CO., JANUARY 21, 1969, DOCKETS 50-254/265, TYPE--BWR, MFG--G.E., AE--SGT + LUNOY

REQUESTS MEDICAL PLANS FOR A RADIATION EMERGENCY AND THE EMERGENCY PLAN FOR THE SITE (QUESTION ONLY - NO ANSWER).

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

RADIATION INJURY TREATMENT + *RADIATION SAFETY AND CONTROL + AEC QUESTION + ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + REACTOR, BWR + RADIOLOGICAL ASSISTANCE + *EMERGENCY PROCEDURE + SAFETY PRINCIPLES AND PHILOSOPHY + QUAD CITIES 1 (BWR) + QUAD CITIES 2 (BWR)

1-30639 ALSO IN CATEGORY 18
FINANCIAL QUALIFICATIONS OF CONSOLIDATED EDISON
CONSOLIDATED EDISON COMPANY OF NEW YORK
5 PAGES, AMENDMENT 9 TO INDIAN POINT 3 LICENSE APPLICATION (EXHIBIT A-1), DECEMBER 10, 1968 DOCKET 50-386, TYPE--PWR, MFG--WEST., AE--UNITED ENGR.

SUPPLEMENTARY FINANCIAL INFORMATION - ESTIMATED COST OF CONSTRUCTION IS \$196,928,000.

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

ECONOMIC STUDY + INDIAN POINT 3 (PWR) + *ECONOMICS + REACTOR, PWR

1-30644 ALSO IN CATEGORIES 11 AND 18
VESSEL REPAIR - ADDITIONAL INFORMATION
JERSEY CENTRAL POWER AND LIGHT CO.
50 PAGES, FIGURES, TABLES, AMENDMENT 37 TO OYSTER CREEK 1 LICENSE APPLICATION, MAY 1, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

SEE ALSO AMEND. 35 (FINAL REPORT) AND AMEND. 36 (REPAIR PROCEDURES). CONCLUSIONS OF THIS AMEND. ARE - SAFETY EVALUATIONS COMPONENTS OR WELDS SHOW STUB TUBE FLAWS WOULD PROPAGATE TO OTHER VESSEL COMPONENTS. A COMPREHENSIVE TEST AND ANALYTICAL PROGRAM HAS BEEN UNDERTAKEN TO DETERMINE CAUSES OF DEFECTS. TO DATE A SPECIFIC FAILURE CAUSE HAS NOT BEEN IDENTIFIED. STRESS CALCULATIONS HAVE BEEN MADE TO EVALUATE ACCEPTABILITY OF PROPOSED REPAIRS FOR 40-YEAR LIFETIME OF PLANT. CONCLUSIVE CALCULATIONAL RESULTS SHOW DESIGN FULLY MEETS FATIGUE-LIFE CRITERIA AND ALLOWABLE STRESSES. REPAIR, IN-SERVICE INSPECTION, AND SELECTION OF MATERIALS WITH RESPECT TO BRITTLE FRACTURE PROTECTION -- ALL CONTRIBUTE TO ACCEPTABILITY OF VESSEL FOR LIFETIME OF PLANT.

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

*PRESSURE VESSEL + CONTAINMENT INTEGRITY + FLAW + WELDING + *MAINTENANCE AND REPAIR + CONTROL ROD DRIVE + WELDS + FAILURE, FABRICATION ERROR + OYSTER CREEK 1 (BWR) + BRITTLE FRACTURE + SAFETY ANALYSIS + CODES AND STANDARDS + REACTOR, BWR + FAULT + FAILURE, INSTALLATION ERROR + TESTING + SUPPORT STRUCTURE

1-30646 ALSO IN CATEGORIES 11 AND 18
PLANT QUALITY ASSURANCE REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
20 PAGES, FIGURES, TABLES, AMENDMENT 27 TO OYSTER CREEK 1 LICENSE APPLICATION, DEC. 4, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DESCRIBES PROGRAM, SYSTEMS REQUIRING SPECIAL EMPHASIS, ORGANIZATION AND RESPONSIBILITIES, AND RECORD-KEEPING.

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

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30646 *CONTINUED*
ADMINISTRATIVE CONTROL + *QUALITY ASSURANCE + CONTAINMENT CONSTRUCTION + INFORMATION RETRIEVAL + SAFETY PRINCIPLES AND PHILOSOPHY + ENGINEERED SAFETY FEATURE + CODES AND STANDARDS + CONTAINMENT DESIGN + REACTOR, BWR + OYSTER CREEK 1 (BWR)

1-30731 ALSO IN CATEGORY 17
GUPPY WH + MASCHKE GC
NUCLEAR PLANT TRAINING
COMMONWEALTH EDISON CO., CHICAGO
4 PAGES, POWER ENG., 72(7), PAGES 38-41 (JULY 1968)

GIVES A GENERAL DESCRIPTION OF THE BWR TRAINING CENTER, LOCATED AT DRESDEN. THE TRAINING PROGRAM, THE CONSOLE AND FACILITY, AND OPERATOR REQUIREMENTS ARE DESCRIBED. THE PROGRAMMED SIMULATOR MALFUNCTIONS ARE LISTED.

*REACTOR, POWER + *SIMULATION + *TRAINING

1-30732
FRANZEN LF
PROPOSALS FOR IMPROVING THE LICENSING PROCEDURE REQUIRED BY THE ATOMIC LAW
3 PAGES, ATOMWIRT. ATOMTECH., 10, PAGES 261-3 (MAY 1968)

IN THE GERMAN FEDERAL REPUBLIC, CONSIDERATION IS BEING GIVEN TO A REFORM OF THE LICENSING PROCEDURES FOR NUCLEAR ENERGY INSTALLATIONS. AT A PANEL DISCUSSION OF THE INSTITUTE FOR REACTOR SAFETY (IRS) THE REFORMS WERE DISCUSSED. FOR THE FUTURE THERE WAS PARTICULARLY A DESIRE FOR GREATER CERTAINTY THAT A STATE OF AFFAIRS WHEN ONCE LICENSED COULD NOT BE OPPOSED AGAIN THROUGH A LATER TREND IN THE LICENSING PROCEDURES. TO ACHIEVE THIS CERTAIN CHANGES ARE NECESSARY IN RESPECT TO THE POSSIBILITY OF LICENSING A SITE AND IN RESPECT TO THE TERMINATION OF THE BUILDING LICENSE. AT THE SUGGESTION OF THE MINISTRY OF RESEARCH GERMAN CRITERIA IN ACCORDANCE WITH THE NEW SAFETY CRITERIA OF THE USAEC ARE ALSO BEING WORKED OUT BY THE IRS.

*LICENSE STATUS + *REGULATION, GENERAL + *GERMANY + LAW

1-30738 ALSO IN CATEGORY 15
DECREE NO. 67-228 OF 15 MARCH 1967 CONTAINING ADMINISTRATIVE REGULATIONS CONCERNING THE PROTECTION OF WORKERS FROM THE HAZARDS OF IONIZING RADIATION
28 PAGES, JOURNAL OFFICIEL DE LA REPUBLIQUE FRANCAISE, NUMBER 69, PAGES 2754-71 (MARCH 22, 1967)

THIS DECREE REPLACES DECREE OF 1934. IT CONTAINS PROVISIONS DESIGNED TO SAFEGUARD WORKERS IN THE MEDICAL, INDUSTRIAL COMMERCIAL FIELDS - ANYONE IN POSSESSION OF RADIATION GENERATING EQUIPMENT OR OF A NATURAL OR ARTIFICIAL RADIATION SOURCE MUST DECLARE SAME. RECORDS MUST BE KEPT. TECHNICAL PROVISIONS ARE LAID DOWN REGARDING THE EXTENT OF MONITORED AREAS, AND RADIATION DOSIMETRY. A REGISTER OF DATES, LENGTH, AND CAUSE OF ABSENCES FROM WORK AND OF RESULTS OF HEMATOLOGICAL AND RADIOLOGICAL TESTS TO BE MAINTAINED.

*REGULATION, GENERAL + *RADIATION SAFETY AND CONTROL + *RADIATION EXPOSURE, RECORD KEEPING + DOSIMETRY, GENERAL

1-30739 ALSO IN CATEGORY 15
CORRETTIER L
LEGAL PROBLEMS IN RELATION TO LESIONS CAUSED BY IONIZING RADIATIONS
8 PAGES, ENERGIE NUCLEAIRE (MADRID), VOLUME 11, PAGES 551-8 (NOVEMBER-DECEMBER 1968)

THE EXAMINATION OF THE VARIOUS LEGAL PROBLEMS ARISING FROM RADIOLESIONS IN PERSONS PROFESSIONALLY EXPOSED CAN BE DIVIDED INTO TWO DISTINCT AREAS - THE LEGAL OBLIGATIONS TO PROVIDE SAFETY AND PROTECTION PRECAUTIONS AGAINST IONIZING RADIATION, AND REPARATION TO THE PERSON INJURED BY EXPOSURE. THE FIRST ASPECT IS ONLY BRIEFLY CONSIDERED. THE SECOND ASPECT IS CONSIDERED IN SOME DETAIL ON THE BASIS OF A FRENCH DECISION IN A CASE OF ILLNESS ATTRIBUTED TO IONIZING RADIATION. THE DECISION WAS BASED ON AN EVALUATION OF THE PROFESSIONAL CHARACTER OF THE ILLNESS AND OF THE RADIATIONS RECEIVED.

*LAW + *FRANCE + *LIABILITY + *RADIATION SAFETY AND CONTROL

1-30796 ALSO IN CATEGORIES 4 AND 5
ANNO GH + SCHOUTENS JE
CONCEPTUAL PROBABILISTIC METHODS OF ANALYZING HAZARDS OF A LARGE (25-KWT) RADIOISOTOPE SPACE POWER SOURCE
DOUGLAS MISSILE AND SPACE SYSTEMS DIVISION
DAC-60944 +. JANUARY 1968, 37 FIGURES, 12 TABLES

THE QUESTION OF PUBLIC SAFETY, RELATIVE TO NUCLEAR POWER SYSTEMS FOR AEROSPACE APPLICATIONS IS PARTICULARLY IMPORTANT BECAUSE OF THE DIFFICULTY IN PROVIDING FOR 100% SAFETY RELIABILITY THROUGHOUT ALL PHASES OF MISSION OPERATIONS. THE APPROACH NEEDED TO ANALYZE THE HAZARDS OF NUCLEAR AEROSPACE POWER SYSTEMS MUST BE STATISTICAL IN NATURE, IDEALLY TAKING INTO ACCOUNT ALL POSSIBLE FAILURE MODES. THIS REPORT PRESENTS A CONCEPTUAL MEANS OF PERFORMING AN OVER-ALL STATISTICAL HAZARDS-ANALYSIS CENTERED AROUND A 25-KWT RADIOISOTOPE POWER SOURCE (RPS) UNIT OF A SNAP DEVICE. THE REFERENCE FUEL SOURCE IS PU(238)02. THE METHODOLOGY FOR THE ANALYSIS IS ILLUSTRATED BY SOME GENERAL RELATIONSHIPS, DESCRIPTIONS OF MATHEMATICAL MODELS, AND EXAMPLE CALCULATIONS FOR THE VARIOUS REFERENCE MISSION PHASES.

CATEGORY 1
GENERAL SAFETY CRITERIA

1-30796 *CONTINUED*

AVAILABILITY - G.H. ANNO AND/OR J.E. SCHOUTENS - NUCLEAR TECHNOLOGY AND SUB-SYSTEMS BRANCH, ADVANCE PROPULSION DEPARTMENT, DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA.

*ACCIDENT ANALYSIS + *SNAP, GENERAL (SR) + REACTOR, SPACE + *STATISTICAL ANALYSIS + *PROBABILITY

1-30926 ALSO IN CATEGORIES 13 AND 17
CORRECTIVE ACTION ON FUEL PROCESSING

KERR-MCGEE CORPORATION

1 PAGE, LETTER TO L.O. LOW, COMPLIANCE NOV. 25, 1968

(REPLY TO CITATION OF NOV. 6.) FREE-STANDING 11-LITER BOTTLES OF FUEL SOLUTION NOW STORED IN SAFE CONFIGURATION. ***GLOVE BOXES HAVE 20-MIL-THICK GLOVES FOR UAL POWDER PRODUCTION, WITH FEW PUNCTURES AND NO TEARS. EIGHT AIR-SAMPLING LOCATIONS (INSTEAD OF 5) ARE SAMPLED EACH DAY. PRODUCTION IS STOPPED FOR CLEANING IF AIRBORNE CONCENTRATION EXCEEDS PERMISSIBLE.

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

FUEL ELEMENT + SURVEY, RADIATION, GENERAL + CRITICALITY SAFETY + GLOVE BOX + FUEL REPROCESSING + FABRICATION + FAILURE, ADMINISTRATIVE CONTROL + AIRBORNE RELEASE + COMPLIANCE

1-31389 ALSO IN CATEGORY 15

MOORE TM + MCDONALD DJ

RADIATION SAFETY RECOMMENDATIONS FOR X-RAY DIFFRACTION AND SPECTROGRAPHIC EQUIPMENT

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

MORP 68-14 +. OCTOBER 1968, 19 REFERENCES, 18P.

DETAILS THE RADIATION PROTECTION RECOMMENDATIONS FOR X-RAY DIFFRACTION AND SPECTROGRAPHIC EQUIPMENT, INCLUDING GUIDELINES FOR ADMINISTRATIVE RESPONSIBILITIES, OPERATING PROCEDURES, PERSONNEL MONITORING, AREA MONITORING, AND SAFETY ENGINEERING. THE REPORT IS DIRECTED TO OPERATORS, ADMINISTRATORS, GOVERNMENTAL HEALTH AGENCIES, AND MANUFACTURERS.

OPERATION + INSTRUMENT, GENERAL + *X-RAY + *GUIDE + *ADMINISTRATIVE CONTROL + MONITOR, PERSONNEL + RADIATION PROTECTION, ORGANIZATION + RADIOLOGICAL ASSISTANCE + *RADIATION SAFETY AND CONTROL + MONITOR, AREA

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-13846

BIRO GG

OPENING SPEECH - ANS SYMPOSIUM ON LOCATING NUCLEAR POWER PLANTS IN CITIES

GIBBS AND HILL, INC.

8 PAGE, PRESENTED AT THE ANS SYMPOSIUM ON LOCATING NUCLEAR POWER PLANTS IN CITIES, NEW YORK, MARCH 22, 1966

OPENING PAPER AT SYMPOSIUM. BIRO CALLED ON THE NUCLEAR INDUSTRY TO QUIT TALKING OVER THE HEADS OF THE PUBLIC AND TO PLACE NUCLEAR PLANTS IN THE PROPER PERSPECTIVE SO THAT UNGROUNDED FEARS WILL BE REMOVED. (THIS AGREES WITH OTHERS WHO SAY WE SHOULD AVOID USE OF POMPOUS AND SO-CALLED LEARNED RHETORIC WHEN COMMUNICATING WITH PUBLIC. TONGUE TWISTERS TWIST THE MIND.) SHOULD IMPROVE LOOKS OF NUCLEAR PLANTS - GIVE THEM A LESS DREARY APPEARANCE. SHOULD REMIND PUBLIC THAT A 1000-MWE COAL-FIRED PLANT EMITS (AS MIXED ISOTOPES) THE EQUIVALENT OF 10,000 CURIES OF KR-85, WHILE YANKEE (IN 1961) EMITTED ONLY TWO MILLICURIES OF KR-85 AND IODINE ALTOGETHER.

AVAILABILITY - GEORGE G. BIRO, GIBBS AND HILL, INC., 393 SEVENTH AVE., NEW YORK, N.Y. 10001

YANKEE (PWR) + *SITING, REACTOR + *RADIATION IN PERSPECTIVE + REACTOR, PWR + KRYPTON + RADIOACTIVITY RELEASE + IODINE + RADIATION, PUBLIC EDUCATION

2-27062

ALSO IN CATEGORIES 1 AND 11

CONSIDERATION AFFECTING STEAM POWER PLANT SITE SELECTION

OFFICE OF SCIENCE AND TECHNOLOGY

132 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 5, 1969

DISCUSSES VARIOUS ASPECTS OF POWER PLANT SITING WHICH AFFECT BOTH INDUSTRY AND THE GENERAL PUBLIC. IT CONTAINS CHAPTERS ON (1) NEED FOR SITES, (2) PHYSICAL REQUIREMENTS, (3) NUCLEAR SITING, (4) AIR-POLLUTION FACTORS, (5) WATER-POLLUTION CONTROL, (6) SPORT AND AESTHETIC CONSIDERATIONS, (7) RURAL DEVELOPMENT, (8) RELIABILITY, (9) TRANSMISSION, (10) MULTIPURPOSE SITING, (11) THE ROLE OF STATES IN SITING. ALSO INCLUDES APPENDICES ON (A) NUCLEAR PLANT ENGINEERING, (B) ENVIRONMENTAL RESEARCH FOR NUCLEAR SITING, (C) NUCLEAR SAFETY R AND D, (D) AIR POLLUTANTS, (E) SULFUR DIOXIDE R AND D, (F) METEOROLOGY.

ECOLOGICAL CONSIDERATION + THERMAL POLLUTION + *SITING, REACTOR + ENVIRONMENTAL CONDITION + REACTOR, POWER + METEOROLOGICAL SUPPORT + ATMOSPHERIC POLLUTION + RADIATION IN PERSPECTIVE + SULFUR DIOXIDE + R AND D PROGRAM + REGULATION, STATE + HYDROLOGICAL CONSIDERATION, GENERAL + *SITING, GENERAL + RIVER, GENERAL + RADIATION, PUBLIC EDUCATION + QUALITY ASSURANCE

2-27447

ALSO IN CATEGORY 18

DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. I

IOWA ELECTRIC LIGHT AND POWER COMPANY

50331-1 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. 1, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS TITLED INTRODUCTION AND SUMMARY, SITE AND ENVIRONS, AND REACTOR. OPERATIONAL IN 1973, LOCATED 8 MILES FROM CEDAR RAPIDS, IOWA. SIMILAR TO VERMONT YANKEE, BROWNS FERRY. POWER OF 1593 MWT AND 550 MWE. FUEL IS UO2 PELLETS IN ZR-2 TUBES. ASSEMBLY IS 49 RODS EACH, 368 ASSEMBLIES IN CORE. DESIGN PRESS. AND TEMP. - 1268 PSIG AND 562 F. CONTROL RODS ARE B4C PACKED GRANULES IN SS TUBES. PRIMARY CONTAINMENT IS PRESSURE SUPPRESSION, DESIGNED FOR 56 PSIG. SECONDARY IS CONCRETE-AND-STEEL BUILDING. SITE CHARACTERISTICS DISCUSSED, AND DETAILS GIVEN OF NUCLEAR STEAM SUPPLY SYSTEM DESIGN.

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

*REACTOR DESCRIPTION + PRESSURE VESSEL + REPORT, PSAR + SITING, REACTOR + CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + SYSTEM DESCRIPTION + CORE COMPONENTS + DUANE ARNOLD ENERGY CENTER (BWR)

2-28973

ALSO IN CATEGORIES 17 AND 18

IWAKOSHI Y + NOMOTO T

OPERATION EXPERIENCES OF THE TOKAI POWER STATION, AND THE PLANNING FOR THE TSURUGA POWER STATION

JAPAN ATOMIC POWER CO., TOKYO

9 PAGES, KARYOKU HATSUDEN, 18, PAGE 532-40, (JUNE 1967), (IN JAPANESE)

ADVANCED CALDER HALL-TYPE REACTOR OF 166 MW(E). BECAUSE OF THE EARTHQUAKES IN JAPAN, ITS DESIGN WAS SOMEWHAT CHANGED FROM THE ORIGINAL ONE, AND THEREFORE THE OPERATING EXPERIENCES HAVE BEEN UNIQUE. INCLUDES PLANT OPERATION, VIBRATION OF THE HEAT-EXCHANGER TUBES, AND LOW-PRESSURE THROTTLE VALVES FOR THE MAIN TURBINE. THE TSURUGA POWER STATION WILL BE A 322 MW(E) BOILING-WATER REACTOR (GE-BWR), BEING COMPLETED IN DECEMBER 1969. THE SAFETY DESIGN AND THE ANTI-EARTHQUAKE DESIGN ARE DESCRIBED.

STEAM GENERATOR + *FAILURE, TUBING + OPERATING EXPERIENCE SUMMARY + VIBRATION + REACTOR, GCR + VALVE + *EARTHQUAKE ENGINEERING + JAPAN + REACTOR, BWR.

2-29142

ALSO IN CATEGORIES 16 AND 17

CITATION CORRESPONDENCE

UNITED STATES RADIUM CORPORATION

LETTER TO COMPLIANCE, OCTOBER 8, 1968

REGARDING THE CITATIONS SEPT. 19, WE ARE SURPRISED AT 2 AND 4 (SURFACE CONTAMINATION) AS THESE WERE ISOLATED SPOTS BEING CLEANED UP. (1) - DURING 7 OPERATING CYCLES, OPERATOR WAS EXPOSED ONCE

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-29142 *CONTINUED*
(TO 2X LIMIT FOR 48 MIN). THIS CHECKS WITH URINE SAMPLING. (2,4) - MEN HAVE BEEN ASSIGNED TO REMOVE FIXED RADIUM CONTAMINATION. A NEW CONTROL PROGRAM IS EFFECTIVE. DAILY WIPE SAMPLES AND HP RESPONSIBLE UNTIL CLEANED UP. (3) - THE AREA HAS BEEN OUT OF PRODUCTION SINCE LATE 1966 AND HAS NOW BEEN LOCKED. (A) TRITIUM RELEASE MAXIMUMS IN 1968 HAVE BEEN WITHIN SITE BOUNDARIES, (B) THE STACK SUMMATION METHOD WAS USED TO TREAT THE SEVERAL STACKS AS AN AREA SOURCE, USING LEAST FAVORABLE METEOROLOGY.

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

CONTAMINATION + BYPRODUCT MATERIAL + *SOURCE, MULTIPLE + TRITIUM + RADIUM + *SOURCE, CONTINUOUS + FAILURE, ADMINISTRATIVE CONTROL + RADIOACTIVITY RELEASE + COMPLIANCE

2-29580 ALSO IN CATEGORY 18
KORNBICHLER H
NUCLEAR POWER STATIONS WITH BOILING WATER REACTORS - CONSTRUCTION AND SAFETY ASPECTS
FACHGEBIETES KERNREAKTOREN, FRANKFURT AM MAIN
6 PAGES, ATOM UND STROM, VOLUME 14, PAGES 21-6 (FEBRUARY-MARCH 1968)

THE SAFETY ASPECTS OF CONSTRUCTION AND OPERATION OF BOILING WATER POWER REACTORS ARE PRESENTED. SCHEMATIC DIAGRAMS OF SYSTEMS ARE PRESENTED. POWER PLANT SAFETY PROVIDES SITING NEAR THICKLY POPULATED AREAS.

OPERATING EXPERIENCE SUMMARY + *REACTOR DESCRIPTION + SITING, URBAN + CONTAINMENT CONSTRUCTION + GERMANY + REACTOR, BWR

2-29595 ALSO IN CATEGORY 18
SITE AND REACTOR DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 1, JANUARY 13, 1969 DOCKET 50-334

CONTAINS INTRODUCTION AND SUMMARY DESCRIPTION OF ENTIRE PLANT (WITH DISCUSSION OF DESIGN APPLICABLE TO 70 PROPOSED AEC DESIGN CRITERIA), SITE DESCRIPTION (WITH APPENDICES ON COMPUTER POINTOUT OF ANY DILUTION FACTORS FOR A GROUND LEVEL SOURCE - GEOLOGY, SEISMICITY ANALYSIS, AND SOIL CONDITIONS), AND A DESCRIPTION OF THE NSSS SYSTEM. 2774 MWT/882 MWE PWR DESIGNED FOR 2485 PSIA AND 650 F. LOCATED 25 MILES FROM PITTSBURGH, PENN., OPERATIONAL JUNE 1, 1973. SIMILAR TO SURRY 1 AND 2, 3 COOLANT LOOPS. UO2 FUEL PELLETS IN ZR-4 TUBES, 193 ASSYS WITH 204 RODS/ASSY. ROD-CLUSTER CONTROL BY B4C IN 304 SS CLAD(BOTH FULL AND PART LENGTH), BORIC ACID CHEM. SHIM. STEEL-LINED CONCRETE CONTAINMENT DESIGNED FOR 45 PSIG AND 380 F BUT OPERATED AT SUBATMOSPHERIC. CORE REFLOODING SYSTEM AND CONTAINMENT SPRAY.

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

*SYSTEM DESCRIPTION + CORE COMPONENTS + *REPORT, PSAR + *REACTOR DESCRIPTION + FUEL ELEMENT + SEISMOLOGY + *SITING, REACTOR + PRESSURE VESSEL + BEAVER VALLEY 1 (PWR) + AEC DESIGN CRITERIA + REACTOR, PWR + DESIGN CRITERIA + SOIL PROPERTY, IN SITU + GEOLOGICAL CONSIDERATION, GENERAL

2-30021 ALSO IN CATEGORIES 11 AND 18
MONTICELLO FINAL SAR VOL. IV
NORTHERN STATES POWER COMPANY
50263-4+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS 3 APPENDICES - SEISMIC DESIGN CRITERIA, PLANT QUALITY-ASSURANCE PROGRAM, AND PLANT COMPARATIVE EVALUATION WITH THE PROPOSED AEC 70 DESIGN CRITERIA. EARTHQUAKE ANALYSIS INCLUDED FOR REACTOR BUILDING, DRYWELL, AND PRESSURE VESSEL.

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

*AEC DESIGN CRITERIA + MONTICELLO (BWR) + *EARTHQUAKE ENGINEERING + *DESIGN CRITERIA + BUILDING + REACTOR, BWR + QUALITY ASSURANCE + CONTAINMENT, PRESSURE SUPPRESSION + PRESSURE VESSEL + STRUCTURAL INTEGRITY + SITE CRITERIA, EARTHQUAKE + REPORT, SAR

2-30022 ALSO IN CATEGORY 10
MONTICELLO FINAL SAR VOL. I
NORTHERN STATES POWER COMPANY
50263-1+. 150 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS SECTIONS TITLED INTRODUCTION AND SUMMARY, PLANT SITE AND ENVIRONS, REACTOR CORE, AND REACTOR COOLANT SYSTEM. EVALUATION BASED ON OPERATION AT 1670 MWT AND 545.4 MWE (PSAR EVALUATED AT 1469 MWT). VESSEL IS FIELD-FABRICATED. UTILIZES ONE RCICS AND ONE HPCIS COOLANT-INJECTION SYSTEM. VARIABLE COOLING TOWER TO BE USED. USES ONE RESIDUAL-HEAT-REMOVAL SYSTEM FOR CONTAINMENT SPRAY AND SHUTDOWN COOLING. ONE STANDBY DIESEL/GENERATOR SYSTEM. DISCUSSES THERMAL, HYDRAULIC, AND NUCLEAR CHARACTERISTICS OF REACTOR. CONTROL-ROD DRIVES AND CORE COMPONENTS ARE DESCRIBED.

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

MONTICELLO (BWR) + *SYSTEM DESCRIPTION + PRESSURE VESSEL + *REACTOR DESCRIPTION + *HEAT TRANSFER ANALYSIS + ENGINEERED SAFETY FEATURE + FUEL BURNUP + *FUEL ELEMENT + *HYDRAULIC ANALYSIS + SITING, REACTOR + REPORT, SAR

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-30022 *CONTINUED*
+ REACTOR, BWR + *MAIN COOLING SYSTEM + GENERATOR, ENGINE + *SITING, GENERAL

2-30276 ALSO IN CATEGORIES 1 AND 18
PUBLISHED BRIEF 21,334, SIEGEL VS USAEC AND FLORIDA POWER AND LIGHT COMPANY
PAUL SIEGEL, ATTORNEY
55 PAGES, BRIEF ON LAW SUIT, MARCH 1, 1968

CONTAINS ARGUMENTS AND AUTHORITIES ON QUESTIONS. (1) MUST AEC TAKE INTO ACCOUNT ATTACKS AND SABOTAGE BY ENEMY, (2) DID AEC ORDER TO ASLB TO NOT CONSIDER ENEMY ATTACK DENY PETITIONER THE PUBLIC HEARING PROVIDED BY LAW, (3) WAS AEC-ASLB FINDING FOR CONSTRUCTION PERMIT SUPPORTED BY SUBSTANTIAL EVIDENCE.

CIRCUIT COURT OF APPEALS, WASHINGTON, D.C.

*NUCLEAR ATTACK + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + ASLB + REACTOR, PWR + LAW + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR)

2-30277 ALSO IN CATEGORIES 1 AND 18
SIEGEL P
BRIEF OF INTERVENOR PAUL SIEGEL IN SUPPORT OF TURKEY POINT EXCEPTIONS
U.S. ATOMIC ENERGY COMMISSION
21 PAGES, DOCKET 50-250 AND 251, TYPE--PWR, MFG--WEST., AE--BECHTEL

BRIEF SEEKS REVIEW OF ASLB APRIL 26, 1967, ORDER ALLOWING TURKEY POINT CONSTRUCTION PERMIT. GROUNDS ARE THAT AEC SHOULD NOT EXCLUDE FROM CONSIDERATION THE SUBJECT OF INTENTIONAL EFFORTS BY AN ENEMY OF THE U.S. TO HARM THE REACTORS. ***INCLUDES OPENING REMARKS TO ASLB, LETTER TO AEC OF 10 MARCH 1967.

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

CIVIL DEFENSE + *NUCLEAR ATTACK + FALLOUT + LAW + ASLB + REACTOR, PWR + CONSTRUCTION PERMIT PROCESS + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR)

2-30408 ALSO IN CATEGORY 18
AEC QUESTIONS ON OYSTER CREEK 2
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER FROM AEC DRL TO JERSEY CENTRAL P AND L CO., JUNE 25, 1968, DOCKET 50-320

CONTAINS 7 QUESTIONS ON THE SITE HYDROLOGY TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT.

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

HYDROLOGICAL CONSIDERATION, GENERAL + CONSTRUCTION PERMIT PROCESS + SYSTEM DESCRIPTION + WEATHER, SEVERE + AEC QUESTION + THREE MILE ISLAND 2 (PWR) + SITING, REACTOR + REACTOR, PWR

2-30414 ALSO IN CATEGORIES 9 AND 18
AEC QUESTIONS ON MAINE YANKEE
U.S. ATOMIC ENERGY COMMISSION
19 PAGES, LETTER FROM AEC DRL TO MAINE YANKEE ATOMIC POWER CO., MARCH 20, 1968, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

CONTAINS 101 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN SITE METEOROLOGY, SHARED COMPONENTS, THERMAL SHOCK ON REACTOR COOLANT SYSTEM, JUSTIFICATION OF HEAT FLUXES, NOT OF COOLANT PIPING AND STRESS LIMITS OF CORE INTERNALS, AND INSTRUMENTATION AND CONTROLS DETAILS. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + STRESS ANALYSIS + NOT DATA + MAIN COOLING SYSTEM + MAINE YANKEE (PWR) + REACTOR SAFETY SYSTEM + SITE CLIMATOLOGY + SHARED COMPONENTS + *AEC QUESTION + HEAT TRANSFER ANALYSIS + CONSTRUCTION PERMIT PROCESS + PIPING + INSTRUMENT, CONTROL

2-30415 ALSO IN CATEGORIES 11 AND 18
AEC QUESTION ON KEWAUNEE
U.S. ATOMIC ENERGY COMMISSION
14 PAGES, LETTER FROM AEC DRL TO WISCONSIN PUBLIC SERVICE CORP., MARCH 8, 1968, DOCKET 50-305, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

CONTAINS 98 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE, REACTOR, THERMAL SHOCK TO PIPING AND CORE COMPONENTS, PRESSURE-VESSEL CRITERIA, SEISMIC DESIGN, CONTAINMENT DESIGN, ENGINEERED SAFEGUARDS, INSTRUMENTATION, ELECTRICAL SYSTEMS, AND THE SAFETY ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-30415 *CONTINUED*
REACTOR, PWR + DESIGN CRITERIA + KEWAUNEE (PWR) + REACTOR DESCRIPTION + SAFETY ANALYSIS + PIPING + CORE COMPONENTS + ENGINEERED SAFETY FEATURE + MAIN COOLING SYSTEM + CONSTRUCTION PERMIT PROCESS + ELECTRIC POWER, GENERAL + PRESSURE VESSEL + *AEC QUESTION + THERMAL MECHANICAL EFFECT + SITING, REACTOR

2-30416 ALSO IN CATEGORIES 5 AND 18
AEC QUESTIONS ON CRYSTAL RIVER 3 AND 4
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER FROM AEC DRL TO FLORIDA POWER CORP., JAN. 19, 1968, DOCKETS 50-302/303, TYPE--PWR, MFG--B+W, AE--SGT + LUNDY

CONTAINS 56 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, SITE DESCRIPTION, REACTOR DESCRIPTION, CONTAINMENT DESIGN, EMERGENCY CORE COOLING, INSTRUMENTATION AND CONTROL, ELECTRICAL SYSTEM, EMERGENCY-FEEDWATER-PUMP REDUNDANCY, MONITORING OF RADIOACTIVE WASTE, AND ANALYSIS OF LOSS OF FLOW ACCIDENT. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + ACCIDENT, LOSS OF FLOW + SYSTEM DESCRIPTION + CONSTRUCTION PERMIT PROCESS + EMERGENCY COOLING CONSIDERATIONS + CONTAINMENT DESIGN + REACTOR DESCRIPTION + ACCIDENT ANALYSIS + DESIGN CRITERIA + REACTOR SAFETY SYSTEM + EQUIPMENT, GENERAL + WASTE MANAGEMENT + *AEC QUESTION + SITING, REACTOR + INSTRUMENT, CONTROL + REDUNDANCE + CRYSTAL RIVER 3 (PWR) + CRYSTAL RIVER 4 (PWR)

2-30417 ALSO IN CATEGORIES 11 AND 18
AEC QUESTIONS ON BROWNS FERRY 3
U.S. ATOMIC ENERGY COMMISSION
10 PAGES, LETTER FROM AEC DRL TO TVA, JAN. 26, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

CONTAINS 59 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN EFFECTS OF TORNADOES AND EARTHQUAKES ON SECONDARY CONTAINMENT, SAFETY FEATURES FOR MISSILE PROTECTION, EMERGENCY ELECTRICAL SYSTEM, SHARED COMPONENTS, AND DESIGN CRITERIA. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE ENGINEERING + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *AEC QUESTION + CONSTRUCTION PERMIT PROCESS + CONTAINMENT DESIGN + BROWNS FERRY 3 (BWR) + EMERGENCY POWER, ELECTRIC + DESTRUCTIVE WIND + DESIGN CRITERIA + MISSILE GENERATION AND PROTECTION

2-30420 ALSO IN CATEGORIES 11 AND 18
AEC QUESTION ON FT. ST. VRAIN
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER FROM AEC DRL TO PUBLIC SERVICE CO. OF COLORADO, MARCH 14, 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS 9 QUESTIONS TO BE ANSWERED TO SUPPORT LICENSE APPLICATION AND A LIST OF 14 ITEMS TO BE DISCUSSED AT ACRS MEETING. QUESTIONS CONCERN PCRV THERMAL BARRIER, R AND D ON SAFETY ITEMS, COATINGS ON FUEL PARTICLES, DESIGN CRITERIA, AND CONSEQUENCES OF EARTHQUAKE. DISCUSSION ITEMS CONCERN PCRV, ACCIDENTS, CIRCULATORS, AND CONSTRUCTION. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE + ACRS + CONSTRUCTION PERMIT PROCESS + THERMAL SHIELD + REACTOR, HTGR + FUEL, PELLET TYPE + COATING + ACCIDENT, CONSEQUENCES + *AEC QUESTION + ENGINEERED SAFETY FEATURE + FT. ST. VRAIN (HTGR) + CONCRETE, PRESTRESSED + PRESSURE VESSEL + R AND D PROGRAM + COATED PARTICLE

2-30422 ALSO IN CATEGORY 18
AEC QUESTIONS ON MILLSTONE POINT
U.S. ATOMIC ENERGY COMMISSION
12 PAGES, LETTER FROM AEC DRL TO MILLSTONE POINT CO., DEC. 11, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

CONTAINS 58 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN CHANGES IN DESIGN SINCE ISSUANCE OF CONST. PERMIT, IMPLEMENTATION OF DESIGN INTENT, SEISMIC CONSIDERATIONS, AND DESIGN FEATURES OF PLANT. (QUESTIONS ONLY - NO ANSWERS.)

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

*AEC QUESTION + SYSTEM DESCRIPTION + REACTOR DESCRIPTION + REACTOR, BWR + CONTAINMENT DESIGN + MILLSTONE POINT (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + LICENSE STATUS

2-30426 ALSO IN CATEGORIES 5 AND 18
AEC QUESTIONS ON NINE MILE POINT
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, LETTER FROM AEC DRL TO NIAGARA MOHAWK POWER CORP., JUNE 6, 1968, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-30426 *CONTINUED*

CONTAINS 21 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SEISMIC DESIGN, TRANSIENT ANALYSIS, AND ACCIDENT DESIGN CONSIDERATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ACCIDENT ANALYSIS + MATHEMATICAL STUDY + *AEC QUESTION + NINE MILE POINT (BWR) + REACTOR, BWR + EARTHQUAKE ENGINEERING + CONTAINMENT DESIGN + REACTOR TRANSIENT + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS

2-30429 ALSO IN CATEGORIES 11 AND 18

AEC QUESTIONS ON OYSTER CREEK 1

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER TO JERSEY CENTRAL P AND L CO., FROM AEC DRL, OCT. 16, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 30 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATIONS FOR OPERATING LICENSE. QUESTIONS CONCERN SEISMIC DESIGN, INSTRUMENTATION, CONTAINMENT, AND EMERGENCY PLANNING. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE ENGINEERING + OYSTER CREEK 1 (BWR) + REACTOR, BWR + CONTAINMENT DESIGN + DESIGN CRITERIA + *AEC QUESTION + EMERGENCY PROCEDURE + LICENSE STATUS + INSTRUMENT, CONTROL

2-30610 ALSO IN CATEGORIES 11 AND 18

SUPPLEMENT 3 TO PSAR - ADDITIONAL INFORMATION TO AEC QUESTIONS IN SUPPLEMENT 1

NIAGARA MOHAWK POWER CORPORATION

24 PAGES, AMENDMENT 3 TO EASTON LICENSE APPLICATION (SUPPL. 3 TO PSAR), APRIL 16, 1968. DOCKET 50-300, TYPE--BWR, MFG--G.E., AE--STONE + WEBSTER

BRIEF INFORMATION CONCERNING MAXIMUM PROBABLE FLOOD, RESPONSE OF UPSTREAM DAMS, EARTHQUAKE ACCELERATION RESPONSE SPECTRA, AEC DESIGN CRITERION 35 ON BRITTLE FRACTURE OF REACTOR COOLANT PRESS. BOUNDARY, VESSEL STUB TUBES, RESIDUAL HEAT REMOVAL SYSTEM, TRITIUM, TORNADO EMERGENCY POWER, SAFETY SYSTEM, CLEANUP SYSTEM, AND SEISMIC ANALYSIS.

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

DESTRUCTIVE WIND + COOLING, SHUTDOWN + REPORT, PSAR + ACCELERATION + EARTHQUAKE + PRESSURE VESSEL + PIPING + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + FLOOD + TRITIUM + RESPONSE SPECTRUM + *AEC QUESTION + EASTON (BWR) + AEC DESIGN CRITERIA + BRITTLE FRACTURE + REACTOR, BWR + CONTROL ROD DRIVE + WELDING + REACTOR SAFETY SYSTEM + AUXILIARY COOLING SYSTEM

2-30636 ALSO IN CATEGORY 18

GEOLOGICAL CONSIDERATIONS

MAINE YANKEE ATOMIC POWER COMPANY

50309-3+. 50 PAGES, AMENDMENT 4 TO MAINE YANKEE LICENSE APPLICATION, NOVEMBER 15, 1967, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

RESULTS OF STUDIES GIVING DESCRIPTION OF BEDROCK FORMATIONS AND EXTENT OF SCHISTOSITY. BEDROCK JOINTED AT 1 TO 5 FT INTERVALS WITH GRANITE AND PEGMATITES. NO MAJOR FAULTS. OVERBURDEN IS NONSTRATIFIED CLAY - SILT SEDIMENT. SITE IS FAVORABLE GEOLOGICALLY.

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

FAULT + *GEOLOGICAL CONSIDERATION, STRATIGRAPHY + SOIL PROPERTY + *GEOLOGICAL CONSIDERATION, GEOPHYSICAL + *SITING, REACTOR + SITE CRITERIA, EARTHQUAKE + MAINE YANKEE (PWR) + *GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PWR

2-30637 ALSO IN CATEGORIES 11 AND 18

SEISMICITY ANALYSIS

WESTON GEOPHYSICAL RESEARCH, INC. WESTON, MASS.

50309-2+. 77 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 3 TO MAINE YANKEE LICENSE APPLICATION, SEPT. 26, 1967, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

EVALUATES PAST EARTHQUAKES WHICH HAVE BEEN RECORDED HISTORICALLY AND INSTRUMENTALLY, TO ESTABLISH THE MAXIMUM EARTHQUAKE EXPECTED AT SITE. FACTORS ARE DEPTH OF FOCUS OF EARTHQUAKE, ENERGY RELEASED, TYPE OF EARTH MATERIAL THROUGH WHICH THE SEISMIC WAVES ARE TRANSMITTED, AND GEOLOGICAL ENVIRONMENT. NEAREST EARTHQUAKE WAS IN BRUNSWICK AREA, JANUARY 20, 1881. PLACING EARTHQUAKE AT BRUNSWICK AND ATTENUATING IT TO SITE, RESULTS IN INTENSITY 6 OR A MAXIMUM GROUND ACCELERATION OF .07 TO .075 G. ESTIMATE OF MAXIMUM CREDIBLE EARTHQUAKE BY DOUBLING THE DESIGN ACCELERATION APPEARS TO BE VALID FOR THIS SITE. TSUNAMIS SHOULD HAVE NO MEASURABLE EFFECT ON THIS SITE.

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

EARTHQUAKE PREDICTION + REACTOR, PWR + EARTHQUAKE RECORDS + *SITE CRITERIA, EARTHQUAKE + EARTHQUAKE + EARTHQUAKE EPICENTER + MAINE YANKEE (PWR) + DESIGN CRITERIA + SITING, REACTOR + ANALYTICAL MODEL + *COMPARISON, THEORY AND EXPERIENCE

CATEGORY 2
SITING OF NUCLEAR FACILITIES

2-30643 ALSO IN CATEGORIES 11 AND 18
PRESSURE VESSEL DESIGN REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
100 PAGES, FIGURES, TABLES, AMENDMENT 16 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 15, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DETAILED REPORT. GIVES DESIGN REQUIREMENTS, THOROUGH REPORT OF TENSILE TESTS OF THE SA302B STEEL SPECIMENS. GIVES REPRODUCTION OF THE VESSEL PURCHASE SPECIFICATION, 24 SEPARATE INSPECTION REPORTS FOR VESSEL AND COMPONENTS, EQUATIONS AND ANALYSIS OF THE ALLOWABLE STRESS LOADS WHICH MAY BE APPLIED TO PIPING, AND A REPORT INCLUDING ALL ASPECTS OF THE SEISMIC ANALYSIS OF THE VESSEL, INCLUDING RING SUPPORTS AND JET LOADS.

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

EARTHQUAKE ENGINEERING + COMPONENTS, MISCELLANEOUS + *CORE COMPONENTS + PIPING + *PRESSURE VESSEL + INFORMATION RETRIEVAL + STRESS ANALYSIS + *DESIGN CRITERIA + HYDRODYNAMIC ANALYSIS + EXAMINATION + MAIN COOLING SYSTEM + *DESIGN STUDY + OYSTER CREEK 1 (BWR) + SYSTEM DESCRIPTION + REACTOR, BWR + CODES AND STANDARDS + ADMINISTRATIVE CONTROL + CONTAINMENT VESSEL LOADING

2-30650 ALSO IN CATEGORIES 16 AND 18
METEOROLOGICAL - RADIOLOGICAL EVALUATION OF SITE
JERSEY CENTRAL POWER AND LIGHT COMPANY
50 PAGES, FIGURES, TABLES, AMENDMENT 13 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 7, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

METEOROLOGICAL DATA FOR FEBRUARY 1966-FEBRUARY 1967 FROM INSTRUMENTED 400-FT TOWER AT SITE IS SUMMARIZED AND ANALYZED. LONG TERM DATA FOR ATLANTIC CITY COMPARED WITH RECENT DATA TO SHOW THAT IT IS REPRESENTATIVE. METHOD OF CALCULATING STACK RELEASE LIMIT IS GIVEN. GAMMA DOSE CALCULATION IS CLOSE TO OBSERVED. INTEGRATED AIR CONCENTRATION CALCULATION GIVES ORDER OF MAGNITUDE VERIFICATION DUE TO LACK OF SENSITIVE MEASUREMENTS IN FIELD. STACK RELEASE LIMIT CALCULATION INCLUDED WHOLE BODY DOSE FROM NOBLE GASES AND INTERNAL DOSE FROM IODINE; CONCLUDES THAT NOBLE GASES DOMINATE AND CONTROL EMISSION LEVEL. MAXIMUM AIR DOSE OF 500 MREM/YEAR AT SITE BOUNDARY EQUALS CONTINUOUS STACK RELEASE RATE OF 0.6 CURIE/SEC. EMISSION OF 2.0 CURIES/SEC OVER ANY TWO DAYS DURING A SEVEN DAY PERIOD WOULD NOT CAUSE DOSE TO EXCEED 100 MILLIREMS IN A WEEK, BASED ON MAXIMUM DOSE RATE FOR WORST METEOROLOGICAL CONDITION SUCH THAT DOSE FOR ONE HOUR DOES NOT EXCEED 2 MILLIREMS. ENVIRONMENTAL MONITORING PROGRAM TO BE CONDUCTED. IF STACK EMISSION EVER REACHES LEVEL THAT IS MEASURABLE IN ENVIRONMENT, MEASUREMENTS WILL PROVIDE A BASIS FOR ADJUSTING PROPOSED STACK LIMIT LONG BEFORE THE EFFECT IN THE ENVIRONMENT IS OF ANY SAFETY CONCERN.

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

MEASUREMENT, GENERAL + *CONTROL, METEOROLOGICAL + *STACK + DOSE + *RADIOACTIVITY RELEASE + SITING, REACTOR + AIRBORNE RELEASE + COMPARISON, THEORY AND EXPERIENCE + *SITE CLIMATOLOGY + CONTAINMENT, GENERAL + REACTOR, BWR + *RELEASE RATE + SETPOINT + *TECHNICAL SPECIFICATIONS + PRECIPITATION + FISSION PRODUCT, VOLATILE + WIND PROFILE + WEATHER, SEVERE + *METEOROLOGY + ACCIDENT ANALYSIS + OYSTER CREEK 1 (BWR) + WIND STATISTICS + MONITOR, STACK + SOURCE, CONTINUOUS + HAZARDS ANALYSIS + OFF SITE + MONITOR, ENVIRONMENTAL

2-30652 ALSO IN CATEGORIES 14 AND 18
AEC QUESTIONS ON SHOREHAM
DIVISION OF REACTOR LICENSING
28 PAGES, LETTER FROM DRL TO LONG ISLAND LIGHT CO., JANUARY 21, 1969, DOCKET 50-322

CONTAINS LIST OF 127 QUESTIONS (NO ANSWERS) ENCOMPASSING SUBJECTS OF PSAR, DESIGN INNOVATIONS FOR MIXING AND PROCESSING OF POST ACCIDENT EFFLUENTS, AND INFLUENCE OF AIRPORT PROXIMITY. ALSO CONFIRMS SHOREHAM CONSTRUCTION DELAY AND INCREASE IN DESIGN POWER.

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

AEC QUESTION + SHOREHAM (BWR) + WASTE TREATMENT, GENERAL + SITING, REACTOR + WASTE MANAGEMENT + REACTOR, BWR

2-30750
BIRKHOFFER A
PROBLEMS (PRACTICE) AND CONSIDERATIONS OF POWER REACTOR SITING IN GERMANY
TECHNISCHE HOCHSCHULE MÜNCHEN, GERMANY
MRR-52 +. NOVEMBER 1968, 10P.

NO STANDARD SITE CRITERIA HAVE BEEN ESTABLISHED FOR GERMANY. BUT, BECAUSE OF POPULATION DENSITY, REMOTE SITING OF NUCLEAR POWER PLANTS IS NOT POSSIBLE. WHEN THE FIRST NUCLEAR POWER PLANT WAS PROPOSED, THE EVALUATION WAS PERFORMED ON THE BASIS THAT THE REACTOR-SYSTEM WOULD BE DESIGNED TO MEET THE REQUIREMENTS OF THE SITE. IN LARGER PLANTS, MORE RELIANCE IS PLACED ON SAFETY FEATURES, SO A MORE DETAILED ANALYSIS OF THE OVERALL PLANT PERFORMANCE MUST BE MADE.

AVAILABILITY - A. BIRKHOFFER, INSTITUT FÜR MEB- UND REGELUNGSTECHNIK

*SITING, REACTOR + *REACTOR, POWER + GERMANY + SITING, URBAN

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-30098

DIXON FE + DAVIES AJ
THE DESIGN AND TESTING OF A TRANSPORT CAPSULE TO MEET THE I.A.E.A. REGULATIONS
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-M-2087 +. 10 PAGES, 7 FIGURES, 2 REFERENCES, JULY 1968

AN ACCOUNT OF TESTS ON A CAPSULE DESIGNED FOR IRRADIATED SPECIMENS, WHICH WAS CAPABLE OF BEING LOADED AND UNLOADED IN AN ACTIVE CELL. NOT ALL TYPES OF SEAL ARE SUITABLE. DESCRIBES A SATISFACTORY DESIGN.

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

SEAL + SHIPPING CONTAINER + TEST, DESTRUCTIVE + DESIGN STUDY + TEST, COMPONENT + REGULATION, IAEA + UNITED KINGDOM

3-30099

DIXON FE
THE DESIGN OF A VENTILATED THERMAL AND MECHANICAL SHIELD FOR A HEAVY LEAD SHIELDED FLASK WHICH CONTAINS A HEAT EMITTING SOURCE
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-R-5808 +. 50 PAGES, 31 FIGURES, 10 REFERENCES, JULY 1968

AN ACCOUNT OF EXPERIMENTAL WORK TO PROVE THE DESIGN OF A STEEL REINFORCED HARDWOOD CASE PROVIDED WITH VENTILATION TO DISPERSE THE HEAT EMITTED BY THE FLASK CONTENTS. EVIDENCE IS GIVEN OF THERMAL AND MECHANICAL TESTS AND DESIGN RECOMMENDATIONS ARISING FROM THE WORK ARE MADE.

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

TEST, DROP + TEST, DESTRUCTIVE + THERMAL SHIELD + UNITED KINGDOM + THERMAL EXPERIMENT

3-30100

DIXON FE + OLLEY FK + COHEN LR
USE OF MASSIVE FOAMED POLYSTYRENE IN RADIOACTIVE TRANSPORT PACKAGING
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-M-2086 +. 17 PAGES, 14 FIGURES, 6 REFERENCES, JULY 1968

AN ACCOUNT OF THE USE OF THICK FOAMED POLYSTYRENE AS A REPLACEMENT FOR FIBREBOARD PACKAGING, STEEL SPIDERS, WOODEN SPIDERS, ITS USE WITH TINPLATE DRUMS AND AS SPACE SHIELDING IN CORK INSULATED TYPE-B PACKAGES. TOGETHER WITH THE RESULTS OF TESTS ON PACKAGINGS TO CARRY LEAD POTS UP TO 50 LB IN WEIGHT.

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

THERMAL EXPERIMENT + RADIOISOTOPE + TEST, DESTRUCTIVE + THERMAL SHIELD + UNITED KINGDOM + SHIPPING CONTAINER

3-30101

OSTREM FE + RUMERMAN ML
TRANSPORTATION AND HANDLING SHOCK AND VIBRATION DESIGN CRITERIA MANUAL
GENERAL AMERICAN TRANSPORTATION CORP., NILES, ILLINOIS
N67-39,312 +. 111 PAGES, 34 FIGURES, 20 TABLES, REFERENCES, APRIL 28, 1967

A COMPREHENSIVE LITERATURE SURVEY AND SEARCH WAS CONDUCTED FOR DATA AND INFORMATION APPLICABLE TO THE CARGO HANDLING ENVIRONMENT. NEARLY 150 REPORTS AND ARTICLES WERE REVIEWED, AND OVER 50 AGENCIES OR ORGANIZATIONS CONCERNED WITH PROBLEMS OF THIS NATURE WERE CONTACTED. APPLICATIONS OF THE DATA TO TYPICAL PACKAGE DESIGN PROBLEMS DISCUSSED. RESULTS OF RECENT MEASUREMENT PROGRAMS OF THE TRANSPORTATION SHOCK AND VIBRATION ENVIRONMENT ALSO PRESENTED.

TRANSPORTATION AND HANDLING + MEASUREMENT, GENERAL + CONTAINER TIEDOWN + SHIPPING CONTAINER + VIBRATION ANALYSIS + BIBLIOGRAPHY

3-30103

CALLY JC + FORMERY P + LABROUSSE M
TESTS OF TYPE B RADIOACTIVE MATTER PACKAGES THEORETICAL STUDY OF THE DEFORMATION OF A CYLINDRICAL CONTAINER AFTER A FALL
COMMISSARIAT A L ENERGIE ATOMIQUE, FONTENAY-AUX-ROSES, FRANCE
CEA-R-3372 +. 46 PAGES, 5 FIGURES, MARCH 1968

THE PACKINGS USED FOR TRANSPORTING HIGHLY RADIOACTIVE MATERIALS, IRRADIATED FUELS FOR EXAMPLE, ARE USUALLY MADE UP IN FRANCE OF TWO STEEL SHEELS IN BETWEEN WHICH LEAD IS CAST. THESE PACKINGS ARE SUBJECTED TO FAIRLY STRICT SAFETY REGULATIONS. IN PARTICULAR, THEY HAVE TO WITHSTAND A FALL OF 9 M WITHOUT ANY OF THEIR CONTENTS BEING DISPERSED AND WITHOUT THE RADIOACTIVE PROTECTION PARTS BEING SERIOUSLY AFFECTED.

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

CATEGORY 3
TRANSPORTATION AND HANDLING OF RADIOACTIVE MATERIALS

3-30103 *CONTINUED*
SHIPPING CONTAINER + TEST, DROP + FRANCE + IMPACT SHOCK + THEORETICAL INVESTIGATION

3-30786
ERARD M
RADIOACTIVE EFFLUENT CONTAINER
7 PAGES, BULLETIN D INFORMATION SCIENTIFIQUES ET TECHNIQUES, PP. 61-67 (OCT. 1968)

DESCRIBES THE SPECIFICATIONS OF A CONTAINER KNOWN AS THE C17 CONTAINER DESIGNED FOR THE TRANSPORT OF RADIOACTIVE EFFLUENT, WHICH CONSTITUTES A B TYPE UNIT ACCORDING TO THE RECOMMENDATIONS LAID DOWN BY THE OFFICIAL REGULATIONS. USEFUL CAPACITY, 100 LITRES. IT CONSISTS OF AN OUTER PACKING AND A CONFINING ENVELOPE, WHICH MAY BE EITHER A STOPPERED CASK, IN THE CASE OF LIQUID TRANSPORT, OR A COMPLETELY OPEN CASK CONTAINING A POLYVINYL CHLORIDE BAG OR A POLYETHYLENE CARBOY (FOR A SMALL VOLUME OF CONCENTRATED LIQUID). IN AGREEMENT WITH REGULATIONS, TWO PROTOTYPES HAVE VERY SUCCESSFULLY WITHSTOOD THE PRESCRIBED MECHANICAL TESTS (9 M FALL AND 1 M FALL ON A PILE) AND HEAT TESTS (900 C FOR 1/2 HOUR).

SHIPPING CONTAINER + LIQUID FUEL + FRANCE + DESIGN STUDY + TEST, PROOF

3-30791
CODE OF FEDERAL REGULATIONS, TITLE 49, TRANSPORTATION
FEDERAL REGISTER, VOL. 33, NO. 194, OCTOBER 4, 1968

THIS DOCUMENT CONTAINS THE MOST RECENT DEPARTMENT OF TRANSPORTATION REGULATIONS GOVERNING THE SHIPMENT OF RADIOACTIVE MATERIALS IN THE U.S.A.

REGULATION, GENERAL + CODES AND STANDARDS + REGULATION, ICC + ENVIRONMENTAL CONDITION + TRANSPORTATION AND HANDLING

3-30895 ALSO IN CATEGORY 17
LOSS OF RADIOCHEMICALS ON SANTA ANA FREEWAY
ABBOTT LABORATORIES
2 PAGES, LETTER TO AEC COMPLIANCE, CHICAGO, ILLINOIS, FEBRUARY 19, 1968

ON FEB. 19, 1968, THE HOOD OF A VOLKSWAGEN BLEW OPEN ON THE SANTA ANA, CAL., FREEWAY, AND 5 PACKAGES OF RADIOPHARMACEUTICALS FELL OUT. THE RED ARROW MESSENGER SERVICE DRIVER FOUND 3, BUT ONLY PIECES OF THE OTHER TWO (2 MILLICURIES OF CR-51, 900 MICROCURIES OF I-131, AND 500 OF I-125). TWO OF THE 3 PACKAGES HAD BEEN RUN OVER, BUT THE RADIOPHARMACEUTICAL WAS STILL SEALED IN THE CONTAINER.

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

BYPRODUCT MATERIAL + *DAMAGE + TRANSPORTATION AND HANDLING + IODINE + *SHIPPING CONTAINER + STATE PROGRAM + *SOURCE, RADIATION, LOST + COMPLIANCE

3-31424
BAUER BC
INTEGRITY OF IRRADIATED FUEL SHIPPING CONTAINERS SUBJECT TO HYPOTHETICAL FIRE ACCIDENT
BETTIS ATOMIC POWER LAB., PA.
WAPD-T-2129 +. 17 PAGES, 5 FIGURES, 5 TABLES, MAY 1968

GIVES AN ANALYTICAL STUDY OF THE THERMAL INTEGRITY OF THE CYLINDRICAL LEAD-LINED SHIPPING CONTAINER TO BE USED TO TRANSPORT SHIPPINGPORT ATOMIC POWER STATION SPENT FUEL. STUDIES THE ACCIDENT CONDITION SPECIFIED BY AEC MANUAL SECTION 0529, VIZ., A HYPOTHETICAL FIRE OF 1475 F AND 30-MINUTE DURATION. INTERNAL AND EXTERNAL RADIATION AND CONVECTION, TEMPERATURE DEPENDENT CONVECTION COEFFICIENTS, AND LIQUID LEAD RUN-OFF ARE EXPLICITLY ACCOUNTED FOR IN THE ANALYSIS. RESULTS OF THE ANALYSIS INDICATE ABOUT A 67% LOSS OF SHIELDING MATERIAL DUE TO THE FIRE, IN CONTRAST TO A 50% LOSS PREDICTION BY PREVIOUS ANALYSES (WHICH DID NOT CONSIDER LIQUID LEAD RUN-OFF).

SHIPPING CONTAINER + ACCIDENT, CONSEQUENCES + STRUCTURAL INTEGRITY + FUEL ELEMENT + FIRE

3-32596
CUOCO A + PESCE G
THERMAL BEHAVIOR DURING A FIRE INCIDENT OF A (FUEL) TRANSPORT CONTAINER HAVING A WIRE PROTECTION CAGE
CNEN, ROME
10 PAGES, INGEGNERIA NUCLEARE, 9(2), PAGES 3-12 (MARCH-APRIL 1968)

THE DESIGN OF SPENT FUEL SHIPMENT CASKS FOR THE ISPRA RESEARCH FACILITY IS DESCRIBED, DRAWINGS ARE SHOWN. A SAFETY ANALYSIS OF THE CASK IS GIVEN, CASK INTEGRITY DURING A STANDARD FIRE IS ANALYZED. HEAT TRANSFER ANALYSES ARE DETAILED, AND THERMAL BALANCE EQUATIONS ARE FORMULATED.

FIRE + SAFETY ANALYSIS + HEAT TRANSFER ANALYSIS + SHIPPING CONTAINER + INTEGRITY + TRANSPORTATION AND HANDLING

CATEGORY 4
AEROSPACE SAFETY

4-29267 ALSO IN CATEGORY 9
COOMBE JR
PLUM BROOKS CRYOGENIC IRRADIATION TEST FACILITY
WESTINGHOUSE ASTRONUCLEAR LAB., LARGE, PA.
2 PAGES, CRYOGENIC AND ENGINEERING NEWS, 2(6), PAGES 16-17 (JUNE 1967)

EXPERIMENTAL APPARATUS AND ITS USE FOR CRYOGENIC TEMPERATURE EFFECT STUDIES ON THE NUCLEAR ENGINE ROCKET FOR A VEHICLE APPLICATION (NERVA) REACTORS IN THE NASA PLUM BROOK REACTOR FACILITY ARE DESCRIBED. THE HORIZONTAL THROUGH HOLE NO. 1 (HT-1) WHICH SERVES AS THE EXPERIMENTAL ACCESS TO THE REACTOR CORE IS DISCUSSED. THE WATER-COOLED FACILITY WAS USED TO TEST RESISTANCE TEMPERATURE TRANSDUCERS, STRAIN GAGES, LINEAR DISPLACEMENT TRANSDUCERS, MECHANICAL COMPONENTS, PRESSURE TRANSDUCERS, ACCELEROMETERS, AND MATERIALS FOR THE NERVA PROGRAM.

IRRADIATION FACILITY + *TEST, INSTRUMENT RESPONSE + NERVA PROGRAM + CONTAINMENT PENETRATION, GENERAL + NUCLEAR ROCKET + *CRYOGENICS + INSTRUMENT, GENERAL + INSTRUMENT, COMPONENT + *INSTRUMENT, TEMPERATURE + REACTOR, RESEARCH

4-29384 ALSO IN CATEGORY 5
TACCOEN L
CONTRIBUTION TO THE STUDY OF HEAT TRANSFER IN TURBULENT FLOW IN A SMOOTH TUBE- APPLICATION TO LIQUID METALS
12 PAGES, INTERNATIONAL JOURNAL OF HEAT TRANSFER, VOLUME 10, PAGES 1649-60 (DECEMBER 1967)

FOR AIR AND WATER IN SIMPLE GEOMETRIES, DIMENSIONLESS TEMPERATURE AND VELOCITY DISTRIBUTION FUNCTIONS ENABLE DIRECT CALCULATION OF HEAT TRANSFER COEFFICIENTS. IT IS SHOWN THAT THE HYPOTHESES ARE EQUALLY VALID FOR LIQUID METALS, AND, IN GENERAL, FOR LIQUIDS OF PRANDTL NUMBER MUCH LESS THAN ONE. THE METHOD DESCRIBED GIVES RESULTS IN GOOD AGREEMENT WITH EXPERIMENT, AND DIFFERENCES ARE ATTRIBUTED AS A THERMAL CONTACT RESISTANCE.

HEAT TRANSFER, CONVECTION + BOUNDARY LAYER + *FLOW, TUBE + *FLOW, TURBULENT + TEMPERATURE GRADIENT + *METAL, LIQUID + FLOW, AXIAL + *HEAT TRANSFER ANALYSIS

4-29393
DOUGLAS WK
MEDICAL ASPECTS OF SPACE FLIGHT
ANDREWS AIR FORCE BASE, WASHINGTON, D. C.
7 PAGES, INT. SURG., 45- 532-8, MAY 1966

PROBLEMS ENCOUNTERED IN MANNED SPACE FLIGHT SURVEYED HERE INCLUDE THOSE ASSOCIATED WITH ACCELERATION, WEIGHTLESSNESS, AND IONIZING RADIATIONS. AS ONE MEANS TO PREVENT ASTRONAUT IRRADIATION, THE VAN ALLEN BELTS CAN BE AVOIDED BY STAYING BENEATH THEM FOR EARTH ORBITING MISSIONS OR BY TRAVERSING THEM RAPIDLY, THUS HOLDING THE TIME OF EXPOSURE TO ACCEPTABLE LIMITS FOR MISSIONS BEYOND NEAR-EARTH SPACE. ALSO CONSIDERED ARE COSMIC RAYS AND THE RADIATION WHICH ACCOMPANIES SOLAR FLARES.

*AEROSPACE SAFETY + *COSMIC RADIATION + *BIOMEDICAL + SPACECRAFT

4-29622 ALSO IN CATEGORY 11
HULTGREN RO
RESPONSE OF A THIN-WALLED SHORT CLOSED CYLINDER TO AN ARBITRARY MOVING PRESSURE WAVE OF SHORT TIME DURATION
VIRGINIA UNIV., CHARLOTTESVILLE
SC-CR-67-2630 +. 119 PAGES, 8 FIGURES, 1 TABLE, 21 REFERENCES, AUG. 1967

PRESENTS AN ANALYSIS OF THE DYNAMIC DEFORMATION AND STRESS CHARACTERISTICS OF A THIN-WALLED, SHORT CYLINDER ACTED ON BY A MOVING PRESSURE WAVE OF SHORT DURATION. IT INCLUDES THE EFFECTS OF LARGE RADIAL DEFLECTIONS, PLASTICITY OF THE CROSS SECTION, KINEMATIC STRAIN HARDENING, AND LONGITUDINAL AND CIRCUMFERENTIAL STIFFENERS IN THE CYLINDER. SPECIFICALLY, THE HAZARD INFORMATION DESIRED IS THE TEMPERATURE AND PRESSURE PROFILES OF A MISSILE LAUNCH ABORT. WITH THIS INFORMATION DESIGNERS CAN MORE RATIONALLY DEVELOP PLANS TO MAINTAIN INTEGRITY OF THE RADIOACTIVE MATERIAL CONTAINER.

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

*CYLINDER + ACCIDENT ANALYSIS + ACCIDENT, HYPOTHETICAL + COMPUTER PROGRAM + *AEROSPACE SAFETY + *PRESSURE, EXTERNAL + ACCIDENT, GENERAL + ACCIDENT, CONSEQUENCES

4-29882 ALSO IN CATEGORY 7
CLEARY RE + EMANUELSON R + LUOMA W + AMMANN C
FINAL REPORT. DETERMINATION OF THE EMISSIVITY OF MATERIALS
PRATT AND WHITNEY AIRCRAFT
PWA-3278 +. 128 PAGES, 82 FIGURES, 34 TABLES, REFERENCES, JUNE 30, 1968

A FOUR-YEAR PROGRAM WAS CONDUCTED TO DETERMINE THE SUITABILITY OF SELECTED HIGH-EMITTANCE MATERIALS FOR USE AS COATINGS ON BERYLLIUM, COLUMBIUM-1 PERCENT ZIRCONIUM, AND AISI-310 STAINLESS STEEL WHEN THESE MATERIALS ARE USED IN SPACE POWERPLANT RADIATORS. THE COATED BERYLLIUM SPECIMENS WERE AGED IN VACUUM AT 800, 1200, AND 1400 F FOR UP TO 1000 HOURS. THE EFFECTS OF THE AGING PROCESS ON THE STABILITY AND EMITTANCE OF THE COATINGS WERE DETERMINED. THE MATERIALS WERE COATED BERYLLIUM AND ALUMINUM OXIDE/ALUMINUM TITANATE.

CATEGORY 4
AEROSPACE SAFETY

4-29882 *CONTINUED*
 AVAILABILITY - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SCIENTIFIC AND TECHNICAL INFORMATION FACILITY,
 P. O. BOX 33, COLLEGE PARK, MARYLAND 20740

*HIGH RADIATION + SURFACE, GENERAL + NIOBIUM + OXIDE + *THERMAL PROPERTY + *HIGH TEMPERATURE + STEEL,
 STAINLESS + *COATING, SURFACE + BERYLLIUM + ALUMINUM + ZIRCONIUM + DIFFUSION + TITANIUM

4-30072 ALSO IN CATEGORY 5
 CHEN JC
 INCIPIENT BOILING SUPERHEATS IN LIQUID METALS
 BROOKHAVEN NATIONAL LABORATORY, UPTON, N. Y.
 10 PAGES, 13 FIGURES, 13 REFERENCES, J. OF HEAT TRANSFER, 90(3), PP. 303-12 (AUG. 1968)

MEASURED THE INCIPIENT-BOILING LIQUID SUPERHEATS FOR POTASSIUM IN FORCED CONVECTION. THE EFFECT
 OF PREBOILING, DEACTIVATION CONDITIONS ON SUBSEQUENT INCIPIENT BOILING WAS EMPHASIZED. FOR
 BOILING PRESSURES OF 8 TO 24 PSIA, THE MEASURED SUPERHEATS RANGED FROM 17 TO 117 F. A PROPOSED
 ANALYTICAL MODEL IS IN REASONABLE OVERALL AGREEMENT WITH EXPERIMENTAL RESULTS.

*POTASSIUM + CONVECTIVE BOILING + HEAT TRANSFER ANALYSIS + *BUBBLE NUCLEATION + *FLOW, TUBE + TEMPERATURE
 GRADIENT + METAL, LIQUID + AEROSPACE SAFETY

4-30079 ALSO IN CATEGORY 9
 SCHICK GJ
 MARKOV PROCESSES AND SOME AEROSPACE APPLICATIONS
 DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA
 RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14135, P.204, NOV. 12, 1968

THE BASIC PROPERTIES OF MARKOV PROCESSES ARE DEFINED, AND THEIR APPLICATION TO DECISION MAKING IS
 SHOWN. MODELS, WHICH ARE PROBABILISTIC IN FORM, ARE DERIVED FOR THE DISCRETE AND CONTINUOUS
 MARKOV PROCESSES, AN R-DIMENSIONAL PROCESS, THE WIENER PROCESS, AND THE POISSON PROCESS.
 EXAMPLES ARE PROVIDED TO SHOW THEIR USE IN RELIABILITY EQUATIONS, OPTIMAL REPLACEMENT POLICIES,
 PHYSICS, AVAILABILITY MODELS, AND INDUSTRIAL APPLICATIONS.

PROBABILITY + *RELIABILITY ANALYSIS + *ANALYTICAL MODEL + MATHEMATICAL TREATMENT

4-30158 ALSO IN CATEGORY 9
 HART WM
 DESIGN OF TEST FIXTURE FOR REMOTELY TESTING STRAIN GAGES IN A CRYOGENIC AND RADIATION ENVIRONMENT
 AEROJET-GENERAL CORPORATION
 PROCEEDINGS 15TH CONF. ON REMOTE SYSTEMS TECH., P.127, 1967

DURING THE DEVELOPMENT PROGRAM FOR THE NUCLEAR ROCKET ENGINE, IT BECAME EVIDENT THAT STRAIN GAGES
 WOULD BE SUITABLE FOR BOTH DIAGNOSTIC INSTRUMENTATION ON THE ENGINE STRUCTURAL MEMBERS AS WELL AS
 THE SENSING ELEMENT IN INSTRUMENTATION TRANSDUCERS. A PROGRAM WAS ESTABLISHED TO SURVEY AND
 EVALUATE VARIOUS STRAIN-GAGE CONFIGURATIONS IN THE COMBINED CRYOGENIC-RADIATION ENVIRONMENT IN
 WHICH THE INSTRUMENTS WOULD BE REQUIRED TO OPERATE.

AVAILABILITY - W.M. HART, AEROJET-GENERAL CORP., SACRAMENTO, CALIF. 95801

NUCLEAR ROCKET + DESIGN STUDY + IRRADIATION TESTING + *MEASUREMENT, STRAIN GAGE + *REMOTE MANIPULATING AND
 VIEWING + CRYOGENICS + *TEST, INSTRUMENT RESPONSE + INSTRUMENT, COMPONENT

4-30796 ALSO IN CATEGORIES 1 AND 5
 ANNO GH + SCHOUTENS JE
 CONCEPTUAL PROBABILISTIC METHODS OF ANALYZING HAZARDS OF A LARGE (25-KWT) RADIOISOTOPE SPACE POWER SOURCE
 DOUGLAS MISSILE AND SPACE SYSTEMS DIVISION
 DAC-60944 +. JANUARY 1968, 37 FIGURES, 12 TABLES

THE QUESTION OF PUBLIC SAFETY, RELATIVE TO NUCLEAR POWER SYSTEMS FOR AEROSPACE APPLICATIONS IS
 PARTICULARLY IMPORTANT BECAUSE OF THE DIFFICULTY IN PROVIDING FOR 100% SAFETY RELIABILITY
 THROUGHOUT ALL PHASES OF MISSION OPERATIONS. THE APPROACH NEEDED TO ANALYZE THE HAZARDS OF
 NUCLEAR AEROSPACE POWER SYSTEMS MUST BE STATISTICAL IN NATURE, IDEALLY TAKING INTO ACCOUNT ALL
 POSSIBLE FAILURE MODES. THIS REPORT PRESENTS A CONCEPTUAL MEANS OF PERFORMING AN OVER-ALL
 STATISTICAL HAZARDS-ANALYSIS CENTERED AROUND A 25-KWT RADIOISOTOPE POWER SOURCE (RPS) UNIT OF A
 SNAP DEVICE. THE REFERENCE FUEL SOURCE IS PU(238)O2. THE METHODOLOGY FOR THE ANALYSIS IS
 ILLUSTRATED BY SOME GENERAL RELATIONSHIPS, DESCRIPTIONS OF MATHEMATICAL MODELS, AND EXAMPLE
 CALCULATIONS FOR THE VARIOUS REFERENCE MISSION PHASES.

AVAILABILITY - G.H. ANNO AND/OR J.E. SCHOUTENS - NUCLEAR TECHNOLOGY AND SUB-SYSTEMS BRANCH, ADVANCE PROPULSION
 DEPARTMENT, DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

*ACCIDENT ANALYSIS + *SNAP, GENERAL (SR) + REACTOR, SPACE + *STATISTICAL ANALYSIS + *PROBABILITY

CATEGORY 5
ACCIDENT ANALYSIS

5-26643 ALSO IN CATEGORIES 12 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. V
IOWA ELECTRIC LIGHT AND POWER COMPANY
59331-5 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 5, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS A SECTION ON PLANT SAFETY ANALYSIS AND APPENDIX A - PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS. ANALYSES GIVEN FOR ABNORMAL OPERATIONAL TRANSIENTS CAUSED BY SINGLE EQUIPMENT FAILURES OR OPERATOR ERRORS AND ACCIDENTS. TABLES GIVEN SUMMARIZING CONSEQUENCES OF FAILURES AND ACCIDENTS. DESIGN BASIS ACCIDENTS INCLUDE CONTROL ROD DROP, LOSS OF COOLANT, REFUELING, AND MAIN STEAM LINE BREAK. MAIN STEAM LINE BREAK GIVES THE LARGEST OFF SITE DOSE - 11 REMS TO THYROID. APPENDIX DEFINES THE APPLICATION OF INDUSTRIAL CODES AND SPECIFICATIONS TO THE DESIGN, FABRICATION, INSPECTION, AND TESTING OF PIPING AND EQUIPMENT WHICH ARE WITHIN THE PRESSURE BOUNDARY.

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

PIPING + MAIN COOLING SYSTEM + ACCIDENT ANALYSIS + DUANE ARNOLD ENERGY CENTER (BWR) + ACCIDENT, LOSS OF COOLANT + DOSE + QUALITY ASSURANCE + HAZARDS ANALYSIS + OFF SITE + CODES AND STANDARDS + REACTOR, BWR + FAILURE, EQUIPMENT + ACCIDENT, STEAM LINE RUPTURE + REACTOR TRANSIENT + ACCIDENT, REFUELING + REPORT, PSAR + ENGINEERED SAFETY FEATURE + *SAFETY ANALYSIS + FAILURE, OPERATOR ERROR + ACCIDENT, CONTROL ROD DROP IN + *ACCIDENT, DESIGN BASE

5-27303 ALSO IN CATEGORIES 11 AND 18
BLOWDOWN FORCES AND CONTAINMENT DESIGN ANALYSIS
ROCHESTER GAS AND ELECTRIC CO.
15 PAGES, FIGURES, TABLES, AMENDMENT 13 TO GINNA LICENSE APPLICATION (SUPP. 7 TO FSAR), DEC. 13, 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

CONTAINS ADDITIONAL AND REVISION PAGES FOR FSAR CONCERNING THE ANALYSES OF BLOWDOWN FORCES AND THE CONTAINMENT STRUCTURAL DESIGN.

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

STRESS ANALYSIS + STRUCTURAL ANALYSIS, DYNAMIC + GINNA (PWR) + CONTAINMENT DESIGN + REACTOR, PWR + *BLOWDOWN + ACCIDENT, LOSS OF COOLANT + *ACCIDENT ANALYSIS + CONTAINMENT STRUCTURE + REPORT, SAR

5-27323 ALSO IN CATEGORIES 15 AND 18
SAFETY ANALYSIS AND SYSTEMS DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 3, JANUARY 13, 1969, DOCKET 50-334

CONTAINS SECTIONS ON AUXILIARY AND EMERGENCY SYSTEMS, STEAM AND POWER CONVERSION SYSTEMS, WASTE DISPOSAL AND RADIATION PROTECTION, CONDUCT OF OPERATIONS, INITIAL TESTS, THE SAFETY ANALYSIS, AND APPENDICES ON RADIATION SOURCES FROM CORE AND FUEL ROD GAP - QUALITY ASSURANCE - AND SEISMIC DESIGN. WORST ACCIDENT (DESIGN BASIS ACCIDENT) IS A DOUBLE-ENDED RUPTURE OF HOT-LEG COOLANT PIPE (27.5 IN. ID), TOTAL LOSS OF NORMAL OUTSIDE POWER, TOTAL LOSS OF COOLANT, AND RELEASE OF FISSION PRODUCT INVENTORY TO CONTAINMENT. THE 2-HR THYROID DOSE AT BOUNDARY IS 46% OF 10CFR100 LIMIT FOR CONTAINMENT LEAKAGE TIME OF 40 MIN, AND 38% FOR EXPECTED LEAKAGE TIME OF 23.5 MIN.

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

AEC DESIGN CRITERIA + REPORT, PSAR + REACTOR STARTUP TESTING + EMERGENCY COOLING CONSIDERATIONS + *ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + AUXILIARY COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + *ACCIDENT ANALYSIS + DESIGN CRITERIA + QUALITY ASSURANCE + ACCIDENT, CONSEQUENCES + EARTHQUAKE ENGINEERING + SYSTEM DESCRIPTION + OFF SITE + *SAFETY ANALYSIS + FISSION PRODUCT RELEASE, GENERAL + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REACTOR DESCRIPTION + DOSE + *HAZARDS ANALYSIS + ACCIDENT, DESIGN BASE

5-29297 ALSO IN CATEGORY 17
GAJAC G + REYNES L
EXPERIENCE GAINED FROM THE FINAL CONSTRUCTION PHASE AND THE APPROACH OF POWER OF RAPSODIE
CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE
22 PAGES, 11 FIGURES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

ANALYZES TWO SODIUM LEAKS (OCTOBER 1966). (1) TOO RAPID PREHEATING OF PIPING WHICH HAD TWO COLD SPOTS CAUSED IT TO BURST. AMONG CAUSES ARE FILLING LINE WITH SODIUM TOO SOON (PREHEATING COULD NOT BE ALLOCATED). LEAK INDICATORS DID NOT WORK. DOUBLE WALLS NOW FILLED ALL OVER SYSTEM. (2) UNTIMELY OPENING OF AN ARGON VALVE PRESSURIZED THE SODIUM, DRIVING IT OUT THROUGH CONTROL-ROD-DRIVE PLUGS NOT BOLTED (COMMUNICATION FAILURE). VALVE MADE SLOWER ACTING, SAFETY VALVES MADE LARGER, EQUALIZING OF DRIVES AND COVER GAS PRESSURES DONE. UNCORRECTED, THIS INCIDENT WOULD HAVE BEEN REPEATED YEARLY. ***RAPSODIE INCIDENTS ARE ALL RECORDED AND STUDIED.

AVAILABILITY - G. GAJAC OR L. REYNES, COMMISSARIAT A L'ENERGIE ATOMIQUE - CEN/CADARACHE - DRP

REACTOR, SAFETY RESEARCH + FRANCE + REACTOR, LMC + *INCIDENT, EQUIPMENT + INFORMATION RETRIEVAL + FAILURE. OPERATOR ERROR + REPORT, OPERATIONS ANALYSIS + MAIN COOLING SYSTEM + FAILURE, DESIGN ERROR + PRESSURE TRANSIENT + *FAILURE, PIPE + MODIFICATION, SYSTEM OR EQUIPMENT + LEAK + THERMAL MECHANICAL EFFECT

5-29310 ALSO IN CATEGORY 12

CATEGORY 5
ACCIDENT ANALYSIS

5-29310 *CONTINUED*

KARWAT H
A NONLINEAR MULTINODE TRANSIENT STUDY FOR A BOILING WATER REACTOR
TECHNISCHE HOCHSCHULE MUNCHEN, GERMANY
MRR-34 +. 40 PAGES, FIGURES, 3 REFERENCES, SEPTEMBER 1967

A MULTINODE TRANSIENT MODEL WAS DEVELOPED TO INVESTIGATE PRESSURE AND COOLANT FLOW EFFECTS ON THE INTERNAL STRUCTURE OF BOILING WATER REACTORS DURING INTERMEDIATE TRANSIENTS. THE MODEL CONSISTS OF 8 PRESSURE NODES WHICH DESCRIBE THE THERMOHYDRAULIC BEHAVIOUR OF THE PRIMARY COOLANT SYSTEM. APPLICATION OF MASS-, ENERGY-, AND MOMENTUM-CONSERVATION LAWS TO THESE NODES RESULTS IN A SYSTEM OF 40 DIFFERENTIAL EQUATIONS WHICH ARE SOLVED NUMERICALLY BY A DIGITAL COMPUTER. A SHORT DESCRIPTION OF THE PHYSICAL MODEL IS GIVEN.

THERMAL ANALYSIS + DYNAMICS, NONLINEAR + SYSTEM DESCRIPTION + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + ACCIDENT ANALYSIS + PRESSURE TRANSIENT + FLOW, TWO PHASE

5-29311 ALSO IN CATEGORY 6

HOLD A
TWO PHASE FLOW IN AN ELECTRICALLY HEATED COOLANT CHANNEL (ANALYTICAL REPRESENTATION OF ITS STEADY STATE AND DYNAMIC BEHAVIOR). SECTION II. COMPUTER PROGRAM ACCOM-L
TECHNISCHE HOCHSCHULE MUNCHEN, GERMANY
MRR-40/II +. 51 PAGES, DECEMBER 1967

PRESENTS AN ANALYTICAL, ONE-DIMENSIONAL MODEL DESCRIBING THE STEADY STATE AND DYNAMIC BEHAVIOR OF THE CHARACTERISTIC VARIABLES OF A TWO-PHASE FLOW STREAMING UP A COOLANT CHANNEL OF AN ELECTRICALLY HEATED BOILING WATER LOOP. THE REPORT IS DIVIDED INTO TWO SECTIONS, SECTION I GIVING THEORY, SECTION II THE DESCRIPTION OF THE RESULTING COMPUTER PROGRAM ACCOM-L.

FLOW THEORY AND EXPERIMENTS + COMPUTER PROGRAM + REACTOR, BWR + FLOW, TWO PHASE + HEAT TRANSFER, TWO PHASE + FLOW STABILITY + HEAT TRANSFER, BOILING

5-29314 ALSO IN CATEGORY 17

BRIDGES TL + BURR TK
ATR PRIMARY COOLANT SYSTEM CHECK VALVE PROBLEM ANALYSIS AND CORRECTION
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
IN-1186 +. 71 PAGES, 30 FIGURES, 2 TABLES, 9 REFERENCES, MAY 1968

DURING THE FINAL STAGE OF EQUIPMENT AND SYSTEM TESTING AND PRIOR TO INITIAL OPERATION OF THE ADVANCED TEST REACTOR, SEVERAL DEFICIENCIES WERE DISCOVERED IN THE PRIMARY COOLANT SYSTEM CHECK VALVES. EACH OF THESE DEFICIENCIES, UNCOVERED AT DIFFERENT TIMES, AFFECTED THE SAFETY AND RELIABILITY OF REACTOR OPERATION AND, CONSEQUENTLY, REQUIRED CORRECTION BEFORE STARTUP OF THE REACTOR. SEVERAL ENGINEERING AND OPERATIONS GROUPS WERE INVOLVED IN CONTRIBUTING TO A SATISFACTORY SOLUTION IN THE SHORTEST TIME.

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

MAINTENANCE AND REPAIR + ATR (TR) + REACTOR, AEC OWNED + FAILURE, EQUIPMENT + REACTOR, TEST + REACTOR STARTUP EXPERIENCE + FAILURE, GENERAL + FAILURE, DESIGN ERROR + VALVE

5-29316 ALSO IN CATEGORY 17

KILLIAN HD
ADVANCED TEST REACTOR HEAT EXCHANGER VIBRATION TEST
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
CI-1033 +. 58 PAGES, 5 FIGURES, TABLES, 4 REFERENCES, MARCH 1967

DURING PREOPERATIONAL TESTING, TUBE FAILURES WERE DETECTED IN THE ATR PRIMARY WATER HEAT EXCHANGERS. INVESTIGATION REVEALED THAT TUBES WITHIN THE HEAT EXCHANGERS. INVESTIGATION REVEALED THAT TUBES WITHIN THE HEAT EXCHANGERS HAD RUPTURED DUE TO THE WEARING OF TUBES AGAINST EACH OTHER. THE WEARING OF THE TUBES WAS CAUSED BY EXCESSIVE AMPLITUDE DUE TO INDUCED VIBRATION. THE HEAT EXCHANGERS WERE REMOVED, REDESIGNED, REBUILT, AND REINSTALLED IN THE ATR PRIMARY SYSTEM.

VIBRATION + FAILURE, DESIGN ERROR + HEAT EXCHANGER + REACTOR, AEC OWNED + ATR (TR) + FLOW THEORY AND EXPERIMENTS + VIBRATION ANALYSIS + FAILURE, TUBING + REACTOR, TEST

5-29324

MICHAUD ER + SEIFERT JE
TUBE BEND EROSION STUDY
BABCOCK AND WILCOX, ALLIANCE, OHIO
BAW-1280-53 +. 62 PAGES, FIGURES, TABLES, JUNE 24, 1968

THE PURPOSE WAS TO INVESTIGATE THE EROSION OF TUBE BENDS IN THE ONCE-THROUGH STEAM GENERATOR TO DETERMINE IF EROSION WILL BE A POTENTIAL PROBLEM ON THE STEAM SIDE FOR ONCE-THROUGH SODIUM-HEATED STEAM GENERATOR. BASED ON THE RESULTS OF VISUAL AND LOW-POWERED MAGNIFICATION EXAMINATION COMBINED WITH TUBEWALL THICKNESS MEASUREMENTS OF TUBE SAMPLES FROM THE STEAM GENERATOR, IT WAS CONCLUDED THAT THERE WAS NO EVIDENCE OF INTERNAL TUBE EROSION.

*EROSION + STEAM GENERATOR + STEAM + *TUBING

CATEGORY 5
ACCIDENT ANALYSIS

5-29383

BENNETT AW + HEWITT GF + KEARSEY HA + KEEYS RKF + PULLING DJ
STUDIES OF BURNOUT IN BOILING HEAT TRANSFER
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENG.
TRANS. INST. CHEM. ENG. (LONDON), 45- T319-33, 1967

THE EFFECT OF A COLD PATCH OR UNHEATED LENGTH AT VARIOUS POSITIONS ALONG A TUBE ON THE BURNOUT FLUX WAS STUDIED. WITH THE COLD PATCH AT CERTAIN POSITIONS, THE BURNOUT POWER COULD ACTUALLY BE HIGHER THAN THAT FOR A UNIFORM TUBE OF THE SAME TOTAL LENGTH. THE RESULTS OF OTHER TESTS ON TUBE BURNOUT WITH AN ENTRANCE FLUX PEAK SHOWED, AS EXPECTED, AN INCREASE IN BURNOUT POWER OVER WIDE RANGES OF CONDITIONS. CALCULATIONS OF THE MASS-TRANSFER COEFFICIENT FOR DROPLET TO WALL TRANSFER SHOWED IT TO BE A FUNCTION OF LIQUID CONCENTRATION AND MASS VELOCITY.

*HEAT GENERATION, NONUNIFORM + *CONVECTIVE BOILING + DROPLET + PHASE CHANGE + HEAT FLUX, DRYOUT + MASS TRANSFER + FILM, LIQUID + FLOW, TUBE + *THERMAL EXPERIMENT + EVAPORATION + FLOW, TWO PHASE + *BURNOUT HEAT FLUX

5-29384

ALSO IN CATEGORY 4

TACCOEN L

CONTRIBUTION TO THE STUDY OF HEAT TRANSFER IN TURBULENT FLOW IN A SMOOTH TUBE- APPLICATION TO LIQUID METALS
12 PAGES, INTERNATIONAL JOURNAL OF HEAT TRANSFER, VOLUME 10, PAGES 1649-60 (DECEMBER 1967)

FOR AIR AND WATER IN SIMPLE GEOMETRIES, DIMENSIONLESS TEMPERATURE AND VELOCITY DISTRIBUTION FUNCTIONS ENABLE DIRECT CALCULATION OF HEAT TRANSFER COEFFICIENTS. IT IS SHOWN THAT THE HYPOTHESES ARE EQUALLY VALID FOR LIQUID METALS, AND, IN GENERAL, FOR LIQUIDS OF PRANDTL NUMBER MUCH LESS THAN ONE. THE METHOD DESCRIBED GIVES RESULTS IN GOOD AGREEMENT WITH EXPERIMENT, AND DIFFERENCES ARE ATTRIBUTED AS A THERMAL CONTACT RESISTANCE.

HEAT TRANSFER, CONVECTION + BOUNDARY LAYER + *FLOW, TUBE + *FLOW, TURBULENT + TEMPERATURE GRADIENT + *METAL, LIQUID + FLOW, AXIAL + *HEAT TRANSFER ANALYSIS

5-29387

ALSO IN CATEGORY 6

TONG LS

HEAT TRANSFER IN WATER-COOLED NUCLEAR REACTORS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH
NUCL. ENG. + DESIGN, 6, PG. 301-324, 1967

THE EVALUATION OF CORE THERMAL PERFORMANCE, WITH EMPHASIS ON PWRS IS EXAMINED. FACTORS CONSIDERED INCLUDE CORE POWER DISTRIBUTION, HOT-CHANNEL FACTORS, INTERNAL FUEL-ROD HEAT TRANSFER, GAP CONDUCTANCE, DNB, TRANSITION AND FILM BOILING, FABRICATION TOLERANCES, AND TRANSIENT BEHAVIOR, INCLUDING FLOW INSTABILITY.

*REACTOR, PWR + *HEAT TRANSFER, TWO PHASE + FAILURE, FUEL ELEMENT + FLOW DISTRIBUTION + DNB + STATISTICAL CORRELATION + HEAT GENERATION, INTERNAL + FILM BOILING + HOT CHANNEL + REACTOR, BWR + REACTOR TRANSIENT + *HEAT TRANSFER + FLOW STABILITY + *HEAT TRANSFER, CONDUCTION

5-29389

FURBER BN + COX DN

HEAT TRANSFER AND PRESSURE DROP MEASUREMENTS IN CHANNELS WITH WHITWORTH THREAD FORM ROUGHNESS
J. MECH. ENG. SCI., 9, PG. 339-350 DEC. 1967.

THE HEAT TRANSFER AND PRESSURE DROP PERFORMANCE OF THREE 4-IN. TUBES INTERNALLY ROUGHENED WITH WHITWORTH THREAD FORMS OF 11, 24, AND 60 THREADS PER INCH (T.P.I.) WAS MEASURED WITH THE TUBES EMPTY AND WITH A CONCENTRICALLY MOUNTED SMOOTH CYLINDER OF 2.012 IN. DIA. THE TUBE WITH THE 24 T.P.I. ROUGHNESS WAS ALSO TESTED WITH A CONCENTRIC CYLINDER OF 2.00 IN. DIA HAVING THE SAME GEOMETRIC ROUGHNESS. THE MEASURED STANTON NUMBER AND FRICTION FACTORS OF THE ANNULI WITH THE SMOOTH INNER WALLS WERE TRANSFORMED, USING A METHOD SUGGESTED BY HALL, AND COMPARED WITH THE EMPTY CHANNEL AND COMPLETELY ROUGHENED ANNULUS DATA.

*COMPARISON, THEORY AND EXPERIENCE + *SURFACE, GENERAL + FLOW, ANNULAR + *PRESSURE DROP + THERMAL ANALYSIS + HEAT TRANSFER EXPERIMENT + *HEAT TRANSFER COEFFICIENT + FLOW, AXIAL

5-29553

GRIEBENOW ML

ISOTHERMAL HYDRAULIC MEASUREMENTS IN FUEL ELEMENTS IN ATR CORE
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
IN-1158 +. 162 PAGES, 90 FIGURES, 4 TABLES, 5 REFERENCES, SEPTEMBER 1968

THE COOLANT VELOCITIES IN CHANNELS 1 THROUGH 18 ARE WITHIN 2% OF THE COMPUTED VALUES USED FOR THERMAL HYDRAULICS AND SAFETY ANALYSIS. THE VELOCITIES IN CHANNELS 19 AND 20 ARE 5 AND 20% LOW, RESPECTIVELY. TWO STANDARD DEVIATIONS ABOUT THE MEASURED MEAN ARE 17, 9, 6, 6, 7, 6, 9, AND 36% FOR CHANNELS 1, 2, 3, 9, 10, 18, 19, AND 20, RESPECTIVELY. THE FUEL ELEMENT ENTRANCE AND EXIT CONDITIONS ARE DIFFERENT THAN WAS ANTICIPATED RESULTING IN APPROXIMATELY A 6 PSI INCREASE IN THE PRESSURE AT ANY POINT WITHIN THE FUEL ELEMENT (AT THE DESIGN CORE PRESSURE DROP). THE OPTIMUM DATA FIT, AT 100 PSI CORE DIFFERENTIAL, REQUIRES A 0.2 ENTRANCE COEFFICIENT AND A 6 PSI DROP THROUGH THE FLOW DISTRIBUTION TANK.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-29553 *CONTINUED*
COPY, \$0.65 MICROFICHE

FUEL ELEMENT + REACTOR, GENERAL + COOLING, GENERAL + REACTOR, AEC OWNED + ATR (TR) + MEASUREMENT, GENERAL + THERMAL ANALYSIS + REACTOR, TEST

5-29567 ALSO IN CATEGORIES 6 AND 18
ENGEL H
SAFETY ASPECTS OF THE DYNAMIC BEHAVIOUR OF THE BOILING-WATER REACTOR
AEG-TELEFUNKEN, FRANKFURT AM MAIN
6 PAGES, ATOM UND STROM, VOLUME 14, PAGES 37-42 (FEBRUARY-MARCH 1968)

THE DYNAMIC REACTOR BEHAVIOR OF THE BOILING-WATER REACTOR IS INHERENTLY SAFE. FAULTS AND ACCIDENTS ARE CONCEIVABLE WHICH ARE LIMITED TO SUCH AN EXTENT BY THE PROTECTIVE SYSTEM THAT THE OPERATING CAPACITY OF THE POWER STATION IS NOT ADVERSELY AFFECTED. EVEN IF THERE IS A FAILURE OF SEVERAL INDEPENDENT SAFETY SYSTEMS AND SAFETY ARRANGEMENTS, THE ONLY RESULT CAN BE DAMAGE TO CORE, BUT NO UNCONTROLLED SPREAD OF ACTIVITY INTO SURROUNDINGS OF POWER STATION CAN TAKE PLACE.

GERMANY + REACTOR, BWR + *REACTOR STABILITY + REACTOR DYNAMICS

5-29657
FORTI G
A DYNAMIC MODEL FOR THE COOLING CHANNELS OF A BOILING NUCLEAR REACTOR WITH FORCED CIRCULATION AND HIGH PRESSURE LEVEL
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA (ITALY)
EUR-4052 +. MAY 21, 1968, 26P.

PROPOSES A DYNAMIC MODEL FOR NUMERICAL CALCULATIONS OF TRANSIENTS IN THE TIME DOMAIN, TO BE COUPLED TO ONE- OR TWO-DIMENSIONAL SPATIAL NEUTRON KINETICS PROGRAMS. ONE-DIMENSIONAL MODEL TREATS SUBCOOLED BOILING AND LIQUID SUPERHEATING, INCLUDES A NEW FORM OF BOILING HEAT TRANSFER CORRELATIONS, AND A CORRECTION OF BANKOFFS SLIP CORRELATION FOR DIABATIC CONDITIONS. MODEL LIMITED TO CONSTANT SYSTEM PRESSURE BUT CAN BE EXTENDED TO A SLOWLY VARIABLE PRESSURE. A FORTRAN CODE IS BEING DEVELOPED.

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

REACTOR, BWR + HEAT TRANSFER, TWO PHASE + *ANALYTICAL MODEL + EURATOM + *HEAT TRANSFER, BOILING + REACTOR DYNAMICS + COMPUTER PROGRAM

5-29888 ALSO IN CATEGORY 9
HAMPEL VE + KOOPMAN RP
REACTIVITY SELF-CONTROL ON POWER AND TEMPERATURE IN REACTORS COOLED BY HEAT-PIPES
LAWRENCE RADIATION LABORATORY, WESTWOOD, CAL.
2 PAGES, 1 FIGURE, 7 REFERENCES, ANS TRANS. 11(2), PAGES 433-34, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D.C., 20545 NOV. 10-15, 1968

RECENT DESIGNS OF SMALL, FAST-SPECTRUM NUCLEAR REACTORS FOR SPACE POWER TAKE ADVANTAGE OF THE VERY HIGH THERMAL CONDUCTANCE PECULIAR TO HEATPIPES. REACTORS COOLED BY HEATPIPES CAN BE DESIGNED WITH STRONG SELF-REGULATION. ACCORDING TO ANALYSIS THERE EXISTS A FUNCTIONAL RELATIONSHIP BETWEEN THE MASS OF THE HEATPIPE FLUID AT THE EVAPORATOR END, I.E., IN THE FUELED CORE, AND THE HEAT FLUX AT WHICH THE HEATPIPES OPERATE. AN INCREASE IN CORE POWER OR CORE TEMPERATURE IS SHOWN TO MOVE SOME OF THE HEATPIPE FLUID AWAY FROM THE EVAPORATOR END TOWARD THE CONDENSING END.

THEORETICAL INVESTIGATION + HEAT PIPE + *REACTIVITY EFFECT + *REACTOR, SPACE + REACTOR CONTROL

5-29983 ALSO IN CATEGORIES 6 AND 17
QUARTERLY TECHNICAL REPORT, SPERT PROJECT, OCTOBER, NOVEMBER, DECEMBER 1967
PHILLIPS PETROLEUM COMPANY, ATOMIC ENERGY DIVISION
100-17279 +. 24 PAGES, TABLES, FIGURES, REFERENCES, OCTOBER 1968

(SPERT III) - FLUX WIRE CALIBRATIONS OF NEUTRON DETECTORS WERE INCREASED 10%, BASED ON HEAT POWER CALIBRATION. EFFECTS OF ROD POSITION AND DECREASED MODERATOR ABSORPTION WERE EVALUATED. ***THE THIRD TRANSIENT FROM 20 MW CAUSED ONE CONTROL ROD DROP TIME 80% LONGER, RELEASED I-131, AND INCREASED REACTIVITY 50.18. INVESTIGATION CONTINUES. (SPERT IV CDC) 5 TRANSIENTS WITH WATERLOGGED PELLET TYPE FUEL INDICATED A FAILURE THRESHOLD OF 250 CAL/GM, WHICH PRODUCED AN INTERNAL PRESSURE OF 1300 PSI, SPLITTING THE CLAD AND EXPELLING 75% OF THE FUEL. POWDER FUEL RODS FAILED AT 40 CAL/GM PRODUCING INTERNAL PRESSURES OF 10,000 PSI. SIGNIFICANT DIFFERENCES THUS EXIST IN THRESHOLD AND CONSEQUENCE OF FAILURE OF POWDER VS PELLET FUEL.

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

REACTOR POWER + *FUEL, PELLET TYPE + SPERT 4 (S-RR) + *FUEL, POWDER TYPE + REACTOR TRANSIENT + TEST, PROOF + *PERFORMANCE LIMIT + REACTOR, SAFETY RESEARCH + SPERT 3 (S-RR) + *FAILURE, FUEL ELEMENT WATERLOGGING + INSTRUMENT CALIBRATION + INSTRUMENT, POWER RANGE

5-30002 ALSO IN CATEGORY 7

CATEGORY 5
ACCIDENT ANALYSIS

5-30002 *CONTINUED*

HENZEL N + KLEIN-TEBBE A
ERGÄZENDE UNTERSUCHUNG CHEMISCHER REAKTIONER VON URANDIOXID MIT LUFT UND WASSERDAMPF OBERHALB 1000 C
BATTELLE-INSTITUT FRANKFURT AM MAIN
63 PAGES, 12 FIGURES, 12 TABLES, 9 REFERENCES, JANUARY 30, 1968

IN AN EARLIER RESEARCH PROJECT, PERFORMED AT BATTELLE-FRANKFURT AND SPONSORED BY THE GERMAN
BUNDESMINISTERIUM FÜR WISSENSCHAFTLICHE FORSCHUNG, THE INITIAL PHASE OF CHEMICAL REACTIONS
BETWEEN URANIUM, URANIUM DIOXIDE, OR URANIUM CARBIDE AND OXYGEN OR WATER VAPOR WAS INVESTIGATED
KINETICALLY. THIS WORK, DEALING POINTEDLY WITH THE SYSTEMS UO₂/AIR AND UO₂/WATER VAPOR AT 1200,
1500, AND 1800 C, SUBSTANTIALLY CONFIRMED THE PREVIOUS RESULTS.

FUEL INTEGRITY + STEAM + OXYGEN + CHEMICAL KINETICS + OXIDATION + URANIUM OXIDE + CHEMICAL REACTION

5-30070

WAMBSGANSS MW
FLOW-INDUCED VIBRATION IN REACTOR INTERNALS
4 PAGES, 4 FIGURES, 4 REFERENCES, POWER REACTOR TECHNOLOGY AND REACTOR FUEL PROCESSING, 10(1), PAGES 2-5
(WINTER 1966-67)

BRIEF REVIEW OF SALIENT FEATURES OF A RECENT THEORETICAL ANALYSIS OF SELF-EXCITED FLOW-INDUCED
VIBRATION OF A BLADE SUSPENDED IN A CHANNEL. THE THEORETICAL RESULTS ARE IN QUALITATIVE BUT NOT
QUANTITATIVE ACCORD WITH EXPERIMENTAL DATA.

COMPARISON, THEORY AND EXPERIENCE + HYDRAULIC EFFECT + FLUCTUATION + *FUEL ELEMENT + FAILURE, FUEL ELEMENT +
*VIBRATION + REVIEW + *FLOW, AXIAL + INSTABILITY

5-30071

FAUSKE HK
TWO-PHASE COMPRESSIBILITY PHENOMENA AND HOW THEY AFFECT REACTOR SAFETY
5 PAGES, 3 FIGURES, 3 TABLES, 30 REFERENCES, POWER REACTOR TECHNOLOGY AND REACTOR FUEL PROCESSING, 10(1),
PAGES 27-31 (WINTER 1966-67)

A REVIEW OF CRITICAL (SONIC) FLOW AND ACOUSTIC VELOCITY IN TWO-PHASE SYSTEMS. THEORETICAL MODELS
AND EXPERIMENTAL STUDIES OF BOTH WATER AND LIQUID-METAL SYSTEMS ARE OUTLINED. A SERIOUS LACK OF
DATA, ESPECIALLY FOR METALLIC COOLANTS, IS NOTED.

BLOWDOWN + REVIEW + FAILURE, PIPE + *COMPARISON, THEORY AND EXPERIENCE + FLOW THEORY AND EXPERIMENTS +
HYDRODYNAMIC ANALYSIS + *FLOW, CRITICAL + ACCIDENT, LOSS OF COOLANT + FLOW, TWO PHASE

5-30072

ALSO IN CATEGORY 4

CHEN JC
INCIPIENT BOILING SUPERHEATS IN LIQUID METALS
BROOKHAVEN NATIONAL LABORATORY, UPTON, N. Y.
10 PAGES, 13 FIGURES, 13 REFERENCES, J. OF HEAT TRANSFER, 90(3), PP. 303-12 (AUG. 1968)

MEASURED THE INCIPIENT-BOILING LIQUID SUPERHEATS FOR POTASSIUM IN FORCED CONVECTION. THE EFFECT
OF PREBOILING, DEACTIVATION CONDITIONS ON SUBSEQUENT INCIPIENT BOILING WAS EMPHASIZED. FOR
BOILING PRESSURES OF 8 TO 24 PSIA, THE MEASURED SUPERHEATS RANGED FROM 17 TO 117 F. A PROPOSED
ANALYTICAL MODEL IS IN REASONABLE OVERALL AGREEMENT WITH EXPERIMENTAL RESULTS.

*POTASSIUM + CONVECTIVE BOILING + HEAT TRANSFER ANALYSIS + *BUBBLE NUCLEATION + *FLOW, TUBE + TEMPERATURE
GRADIENT + METAL, LIQUID + AEROSPACE SAFETY

5-30073

TWO-PHASE FLOW AND HEAT TRANSFER IN MULTIROD GEOMETRIES, TENTH QUARTERLY PROGRESS REPORT, JANUARY 1 - MARCH
31, 1968
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
GEAP-5497 +. 9 REFERENCES, FIGURES, JUNE 1968

METHODS OF MEASURING LIQUID-FILM THICKNESS AND FLOWRATE AND DROPLET DEPOSITION RATES IN VERTICALLY
UPWARD STEAM-WATER FLOWS AT 600 TO 1400 PSIA ARE DISCUSSED. IT IS CONCLUDED THAT ALTHOUGH THE
CONDUCTANCE METHOD FOR MEASURING FILM THICKNESS AND THE POROUS-SINTERED-WALL METHOD FOR MEASURING
FILM FLOWRATE AREAR TO BE PREFERABLE, ALL AVAILABLE TECHNIQUES WILL BE EXAMINED FURTHER IN A LOW-
PRESSURE TRANSPARENT CHANNEL.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151,
\$3.00 COPY, \$3.65 MICROFICHE

DEPOSITION + *FILM, LIQUID + REACTOR COOLANT + PHASE CHANGE + *HYDRAULIC EXPERIMENT + *FLOW, TWO PHASE +
INSTRUMENT, FLJW

5-30074

BUTTERWORTH D
THE LAMINAR FLOW OF LIQUID DOWN THE OUTSIDE OF A ROD WHICH IS AT A SMALL ANGLE FROM THE VERTICAL
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, BERKS HARWELL
AERE-R-5284 +. 34 PAGES, 16 FIGURES, OCTOBER, 1966

CATEGORY 5
ACCIDENT ANALYSIS

5-30074 *CONTINUED*

A SIMPLIFIED METHOD WAS DEVELOPED FOR CALCULATING THE LIQUID DISTRIBUTION FOR LAMINAR FLOW DOWN THE OUTSIDE OR INSIDE OF A TUBE AT A SMALL ANGLE FROM THE VERTICAL. NUMERICAL SOLUTIONS INCLUDING SURFACE TENSION EFFECTS ARE PRESENTED. EXPERIMENTAL DATA OBTAINED WITH WATER FLOWING DOWN A 1/2-IN.-OD TUBE ARE IN REASONABLE AGREEMENT WITH THE ANALYSIS.

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

*FLOW DISTRIBUTION + *FILM, LIQUID + FLOW THEORY AND EXPERIMENTS + *FLOW, LAMINAR + LIQUID + HYDRODYNAMIC ANALYSIS + COMPARISON, THEORY AND EXPERIENCE

5-30075

BENNETT AW + HEWITT GF + KEARSEY HA + KEEYS RKF
HEAT TRANSFER TO STEAM-WATER MIXTURES FLOWING IN UNIFORMLY HEATED TUBES IN WHICH THE CRITICAL HEAT FLUX HAS BEEN EXCEEDED

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, BERKS HARWELL
AERE-R 5373 +. 21 FIGURES, 2 TABLES, 42 REFERENCES, OCTOBER 1967

EXPERIMENTS WERE RUN ON EVAPORATIVE HEAT TRANSFER TO WATER IN UPFLOW IN A VERTICAL RESISTANCE-HEATED 1/2-IN.-ID TUBE AT 1000 PSIA. SURFACE TEMPERATURE PROFILES IN THE REGION BEYOND THE DRYOUT POINT AND THE BEHAVIOR OF THE DRYOUT INTERFACE WERE MEASURED. A METHOD OF PREDICTING THE WALL TEMPERATURE PROFILE IN THE DRY WALL REGION, TAKING ACCOUNT OF THE SLIP BETWEEN THE DROPLETS AND THE STEAM, WAS DEVELOPED. SATISFACTORY AGREEMENT WAS OBTAINED BETWEEN MEASURED AND PREDICTED WALL TEMPERATURE PROFILES.

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

REACTOR, BWR + *HEAT FLUX, DRYOUT + *HEAT TRANSFER + DROPLET + HEAT TRANSFER EXPERIMENT + STEAM QUALITY + *FLOW, TWO PHASE + FILM, LIQUID + FLOW, ANNULAR + PHASE CHANGE + DEPOSITION + *FLOW, TUBE + THERMAL EXPERIMENT

5-30076

TAYLOR MF
CORRELATION OF LOCAL HEAT-TRANSFER COEFFICIENTS FOR SINGLE-PHASE TURBULENT FLOW OF HYDROGEN IN TUBES WITH TEMPERATURE RATIOS TO 23

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON, D. C.
NASA-TN-D-4332 +. 21 PAGES, 26 REFERENCES, 6 FIGURES, 3 TABLES, JANUARY 1968

VARIABLE-PROPERTY SINGLE-PHASE LOCAL HEAT-TRANSFER COEFFICIENTS FOR HYDROGEN FROM TEN INVESTIGATIONS USING SYMMETRICALLY HEATED STRAIGHT TUBES WERE USED TO DEVELOP A SINGLE EQUATION THAT WILL PREDICT HEAT-TRANSFER COEFFICIENTS WITH ACCEPTABLE ACCURACY OVER A WIDE RANGE OF CONDITIONS, INCLUDING SURFACE TO FLUID BULK TEMPERATURE RATIOS TO 23.

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

*HEAT TRANSFER COEFFICIENT + *HYDROGEN + FLOW, TUBE + *HEAT TRANSFER CORRELATION + REACTOR COOLANT + FLOW, AXIAL + *HIGH TEMPERATURE + COMPARISON, THEORY AND EXPERIENCE + CRYOGENICS + *FLOW, TURBULENT + HEAT TRANSFER, GAS

5-30077

BLOMBERG PE
EXPERIMENTS ON NUCLEATION OF STEAM BUBBLES IN BOILING WATER REACTORS -- RESULTS FROM TESTS WITH A RADIOACTIVE GOLD WIRE

AKTIEBOLAGET ATOMENERGI, STOCKHOLM
AE-RTL-924 +. 29 PAGES, 17 FIGURES, 2 TABLES, 5 REFERENCES, MARCH 8, 1967

TESTS WERE MADE OF HEAT TRANSFER FROM A RADIOACTIVE GOLD WIRE TO A POOL OF SATURATED WATER AT A PRESSURE OF 1.3 ATM. AT LOW HEAT FLUXES, PREMATURE BUT LIMITED BUBBLE FORMATION CAUSED THE HEAT-TRANSFER COEFFICIENT TO DECREASE WITH INCREASING BETA-RADIATION INTENSITY. AT HEAT FLUXES ABOVE ABOUT 20 WATTS PER SQ CM, THE DIFFERENCE BETWEEN THE HEAT-TRANSFER COEFFICIENT OF THE ACTIVE GOLD WIRE AND THOSE OF INACTIVE WIRES WERE NEGLIGIBLE.

*RADIATION EFFECT + *BUBBLE NUCLEATION + GOLD + STEAM + POOL BOILING + *HEAT TRANSFER COEFFICIENT + REACTOR, BWR + HEAT TRANSFER EXPERIMENT + PHASE CHANGE + BETA EMITTER

5-30078

BLOMBERG PE
A STUDY OF POOL BOILING WITH PARTICULAR REFERENCE TO THE HEATER MATERIAL AND TO IONIZING RADIATION

AKTIEBOLAGET ATOMENERGI, STOCKHOLM
AE-RTL-967 +. 55 PAGES, 15 FIGURES, 4 TABLES, 55 REFERENCES, JULY 3, 1968

A LITERATURE SURVEY ON POOL-BOILING HEAT TRANSFER WITH VARIOUS HEATER MATERIALS IS PRESENTED, AS ARE THE RESULTS OF A NEW EXPERIMENTAL STUDY. WIRE HEATERS OF 1/2 MM DIAM, MADE OF 11 MATERIALS, WERE TESTED. FURTHER TESTS WERE MADE WITH A RADIOACTIVE GOLD WIRE PRODUCING FOUR IONIZING-FIELD INTENSITIES. CONCLUDED THAT BOILING HEAT-TRANSFER RATES WERE UNAFFECTED BY THE BARE HEATER MATERIAL AND INCREASED WITH INCREASED SURFACE ROUGHNESS AND DECREASED IONIZING-RADIATION INTENSITY. ON ORIGINALLY SMOOTH SURFACES, A THIN ADHERENT OXIDE LAYER INCREASED THE HEAT-

CATEGORY 5
ACCIDENT ANALYSIS5-30078 *CONTINUED*
TRANSFER RATE.HEAT TRANSFER EXPERIMENT + *MATERIAL + SURFACE CONTAMINATION + *RADIATION EFFECT + PHASE CHANGE + BURNOUT HEAT
FLUX + *POOL BOILING + BETA EMITTER + HEAT TRANSFER, BOILING5-30086 ALSO IN CATEGORIES 11 AND 13
RADIATION SHIELD PLUG OVERPRESSURIZATION HAZARD
U.S. ATOMIC ENERGY COMMISSION
USAEC SERIOUS ACCIDENTS ISSUE NO. 295, DECEMBER 9, 1968

A HIGH-PRESSURE GAS RELEASE OCCURRED IN A 6-IN.-DIAM SHIELD PLUG, ONE OF MANY SUCH PLUGS USED IN THE WALLS OF A RADIOACTIVE MATERIALS LABORATORY HOT CELL COMPLEX. THIS 3-IN.-LONG 200-LB STEEL-ENCASED CONCRETE PLUG WAS FOUND LYING IN THE OPERATIONS AREA, WITH THE SMALL END (EXPOSED TO THE CELL SIDE OF THE WALL) RUPTURED. NO DAMAGE TO THE HOT CELL COMPLEX, NO RELEASE OF RADIOACTIVE MATERIALS, AND NO INJURIES.

*HOT CELL + CONTAINMENT EQUIPMENT HATCH + RADIOCHEMICAL PLANT SAFETY + PRESSURE, INTERNAL + *PRESSURE RELIEF +
*HAZARD, RELATIVE5-30165 ALSO IN CATEGORY 18
KULJIAN HA
NUCLEAR POWER PLANT DESIGN
236 PAGES, 1968, A.S. BARNES AND COMPANY, NEW YORK

APPARENTLY INTENDED FOR FAMILIARIZATION OF UTILITY AND A-E STAFF WITH STANDARD REACTOR FEATURES SO THEY MAY BETTER DESIGN THE NONNUCLEAR PORTIONS OF THE PLANT. ***(CHAP. II) - 114 PAGES DESCRIBING 8 MAJOR REACTOR TYPES PLUS A FOSSIL FUELED BOILER, ALL IN 150 MWE SIZE, GIVING TYPICAL OPERATING VALUES AND BRIEF HEAT TRANSFER CALCULATIONS. (CHAPS. III AND IV) - 54 PG., BASIC CALCULATIONS AND PRELIMINARY LAYOUT FOR THE CONVENTIONAL PORTIONS OF THE PLANT. BASIC CALCULATIONS, FORMULAE, AND TABLES TO MAKE DESIGN EASIER. (CHAP. V) - 41 PG., DIMENSIONS OF MAJOR MACHINERY FOR PREPARATION OF PRELIMINARY DRAWINGS.

*REACTOR DESCRIPTION + MAIN COOLING SYSTEM + REACTOR, BWR + DESIGN STUDY + REACTOR, PWR + REACTOR, POWER +
TRAINING + CERTIFICATION + STAFFING5-30199 ALSO IN CATEGORY 17
BAWTR OPERATIONS APRIL-SEPT 1968
BADCOCK AND WILCOX
9AW-349 *. 7 PAGES, 3 TABLES, 8 REFERENCES, NOVEMBER 1968, DOCKET 50-200

FACILITY USAGE AND CHANGES NOTED. ***(1) APRIL 4. BRIDGE RADIATION MONITOR READING INCREASED ABOVE 200 MR/HR, ABOUT DOUBLE NORMAL. ROD MANIPULATION INDICATED A ROD FOLLOWER ELEMENT FAILURE. ELEMENT HAD OPERATED ONLY 32 MED, SHOWED NO ABNORMALITY. (2) APRIL 26. A SMALL PLASTIC VALVE, MAINTAINING A HE-N GAS MIXTURE IN AN EXPERIMENT, WAS BURNED BY A HEATER WIRE IN ANOTHER EXPERIMENT. REDUCED REACTOR POWER WAS CAUSING HIGHER THAN NORMAL HEATER POWER AND HOTTER WIRES. (3) SEPT. 3. THE HEADER (COUPLING REACTOR TO COOLANT PIPES) FAILED TO DRUP UN PUMP SHUTUPF, DUE TO BROKEN GUIDE RODS AND MISALIGNMENT. FLOW COASTDOWN ANALYSIS SHOWED ADEQUATE CIRCULATION WITH HEADER FIXED IN UP AND CHECK VALVE REMOVED, SO TECH. SPEC. CHANGE WAS INITIATED.

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

ACCIDENT ANALYSIS + FAILURE, COMPONENT + VALVE + FAILURE, FUEL ELEMENT + *ACCIDENT, LOSS OF FLOW + IRRADIATION
FACILITY + TECHNICAL SPECIFICATIONS + *HEAT TRANSFER, NATURAL CONVECTION + REACTOR, TEST + REPORT, OPERATIONS
SUMMARY5-30204 ALSO IN CATEGORIES 10 AND 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-16 *. 16 PAGES, DECEMBER 19, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

TESTS (LOAD REJECTION AT 250 MWE, LOSS OF FLOW AT 278 MWE, DROPPED ROD AT 400 MWE) RUN INCLUDED NATURAL CIRCULATION FLOW INDICATION FOLLOWING TRIP FROM 501 POWER. IN-CORE FLUX MAPS WERE TAKEN, AND MINIMUM DNBR WAS 4.0. FLUX MAPS TAKEN WITH A ROD IN AND A ROD OUT. THREE TRIPS OCCURRED FROM VITAL BUS GROUNDING (FUSE REPLACEMENT, LIGHT BULB REPLACEMENT, AND SYSTEM CHECKOUT).
***VITAL BUS IS NOW SPLIT INTO 4 BUSES, EACH WITH AN INVERTER. EACH BUS CAN ALSO BE FED FROM ANOTHER INVERTER.

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

ACCIDENT, LOSS OF FLOW + REPORT, OPERATIONS + HADDAM NECK (PWR) + *MODIFICATION, SYSTEM OR EQUIPMENT +
*ELECTRIC POWER, VITAL + ACCIDENT, LOAD REJECTION + REACTOR, PWR + *REACTOR STARTUP EXPERIENCE + SCRAM, REAL
+ ACCIDENT, CONTROL ROD DROPIN + *TEST, PROOF + INSTRUMENT, IN CORE + HEAT TRANSFER, NATURAL CONVECTION5-30207 ALSO IN CATEGORIES 9 AND 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY

CATEGORY 5
ACCIDENT ANALYSIS

5-30207 *CONTINUED*
NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATING REPORT NO. 68-11, DEC. 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SEVERAL LOAD REDUCTIONS WERE MADE FOR TESTS ON TURBINE CONTROL VALVE. HIGHEST WORTH ROD WAS INSERTED FOR 48 HR TO MEASURE ITS CHANGE IN WORTH (ABOUT 0.3 PERCENT) AND CHANGE IN HOT CHANNEL FACTOR (FW CHANGED FROM 1.11 TO 1.85). FLUX TILT WAS ORIGINALLY 14 PERCENT, INCREASING TO A MAXIMUM OF 23 PERCENT AND REACHING EQUILIBRIUM AT 12 PERCENT. TILT REVERSED WHEN ROD WITHDRAWN. *** 4 RODS WERE RUN IN ONE AT A TIME, VERIFYING THAT AT LEAST 2 POWER RANGE CHANNELS WOULD DETECT THIS. INDIVIDUAL STEPS WERE INDISTINGUISHABLE FROM THE DOPPLER INSERTIONS ON THE REACTIVITY COMPUTER, ONE OF THE FOUR LEAST REACTIVE RODS GAVE A 37 MWE DECREASE AND AN 11 PERCENT FLUX TILT, OBVIOUS TO THE MOST CASUAL OBSERVER.

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

HADDAM NECK (PWR) + REACTOR, PWR + HOT CHANNEL FACTOR + *ACCIDENT, CONTROL ROD DROPIN + FLUX TILT + REPORT, OPERATIONS + INSTRUMENT, OPERATING REACTIVITY + *MEASUREMENT, REACTIVITY + *INSTRUMENT, ABNORMAL INDICATION

5-30220 ALSO IN CATEGORY 17
DESIGN AND OPERATING CHARACTERISTICS - INDIAN POINT 1, CORE B CYCLE 3
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
11 PAGES, 2 FIGURES, 2 TABLES, 6 REFERENCES, LETTER TO P.A. MORRIS, DRL, DEC. 4, 1968, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

ONE THIRD OF THE FUEL WILL BE REMOVED IN FEB. 1969 AND NEW FUEL ADDED TO THE PERIPHERY. SUFFICIENT INITIAL TESTING SIMILAR TO THAT FOR CYCLE 2 WILL DEMONSTRATE COMPLIANCE WITH TECHNICAL SPECIFICATIONS. SOME ONCE BURNED FUEL WILL BE PLACED IN CORE CENTER TO IMPROVE POWER PEAKING. CYCLE 3 BURNUP IS PREDICTED AT 9700 MWD/MTU, TOTAL PEAKING FACTOR 3.55, TOTAL CONTROL ROD WORTH 111, AND FULL POWER EQUIL. XENON BORN AT 1200 PPM.

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

FUEL BURNUP + REACTOR, PWR + INDIAN POINT 1 (PWR) + POWER DISTRIBUTION + *REFUELING

5-30228 ALSO IN CATEGORY 17
AMENDMENT 1 - HIGH POWER DENSITY ELEMENTS
U.S. ATOMIC ENERGY COMMISSION
9 PAGES, 2 TABLES, LETTER TO R.L. HAUETER, CONSUMERS POWER CO., MARCH 12, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

REVISIONS TO TECHNICAL SPECIFICATIONS FOR 6 FUEL BUNDLES WHICH MAY OPERATE WITH VARYING DEGREES OF CENTERLINE MELTING (3 PELLET TYPE, 3 POWDER TYPE) ALL AT 500,000 BTU/HR-SQ FT, 3 AT 26.8 AND 2 AT 2.18 KW/FT. GE TO HAVE A PHYSICIST PRESENT FOR INITIAL STARTUP FOLLOWING EACH RELOADING. FUEL TO BE EXAMINED EACH REFUELING FOR DIMENSIONAL CHANGES.

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

*CENTERLINE MELTING + BIG ROCK POINT (BWR) + *PERFORMANCE LIMIT + *FUEL ELEMENT + TECHNICAL SPECIFICATIONS + EXAMINATION + REACTOR, BWR + ADMINISTRATIVE CONTROL

5-30229 ALSO IN CATEGORIES 17 AND 18
AMENDMENT 1 - OPERATION WITH CENTERLINE MELTING FUEL
U.S. ATOMIC ENERGY COMMISSION
20 PAGES, NOTICE TO FEDERAL REGISTER, JANUARY 30, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

3 POWDER AND 3 PELLET TYPE ELEMENTS WILL BE IRRADIATED AT 25.4 KW/FT TO 21,000 MWD/MTR IN AN EXTENSION OF THE AEC HIGH PERFORMANCE UO2 PROGRAM. SOME RODS CONTAIN TUNGSTEN WAFERS TO MINIMIZE AXIAL MOTION OF MOLTEN FUEL. POWER WILL BE LIMITED TO 0.5 MWTH/MIN ABOVE 170 MWTH TO ALLOW TIME FOR FUEL MIGRATION AND SINTERING. ACCIDENT ANALYSES REVIEWED. ACRS RECOMMENDS REMOVED RODS NOT BE RETURNED UNTIL SOME ARE DESTRUCTIVELY EXAMINED, IN-SERVICE PIPING INSPECTION BE EXPEDITED AS WELL AS OTHER PROTECTIVE MEASURES.

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

*CENTERLINE MELTING + *IRRADIATION TESTING + FUEL, POWDER TYPE + FUEL ELEMENT + REACTOR, BWR + FUEL SEGREGATION + SAFETY EVALUATION + PERFORMANCE LIMIT + TECHNICAL SPECIFICATIONS + ACRS + FUEL, PELLET TYPE + BIG ROCK POINT (BWR)

5-30235 ALSO IN CATEGORY 17
PROPOSED CHANGE 24 - NEW CRITICAL HEAT FLUX CORRELATION
PACIFIC GAS AND ELECTRIC COMPANY
5 PAGES, LETTER TO DRL, DEC. 23, 1968, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

REQUESTS REVISED TECH. SPECS. TO SUBSTITUTE THE SEPT. 1966 (APED-5286) 9-ROD CRITICAL HEAT FLUX CORRELATION FOR THE 1962 (APED-3892) BURNOUT LIMIT CURVES. AUTHORIZATION IS REQUESTED AS SOON AS POSSIBLE SO THAT CURRENT RESTRICTIONS ON OPERATION MAY BE REMOVED.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-30235 *CONTINUED*
SAFETY MARGIN + REACTOR, BWR + HUMBOLDT BAY (BWR) + REACTOR POWER + *HEAT TRANSFER CORRELATION + TECHNICAL SPECIFICATIONS

5-30245 ALSO IN CATEGORY 17
LOSS OF FLOW ACCIDENT AT 1825 MWTH
CONNECTICUT YANKEE ATOMIC POWER COMPANY
9 PAGES, 6 FIGURES, AMENDMENT 19 TO HADDAM NECK LICENSE APPLICATION, DEC. 3, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED SAR PAGES (SECTION 10.3.2) WHICH NOW INCLUDE LOSS OF FLOW AT 1825 MWTH BY LOSS OF ALL 4 PUMPS. W-3 DNB RATIO DROPS TO 1.3 AT 4 SEC, BUT NO CLAD DAMAGE RESULTS.

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

*ACCIDENT, LOSS OF FLOW + REPORT, SAR + *DNB + POWER UPRATING + HADDAM NECK (PWR) + REACTOR, PWR

5-30249 ALSO IN CATEGORIES 12 AND 17
REPORT ON HADDAM NECK POWER UPRATING
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
2 PAGES, LETTER TO G.T. SEABORG, AEC, DECEMBER 12, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ACRS APPROVES JPRATING FROM 1473 TO 1825 MWTH. IN A YEAR WHEN THE NEXT CORE IS INSTALLED, NEW DIESELS AND IMPROVED EMERGENCY CORE COOLING WILL HAVE BEEN INSTALLED. AT THIS TIME, THE LOSS OF COOLANT ACCIDENTS SHOULD BE REANALYZED (BECAUSE OF CHANGED POWER DISTRIBUTION) AND REVIEWED BY REGULATORY STAFF.

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

EMERGENCY COOLING CONSIDERATIONS + TECHNICAL SPECIFICATIONS + HADDAM NECK (PWR) + REACTOR, PWR + POWER UPRATING + SAFETY REVIEW + ACCIDENT, LOSS OF COOLANT + ACRS + MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE

5-30258 ALSO IN CATEGORIES 17 AND 18
ANALYSIS OF A LARGE LOSS OF COOLANT ACCIDENT IN THE CONNECTICUT YANKEE REACTOR
CONNECTICUT YANKEE ATOMIC POWER COMPANY
20 PAGES, 11 FIGURES, 17 REFERENCES, LETTER TO DRL (SUPPLEMENT 2 TO PROPOSED CHANGE 7), NOVEMBER 22, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

(1) CHANGES MADE IN TABLE TO SHOW ACTUAL CONDITIONS AT 1473 MWTH, AS WELL AS REQUESTED 1825. (2) ADDED PARAGRAPH TO TS BASIS 3.10 (TO FIX 24 HOURS AS A LIMIT FOR OPERATION FOLLOWING A DROPPED OR STUCK ROD). (3) ACTUAL ANALYSIS PRESENTED FOR DOUBLE ENDED SEVERANCE, 3 SQ FT AND 0.5 SQ FT BREAKS TO SHOW MAX. CLAD TEMPERATURES 25-0, 2070, AND 2460 F. MODEL DESCRIBED INCLUDES BLOWDOWN (FLASH-R), POWER TRANSIENT DURING BLOWDOWN (CHIC-KIN), AND CORE COOLING (LOCTA-R2). RESULTS ARE GRAPHS OF FLUID VOLUME, REACTOR POWER, FILM COEFFICIENT, AND CLAD HOT SPOT TEMPERATURE FOLLOWING BREAK.

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

FUEL ELEMENT + *POWER UPRATING + *ACCIDENT, LOSS OF COOLANT + HADDAM NECK (PWR) + MATHEMATICAL STUDY + TEMPERATURE TRANSIENT + ACCIDENT ANALYSIS + COMPUTER PROGRAM + REACTOR, PWR + TECHNICAL SPECIFICATIONS

5-30295 ALSO IN CATEGORY 17
CHANGE 4 - INCREASED FUEL BURNUP LIMIT
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER TO A.H. EMMONS, U. OF MISSOURI, AUGUST 12, 1968, DOCKET 50-186

REQUESTED 100, ALLOWED AVERAGE BURNUP TO 70 MW-DAYS/ELEMENT. REQUIRED TO INSPECT ALL 8 ELEMENTS AFTER 50 MW-DAYS, THEN ONE ELEMENT EACH 10 MWD. NOT TO BE OPERATED WHEN DIMENSIONAL CHANGES EXCEED 10 MILS. COOLANT SAMPLES TO BE TAKEN WEEKLY, IODINE LIMITED TO 5X10(-3RD) MICROCURIE/MIL. ***SAFETY EVALUATION NOTES FUEL PLATE SWELLING BEGINS AFTER 36 ATOM PERCENT BURNUP-IN 19-35 WT PERCENT METALLIC FUEL, AND 70 MWD WOULD GIVE PEAK BURNUP OF ABOUT THIS.

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

SURVEILLANCE PROGRAM + *FUEL, METALLIC TYPE + IRRADIATION TESTING + TECHNICAL SPECIFICATIONS + *FUEL BURNUP + *PERFORMANCE LIMIT + REACTOR, RESEARCH + FAILURE, FUEL ELEMENT + REACTOR COOLANT + UMRR (RR)

5-30301 ALSO IN CATEGORY 17
AMENDMENT 7 - HIGH POWER TESTING
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER TO H.V. BROWN, UCLA, APRIL 23, 1968, DOCKET 50-142

ALLOWS OPERATION UP TO 500 KW SUBJECT TO NOT LETTING BULK COOLANT TEMPERATURE AT OUTLET OF HOTTEST FUEL ELEMENT EXCEED 210 F, NOR LETTING A SINGLE HIGH POWER RUN EXCEED 15 MIN IN ANY 3 DAY PERIOD. ***DONE TO ALLOW HEAT TRANSFER AND SHIELD PERFORMANCE DATA TAKING.

CATEGORY 5
ACCIDENT ANALYSIS

5-30301 *CONTINUED*
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)

TEMPERATURE TRANSIENT + *SHIELDING + *MEASUREMENT, GENERAL + POWER UPGRATING + *FUEL ELEMENT + ARGONAUT (TNG) + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

5-30309 ALSO IN CATEGORY 17
PROPOSED CHANGE TO ALLOW DIFFERENT FUEL ELEMENTS
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
3 PAGES, LETTER TO P.A. MORRIS, DRL, OCTOBER 1, 1968, DOCKET 50-20

MITR FUEL WILL BE USED UP IN 1969, AND MTR TYPE FUEL (0.015 CLAD INSTEAD OF 0.20, 171 GRAMS PER ELEMENT INSTEAD OF 160) IS AVAILABLE. SUMMARIZED HEAT TRANSFER STUDIES INDICATE HOT SPOT WALL TEMPERATURE LIMIT OF 100 C MAY BE MET BY REPLACING THE CONSTANT (500) IN THE POWER PER ELEMENT LIMIT FORMULA WITH THE CONSTANT 453, I.E., REDUCE POWER/ELEMENT BY 9.4(. WORST CASE IS MTR CORE WITH 1 MITR ELEMENT.

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

REACTOR POWER + *MODIFICATION, SYSTEM OR EQUIPMENT + PERFORMANCE LIMIT + *FUEL ELEMENT + REACTOR, RESEARCH + REACTOR, HWR + MITR (RR) + TECHNICAL SPECIFICATIONS + CLADDING

5-30350 ALSO IN CATEGORIES 11 AND 18
SUPPLEMENT 4 TO GINNA FSAR - REVISIONS TO PSAR
ROCHESTER GAS AND ELECTRIC CO.
50244-7 +. 100 PAGES, FIGURES, TABLES, AMENDMENT 10 TO GINNA LICENSE APPLICATION, OCT. 10, 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

SIGNIFICANT INFORMATION - REVISIONS TO SEISMIC CLASSIFICATION OF STRUCTURES, PRESSURE-VESSEL-CONSTRUCTION CRITERIA, CONTROL-ROD-DRIVE DESIGN, CONTAINMENT-TENDON SURVEILLANCE, MISSILE PROTECTION, CORE INJECTION SYSTEM, ENVIRONMENTAL PROTECTION, DECAY-HEAT GENERATION IN CHARCOAL FILTERS, COMMUNICATION SYSTEM, EMERGENCY POWER, DECONTAMINATION, SAFETY- FEATURE EVALUATION, RELEASE OF RADIOACTIVE LIQUIDS, CORE THERMAL ANALYSIS, SITE-BOUNDARY DOSES. NEW INFO ON LAKE DILUTION MIXING OF WASTES, NUCLEAR-DESIGN EVALUATION, PREOPERATIONAL TESTING.

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

WASTE MANAGEMENT + TEST, PREOPERATIONAL + CHARCOAL + DECAY HEAT + CONTAINMENT STRUCTURE + OFF SITE + DECONTAMINATION + SAFETY EVALUATION + THERMAL ANALYSIS + WASTE DISPOSAL, LIQUID + CONTROL ROD DRIVE + PRESSURE VESSEL + REACTOR, PWR + CONCRETE + MISSILE GENERATION AND PROTECTION + STEEL + RADIOACTIVITY RELEASE + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + SURVEILLANCE PROGRAM + GINNA (PWR) + FILTER + SUPPORT STRUCTURE + HAZARDS ANALYSIS + COMMUNICATION SYSTEM + DOSE + DESIGN CRITERIA + ENGINEERED SAFETY FEATURE + REPORT, PSAR

5-30406 ALSO IN CATEGORIES 11 AND 18
AFC QUESTIONS ON CALVERT CLIFFS 1 AND 2
U.S. ATOMIC ENERGY COMMISSION
25 PAGES, LETTER FROM AEC DRL TO BALTIMORE GAS AND ELECTRIC CO., SEPT. 16, 1968, DOCKETS 50-317-318

CONTAINS 132 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE DATA, CONTAINMENT STRUCTURE, EMERGENCY CORE COOLING, THERMAL-SHOCK EFFECT ON REACTOR COMPONENTS, AND FAILED FUEL DETECTION. (QUESTIONS ONLY - NO ANSWERS)

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

THERMAL MECHANICAL EFFECT + CORE COMPONENTS + EMERGENCY COOLING CONSIDERATIONS + REACTOR, PWR + DESIGN CRITERIA + CONTAINMENT STRUCTURE + CONSTRUCTION PERMIT PROCESS + *AEC QUESTION + CALVERT CLIFFS 2 (PWR) + CALVERT CLIFFS 1 (PWR) + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

5-30416 ALSO IN CATEGORIES 2 AND 18
AEC QUESTIONS ON CRYSTAL RIVER 3 AND 4
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER FROM AEC DRL TO FLORIDA POWER CORP., JAN. 19, 1968, DOCKETS 50-302/303, TYPE--PWR, MFG--R+W, AE--SGT + LUNDY

CONTAINS 56 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, SITE DESCRIPTION, REACTOR DESCRIPTION, CONTAINMENT DESIGN, EMERGENCY CORE COOLING, INSTRUMENTATION AND CONTROL, ELECTRICAL SYSTEM, EMERGENCY-FEEDWATER-PUMP REDUNDANCY, MONITORING OF RADIOACTIVE WASTE, AND ANALYSIS OF LOSS OF FLOW ACCIDENT. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + ACCIDENT, LOSS OF FLOW + SYSTEM DESCRIPTION + CONSTRUCTION PERMIT PROCESS + EMERGENCY COOLING CONSIDERATIONS + CONTAINMENT DESIGN + REACTOR DESCRIPTION + ACCIDENT ANALYSIS + DESIGN CRITERIA + REACTOR SAFETY SYSTEM + EQUIPMENT, GENERAL + WASTE MANAGEMENT + *AEC QUESTION + SITING, REACTOR + INSTRUMENT, CONTROL + REDUNDANCE + CRYSTAL RIVER 3 (PWR) + CRYSTAL RIVER 4 (PWR)

CATEGORY 5
ACCIDENT ANALYSIS

5-30418 ALSO IN CATEGORIES 9 AND 18
AEC QUESTIONS ON ZION 1 AND 2
U.S. ATOMIC ENERGY COMMISSION
5 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JAN. 15, 1968, DOCKETS 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

CONTAINS 38 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN INSTRUMENTATION AND CONTROL, VENTILATION SYSTEM FOR CONTAINMENT, DESIGN BASIS FOR CONTROL-ROOM SHIELDING, AND LOSS-OF-COOLANT-ACCIDENT ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + CONTROL PANEL/ROOM + ACCIDENT, LOSS OF COOLANT + REACTOR SAFETY SYSTEM + REACTOR, PWR + SHIELDING + *AEC QUESTION + VENTILATION SYSTEM + DESIGN CRITERIA + INSTRUMENT, CONTROL + ZION 1 (PWR) + ZION 2 (PWR)

5-30425 ALSO IN CATEGORIES 12 AND 18
AEC QUESTIONS ON DRESDEN 2 AND 3
U.S. ATOMIC ENERGY COMMISSION
14 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JUNE 27, 1968, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

CONTAINS A LIST OF 91 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN QUALITY CONTROL, CODES AND STANDARDS, ENGINEERED SAFETY FEATURES, THERMAL MARGINS IN CORE DESIGN, AND CONSEQUENCES OF EQUIPMENT MALFUNCTIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ENGINEERED SAFETY FEATURE + DRESDEN 2 (BWR) + ACCIDENT, CONSEQUENCES + DRESDEN 3 (BWR) + FUEL ELEMENT + DESIGN CRITERIA + *AEC QUESTION + REACTOR, BWR + SAFETY MARGIN + FAILURE, EQUIPMENT + THERMAL CONSIDERATION + CODES AND STANDARDS + QUALITY ASSURANCE

5-30426 ALSO IN CATEGORIES 2 AND 18
AEC QUESTIONS ON NINE MILE POINT
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, LETTER FROM AEC DRL TO NIAGARA MOHAWK POWER CORP., JUNE 6, 1968, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

CONTAINS 21 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SEISMIC DESIGN, TRANSIENT ANALYSIS, AND ACCIDENT DESIGN CONSIDERATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ACCIDENT ANALYSIS + MATHEMATICAL STUDY + *AEC QUESTION + NINE MILE POINT (BWR) + REACTOR, BWR + EARTHQUAKE ENGINEERING + CONTAINMENT DESIGN + REACTOR TRANSIENT + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS

5-30447 ALSO IN CATEGORIES 15 AND 18
STANFORD LE + HAMRICK TP + BINFORD FT
DESCRIPTION AND SAFETY ANALYSIS OF SIGNIFICANT CHANGE OF THE BULK SHIELDING REACTOR FOR 2-MW OPERATION
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2231 +. 107 PAGES, FIGURES, TABLES, MAY 15, 1968

MODIFICATIONS TO MAIN COOLING SYSTEM TO INSTALL FORCED COOLING ARE TO BE COMPLETED BY OCT. 1966, PERMITTING POWER UPGRATING FROM 1 TO 2 MW. MODIFICATIONS AND REACTOR ARE DESCRIBED IN DETAIL. THE MCA ASSUMES MELTING OF 50% OF FUEL AFTER 28 MONTHS OF CONTINUOUS OPERATION (LOSS OF COOLANT TESTS HAVE BEEN PERFORMED WITH NO DAMAGE TO ELEMENTS). DOSE FROM MCA, 1 KM DOWNWIND FROM STACK IS THE MAXIMUM AND IS 194 MREM INTERNAL AND 2.5 RADS EXTERNAL.

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

*REACTOR DESCRIPTION + ACCIDENT ANALYSIS + MAIN COOLING SYSTEM + DOSE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, AEC OWNED + REPORT, SAR + *SAFETY ANALYSIS + *POWER UPGRATING + REACTOR, RESEARCH + ACCIDENT, MAXIMUM CREDIBLE (MCA) + *BSR (RR) + OFF SITE

5-30539 ALSO IN CATEGORIES 6 AND 17
MEASUREMENTS OF DOSE RATES --- TRANSIENT
UNIVERSITY OF ILLINOIS
INRL-13 +. 5 PAGES, 1 FIGURE, APRIL 16, 1963 (50-151)

MEASUREMENTS DOSE WITH THE PULSE ROD LEFT IN UP POSITION FOLLOWING SCRAM 3 PULSES APRIL 10/11. (POWER) PEAK 250 MW, 380 KW MINIMUM AT 20 SEC, AND 366 KW EQUILIBRIUM WITHIN 2 MIN. (DOSE RATE ON GRATING) OFF 100 MREM/HR SCALE FOR PULSE, MIN OF 18 MR/HR AT 10 SEC THEN EQUILIBRIUM AT 1 SEC OF 86 (CIRC. WATER OFF) OR 36 (CIRC. WATER ON). ***EXPECTED POWER WAS 290 KW, INDICATING POWER COEFFICIENT NONLINEAR ABOVE 100 KW. AT 1 MW, 310 AND 126 MR/HR WOULD BE EXPECTED WITH CIRC. WATER OFF/ON. LESSER PULSES WILL BE USED TO OBTAIN A COMPLETE PICTURE.

CATEGORY 5
ACCIDENT ANALYSIS

5-30539 *CONTINUED*

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*TEMPERATURE TRANSIENT + *SHIELDING + EXTRAPOLATION FACTOR + REPORT, OPERATIONS ANALYSIS + POWER UPRATING + POWER COEFFICIENT + REACTOR TRANSIENT + *FUEL ELEMENT + *TEST, PROOF + REACTOR, RESEARCH + *REACTOR POWER + REACTOR, PULSED + FAILURE, SCRAM MECHANISM

5-30566 ALSO IN CATEGORY 19

ACHENER PY + MACKIEWICZ DY + CAMP DC

THERMOPHYSICAL AND HEAT TRANSFER PROPERTIES OF ALKALI METALS

AEROJET-GENERAL CORPORATION

AGN-8195-VOL. II. +. 387 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

SELECTED DATA FROM EXISTING LITERATURE GIVEN (NOT A TEXT BOOK). EMPIRICAL AND THEORETICAL SOLUTIONS ARE RECOMMENDED IF THEY HAVE BEEN REASONABLY VERIFIED. SOME RESULTS DEVELOPED BY ANALYTICAL METHODS ARE INCLUDED. CONTAINS EXTENSIVE LIST OF REFERENCES AND CONVERSION FACTORS. TITLES OF SECTIONS ARE - FORCED-CONVECTION HEAT TRANSFER WITH LAMINAR FLOW, WITH TURBULENT FLOW, TO FLUID OUTSIDE OF TUBES, PLUS BOILING HEAT TRANSFER, CONDENSING HEAT TRANSFER, AND CONVERSION FACTORS.

AVAILABILITY - P.Y. ACHENER, AEROJET-GENERAL CORPORATION, NUCLEAR DIVISION, SAN RAMON, CALIFORNIA

METAL + HEAT TRANSFER, CONDENSATION + HEAT TRANSFER ANALYSIS + *BIBLIOGRAPHY + *THERMAL PROPERTY + HEAT TRANSFER, CONVECTION + *HEAT TRANSFER + ANALYTICAL TECHNIQUE, GENERAL + *PROCEDURES AND MANUALS + FLOW, TURBULENT + EQUATION, GENERAL + CONVECTIVE BOILING + *METAL, ALKALI + MATHEMATICAL TREATMENT + HEAT TRANSFER, BOILING + FLOW, LAMINAR + BOILING + REVIEW

5-30598 ALSO IN CATEGORIES 10 AND 17

SELECTED HADDAM NECK OPERATING EXPERIENCE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-21 +. 10 PAGES, FIGURES, TABLES, OPERATION REPORT NO. 68-4, MAY 14, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

TURBINE FLANGE REPAIRS COMPLETED 13TH, AND IN-CORE MEASUREMENTS (AT 3(POWER) OF REDISTRIBUTION OF FLUX IN DROPPED AND EJECTED ROD SITUATIONS COMPLETED THE 19TH. (27TH) ON RESTORING A 115 KV OUTSIDE LINE, A SWITCHING PROCEDURE WAS USED WHICH DEGUARDED A TRANSFER TRIP RELAY, CAUSING SITE FEEDER BREAKERS TO OPEN, INTERRUPTING STATION SERVICE POWER AT 490 MWE. STATION WAS ON EMERGENCY POWER FOR 25 MIN BEFORE NORMAL POWER RESTORED. ***FUNCTIONAL CHECKS OF CONTAINMENT FAN DAMPER HAVE BEEN TROUBLE FREE. ELECTRIC OPERATORS ARE BEING CHANGED TO AIR OPERATORS.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE + ACCIDENT, CONTROL ROD DROPIN + POWER DISTRIBUTION + TURBINE + ACCIDENT, LOAD REJECTION + ACCIDENT, CONTROL ROD EJECTION + MEASUREMENT, GENERAL + FAILURE, EQUIPMENT + REPORT, OPERATIONS + MAINTENANCE AND REPAIR + HADDAM NECK (PWR) + ACCIDENT, LOSS OF POWER + REACTOR, PWR + *CONTAINMENT AIR COOLING + *FAILURE, OPERATOR ERROR + EMERGENCY POWER, ELECTRIC

5-30600 ALSO IN CATEGORY 17

ADDITIONAL ANALYSIS OF THE PROOF TEST FACILITY DESIGN ACCIDENT FOR A CORE CONTAINING ALL PUO2-UO2 FUEL RODS UNITED NUCLEAR CORPORATION

6 PAGES, LETTER TO D.J. SKOVHOLT, DRL, SUPPLEMENT A OF AMENDMENT 1, 1967, DOCKET 50-290

ANALYSIS OF \$0.03/SEC ADDED BY WATER FILL USING UNC-A-32 CODE SHOWS PEAK POWER OF 0.72 KW REACHED AT 30 SEC, AND TOTAL ENERGY RELEASE OF 2 KW SEC. THIS WOULD HEAT WATER LESS THAN 1 F.

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

PLUTONIUM DIOXIDE + *SAFETY ANALYSIS + URANIUM DIOXIDE + CRITICAL ASSEMBLY FACILITY + *ACCIDENT, CONTROL ROD WITHDRAWAL

5-30606 ALSO IN CATEGORY 17

PULSTAR TECHNICAL SPECIFICATION REVISIONS ON HIGH ENERGY DENSITY PULSES

WESTERN NEW YORK NUCLEAR RESEARCH CENTER

18 PAGES, FIGURES, TABLES, LETTER TO D.J. SKOVHOLT, DRL, NOVEMBER 14, 1968, DOCKET 50-57

WITHDRAWS ALL PREVIOUS REQUESTS (FROM 1966 ON) REGARDING PULSING. REQUESTS COMPLETE REPLACEMENT OF OLD SECTION P (PULSE OPERATION) WITH NEW (ENCLOSED), WHICH RESTRICTS PULSING TO FORCED CONVECTION AND WHICH ABANDONS FURTHER PULSE TESTING TO HIGHER POWER DENSITIES (THAN THAT GIVEN IN A SPECIFIC FORMULA) WITHOUT AEC APPROVAL. TRANSIENT ROD LIMITED TO 0.025 DK/K. MAXIMUM ALLOWABLE ENERGY DENSITIES RANGE FROM 735 TO 498 WATT-SEC/GM (DEPENDING ON HOT SPOT FACTOR AND CORRELATION BETWEEN ENERGY DENSITY AND FILM BOILING LIMITS).

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

*PERFORMANCE LIMIT + TECHNICAL SPECIFICATIONS + REACTOR, PULSED + POWER DISTRIBUTION + PULSTAR (RR) + FUEL ELEMENT + REACTOR, RESEARCH + *EXCURSION, LARGE + *FILM BOILING

CATEGORY 5
ACCIDENT ANALYSIS

5-30631 ALSO IN CATEGORIES 12 AND 18
EFFECT OF N FROM ACCUMULATIONS ON CORE COOLING DURING LOCA
INDIANA AND MICHIGAN ELECTRIC COMPANY
50315-12 +. 25 PAGES, FIGURES, TABLES, AMENDMENT 8 TO COOK 1 AND 2 LICENSE APPLICATION, OCTOBER 23, 1968,
DOCKETS 50-315/316

THE EFFECTS ON CORE COOLING OF NITROGEN GAS FROM THE EXHAUSTED ACCUMULATORS IS ASSESSED AND INCLUDES A SUMMARY OF ECCS DESIGN EXPECTATIONS, CALCULATIONS THAT DEMONSTRATE THAT THE LOCA DESIGN CRITERIA ARE SATISFIED, EVEN UNDER A HYPOTHETICAL SITUATION WHEN THE ACCUMULATOR NITROGEN FORCES THE WATER FROM THE SYSTEM, AND RESULTS THAT INDICATE THAT THE PROBLEM IS NOT SIGNIFICANT. FINALLY, IT IS SHOWN THAT THE TOTAL CALCULATED METAL-WATER REACTION REMAINS WITHIN EARLIER EXPECTATIONS OF 0.1% EVEN FOR A HYPOTHETICAL WORST PERFORMANCE OF THE ACCUMULATOR NITROGEN.

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

ACCIDENT, CONSEQUENCES + *NITROGEN + ACCIDENT, LOSS OF COOLANT + *HAZARD, RELATIVE + METAL WATER REACTION + SAFETY ANALYSIS + *EMERGENCY COOLING CONSIDERATIONS + HAZARDS ANALYSIS + *FLOW BLOCKAGE + *HEAT TRANSFER

5-30633 ALSO IN CATEGORIES 15 AND 18
SEFOR FSAR VOL. II - SAFETY ANALYSIS
GENERAL ELECTRIC COMPANY
150 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOL. 2, JULY 21, 1967,
DOCKET 50-231

CONTAINS SECTIONS ON AUXILIARY SYSTEMS, EXPERIMENTAL PROGRAM AND EQUIPMENT, CONDUCT OF OPERATIONS, ELECTRIC POWER SUPPLY, AND THE SAFETY ANALYSIS. APPENDICES INCLUDE AN ANALOG MODEL OF SEFOR, RESULTS OF MOCKUP TESTS IN ZPR-3, BLAST SHIELDING AND DESIGN, AND RADIOLOGICAL EFFECTS CALCULATIONS. SAFETY ANALYSIS CONSIDERS THE SAFETY FEATURES FOR OPERATION, POSITIVE REACTIVITY INSERTIONS, AND LOSS OF COOLANT FLOW. THE MHA IS A SUDDEN INCREASE IN POWER DENSITY FOLLOWED BY LOSS OF COOLANT FLOW LEADING TO RAPID FUEL MELTING AND COMPACTION OF CORE INTO A SUPERCRITICAL MASS, WHEREAS THE CONTAINMENT DESIGN CRITERIA IS SUCH THAT IT MEETS A SET OF CONDITIONS MORE SEVERE THAN THOSE PREDICTED FOR THE MHA. THE CALCULATIONAL BASIS FOR RADIOLOGICAL EFFECTS ASSUMES CONDITIONS MORE THAN THOSE FOR THE MHA AND CONTAINMENT CAPABILITY LESS EFFECTIVE THAN THOSE OF THE DESIGN CRITERIA.

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

SIMULATION + SHIELDING + *REACTOR DESCRIPTION + DOPPLER EFFECT + *ANALYTICAL MODEL + SYSTEM CAPABILITY + ELECTRIC POWER, NORMAL + COMPUTER, ANALOG + ACCIDENT, LOSS OF FLOW + DOSE + TEST, PHYSICS + REPORT, SAR + ANALOG SIMULATION + OFF SITE + *SEFOR (RE) + ACCIDENT, HYPOTHETICAL + EXPERIMENT, GENERAL + REACTOR, LMC + ENGINEERED SAFETY FEATURE + DOPPLER COEFFICIENT + *ACCIDENT ANALYSIS + *SAFETY ANALYSIS + REACTOR, LMFBR + *HAZARDS ANALYSIS + *SYSTEM DESCRIPTION + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT DESIGN + MOCKUP + *R AND D PROGRAM

5-30640 ALSO IN CATEGORIES 11 AND 18
INTEGRITY ANALYSIS OF REACTOR VESSEL INTERNALS
JERSEY CENTRAL POWER AND LIGHT COMPANY
13 PAGES, 5 FIGURES, AMENDMENT 12 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219,
TYPE--BWR, MFG--G.E., AE--BURNS + ROE

GIVES STRUCTURAL DESIGN CRITERIA, DESCRIPTION OF STRUCTURAL COMPONENTS, AND AN ANALYSIS OF EACH FOR RECIRCULATION-LINE AND STEAM-LINE BREAK. CONCLUDES THAT IN THE REAL WORLD THE PROBABILITY OF A SMALL BREAK IS MUCH GREATER THAN THE MAX. DESIGN BREAK AND THAT THE CORE STRUCTURAL ANALYSIS HAS CONSERVATISM PILED UPON CONSERVATISM, AND STILL THE STRUCTURE CAN BE SHOWN BY RATIONAL ANALYSIS TO WITHSTAND THE ACCIDENT CONDITIONS AND ACCIDENT LOADING. COMPONENTS ANALYZED - LOWER SHROUD AND SUPPORT CORE, UPPER SHROUD, CORE SUPPORT PLATE, GUIDE TUBES, AND FUEL CHANNELS.

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

SYSTEM CAPABILITY + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *STRUCTURAL ANALYSIS, DYNAMIC + RELIABILITY ANALYSIS + PRESSURE VESSEL + *STRUCTURAL INTEGRITY + *CORE COMPONENTS + OYSTER CREEK 1 (BWR) + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS + FUEL ELEMENT + STRESS ANALYSIS + DESIGN CRITERIA + SYSTEM OPERABILITY IN ACCIDENT + SUPPORT STRUCTURE + ACCIDENT ANALYSIS + RELIABILITY, COMPONENT

5-30647 ALSO IN CATEGORIES 6 AND 18
CORE THERMAL AND HYDRAULIC UNCERTAINTY ANALYSIS
JERSEY CENTRAL POWER AND LIGHT COMPANY
8 PAGES, 5 TABLES, AMENDMENT 9 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PRESENTS STATISTICAL ANALYSIS TO EVALUATE NUMBER OF FUEL RODS PER YEAR EXPECTED TO EXPERIENCE A CRITICAL HEAT FLUX EVENT. ASSUMPTION IS THAT VALUES OF QUANTITIES CONTRIBUTING TO MCHFR ARE DISTRIBUTED NORMALLY ABOUT THEIR NOMINAL VALUES AND ARE MUTUALLY INDEPENDENT VARIABLES. EVALUATION BASED ON OPERATION AT RATED POWER WITH TYPICAL POWER DISTRIBUTION BASED ON THE DESIGN PEAKING FACTORS. RESULTS GIVE PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS AS 4.3 TIMES 10 (MINUS 4) FOR GIVEN POWER DISTRIBUTION. IF ONE ASSUMES 1000 INDEPENDENT POWER DISTRIBUTIONS PER YEAR OF OPERATION (ONE POWER CHANGE PER SHIFT), THEN PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS PER YEAR IS 0.43.

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

CATEGORY 5
ACCIDENT ANALYSIS

5-30647 *CONTINUED*
REACTOR, BWR + OYSTER CREEK 1 (BWR) + FAILURE, INCIPIENT + HEAT TRANSFER ANALYSIS + PROBABILITY + THEORETICAL INVESTIGATION + ANALYTICAL TECHNIQUE, GENERAL + *HYDRAULIC ANALYSIS + HEAT TRANSFER, BOILING + FAILURE, FUEL ELEMENT + *THERMAL ANALYSIS + TEMPERATURE TRANSIENT + *STATISTICAL ANALYSIS + FUEL BURNUP + *HEAT FLUX, CRITICAL

5-30648 ALSO IN CATEGORIES 12 AND 18
EMERGENCY CORE COOLING EFFECTIVENESS
JERSEY CENTRAL POWER AND LIGHT COMPANY
50 PAGES, FIGURES, TABLES, AMENDMENT 10 TO OYSTER CREEK 1 LICENSE APPLICATION, AUGUST 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PERFORMANCE OF THE CORE SPRAY SYSTEM FOLLOWING POSTULATED LOSS OF COOLANT ACCIDENT IS DESCRIBED AS A FUNCTION OF BREAK SIZE INCLUDING CORE SPRAY DATA COLLECTED ON PROTOTYPE FUEL BUNDLE ASSEMBLIES OVER POWER RANGE OF INTEREST. CONCLUDES THAT CORE SPRAY IS AN EFFECTIVE MEANS OF TERMINATING THE CORE HEATUP TRANSIENT OVER THE COMPLETE SPECTRUM OF LOSS OF COOLANT ACCIDENTS UP TO THE COMPLETE RUPTURE OF THE MAIN RECIRCULATION LINE. PEAK CLAD TEMPS. ACROSS THE BREAK SPECTRUM FOR 1860 MW OPERATION VARY FROM 1800 F FOR THE 6.22 FT2 DESIGN BREAK TO LESS THAN 1000 F FOR BREAKS BELOW .004 FT2. (OF FUEL RODS PERFORATED BASED ON END EOL BURNUP DISTRIBUTION ARE 20(FOR DESIGN BREAK AND NONE FOR BREAKS UNDER .025 FT2. SYSTEM BY ITSELF CAN EASILY PROTECT CORE FROM MELTING OVER THE BREAK SPECTRUM FROM 0.2 FT2 TO THE 6.22 FT2 DESIGN BREAK.

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

FUEL BURNUP + *CORE SPRAY + *EMERGENCY COOLING CONSIDERATIONS + FUEL MELTDOWN + *ACCIDENT, LOSS OF COOLANT + REACTOR, BWR + OYSTER CREEK 1 (BWR) + *SYSTEM CAPABILITY + FAILURE, PIPE + SYSTEM DESCRIPTION + TEMPERATURE TRANSIENT + CORE MELTDOWN + ENGINEERED SAFETY FEATURE + EMERGENCY SYSTEM

5-30707 ALSO IN CATEGORY 8
WHITE JF
INTERIM SUMMARY OF WORK APPLICABLE TO ECC ON PHYSICO-CHEMICAL STUDIES OF CLAD UO2 UNDER REACTOR ACCIDENT CONDITIONS
GENERAL ELECTRIC, CINCINNATI
GEMP-619 +. 40 PAGES, 8 FIGURES, 10 TABLES, JUNE 1968

AN INTERIM SUMMARY OF WORK BY GE-NSP ON PHYSICAL-CHEMICAL STUDIES OF CLAD UO2 UNDER REACTOR LOSS-OF-COOLANT ACCIDENT CONDITIONS. WORK INCLUDES (1) KINETICS OF OXIDATION OF UO2 BY STEAM, OXIDATION OF ZIRCALOY-4 BY STEAM AND AIR, AND OXIDATION OF 304L STAINLESS STEEL BY STEAM AND AIR, (2) TESTS DETERMINING DEFORMATION AND FAILURE MODE OF ZIRCALOY-4 CLADDING UNDER ACCIDENT CONDITIONS, (3) TENSILE STRENGTH MEASUREMENTS ON ZIRCALOY-4 AND 304L STAINLESS STEEL, (4) THERMAL CONDUCTIVITY MEASUREMENTS ON ZIRCALOY-4, 304L STAINLESS STEEL, AND UO2, AND (5) ELECTRICAL RESISTIVITY AND THERMAL EMITTANCE MEASUREMENTS ON ZIRCALOY-4.

*CHEMICAL KINETICS + *FAILURE, CLADDING + *ZIRCALOY + ACCIDENT, LOSS OF COOLANT + *METAL WATER REACTION + *AIR + *TENSILE PROPERTY + *FUEL MELTDOWN + CHEMICAL REACTION + *STEAM + *STEEL, STAINLESS + ACTIVATION ENERGY + *PROPERTY, PHYSICAL + GE NSP + *OXIDATION + *URANIUM DIOXIDE

5-30796 ALSO IN CATEGORIES 1 AND 4
ANNO GH + SCHOUTENS JE
CONCEPTUAL PROBABILISTIC METHODS OF ANALYZING HAZARDS OF A LARGE (25-KWT) RADIOISOTOPE SPACE POWER SOURCE
DOUGLAS MISSILE AND SPACE SYSTEMS DIVISION
DAC-60944 +. JANUARY 1968, 37 FIGURES, 12 TABLES

THE QUESTION OF PUBLIC SAFETY, RELATIVE TO NUCLEAR POWER SYSTEMS FOR AEROSPACE APPLICATIONS IS PARTICULARLY IMPORTANT BECAUSE OF THE DIFFICULTY IN PROVIDING FOR 100% SAFETY RELIABILITY THROUGHOUT ALL PHASES OF MISSION OPERATIONS. THE APPROACH NEEDED TO ANALYZE THE HAZARDS OF NUCLEAR AEROSPACE POWER SYSTEMS MUST BE STATISTICAL IN NATURE, IDEALLY TAKING INTO ACCOUNT ALL POSSIBLE FAILURE MODES. THIS REPORT PRESENTS A CONCEPTUAL MEANS OF PERFORMING AN OVER-ALL STATISTICAL HAZARDS-ANALYSIS CENTERED AROUND A 25-KWT RADIOISOTOPE POWER SOURCE (RPS) UNIT OF A SNAP DEVICE. THE REFERENCE FUEL SOURCE IS PU(238)O2. THE METHODOLOGY FOR THE ANALYSIS IS ILLUSTRATED BY SOME GENERAL RELATIONSHIPS, DESCRIPTIONS OF MATHEMATICAL MODELS, AND EXAMPLE CALCULATIONS FOR THE VARIOUS REFERENCE MISSION PHASES.

AVAILABILITY - G.H. ANNO AND/OR J.E. SCHOUTENS - NUCLEAR TECHNOLOGY AND SUB-SYSTEMS BRANCH, ADVANCE PROPULSION DEPARTMENT, DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

*ACCIDENT ANALYSIS + *SNAP, GENERAL (SR) + REACTOR, SPACE + *STATISTICAL ANALYSIS + *PROBABILITY

5-30962 ALSO IN CATEGORIES 11 AND 17
KOBAYAKAWA T
HEAVY WATER LEAKAGE AND ITS COUNTER-MEASURES IN JRR-2
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
GENSHIRYOKU KOGYO, 12 (7), P27-32 +. JULY 1966 (IN JAPANESE)

A LEAKAGE OF HEAVY WATER INTO THE THERMAL-SHIELD WATER FROM THE JRR-2 REACTOR CORE OCCURRED. DISASSEMBLY OF THE UPPER PART OF THE REACTOR DISCLOSED THAT THE LEAKAGE HAD OCCURRED AT THE PACKING OF THE CIRCUMFERENCE OF THE SUPPORT RING FOR THE HEAVY-WATER CORE. LEAKAGE PREVENTION WAS ACHIEVED BY FILLING A PART OF THE SUPPORT RING WITH AN EPOXY BINDING AGENT. SINCE THE WORK HAD TO BE PERFORMED VERY CLOSE TO THE REACTOR CORE, ADEQUATE PROVISION WAS MADE FOR THE REQUIRED

CATEGORY 5
ACCIDENT ANALYSIS

5-30962 *CONTINUED*

TOOLS AND PERSONNEL. THE HEAVY WATER LEAKAGE AND ITS COUNTERMEASURES ARE DESCRIBED.

OPERATING EXPERIENCE + MAINTENANCE AND REPAIR + JAPAN + THERMAL SHIELD + *HEAVY WATER + *LEAK

5-30963

KUDRYAVTSEV EV + TURCHIN IA
DEPENDENCE OF TRANSIENT HEAT TRANSFER ON HEAT FLUX DENSITY
ARGONNE NATIONAL LABORATORY
ANL-TRANS-393 +. 1966, 6P.

STUDIED TRANSIENT NATURAL CONVECTION HEAT TRANSFER AT A THIN NICHROME RIBBON. THE TEMPERATURE DISTRIBUTION AT ΔT EQUALS CONSTANT ARE PRESENTED AND THE RELATION BETWEEN THE HEAT TRANSFER COEFFICIENT AND THE HEAT FLUX AT THE HEAT TRANSFER SURFACE IS FOUND.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$3.00 COPY, \$3.65 MICROFICHE.

THERMAL ANALYSIS + HEAT TRANSFER COEFFICIENT + THERMAL PROPERTY + *HEAT TRANSFER, CONVECTION

5-30964

KEARSEY HA
THIRD INTERNATIONAL HEAT TRANSFER CONFERENCE, CHICAGO
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND
CHEM. PROCESS ENG., 153-4. AUG. 1967

A BRIEF ACCOUNT OF THIS CONFERENCE, HELD ON AUGUST 7-12TH 1966, AND ORGANIZED JOINTLY BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS, THE AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, THE INSTITUTION OF MECHANICAL ENGINEERS (UK), AND THE INSTITUTION OF CHEMICAL ENGINEERS (UK), IS GIVEN UNDER THE HEADINGS SINGLE-PHASE HEAT TRANSFER, HEAT EXCHANGER PERFORMANCE, BURNOUT, EXTENDED SURFACES, FILM BOILING, AND RELATED TOPICS.

BURNOUT HEAT FLUX + HEAT EXCHANGER + *REVIEW + FILM BOILING + *HEAT TRANSFER

5-30966

TORIKAI K
BOILING HEAT TRANSFER AT THE SURFACE WITH STEAM BUBBLES
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
NIPPON KIKAI GAKKAI ROMBUNSHU, 32, 1265-74 AUG. 1966

HEAT TRANSFER WAS STUDIED AT THE SURFACE WITH STEAM BUBBLES, USING A CONDUCTIVE GLASS. IT WAS FOUND THAT A THIN LIQUID FILM IS USUALLY FORMED BETWEEN THE BOILING BUBBLES AND THE SURFACE. MOST OF THE HEAT TRANSFER TAKES PLACE IN THE REGION OF HIGH TEMPERATURE LOAD. THIS IS PROBABLY THE REASON WHY THE HEAT TRANSFER IS BETTER IN THE BOILING FLUID THAN IN THE ORDINARY PHASE FLOW.

STEAM + *HEAT TRANSFER, BOILING + FILM, LIQUID

5-30967

ALSO IN CATEGORIES 11 AND 17

UNCAN RN
STAINLESS STEEL FAILURE INVESTIGATION PROGRAM FINAL SUMMARY REPORT
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
GEAP-5530 +. FEBRUARY 1968, 74P., 41 REFERENCES, 31 FIGURES

HIGHLY STRESSED 304-SS AND OTHER AUSTENITIC ALLOYS FAILED FROM STRESS-ASSISTED INTERGRANULAR CORROSION EVEN WHEN THERE WERE NO CARBIDE PRECIPITATES IN THE GRAIN BOUNDARY. CORROSION TESTING IN LOOPS WITH GRAIN BOUNDARY MICROHARDNESS AND POLARIZATION REVEALED THAT FAILURE IS STRONGLY INFLUENCED BY C, SI, AND K IMPURITIES, RATHER THAN BY VARIATION IN CR/NI CONTENT. ANALYTICAL MODEL DEVELOPED. 304-SS CLAD CRACKS WERE FOUND WHERE LOCAL SURFACE STRAINS EXCEEDED 0.006 IN./IN. INVESTIGATION BEGAN AFTER BWR FUEL-CLAD FAILURES. YANKEE 348-SS CLAD IS ABOUT HALF AS SUSCEPTIBLE BECAUSE OF FINER GRAIN SIZE THAN 304. HYDROGEN EMBRITTLEMENT NEITHER CONFIRMED NOR DENIED. DEPOSITED CRUD ON FUEL ELEMENTS CONTAINED 10 PPM CHLORIDE, EVEN WHEN COOLANT KEPT BELOW 0.1 PPM IN CHLORIDE CONTENT.

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

FAILURE, FUEL ELEMENT + *STEEL, STAINLESS + *SURFACE FILM DEPOSIT + RECONCENTRATION + HYDROGEN + STRESS + PERFORMANCE LIMIT + REACTOR, PWR + OUT OF PILE LOOPS AND EXPERIMENTS + ANALYTICAL MODEL + EMBRITTLEMENT + R AND D PROGRAM + *FAILURE, CLADDING + REPORT, OPERATIONS ANALYSIS + REACTOR, POWER + COOLANT CHEMISTRY + BODY CENTERED CUBIC CRYSTAL + *STRESS CORROSION + REACTOR, BWR + CHLORIDE

5-31246

ALSO IN CATEGORIES 11 AND 17

PICKETT AE
INVESTIGATION OF INTERGRANULAR CRACKING OF NONSENSITIZED AUSTENITIC STAINLESS STEELS IN CIRCULATING AUTOCLAVES
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

CATEGORY 5
ACCIDENT ANALYSIS

5-31246 *CONTINUED*
GEAP-5495 +. JUNE 1967, 35 PAGES, 17 REFERENCES, 18 FIGURES

TESTS IN A 650 F FECL₂ DILUTE SOLUTION OF SUSCEPTIBILITY TO INTERGRANULAR STRESS CRACKING OF NONSENSITIZED 304-SS FUEL CLADDING SHOWED ATTACK MECHANISM CHANGED ABOVE 550 F. NO INFLUENCE OF OXYGEN OR RADIATION EXPOSURE TO 10,000 MOW/TU. YANKEE 348-SS IS HALF AS SUSCEPTIBLE. HIGH NICKEL CONTENT INCREASES TIME TO FAILURE, WHILE HIGH SILICON HAS NO EFFECT. LOW PH, CHLORIDE IONS, AND HIGH STRESS PROMOTED CRACKING. ***REPORT DESCRIBES AUTOCLAVE STUDIES OF AISI AND EUROPEAN AUSTENITIC STEELS FOLLOWING CRACKING OF EARLY BWR STEEL CLADDING. SOLUTION WAS FOUND A GOOD ACCELERATED TEST.

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

*R AND D PROGRAM + COOLANT CHEMISTRY + *STRESS CORROSION + OUT OF PILE LOOPS AND EXPERIMENTS + FUEL ELEMENT + *STEEL, STAINLESS + *FAILURE, CLADDING + CHLORIDE + REACTOR, PWR + REACTOR, BWR

5-31247 ALSO IN CATEGORIES 11 AND 17
ARMJO JS
EFFECTS OF IMPURITY ADDITIONS ON THE INTERGRANULAR CORROSION OF HIGH PURITY FE-CR-NI AUSTENITIC ALLOYS
GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA
GEAP-5047 +. OCTOBER 1966, 16 PAGES, 9 FIGURES, 26 REFERENCES

DETERMINED THE EFFECTS OF ALLOYING ADDITIONS ON THE INTERGRANULAR CORROSION OF NONSENSITIZED AUSTENITIC ALLOYS IN BOILING NITRIC ACID-DICHROMATE SOLUTIONS. CONTROLLED ADDITIONS OF C, N, O, MN, S, SI, AND P TO A HIGH-PURITY 14% CR, 14% NI, BAL FE ALLOY AND SUBSEQUENT CORROSION TESTS IN BOILING 5N HNO₃-0.46N HEXAVALENT CR SOLUTIONS SHOW THAT ONLY SI AND P PROMOTE INTERGRANULAR CORROSION SUSCEPTIBILITY OF NONSENSITIZED ALLOYS. ELIMINATION OF SI AND P FROM AUSTENITIC ALLOYS OF OTHERWISE COMMERCIAL PURITY ELIMINATES SUSCEPTIBILITY TO INTERGRANULAR ATTACK.

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

OUT OF PILE LOOPS AND EXPERIMENTS + FAULT + *FAILURE, CLADDING + R AND D PROGRAM + STRESS CORROSION + *STEEL, STAINLESS + REACTOR, BWR + IMPURITY

5-31248 ALSO IN CATEGORY 17
HOWARD CL + DUNCAN RN
HIGH POWER DENSITY DEVELOPMENT PROJECT, TWENTY-THIRD AND TWENTY-FOURTH QUARTERLY PROGRESS REPORTS, DEC. 1965- MAY 1966
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
GEAP-5126 +. JUNE 1966, 20 PAGES, 4 REFERENCES, 8 FIGURES

PRIMARILY AN ACCOUNT OF UNDERWATER INSPECTION OF 8 DEVELOPMENTAL FUEL BUNDLES VISUALLY INSPECTED DURING BIG ROCK POINT APRIL 66 SHUTDOWN. TWO 304-L BUNDLES APPEARED FAILED BY INTERGRANULAR STRESS CORROSION AND WERE REMOVED. POWDER FUEL APPEARS BETTER THAN PELLET FUEL. INCONEL AND ZIRCALOY BUNDLES DID NOT APPEAR FAILED. PROFILOMETER MEASUREMENTS (NOTED IN DETAIL) SHOWED AXIAL AND CIRCUMFERENTIAL DIAMETRAL INCREASES OF UP TO 0.013 IN., ATTRIBUTED TO NONUNIFORM DEPOSITS OF ADHERENT CRUD. PATTERN DETERMINED BY HYDRAULIC VARIATION ATTRIBUTED TO FUEL-ROD SPACERS.

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

ZIRCALOY + R AND D PROGRAM + STEEL, STAINLESS + REACTOR, BWR + INCOLOY + *STRESS CORROSION + *FAILURE, CLADDING + SURFACE FILM DEPOSIT + *EXAMINATION + *FUEL ELEMENT + EXPANSION + BIG ROCK POINT (BWR) + FAULT

5-31336 ALSO IN CATEGORY 6
HAMPEL VE + KOOPMAN RP
REACTIVITY SELF-CONTROL ON POWER AND TEMPERATURE IN REACTORS COOLED BY HEATPIPES
LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-71198 +. NOVEMBER 1, 1968, 22 FIGURES, 40 REFERENCES

IN HEATPIPES, BETWEEN 5 AND 10% OF THE FLUID MASS IS TRANSFERRED FROM THE EVAPORATOR END TO THE CONDENSER END DURING NORMAL OPERATION. THESE EFFECTS WERE STUDIED FOR K, NA, LI, BEF₂, AG, AND LIF. THIS TRANSFER OF MASS CAN BE USED IN REACTORS COOLED BY HEATPIPES TO YIELD STRONG NEGATIVE REACTIVITY EFFECTS WHEN FLUIDS WITH NEGATIVE VOID COEFFICIENTS ARE EMPLOYED. FOR A REPRESENTATIVE, SMALL, HEATPIPE-COOLED REACTOR, DYNAMIC POWER COEFFICIENTS RANGE BETWEEN DELTA K/K EQUALS (-0.5 AND -20) X 10⁴ MINUS 5TH/MW, WITH TIME CONSTANTS OF A FEW MILLISECONDS. THIS BEHAVIOR CONTRIBUTES TO THE CONTROL STABILITY OF NUCLEAR REACTORS COOLED BY HEATPIPES AND OFFERS NEW AVENUES OF CONTROL FOR SMALL, FAST-SPECTRUM, HIGH-TEMPERATURE SYSTEMS.

AVAILABILITY - VIKTOR E. HAMPEL AND/OR RONALD P. KOOPMAN, LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA, LIVERMORE

*HEAT PIPE + REACTIVITY COEFFICIENT + REACTOR CONTROL + TEMPERATURE REACTIVITY EFFECT + *REACTOR STABILITY + VOID COEFFICIENT

5-31442 ALSO IN CATEGORY 17
ROLIN J + MCCLINTOCK DR

CATEGORY 5
ACCIDENT ANALYSIS

5-31442 *CONTINUED*
THE EFFECT OF HIGH POWER DENSITY OF UO₂ ROD TYPE ELEMENTS - THE SAXTON SPECIAL 2 X 2 ASSEMBLY
WESTINGHOUSE ELECTRIC CORPORATION, ATOMIC POWER DIV. PENNSYLVANIA
WCAP-3269-64 +. 34 PAGES, 14 FIGURES, 7 TABLES, 5 REFERENCES, AUGUST 6, 1968

FOUR SS-CLAD UO₂ FUEL ELEMENTS WERE IRRADIATED 1963-66 IN SAXTON TO A PEAK POWER DENSITY OF 23 KW/FT AND A PEAK BURNUP OF 12,000 MWD/MTR. UO₂ FUELS WERE 97 PERCENT AND 78 PERCENT INITIAL THEORETICAL DENSITY. REPORT DESCRIBES POSTIRRADIATION DESTRUCTIVE EXAMINATION OF THE FUEL ELEMENTS INCLUDING FISSION GAS ANALYSIS, CESIUM-137 NUCLIDE BURNUP ANALYSIS, AND MICROSTRUCTURAL EXAMINATION OF THE FUEL. FUEL PERFORMANCE WAS ENTIRELY SATISFACTORY. CENTERLINE MELTING DID NOT OCCUR, THOUGH CENTRAL VOIDS OCCURRED WITH GRAIN GROWTH.

REACTOR, PWR + SAXTON (PWR) + CENTERLINE MELTING + *PERFORMANCE LIMIT + IRRADIATION TESTING + FUEL ELEMENT + *FUEL BURNUP + *REACTOR POWER + EXAMINATION

5-31448 ALSO IN CATEGORY 18
KIRSCHLER LH + HILTZ RH + RODGERS SJ
THE EFFECT OF HIGH TEMPERATURE SODIUM ON THE MECHANICAL PROPERTIES OF CANDIDATE ALLOYS FOR THE LMFBR PROGRAM
MSA RESEARCH CORPORATION, PA.
MSAR-68-135 +. 100 PAGES, 37 FIGURES, 13 TABLES, SEPTEMBER 1968

THREE LOOPS (ONE OPERATING, ONE EVALUATING A CARBON METER), FOUR RETORTS (ALL USED IN SCREENING TESTS). 500-HR HIGH-TEMPERATURE OPERATION OF 304 AND 316 SS COMPLETED, CREEP RUPTURE TESTING BEGUN. PRELIMINARY DATA INDICATE 50% REDUCTION IN 1400 F RUPTURE LIFE, COMPARED WITH 1200 F. A CHANGE IN OXIDATION MECHANISM SUGGESTED.

REACTOR, LMFBR + REACTOR, LMCR + COOLANT CHEMISTRY + *CREEP BEHAVIOR + *STEEL, STAINLESS + R AND D PROGRAM + SODIUM + *INSTRUMENT, COOLANT QUALITY + OUT OF PILE LOOPS AND EXPERIMENTS + PIPING + PROPERTY, PHYSICAL + ALLOY + METAL

5-32308 ALSO IN CATEGORY 17
FUEL DAMAGED IN HANDLING
UNIVERSITY OF MISSOURI
2 PAGES, LETTER TO D.J. SKOVHOLT, AEC-DRL, SEPTEMBER 30, 1968, DOCKET 50-186

SMALL INDENTATIONS ON THE OUTER FUEL PLATE, 4 IN. APART IN THE UPPER THIRD OF THE PLATE, WERE FOUND ON TWO 650-GRAM U-235 ELEMENTS. ONE WAS FOUND ON AUG. 10 WHEN ALL ELEMENTS WERE INSPECTED AFTER 50 MWD OF OPERATIONS, AND A SPARE REPLACED IT. THE OTHER WAS FOUND SEPT. 23 WHEN ON ELEMENT WAS PICKED AT RANDOM AFTER 60 MWD. NO OTHER ELEMENTS WERE FOUND DAMAGED. ***DURING HANDLING, THE ELEMENT IS PASSED FROM ONE OPERATOR TO ANOTHER. SIMILAR MARKS WERE FOUND ON A DUMMY ELEMENT. NO EVIDENCE OF BLISTERING OR FISSION PRODUCT RELEASE. ***GREATER FLUX-PEAKING EFFECTS (FOUR 350- AND FOUR 650-GRAM ELEMENTS) WERE INCLUDED IN CORE CALCULATIONS.

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

REACTOR, RESEARCH + FUEL HANDLING MACHINE + UMRR (RR) + *DAMAGE + *FUEL HANDLING + *FUEL ELEMENT

5-32542 ALSO IN CATEGORY 18
WOODFIELD FW
FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, OCTOBER 1967
BATTELLE NORTHWEST
BNWL-615 +. 38 PAGES, 3 REFERENCES, NOVEMBER 10, 1967

FUEL FAILURE ACTIVITY IN THE EX-REACTOR PORTION WILL EXCEED CRUD ACTIVITY BY FACTOR OF 10 (DETAILS IN BNWL-585). LIQUID NA SAMPLING TOPICAL REPORT IS BNWL-491. ***TA RESISTANCE HEATER WAS OPERATED AT 10(6TH) BTU/HR-FT² IN 300 F WATER. ***CONCEPTUAL STUDIES ON NOZZLE SEAL CLEARANCE PROGRESS. ***FUEL CLAD IRRADIATION SAMPLES HAVE BEEN SENT TO EBR-*. ***CONSTRUCTION COMPLETED ON POSTIRRADIATION CREEP-RUPTURE TEST DEVICE. ***UNIRRADIATED SERPENTINE DOES NOT LOSE WATER OR HYDROGEN ON CONTACT WITH 930 F SODIUM, ALTHOUGH IT COULD NOT BE KEPT IN CONTACT FOR LONG.

AVAILABILITY - F.W. WOODFIELD, BATTELLE-NORTHWEST, RICHLAND, WASH.

R AND D PROGRAM + CREEP + REACTOR, FAST + *CRUD + *ACTIVITY BUILDUP + *SAMPLING + *COOLANT QUALITY + TEST, PROOF + REACTOR, LMFBR + THERMAL INSULATION + REACTOR, TEST + FFF (TR) + *FAILURE, FUEL ELEMENT + REACTOR, LMCR

5-32543 ALSO IN CATEGORY 18
WOODFIELD FW
FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, MAY 1968
BATTELLE NORTHWEST
BNWL-803 +. 46 PAGES, 11 FIGURES, 2 TABLES, JUNE 10, 1968

SODIUM-METHANE REACTION RATE IS PRIMARILY DEPENDENT ON GAS VOLUME. ***CR-51 WAS FOUND DOWNSTREAM OF THE IRRADIATED 304-SS PIECE IN THE TEST LOOP. ACTIVITY DROPOFF COINCIDED WITH STEP CHANGE IN VELOCITY. ***EBR-II 304-SS ROD THIMBLE VOLUME INCREASED AS MUCH AS 1.17(FOLLOWING 4.8 X 10(22ND) NVT AT 792 F. ***CYCLIC STRAIN ALLOWED BY ASME CODE NOT CONSERVATIVE FOR IRRADIATED 304-SS AT 1200 F BECAUSE THE MANSON-HALFORD RELATIONSHIP INDICATES SHORTER FATIGUE LIFE FOR CONDITIONS CAUSING FAILURE IN 30,000 OR MORE CYCLES.

CATEGORY 5
ACCIDENT ANALYSIS

5-32543 *CONTINUED*
AVAILABILITY - F.W. WOODFIELD, BATTELLE-NORTHWEST, RICHLAND, WASH.

REACTOR, TEST + *EXPANSION + CRUD + *STEEL, STAINLESS + REACTOR, LMFBR + FAST NEUTRON + REACTOR, LMCR +
*RADIATION DAMAGE + IRRADIATION TESTING + R AND D PROGRAM + FFTF (TR) + CODES AND STANDARDS + REACTOR, FAST +
FAILURE, FATIGUE

5-32627 ALSO IN CATEGORIES 9 AND 17
REPORT ON THE FUEL MELTING INCIDENT IN THE ENRICO FERMI ATOMIC POWER PLANT
POWER REACTOR DEVELOPMENT COMPANY
50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--
COMMONWEALTH ASSOC.

DESCRIBES THE OCT. 5 HAPPENINGS (FLOW BLOCKAGE DUE TO ZIRCONIUM PLATE CAUSED PARTIAL MELTDOWN,
RELEASING FISSION GAS AND LOSING EXCESS REACTIVITY), RESULTS OF INVESTIGATIONS (ZIRCONIUM FROM
CONICAL FLOW GUIDE, FUEL FAILURE DID NOT PROPAGATE, FLOW REDUCTIONS CAME ONLY FROM ZIRCONIUM
SEGMENT), PLANT MODIFICATION (ON-LINE COMPUTER WILL ALARM ON DEVIATION FROM CALCULATED VALUE OF
REACTIVITY BALANCE, FISSION PRODUCTS, OR SUBASSEMBLY DELTA T AND WILL LATER CAUSE SCRAM).
STARTUP TEST PROGRAM OUTLINED. APPENDICES GIVE DETAILS ON FUEL EXAMINATION. *** OCT. 5
OPERATION WAS TO CHECK EARLIER HIGH DELTA T IN ELEMENTS WHICH MELTED.

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

*FUEL MELTDOWN + REACTOR, LMCR + REMOTE MANIPULATING AND VIEWING + REACTOR, BREEDER + INCIDENT, GENERAL +
REPORT, OPERATIONS ANALYSIS + INSTRUMENT, TEMPERATURE + EXAMINATION + INSTRUMENT, OPERATING REACTIVITY +
INCIDENT, RECOVERY FROM + *FLOW BLOCKAGE + COMPUTER CONTROL + INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT
+ REACTOR, LMFBR + REACTOR, FAST + FERMI (LMFBR)

5-32629 ALSO IN CATEGORIES 11 AND 17
EXAMINATION OF MELTED FERMI FUEL
POWER REACTOR DEVELOPMENT COMPANY
55 PAGES, FIGURES, TABLES, APPENDICES B AND C OF REPORT ON THE FUEL MELTING INCIDENT, DECEMBER 15, 1968,
DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

AN UNMELTED ELEMENT SHOWED ABOUT 200 PPM HYDROGEN IN CLAD (WELL BELOW 5000 SPALLING LEVEL), HIGH
VALUES FROM A PARTICULAR MELT INGOT. OTHERWISE NORMAL. ANOTHER ELEMENT THERMOCOUPLE READING
HIGHER THAN A MELTED ELEMENT, WAS ONLY BADLY BOWED. *** MOLTEN FUEL ADHERED TO STEEL CLAD BUT
DID NOT PENETRATE. HYDROGEN CONTENT REACHED 4000 PPM WITHOUT CRACKING. ONLY XE-KR FOUND IN
COVER GAS. CS, SR, I, BA-LA FOUND IN SODIUM COOLANT. WHILE THERE WAS A COMMON HOLE IN THE
WRAPPER CANS BETWEEN MELTED ELEMENT, NO EVIDENCE OF INTERCHANGE OF FUEL. FLOW TESTS AND HEAT
TRANSFER ANALYSIS SHOWED ABOUT 3(NOMINAL FLOW IN TWO MELTED ELEMENTS, 30 AND 7(FLOW IN DAMAGED
ADJACENT ELEMENTS.

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

SODIUM + FISSION PRODUCT RETENTION + REACTOR, BREEDER + FERMI (LMFBR) + REPORT, OPERATIONS ANALYSIS + *HEAT
TRANSFER ANALYSIS + STRUCTURAL INTEGRITY + REACTOR, FAST + FAILURE, FUEL ELEMENT + *EXAMINATION + REACTOR,
LMCR + EMBRITTLEMENT + *FUEL MELTDOWN + HYDRIDE + FLOW BLOCKAGE + ZIRCALOY + REACTOR, LMFBR

5-32646 ALSO IN CATEGORIES 11 AND 17
REPORT ON PRIMARY SYSTEM LEAKAGE DETECTION
PACIFIC GAS AND ELECTRIC COMPANY
10 PAGES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 3, LETTER OF MARCH 8, 1968). INACCESSIBLE PORTIONS DURING OPERATION VESSEL AND
PIPING INSIDE DRYWELL, NO PUMPS OR VALVES THERE. LEAK DETECTION IS BASED ON A 50-GAL INCREASE IN
380-GAL DRYWELL LOWER HEAD SHIELDING WATER CAUSING ALARM. (BACKUP IS THE WET/DRY BULB
TEMPERATURE TAKEN DAILY FROM CONTAINMENT LEAKAGE, SHOWN SENSITIVE TO 0.1 GPM BY JAN. 1966 LEAK).
LEAK RATES GREATER THAN 4.7 GPM WILL FLOOD HEAD AREA AND CAUSE SHUTDOWN. LEAK RATES OUTSIDE
DRYWELL DEPEND ON INSPECTION AND COUNTERS TO RECORD NUMBERS OF TIMES SUMP PUMPS START/STOP. 7000-
GAL RECEIVER TANK CAN INDICATE 0.1 GPM IN LEAKAGE.

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

SURVEILLANCE PROGRAM + CONTAINMENT LEAK MONITOR + OPERATOR ACTION + REACTOR, BWR + LEAK RATE + HUMBOLDT BAY
(BWR) + *MAIN COOLING SYSTEM + *TEST, LEAK LOCATION

5-32685 ALSO IN CATEGORY 6
VIGIL JC
A NUMERICAL STUDY OF EXCURSIONS IN UHTREX LOADED WITH STANDARD FUEL ELEMENTS
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3789-MS +. 15 PAGES, 12 FIGURES, 15 TABLES, 10 REFERENCES, JANUARY 24, 1968

PRESENTS PRELIMINARY NUMERICAL CALCULATIONS OF RESPONSE OF ULTRA HIGH TEMPERATURE REACTOR
EXPERIMENT (UHTREX) TO A WIDE RANGE OF REACTIVITY INPUTS. INCLUDED IN THE CALCULATIONS ARE - (A)
A STUDY OF THE EFFECT OF GROSS SPATIAL VARIATIONS IN THE POWER AND IN THE REACTIVITY
COEFFICIENTS, (B) STUDY OF EFFECT OF VARIATION WITH TEMPERATURE OF GRAPHITE HEAT CAPACITY AND
REACTIVITY COEFFICIENTS, (C) COMPARISON OF STEP INPUTS WITH DETAILED REACTIVITY INPUTS DUE TO ROD
WITHDRAWAL AT 18 IN./MIN, (D) STUDY OF EFFECT OF REPLACEMENT OF HELIUM BY NITROGEN OR A VACUUM,

CATEGORY 5
ACCIDENT ANALYSIS

5-32685 *CONTINUED*

AND (E) STUDY OF SENSITIVITY OF RESULTS TO ARBITRARY CHANGES IN PROMPT-GENERATION TIME AND REACTIVITY COEFFICIENTS.

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

*UHTREX (GCR) + *EXCURSION, LARGE + THEORETICAL INVESTIGATION + REACTOR TRANSIENT + COMPUTER, DIGITAL + REACTOR, HTGR + REACTOR, AEC OWNED + REACTOR, GCR

5-32861 ALSO IN CATEGORIES 12 AND 13
BAUMANN W + CASAL V + HOFFMANN H + MOELLER R + RUST K
FUEL ELEMENTS WITH SPIRAL SPACERS FOR FAST BREEDER REACTORS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
EURFNR-571 + KFK-768 +. 107 PAGES, 46 FIGURES, APRIL 1968

SPIRAL SPACERS ARE PLANNED FOR FUEL ELEMENTS OF FAST BREEDERS WITH A SMALL COOLANT FRACTION. THESE CAN BE WIRES WOUND SPIRALLY AROUND THE FUEL ROD OR CAN BE FINNED CLADDING. TO DETERMINE THE INFLUENCES OF GEOMETRY AND CONFIGURATION, HEAT TRANSFER AND PRESSURE DROP, SURFACE ROUGHNESS, TRANSVERSE COOLANT MIXING, TEMPERATURE DISTRIBUTION AND STRENGTH CHARACTERISTICS IN THE CLADS, ON FUEL ELEMENT CHARACTERISTICS, THEORETICAL AND EXPERIMENTAL STUDIES WERE MADE OF MULTI-ROD CLUSTERS AND VARIOUS CONFIGURATIONS OF SPIRAL SPACERS. THE STUDIES ARE RECAPITULATED IN THE REPORT.

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

GERMANY. + *EXPERIMENT, GENERAL + *REACTOR, BREEDER + *FABRICATION + TEMPERATURE GRADIENT + PRESSURE DROP + FUEL ELEMENT CLUSTER + HEAT TRANSFER EXPERIMENT + *REACTOR, FAST

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-28988 ALSO IN CATEGORY 18
CONTROL OF XENON INSTABILITIES IN LARGE PWRs SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD ENDING MARCH 31, 1968
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
WCAP-3680-6 + EURAEC-2008 +. 15 PAGES, 3 FIGURES, APRIL 1968

PROGRESS REPORT FOR PERIOD OCT. 1967 TO MAR. 31, 1968. VARIOUS COMPUTATIONS WERE MADE AND COMPUTER PROGRAMS PREPARED. NO FINAL RESULTS.

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

*R AND D PROGRAM + REACTOR, PWR + *XENON OSCILLATION

6-29124
BECKER M
A GENERALIZED FORMULATION OF REACTOR KINETICS
TRANS ANS 11(1),225, 1968

A VARIATIONAL PRINCIPLE IS USED TO REFORMULATE POINT REACTOR KINETICS TO PERMIT USE OF A TIME-DEPENDENT IMPORTANCE DISTRIBUTION.

REACTOR PHYSICS + MATHEMATICAL TREATMENT + REACTOR KINETICS + REACTOR DYNAMICS + SPACE DEPENDENT DYNAMICS

6-29264 ALSO IN CATEGORY 9
YUSA H
MEASUREMENT OF STEAM VOID FRACTION IN JPDR
HITACHI LTD., TOKYO
6 PAGES, HITACHI HYORON 48(11) PAGES 1-6 (NOVEMBER 1966)

VOID FRACTIONS IN JPDR WERE MEASURED USING A VOID METER. THE VOID METER HAS HIGH SENSITIVITY AND WITHSTANDS SEVERE IN-CORE CONDITIONS INCLUDING HIGH TEMPERATURE, PRESSURE, AND RADIATION LEVELS. THE VOID DISTRIBUTION WAS ESTABLISHED AT THE UPPER PART OF THE CHIMNEY AND THE DOWN-COMER ENTRANCE. THE DIGITAL VOID METER AND THE RESULTS OF MEASUREMENTS ARE DESCRIBED.

JAPAN + IN CORE MEASUREMENT + MEASUREMENT, GENERAL + *VOID COEFFICIENT + REACTOR, BWR + *INSTRUMENT, FLOW

6-29301 ALSO IN CATEGORY 18
SAFETY PROBLEMS RELATED TO THE ASSEMBLING OF MOCK-UPS IN MASURCA
22 PAGES, 16 FIGURES, FROM INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

PUNCTUAL ADIABATIC MODEL WITH SIX GROUPS OF DELAYED NEUTRONS, PROGRAMMED FOR 7094 COMPUTER WITH BRITTON LINEARIZATION METHOD TO ALLOW SAME PRECISION WITH PROMPT AND DELAYED CRITICALITY. STARTUP ACCIDENT WITH DELAYED SCRAM GIVES MAXIMUM ALLOWABLE \$0.2/SEC, AND \$5/SEC WITH INHERENT SAFETY. STUDY OF LOADING ERRORS LEADS TO GRAPPLE SPEED LIMIT OF 1 M/MIN. DOSE RATES IN CELL FOR 500 W OPERATION CALCULATED.

REACTOR, LMFBR + ACCIDENT, CONTROL ROD WITHDRAWAL + *SAFETY ANALYSIS + CRITICAL ASSEMBLY FACILITY

6-29308 ALSO IN CATEGORY 7
ADLER FT
EFFECTS OF REACTIVITY EXCURSIONS ON COATED FUEL PARTICLES
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3547 +. 52 PAGES, FIGURES, TABLES, 38 REFERENCES, SEPTEMBER 23, 1968

THE BREAKUP MECHANISM OF PYROLYTIC CARBON (PYC) COATED FUEL PARTICLES IMBEDDED IN A GRAPHITE MATRIX HAS BEEN INVESTIGATED WITH THE AIM OF ESTABLISHING THRESHOLD VALUES FOR ENERGY DEPOSITION RATES NECESSARY TO REACH CRACKING OF THE COATING AND FOR THE ONSET OF MATRIX DAMAGE. SIMPLE THERMOMECHANICAL CONSIDERATIONS ARE PRESENTED, SHOWING THAT TWO DIFFERENT HEAT TRANSFER MECHANISMS CONTROL THE RESPONSE OF THE CARBIDE PARTICLES TO A REACTIVITY PULSE.

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

*REACTOR, GENERAL + *URANIUM CARBIDE + URANIUM OXIDE + *PYROLYTIC + *COATED PARTICLE + GRAPHITE + REACTIVITY EFFECT, EXPANSION

6-29311 ALSO IN CATEGORY 5
HOLD A
TWO PHASE FLOW IN AN ELECTRICALLY HEATED COOLANT CHANNEL (ANALYTICAL REPRESENTATION OF ITS STEADY STATE AND DYNAMIC BEHAVIOR). SECTION II. COMPUTER PROGRAM ACCOM-L
TECHNISCHE HOCHSCHULE MUNCHEN, GERMANY
MRR-40/II +. 51 PAGES, DECEMBER 1967

PRESENTS AN ANALYTICAL, ONE-DIMENSIONAL MODEL DESCRIBING THE STEADY STATE AND DYNAMIC BEHAVIOR OF THE CHARACTERISTIC VARIABLES OF A TWO-PHASE FLOW STREAMING UP A COOLANT CHANNEL OF AN

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-29311 *CONTINUED*

ELECTRICALLY HEATED BOILING WATER LOOP. THE REPORT IS DIVIDED INTO TWO SECTIONS, SECTION I GIVING THEORY, SECTION II THE DESCRIPTION OF THE RESULTING COMPUTER PROGRAM ACCOM-L.

FLOW THEORY AND EXPERIMENTS + COMPUTER PROGRAM + REACTOR, BWR + FLOW, TWO PHASE + HEAT TRANSFER, TWO PHASE + FLOW STABILITY + HEAT TRANSFER, BOILING

6-29387 ALSO IN CATEGORY 5

TONG LS
HEAT TRANSFER IN WATER-COOLED NUCLEAR REACTORS
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH
NUCL. ENG. + DESIGN, 6, PG. 301-324, 1967

THE EVALUATION OF CORE THERMAL PERFORMANCE, WITH EMPHASIS ON PMRS IS EXAMINED. FACTORS CONSIDERED INCLUDE CORE POWER DISTRIBUTION, HOT-CHANNEL FACTORS, INTERNAL FUEL-ROD HEAT TRANSFER, GAP CONDUCTANCE, DNB, TRANSITION AND FILM BOILING, FABRICATION TOLERANCES, AND TRANSIENT BEHAVIOR, INCLUDING FLOW INSTABILITY.

*REACTOR, PWR + *HEAT TRANSFER, TWO PHASE + FAILURE, FUEL ELEMENT + FLOW DISTRIBUTION + DNB + STATISTICAL CORRELATION + HEAT GENERATION, INTERNAL + FILM BOILING + HOT CHANNEL + REACTOR, BWR + REACTOR TRANSIENT + *HEAT TRANSFER + FLOW STABILITY + *HEAT TRANSFER, CONDUCTION

6-29412

TOPPEL BJ
THE ARGONNE REACTOR COMPUTATION (ARC) SYSTEM
ARGONNE NATIONAL LABORATORY
ANL-7332 +. 349 PAGES, 9 FIGURES, 8 TABLES, REFERENCES, NOVEMBER 1967

DESCRIBES THE ARGONNE REACTOR COMPUTATION SYSTEM (ARC) FOR THE IBM/360 MODEL 50-75. THE ULTIMATE OBJECTIVE OF THE ARC SYSTEM IS TO PROVIDE A FLEXIBLE COMPUTATION SYSTEM OF HIGH UTILITY TO FACILITATE SOLUTION OF ANY OF THE PROBLEMS OF INTEREST TO THE REACTOR DESIGNER, INCLUDING CROSS SECTION PREPARATION, NEUTRONICS CALCULATIONS, FUEL-CYCLE AND DEPLETION CALCULATIONS, AND SAFETY AND ACCIDENT CALCULATIONS.

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

COMPUTER PROGRAM + REACTOR DYNAMICS + REACTOR KINETICS

6-29413

BLAZEK J + KREJCI M
XENON STABILITY OF THE REACTOR A2 (II)
UJV-1860 (CZECH REPORT) +. 1967

IN CONNECTION WITH THE PHYSICAL CALCULATIONS OF THE ACTIVE ZONE OF A HEAVY WATER GAS COOLED NATURAL URANIUM POWER REACTOR, THE STABILITY WITH RESPECT TO THE POSSIBILITY OF XENON OSCILLATIONS IS INVESTIGATED. THE PAPER IS A CONTINUATION OF THE REPORT UJV/1535 AND CONTAINS A DERIVATION OF MORE ACCURATE DIFFERENCE EQUATIONS DESCRIBING THE XENON OSCILLATIONS CONSIDERING THE TEMPERATURE EFFECT. THE EQUATIONS ARE FORMULATED FOR THE AZIMUTHAL, AXIAL, AND RADIAL MODES, THE COEFFICIENTS THEREIN BEING CALCULATED ON THE GIER COMPUTER WITH THE USE OF THE 421-U PROGRAM. THE INPUT DATA TAPE AND PRINT EXAMPLES ARE GIVEN. THE SIMULATION OF AN ANALOGUE COMPUTER ENABLES TO DETERMINE THE STABILITY REGION AS WELL AS THE SHAPE OF PARTICULAR OSCILLATION MODES.

SPACE DEPENDENT DYNAMICS + XENON OSCILLATION + REACTOR DYNAMICS + OSCILLATION + REACTOR STABILITY + REACTOR KINETICS + CZECHOSLOVAKIA

6-29414

HANSON JE + FIELD JH
EXPERIMENTAL STUDIES OF TRANSIENT EFFECTS IN FAST REACTOR FUELS SERIES III, PRE-IRRADIATED MIXED OXIDE (PUO2-UO2) IRRADIATIONS FINAL REPORT, TRANSIENT IRRADIATIONS
GENERAL ELECTRIC COMPANY
GEAP-4469 +. 168 PAGES, JULY 1967

PRESENTED IN THIS REPORT ARE THE RESULTS OF AN EXPERIMENTAL PROGRAM TO EVALUATE THE PERFORMANCE OF PRE-IRRADIATED FAST CERAMIC REACTOR FUEL UNDER CONDITIONS SIMULATING ACCIDENTAL POWER EXCURSIONS. RESULTS FROM THREE EXPERIMENTS IN THE TREAT FACILITY USING 0.250-INCH-O.D., TYPE-347 STAINLESS STEEL CLADDING, 28 WEIGHT PERCENT PUO2-72 WEIGHT PERCENT UO2 FUEL SPECIMENS ARE INTERPRETED WITH REGARD TO FUEL AND CLADDING TEMPERATURES, FUEL RELOCATION, FISSION GAS RELEASE, AND CLADDING INTEGRITY. THE TRANSIENT FAILURE THRESHOLD FOR AXIALLY UNRESTRAINED FUEL AT APPROX. 70,000 MWD/TE WAS IDENTIFIED AT APPROX. 50 VOLUME PERCENT MOLTEN FUEL. THE PRIMARY MECHANISM FOR THIS TRANSIENT FAILURE WAS IDENTIFIED AS INTERNAL PRESSURE CAUSED BY THE SUDDEN LOCAL RELEASE OF CONTAINED FISSION GAS DURING THE EXCURSION.

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

TEMPERATURE TRANSIENT + REACTOR TRANSIENT + DESTRUCTIVE TRANSIENT + TREAT (PRR) + FUEL INTEGRITY + FUEL MELTDOWN + THERMAL MECHANICAL EFFECT + EXCURSION, LARGE + CRITICALITY EXPERIMENT + ACCIDENT ANALYSIS + DAMAGE + REACTOR, SAFETY RESEARCH + REACTOR, PULSED

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-29415

MAYO W

NEUTRONIC EFFECTS OF MODERATOR INSERTION IN FAST-SPECTRUM REACTORS
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, WASHINGTON, D. C.
NASA-TM-X-1614 +. 15 PAGES, 4 FIGURES, 5 TABLES, AUGUST 1968

A STUDY OF THE EFFECTS OF INSERTION OF YTTRIUM HYDRIDE INTO FAST-SPECTRUM REACTORS WAS CONDUCTED. LARGE, NEGATIVE MODERATOR TEMPERATURE COEFFICIENTS OF REACTIVITY THAT BECAME MORE NEGATIVE WITH INCREASING MODERATION WERE FOUND. PARTIAL OR PRIMARY REACTOR CONTROL COULD BE BASED ON THIS TEMPERATURE COEFFICIENT. AN INCREASE IN THE MEAN PROMPT-NEUTRON LIFETIME AND A DECREASE IN THE POSITIVE REACTIVITY COEFFICIENTS OF VOLUMETRIC COMPRESSION WERE OBSERVED WHEN MODERATOR WAS ADDED. MODERATOR ADDITION, HOWEVER, INCREASES THE CORE SIZE AND RESULTS IN LARGER FAST-NEUTRON FLUXES IN THE REFLECTOR, CAUSING INCREASED SHIELD WEIGHT FOR COMPACT NUCLEAR SPACEPOWER SYSTEMS.

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

REACTIVITY EFFECT, EXPANSION + DANGER COEFFICIENT + REACTIVITY COEFFICIENT + MODERATOR COEFFICIENT + FUEL
COEFFICIENT + PROMPT NEUTRON LIFETIME + TEMPERATURE COEFFICIENT + REACTOR, FAST

6-29419

NOBLE LD + WILKINSON CD

FINAL SPECIFICATIONS FOR THE SEFOR EXPERIMENTAL PROGRAM
GENERAL ELECTRIC COMPANY, SUNNYVALE, CALIF.
GEAP-5576 +. 315 PAGES, JAN. 1968

THE SEFOR EXPERIMENTAL PROGRAM IS COMPRISED OF A SERIES OF TESTS BEGINNING WITH LOW POWER PHYSICS TESTS, PROCEEDING THROUGH STATIC AND FREQUENCY RESPONSE TESTS AT VARIOUS POWER LEVELS UP TO FULL POWER, AND CULMINATING IN A SERIES OF SUB-PROMPT AND SUPER-PROMPT CRITICAL TRANSIENTS. WORK REPORTED HERE DESCRIBES AN INITIAL SEQUENCE OF TESTS, DETAILED SPECIFICATIONS OF THE NUMBER OF TESTS, AND THE REACTOR OPERATING CONDITIONS (SUCH AS POWER TEMPERATURE, FLOW RATES, AND REACTIVITY CHANGES) FOR EACH TEST, AS WELL AS DETAILED SPECIFICATION OF DATA REDUCTION AND INTERPRETATION PROCEDURES AND ESTIMATED RESULTS FOR EACH OF THE TESTS.

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

REACTOR DYNAMICS + PROMPT CRITICALITY + MODERATOR COEFFICIENT + REACTOR TRANSIENT + DOPPLER COEFFICIENT +
OSCILLATOR, REACTIVITY + DANGER COEFFICIENT + FUEL COEFFICIENT + CRITICALITY EXPERIMENT + TEMPERATURE
COEFFICIENT + COOLANT COEFFICIENT + REACTIVITY EFFECT, EXPANSION + SEFOR (RE)

6-29549

GOODWIN WA

MEASUREMENT OF RADIAL POWER DISTRIBUTIONS IN A TRIGA FUEL ELEMENT DURING REACTOR EXCURSIONS
UNIVERSITY OF ILLINOIS
140 PAGES, THESIS FOR THE UNIVERSITY OF ILLINOIS, 1967

A TRIGA MARK II FUEL ELEMENT WAS INSTRUMENTED WITH 14 THERMOCOUPLES LOCATED AT VARIOUS RADIAL POSITIONS. AS IN THE STEADY STATE CASE, THE CONDUCTION ERRORS PREVENTED THE DETERMINATION OF ACCURATE RADIAL POWER DISTRIBUTIONS.

*TRIGA (RR) + *POWER DISTRIBUTION + REACTOR, RESEARCH + *FUEL ELEMENT

6-29567

ALSO IN CATEGORIES 5 AND 18

ENGEL H

SAFETY ASPECTS OF THE DYNAMIC BEHAVIOUR OF THE BOILING-WATER REACTOR
AEG-TELEFUNKEN, FRANKFURT AM MAIN
6 PAGES, ATOM UND STROM, VOLUME 14, PAGES 37-42 (FEBRUARY-MARCH 1968)

THE DYNAMIC REACTOR BEHAVIOR OF THE BOILING-WATER REACTOR IS INHERENTLY SAFE. FAULTS AND ACCIDENTS ARE CONCEIVABLE WHICH ARE LIMITED TO SUCH AN EXTENT BY THE PROTECTIVE SYSTEM THAT THE OPERATING CAPACITY OF THE POWER STATION IS NOT ADVERSELY AFFECTED. EVEN IF THERE IS A FAILURE OF SEVERAL INDEPENDENT SAFETY SYSTEMS AND SAFETY ARRANGEMENTS, THE ONLY RESULT CAN BE DAMAGE TO CORE, BUT NO UNCONTROLLED SPREAD OF ACTIVITY INTO SURROUNDINGS OF POWER STATION CAN TAKE PLACE.

GERMANY + REACTOR, BWR + *REACTOR STABILITY + REACTOR DYNAMICS

6-29922

ALSO IN CATEGORY 7

KLANN P + PAULSON W

COMPARISON OF MEASURED AND MONTE CARLO CALCULATED GAMMA DOSE IN THE TUNGSTEN WATER-MODERATED CRITICAL ASSEMBLY

LEWIS RESEARCH CENTER

NASA-TM-X-52,358 +. 14 PAGES, 10 FIGURES, 5 REFERENCES, 1967

ONE OF THE IMPORTANT OBJECTIVES OF THE TUNGSTEN WATER-MODERATED ROCKET REACTOR FEASIBILITY STUDY PROGRAM CONDUCTED BY THE LEWIS RESEARCH CENTER WAS TO INVESTIGATE HOW ACCURATELY THE GAMMA HEATING COULD BE CALCULATED IN THE CORE WATER MODERATOR AND IN THE CORE STRUCTURE. WORK TOWARD

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-29922 *CONTINUED*

THIS OBJECTIVE PROCEEDED ALONG TWO LINES. FIRST, A MONTE-CARLO DIGITAL PROGRAM, ATHENA, WAS DEVELOPED BY THE UNITED NUCLEAR CORP. FOR THE LEWIS RESEARCH CENTER TO CALCULATE THE RATE OF GAMMA HEAT DEPOSITION AS A FUNCTION OF POSITION IN THE TUNGSTEN WATER-MODERATED NUCLEAR ROCKET. SECOND, MEASUREMENTS WERE CONDUCTED TO MEASURE THE GAMMA DOSE THROUGHOUT THE CORE OF THE TUNGSTEN WATER-MODERATED MOCKUP CRITICAL ASSEMBLY.

AVAILABILITY - P KLANN AND W. PAULSON, LEWIS RESEARCH CENTER, CLEVELAND, OHIO

MODERATOR + *CRITICAL ASSEMBLY FACILITY + *MONTE CARLO + SPACECRAFT + ANALYTICAL MODEL + *COMPUTER PROGRAM + *TUNGSTEN + CRITICALITY SAFETY + GAMMA EMITTER

6-29923

ALSO IN CATEGORY 7

POLLARD JP

CALCULATION METHODS FOR MULTIGROUP NEUTRON CROSS SECTIONS USED IN BURNUP STUDIES
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT
AAEC/E-184 +. 49 PAGES, REFERENCES, OCTOBER 1967

CALCULATION OF BURNUP OF MATERIAL COMPOSING A NUCLEAR REACTOR IS IMPORTANT IN A FEASIBILITY STUDY OF LIFETIME OF FUEL IN POSSIBLE REACTOR SYSTEMS. THIS WORK DISCUSSES (I) A BASIS FOR CALCULATING A FLUX SPECTRUM IN ORDER TO OBTAIN MULTIGROUP CROSS SECTIONS AND (II) A METHOD FOR SOLVING THE BURNUP EQUATIONS. UNDER (I), PARTICULAR ATTENTION IS PAID TO THE CALCULATION OF MULTIGROUP RESONANCE CROSS SECTIONS, AND UNDER (II), A SIMPLE AND EFFECTIVE ANALYTIC TECHNIQUE IS DERIVED. IN ADDITION, THIS WORK PRESENTS IN A CONSISTENT MANNER, DEVELOPMENTS IN THE FIELD OF REACTOR PHYSICS WHICH AFFECT THE CALCULATION OF MULTIGROUP DATA. THE PHYSICAL MODEL ADOPTED TO SIMPLIFY THE OTHERWISE UNMANAGEABLE EQUATIONS IS APPROPRIATE TO A LARGE RECIRCULATING FUEL REACTOR OPERATING UNDER EQUILIBRIUM CONDITIONS.

*FLUX DISTRIBUTION + CROSS SECTION + *FUEL BURNUP + *THEORETICAL INVESTIGATION + REACTOR, FAST + ANALYTICAL MODEL

6-29983

ALSO IN CATEGORIES 5 AND 17

QUARTERLY TECHNICAL REPORT, SPERT PROJECT, OCTOBER, NOVEMBER, DECEMBER 1967
PHILLIPS PETROLEUM COMPANY, ATOMIC ENERGY DIVISION
IDO-17279 +. 24 PAGES, TABLES, FIGURES, REFERENCES, OCTOBER 1968

(SPERT III) - FLUX WIRE CALIBRATIONS OF NEUTRON DETECTORS WERE INCREASED 10%, BASED ON HEAT POWER CALIBRATION. EFFECTS OF ROD POSITION AND DECREASED MODERATOR ABSORPTION WERE EVALUATED. ***THE THIRD TRANSIENT FROM 20 MW CAUSED ONE CONTROL ROD DROP TIME 80% LONGER, RELEASED 1-131, AND INCREASED REACTIVITY 0.18. INVESTIGATION CONTINUES. (SPERT IV CDC) 5 TRANSIENTS WITH WATERLOGGED PELLET TYPE FUEL INDICATED A FAILURE THRESHOLD OF 250 CAL/GM, WHICH PRODUCED AN INTERNAL PRESSURE OF 1300 PSI, SPLITTING THE CLAD AND EXPELLING 75% OF THE FUEL. POWDER FUEL RODS FAILED AT 40 CAL/GM PRODUCING INTERNAL PRESSURES OF 10,000 PSI. SIGNIFICANT DIFFERENCES THUS EXIST IN THRESHOLD AND CONSEQUENCE OF FAILURE OF POWDER VS PELLET FUEL.

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

REACTOR POWER + *FUEL, PELLET TYPE + SPERT 4 (S-RR) + *FUEL, POWDER TYPE + REACTOR TRANSIENT + TEST, PROOF + *PERFORMANCE LIMIT + REACTOR, SAFETY RESEARCH + SPERT 3 (S-RR) + *FAILURE, FUEL ELEMENT WATERLOGGING + INSTRUMENT CALIBRATION + INSTRUMENT, POWER RANGE

6-30090

ALSO IN CATEGORY 9

PAGE 01

SCATTERING LAW $S(\alpha, \beta)$ -VALUES FOR A MIXTURE OF LIGHT WATER AND HEAVY WATER
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, BERKSHIRE
AERE-R 5832 +. 28 TABLES, 1968

THE DIFFERENTIAL SCATTERING CROSS-SECTIONS FOR A MIXTURE OF EQUAL PARTS OF LIGHT WATER AND HEAVY WATER AT 300 K WERE MEASURED FOR NEUTRONS OF 0.101 EV AND 0.056 EV INCIDENT ENERGY. THE RESULTS ARE GIVEN AS TABLES OF SCATTERING LAW $S(\alpha, \beta)$ -VALUES DERIVED DIRECTLY FROM THE EXPERIMENTAL DATA. THE VALUES COVER RANGES OF ENERGY AND MOMENTUM TRANSFERS OF 0-0.13 EV AND 1.17/A RESPECTIVELY.

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

DATA PROCESSING + TEST, PHYSICS + CROSS SECTION + HEAVY WATER + *MODERATOR + *WATER, GENERAL

6-30094

ALSO IN CATEGORY 9

WEAVER LE

REACTOR DYNAMICS AND CONTROL
UNIVERSITY OF ARIZONA, TUCSON, ARIZONA
304 PAGES, FIGURES, TABLES, 10 REFERENCES, AMERICAN ELSEVIER PUBLISHING COMPANY, 1968

THIS TEXT IS AN INTRODUCTION TO THE STATE-VARIABLE APPROACH AND THE APPLICATION OF VARIOUS STATE-SPACE TECHNIQUES TO REACTOR DYNAMICS AND CONTROL. CHAPTER HEADINGS - (1) SYSTEM REPRESENTATION IN THE STATE SPACE, (2) EQUATIONS OF REACTOR DYNAMICS, (3) STABILITY IN THE STATE SPACE, (4) STABILITY OF NUCLEAR SYSTEMS, (5) OPTIMIZATION IN THE STATE-SPACE, (6) CLOSED-LOOP OPTIMAL

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-30094 *CONTINUED*
CONTROL, (7) OPTIMAL CONTROL OF NUCLEAR SYSTEMS, (8) CONTROL-SYSTEM DESIGN BY STATE-VARIABLE FEEDBACK, (9) STATE-VARIABLE-FEEDBACK DESIGN OF REACTOR CONTROL SYSTEMS.

DESIGN STUDY + *REACTOR CONTROL + THEORETICAL INVESTIGATION + *REACTOR DYNAMICS + CONTROL SYSTEM + SYSTEM DESCRIPTION

6-30114
WHITESIDES GE
THE DEVELOPMENT OF KENO - A MULTIGROUP MONTE CARLO CRITICALITY PROGRAM
UNION CARBIDE CORPORATION, OAK RIDGE, TENN., COMPUTING TECHNOLOGY CENTER
CTC-INF-78 +. 1965

DESCRIPTION AND SHORT ACCOUNT OF DEVELOPMENT OF KENO, A COMPUTER CODE FOR CALCULATING CRITICALITY OF ARRAYS OF FISSILE UNITS BY A MONTE CARLO METHOD USING MULTIGROUP CROSS SECTIONS.

COMPUTER PROGRAM + MONTE CARLO + REACTOR PHYSICS

6-30115
CUMMINS JD
PARAMETER ESTIMATION FROM DRAGON HIGH TEMPERATURE GAS COOLED REACTOR DYNAMIC EXPERIMENTS
ATOMIC ENERGY ESTABLISHMENT, WINFRITH (ENGLAND)
AEEW - R-571 +. 107P., OCTOBER 1967

DYNAMIC EXPERIMENTS WERE PERFORMED ON THE DRAGON REACTOR AT FULL POWER, 20 MW. BOTH TERMINATED RAMP AND PSEUDO-RANDOM CHAIN CODE PERTURBATIONS WERE APPLIED TO A CONTROL ROD FOR TWO AMPLITUDES OF REACTIVITY PERTURBATION. NEUTRON FLUX AND THERMOCOUPLE SIGNALS WERE RECORDED. FREQUENCY RESPONSES WERE DEDUCED FROM THE MEASUREMENTS AND COMPARED WITH PREVIOUS SINUSOIDAL FREQUENCY RESPONSE MEASUREMENTS AND THEORETICAL PREDICTIONS. IT IS SHOWN THAT A VERY SIMPLE FEEDBACK MODEL IS APPROPRIATE TO DRAGON AND THAT A GOOD ESTIMATE OF THE POWER/REACTIVITY COEFFICIENT AND TEMPERATURE COEFFICIENT OF REACTIVITY MAY BE MADE.

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

POWER COEFFICIENT + FREQUENCY SPECTRA + *DRAGON (HTGR) + TEMPERATURE COEFFICIENT + UNITED KINGDOM + REACTOR, HTGR + *REACTOR DYNAMICS + REACTOR, GRAPHITE MODERATED + REACTOR, GCR

6-30197 ALSO IN CATEGORY 17
OSCILLATOR EXPERIMENT TO MEASURE MURR TRANSFER FUNCTION
UNIVERSITY OF MISSOURI
31 PAGES, 7 FIGURES, 1 TABLE, 2 REFERENCES, DECEMBER 13, 1968, DOCKET 50-186

DEPENDING ON INTERPRETATION OF TS 10.5D, THIS DOES NOT NEED APPROVAL BUT IS SUBMITTED AS AN UNREVIEWED SAFETY QUESTION. ***UNIQUE DESIGN USES MECHANICAL DRIVE (FROM 0.17 TO 5 CPS) AND WATER JET (5 TO 100 CPS). NYLON BEARINGS WERE TESTED TO 7.75×10^{17} THERMAL. EJECTION OF CADMIUM FROM THE FLUX TRAP WOULD ADD 0.0032 REACTIVITY.

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

TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + *OSCILLATOR, REACTIVITY + TRANSFER FUNCTION + UMRR (RR)

6-30223 ALSO IN CATEGORIES 9 AND 17
STARTUP ON SPONTANEOUS FISSION
CORNELL UNIVERSITY
2 PAGES, LETTER TO H.L. PRICE, ORL, FEBRUARY 15, 1968, DOCKET 50-97

NORMALLY WE USE A ONE CURIE PU-BE SOURCE, GIVING 1.9×10^{16} TH N/SEC. USING THE 2.1% ENRICHED FUEL, WE HAVE A SPONTANEOUS FISSION YIELD BETWEEN 15,620 AND 7510 N/SEC, MORE THAN 2% THAT OF THE SOURCE. THE IMPORTANCE OF A NEUTRON PRODUCED IN THE CORE IS MUCH GREATER THAN FROM THE SOURCE. EXPERIENCE SHOWS THE SAFETY INSTRUMENTS QUITE RESPONSIVE TO THE SPONTANEOUS FISSIONS, WHICH IS THEREFORE ADEQUATE AS A STARTUP SOURCE. FOR FUTURE EXPERIMENTS, THE SOURCE WILL PROVIDE AN UNDESIRABLE BACKGROUND EVEN WHEN STORED.

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

TECHNICAL SPECIFICATIONS + *REACTOR STARTUP, LOW SOURCE + CRITICALITY EXPERIMENT

6-30391
TABAK D
DIRECT AND NONLINEAR PROGRAMMING APPROACH TO THE OPTIMAL NUCLEAR REACTOR SHUTDOWN CONTROL
GENERAL ELECTRIC CO., PHILADELPHIA
3 PAGES, IEEE TRANS. NUCL. SCI., NS-15, PAGES 57-59 (FEB. 1968)

THE PROBLEM OF OPTIMAL SHUTDOWN CONTROL OF NUCLEAR REACTORS FOR XENON POISONING IS EXAMINED. THE MINIMAX PROBLEM IS FIRST SOLVED USING DIRECT DIFFERENTIATION. THEN, A MODIFIED TIME OPTIMAL PROBLEM IS FORMULATED AND SOLVED USING NONLINEAR PROGRAMMING, THEREBY BYPASSING THE DIFFICULTIES

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-30391 *CONTINUED*

CREATED BY DYNAMIC PROGRAMMING AND THE MAXIMUM PRINCIPLE APPROACHES USED PREVIOUSLY. RESULTS OF COMPUTATIONAL EXAMPLES, USING THE NEW METHOD, ARE PRESENTED AND COMPARED WITH THE PREVIOUS ONES.

*XENON OSCILLATION + XENON + *REACTOR KINETICS + *THEORETICAL INVESTIGATION + CONTROL SYSTEM

6-30392 ALSO IN CATEGORY 7

DOLLE L + DIRIAN G
CHEMICAL ASPECTS OF THE REACTIVITY COMPENSATION BY HOMOGENEOUS POISONING OF A NUCLEAR REACTOR
32 PAGES, PP. 187-218 OF LA CHIMICA DELL'ACQUA NEI REATTORI NUCLEARI, ROME, COMITATO NAZIONALE ENERGIA NUCLEARE, 1966 (IN FRENCH)

THE PRINCIPLE OF COMPENSATION OF THE XENON EFFECT BY HOMOGENEOUS POISONING OF THE REACTOR IS DESCRIBED. THE FACTORS GOVERNING THE SELECTION OF THE SOLUBLE POISON ARE OUTLINED. CONCENTRATION OF SOLUBLE POISON IN THE REACTOR IS COMPARED WITH THE XENON POISONING BUILDUP. THE FIXATION OF THE SOLUBLE POISONS OF B, CD, LI, AND GD IS SHOWN GRAPHICALLY. THE DATA LEAD TO THE CONCLUSION THAT THE COMPENSATION OF THE XENON EFFECT IN A LARGE POWER REACTOR IS POSSIBLE BY HOMOGENEOUS POISONING OF THE MODERATOR. THE MOST FAVORABLE SOLUBLE POISONS ARE B, CD, NATURAL GD, AND LI-6.

CADMIUM + CONTROL SYSTEM + XENON + RADIOLYTIC GAS + *XENON OSCILLATION + BORON + REACTOR CONTROL + *REACTOR KINETICS + GADOLINIUM + LITHIUM + FRANCE

6-30413 ALSO IN CATEGORIES 9 AND 18

AEC QUESTIONS ON RANCHO SECO
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, LETTER FROM AEC DRL TO SACRAMENTO MUNICIPAL UTIL. DIST., MARCH 21, 1968, DOCKET 50-312, TYPE--PWR, MFG--B+W, AF--RFGHTEL

CONTAINS 81 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, REACTOR DESCRIPTION, SPATIAL KINETICS, AND INSTRUMENTATION AND CONTROL. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR SAFETY SYSTEM + *AEC QUESTION + REACTOR KINETICS + DESIGN CRITERIA + RANCHO SECO (PWR) + REACTOR, PWR + REACTOR DESCRIPTION + CONSTRUCTION PERMIT PROCESS + INSTRUMENT, CONTROL

6-30452

ULLRICH W + WIESNER S
EXPERIMENTAL AND THEORETICAL DETERMINATION OF THE REACTIVITY WORTH OF ROD-TYPE ABSORBER MIXTURES IN A SUBCRITICAL ASSEMBLY
NUKLEONIK, 10, 315-20, JAN. 1968 (IN GERMAN)

THE REACTIVITY WORTHS OF ROD-TYPE ABSORBER MIXTURES, WHICH CONSIST OF A 1/V ABSORBER AND VARIOUS RESONANCE ABSORBERS, WERE MEASURED IN A SLIGHTLY ENRICHED UO₂-H₂O SUBCRITICAL ASSEMBLY. THE MEASURED VALUES ARE COMPARED DIRECTLY WITH THE RESULTS OF A 4-GROUP DIFFUSION CALCULATION. RESULTS OF THIS COMPARISON ARE DISCUSSED WITH RESPECT TO THE THEORETICAL CALCULATIONAL MODEL.

CRITICALITY EXPERIMENT + REACTIVITY COEFFICIENT + CONTROL ROD CALIBRATION + CONTROL ROD WORTH + GERMANY

6-30454 ALSO IN CATEGORY 9

BEESON CL
MEASUREMENT OF THE ZERO POWER TRANSFER FUNCTION OF THE KANSAS STATE UNIVERSITY TRIGA MARK II NUCLEAR REACTOR
KANSAS STATE UNIVERSITY, MANHATTEN, KANSAS
TID-24579 +. 1966, 130P.

THE PURPOSE OF THE WORK WAS THE DESIGN AND CONSTRUCTION OF A LINEAR MOTION PILE OSCILLATOR, AND THE MEASUREMENT OF THE ZERO POWER TRANSFER FUNCTION OF THE K.S.U. TRIGA MARK-II REACTOR. COMPUTER PROGRAMS WERE DEVELOPED TO PERFORM LEAST SQUARES ANALYSES ON THE MEASURED GAIN AND PHASE SHIFT TO DETERMINE THE RATIO OF THE EFFECTIVE DELAYED NEUTRON FRACTION TO THE PROMPT NEUTRON LIFETIME.

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

REACTOR, RESEARCH + DELAYED NEUTRON + COMPUTER PROGRAM + *TRANSFER FUNCTION + *OSCILLATOR, REACTIVITY + MEASUREMENT, REACTIVITY + TRIGA (RR)

6-30480 ALSO IN CATEGORY 9

ARCIPIANI B + BIRKHOFF G + BONDAR L + HAGE W
DETERMINATION OF REACTIVITY WORTHS AND PHOTONEUTRON EFFICIENCY IN ROD DROP MEASUREMENTS
EURATOM-CCR, ISPRA, ITALY
2 PAGES, ENERG. NUCL. (MILAN), 15(2), PAGES 56-7 (FEBRUARY 1968)

DESCRIBES PROCEDURE FOR ASSESSING THE REACTIVITY WORTH AND THE PHOTONEUTRON EFFICIENCY IN ROD DROP

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-30480 *CONTINUED*

MEASUREMENTS PERFORMED ON TWO HEAVY WATER-MODERATED REACTORS AT ISPRA. THE TWO REACTORS WERE THE ISPRA-1 REACTOR, WITH A STRONG CONSTANT BACKGROUND SOURCE, AND THE ESSOR REACTOR AT ZERO POWER, WITH A CORE LOADED IN THE DRIVER ZONE ONLY. BOTH REACTORS USE HIGHLY ENRICHED U-235 FUEL ELEMENTS.

REACTOR, HWR + TEST, DROP + ITALY + MEASUREMENT, REACTIVITY + *CONTROL ROD WORTH + *REACTIVITY EFFECT

6-30529 ALSO IN CATEGORY 17

STUDIES OF THE CENTRAL REGION OF A TRIGA CORE
UNIVERSITY OF ILLINOIS
INRL-22 +. 12 PAGES, TABLES, JANUARY 10, 1968 (50-151)

81 ELEMENTS IN CORE (WITH CENTRAL 7 REMOVED) COULD NOT BE MADE CRITICAL. FLUX AND REACTIVITY WAS THEN MEASURED WITH A 6 ELEMENT TRAP. FUEL ADDED TO ONE SIDE OF CORE SHIFTED WORTH FROM SHIM TO REG. ROD. 100 KW OPERATION SHOWED INSTRUMENT CALIBRATION UNDISTURBED. *** SINGLE ELEMENT REMOVED GAINED \$0.19, WHILE VOID INSERTED IN SAME POSITION GAINED \$0.51 (WHILE NEXT 5 ELEMENTS MISSING). VOID MEASUREMENTS ARE NOT ADDITIVE AND ARE LOWER THAN CALCULATED. GRAPHITE DUMMY EFFECT IS MORE THAN ONE VOID ELEMENT. SIX ELEMENT HOLE IS LARGER THAN NECESSARY FOR MOST EFFECTIVE FLUX TRAP.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

IRRADIATION FACILITY + REPORT, OPERATIONS ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + REACTIVITY EFFECT, VOID + FUEL ELEMENT + REACTOR, PULSED + TRIGA (RR) + MEASUREMENT, SUBCRITICALITY + CONTROL ROD INTERACTION + MEASUREMENT, REACTIVITY + *REACTOR, FLUX TRAP + REACTOR, RESEARCH

6-30539 ALSO IN CATEGORIES 5 AND 17

MEASUREMENTS OF DOSE RATES --- TRANSIENT
UNIVERSITY OF ILLINOIS
INRL-13 +. 5 PAGES, 1 FIGURE, APRIL 16, 1963 (50-151)

MEASUREMENTS DOSE WITH THE PULSE ROD LEFT IN UP POSITION FOLLOWING SCRAM 3 PULSES APRIL 10/11. * (POWER) PEAK 250 MW, 380 KW MINIMUM AT 20 SEC, AND 366 KW EQUILIBRIUM WITHIN 2 MIN. (DOSE RATE - ON GRATING) OFF 100 MREM/HR SCALE FOR PULSE, MIN OF 18 MR/HR AT 10 SEC THEN EQUILIBRIUM AT 1 SEC OF 86 (CIRC. WATER OFF) OR 36 (CIRC. WATER ON). ***EXPECTED POWER WAS 290 KW, INDICATING POWER COEFFICIENT NONLINEAR ABOVE 100 KW. AT 1 MW, 310 AND 126 MR/HR WOULD BE EXPECTED WITH CIRC. WATER OFF/ON. LESSER PULSES WILL BE USED TO OBTAIN A COMPLETE PICTURE.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

TEMPERATURE TRANSIENT + *SHIELDING + EXTRAPOLATION FACTOR + REPORT, OPERATIONS ANALYSIS + POWER UPGRATING + POWER COEFFICIENT + REACTOR TRANSIENT + *FUEL ELEMENT + *TEST, PROOF + REACTOR, RESEARCH + *REACTOR POWER + REACTOR, PULSED + FAILURE, SCRAM MECHANISM

6-30572

POSTNIKOV IS
STABILITY OF THE STEADY-STATE OPERATION OF POWER REACTORS
2 PAGES, AT. ENERG. (USSR), 24, PAGES 397-8 (1968)

IN HIS SECOND METHOD, LYAPUNOV USED THE ONE-GROUP DIFFUSION APPROXIMATION TO EXAMINE THE STABILITY OF THE STEADY-STATE OPERATION. THE PROBLEMS WAS EXTENDED TO SLIGHT DEVIATIONS OF THE DEPENDENT VARIABLES FROM THE STEADY-STATE. THE MATRIX INEQUALITIES METHOD OF YAKUBOVICH WAS USED TO IMPROVE ACCURACY. A POWER REACTOR WITH FIXED FUEL AND WITHOUT REFLECTOR WAS CHOSEN, ASSUMED TO HAVE A CONSTANT DIFFUSION COEFFICIENT, USING THE ONE-GROUP APPROXIMATION, AND THAT IN EVERY POINT OF THE REACTOR, THE CORRELATION BETWEEN FLUX AND DELTA-K MAY BE DESCRIBED BY THE USUAL DIFFERENTIAL EQUATIONS WITH TIME-INDEPENDENT COEFFICIENTS. THE TIME OF LIFE OF THE PROMPT NEUTRON COULD BE NEGLECTED. THE RESULTS AGREED CLOSELY WITH THOSE OF EARLIER STUDIES.

*REACTOR, POWER + LIAPUNOV'S FUNCTION + REACTOR STABILITY + USSR + *MATHEMATICAL TREATMENT

6-30575

ALSO IN CATEGORY 18

RANDLES J
THEORETICAL ANALYSIS OF HYPOTHETICAL DESTRUCTIVE ACCIDENTS IN A PULSED FAST REACTOR
JOINT RESEARCH CENTRE, ISPRA, ITALY
STI/PUB-165 (VOL. 2) + CONF-671043 (VOL. 2) +. 1968

THE WORST HYPOTHETICAL ACCIDENT IS A FRACTURE OF THE RELATIVELY HEAVY ROTATING PULSATION DEVICE AND THE CREATION OF A HIGH SPEED FRAGMENT WHICH COMPRESSES THE CORE INTO A PROMPT CRITICAL ASSEMBLY. THE KINETICS AND DYNAMICS OF THIS COLLISION PROCESS ARE DESCRIBED WITH A SERIES OF MODELS TO ESTIMATE REACTIVITY INPUT. THE EFFECT IS A MODIFIED BETHE-TAIT MODEL. THE EQUATION OF STATE AND CONVERSION OF THE ENERGY INTO WORK ARE DISCUSSED, AND CALCULATIONS (USING COMPUTER PROGRAM EQUSTA) ARE DESCRIBED, ACCOMPANIED BY A DETAILED MATHEMATICAL EXPOSITION. A NUMERICAL METHOD AND THE RESULTS APPLIED TO A SORA-TYPE SYSTEM, USING COMPUTER PROGRAM SOREX 1 TO GIVE AN UPPER LIMIT TO THE AVAILABLE MECHANICAL WORK IN A LARGE RANGE OF HYPOTHETICAL ACCIDENTS. FURTHER INFORMATION ON THE EQUATION OF STATE OF FUEL MATERIALS IS NEEDED.

REACTOR, FAST BURST + ACCIDENT, REACTIVITY + EQUATION OF STATE + MATHEMATICAL TREATMENT + ACCIDENT, MAXIMUM CREDIBLE (MCA) + ANALYTICAL MODEL + BETHE TAIT

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-30647 ALSO IN CATEGORIES 5 AND 18
CORE THERMAL AND HYDRAULIC UNCERTAINTY ANALYSIS
JERSEY CENTRAL POWER AND LIGHT COMPANY
8 PAGES, 5 TABLES, AMENDMENT 9 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219, TYPE--
BWR, MFG--G.E., AE--BURNS + ROE

PRESENTS STATISTICAL ANALYSIS TO EVALUATE NUMBER OF FUEL RODS PER YEAR EXPECTED TO EXPERIENCE A CRITICAL HEAT FLUX EVENT. ASSUMPTION IS THAT VALUES OF QUANTITIES CONTRIBUTING TO MCHF ARE DISTRIBUTED NORMALLY ABOUT THEIR NOMINAL VALUES AND ARE MUTUALLY INDEPENDENT VARIABLES. EVALUATION BASED ON OPERATION AT RATED POWER WITH TYPICAL POWER DISTRIBUTION BASED ON THE DESIGN PEAKING FACTORS. RESULTS GIVE PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS AS 4.3 TIMES 10(MINUS 4) FOR GIVEN POWER DISTRIBUTION. IF ONE ASSUMES 1000 INDEPENDENT POWER DISTRIBUTIONS PER YEAR OF OPERATION (ONE POWER CHANGE PER SHIFT), THEN PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS PER YEAR IS 0.43.

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

REACTOR, BWR + OYSTER CREEK 1 (BWR) + FAILURE, INCIPIENT + HEAT TRANSFER ANALYSIS + PROBABILITY + THEORETICAL INVESTIGATION + ANALYTICAL TECHNIQUE, GENERAL + *HYDRAULIC ANALYSIS + HEAT TRANSFER, BOILING + FAILURE, FUEL ELEMENT + *THERMAL ANALYSIS + TEMPERATURE TRANSIENT + *STATISTICAL ANALYSIS + FUEL BURNUP + *HEAT FLUX, CRITICAL

6-30736 ALSO IN CATEGORY 9
AFANASEV VA + KEBADZE BV + SANKOVSKII GA + GRITSKOV VI + SOKOLOV IN + ADAMOVSKII LA + MARKIN SA
EXPERIMENTAL RESEARCH OF BOILING WATER REACTOR STABILITY
5 PAGES, 8 REFERENCES, AT. ENERG. (USSR), 24, PAGES 363-7 (APRIL 1968)

THE EXPERIMENTAL DATA ON THE DETERMINATION OF BOILING WATER REACTOR STEADY STATE OPERATION RANGE ARE PRESENTED. THE INVESTIGATION WAS PERFORMED BY APPLYING PERIODICAL PERTURBATIONS (REACTIVITY OSCILLATION) AND BY STATISTICAL METHODS. AT A SERIES OF OPERATING CONDITIONS THE REACTOR POWER INCREASED TO VALUES AT WHICH UNDAMPING OSCILLATIONS OCCURRENCE IS MAINLY DUE TO HIGH REACTIVITY POWER COEFFICIENT. IT IS SHOWN THAT THE DAMPING TIME CONSTANT OF NEUTRON POWER AUTOCORRELATION FUNCTION CAN BE USED EFFECTIVELY FOR STABILITY THRESHOLD PREDICTION.

TESTING + *REACTOR STABILITY + USSR + *REACTOR, BWR

6-30953
TROMBETTI T
BEHAVIOR OF A FAST REACTOR IN PULSED OPERATION
COMITATO NAZIONALE PER L ENERGIA NUCLEARE, ROME (ITALY)
RT/ING(68)16 +. 1968, 24P. (IN ITALIAN) (PRV-R(68)11)

A KINETIC STUDY OF A FAST PULSED REACTOR IS PERFORMED IN THE CASE THAT THE REACTIVITY IS A PERIODIC FUNCTION OF TIME AND THE FLUX HAS REACHED AN ASYMPTOTIC QUASI-PERIODIC BEHAVIOUR. THE STUDY IS CARRIED OUT IN BOTH CASES OF CONSTANT AND NON-CONSTANT DELAYED NEUTRON SOURCE. AN EVALUATION OF THE CONDITIONS FOR THE OPERATION OF THE CONTROL SYSTEM IS GIVEN. NUMERICAL RESULTS OBTAINED BY A COMPUTER CODE ARE ALSO LISTED.

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

COMPUTER, DIGITAL + REACTOR, FAST BURST + *REACTOR DYNAMICS + REACTOR TRANSIENT + REACTOR, PULSED + ITALY

6-30972 ALSO IN CATEGORY 17
PROCEEDINGS OF THE UNIVERSITY SUBCRITICAL ASSEMBLIES CONFERENCE HELD AT GATLINBURG, TENNESSEE AUGUST 28-30, 1961
OAK RIDGE NATIONAL LABORATORY + AMERICAN NUCLEAR SOCIETY EDUCATION COMMITTEE
TID-7619 +. JANUARY 1961, 277P.

A SERIES OF DESCRIPTIONS, INCLUDING 8 DIFFERENT UNIVERSITIES PROGRAMS, REACTOR SIMULATORS, PULSED NEUTRONS, OSCILLATORY TECHNIQUES, AND HEALTH PHYSICS. PROBABLY A UNIQUE STATE-OF-THE-ART COMPILATION.

AVAILABILITY - OFFICE OF TECHNICAL SERVICES, DEPARTMENT OF COMMERCE, WASHINGTON 25, D. C., \$3.50

*MEASUREMENT, SUBCRITICALITY + REACTOR PHYSICS + REACTOR, TRAINING + OSCILLATION, REACTIVITY + PULSED NEUTRON TECHNIQUE

6-31336 ALSO IN CATEGORY 5
HAMPEL VE + KOOPMAN RP
REACTIVITY SELF-CONTROL ON POWER AND TEMPERATURE IN REACTORS COOLED BY HEATPIPES
LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-71198 +. NOVEMBER 1, 1968, 22 FIGURES, 40 REFERENCES

IN HEATPIPES, BETWEEN 5 AND 10% OF THE FLUID MASS IS TRANSFERRED FROM THE EVAPORATOR END TO THE CONDENSER END DURING NORMAL OPERATION. THESE EFFECTS WERE STUDIED FOR K, NA, LI, BEF2, AG, AND LIF. THIS TRANSFER OF MASS CAN BE USED IN REACTORS COOLED BY HEATPIPES TO YIELD STRONG NEGATIVE REACTIVITY EFFECTS WHEN FLUIDS WITH NEGATIVE VOID COEFFICIENTS ARE EMPLOYED. FOR A REPRESENTATIVE, SMALL, HEATPIPE-COOLED REACTOR, DYNAMIC POWER COEFFICIENTS RANGE BETWEEN DELTA

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-31336 *CONTINUED*

K/K EQUALS $(-0.5 \text{ AND } -20) \times 10$ (MINUS 5TH)/MW, WITH TIME CONSTANTS OF A FEW MILLISECONDS. THIS BEHAVIOR CONTRIBUTES TO THE CONTROL STABILITY OF NUCLEAR REACTORS COOLED BY HEATPIPES AND OFFERS NEW AVENUES OF CONTROL FOR SMALL, FAST-SPECTRUM, HIGH-TEMPERATURE SYSTEMS.

AVAILABILITY - VIKTOR E. HAMPEL AND/OR RONALD P. KOOPMAN, LAWRENCE RADIATION LABORATORY, UNIVERSITY OF CALIFORNIA, LIVERMORE

*HEAT PIPE + REACTIVITY COEFFICIENT + REACTOR CONTROL + TEMPERATURE REACTIVITY EFFECT + *REACTOR STABILITY + VOID COEFFICIENT

6-31353

GILEADI AE + CARRASCO FL
DETERMINATION OF THE TRANSFER FUNCTION AND CERTAIN KINETICS PARAMETERS OF THE L-77 REACTOR
PUERTO RICO NUCLEAR CENTER
PRNC-118 +. MAY 1968, 4P.

DETERMINED THE TRANSFER FUNCTION AND PROMPT-NEUTRON LIFETIME OF THE L-77 TYPE HOMOGENEOUS SPHERICAL REACTOR BY THE PILE-OSCILLATOR METHOD.

TRANSFER FUNCTION + *OSCILLATOR, REACTIVITY + REACTOR DYNAMICS + REACTOR, HOMOGENEOUS + MEASUREMENT, REACTIVITY + PROMPT NEUTRON LIFETIME + REACTOR KINETICS + PUERTO RICO

6-31354

ZINIUK MA + WILBER HA
SETBACK TESTS TO DETERMINE THERMAL TRANSIENTS AND CONTROL PERFORMANCE - ENRICO FERMI REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., MICH.
APDA-NTS-21 +. 33 PAGES, 5 FIGURES, 3 TABLES, 4 REFERENCES, NOVEMBER 1968

GIVES RESULTS OF SETBACK TESTS CONDUCTED ON THE FERMI REACTOR AT THERMAL POWER LEVELS OF 50 AND 75 MW. SETBACKS AT EACH POWER LEVEL WERE INITIATED MANUALLY, AND BY TEMPERATURE AND POWER, TO DETERMINE THERMAL TRANSIENTS, SETBACK-SYSTEM OPERATION, AND PERFORMANCE OF REACTOR CONTROLS. RECORDINGS OBTAINED IN THE TESTS FURNISHED VALUES OF THE THERMAL TRANSIENTS AND THE MAGNITUDE OF THE POWER OF THE SETBACKS FOR CONDITIONS OF THE TEST. SATISFACTORY CONTROL OF THE REACTOR IN SETBACK WAS VERIFIED.

AVAILABILITY - M.A. ZINIUK, ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.

FERMI (LMFBR) + REACTOR CONTROL + TEMPERATURE TRANSIENT + REACTOR, BREEDER + REACTOR, FAST + REACTOR TRANSIENT + REACTOR, LMCR + TEST, PLANT RESPONSE

6-31386

STACEY WM
STOCHASTIC KINETIC THEORY FOR A SPACE- AND ENERGY-DEPENDENT ZERO POWER NUCLEAR REACTOR MODEL
KNOLLS ATOMIC POWER LAB., N. Y.
KAPL-P-3470 +. 34 PAGES, 6 FIGURES, 29 REFERENCES, 1968

DEVELOPED A COMPUTATIONALLY TRACTABLE FORMALISM FOR CALCULATING STOCHASTIC PHENOMENA IN A SPACE- AND ENERGY-DEPENDENT, TIME-VARYING ZERO-POWER REACTOR MODEL. A METHOD FOR APPLYING THE FORMALISM TO LOW-SOURCE STARTUP CALCULATIONS IS SUGGESTED. THE INFLUENCE OF SPATIAL STOCHASTIC EFFECTS UPON SUCH CALCULATIONS IN DEMONSTRATED, AS IS A CASE WHERE NEGLECT OF SUCH EFFECTS GIVES A NONCONSERVATIVE ERROR IN SAFEGUARDS ANALYSIS.

STATISTICAL ANALYSIS + MATHEMATICAL TREATMENT + SAFETY ANALYSIS + *SPACE DEPENDENT DYNAMICS + REACTOR KINETICS + FLUCTUATION + *REACTOR STARTUP, LOW SOURCE

6-31403

KRYTER RC + FRY DN + ROUX DP
EVALUATION OF THE TWO-DETECTOR CROSS-CORRELATION TECHNIQUE FOR SHUTDOWN MARGIN MEASUREMENTS IN POWER REACTORS
OAK RIDGE NATIONAL LABORATORY, TENN.
ORNL-4255 +. 22 PAGES, 13 FIGURES, 1 TABLE, SEPTEMBER 1968

OVERALL SUITABILITY OF THE TWO-DETECTOR CROSS-CORRELATION TECHNIQUE (2DCT) FOR ON-LINE SUBCRITICALITY MEASUREMENTS IN POWER REACTORS BY INHERENT NEUTRON POPULATION FLUCTUATION ANALYSIS WAS CRITICALLY EXAMINED. EXPERIMENTS WERE PERFORMED UNDER SIMULATED SHUTDOWN TO SUPPORT BASIC ASSUMPTIONS AND VALIDATE STATISTICAL ANALYSIS. IN GENERAL, THE OUTLOOK FOR ON-LINE ESTIMATION OF SUBCRITICALITY BY NOISE ANALYSIS TECHNIQUES WAS NOT FOUND TO BE PARTICULARLY PROMISING EITHER FROM POINT OF STATISTICAL PRECISION ATTAINABLE. SUBCRITICALITY INFERENCE BY 2DCT IS MOST SUITABLE TO THOSE POWER REACTORS WHICH HAVE LARGE INHERENT NEUTRON SOURCES, SHUTDOWN MARGINS BELOW 5 DOLLARS, AND LARGE-VOLUME NEUTRON DETECTORS CLOSE TO THE REACTOR CORE.

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

NOISE CROSS CORRELATION + *NOISE ANALYSIS + STATISTICAL CORRELATION + *SHUTDOWN MARGIN + REACTOR, POWER + MEASUREMENT, REACTIVITY

CATEGORY 6
REACTOR TRANSIENTS, KINETICS, AND STABILITY

6-32654 ALSO IN CATEGORY 12
BROWN NJ + MCCAULEY EW
FAST REACTOR DESIGN ANALYSIS CODES
UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-50429 +. 294 PAGES, FIGURES, TABLES, REFERENCES, JULY 3, 1968

PRESENTS A CONSISTENT METHOD OF NUCLEAR REACTOR DESIGN ANALYSIS USEFUL FOR SURVEY OR SPECIFIC PROGRAM REQUIREMENTS. THE METHOD EXEMPLIFIED TREATS THE ADVANCED, FAST SPECTRUM, URANIUM MONONITRIDE SYSTEMS ASSOCIATED WITH THE LAWRENCE RADIATION LABORATORY SPACE POWER PROGRAM. IN ADDITION TO DETAILING THE SPECIFIC TECHNIQUES USED TO COUPLE THE MECHANICAL-THERMAL/NEUTRONIC ANALYSIS, A COMPLETE CODE LISTING FOR BOTH CONVECTIVELY COOLED AND HEATPIPE REACTORS IS GIVEN. A 16-GROUP INTERIM CROSS SECTION LIBRARY, WEIGHTED FOR VARIOUS FAST SPECTRUM REACTORS, AS WELL AS A GENERALIZED THERMAL SPECTRUM SYSTEM, IS INCLUDED. THE SPECIFIC NEUTRONIC ANALYSIS USED IS A STRIPPED VERSION OF THE OTF-II TRANSPORT CODE TO WHICH ADDITIONAL S-SUB-N QUADRATURE SET USER INFORMATION HAS BEEN ADDED.

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

*REACTOR, FAST + DATA PROCESSING + *COMPUTER PROGRAM + REACTOR, SPACE + *DESIGN STUDY

6-32656 ALSO IN CATEGORY 18
BILLURIS G + PFLASTERER R + WOLFE B
THE SEFOR EXPERIMENTAL PROGRAM AND ITS INFLUENCE ON REACTOR DESIGN
GENERAL ELECTRIC CO., SUNNYVALE, CALIF.
CONF-670916 +. 10 PAGES, PP. VI.8.1-9 OF PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DESCRIBES THE PROPOSED SEFOR EXPERIMENTAL PROGRAM, THE APPROACH TO ANALYSIS OF THE EXPERIMENTAL DATA, AND THE VARIOUS FEATURES INCORPORATED INTO SEFOR TO OBTAIN HIGH QUALITY EXPERIMENTAL RESULTS, AND THE APPROACH PLANNED TO ENSURE REACTOR SAFETY DURING THE TRANSIENT TESTS.

*R AND D PROGRAM + REACTOR, PULSED + *SEFOR (RE) + REACTOR, LMFBR + REACTOR DESCRIPTION + REACTOR, FAST + REACTOR, LMCR + REACTOR DYNAMICS + *TESTING

6-32659 ALSO IN CATEGORY 18
LEIPUNSKII AI + KAZATCHKOVSKII OD + ZIZIN MN + NIKOLSKII RV
SAFETY PROBLEMS IN THE DESIGN OF LARGE PLUTONIUM-FUELED FAST REACTORS
COMMITTEE OF ATOMIC ENERGY MOSCOW
CONF-670916 +. 9 PAGES, PP. IIA.4.1-8 OF PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DESCRIBES A THEORETICAL ANALYSIS OF THE NA AND DOPPLER COEFFICIENTS FOR PU-FUELED FAST POWER REACTORS. THE RELATIVE SAFETY OF THESE REACTORS IS EVALUATED. EFFECTS OF NA REMOVAL AND K-EFF ARE SHOWN AS A FUNCTION OF TEMPERATURE.

*THEORETICAL INVESTIGATION + *TEMPERATURE REACTIVITY EFFECT + *DOPPLER COEFFICIENT + REVIEW + SODIUM + PLUTONIUM + USSR + REACTOR, FAST + REACTIVITY COEFFICIENT + SAFETY PRINCIPLES AND PHILOSOPHY

6-32685 ALSO IN CATEGORY 5
VIGIL JC
A NUMERICAL STUDY OF EXCURSIONS IN UHTREX LOADED WITH STANDARD FUEL ELEMENTS
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3789-MS +. 15 PAGES, 12 FIGURES, 15 TABLES, 10 REFERENCES, JANUARY 24, 1968

PRESENTS PRELIMINARY NUMERICAL CALCULATIONS OF RESPONSE OF ULTRA HIGH TEMPERATURE REACTOR EXPERIMENT (UHTREX) TO A WIDE RANGE OF REACTIVITY INPUTS. INCLUDED IN THE CALCULATIONS ARE - (A) A STUDY OF THE EFFECT OF GROSS SPATIAL VARIATIONS IN THE POWER AND IN THE REACTIVITY COEFFICIENTS, (B) STUDY OF EFFECT OF VARIATION WITH TEMPERATURE OF GRAPHITE HEAT CAPACITY AND REACTIVITY COEFFICIENTS, (C) COMPARISON OF STEP INPUTS WITH DETAILED REACTIVITY INPUTS DUE TO ROD WITHDRAWAL AT 18 IN./MIN, (D) STUDY OF EFFECT OF REPLACEMENT OF HELIUM BY NITROGEN OR A VACUUM, AND (E) STUDY OF SENSITIVITY OF RESULTS TO ARBITRARY CHANGES IN PROMPT-GENERATION TIME AND REACTIVITY COEFFICIENTS.

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

*UHTREX (GCR) + *EXCURSION, LARGE + THEORETICAL INVESTIGATION + REACTOR TRANSIENT + COMPUTER, DIGITAL + REACTOR, HTGR + REACTOR, AEC OWNED + REACTOR, GCR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-28504
BOWERSOX DF + LEARY JA
THE ENTHALPIES OF SELECTED ELEMENTS IN LIQUID PLUTONIUM
LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS
LA-3951 +. 7 PAGES, 3 TABLES, REFERENCES, JUNE 1968

THE RELATIVE PARTIAL MOLAR HEATS OF SOLUTION FOR SELECTED SOLUTES IN LIQUID PLUTONIUM HAVE BEEN CALCULATED FROM SOLUBILITY DATA FROM 700 TO 1000 C. EQUATION GIVEN. THE CALCULATED RELATIVE PARTIAL MOLAR HEATS OF SOLUTION ARE - TUNGSTEN(22.0), TANTALUM(16.6), NIOBIUM(11.1), VANADIUM(11.0), MOLYBDENUM(10.3), CHROMIUM(9.5), AND THULIUM(9.2).

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

*THERMODYNAMICS + TANTALUM + METAL, LIQUID + PROPERTY, PHYSICAL + TUNGSTEN + PLUTONIUM + EQUATION OF STATE + NIOBIUM + CHROMIUM + VANADIUM + *THERMAL PROPERTY + THALLIUM + MOLYBDENUM

7-28987 ALSO IN CATEGORY 11
CONNER JG + POREMBKA SW
COMPENDIUM OF PROPERTIES AND CHARACTERISTICS FOR SELECTED LMFBR CLADDING MATERIALS
BATTELLE MEMORIAL INST., COLUMBUS, OHIO
BMI-1900 +. 234 PAGES, MAY 15, 1968

REVIEWS WELDING, RADIATION DAMAGE, STRENGTH AND DUCTILITY AT HIGH (600 C) TEMPERATURES, COMPATIBILITY WITH FUEL AND SODIUM FOR AUSTENITIC SS AND NICKEL-BASED ALLOYS, VANADIUM ALLOYS, NIOBIUM ALLOYS FOR OXIDE, CARBIDE, NITRIDE, AND OXIDE FUELS.

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

REACTOR, FAST + INCOLOY + RADIATION DAMAGE + REACTOR, LMFBR + *PROPERTY, PHYSICAL + STEEL, STAINLESS + *CLADDING

7-29008 ALSO IN CATEGORIES 12 AND 13
VOGEL RC + PROUD ER + ROYAL J
CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT JULY-DECEMBER 1967
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7425 +. 197 PAGES, FIGURES, TABLES, MAY 1968

REPORT INCLUDES WORK ON LABORATORY-SCALE INVESTIGATIONS AND ENGINEERING STUDIES OF PYROCHEMICAL AND VOLATILITY PROCESSES. ONE SECTION REVIEWS PROGRESS IN MATERIALS CHEMISTRY AND THERMODYNAMICS OF HIGH TEMPERATURE MATERIALS, CHEMISTRY OF IRRADIATED FAST REACTOR FUELS, PREPARATION OF CERAMIC FUELS, CHEMISTRY OF LIQUID METALS. THERMAL AND FAST REACTOR SAFETY STUDIES ARE SUMMARIZED.

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

*REACTOR, FAST + *REACTOR, GENERAL + *FUEL REPROCESSING + ACCIDENT, LOSS OF COOLANT + *REACTOR, THERMAL + CERAMICS + URANIUM + *EXPERIMENT, GENERAL + ACCIDENT, GENERAL + VOLATILITY PROCESS + PYROCHEMICAL + PLUTONIUM + SAFETY PROGRAM

7-29284
LOGSDAIL OH
THE EFFECT OF GASEOUS ENVIRONMENT ON THE FLEXURAL STRENGTH OF GRAPHITE
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT
AERE-R-5721 +. 22 PAGES, 13 FIGURES, 19 REFERENCES, MAY 1968

MANY REPORTS IN THE LITERATURE HAVE SHOWN THAT THE STRENGTH OF GRAPHITE INCREASES WITH TEMPERATURE, BUT FEW HAVE DISCUSSED THE INFLUENCE OF THE ENVIRONMENT IN WHICH THE MEASUREMENTS WERE MADE. TO INVESTIGATE, THEREFORE, THE EFFECT OF GASEOUS ENVIRONMENT ALONE, THE FLEXURAL STRENGTH AND BREAKING STRAIN OF GRAPHITE HAVE BEEN DETERMINED IN HIGH VACUUM AND IN DIFFERENT GASES AT PRESSURES BETWEEN 10(-6TH) TORR AND 1 ATMOSPHERE. MEASUREMENTS HAVE ALSO BEEN MADE AT VARIOUS LOADING RATES AND AT TEMPERATURES UP TO 1400 C. THE RESULTS HAVE SHOWN THAT THE STRENGTH AND BREAKING STRAIN OF CLEAN GRAPHITE ARE REDUCED BY UP TO 40% BY THE PHYSI-SORPTION OF WATER VAPOUR.

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

SURFACE CONTAMINATION + CARBON + *GRAPHITE + *STRUCTURAL INTEGRITY + PROPERTY, PHYSICAL + *STRESS STRAIN DATA + TENSILE PROPERTY

7-29285
KOSS P + BILDSTEIN H
TESTING AND EVALUATION OF REACTOR FUEL PARTICLES, PROJECT DRAGON
UNITED KINGDOM ATOMIC ENERGY ESTABLISHMENT, WINFRITH
DP-REPORT-408 +. 34 PAGES, 8 FIGURES, 5 TABLES, 4 REFERENCES, FEBRUARY 1966

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29285 *CONTINUED*

REPORTS RESULTS OF XENON RELEASE MEASUREMENTS PERFORMED ON DRAGON PRODUCTION SAMPLES. REACTIVATION ANALYSIS PERFORMED ON THE B-2 COMPACT FROM STUOSVIK 5. IT WAS SHOWN THAT R/B VALUES OBTAINED BY THIS METHOD ARE IN VERY GOOD AGREEMENT WITH THE RESULTS OF THE LOOP (0.0002). THE NUMBER OF BROKEN PARTICLES WAS DETERMINED BY CHLORINATION AFTER ELECTROLYTICAL DISINTEGRATION OF THE COMPACT. WHEREAS THE RESULTS OF XENON RELEASE MEASUREMENTS SEEM TO INDICATE 1-2 BROKEN PARTICLES THE RESULTS OF GAS LEACHING CORRESPOND TO ABOUT 60. THIS DISCREPANCY CLEARLY SHOWS THE INFLUENCE OF THE GRAPHITE MATRIX ON THE FISSION PRODUCT RETENTION.

*FISSION GAS RELEASE + FISSION PRODUCT RELEASE, GENERAL + *COATED PARTICLE + SILICON + CARBIDE + PYROLYTIC + *FUEL INTEGRITY + CARBON

7-29286

BISCHOFF K + HARRISON JD + POTTER PE
THE PREPARATION AND CHARACTERISATION OF SINTERED URANIUM-PLUTONIUM OXIDES
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
AERE-R-5774 +. 12 PAGES, 10 FIGURES, 8 TABLES, 5 REFERENCES, APRIL 1968

THE PREPARATION FROM MECHANICALLY MIXED POWDERS OF SINTERED PELLETS OF URANIUM-PLUTONIUM OXIDES WITH PLUTONIUM OXIDE CONCENTRATIONS OF 10, 20, 30 AND 40 WT. % IS DESCRIBED. THE CONDITIONS FOR THE PREPARATION OF DENSE SINGLE PHASE PELLETS ARE DESCRIBED TOGETHER WITH THE CHARACTERIZATION OF THE SINTERED PRODUCTS. HOMOGENEITY OF THE PELLETS DETERMINED BY ELECTRON MICROPROBE ANALYSIS.

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

OXIDE + *FUEL, PELLET TYPE + ANALYTICAL TECHNIQUE, CALIBRATION + *REACTOR, FAST + FUEL REPROCESSING + REACTOR, LMFBR + PLUTONIUM + URANIUM + RADIOCHEMICAL PROCESSING + *FUEL, POWDER TYPE

7-29287

JUDD AM
SODIUM BOILING AND FAST REACTOR SAFETY ANALYSIS
UNITED KINGDOM ATOMIC ENERGY ESTABLISHMENT, WINFRITH
AEEW-R561 +. 58 PAGES, 19 FIGURES, 3 TABLES, 33 REFERENCES, DECEMBER 1967

DISCUSSES VARIOUS ASPECTS OF THE BOILING BEHAVIOUR OF LIQUID METALS AS IT INFLUENCES THE SAFETY OF A FAST REACTOR. IN PARTICULAR AN ATTEMPT IS MADE TO APPLY THE AVAILABLE EXPERIMENTAL DATA TO THE QUESTIONS OF THE DEGREE OF LIQUID SUPERHEAT WHICH COULD BE REACHED IN A REACTOR UNDER ACCIDENT CONDITIONS, THE RATE AT WHICH A BLOCKED COOLANT CHANNEL COULD BE VOIDED BY BOILING, AND THE EFFECTS OF THE CONDENSATION OF VAPOUR BUBBLES IN COOL LIQUID.

AVAILABILITY - WINFRITH SECRETARIAT, ATOMIC ENERGY ESTABLISHMENT, WINFRITH, DORCHESTER, DORSET, ENGLAND

*SODIUM + HEAT TRANSFER, BOILING + VAPOR, VAPOR PRESSURE + *METAL, LIQUID + *HEAT TRANSFER EXPERIMENT + BUBBLE + *BUBBLE NUCLEATION + *REACTOR, LMFBR + METAL, ALKALI + REACTOR, FAST + VOID COEFFICIENT

7-29290

JAMES GD + RAE ER
FISSION COMPONENTS IN U-234 RESONANCES
UNITED KINGDOM ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL
AERE-M-2082 +. 9 PAGES, 2 FIGURES, 1 TABLE, 21 REFERENCES, JUNE 1968

FISSION CROSS SECTION OF U-234 HAS BEEN MEASURED IN THE ENERGY RANGE BELOW 20 KEV AND SHOWS THREE REGIONS OF STRONG FISSION YIELD WITH ESSENTIALLY NO FISSION AT INTERVENING ENERGIES.

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

*URANIUM + RESONANCE OVERLAP + PLUTONIUM + *CROSS SECTION + NEPTUNIUM

7-29291

PITTERLE TA + PAGE EM + YAMAMOTO M
ANALYSIS OF SODIUM REACTIVITY MEASUREMENT. VOLUME I. CROSS SECTION EVALUATION AND TESTING
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC.
APDA-216(VOL. I) +. 104 PAGES, 10 FIGURES, 34 TABLES, 93 REFERENCES, JUNE 1968

THIS REPORT IS VOL. I OF A TWO-VOLUME REPORT OF AN ANALYSIS OF SODIUM REACTIVITY MEASUREMENTS IN FAST REACTOR CRITICAL ASSEMBLIES. VOLUME II PRESENTS THE SODIUM-VOID ANALYSIS. IN VOL. I, EMPHASIS IS PLACED ON CROSS SECTION EVALUATION AND DATA TESTING CONDUCTED TO ESTABLISH THE ACCURACY OF THE CROSS SECTION DATA USED FOR THE CALCULATIONS OF VOL. II. VOLUME I DESCRIBES THE EVALUATION OF THE CROSS SECTION DATA, TESTING OF THE DATA BY COMPARISON OF CALCULATIONS WITH INTEGRAL EXPERIMENT MEASUREMENTS, AND AN EXAMINATION OF METHODS USED FOR CRITICAL ASSEMBLY CALCULATIONS.

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

ZPR 6 (CAF) + *CRITICALITY SAFETY + CRITICAL ASSEMBLY FACILITY + NEUTRON + *PLUTONIUM + *URANIUM + ZPR 3 (CAF)

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29291 *CONTINUED*
+ *CROSS SECTION

7-29292
NELSON P + KRESS TS
THEORY OF AN INITIAL-BOUNDARY VALUE PROBLEM OCCURRING IN THE STUDY OF FISSION PRODUCT DEPOSITION
OAK RIDGE NATIONAL LABORATORY
ORNL-4277 +. 30 PAGES, 7 REFERENCES, SEPTEMBER 1968

REPORT IS A THEORETICAL STUDY OF AN INITIAL-BOUNDARY VALUE PROBLEM FOR A SEMILINEAR HYPERBOLIC SYSTEM OF TWO PARTIAL DIFFERENTIAL EQUATIONS IN TWO UNKNOWNNS DEPENDING ON ONE SPATIAL VARIABLE X AND THE TIME T. THE NONDIMENSIONAL EQUATIONS WERE DEVELOPED TO DESCRIBE DEPOSITION OF FISSION PRODUCTS FROM A CARRIER STREAM ONTO AN ISOTHERMAL CONDUIT SURFACE WITH A SATURATING ABSORPTION DESORPTION REACTION. HOWEVER THEY MAY HAVE GENERAL APPLICATION TO CONVECTIVE SYSTEMS IN WHICH A FIRST ORDER CHEMICAL REACTION AT THE SURFACE IS KINETICALLY IMPORTANT.

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

FISSION PRODUCT RETENTION + *DEPOSITION + *MATHEMATICAL STUDY + ANALYTICAL MODEL + *FISSION PRODUCT TRANSPORT + *THEORETICAL INVESTIGATION

7-29293 ALSO IN CATEGORY 16
PITTERLE TA + PAGE, EM + YAMAMOTO M
ANALYSIS OF SODIUM REACTIVITY MEASUREMENTS VOLUME II. SODIUM VOID CALCULATIONS
ATOMIC POWER DEVELOPMENT ASSOCIATED, INC., DETROIT, MICH.
APDA-216(VOL.2) +. 104 PAGES, 12 FIGURES, 24 TABLES, 13 REFERENCES, JUNE 1968

THIS REPORT IS THE SECOND OF A TWO-VOLUME REPORT ON AN ANALYSIS OF SODIUM REACTIVITY MEASUREMENTS IN FAST REACTOR CRITICAL ASSEMBLIES. VOLUME I DESCRIBES THE CROSS SECTION EVALUATION AND DATA TESTING CONDUCTED IN SUPPORT OF THE SODIUM VOID ANALYSES DESCRIBED IN THIS VOLUME. VOLUME II DESCRIBES THE METHODS OF CALCULATION AND THE CALCULATED RESULTS FOR AN ANALYSIS OF SODIUM VOID MEASUREMENTS PERFORMED IN ZPR-III ASSEMBLIES 48 AND 48B AND ZPR-VI ASSEMBLIES 2 AND 3. THE DETAILED VOID MEASUREMENTS IN THE ASSEMBLIES HAVE BEEN CALCULATED USING THE MENDF/B CROSS SECTION DATA DESCRIBED IN VOLUME I, AND ADDITIONAL CALCULATIONS HAVE BEEN WITH ENDF/B DATA.

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

THEORETICAL INVESTIGATION + ZPR 3 (CAF) + ZPR 6 (CAF) + *VOID COEFFICIENT + CRITICALITY SAFETY + CRITICAL ASSEMBLY FACILITY + *SODIUM

7-29295
HENDRICKSON MM
EXDOSE - A COMPUTER PROGRAM FOR CALCULATING THE EXTERNAL GAMMA DOSE FROM AIRBORNE FISSION PRODUCTS
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-811 +. 124 PAGES, FIGURES, TABLES, 8 REFERENCES, SEPTEMBER 1968

THE EXDOSE PROGRAM CALCULATES THE EXTERNAL GAMMA RADIATION DOSE TO THE TOTAL BODY FROM A HALF-INFINITE CLOUD OF FISSION PRODUCTS. DESIGNED PRIMARILY FOR ESTIMATING ACCIDENT CONSEQUENCES. CODE CALCULATES A FISSION PRODUCT INVENTORY ACCORDING TO SPECIFIED INPUT PARAMETERS. ANY FRACTION OF THESE FISSION PRODUCTS MAY THEN BE RELEASED TO THE ATMOSPHERE AT A DESIRED RATE. SUBSEQUENT DOWNWIND DISPERSION AND RESULTING DOSE TO INDIVIDUALS IS THEN CALCULATED.

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

RADIATION SAFETY AND CONTROL + *GAMMA + *PLUME BEHAVIOR, GENERAL + FISSION PRODUCT TRANSPORT + *COMPUTER PROGRAM + METEOROLOGICAL SUPPORT + *RADIATION MODEL + THEORETICAL INVESTIGATION + ATMOSPHERIC DIFFUSION + *AIRBORNE RELEASE

7-29296 ALSO IN CATEGORIES 9 AND 17
HBWR QUARTERLY PROGRESS REPORT, APRIL-JUNE 1968
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
HPR-102 +. 224 PAGES, 80 FIGURES, 47 TABLES, 15 REFERENCES, AUG. 1968

(PAGES 14-30) - AFTER INDICATION THAT IFA-4, 40, AND 125 HAD FAILED, THEY WERE TESTED IN A VACUUM COFFIN ARRANGEMENT. ACTIVITY HELD UP IN OFFGAS FILTER INDICATED ONE HAD NOT FAILED. (PAGES 31-39) - CONDENSED STEAM SHOWS IODINE AT 6-10% THAT IN MODERATOR. PRELIMINARY TESTS ON ADDITION OF VARIOUS CHEMICAL FORMS SHOWS HIGH CH3I CARRYOVER POSSIBLE DURING CONTINUOUS PRODUCTION OF ORGANIC IODIDES. (PAGES 44-66) - DIRECT DIGITAL CONTROL OF REACTOR POWER FOR 2 HOURS, CAUSED DIFFERENCES IN POWER SPECTRAL DENSITY AT LOW FREQUENCY. (PAGES 121-132) - BURNOUT TESTS WITH 2 ELEMENTS SUMMARIZED.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES FOR THE U.S. AND OVER SEAS

*PARTITION COEFFICIENT + FUEL ELEMENT + R AND U PROGRAM + PERFORMANCE LIMIT + CONTROLLER + IRRADIATION TESTING + REACTOR POWER + STEAM + OPERATING EXPERIENCE + BURNOUT HEAT FLUX + *ORGANIC IODIDE + HBWR (BWR) + REACTOR, BWR + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29306

BURNETT RC + GOUGH JR + SINDEN RP
DEVELOPMENT OF FUEL ELEMENT ASSEMBLY TECHNIQUES FOR THE FIRST CHARGE OF THE DRAGON REACTOR EXPERIMENT
UNITED KINGDOM ATOMIC ENERGY ESTABLISHMENT
DP-REPORT-263 +. 44 PAGES, 17 FIGURES, 7 REFERENCES, FEBRUARY 1964

THE PRINCIPAL FEATURES OF FUEL ELEMENT DESIGN FOR THE FIRST CHARGE OF THE REACTOR EXPERIMENT ARE DESCRIBED INSOFAR AS THEY INFLUENCE ASSEMBLY REQUIREMENTS. THE SOMEWHAT COMPLICATED DESIGN HAS REQUIRED CONSIDERABLE DEVELOPMENT OF ASSEMBLY TECHNIQUES. THE RESULTS OF THESE INVESTIGATIONS HAVE BEEN APPLIED TO THE ASSEMBLY OF THE DUMMY CHARGE, IN THE COURSE OF WHICH THE NEED FOR COMPONENTS WAS CLEARLY DEMONSTRATED. THE EASE OF ASSEMBLY OF THE FIRST CHARGE WILL ALSO DEPEND TO A LARGE EXTENT ON THE REMOVAL OF CARBONACEOUS DEPOSITS FORMED AS A RESULT OF THE IMPREGNATION PROCEDURE.

WELDING + REACTOR, GRAPHITE MODERATED + REACTOR, HTGR + FUEL ELEMENT + STEEL, STAINLESS + FISSION PRODUCT RETENTION + *UNITED KINGDOM + *DRAGON (HTGR) + *DESIGN CRITERIA + GRAPHITE

7-29308

ALSO IN CATEGORY 6

ADLER FT
EFFECTS OF REACTIVITY EXCURSIONS ON COATED FUEL PARTICLES
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3547 +. 52 PAGES, FIGURES, TABLES, 38 REFERENCES, SEPTEMBER 23, 1968

THE BREAKUP MECHANISM OF PYROLYTIC CARBON (PYC) COATED FUEL PARTICLES IMBEDDED IN A GRAPHITE MATRIX HAS BEEN INVESTIGATED WITH THE AIM OF ESTABLISHING THRESHOLD VALUES FOR ENERGY DEPOSITION RATES NECESSARY TO REACH CRACKING OF THE COATING AND FOR THE ONSET OF MATRIX DAMAGE. SIMPLE THERMOMECHANICAL CONSIDERATIONS ARE PRESENTED, SHOWING THAT TWO DIFFERENT HEAT TRANSFER MECHANISMS CONTROL THE RESPONSE OF THE CARBIDE PARTICLES TO A REACTIVITY PULSE.

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

*REACTOR, GENERAL + *URANIUM CARBIDE + URANIUM OXIDE + *PYROLYTIC + *COATED PARTICLE + GRAPHITE + REACTIVITY EFFECT, EXPANSION

7-29394

BREMER AB
COMPATIBILITY OF HYPERSTOICHIOMETRIC UC AND SINTERED ALUMINUM POWDER
ATOMICS INTERNATIONAL
AI-CE-77 +. 64 PAGES, 4 REFERENCES, 9 TABLES, 29 FIGURES, MAY 31, 1968

THE STATUS OF HYPERSTOICHIOMETRIC UC FUEL - SAP CLADDING COMPATIBILITY STUDIES, APPLICABLE TO HMOCR CONDITIONS, IS PRESENTED. DIFFUSION COUPLE INTERFACES WERE EVALUATED, BOTH METALLURGICALLY AND STATISTICALLY. REGRESSION EQUATIONS ESTABLISHED CORRELATIONS BETWEEN TEST CONDITIONS AND THE DEPENDENT VARIABLES OF TOTAL REACTION THICKNESS AND UNIFORM REACTION THICKNESS. AN INCUBATION PERIOD, WHICH OCCURS EARLY IN THE COMPATIBILITY REACTION, IS DESCRIBED. A U-AL-SI PHASE AND IMPURITY ELEMENTS, INCLUDING SI AND FE, WERE DETECTED IN THE REACTION ZONE BY ELECTRONIC BEAM MICROPROBE ANALYSIS. UAl₃ AND C (GRAPHITE) WERE DETECTED BY X-RAY DIFFRACTION. A COMPARISON OF IN-PILE (I.E., NRU-305 EXPERIMENT) AND OUT-OF-PILE COMPATIBILITY DATA SUGGESTS AN ABSENCE OF IRRADIATION EFFECTS. THE INFLUENCE OF DIFFUSION COUPLE INTERFACIAL PRESSURE ON THE COMPATIBILITY REACTION IS DISCUSSED. SIX STEPS ARE SUGGESTED TO DEFINE THE COMPATIBILITY REACTION PROCESS.

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

*REACTOR, ORGANIC COOLED + FUEL ELEMENT + *URANIUM CARBIDE + NRU (TR) + RADIOCHEMICAL PROCESSING + GRAPHITE + *ALUMINUM + DIFFUSION + *CLADDING

7-29395

RUTKAUSKAS VJ
DETERMINATION OF THE SOLUBILITY OF OXYGEN IN SODIUM BY VACUUM DISTILLATION
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3879 +. 12 PAGES, 13 REFERENCES, 6 FIGURES, 2 TABLES, JULY 15, 1968

THE SOLUBILITY OF OXYGEN IN SODIUM WAS DETERMINED OVER THE RANGE 125 TO 300 C BY VACUUM DISTILLATION. THE RANGE WAS COVERED IN INCREMENTS OF 10 TO 25 C WITH A MINIMUM OF THREE SEPARATE DETERMINATIONS AT EACH TEMPERATURE LEVEL. A LEAST-SQUARES FIT OF THE DATA YIELDED A CORRELATING EQUATION OF $\log_{10} Y$ EQUALS $4.25 - 3499/T$, WHERE Y EQUALS WT % OXYGEN. THE EXPRESSION GIVES A VALUE OF ΔH OF 16,000 CAL/MOLE. THE REPRODUCIBILITY OF RESULTS OBTAINED AT EACH OF THE EQUILIBRIUM TEMPERATURE CONDITIONS WAS EXCELLENT WITH AN APPARENT STANDARD DEVIATION OF 0.5 PPM IN THE OXYGEN CONCENTRATION RANGE OF 1 TO 10 PPM AND 5% ABOVE 10 PPM. THE INTERNAL CONSISTENCY OF THE SOLUBILITY RESULTS IS BETTER THAN THAT OF PREVIOUSLY PUBLISHED DATA, AND THE VALUES ARE CONSIDERABLY LESS IN THE LOW TEMPERATURE RANGE THAN THOSE SHOWN ON OTHER SOLUBILITY CURVES.

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

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29395 *CONTINUED*
METAL, LIQUID + *ANALYTICAL TECHNIQUE, CALIBRATION + OXIDE + *SODIUM + *OXYGEN

7-29398
FALK ED + FORRESTER RE + WOLFE WB + SULLIVAN RJ
FUEL IRRADIATION EXPERIMENT EXP-NRU-305 ALTERNATE 1
ATOMICS INTERNATIONAL
AI-CE-75 +. 73 PAGES, 11 REFERENCES, 11 TABLES, 21 FIGURES, JUNE 15, 1968

THE U-305 A1 EXPERIMENT WAS THE SECOND IN THE U-305 SERIES OF FUELED IRRADIATIONS IN SUPPORT OF THE HWOCR PROGRAM. THE IRRADIATION WAS CONDUCTED IN THE ORGANIC COOLED U-3 LOOP IN THE AECL-OWNED NRU REACTOR AT CHALK RIVER, ONTARIO. THE FUEL STRING CONSISTED OF THREE SAP-CLAD UC BUNDLES AND TWO ZIRCALOY-4-CLAD UO₂ BUNDLES. THE FUEL STRING OPERATED VERY SATISFACTORILY FOR 17 MONTHS AT DESIGN CONDITIONS OF 20.8 KW/FT PEAK POWER RATING, 326,000 BTU/HR-FT² PEAK CLADDING HEAT FLUX, AND REACHED A RECORD BURNUP ON THE SAP-UC FUEL OF 16,700 MWD/MTU (PEAK) AND A PEAK BURNUP OF 14,000 MWD/MTU ON THE ZR-UO₂ FUEL. TWO PROMISING ORGANIC COOLANTS, SANTOWAX OM AND HB-40, WERE TESTED.

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

*ALUMINUM + REACTOR, TEST + REACTOR, HWR + *COOLANT CHEMISTRY + CANADA + ALLOY + FUEL ELEMENT + *FUEL BURNUP + TESTING + ZIRCONIUM + *URANIUM CARBIDE + *SURFACE FILM DEPOSIT + REACTOR, PRESSURE TUBE + NRU (TR) + *CLADDING

7-29399
MALINAUSKAS AP
VAPOR PRESSURE OF TELLURIUM DIOXIDE
OAK RIDGE NATIONAL LABORATORY
ORNL-4300 +. 19 PAGES, 2 TABLES, SEPTEMBER 1968

RESULTS OF A SURVEY OF THE LITERATURE ON THE DETERMINATION OF THE VAPOR PRESSURE OF TELLURIUM DIOXIDE ARE PRESENTED. DATA ARE REPORTED AS DERIVED FROM THE MASS TRANSPORT METHOD AND THE KNUDSEN EFFUSION TECHNIQUE, AND AN ATTEMPT IS MADE TO UTILIZE THE RESULTS OF THE TWO METHODS TO ASSESS THE EXTENT OF DIMER FORMATION IN THE GAS PHASE. UNTIL A MORE DEFINITIVE ASSESSMENT OF POLYMER FORMATION CAN BE MADE, IT IS PROPOSED THAT THE EXPRESSION $\log P(\text{TORR}) = 12.3487 - (13.238 \times 1000)/T$ BE EMPLOYED FOR THE CALCULATION OF THE VAPOR PRESSURE OF TeO₂ OVER THE SOLID IN THE TEMPERATURE RANGE 700 K LESS THAN T LESS THAN 1000 K. FROM THIS EXPRESSION THE HEAT OF SUBLIMATION IS CALCULATED TO BE 60.58 ± 0.33 KCAL/MOLE.

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

FISSION PRODUCT, VOLATILE + RADIATION SAFETY AND CONTROL + COOLANT CHEMISTRY + PROPERTY, PHYSICAL + *TELLURIUM + FISSION PRODUCT TRANSPORT + *VAPOR, VAPOR PRESSURE + *OXIDE + SUBLIMATION

7-29400
FULTYN RV
RADIATION MEASUREMENTS OF THE EFFLUENT FROM THE NRX-A6 REACTOR
LOS ALAMOS SCIENTIFIC LABORATORY
LA-3895-MS +. 21 PAGES, 5 REFERENCES, 9 TABLES, 2 FIGURES, FEB. 8, 1968

THE RESULTS OF STUDIES ON THE EFFLUENT FROM THE NRX-A6 EP IIIA TEST ARE PRESENTED, INCLUDING WORK PERFORMED WITH LARGE PARTICLES. DOSES DUE TO CLOUD PASSAGE AS DETERMINED BY SEVERAL METHODS OF MEASUREMENT ARE COMPARED. SAMPLING AND ANALYSIS PROCEDURES AND EQUIPMENT ARE ALSO DESCRIBED.

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

REACTOR, HWR + REACTOR, TEST + CANADA + REACTOR, PRESSURE TUBE + PARTICULATE + FILTER, CASCADE IMPACTOR + *NRX (TR) + OFF GAS + *MONITOR, AIR + SAMPLING + *ANALYTICAL TECHNIQUE, CALIBRATION + AEROSOL + METEOROLOGY + *RADIATION SAFETY AND CONTROL

7-29403
BURCHSTED CA
BASIC REQUIREMENTS FOR HEPA FILTERS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-P-3068 +. 16 PAGES, 16 REFERENCES, APRIL 20, 1967

CERTAIN BASIC SPECIFICATION REQUIREMENTS ARE ESSENTIAL TO THE PROCUREMENT OF SUITABLE HEPA FILTERS WITH MINIMUM COST AND DELAYS. THE AEC HAS BEEN ENGAGED IN A CONTINUOUS PROGRAM OF FILTER IMPROVEMENT FOR SEVERAL YEARS, AND MUCH OF WHAT WE HAVE LEARNED IS DIRECTLY APPLICABLE TO HEPA FILTERS USED IN CLEAN-AIR APPLICATIONS. THE REQUIREMENTS DISCUSSED IN THIS PAPER ARE INTENDED TO AID THE BUYER IN WRITING SPECIFICATIONS THAT WILL ENSURE SUITABLE FILTER PERFORMANCE UNDER OPERATING CONDITIONS AND THAT WILL FOSTER GREATER UNIFORMITY IN TESTING. THE ITEMS REVIEWED IN THIS PAPER REPRESENT THE MINIMUM REQUIREMENTS DETERMINED IN CONFERENCES BETWEEN FILTER MANUFACTURERS, FILTER-PAPER MANUFACTURERS, UNDERWRITERS LABORATORIES, AND MAJOR USERS IN THE ATOMIC ENERGY PROGRAM.

DECONTAMINATION + *FILTER, HIGH EFFICIENCY + *FILTER DESIGN + *FILTER TEST REQUIREMENT + DECONTAMINATION

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29403 *CONTINUED*
FACTOR + FILTER + FILTER SYSTEM + *FILTER MAINTENANCE + *DESIGN CRITERIA + TESTING + *RADIATION SAFETY AND CONTROL + *FILTER OPERATION

7-29404 ALSO IN CATEGORY 14

WEEREN HO
DISPOSAL OF RADIOACTIVE WASTES BY HYDRAULIC FRACTURING- PART IV, DESIGN OF ORNLS SHALE-FRACTURING PLANT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-P-2174 +. 8 FIGURES, 8 REFERENCES, 1 TABLE, 1966

THE SHALE FRACTURING PROGRAM HAS BEEN CONCERNED WITH THE DEVELOPMENT OF A TECHNIQUE FOR THE SAFE AND ECONOMIC DISPOSAL OF LARGE BATCHES OF RADIOACTIVE WASTE BY MIXING THE WASTE WITH CEMENT AND INJECTING THE MIX INTO BEDS OF SHALE AT DEPTHS OF ABOUT 1000 FEET. A FACILITY WAS BUILT AT ORNL TO MAKE A SERIES OF SEVEN EXPERIMENTAL INJECTIONS. LARGE VOLUMES OF WASTE SOLUTION (UP TO 150,000 GALLONS PER INJECTION) WERE SUCCESSFULLY INJECTED. PRECISE CONTROL OF THE PROPORTIONING OF CEMENT AND WASTE SOLUTION REMAINS A DIFFICULT PROBLEM. THE FACILITY IS NOW SCHEDULED FOR MODIFICATION FOR REGULAR DISPOSAL OF LABORATORY WASTE.

*WASTE TREATMENT, FIXATION + *WASTE HANDLING + WASTE DISPOSAL, HYDRAULIC FRACTURING

7-29405
MILLER CE
THE LIGHT BULB MODEL OF FISSION PRODUCT RELEASE FROM REACTOR FUELS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-P-3182 +. 22 PAGES, 2 TABLES, 1967

STUDIES OF FISSION PRODUCT BEHAVIOR AND CHARACTERISTICS ARE DIRECTED TOWARD THE DEVELOPMENT OF MATHEMATICAL MODELS WITH WHICH THE EXTENT OF FISSION PRODUCT RELEASE AND FUEL EVAPORATION CAN BE PREDICTED FOR A SPECIFIC SET OF CONDITIONS. ONE SUCH MODEL HAS BEEN DEVELOPED. THE MODEL RELATES SEVERAL VARIABLES TO THE AMOUNT OF FISSION PRODUCT AND FUEL RELEASED. THESE ARE THE COMPOSITION AND PRESSURE OF THE COVER GAS, THE TEMPERATURE, SURFACE AREA, AND AMOUNT OF THE MOLTEN FUEL, THE TIME MOLTEN, AND THE CHEMICAL FORM OF THE FISSION PRODUCT AND FUEL. THE MODEL HAS BEEN TESTED WITH DATA FROM SEVERAL SOURCES AND SATISFACTORILY EXPLAINS THE OBSERVED BEHAVIOR OF FISSION PRODUCTS AND FUEL.

*VAPOR, VAPOR PRESSURE + *FISSION PRODUCT RETENTION + *FUEL MELTDOWN + FISSION PRODUCT TRANSPORT + THERMAL PROPERTY + *FISSION PRODUCT, VOLATILE + *FISSION PRODUCT RELEASE, GENERAL + HIGH TEMPERATURE + *ANALYTICAL MODEL

7-29406 ALSO IN CATEGORY 15
MORGAN KZ
COMMON SOURCES OF HUMAN EXPOSURE TO IONIZING RADIATION IN THE UNITED STATES
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3910 +. 10 PAGES

IN TERMS OF BIOLOGICAL CONSEQUENCES, IT DOESN'T MATTER WHETHER A RADIOISOTOPE IS PRODUCED IN A NUCLEAR REACTOR OR HIGH VOLTAGE ACCELERATOR OR IS OF NATURAL ORIGIN. EXPOSURES FROM X AND GAMMA RAYS OR ALPHA, BETA AND NEUTRON PARTICLES IN TERMS OF REM UNITS OR GRAM REM UNITS PRODUCE EQUAL DAMAGE. LIKEWISE, AN EXPOSURE TO X-RAYS OF A GIVEN VOLTAGE IN THESE UNITS IS THE SAME WHETHER IT IS GENERATED BY A MEDICAL X-RAY MACHINE, A COLOR TELEVISION SET OR A HIGH VOLTAGE VACUUM SWITCH. IN FACT, SUCH EXPOSURE IS THE SAME WHETHER GENERATED BY X-RAYS OR GAMMA RAYS FROM A COBALT-60 SOURCE IF THE ENERGY DISTRIBUTIONS ARE THE SAME. IN ALL THESE CASES, THE RADIATION SOURCE SHOULD BE KEPT UNDER PROPER SURVEILLANCE AND ADEQUATE CONTROL OF THE HEALTH PHYSICIST AT ALL TIMES IF ITS CONCENTRATION AND AVAILABILITY TO MAN ARE SUFFICIENT TO PRODUCE A RISK OF EXPOSURE IN EXCESS OF THOSE LEVELS ESTABLISHED BY THE NCRP, ICRP, AND THE FRC FOR THE OCCUPATIONAL WORKER AND FOR MEMBERS OF THE POPULATION AT LARGE.

*RADIATION SAFETY AND CONTROL + HIGH RADIATION + *X-RAY + *RADIATION, PUBLIC EDUCATION + RADIATION PROTECTION, ORGANIZATION + RADIATION IN PERSPECTIVE + *SAFETY PRINCIPLES AND PHILOSOPHY + GAMMA

7-29407
DAVIS RJ + TRUITT J + GILL JS
AEROSOL STUDIES IN THE REACTOR SAFETY PROGRAM AT OAK RIDGE NATIONAL LABORATORY
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3929 +. 4 PAGES

OUTLINES OF THE OBJECTIVES AND EXPERIMENTS BEING DONE IN THE REACTOR-SAFETY AEROSOL PROGRAM AT ORNL. WE ARE STARTING ONE SERIES OF MEASUREMENTS OF PARTICLE SIZE DISTRIBUTION OF NEUTRALIZED, ELECTRIC SPARK GENERATED, STAINLESS STEEL OXIDE PARTICLES AS A FUNCTION OF INITIAL CONCENTRATION, TURBULENCE, HUMIDITY AND TIME. IN A SECOND EXPERIMENT WE ARE STUDYING GROWTH OF PARTICLES OF ZR02, UO2, AND STAINLESS-STEEL OXIDE IN HIGH HUMIDITY AND CONDENSING STEAM.

PLUTONIUM DIOXIDE + *AEROSOL PROPERTIES + AEROSOL + *ANALYTICAL TECHNIQUE, CALIBRATION + SODIUM + OXIDE + FILTER, CASCADE IMPACTOR + ZIRCONIUM + *URANIUM DIOXIDE + *AEROSOL PRODUCTION + PARTICLE SIZE + PARTICLE SIZE DISTRIBUTION + STEAM + AEROSOL, RADIOACTIVE + *STEEL, STAINLESS

7-29408 ALSO IN CATEGORY 14

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29408 *CONTINUED*
SCHAFER WF + BOEGLY WJ + BRADSHAW RL + PARKER FL
PROJECT SALT VAULT- DESIGN OF EQUIPMENT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-P-3918 +. 23 PAGES, REFERENCES, 1965

HANDLING, TRANSFER, AND STORAGE TECHNIQUES APPLICABLE TO HIGH-LEVEL SOLID WASTE DISPOSAL OPERATIONS WERE SUCCESSFULLY DEMONSTRATED WITH SHORT-COOLED ETR FUEL ASSEMBLIES. THE DESIGN OF EQUIPMENT FOR THE ENCAPSULATION OF THE FUEL ASSEMBLIES, CROSS-COUNTRY SHIPMENT, TRANSFER FROM THE SURFACE TO THE MINE LEVEL, MOVEMENT WITHIN THE MINE, AND TRANSFER INTO STORAGE IS DESCRIBED. THE OPERATIONS ARE UNIQUE IN THAT HIGH-LEVEL RADIOACTIVE MATERIALS ARE TRANSFERRED FROM A SHIPPING CASK ON THE SURFACE TO THE MINE LEVEL 1000 FT BELOW WITHOUT THE USE OF HOT CELLS.

WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, SOLID + WASTE DISPOSAL, SOLID + *WASTE TREATMENT, FIXATION + *WASTE STORAGE + TRANSPORTATION AND HANDLING + *SHIPPING CONTAINER + *WASTE DISPOSAL, GENERAL + WASTE HANDLING + WASTE TREATMENT, GENERAL + *WASTE TRANSPORTATION

7-29409
LANGER S + ADAMS CC + ANDERSON EE + GRAVES JN + YAMAGUCHI T
THE RETENTION OF IODINE BY PYROLYTIC-CARBON-COATED NUCLEAR FUEL PARTICLES
GULF GENERAL ATOMIC, INC.
GA-8524 +. 7 PAGES, 1 TABLE, 1 FIGURE, MARCH 6, 1968

REPORTS PRIMARILY ON THE RETENTION OF FISSION-PRODUCT IODINE AND XENON, BUT ALSO ON BARIUM AND STRONTIUM, BY PYROLYTIC-CARBON-COATED (TH,U)C₂ FUEL PARTICLES CONSIDERED FOR USE IN HIGH-TEMPERATURE GAS-COOLED REACTORS (HTGRS). PARTICLES WITH 8.5% HEAVY METAL BURNUP RELEASED LESS THAN 4.4×10^{-5} TH OF THE Xe-135 AND LESS THAN 7.5×10^{-4} TH OF THE I-133 AT 1300 C. AT 24% BURNUP THE RELEASES WERE LESS THAN 5.6×10^{-5} TH AND LESS THAN 5.8×10^{-4} TH RESPECTIVELY, AT 1600 C.

*PYROLYTIC + CARBON + BARIUM + *COATED PARTICLE + KRYPTON + *FISSION PRODUCT RETENTION + XENON + IODINE + NOBLE GAS + STRONTIUM

7-29410
TANG IN + CASTLEMAN AW
RADIATION-INDUCED DECOMPOSITION OF METHYL IODIDE IN AIR
BROOKHAVEN NATIONAL LABORATORY, UPTON, NY
BNL-12854 +. SEPTEMBER 1968, 5 FIGURES, 13P

THE CO-60 GAMMA-RAY-INDUCED DECOMPOSITION OF CH₃I IN AIR WAS INVESTIGATED AT 15 C OVER AN INITIAL CONCENTRATION RANGE OF 3×10^{-9} TH TO 2.4×10^{-4} TH M. THE DECOMPOSITION REACTION IS PSEUDO-FIRST ORDER WITH RESPECT TO CH₃I AT CONCENTRATIONS BELOW 3×10^{-7} TH M AND IS ZERO ORDER AT 2.4×10^{-4} TH M. AT INTERMEDIATE CH₃I CONCENTRATIONS, HOWEVER, THE DECOMPOSITION DOES NOT FOLLOW A SIMPLE REACTION ORDER. A MECHANISM IS PROPOSED WHICH QUANTITATIVELY ACCOUNTS FOR THE OBSERVED REACTION KINETICS.

COBALT + DOSIMETRY, GENERAL + RADIATION DAMAGE + *ANALYTICAL TECHNIQUE, CALIBRATION + *CHEMICAL KINETICS + CHEMICAL REACTION + DOSE + *GAMMA + *RADIATION EFFECT + *ORGANIC IODIDE + CHROMATOGRAPHY

7-29544
GLUEKLER E + PASSIG E + HOECHEL J
CREEP BUCKLING OF FUEL ELEMENT CLADDINGS
13 PAGES, NUCL. ENG. DESIGN 7, PAGES 236-48 (1968)

BASED ON THEORETICAL WORK OF HOFF ET AL. AND ELLINGTON ON THE CREEP BUCKLING OF TUBES UNDER EXTERNAL PRESSURE, THE EQUATIONS TO CALCULATE THE QUALITY INCREASE OF FUEL ELEMENT CLADDINGS UNDER EXTERNAL PRESSURE ARE DERIVED.

*FUEL ELEMENT + CREEP + THEORETICAL INVESTIGATION + BUCKLING + *REACTOR, GENERAL + *CLADDING

7-29546
COFFMAN WA + DUNCKHORST FT + LYNN LL + MEYER JE
ANALYSIS OF A WATERLOGGED FUEL ELEMENT SUBJECTED TO A POWER EXCURSION
WESTINGHOUSE ELECTRIC CORP., WEST MIFFLIN, PA.
10 PAGES, NUCL. APPL., 4 PAGES 372-81 (JUNE 1968)

A METHOD WAS DEVELOPED FOR PREDICTING EXCESSIVE CLAD SHEATH DISTORTION IN A CYLINDRICAL WATERLOGGED REACTOR FUEL ELEMENT SUBJECTED TO A TRANSIENT INCREASE IN POWER. THE ANALYTICAL MODEL INCLUDES HEAT TRANSFER, LINEAR ELASTIC STRESS AND DEFORMATION, AND DEFECT FLOW EQUATIONS TO YIELD TRANSIENT VALUES OF INTERNAL PRESSURE, CLAD STRESS, AND CLAD STRAIN. DETAILS OF THE MODEL AND SEVERAL COMPARISONS WITH OBSERVED WATERLOGGING INCIDENTS ARE GIVEN.

*EXCURSION, LARGE + ELASTICITY + DEFORMATION + *FUEL ELEMENT + *REACTOR, GENERAL + STRESS + *THEORETICAL INVESTIGATION

7-29547
STIEVENART M + RENARD A

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29547 *CONTINUED*
PROPAGATION OF FUEL MELTING IN A FAST REACTOR USING A CERAMIC FUEL
13 PAGES, BULL. INFORM. SCI. TECH. (PARIS), NO. 124, PAGES 3-16 (MARCH 1968)

THE CODE PROFUSION PERMITS STUDY OF PROPAGATION OF FUSION IN THE CERAMIC FUEL PINS OF FAST REACTOR AND THE REACTIVITY VARIATION WHICH CAN BE ASSOCIATED WITH A POSSIBLE FUEL SLUMPING IN THE AXIAL HOLES RESULTING FROM THE MIGRATION OF POROSITY IN THE VIRGIN FUEL. THE TEMPERATURE DISTRIBUTIONS OF THE COOLANT, FUEL CAN, AND FUEL ARE CALCULATED. ONE CALCULATES THE CORE POWER LIMIT, WHICH INITIATES THE FUEL FUSION. AFTERWARDS THE PROPAGATION OF FUEL MELTING IS CALCULATED WHEN THE CORE POWER LIMIT IS OVERPASSED. FOR EACH CONFIGURATION, MOLTEN FUEL DISPLACEMENTS ARE PERFORMED AND THE SUBSEQUENT REACTIVITY CHANGE IS EVALUATED. THE METHOD HAS BEEN USED FOR THE ENRICO FERMI OXIDE CORE DESIGN AND RAPSODIE.

*CERAMICS + *REACTOR, FAST + *FUEL MELTDOWN + REACTOR, FAST + FERMI (LMFBR) + REACTOR, LMCR + COMPUTER PROGRAM + REACTOR, BREEDER + TEMPERATURE GRADIENT + COOLANT QUALITY + *FUEL ELEMENT

7-29548 ALSO IN CATEGORY 17
MCCARTHY WJ + JENS WH
REVIEW OF THE FERMI REACTOR FUEL DAMAGE INCIDENT AND A PRELIMINARY ASSESSMENT OF ITS SIGNIFICANCE TO THE DESIGN AND OPERATION OF SODIUM COOLED FAST REACTORS
POWER REACTOR DEVELOPMENT CO., MONROE, MICH.
22 PAGES, BULL. INFORM. SCI. TECH. (PARIS), NO. 124, PAGES 39-50 (MARCH 1968) (IN FRENCH)

THE STATUS OF THE INVESTIGATION OF THE EXTENT AND CAUSE OF THE OCTOBER 5, 1966, FUEL DAMAGE AT THE ENRICO FERMI SODIUM COOLED FAST BREEDER REACTOR IS GIVEN AS OF SEPTEMBER 13, 1967. A FOREIGN OBJECT HAS BEEN FOUND IN THE CORE INLET PLENUM WHICH IS BELIEVED TO HAVE BEEN THE CAUSE OF THE DAMAGE. THE RESULTS OF EXAMINATIONS OF SIX DAMAGED FUEL SUBASSEMBLIES ARE GIVEN AND SOME PRELIMINARY OBSERVATIONS ARE MADE CONCERNING POSSIBLE IMPROVEMENTS WHICH MAY BE MADE IN THE DESIGN OF SODIUM COOLED FAST REACTORS TO AID IN THE PREVENTION, DETECTION AND RECOVERY FROM SIMILAR INCIDENTS.

*FAILURE, FUEL ELEMENT + *FERMI (LMFBR) + REACTOR, BREEDER + *DAMAGE + FUEL ELEMENT + COMPARISON, FACILITIES + REACTOR, FAST + REACTOR, FAST + REACTOR, LMCR

7-29591
VOIGT AF
REACTOR MATERIALS DEVELOPMENT QUARTERLY FOR DIVISION OF REACTOR DEVELOPMENT, USAEC, APRIL-JUNE 1968
AMES LABORATORY
IS-RD-14 +. 48 PAGES, 2 FIGURES, 6 TABLES, JUNE 1968

THE SCOPE OF THE PROGRAM IS THE PREPARATION AND STUDY OF NEW AND IMPROVED MATERIALS OF PRESENT AND FUTURE INTEREST TO THE RESEARCH PROGRAM. INCLUDED IN THESE MATERIALS ARE FUEL AND BLANKET METALS, METALS WHICH HAVE STRUCTURAL, CONTAINER, OR CONTROL PROPERTIES OF VALUE IN REACTOR DESIGN, AND COMPOUNDS AND CERAMICS OF POTENTIAL USE IN REACTORS. CURRENTLY MORE EMPHASIS IS DIRECTED TOWARD METALS LIKE VANADIUM, WHICH HAVE GREAT POTENTIAL FOR USE IN FAST BREEDER REACTORS.

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

RARE EARTH + *CESIUM + METAL + *ALLOY + METAL, LIQUID + *THORIUM + PROPERTY, PHYSICAL + CHROMIUM + OXIDE + URANIUM + *VANADIUM + TANTALUM + *YTTRIUM + MATERIAL + ZIRCONIUM + OXIDATION + *CORROSION

7-29594
SAROUL J
INVESTIGATION ON THE BEHAVIOUR OF FISSION PRODUCTS IN SODIUM AND ARGON - PIRANA EXPERIMENTS
FRANCE. COMMISSARIAT A L ENERGIE ATOMIQUE + CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE
16 PAGES, 4 FIGURES, 3 TABLES, 1 REFERENCE, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

THE PIRANA EXPERIMENT WAS RUN ESSENTIALLY TO STUDY THE BEHAVIOR OF FISSION PRODUCTS IN SODIUM LOOPS UNDER CONDITIONS AS CLOSE AS POSSIBLE TO REALITY. AFTER A BRIEF DESCRIPTION OF THE EXPERIMENTAL UNIT WHICH PERMITS THE MELTING OF IRRADIATED URANIUM IN 120 LITERS OF SODIUM AT 550 C, THE MAIN RESULTS ARE PRESENTED. THEY CONCERN THE ACTIVITY DISTRIBUTION IN A LARGE VOLUME OF STATIC SODIUM, THE TRANSMISSION COEFFICIENT OF IODINE TO ARGON FROM LIQUID SODIUM, THE BEHAVIOR OF RARE GASES IN SODIUM AND ARGON AND THE WALL CONTAMINATION. AFTER DISCUSSION OF THESE RESULTS, ONE CONCLUDES BY EMPHASIZING A CERTAIN NUMBER OF PROBLEMS WHICH WE SHALL TRY TO SOLVE BY THE IMPLEMENTATION OF SELECTIVE EXPERIMENTS.

*OUT OF PILE LOOPS AND EXPERIMENTS + FUEL MELTDOWN + ARGON + NOBLE GAS + *SODIUM + FISSION PRODUCT TRANSPORT + URANIUM + *IN PILE LOOP + FISSION PRODUCT, IODINE + IODINE

7-29596
SKINNER DF + WOLF TW + WADE WZ
PORT APPARATUS FOR EXTRACTING MATERIALS FROM RADIOACTIVE ENCLOSURE
CANADIAN PATENT 763,532 +. 8 PAGES, 1 FIGURE, AUGUST 17, 1964

THIS INVENTION RELATES TO MEANS OF COMMUNICATION WITH ENCLOSED AREAS AND, MORE PARTICULARLY, TO A PORT SYSTEM FOR REMOVING SAMPLES FROM CONTAMINATED ENCLOSED ATMOSPHERES.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29596 *CONTINUED*
AVAILABILITY - FOREIGN PATENTS MAY BE OBTAINED IN PHOTOCOPY FROM THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. (\$0.30 CENTS/PAGE)

FUEL HANDLING + CANADA + *CONTAINMENT PENETRATION, PIPE + FUEL HANDLING MACHINE + *GLOVE BOX + *DESIGN CRITERIA + PATENT

7-29597
BLOCHER JM
NUCLEAR FUEL PARTICLES COATED WITH MIXTURE OF PYROLYTIC CARBON AND SILICON CARBIDE
CANADIAN PATENT 745,551 +. 12 PAGES, 2 FIGURES, 3 TABLES, NOVEMBER 1, 1966

A COATED NUCLEAR REACTION FUEL PARTICLE COMPRISING A CORE OF FISSIONABLE FUEL MATERIAL AND, CONCENTRICALLY SURROUNDING IT, A LAYER OF SUBSTANTIALLY PURE PYROLYZED CARBON, AND A PLURALITY OF LAYERS OF PYROLYZED CARBON HAVING OUTWARDLY INCREASING LEVELS OF SILICON CARBIDE, THE CORE AND THE LAYER OF SUBSTANTIALLY PURE PYROLYZED CARBON BEING SO ARRANGED AS TO DEFINE A VOID SPACE THEREBETWEEN.

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

FUEL INTEGRITY + CANADA + *COATED PARTICLE + *PYROLYTIC + *SILICON + PATENT + *CARBON + GRAPHITE

7-29598
QUARTERLY TECHNICAL PROGRESS REPORT, ATOMICS INTERNATIONAL
ATOMICS INTERNATIONAL
AI-AEC-12, 680 +. 206 P., JAN.-MARCH 1968

PROGRESS REPORT ON FISSION-PRODUCT CONTAMINATION AND CONTROL STUDIES, SODIUM FIRE FISSION PRODUCT RELEASE, BOILING-STUDIES FOR SODIUM-REACTOR SAFETY, SODIUM-REACTOR EXPERIMENT OPERATION, COOLANT MANAGEMENT, MIXED CARBIDE FUELS (IRRADIATION STUDIES), SODIUM CHEMISTRY, HIGH TEMPERATURE CHEMISTRY, AND RADIATION CHEMISTRY.

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

CONTAMINATION + FISSION PRODUCT TRANSPORT + *FIRE + *FISSION PRODUCT RELEASE, GENERAL + *CARBIDE + *URANIUM CARBIDE + *PLUTONIUM + ALLOY + *SODIUM + FUEL INTEGRITY

7-29749 ALSO IN CATEGORY 8
KOZLOV GI + KOZLOVA SG
CALCULATIONS OF THE RATES OF REACTIONS OF CARBON WITH GASES
INSTITUT ATOMNOI ENERGII, AKADEMIYA NAUK SSSR
4 PAGES, RUSSIAN J. OF PHYS. CHEM., 41(5), PP. 568-571 (MAY 1967)

THE HIGH TEMPERATURE REACTION OF CARBON WITH OXYGEN, CARBON DIOXIDE, OR WATER VAPOR IS POSTULATED TO BE CONTROLLED BY THE CONCENTRATION OF ATOMIC OXYGEN IN THE GAS PHASE. COMPARISON BETWEEN THE THEORETICAL MODEL AND THE EXPERIMENTAL DATA IS DISCUSSED

*ANALYTICAL MODEL + CHEMICAL REACTION + COMPARISON, THEORY AND EXPERIENCE + *OXYGEN + *CARBON DIOXIDE + *CHEMICAL KINETICS + *WATER VAPOR + *THEORETICAL INVESTIGATION + *CARBON + USSR

7-29759
MEGERTH FH
ZIRCALOY-CLAD UO2 FUEL ROD EVALUATION PROGRAM
GENERAL ELECTRIC, SAN JOSE, CALIFORNIA
GEAP-5624 +. 28 PAGES, 17 FIGURES, 7 TABLES, MAY 1968

TO INVESTIGATE IN DETAIL THE PERFORMANCE OF THE SA-1 FUEL RODS AND TO DETERMINE THE ISOTOPIC COMPOSITION OF THE HIGHLY EXPOSED FUEL, A TWO-PHASE PROGRAM OF DESTRUCTIVE EXAMINATION AND ANALYSIS WAS DRAWN UP. FOR THE INITIAL PHASE OF THE PROGRAM, 10 RODS WERE REMOVED FROM THE ASSEMBLY IN JANUARY 1967 AND WERE SHIPPED TO THE VALLECITOS NUCLEAR CENTER. THE EXAMINATION OF THESE 10 RODS IS NOW IN PROGRESS.

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

*FUEL ELEMENT + ZIRCALOY + URANIUM DIOXIDE + FISSION GAS RELEASE + *REACTOR, POWER + CRUD + *IRRADIATION TESTING

7-29882 ALSO IN CATEGORY 4
CLEARY RE + EMANUELSON R + LUOMA W + AMMANN C
FINAL REPORT. DETERMINATION OF THE EMISSIVITY OF MATERIALS
PRATT AND WHITNEY AIRCRAFT
PWA-3278 +. 128 PAGES, 82 FIGURES, 34 TABLES, REFERENCES, JUNE 30, 1968

A FOUR-YEAR PROGRAM WAS CONDUCTED TO DETERMINE THE SUITABILITY OF SELECTED HIGH-EMITTANCE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29882 *CONTINUED*

MATERIALS FOR USE AS COATINGS ON BERYLLIUM, COLUMBIUM-1 PERCENT ZIRCONIUM, AND AISI-310 STAINLESS STEEL WHEN THESE MATERIALS ARE USED IN SPACE POWERPLANT RADIATORS. THE COATED BERYLLIUM SPECIMENS WERE AGED IN VACUUM AT 800, 1200, AND 1400 F FOR UP TO 1000 HOURS. THE EFFECTS OF THE AGING PROCESS ON THE STABILITY AND EMISSION OF THE COATINGS WERE DETERMINED. THE MATERIALS WERE COATED BERYLLIUM AND ALUMINUM OXIDE/ALUMINUM TITANATE.

AVAILABILITY - NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SCIENTIFIC AND TECHNICAL INFORMATION FACILITY, P. O. BOX 33, COLLEGE PARK, MARYLAND 20740

*HIGH RADIATION + SURFACE, GENERAL + NIOBIUM + OXIDE + *THERMAL PROPERTY + *HIGH TEMPERATURE + STEEL, STAINLESS + *COATING, SURFACE + BERYLLIUM + ALUMINUM + ZIRCONIUM + DIFFUSION + TITANIUM

7-29909 ALSO IN CATEGORY 13
FARKAS MS + CHENEY D + BROCKWAY CM + STORHOK VW
THE DEVELOPMENT OF BeO-THO₂-PUO₂ FUELS
BATTTELLE MEMORIAL INST., COLUMBUS, OHIO
BML-X-10242 +. 28 PAGES, FIGURES, 5 REFERENCES, SEPT. 27, 1968

STUDIES INDICATED THAT THE SOLID SOLUBILITIES OF THO₂, PUO₂, AND TH (0.5)PU(0.5)DIOXIDE IN BeO ARE LESS THAN 0.05 M/O AT TEMPERATURES BELOW 1700 C. THE MINIMUM SOLIDUS TEMPERATURE IN THE BeO-THO₂-PUO₂ SYSTEM IS 2150 C AND OCCURS AT THE BeO-PUO₂ EUTETIC. (TH,PU)O₂ SOLID SOLUTIONS WERE CHEMICALLY STABLE IN WET HELIUM, CO₂, AND AIR AT 1600 C. IN HYDROGEN, HOWEVER, THE SOLID SOLUTION DECOMPOSED TO (TH,PU)O₂-X AND PU₂O₃. TECHNIQUES FOR FABRICATING FUEL OXIDE DISPERSIONS IN HIGH-DENSITY FINE-GRAINED BeO MATRICES WERE DEVELOPED.

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

*FUEL, PELLET TYPE + PHASE CHANGE + SOL-GEL PROCESS + *FABRICATION + *FUEL ELEMENT + PLUTONIUM DIOXIDE + *FUEL CONVERSION + EXPERIMENT, GENERAL + THORIUM + BERYLLIUM

7-29910 ALSO IN CATEGORIES 12 AND 13
BECK WN + FOUSEK RJ + KITTEL JH
THE IRRADIATION BEHAVIOR OF HIGH-BURNUP URANIUM-PLUTONIUM ALLOY PROTOTYPE FUEL ELEMENTS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7388 +. 47 PAGES, 26 FIGURES, 17 TABLES, 28 REFERENCES, MAY 1968

ALLOYS CONTAINING BOTH URANIUM AND PLUTONIUM ARE BEING DEVELOPED AS FUELS FOR FAST BREEDER REACTORS. THESE INVESTIGATIONS STUDIED VARIATIONS IN THE (1) PLUTONIUM CONCENTRATION IN THE FUEL PIN, (2) CLADDING WALL THICKNESS, (3) IRRADIATION TEMPERATURE, (4) VENTED PLENUMS, (5) TYPE OF CLADDING MATERIALS, AND (6) TYPE OF FUEL MATERIALS (SOLID FUEL, DISK-TYPE FUEL, AND SODIUM-IMPREGNATED POWDER FUEL). THE INVESTIGATIONS DETERMINED FISSION-GAS RELEASE FROM THE FUEL AS A FACTOR OF VOLUME EXPANSION, AND MAXIMUM ATTAINABLE FUEL BURNUPS.

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

URANIUM + *IRRADIATION TESTING + ZIRCONIUM + EXPERIMENT, GENERAL + ALLOY + *REACTOR, BREEDER + FISSION PRODUCT RETENTION + TITANIUM + EXPANSION + PLUTONIUM + *FABRICATION + *REACTOR, FAST + CLADDING + *FUEL ELEMENT

7-29922 ALSO IN CATEGORY 6
KLANN P + PAULSON W
COMPARISON OF MEASURED AND MONTE CARLO CALCULATED GAMMA DOSE IN THE TUNGSTEN WATER-MODERATED CRITICAL ASSEMBLY
LEWIS RESEARCH CENTER
NASA-TM-X-52,358 +. 14 PAGES, 10 FIGURES, 5 REFERENCES, 1967

ONE OF THE IMPORTANT OBJECTIVES OF THE TUNGSTEN WATER-MODERATED ROCKET REACTOR FEASIBILITY STUDY PROGRAM CONDUCTED BY THE LEWIS RESEARCH CENTER WAS TO INVESTIGATE HOW ACCURATELY THE GAMMA HEATING COULD BE CALCULATED IN THE CORE WATER MODERATOR AND IN THE CORE STRUCTURE. WORK TOWARD THIS OBJECTIVE PROCEEDED ALONG TWO LINES. FIRST, A MONTE-CARLO DIGITAL PROGRAM, ATHENA, WAS DEVELOPED BY THE UNITED NUCLEAR CORP. FOR THE LEWIS RESEARCH CENTER TO CALCULATE THE RATE OF GAMMA HEAT DEPOSITION AS A FUNCTION OF POSITION IN THE TUNGSTEN WATER-MODERATED NUCLEAR ROCKET. SECOND, MEASUREMENTS WERE CONDUCTED TO MEASURE THE GAMMA DOSE THROUGHOUT THE CORE OF THE TUNGSTEN WATER-MODERATED MOCKUP CRITICAL ASSEMBLY.

AVAILABILITY - P KLANN AND W. PAULSON, LEWIS RESEARCH CENTER, CLEVELAND, OHIO

MODERATOR + *CRITICAL ASSEMBLY FACILITY + *MONTE CARLO + SPACECRAFT + ANALYTICAL MODEL + *COMPUTER PROGRAM + *TUNGSTEN + CRITICALITY SAFETY + GAMMA EMITTER

7-29923 ALSO IN CATEGORY 6
POLLARD JP
CALCULATION METHODS FOR MULTIGROUP NEUTRON CROSS SECTIONS USED IN BURNUP STUDIES
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT
AAEC/E-184 +. 49 PAGES, REFERENCES, OCTOBER 1967

CALCULATION OF BURNUP OF MATERIAL COMPOSING A NUCLEAR REACTOR IS IMPORTANT IN A FEASIBILITY STUDY

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29923 *CONTINUED*

OF LIFETIME OF FUEL IN POSSIBLE REACTOR SYSTEMS. THIS WORK DISCUSSES (I) A BASIS FOR CALCULATING A FLUX SPECTRUM IN ORDER TO OBTAIN MULTIGROUP CROSS SECTIONS AND (II) A METHOD FOR SOLVING THE BURNUP EQUATIONS. UNDER (I), PARTICULAR ATTENTION IS PAID TO THE CALCULATION OF MULTIGROUP RESONANCE CROSS SECTIONS, AND UNDER (II), A SIMPLE AND EFFECTIVE ANALYTIC TECHNIQUE IS DERIVED. IN ADDITION, THIS WORK PRESENTS IN A CONSISTENT MANNER, DEVELOPMENTS IN THE FIELD OF REACTOR PHYSICS WHICH AFFECT THE CALCULATION OF MULTIGROUP DATA. THE PHYSICAL MODEL ADOPTED TO SIMPLIFY THE OTHERWISE UNMANAGEABLE EQUATIONS IS APPROPRIATE TO A LARGE RECIRCULATING FUEL REACTOR OPERATING UNDER EQUILIBRIUM CONDITIONS.

*FLUX DISTRIBUTION + CROSS SECTION + *FUEL BURNUP + *THEORETICAL INVESTIGATION + REACTOR, FAST + ANALYTICAL MODEL

7-29937

DEONIGI DE + MCKEE RW + HAFFNER DR
ISOTOPE PRODUCTION AND AVAILABILITY FROM POWER REACTORS
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-716 +. 147 PAGES, TABLES, FIGURES, REFERENCES, JULY 1968

GIVES THE PROJECTED AVAILABILITY OF RADIOACTIVE AND STABLE ISOTOPES FROM U.S. POWER REACTORS THROUGH THE YEAR 1990. THE AVAILABILITY PROJECTIONS ARE FOR TOTAL SPENT FUEL, U-235, U-236, TOTAL PU, NP-237, PU-238, AM-241, AM-243, CM-242, CM-244, PM-147, CE-144, CS-137, SR-90, KR-85, RU-106, H-3, TC-99, RH-103, STABLE PD, STABLE XE, STABLE KR, AND STABLE RU. ALSO INCLUDED IN THIS REPORT IS A COMPLETE PRINTOUT OF THE ISOPRO COMPUTER PROGRAM FOR THE EIGHT CASES EVALUATED.

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

*COMPUTER PROGRAM + CURIUM + AMERICIUM + CESIUM + REACTOR, POWER + PLUTONIUM + URANIUM + *RADIOISOTOPE + CERIUM

7-29938

ALSO IN CATEGORY 9

SILK MG
THE ENERGY SPECTRUM OF THE GAMMA RADIATION IN THE DAPHNE CORE
UKAEA, BERKS HARWELL
AERE-M 2038 +. 10 FIGURES, 2 TABLES, REFERENCES, JUNE 1968

THE USE OF A SMALL LITHIUM-DRIFTED SILICON DETECTOR ENABLED THE DETERMINATION OF THE SPECTRUM OF THE GAMMA-RADIATION IN THE DAPHNE CORE. SPECTRA WERE DETERMINED DURING LOW-POWER RUNS AND ALSO AFTER SHUTDOWN. THE SPECTRUM RECORDED BY THE SPECTROMETER, ARISING MAINLY FROM COMPTON ELECTRONS, WAS ITERATIVELY UNFOLDED TO YIELD THE INCIDENT GAMMA-RAY SPECTRUM. CALCULATIONS OF REASONABLE ACCURACY ARE AVAILABLE FOR THE SPECTRA BOTH AT POWER AND AFTER SHUTDOWN, AND THESE ARE IN GOOD AGREEMENT WITH THE EXPERIMENTAL RESULTS.

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

*SPECTROMETRY, GAMMA + COMPARISON, THEORY AND EXPERIENCE + X-RAY + REACTOR PHYSICS + *GAMMA

7-29940

DESCAMPS C + RYGAERT J
BEHAVIOR OF FISSION PRODUCTS IN THE ATMOSPHERE SURROUNDING A SODIUM COOLED FAST REACTOR DURING ACCIDENTAL COOLANT FIRES
SOCIETE REIGE POUR L'INDUSTRIE NUCLEAIRE, BRUSSELS
14 PAGES, 3 TABLES, CONFERENCE INTERNATIONALE SUR LA SURETE DES REACTEURS A NEUTRONS RAPIDES, VI/1, SEPT. 22, 1967

AS TO SAFETY OF FAST REACTORS, THE MOST SEVERE ACCIDENT CONSIDERED MIGHT LEAD TO THE SUDDEN RUPTURE AT HIGH TEMPERATURE OF THE PRIMARY CIRCUIT. SUCH AN ACCIDENT WOULD PUT SODIUM, CONTAMINATED BY FISSION PRODUCTS, INTO CONTACT WITH THE ATMOSPHERE. IT IS IMPORTANT TO KNOW THE VARIOUS CONSEQUENCES OF THE RESULTING EXPLOSIVE REACTION FROM THE STANDPOINT OF CONTAMINATION, TEMPERATURE, AND PRESSURE. AN EXPERIMENTAL DEVICE REPRESENTING AT REDUCED SCALE THE CONDITIONS OF ACCIDENT HAS BEEN SET UP. IN THE FIRST STAGE OF THE INVESTIGATION THE FIRST FISSION PRODUCT EXAMINED WAS IODINE.

AVAILABILITY - CL. DESCAMPS, BELGONUCLEAIRE, S. A., 35, RUE DES COLONIES, BRUXELLES 1, BELGIQUE

*FISSION PRODUCT, IODINE + SAMPLING + IODINE + AIRBORNE RELEASE + OXIDATION + *ACCIDENT MODEL + *REACTOR, LMFBR + AEROSOL + EXPLOSION + AEROSOL PROPERTIES + *SODIUM + FISSION PRODUCT RELEASE, GENERAL + *FIRE + DEPOSITION

7-29942

AZOEUF P + GUILLON A + LEFEVRE J
ANALYTICAL METHODS DEVELOPED IN THE COURSE OF FISSION PRODUCT RECOVERY. I. ANALYSIS OF FISSION-PRODUCT SOLUTIONS
CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
EUR-3480F +. 1967

THE ANALYSIS OF SOLUTIONS OF FISSION PRODUCTS IS MOTIVATED BY THE NEED TO KNOW THE EXACT COMPOSITION IN ORDER TO DEVELOP PROCESSES OF SEPARATION FOR CERTAIN FISSION ELEMENTS. IN CERTAIN

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-29942 *CONTINUED*

CASES IT IS NECESSARY TO DETERMINE SEVERAL ELEMENTS. THE ANALYTICAL METHODS ADAPTED OR PERFECTED IN THE COURSE OF THE CONTRACT IN ORDER TO ATTAIN THESE OBJECTIVES ARE DESCRIBED BY TRACING THEIR EVOLUTION.

*IODINE + *ANALYTICAL TECHNIQUE, CALIBRATION + RADIOCHEMICAL ANALYSIS + FISSION PRODUCT, IODINE

7-29944 ALSO IN CATEGORY 11

BRIZES WF + FRANCE LL
COMPRESSIVE CREEP BEHAVIOR OF NIOBIUM CARBIDE - GRAPHITE COMPOSITES
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA., ASTRONUCLEAR LAB
WANT-TME-1761 +. 8 FIGURES, 1 TABLE, 11 REFERENCES, 1967

THE COMPRESSIVE CREEP BEHAVIOR OF COLD-PRESSED AND SINTERED NIOBIUM CARBIDE-GRAPHITE COMPOSITES WAS STUDIED AS A FUNCTION OF TEMPERATURE AND COMPOSITION. THE EQUATION PRESENTED IS PROPOSED TO REPRESENT THE CREEP BEHAVIOR OF GRAPHITE RICH COMPOSITES AS A FUNCTION OF COMPOSITION AND STRESS. THE ACTIVATION ENERGY, ACTIVATION VOLUME AND STRESS DEPENDENCE OF CREEP WERE DETERMINED, AND THE POSSIBLE MECHANISMS CONTROLLING DEFORMATION WERE EXAMINED.

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

STRESS + CREEP PROPERTY + NOZZLE + *GRAPHITE + *CARBIDE + ACTIVATION ENERGY + *CREEP + *NIOBIUM

7-29946

SCHWENDIMAN LC + MISHIMA J + RADASCH CA
AIRBORNE RELEASE OF PARTICLES IN OVERHEATING INCIDENTS INVOLVING PLUTONIUM METAL AND COMPOUNDS
PACIFIC NORTHWEST LABORATORY, BATTELLE MEMORIAL INSTITUTE, RICHLAND, WASHINGTON
BNWL-SA-1735 +. 3 PAGES, JULY 31, 1968

THIS WORK DESCRIBES THE OBSERVATIONS FROM A STUDY IN WHICH THE AIRBORNE RELEASE OF PLUTONIUM AND ITS COMPOUNDS WAS MEASURED DURING AN EXPOSURE OF THE MATERIAL OF INTEREST CONTAINING PLUTONIUM TO TEMPERATURES WHICH MAY RESULT FROM FIRES. AEROSOL RELEASED FROM SMALL CYLINDERS OF METALLIC PLUTONIUM IGNITED IN AIR AT TEMPERATURES FROM 410 TO 650 C RANGED FROM 3X10⁻⁶TH TO 5X10⁻⁵TH WT. (%). MANY EXPERIMENTS WERE CARRIED OUT IN WHICH PLUTONIUM COMPOUNDS AS POWDERS WERE HEATED AT TEMPERATURES RANGING FROM 700 TO 1000 C, WITH SEVERAL AIR FLOWS. THE DATA CAN BE USED IN ASSESSING THE CONSEQUENCES OF OFF-STANDARD SITUATIONS INVOLVING PLUTONIUM AND ITS COMPOUNDS IN FIRES.

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

PLUTONIUM DIOXIDE + *AEROSOL PRODUCTION + OXIDATION + PLUTONIUM OXIDE + *PLUTONIUM + *FIRE + *AIRBORNE RELEASE + *PARTICLE SIZE DISTRIBUTION + PARTICLE SIZE + AEROSOL + *METAL + *RELEASE RATE + AEROSOL PROPERTIES + IGNITION + FISSION PRODUCT RELEASE, GENERAL + PYROPHORIC REACTION

7-30002 ALSO IN CATEGORY 5

HENZEL N + KLEIN-TEBBE A
ERGÄZENDE UNTERSUCHUNG CHEMISCHER REAKTIONER VON URANDIOXID MIT LUFT UND WASSERDAMPF OBERHALB 1000 C
BATTELLE-INSTITUT FRANKFURT AM MAIN
63 PAGES, 12 FIGURES, 12 TABLES, 9 REFERENCES, JANUARY 30, 1968

IN AN EARLIER RESEARCH PROJECT, PERFORMED AT BATTELLE-FRANKFURT AND SPONSORED BY THE GERMAN BUNDESMINISTERIUM FÜR WISSENSCHAFTLICHE FORSCHUNG, THE INITIAL PHASE OF CHEMICAL REACTIONS BETWEEN URANIUM, URANIUM DIOXIDE, OR URANIUM CARBIDE AND OXYGEN OR WATER VAPOR WAS INVESTIGATED KINETICALLY. THIS WORK, DEALING POINTEDLY WITH THE SYSTEMS UO₂/AIR AND UO₂/WATER VAPOR AT 1200, 1500, AND 1800 C, SUBSTANTIALLY CONFIRMED THE PREVIOUS RESULTS.

FUEL INTEGRITY + STEAM + OXYGEN + CHEMICAL KINETICS + OXIDATION + URANIUM OXIDE + CHEMICAL REACTION

7-30106

BOHME P + SCHIFFERT H
URANIUM REACTION RATE MEASUREMENT IN THE STEAM-COOLED FAST REACTOR SNEAK, ASSEMBLY 3A-2
KERNFORSCHUNGSZENTRUM, INSTITUT FÜR NEUTRONENPHYSIK
KFK-811 +. 42 PAGES, 20 FIGURES, 6 TABLES, 10 REFERENCES, JUNE 1968

URANIUM REACTION RATE TRAVERSES AS WELL AS THEIR FINE STRUCTURE WERE MEASURED AT THE KARLSRUHE FAST ZERO POWER REACTOR SNEAK ASSEMBLY 3A-2. FOR THIS PURPOSE URANIUM METAL FOILS WERE IRRADIATED IN THE REACTOR. THE GAMMA X-RAY COINCIDENCE TECHNIQUE WAS APPLIED TO DETERMINE THE RELATIVE CAPTURE RATES IN U-238. TO GET ABSOLUTE RATES BY THIS METHOD THE COUNTING EQUIPMENT WAS CALIBRATED BY AN AM-243 SOURCE. THE RELATIVE FISSION RATES WERE OBTAINED BY INTEGRAL COUNTING OF THE FISSION PRODUCT GAMMA-ACTIVITY ABOVE 660 KEV GAMMA-ENERGY. THESE RATES WERE LINKED TO AN ABSOLUTE PARALLEL PLATE FISSION CHAMBER EXPERIMENT. THE EXPERIMENTAL RATE RATIOS WERE COMPARED WITH CALCULATED ONES.

RATE + URANIUM + *ANALYTICAL TECHNIQUE, CALIBRATION + CROSS SECTION + REACTOR, FAST + FLUX DISTRIBUTION + *IN PILE EXPERIMENT + METAL + INSTRUMENT, NUCLEAR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30113 ALSO IN CATEGORY 12
MCCLINTOCK DR
PERFORMANCE OF ZIRCALOY CLAD FUEL RODS IN SAXTON
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PA.
WCAP-3269-43 +. 53 PAGES, 28 FIGURES, 3 TABLES, 8 REFERENCES

SIX EXPERIMENTAL ASSEMBLIES CONTAINING ZIRCALOY-CLAD UO₂ FUEL RODS WERE IRRADIATED AS PART OF THE SAXTON REACTOR CORE TO PROOF TEST MATERIALS AND FABRICATION VARIABLES CONSIDERED FOR USE IN A LARGE PLANT CHEMICAL-SHIM ENVIRONMENT. DETAILED EXAMINATIONS WERE PERFORMED ON SELECTED FUEL RODS, INCLUDING INTENTIONALLY DAMAGED RODS, REPRESENTING PEAK BURNUPS TO 17,000 MWD/MTU AND INTEGRATED FAST FLUX EXPOSURE. RESULTS SHOWED SATISFACTORY PERFORMANCE IN ALL CASES. NO EFFECT OF THE BORATED ENVIRONMENT OR OF IN-PILE EXPOSURE ON THE CORROSION RATE AND ASSOCIATED HYDROGEN PICKUP OF THE ZIRCALOY CLADDING WAS DETERMINED.

AVAILABILITY - WESTINGHOUSE ELECTRIC CORPORATION, ATOMIC POWER DIVISIONS, P. O. BOX 355, PITTSBURGH, PA. 15230

URANIUM DIOXIDE + *FUEL ELEMENT + *IRRADIATION TESTING + CORROSION + ZIRCALOY + EXPERIMENT, GENERAL + *SAXTON (PWR) + CRUD + REACTOR, PWR + CLADDING

7-30125 ALSO IN CATEGORY 11
RAU RC + LADD RL + MOTEFF J
RADIATION DAMAGE IN VANADIUM
GENERAL ELECTRIC COMPANY, MISSILE AND SPACE DIVISION, CINCINNATI, OHIO
(GEMP-612) + CONF 680905-3 +. 3 PAGES, 1968

TRANSMISSION ELECTRON MICROSCOPY HAS BEEN USED TO STUDY THE MICROSTRUCTURE OF VANADIUM IRRADIATED AT REACTOR AMBIENT TEMPERATURE (ABOUT 70 C) TO A FAST (E GREATER THAN 1 MEV) TIME-INTEGRATED NEUTRON FLUX OF 5×10^{19} N/CM². POST-IRRADIATION ANNEALING AT OTHER HIGHER TEMPERATURES WAS USED FOR FURTHER STUDY. THE OBSERVATIONS OF THE TEST ARE GIVEN.

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

*TEMPERATURE REACTIVITY EFFECT + EXPERIMENT, GENERAL + RADIONUCLIDE, INDUCED + *RADIATION EFFECT + *VANADIUM + REACTOR POWER + RADIATION DAMAGE

7-30198 ALSO IN CATEGORY 17
PEACH BOTTOM MONTHLY OPERATIONS REPORT 32 OCTOBER 1968
PHILADELPHIA ELECTRIC COMPANY
12 PAGES, REPORT NO. 32, OCTOBER 1968, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

ON OCT. 4, CONTAINMENT WAS ENTERED AND KNOWN STEAM LEAK FOUND NOT INCREASED. ON FOUR OCCASIONS, MAIN LOOP ACTIVITY ROSE ABRUPTLY BRINGING TO 11 THE NUMBER OF FAILED UNPURGED FUEL ELEMENTS (WITH TOTAL MAIN COOLANT ACTIVITY 27 CURIES). ON OCT. 23, REACTOR WAS BROUGHT OFF LINE AND CONTAINMENT DEINERTED FOR THE 300 FULL POWER DAYS INSPECTION AND REMOVAL OF FAILED ELEMENTS.

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

VALVE + REPORT, OPERATIONS + LEAK + PEACH BOTTOM 1 (HTGR) + ACTIVITY BUILDUP + COATED PARTICLE + MAIN COOLING SYSTEM + FAILURE, FUEL ELEMENT + REACTOR, HTGR

7-30241 ALSO IN CATEGORY 17
PROPOSED CHANGE 33 - DELETION OF SILVER PLATED COPPER FILTERS
FIRST ATOMIC SHIP TRANSPORT INC.
4 PAGES, 1 FIGURE, LETTER TO P.A. MORRIS, DRL, DEC. 10, 1968, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

REQUESTS DELETION OF AG-PLATED CU-RIBBONS FROM EITHER END OF CHARCOAL FILTERS IN THE VENTILATION SYSTEM. EXISTING FILTERS HAVE BEEN USED 2 YEARS AND ARE CAPABLE OF IODINE REMOVAL EFFICIENCY GREATER THAN TECH SPEC REQUIREMENTS. USE OF METAL TRAYS AND A PREFILTER WILL DECREASE INTERNAL LEAKAGE. ***DEPOSITED ORGANIC MATERIAL WAS FOUND TO COME FROM DIESEL EXHAUST AND CONTROL ROD HYDRAULIC OIL VOLATILIZED ABOVE 250 F. ***HACL COLO IODINE TESTS WERE DROPPED WHEN THEIR FINANCIAL SUPPORT WAS WITHDRAWN.

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

SILVER + VENTILATION SYSTEM + *FILTER + CONTAINMENT, HIGH PRESSURE + *CHARCOAL + REACTOR, PWR + NS SAVANNAH (PWR) + TECHNICAL SPECIFICATIONS + COPPER + REACTOR, MARITIME + *ORGANIC IODIDE + TEST, FILTER

7-30372
DIEVAL M + DUPOUX J + JOFFRE H + PRADEL J
METHOD OF AND APPARATUS FOR THE ANALYSIS OF RADIOACTIVE AEROSOLS
COMMISSARIAT A ENERGIE ATOMIQUE
BRITISH PATENT 1,107,349 +. FEB. 21, 1968

THE METHOD CONSISTS IN PASSING THE AIR THROUGH A FILTER STRIP DRIVEN WITH A UNIFORM MOVEMENT, CONTINUOUSLY MEASURING BY MEANS OF A DETECTOR THE ACTIVITY OF AEROSOLS DEPOSITED ON THE STRIP,

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30372 *CONTINUED*

AND VARYING THE DEGREE OF EXPOSURE OF THE STRIP TO THE AEROSOLS IN PREDETERMINED STEPS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

*SAMPLING + *PATENT + ANALYTICAL TECHNIQUE, CALIBRATION + *AEROSOL

7-30373

PITTS SH

FACTORS INFLUENCING THE IGNITION OF METALLIC PLUTONIUM

DOW CHEMICAL CO., GOLDEN, COLO.

8 PAGES, NUCLEAR SAFETY, 9, PAGES 112-119 (MAR.-APR. 1968)

THE FACTORS INFLUENCING IGNITION OF PLUTONIUM WERE INVESTIGATED EXPERIMENTALLY AND FOUND TO BE RELATED TO SAMPLE SIZE AND GEOMETRY OR TO THE SURFACE COMPOSITION. THE IGNITION TEMPERATURE DECREASED AS THE SAMPLE SURFACE AREA WAS INCREASED, AS THE WEIGHT OF PLUTONIUM FILINGS WAS INCREASED, AND AS SLOWER HEATING RATES WERE USED. SAMPLES HEATED AT CONSTANT, ELEVATED TEMPERATURES IGNITED AT LOWER TEMPERATURES THAN THOSE HEATED AT A CONSTANTLY INCREASING TEMPERATURE. THIN FOIL COUPONS IGNITED AT LOWER TEMPERATURES WHEN THEY CONTAINED INDUCED INTERNAL STRESSES. LOWER IGNITION TEMPERATURES WERE OBTAINED BY FORMING PUO ON THE SAMPLE SURFACES.

*THERMAL EXPERIMENT + OXIDATION + *PLUTONIUM + *IGNITION + FIRE + PYROPHORIC REACTION + METAL

7-30374

COSTES D + FERRARI G

FISSION PRODUCT VENTING SYSTEM FOR A NUCLEAR REACTOR

COMMISSARIAT A L'ENERGIE ATOMIQUE

BRITISH PATENT 1,097,160 +. DEC. 29, 1967

THE VENTING SYSTEM FOR EACH REACTOR FUEL ELEMENT COMPRISES A GAS COLLECTION CHAMBER SUPPORTED BY THE FUEL ELEMENT AND A VENT LINE WITH A SHUT-OFF VALVE. FOR A CLUSTER OF ELEMENTS, A CIRCUIT CONNECTS THE VENT LINES TO A FISSION PRODUCT RECEIVING STATION OUTSIDE THE REACTOR VESSEL. THE CONNECTING CIRCUIT IS PROVIDED WITH A CLOSURE BY MEANS OF PRESSURIZED INERT GAS. THE VENTING SYSTEM IS ESPECIALLY APPLICABLE TO REACTORS COOLED BY WATER, LIQUID METAL, OR ORGANIC LIQUID.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

SAMPLING + *DESIGN CRITERIA + FISSION PRODUCT RELEASE, GENERAL + *FUEL ELEMENT

7-30375

MEYER RA + LOFFTUS FH

HIGH DENSITY CERAMIC BERYLLIA-NUCLEAR FUEL COMPACT CONTAINING AN ADDITIVE FOR THE RETENTION OF FISSION PRODUCTS

U.S. ATOMIC ENERGY COMMISSION

U.S. PATENT 3,366,576 +. JAN. 30, 1968

DESCRIBES A CERAMIC COMPACT WITH IMPROVED FISSION PRODUCT RETENTION CONSISTING ESSENTIALLY OF BERYLLIA, CERTAIN SELECTED OXIDE OR CARBIDE ADDITIVES, AND FISSIONABLE OR FERTILE FUEL.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. (25 CENTS/COPY)

*DESIGN CRITERIA + CERAMICS + CARBIDE + *PATENT + BERYLLIUM + *FISSION PRODUCT RETENTION + OXIDE + FUEL ELEMENT

7-30376

APPARATUS FOR MEASURING FISSION PRODUCTS

GESELLSCHAFT FUER KERNFASCHUNG, MBH

BRITISH PATENT 1,100,434 +. JAN. 24, 1968

DESCRIBES AN APPARATUS FOR MEASURING FISSION PRODUCTS BY THE ELECTROSTATIC SEPARATION OF SOLID DAUGHTER NUCLEI OF GASEOUS FISSION PRODUCTS. IT CONSISTS OF A PRECIPITATION VESSEL TRAVERSED BY THE CARRIER GAS DURING MEASUREMENT OF RADIATION. THE VESSEL CONTAINS A PRECIPITATION ELECTRODE AND A RADIATION DETECTOR PARTIALLY ENCLOSED BY THE PRECIPITATION ELECTRODE.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

SAMPLING + *ELECTROSTATIC PRECIPITATION + *ANALYTICAL TECHNIQUE, CALIBRATION + FISSION PRODUCT TRANSPORT + PATENT

7-30377

CHAMBERLAIN AC

RADIOACTIVE AEROSOLS AND VAPOURS

ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, ENGLAND

21 PAGES, CONTEMP. PHYS., 8, PAGES 561-581 (NOV. 1967)

RADIOACTIVE SUBSTANCES MAY BE PRESENT IN AIR AS DUST, FUME, OR VAPOR, VERY OFTEN ATTACHED TO NATURAL AEROSOLS. MANY NUCLIDES ARE PRODUCED IN THE UPPER ATMOSPHERE BY THE INTERACTION OF

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30377 *CONTINUED*

COSMIC RAYS AND ATMOSPHERIC GASES, AND AS A RESULT OF NUCLEAR BOMB TESTS. RADIOIODINE HAS ALSO BEEN RELEASED ACCIDENTALLY FROM NUCLEAR REACTORS. RADIOACTIVE VAPORS AND AEROSOLS WERE USED TO STUDY MASS TRANSFER BETWEEN AIRSTREAMS AND SURFACES. THE RESULTS ARE APPLICABLE TO PROBLEMS SUCH AS THE TRAVEL AND DEPOSITION OF SPORES AND POLLEN.

*AEROSOL + FALLOUT + MASS TRANSFER + *FISSION PRODUCT, IODINE + *AIRBORNE RELEASE

7-30378

LEONARD BH + PLAWCHAN JD
CONSTRUCTION AND DESIGN PROBLEMS OF SODIUM COOLED FAST REACTORS
BECHTEL CORP., SAN FRANCISCO
CONF-670413 (AND SUPPL.) +. 6 PAGES, PP. 6.37-43 OF FAST REACTORS NATIONAL TOPICAL MEETING, SAN FRANCISCO, APRIL 10-12, 1967; HINSDALE, ILL., AMERICAN NUCLEAR SOCIETY, 1967

EFFECTS OF COOLANT PROPERTIES ON CONSTRUCTION OF NA-COOLED FAST REACTORS ARE OUTLINED. PROBLEMS WITH PLANT DESIGN FEATURES ARE REVIEWED. THE IMPORTANCE OF QUALITY ASSURANCE IS DISCUSSED.

*REACTOR, FAST + METAL, LIQUID + SODIUM + COOLANT CHEMISTRY + *DESIGN CRITERIA + REACTOR, LMFBR

7-30379

SOULHIER R + HAIRION JP
FISSION GAS IN UO₂
CEA, GRENOBLE, FRANCE
CONF-660223-1 +. 11 PAGES (IN FRENCH)

THE CREATION OF FISSION-PRODUCED FOREIGN ATOMS IN UO₂ IS DESCRIBED. THE FAULTS CREATED BY THIS PROCESS AND BY THE ASSOCIATED THERMAL PHENOMENA ARE OUTLINED. THE EXPERIMENTAL RESULTS OBTAINED RELATIVE TO THE BEHAVIOR OF THESE ATOMS DURING LONG DURATION IRRADIATION ARE PRESENTED. THE CASE OF RARE GASES WHOSE MIGRATION CAUSES SERIOUS TECHNOLOGICAL PROBLEMS FOR REACTOR CONSTRUCTORS ARE CONSIDERED ESPECIALLY. THE MECHANISMS OF THE ISOTHERMAL RELEASE AT TEMPERATURES ABOVE 800 C ARE POORLY KNOWN AND THE INTERVENTION OF A TEMPERATURE GRADIENT COMPLICATES THE ANALYSIS OF THE RELEASE TO THE POINT THAT ONLY EMPIRICAL INFORMATION CAN BE OBTAINED.

FISSION PRODUCT TRANSPORT + NOBLE GAS + THERMAL PROPERTY + THERMAL EXPERIMENT + *FISSION PRODUCT RELEASE, GENERAL + *URANIUM DIOXIDE + DIFFUSION

7-30380

SAXBY WN + HOLE JA
PRACTICAL ASPECTS OF SURFACE CONTAMINATION CONTROL AT A.W.R.E.
9 PAGES, PP. 299-307 OF SURFACE CONTAMINATION. NEW YORK, PERGAMON PRESS, 1967

MEASURES FOR REDUCING THE POSSIBILITY OF WIDESPREAD CONTAMINANTS WERE ESTABLISHED AT THE ATOMIC WEAPONS RESEARCH ESTABLISHMENT IN ORDER TO PREVENT DISPERSION OF RADIOACTIVE MATERIALS AND BERYLLIUM. IN TWELVE YEARS OF OPERATING EXPERIENCE NO SIGNIFICANT SURFACE CONTAMINATION PROBLEMS IN WORKING AREAS FOR EITHER RADIOACTIVE MATERIALS OR BERYLLIUM HAVE DEVELOPED.

BETA EMITTER + *RADIATION SAFETY AND CONTROL + SURFACE CONTAMINATION + *CONTAMINATION + ALPHA EMITTER + BERYLLIUM

7-30381

DAVID L + TOMASKOVA L
FUNDAMENTAL PROBLEMS OF HEAVY WATER DOSIMETRY IN NUCLEAR REACTORS
USTAV JADERNEHO VYZKUMU, PRAGUE
10 PAGES, JAD. ENERG., 14, PAGES 11-20 (JAN. 1968) (IN CZECH)

D₂O IN HEAVY WATER MODERATED-REACTORS IS INFLUENCED BY MANY VARIABLES AND CONSTANTLY CHANGES AS THESE INFLUENCES EXERT THEIR EFFECT. STUDIED ARE THE BASIC PROCESSES ASSOCIATED WITH THE PRODUCTION OF RADIONUCLIDES IN HEAVY WATER MODERATOR BY NEUTRON ACTIVATION AS WELL AS IMPURITIES ORIGINALLY PRESENT IN THE MODERATOR, CORROSION PRODUCTS CIRCULATING IN THE HEAVY WATER, AND FUEL ELEMENT RUPTURE OR OTHER ACCIDENTS RELEASING RADIONUCLIDES INTO CIRCULATING SYSTEM. MONITORING OF RADIOACTIVE MATERIALS IN THE MODERATING WATER IS OF GREAT IMPORTANCE TO NUCLEAR ENGINEERING AND ESSENTIAL TO SAFE REACTOR OPERATIONS. INCLUDED ARE 90 REFERENCES PUBLISHED IN RECENT YEARS.

*DOSIMETRY, GENERAL + ANALYTICAL TECHNIQUE, WATER + *DEUTERIUM + ANALYTICAL TECHNIQUE, CALIBRATION + HEAVY WATER

7-30382

KIMURA K
EFFICIENCY OF FILTERS FOR RADIOACTIVE AEROSOL
INST. SCI. LABOUR, SOSHIGAYA 11, SETAGAYA-KU, TOKYO
7 PAGES, RODO KAGAKU, 42, PAGES 696-702 (OCT. 1966)

MOST KINDS OF DUST FILTERS THAT ARE USUALLY HIGHLY EFFICIENT FOR ORDINARY DUST PARTICLES SHOWED GENERALLY LOW EFFICIENCY WHEN TESTED WITH RADIOACTIVE SOLID AEROSOLS OF THORON DAUGHTERS FROM THORIUM NITRATE, APPARENTLY BECAUSE OF THE SMALL PARTICLE SIZE OF THE RADIOACTIVE AEROSOL. GLASS-FIBER FILTERS AND ASBESTOS-CELLULOSE-GLASS-FIBER FILTERS, HOWEVER, WERE OVER 99% EFFICIENT IN

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30382 *CONTINUED*
MEASURING THE RADIOACTIVE AEROSOL.

FILTER CHARACTERISTICS + AEROSOL + FILTER, FIBER + FILTER EFFICIENCY + *FILTER, HIGH EFFICIENCY

7-30384
YAJIMA S + SHIBA K + HANDA M
DIFFUSION OF FISSION PRODUCTS IN CERAMIC FUELS
7 PAGES, SCI. REP. RES. INST., TOHOKU UNIV., SER. A, 18, SUPPL., PAGES 231-237 (1966)

DIFFUSION OF XE CAPTURED IN GRAPHITE BY FISSION RECOIL HAS BEEN STUDIED OVER A WIDE RANGE OF FISSION PRODUCT CONCENTRATION IN GRAPHITE. THE RELEASE OF XE FROM GRAPHITE COULD NOT BE INTERPRETED BY A SIMPLE DIFFUSION MODEL, BUT WAS CONTROLLED BY FISSION-FRAGMENT-INDUCED DEFECTS WHERE FISSION XE WAS TRAPPED. THE CHEMICAL STATE OF FISSION I2 RELEASED FROM CERAMIC MATERIALS HAS ALSO BEEN INVESTIGATED BY USING THERMOCHROMATOGRAPH. IT BECAME CLEAR THAT FISSION I2 DIFFUSED OUT OF CERAMIC MATERIALS WAS NOT ELEMENTARY I2 BUT WAS IODIDE OF FISSIONABLE MATERIAL.

*XENON + *ANALYTICAL MODEL + CHROMATOGRAPHY + *CERAMICS + FISSION PRODUCT, IODINE + GRAPHITE + *DIFFUSION + FISSION PRODUCT RETENTION

7-30386
AUCKLAND JR
IMPROVEMENTS IN FILTERS FOR HAZARDOUS GASES
VOKE'S LIU.
BRITISH PATENT 1,109,365 +. APRIL 10, 1968

MEANS FOR REMOVING A CONTAMINATED FILTER AND FITTING A FRESH FILTER IN A FILTER SYSTEM FOR HAZARDOUS GASES SUCH AS RADIOACTIVE DUST ARE DESCRIBED. THE APPARATUS CONSISTS OF A PLASTIC BAG FITTED WITH PROJECTIONS OR GLOVES WHICH PERMIT MANIPULATION OF THE FILTERS.

AVAILABILITY - THE PATENT OFFICE, SOUTHAMPTON BUILDING, LONDON, W.C. 2, ENGLAND (49 CENTS/COPY)

*FILTER MAINTENANCE + FILTER + *CONTAMINATION + GLOVE BOX

7-30387
DUBOVSKII BG + KAMAEV AV + KUZNETSOV FM
CRITICAL PARAMETERS OF SYSTEMS WITH FISSIONABLE MATERIALS AND NUCLEAR SAFETY. A HANDBOOK
225 PAGES, MOSCOW, ATOMIZDAT., 1966

PRESENTED IS A HANDBOOK INTENDED FOR SPECIALISTS CONCERNED WITH THE PROBLEMS OF ASSURING NUCLEAR SAFETY, FOR PERSONS CALCULATING, DESIGNING, OPERATING, AND STUDYING THE PHYSICS OF NUCLEAR REACTORS OF VARIOUS TYPES, AND FOR STUDENTS IN ASSOCIATED DEPARTMENTS. THE BOOK IS BASED MAINLY ON THE RESULTS OF STUDIES PUBLISHED BEFORE 1965. IN ADDITION TO INFORMATION ON CRITICAL PARAMETERS OF SYSTEMS WITH FISSIONABLE MATERIALS, THE FUNDAMENTAL CONCEPTS OF CRITICALITY, PRINCIPLES FOR ASSURING NUCLEAR SAFETY, A REVIEW OF CASES OF THE OCCURRENCE OF UNCONTROLLED CHAIN REACTIONS, AND THE BASIC STANDARDS FOR NUCLEAR SAFETY ARE INCLUDED.

SAFETY EVALUATION + SAFETY ANALYSIS + *SAFETY PRINCIPLES AND PHILOSOPHY

7-30388
SMITH SR
SUPPRESSION OF RADIOIODINE RELEASES FROM A RADIOCHEMICAL SEPARATIONS PLANT
E.I. DU PONT DE NEMOURS AND CO., AIKEN, S.C.
4 PAGES, NUCLEAR APPLICATIONS, 5, PAGES 20-23 (JULY 1968)

IN THE PUREX PROCESS USED AT THE SAVANNAH RIVER PLANT, THE SUPPRESSION OF THE RELEASE OF RADIOIODINE BY COMPLEXING IT WITH MERCURY WAS TESTED. SUPPRESSING RADIOIODINE RELEASE WOULD BE DESIRABLE IF SHORT-COOLED FUEL WERE INADVERTENTLY CHARGED TO THE DISSOLVER IN THE PLANT. WHEN IRRADIATED URANIUM REACTOR FUELS ARE PROCESSED, RADIOIODINE IS NORMALLY EVOLVED DURING DISSOLUTION WITH HNO₃, CLARIFICATION, SUBSEQUENT SOLVENT EXTRACTION, AND WASTE EVAPORATION. MERCURIOUS NITRATE WAS NOT MORE EFFECTIVE THAN MERCURIC NITRATE IN SUPPRESSING EVOLUTION.

MERCURY + IODINE + FISSION PRODUCT RETENTION + *RADIOCHEMICAL PROCESSING + FISSION PRODUCT, IODINE + *FUEL REPROCESSING

7-30389
STOLZ E + WERNER FL
CARBON TRANSPORT IN THE THTR AND AVR HIGH TEMPERATURE REACTORS
BROWN, BOVERI/KRUPP REAKTORBAU GMBH, MANNHEIM, GERMANY
5 PAGES, ATOMWIRT., ATOMTECH., 13, PAGES 99-103 (FEB. 1968) (IN GERMAN)

THE MECHANISMS OF GRAPHITE CORROSION IN HIGH TEMPERATURE GAS COOLED REACTORS IS DISCUSSED. THE REACTION KINETICS ARE DETAILED. THE VOLUME REACTION RATE IS SHOWN AS A FUNCTION OF FUEL PEBBLE RADIUS AND TEMPERATURE. CARBON DEPOSITION IS CONSIDERED. EFFECTS OF TEMPERATURE ON CARBON DEPOSITION ARE SHOWN. THE DESIGN OF A GAS PURIFYING INSTALLATION IS DESCRIBED. SOME PARAMETERS ARE GIVEN.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30389 *CONTINUED*
*CHEMICAL KINETICS + *MASS TRANSFER + *GRAPHITE + TRANSPORT PROPERTY + REACTOR, GCR + FUEL INTEGRITY + *CARBON

7-30390
KOCH C + RANC R
METHOD OF INHIBITING THE CORROSION OF GRAPHITE IN A CO₂-COOLED NUCLEAR REACTOR
COMMISSARIAT A ENERGIE ATOMIQUE
U.S. PATENT 3,373,083 +. MAY 16, 1966

THE CORROSION OF GRAPHITE IN A GRAPHITE MODERATED CO₂-COOLED NUCLEAR REACTOR IS INHIBITED BY
ADDING ABOUT 0.2 PER CENT BY WEIGHT OF SIH₄, SI₂H₆ OR SI(OC₂H₅)₄ TO THE CO₂ COOLANT.

AVAILABILITY - THE U.S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D.C. (25 CENTS/COPY)

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

7-30392 ALSO IN CATEGORY 6
DOLLE L + DIRIAN G
CHEMICAL ASPECTS OF THE REACTIVITY COMPENSATION BY HOMOGENEOUS POISONING OF A NUCLEAR REACTOR
32 PAGES, PP. 187-218 OF LA CHIMICA DELL'ACQUA NEI REATTORI NUCLEARI, ROME, COMITATO NAZIONALE ENERGIA
NUCLEARE, 1966 (IN FRENCH)

THE PRINCIPLE OF COMPENSATION OF THE XENON EFFECT BY HOMOGENEOUS POISONING OF THE REACTOR IS
DESCRIBED. THE FACTORS GOVERNING THE SELECTION OF THE SOLUBLE POISON ARE OUTLINED.
CONCENTRATION OF SOLUBLE POISON IN THE REACTOR IS COMPARED WITH THE XENON POISONING BUILDUP. THE
FIXATION OF THE SOLUBLE POISONS OF B, CD, LI, AND GD IS SHOWN GRAPHICALLY. THE DATA LEAD TO THE
CONCLUSION THAT THE COMPENSATION OF THE XENON EFFECT IN A LARGE POWER REACTOR IS POSSIBLE BY
HOMOGENEOUS POISONING OF THE MODERATOR. THE MOST FAVORABLE SOLUBLE POISONS ARE B, CD, NATURAL
GD, AND LI-6.

CADMIUM + CONTROL SYSTEM + XENON + RADIOLYTIC GAS + *XENON OSCILLATION + BORON + REACTOR CONTROL + *REACTOR
KINETICS + GADOLINIUM + LITHIUM + FRANCE

7-30393
COCHRANE H + WALKER PL + DIETHORN WS + FRIEDMAN HC
XENON ADSORPTION ON GRAPHITIZED CARBON BLACKS OVER A WIDE COVERAGE RANGE
PENNSYLVANIA STATE UNIV., UNIVERSITY PARK
11 PAGES, J. COLLOID INTERFACE SCI., 24, PAGES 405-415 (1967)

ADSORPTION ISOTHERMS ARE REPORTED FOR XE ON 2 GRAPHITIZED CARBON BLACKS, STERLING MT 3100 AND
GRAPHON, AT SURFACE COVERAGES RANGING FROM 10(-10TH) TO 0.9. A TRACER METHOD BASED ON XE-133 AND
A CONVENTIONAL VOLUMETRIC METHOD WERE USED AT THE LOWER AND HIGHER COVERAGES, RESPECTIVELY. THE
SMALL DEGREE OF SURFACE HETEROGENEITY ASSOCIATED WITH BOTH MATERIALS WAS CONFIRMED. HENRYS LAW,
OVER THE SURFACE COVERAGE RANGE 10(-10TH) TO 10(-6TH), WAS OBEYED BY STERLING MT 3100. AT HIGHER
SURFACE COVERAGES, THE ADSORBED PHASE ON BOTH CARBON BLACKS WAS INTERPRETED TO BE A 2-DIMENSIONAL
MOBILE LAYER WITH ADSORBATE-ADSORBENT INTERACTIONS.

CARBON + NOBLE GAS + FISSION PRODUCT, VOLATILE + *XENON + GRAPHITE + *ADSORPTION + TRACER, RADIOACTIVE

7-30467
KUZIN IA + TAUSHKANOV VP + LEONOV BM + BOGANCH Y
SORPTION OF METALS FROM AN ACETATE SOLUTION BY SKT ACTIVATED CHARCOAL
4 PAGES, ZH. KHIM., 39, PAGES 359-62 (1966), (IN RUSSIAN)

THE SORPTION OF ZR, CR, CO, ZN, PB, MN, NI, CO, U, BA, AND CS BY ACTIVATED CHARCOAL FROM SOLUTIONS
OF ACETIC ACID AND AMMONIUM ACETATE WAS STUDIED. IT WAS FOUND THAT U IS MORE READILY SORBED BY
THE CHARCOAL THAN ANY OF THE OTHER METALS.

*ANALYTICAL TECHNIQUE, LIQUID + *CHARCOAL + FILTER, LIQUID + RADIOCHEMICAL PROCESSING + *URANIUM + ADSORPTION

7-30468
WINTER K.
PROBLEMS IN THE SEPARATION OF RADIOACTIVE IODINE VAPOR
3 PAGES, ATOMWIRT., ATOMTECH., 12, PAGES 440-2 (AUG.-SEPT. 1967), (IN GERMAN)

RADIOACTIVE IODINE VAPOR, BECAUSE OF ITS PHYSICAL AND BIOLOGICAL CHARACTERISTICS, CONSTITUTES A
SOURCE OF DANGER IN THE EXHAUST AIR FROM NUCLEAR-TECHNICAL INSTALLATIONS. ATTEMPTS WERE MADE TO
FIND A BASIS FOR A HIGHLY EFFECTIVE IODINE SEPARATOR. IN THE PRESENT ARTICLE THE IODINE FILTER
CONSTRUCTIONS MOST COMMONLY USED ARE DEALT WITH FROM THE POINTS OF VIEW OF SEPARATION
EFFECTIVENESS, LEAKAGE RATES, AND RELIABILITY.

*FISSION PRODUCT, IODINE + *CHEMISORPTION + *ORGANIC IODIDE + ADSORPTION + IODINE + FILTER + *CHARCOAL

7-30469
GARNIER A

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30469 *CONTINUED*
APPARATUS FOR SAMPLING AEROSOLS
SOCIETE SIERATOM
BRITISH PATENT 1,109,777 +. APRIL 18, 1968

A PERSONNEL MONITOR FOR SAMPLING AEROSOLS CONTAMINATED BY RADIOACTIVE PARTICLES IS DESCRIBED.
THIS DEVICE IS PRIMARILY INTENDED FOR THE USE OF PERSONS WORKING IN HOT CELLS OR SHIELDED CAVES
AND ENGAGED IN THE HANDLING OF RADIOACTIVE MATERIALS.

AVAILABILITY - THE PATENT OFFICE, 25 SOUTHAMPTON BUILDING, LONDON, W. C. 2, ENGLAND (49 CENTS/COPY)
MONITORING SYSTEM, RADIATION + SAMPLING + *AEROSOL + *MONITOR, PERSONNEL + *MONITOR, AIR + PATENT + PATENT

7-30470
KERRINGAN WJ + FISH BR
PREPARATION OF STANDARDIZED TEST DUSTS
SAVANNAH RIVER LABORATORY
CONF-555 +. 8 PAGES, PAGES 219-26 OF SURFACE CONTAMINATION. NEW YORK PERGAMON PRESS, 1967. FROM
INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

AN AIR ELUTRIATION PROCESS IS DESCRIBED THAT YIELDS REPRODUCIBLE DUSTS OF NATURAL URANIUM OXIDE
WITH A FREQUENCY DISTRIBUTION OF MORE THAN 0.2 MICRON BUT LESS THAN 44. PRELIMINARY RESULTS WITH
ALUMINUM POWDER SHOW THAT FREQUENCY DISTRIBUTIONS OF 0.2 MICRONS TO 44 ARE ATTAINABLE. THE
ALUMINUM POWDERS, ALTHOUGH IN THE DESIRED RANGE, ARE NOT CLASSIFIED AS WELL AS URANIUM OXIDE.
TWO-MONTH STORAGE OF URANIUM OXIDE DUST IN A SEALED VIAL DID NOT PRODUCE ANY SERIOUS
AGGLOMERATION.

*AEROSOL + ALUMINUM + SURFACE CONTAMINATION + URANIUM OXIDE + AGGLOMERATE + *PARTICLE SIZE

7-30472 ALSO IN CATEGORY 14
SACHSE G + ROSENBERGER H
FUSION OF RADIOACTIVE CONCENTRATES IN GLASSES OR CERAMICS. PART 2. SUITABILITY INVESTIGATIONS OF LOOSE
MINERALS FROM NATIVE DEPOSITS
ZENTRALINSTITUT FUER KERNFORSCHUNG, DRESDEN
6 PAGES, KERNENERGIE 10, PAGES 344-9 (NOVEMBER 1967), (IN GERMAN)

THE PROPERTIES OF NATIVE LOOSE MINERALS ARE DESCRIBED, ESPECIALLY OF PLASTIC CLAYS OF VARIOUS
COMPOSITION AND UTILIZATION, OF THE DECOMPOSITION PRODUCTS OF SYENITE, OF A PALEOZOIC SLATE, AND
OF A GLAZE LOAM. AMONG THE 30 RAW MATERIALS, 14 OF WHICH ARE BEING STUDIED IN DETAIL, FOUR
SAMPLES SHOWED GOOD OR VERY GOOD PROPERTIES WITH RESPECT TO BOTH MELTING BEHAVIOR AND RETENTION.

SINTERING + *WASTE TREATMENT, FIXATION + *WASTE TREATMENT, SOLID + *WASTE DISPOSAL, TERRESTRIAL

7-30473 ALSO IN CATEGORY 14
DLOUHY Z
MOVEMENT OF RADIONUCLIDES IN THE AERATED ZONE
NUCLEAR RESEARCH INST., REZ, CZECHOSLOVAKIA
STI/PUB-156 + CONF-670512 +. 9 PAGES, PAGES 241-9 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, FROM
JOINT IAEA/ENEA SYMPOSIUM, VIENNA, AUSTRIA, 1967

SAMPLES OF SELECTED NATURAL MATERIALS WERE EXAMINED IN DETAIL IN THE LABORATORY, UNDER BOTH BATCH
AND DYNAMIC CONDITIONS, AND THE RESULTS WERE USED TO PREDICT THE BEHAVIOR OF SELECTED
RADIONUCLIDES IN THE FIELD EXPERIMENTS. THE FIELD EXPERIMENTS WITH SELECTED RADIONUCLIDES WERE
CARRIED OUT WITH SMALL CRIBS EXCAVATED IN THE GROUND. THE RESULTS SHOWED A SMALL DIFFERENCE
BETWEEN THE THEORETICAL AND EXPERIMENTAL DISTRIBUTIONS OF ALL THE RADIONUCLIDES STUDIED.

RUTHENIUM + *WASTE TREATMENT, FIXATION + ZIRCONIUM + CESIUM + NIOBIUM + STRONTIUM + FISSION PRODUCT TRANSPORT
+ *WASTE DISPOSAL, TERRESTRIAL + CERIUM

7-30474 ALSO IN CATEGORIES 13 AND 14
BAEISLE LH + SOUPFRIAU J
INSTALLATION OF CHEMICAL BARRIERS IN AQUIFERS AND THEIR SIGNIFICANCE IN ACCIDENTAL CONTAMINATION
CENTRE D ETUDE DE L-ENERGIE NUCLEAIRE, MOL, BELGIUM
STI/PUB-156 + CONF-670512 +. 12 PAGES, PAGES 229-40 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND,
VIENNA, INTERNATIONAL ATOMIC ENERGY AGENCY, 1967, FROM JOINT IAEA/ENEA SYMPOSIUM

PRINCIPLES OF CHEMICAL BARRIER FORMATION ARE REVIEWED AND THE PRINCIPAL RESULTS OF LABORATORY
RESEARCH ON THE SYSTEM SILICA-HF-ANTIMONIC ACID ARE DISCUSSED IN SOME DETAIL. FIELD EXPERIMENTS
HAVE DELINEATED THE ZONE CREATED BY INJECTING REAGENTS TRACED WITH BR-82 INTO AN AQUIFER. THE
ECONOMICS OF BARRIER FORMATION ARE DISCUSSED IN THE CONCLUSIONS. FINALLY A DESCRIPTION IS GIVEN
OF THE MOST SUITABLE EXPERIMENTAL PROCEDURE FOR THE INJECTION OF THE REAGENTS HF AND K₂H₂SB₂O₇
INTO THE AQUIFER. THE RETENTION CAPACITY OF THE INSTALLED BARRIER FOR SR IS ALSO DISCUSSED IN
RELATION TO ITS SIGNIFICANCE FOR ENVIRONMENTAL SAFETY AT REPROCESSING PLANTS.

*BROMINE + *WASTE TREATMENT, FIXATION + *WASTE DISPOSAL, TERRESTRIAL + RADIOCHEMICAL PROCESSING + *TRACER,
RADIOACTIVE + STRONTIUM + FUEL REPROCESSING

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30475 ALSO IN CATEGORIES 14 AND 16
BEGEMANN F + FRIEDMAN I
TRITIUM AND DEUTERIUM IN ATMOSPHERIC METHANE
MAX-PLANCK INSTITUT FUER CHEMIE, MAINZ
5 PAGES, J. GEOPHYS. RES., 73, PAGES 1149-53 (FEB. 15, 1968).

TEN SAMPLES OF ATMOSPHERIC METHANE COLLECTED AT OBERHAUSEN GERMANY, AND GARY, INDIANA, BETWEEN 1960 AND 1963 WERE ANALYZED FOR THEIR TRITIUM AND DEUTERIUM CONTENT. RESULTS SHOW THE TRITIUM CONCENTRATION IN THE NORTHERN HEMISPHERE TO HAVE BEEN ESSENTIALLY CONSTANT SINCE 1958, THE TIME THE FIRST SAMPLES WERE ANALYZED. EXISTING THEORIES TO EXPLAIN THE ORIGIN OF TRITIATED METHANE ARE DISCUSSED AND REJECTED AS HIGHLY IMPROBABLE. THE DATA CAN BEST BE EXPLAINED BY ASSUMING THAT LEAKAGE OF TRITIATED METHANE INTO THE ATMOSPHERE FROM SOURCES IN NUCLEAR INDUSTRY LOCATED IN THE NORTHERN HEMISPHERE OCCURRED FOR A PERIOD OF YEARS PRIOR TO 1958, AND THEN THE LEAK WAS ESSENTIALLY CLOSED.

*DEUTERIUM + *AIRBORNE RELEASE + *TRITIUM + GERMANY + *ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION

7-30578 ALSO IN CATEGORIES 1 AND 11
COTTRELL WB
ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPTEMBER-OCTOBER 1968
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2425 +. JANUARY 1969, 156 PAGES

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

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

7-30579 ALSO IN CATEGORIES 1 AND 11
COTTRELL WB
ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR MAY-JUNE 1968
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2283 +. JULY 30, 1968, 170 PAGES

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

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

7-30651 ALSO IN CATEGORIES 11 AND 18
SUPPLEMENT 9 TO PSAR - CHARCOAL FILTER
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
6 PAGES, AMENDMENT 10 TO INDIAN POINT 3 LICENSE APPLICATION (SUPPL. 9 TO PSAR), DEC. 27, 1968, DOKKFT 50-286, TYPE--PWR, MFG--WEST., AE--UNITD ENGR.

CONTAINS DESCRIPTION OF R AND D PROGRAM FOR CHARCOAL-FILTER PERFORMANCE IN REMOVING METHYL IODIDE FROM CONTAINMENT ATMOSPHERE, PLUS REPLACEMENT PAGES FOR SUPPL. 7.

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

CONTAINMENT FILTERING SYSTEM + FISSION PRODUCT RETENTION + REACTOR, PWR + *R AND D PROGRAM + CHARCOAL + *FILTER + FISSION PRODUCT, IODINE + INDIAN POINT 3 (PWR) + *ORGANIC IODIDE + REPORT, PSAR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30680
KAPITANOV YT + PAVLOV IV + SEMIKIN NP + SERDYUKOVA AS
ON THE ADSORPTION OF RADON ON ACTIVATED CARBON
8 PAGES, IZV. VYSSH. UCHEB. ZAVED., GEOL. RAZVED. 7, PAGES 118-25, (IN RUSSIAN)

THE ABILITY OF ACTIVATED CARBON TO ABSORB RADON IS VARIABLE. IN AIR HAVING 100% RELATIVE HUMIDITY, THE EQUILIBRIUM COEFFICIENT OF DISTRIBUTION OF ACTIVATED CARBON WITH RESPECT TO RADON IS ABOUT HALF AS MUCH AS IN DRY AIR. AS THE AIR PULLED THROUGH THE ADSORBENT COOLS, THE ADSORPTION CAPABILITY INCREASES SHARPLY. FOR SKT 2M CARBON (WHICH SHOWS THE MAXIMUM EQUILIBRIUM COEFFICIENT), THE EQUILIBRIUM COEFFICIENT REACHES 10 (6TH) CM³/G AT 60 C.

CHARCOAL + *HUMIDITY + *RADON + *ADSORPTION + FILTER EFFICIENCY + *ANALYTICAL TECHNIQUE, AIR + CARBON

7-30682 ALSO IN CATEGORY 14
CADLE RD
ROLE OF METHYLENE IN THE PRODUCTION OF ATMOSPHERIC TRITIATED METHANE
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, COLO.
3 PAGES, J. GEOPHYS. RES., 72, PAGES 2251-3 (APRIL 15, 1967)

TRITIATED METHANE IN THE ATMOSPHERE RESULTS FROM TROPOSPHERIC EXCHANGE OF METHANE WITH TRITIATED HYDROGEN THAT HAS MIXED DOWNWARD FROM THE STRATOSPHERE. SPECIFICALLY, IT IS SUGGESTED THAT METHYLENE MAY BE PRODUCED FROM METHANE BY ELECTRICAL DISCHARGE AND OTHER IONIZATION PROCESSES IN THE LOWER ATMOSPHERE. AN EXPERIMENTAL INVESTIGATION WAS PERFORMED TO DETERMINE WHETHER ANY ATMOSPHERIC CONSTITUENTS WOULD REACT PREFERENTIALLY WITH METHYLENE PREVENTING ITS REACTION WITH TRITIATED HYDROGEN. IT WAS CONCLUDED THAT IT IS HIGHLY UNLIKELY THAT REACTIONS OF METHYLENE PRODUCE TRITIATED METHANE IN THE ATMOSPHERE.

*ATMOSPHERIC CHEMISTRY + *TRITIUM + ELECTROSTATIC CHARGE + *STRATOSPHERE + CHEMICAL KINETICS + ATMOSPHERIC POLLUTION + *CHEMICAL REACTION

7-30683 ALSO IN CATEGORY 9
MOCHIZUKI K + MAKINO K
CONTROL OF THE OFF-GASES AND ITS PROBLEMS IN JPDR
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
6 PAGES, GENSIRYOKU KOGYO 13(5), PAGES 27-32 (MAY 1967), (IN JAPANESE)

THE OFF-GASES OF JPDR (JAPAN POWER DEMONSTRATION REACTOR) INCLUDE HYDROGEN AND NITROGEN (RADIOACTIVE) IN THE GAS AFTER THE MAIN CONDENSER, ARGON-41 FROM ARGON IN THE AIR, AND FISSION-PRODUCT GASES (KR, XE, ETC.) WHEN THE FUEL IS RUPTURED. ALTHOUGH NONRADIOACTIVE, THE HYDROGEN MAY BURN OR EXPLODE IN THE PIPING. IT IS, THEREFORE, NECESSARY TO CONTROL IT, ESPECIALLY IN THE JPDR WHERE OFF-GAS STORAGE TANKS ARE INCORPORATED. CONTROL METHODS AND PROBLEMS ARE DESCRIBED.

FISSION PRODUCT RELEASE, GENERAL + FAILURE, FUEL ELEMENT + REACTOR SAFETY SYSTEM + *HYDROGEN + NITROGEN + XENON + *FIRE + KRYPTON + *NOBLE GAS + ARGON + *FISSION PRODUCT RETENTION + *INSTRUMENT, RADIATION MONITORING

7-30684
JACOBI W + HACKE J
COLLECTION OF RADIO-IODINE IN RESPIRATORY FILTERS
5 PAGES, STAUB 26, PAGES 436-40 (OCT. 1966), (IN GERMAN)

THE COLLECTION OF RADIO-IODINE IN RESPIRATOR FILTERS AND THEIR TWO COMPONENTS (FIBER AND ACTIVATED CHARCOAL FILTERS) WAS STUDIED BY THE MULTIPLE FILTER METHOD. BY THIS MEANS, THE VARIOUS IODINE COMPONENTS IN THE AIR WERE SEPARATED AND THEIR FRACTIONS DETERMINED. ELEMENTAL IODINE AND IODINE ATTACHED TO AEROSOLS ARE RETAINED VERY EFFICIENTLY BY THE FILTER, THROUGH WHICH A THIRD, WEAK IODINE COMPONENT (PROBABLY METHYL IODIDE) PASSES RATHER EASILY.

CHARCOAL ADSORBER + ADSORPTION + IODINE + AIRBORNE RELEASE + *FISSION PRODUCT, IODINE + FILTER, GAS MASK + *CHARCOAL + CARBON + *ORGANIC IODIDE + FILTER, BED + AEROSOL + FILTER + *FILTER EFFICIENCY

7-30686
CEJNAR F
BEHAVIOR OF RADIOIODINE UNDER ACCIDENT CONDITIONS OF NUCLEAR POWER REACTORS
UJV 2114.CH +. 107 PAGES, 15 FIGURES, 28 TABLES, 234 REFERENCES, 1968

THE LITERARY REVIEW ABOUT THE BEHAVIOR OF RADIOIODINE UNDER ACCIDENT CONDITIONS OF POWER REACTORS WAS CARRIED OUT. INCLUDES AVAILABLE LITERATURE DATA CONCERNED WITH THE FORMATION, RELEASE AND TRANSPORT BEHAVIOR OF AIRBORNE RADIOIODINE IN POWER REACTOR CONTAINMENT SYSTEMS. VARIOUS METHODS OF REMOVAL OF AIRBORNE RADIOIODINE FROM REACTOR CONTAINMENT ATMOSPHERES ARE DESCRIBED. PARTICULAR ATTENTION IS DEVOTED TO THE FORMATION AND BEHAVIOR OF METHYL IODIDE VAPOR DURING THE REACTOR ACCIDENTS.

CHARCOAL + CHARCOAL ADSORBER + SURFACE CONTAMINATION + *FISSION PRODUCT, IODINE + AEROSOL + *ORGANIC IODIDE + FISSION PRODUCT TRANSPORT + AEROSOL + COATED PARTICLE + *BIBLIOGRAPHY

7-30688
CASTLEMAN AW + TANG IN + MUNKELWITZ HR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-30688 *CONTINUED*
THE CHEMICAL STATES OF FISSION-PRODUCT IODINE EMANATING INTO A HIGH TEMPERATURE AQUEOUS ENVIRONMENT.
BROOKHAVEN NATIONAL LABORATORY, UPTON, N.Y.
9 PAGES, J. INORG. NUCL. CHEM., 30, PAGES 5-13 (JAN. 1968)

THE CHEMICAL STATES OF IODINE IN AN AQUEOUS ENVIRONMENT, AT VERY LOW CONCENTRATIONS AND AT TEMPERATURES OF 1000 TO 1300 C, WERE INVESTIGATED USING IODINE PRODUCED BY FISSION OF U, UO₂, AND U₃O₈. THE RESULTS SHOWED THAT THE FINAL FORMS OF IODINE DEPEND ON THE CHEMICAL NATURE OF THE ENVIRONMENT, BEING LARGELY ELEMENTAL IODINE IN A NEUTRAL OR OXIDIZING ATMOSPHERE AND LARGELY I IN A REDUCING ATMOSPHERE. ALL EXPERIMENTAL RESULTS CAN BE EXPLAINED ON THE BASIS OF KNOWN IODINE STATES.

*STEAM + IODINE + CHEMICAL KINETICS + *ORGANIC IODIDE + *FISSION PRODUCT, IODINE + CHEMICAL REACTION + FISSION PRODUCT RELEASE, GENERAL + CHEMICAL PROPERTY + *HYDROGEN

7-30701
UNDERHILL DW + OBRIEN MJ + REIST PC + FIRST MH + MOELLER DW + VILES FJ
KRYPTON SEPARATION BY ELECTROSTATIC DIFFUSION
HARVARD AIR CLEANING LABORATORY
NYO-841-15 +. 1 PAGE, PAGE 7 OF SEMIANNUAL PROGRESS REPORT HARVARD AIR CLEANING LABORATORY, MARCH 1 - AUGUST 31, 1968, OCTOBER 1968

A 3 CELL ELECTROSTATIC DIFFUSION SYSTEM WAS BUILT AND USED IN A PROOF OF CONCEPT STUDY OF THE APPLICATION OF THIS TECHNIQUE FOR THE ENRICHMENT OF KR-85 FROM WASTE STREAMS. TEST CONCENTRATIONS OF KR-85 RANGED FROM 10(-6TH) TO 10(-4TH) MICROCURIE/CC USING AIR, NITROGEN, AND HELIUM AS THE DILUTING GAS. ON THE BASIS OF THESE STUDIES, IT WAS CONCLUDED THAT ELECTROSTATIC ENRICHMENT OF KR-85 COULD NOT BE DEMONSTRATED WITH THE TYPE OR NUMBER OF CELLS USED. SINCE THE CELL DESIGN CHOSEN WAS BELIEVED TO BE REPRESENTATIVE OF A TYPE WHICH SHOULD PROVIDE MAXIMUM ENRICHMENT EFFICIENCY, WORK ON THIS CONCEPT HAS BEEN TERMINATED.

NOBLE GAS + ANALYTICAL TECHNIQUE, GAS + *ELECTROSTATIC CHARGE + *DIFFUSION + *KRYPTON + FISSION PRODUCT RELEASE, GENERAL

7-30758 ALSO IN CATEGORY 12
NORMAN JH + WINCHELL P + DIXON JM + ROOS BW + KORTS RF
SPHERES - DIFFUSION-CONTROLLED FISSION PRODUCT RELEASE AND ABSORPTION
GULF GENERAL ATOMIC, INC.
GA-8582 +. JUNE 10, 1968, 20P.

IN A FALLOUT PROGRAM, THESE EFFORTS HAVE LED TO ALTERING THE MATHEMATICS OF DIFFUSION FOR SIMPLE BOUNDARY CONDITIONS TO FORM THE BASIS FOR (1) AN EXPERIMENTAL METHOD OF DETERMINING DIFFUSION COEFFICIENTS OF VOLATILE SOLUTES AND (2) A CALCULATIONAL METHOD FOR ESTIMATING DIFFUSION PROFILES FOR TIME-DEPENDENT SOURCES AND TIME-DEPENDENT DIFFUSION COEFFICIENTS. THE LATTER METHOD HAS BEEN EXPANDED INTO A CALCULATIONAL SYSTEM FOR ESTIMATING THE DISTRIBUTION OF FISSION PRODUCTS IN FALLOUT. IN A FISSION-PRODUCT RELEASE PROGRAM, A NUMERICAL CALCULATIONAL MODEL CAPABLE OF HANDLING DIFFUSION IN A MULTICOATED SPHERICAL PARTICLE HAS BEEN PROGRAMMED AND A PARAMETRIC STUDY BASED ON THE PROPERTIES OF THE COATING AND THE KERNEL HAS RESULTED IN AN UNDERSTANDING OF THE RELEASE BEHAVIOR OF SUCH PARTICLES.

FUEL ELEMENT + *THEORETICAL INVESTIGATION + *REACTOR, GENERAL + DIFFUSION + *COATED PARTICLE + SPHERE + *FISSION PRODUCT RELEASE, GENERAL + PARTICLE, RADIOACTIVE

7-31343
FELT RE
BURNING AND EXTINGUISHING CHARACTERISTICS OF PLUTONIUM METAL FIRES
ISOICHEM INC., RICHLAND, WASHINGTON
ISJ-756 +. AUGUST 1967, 54P., 18 REFERENCES, TABLES

THIS STUDY SYSTEMATICALLY EVALUATES CURRENTLY-ACCEPTED EXTINGUISHING AGENTS UNDER ALL TYPES OF PLUTONIUM FIRE CONDITIONS. PLUTONIUM METAL FIRES WERE FOUND TO BE LESS A HAZARD THAN EVER ANTICIPATED. MASSIVE METAL IS DIFFICULT TO IGNITE, AND RAPID EXTINGUISHMENT CAN OFTEN BE OBTAINED BY SPREADING THE BURNING METAL ON A COOL HOOD FLOOR. CONTAINMENT OF THE FIRE IS THE PRIMARY CONSIDERATION. SECONDARY FLAMMABLE MATERIAL FIRES IGNITED BY A METAL FIRE ARE THE GREATEST HAZARD ASSOCIATED WITH BURNING PLUTONIUM. CONSIDERATION OF COST, STORAGE, EASE OF APPLICATION, RECOVERY COST, AND EFFECTIVENESS HAS LED TO RECOMMENDING MAGNESIUM OXIDE SAND AS THE BEST OVERALL EXTINGUISHING AGENT. GRAPHITE, TERNARY EUTECTIC SALTS, LEAD POWDER, IRON POWDER, FOAM, PLUTONIUM DIOXIDE, AND HALON 1301 GAS (BROMOTRIFLUOROMETHANE) ARE NOT CONSIDERED SATISFACTORY EXTINGUISHING AGENTS.

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

GLOVE BOX + *ALPHA FACILITIES + THERMAL PROPERTY + *AEROSOL PRODUCTION + *FIRE + MAGNESIUM + ALPHA EMITTER + OXIDE + *METAL + GRAPHITE + *IGNITION TEMPERATURE + AIRBORNE RELEASE + *PLUTONIUM + IGNITION + PYROPHORIC REACTION

7-31344 ALSO IN CATEGORY 9
STANSFELD OM
IRRADIATION-INDUCED DIMENSIONAL CHANGE IN BORONATED GRAPHITE CONTROL ROD ABSORBERS FOR THE FORT ST. VRAIN HTGR

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-31344 *CONTINUED*

GULF GENERAL ATOMIC, INC., CALIF.

GAMD-8619 +. 21 PAGES, 5 FIGURES, 3 TABLES, 15 REFERENCES, JUNE 19, 1968

DIMENSIONAL CHANGE IN NEUTRON-IRRADIATED BORONATED GRAPHITE IS PROBABLY DUE PRIMARILY TO A COMPLEX INTERACTION OF EFFECTS FROM FAST-NEUTRON DAMAGE, THERMAL-NEUTRON CAPTURE BY B-10, AND SWELLING OF B4C PARTICLES. A MODEL FOR B-10 BURNUP AND DIMENSIONAL CHANGE IN A TYPICAL ABSORBER COMPACT WAS DEVELOPED TAKING INTO ACCOUNT EFFECT OF A B-10 BURNUP GRADIENT AND INTERACTION OF RESULTING DAMAGE ZONES. USE OF THE MODEL IN CONJUNCTION WITH IRRADIATION DATA MADE POSSIBLE AN ESTIMATE OF DIMENSIONAL CHANGE IN A FORT ST. VRAIN ABSORBER COMPACT (40 WT(BORON) FOR 6 YEARS SERVICE AT 50(AND 100(DUTY FACTORS. WITH EXTRUSIONS, 1.0(AND 2.0(EXPANSION CAN BE EXPECTED IN THE AXIAL AND RADIAL DIRECTIONS, RESPECTIVELY. AT 50(DUTY FACTOR, THERE WILL BE LESS EXPANSION IN ALL CASES, AND PERHAPS SOME RADIAL CONTRACTION FOR HOT-MOLDED COMPACTS.

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

CONTROL ROD FABRICATION + *CONTROL ROD + *GRAPHITE + REACTOR, HTGR + *EXPANSION + *RADIATION EFFECT +
*RADIATION DAMAGE + ANALYTICAL MODEL + RADIOISOTOPE + CONTROL ROD BURNUP + *BORON + FT. ST. VRAIN (HTGR)

7-31407

KNECHT RL + PANKASKIE PJ
ZIRCALOY-2 PRESSURE TUBING
BATTELLE NORTHWEST, WASH.

BNWL-746 +. 50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

A REVIEW OF THE PRESENT STATE OF ZIRCALOY-2 HEAVY-WATER-REACTOR PRESSURE-TUBE TECHNOLOGY WITH RESPECT TO DESIGN, SPECIFICATIONS, PRODUCTION, USE, OPERATIONAL STANDARDS AND SURVEILLANCE ACTIVITY REVEALS AN INDUSTRY THAT HAS MATURED IN A FEW YEARS. THERE ARE STILL SIGNIFICANT KNOWLEDGE GAPS, PARTICULARLY REGARDING THE LONG-TERM BEHAVIOR OF ZIRCALOY-2 AND ZIRCALOY-2 PRESSURE TUBES UNDER A VARIETY OF REACTOR SERVICE CONDITIONS.

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

CREEP PROPERTY + *PROPERTY, PHYSICAL + REACTOR, WATER + EXPERIMENT, GENERAL + STRESS + *REACTOR, PRESSURE TUBE
+ *TUBING + *ZIRCALOY

7-31410

ALSO IN CATEGORIES 12 AND 13

DAWSON FG

PLUTONIUM UTILIZATION PROGRAM - TECHNICAL ACTIVITIES QUARTERLY REPORT, SEPTEMBER, OCTOBER, NOVEMBER 1968

BATTELLE NORTHWEST, WASH.

BNWL-963 +. 40 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1969

EXAMINATION OF VIBRATIONALLY PACKED FUEL RODS IRRADIATED IN THE FERTF INDICATES THAT THE COLUMNAR GRAIN GROWTH AND SINTERING FORMED DURING IRRADIATION ARE WITHIN APPROXIMATELY +- 5(OF THE CALCULATED VALUES. THE PEAK BURNUP OF INTERNAL PRESSURE INSTRUMENTED VIBRATIONALLY COMPACTED UO2-PIUO2 FUEL RODS IS 10,800 MWd/MTM. THESE EXPERIMENTS WILL BE SUPPLEMENTED BY THE IRRADIATION OF SIMILARLY INSTRUMENTED UO2-PUO2 PELLET-CONTAINING RODS IN PRTR.

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

*REACTOR, FAST + *FABRICATION + FUEL, PELLET TYPE + URANIUM DIOXIDE + *IRRADIATION TESTING + PLUTONIUM DIOXIDE
+ *VIBRATORY COMPACTION + *FUEL ELEMENT

7-32249

POSTMA AK + SCHWENDIMAN LC

ABSORPTION BY REACTIVE SPRAYS WITH APPRECIABLE LIQUID PHASE MASS TRANSFER RESISTANCE - THE WASHOUT OF METHYL IODIDE BY REACTIVE SPRAYS

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-SA-1736 + CONF-680811-4 +. 25 PAGES, AUGUST 1, 1968, FROM SYMPOSIUM ON OPERATING AND DEVELOPMENTAL EXPERIENCE IN THE TREATMENT OF AIRBORNE RADIOACTIVE WASTES, NEW YORK

STUDIED WASHOUT OF ORGANIC IODIDES BY REACTIVE LIQUID SPRAYS. HYDRAZINE WAS USED, BUT RESULTS WOULD BE APPLICABLE TO OTHER ADDITIVES. LIQUID-PHASE MASS TRANSFER RESISTANCE PLAYS LARGE ROLE IN ABSORPTION. FALLING-DROP ABSORPTION WAS CALCULATED, ASSUMING SURFACE SATURATION AND FIRST-ORDER REACTION RATES. ABSORPTION BY LIQUID-WALL FILMS IS IMPORTANT PART OF ABSORPTION FOR SPRAY SYSTEM DESCRIBED HERE. BASED ON ABSORPTION MODEL AND EXPTL. RESULTS, REMOVAL RATE OF CH3I IN LARGER CONTAINMENT SYSTEMS IS PREDICTED FOR RANGE OF DROP SIZES, REACTION VELOCITIES, TEMPS., AND VESSEL HEIGHTS.

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

ADSORPTION + LIQUID SCRUBBER + CONTAINMENT SPRAY + PARTICLE SIZE + FILTER SPRAY + SPRAY, GENERAL + FISSION
PRODUCT RETENTION + ORGANIC IODIDE

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-32250
LINDNER L + VON BAECKMANN A
METHOD FOR CHEMICAL ANALYTICAL DETERMINATION OF PLUTONIUM AND URANIUM IN OXIDIC NUCLEAR FUELS
KERNFORSCHUNGSZENTRUM, KARLSRUHE
EURFNR-525 +. 43 PAGES, 2 FIGURES, 4 TABLES, 2 REFERENCES, NOVEMBER 1967

IN THE FRAMEWORK OF THE FAST BREEDER PROJECT, DETERMINATION OF PU IN PUO₂ (DRIED AT 400 C) AND OF PU AND U IN PUO₂/UO₂ MIXTURES AS WELL AS IN MIXED-OXIDE PELLETS (SINTERED AT 1600 C) WERE REQUIRED. REPORT DESCRIBES ANALYTICAL METHODS.

AVAILABILITY - U. S. DEPOSITORY LIBRARIES IN THE U.S. AND OVER SEAS

REACTOR, LMFBR + GERMANY + URANIUM DIOXIDE + *ANALYTICAL TECHNIQUE, CALIBRATION + PLUTONIUM DIOXIDE + REACTOR, FAST

7-32253
TANG IN + CASTLEMAN AW + MUNKELWITZ HR
ON THE TRANSPORT OF FISSION-PRODUCT CESIUM FROM SODIUM
BROOKHAVEN NATIONAL LABORATORY
BNL-13098 +. 19 PAGES, 6 FIGURES, 10 REFERENCES, NOVEMBER 1968

INVESTIGATED AT 730 K THE VAPORIZATION OF FISSION-PRODUCT CESIUM FROM LIQUID SODIUM INTO FLOWING INERT GASES. CESIUM RELEASE RATE DEPENDED ON BOTH THE LIQUID DEPTH OF SODIUM AND MOLECULAR WEIGHT OF THE INERT CARRIER GAS. DEVELOPED A GENERAL RELEASE EQUATION BY CONSIDERING DIFFUSION IN BOTH THE LIQUID AND THE GAS PHASES. EQUATION REPRESENTS EXPERIMENTAL RESULTS VERY WELL.

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

REACTOR, FAST + URANIUM + *CESIUM + *ANALYTICAL MODEL + *SODIUM + *FISSION PRODUCT TRANSPORT + URANIUM CARBIDE + REACTOR, LMFBR + *THEORETICAL INVESTIGATION

7-32254 ALSO IN CATEGORY 19
IVINS RO
STUDIES OF METAL-WATER AND METAL-STEAM REACTION AND FAST REACTOR SAFETY
ARGONNE NATIONAL LABORATORY, UPTON, NEW YORK
9 PAGES, LIST OF UNCLASSIFIED PUBLICATIONS, JANUARY 1969

JANUARY 1969 LIST OF UNCLASSIFIED PUBLICATIONS.

AVAILABILITY - R. O. IVINS, ARGONNE NATIONAL LABORATORY, 9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS

SAFETY PROGRAM + *METAL WATER REACTION + REACTOR, FAST + REACTOR SAFETY SYSTEM + REACTOR, WATER + METAL + *STEAM + BIBLIOGRAPHY

7-32256 ALSO IN CATEGORY 14
LUYKX FF + VAN DER STRICHT EA
CONSEQUENCES OF ACTIVITY RELEASE
EURATOM
8 PAGES, 1 TABLE, 27 REFERENCES, NUCLEAR SAFETY 10(1), PAGES 54-62 (JAN.-FEB. 1969)

56 PAPERS WERE PRESENTED, AND ONE PANEL DISCUSSION WAS HELD. PAPERS WERE DIVIDED INTO GENERAL-REVIEW PAPERS AND PAPERS ON CHARACTERISTICS AND CONTROL OF AIRBORNE RADIOACTIVE POLLUTANTS, TECHNIQUES FOR SAMPLING, INSTRUMENTS FOR ASSAYING SPECIFIC NUCLIDES, AND SPECIAL TOPICS.

*ANALYTICAL TECHNIQUE, AIR + RADIONUCLIDE, INDUCED + *SAMPLING + *AIRBORNE RELEASE + INSTRUMENT, GENERAL + RADIOCHEMICAL ANALYSIS

7-32257
TILLERY MI + KLAMERUS LJ
A STUDY OF HEPA FILTER EFFICIENCY IN SUBMICRON PARTICLE RANGE
LOVELACE FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH, ALBUQUERQUE + SANDIA CORP.
SC-DC-67-2065 + CONF-670919-3 +. 14 PAGES, SEPT. 1967, FROM AEC/NSA CONTAMINATION CONTROL SYMPOSIUM, ALBUQUERQUE, NEW MEXICO

DESCRIBES TECHNIQUES FOR EVALUATING EFFICIENCY OF HEPA FILTERS FOR PARTICLES LESS THAN 0.5 MICRON IN DIAM. DISCUSSES BRIEFLY THE GAS-SAMPLING PROCEDURE USED IN A LAMINAR-FLOW CLEAN ROOM. EFFICIENCY FIGURES GIVEN FOR HEPA FILTERS FOR PARTICLES LESS THAN 0.3 MICRON IN DIAM AS GENERATED IN A URANINE ACROSOL.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION EXTENSION, USAEC, P. O. BOX 62, OAK RIDGE, TENN.

PARTICLE SIZE + *TEST, DOP FILTER + *FILTER, HIGH EFFICIENCY + *FILTER EFFICIENCY + FILTER TEST REQUIREMENT

7-32259
EDWARDS J + BRINKWORTH RJ

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-32259 *CONTINUED*

A DEVICE FOR THE CONTROL OF PARTICLE SIZE IN THE LA MER AEROSOL GENERATOR
3 PAGES, 5 FIGURES, JOURNAL OF SCIENTIFIC INSTRUMENTS, SERIES 2 VOL. 1 (1968)

DESCRIBES DEVICE THAT PROVIDES AUTOMATIC LONG-TERM CONTROL OF AEROSOL PARTICLES MADE BY LA MER GENERATOR. THE CONTROL-SYSTEM INPUT SIGNAL IS DERIVED FROM THE LIGHT-SCATTERING PROPERTIES OF THE OUTGOING PARTICLES. OVER PERIODS OF 8 HOURS, VARIATIONS IN MEAN SIZE ARE FOUND TO BE TYPICALLY LESS THAN 10% FOR AEROSOLS WITH PARTICLE DIAMETERS OF ABOUT 1 MICRON.

*PARTICLE SIZE + AEROSOL PROPERTIES + INSTRUMENT, GENERAL + *AEROSOL PRODUCTION + *ANALYTICAL TECHNIQUE, CALIBRATION + AEROSOL

7-32260

TOMAIDES M + MCFARLAND AR
A LOW PRESSURE IMPACTOR FOR AEROSOL SAMPLING ON ELECTRON MICROSCOPE GRIDS
UNIVERSITY OF MINNESOTA
PARTICLE LAB. PUB. NO. 130 +. 23 PAGES, 9 FIGURES, 1 TABLE, 7 REFERENCES, NOVEMBER 1968

DESIGNED A LOW-PRESSURE IMPACTOR TO COLLECT AEROSOL PARTICLES ON ELECTRON-MICROSCOPE GRIDS. UNIT HAS A 50% CUTPOINT (PARTICLE DIAMETER FOR WHICH COLLECTION EFFICIENCY IS 50%) OF 0.4 MICRON WHEN OPERATED WITH INTERNAL PRESSURE OF 7.5 MM HG AND WHILE COLLECTING 0.5 LITER/MIN OF AMBIENT AIR. AEROSOL LOSSES ON INTERNAL SURFACES OF UNIT ARE SMALL - FROM 2 TO 12% OF AEROSOL INGESTED. PRINCIPAL ADVANTAGE OF IMPACTOR IS THAT OF A HIGH AEROSOL FLUX, WHICH REDUCES THE SAMPLING TIME BY FACTOR OF 100, COMPARED WITH THAT FOR OTHER DEVICES FOR SAMPLING SUBMICRON AEROSOLS.

AVAILABILITY - M TOMAIDES OR A. R. MCFARLAND, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA 55455

*AGGLOMERATE + ANALYTICAL TECHNIQUE, CALIBRATION + PARTICLE SIZE + *AEROSOL PROPERTIES + ELECTRON MICROSCOPY + PARTICLE SIZE DISTRIBUTION + AEROSOL

7-32261

TOMAIDES M
AN IMPROVED EXPLODING WIRE AEROSOL GENERATOR
UNIVERSITY OF MINNESOTA
20 PAGES, 8 FIGURES, 1 TABLE, 7 REFERENCES, PAGES II-1 THROUGH II-20 OF PARTICLE LAB. PUB. NO. 130, OCTOBER 1968

DEVELOPED AND EVALUATED AN EXPLODING-WIRE AEROSOL GENERATOR THAT CAN BE USED TO PRODUCE CHAIN-AGGREGATE METALLIC OXIDE PARTICLES. NOVEL FEATURE IS THE USE OF THE SLIDING-TYPE ELECTRODE FOR THE HIGH-VOLTAGE SWITCHING, WHICH REDUCES ELECTRICAL ENERGY LOSS SEEN IN OTHER SUCH GENERATORS. PRODUCED GOOD CHAIN-AGGREGATE PARTICLES AT CHARGING VOLTAGES GREATER THAN 4 KV. PRIMARY PARTICLES IN CHAIN WERE ABOUT 0.02 MICRON IN DIAMETER.

AVAILABILITY - MILOS TOMAIDES, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA 55455

*PARTICLE SIZE + AEROSOL + ELECTRON MICROSCOPY + *AEROSOL PRODUCTION + SAMPLING + *AGGLOMERATE

7-32262

MCFARLAND AR + TOMAIDES M
RESPONSE OF AN OPTICAL COUNTER TO A CHAIN AGGLOMERATE AEROSOL
UNIVERSITY OF MINNESOTA
20 PAGES, 7 FIGURES, 7 REFERENCES, PAGES III-1 THROUGH III-20 OF PARTICLE LAB. PUB. NO. 130, NOVEMBER 1968

MEASURED SIZE DISTRIBUTION OF CHAIN-AGGLOMERATE AEROSOLS BY OPTICAL COUNTER AND ELECTRON PHOTOMICROGRAPHS. USED IRON OXIDE AGGLOMERATES MADE BY EXPLODING WIRES. FOR SIZE RANGE FROM 0.3 TO 0.6 MICRON, WHERE DATA FROM THE TWO ANALYTICAL TECHNIQUES OVERLAP, NEARLY IDENTICAL NUMBER FREQUENCY-PARTICLE SIZE PLOTS WERE OBTAINED WHEN THE OPTICAL COUNTER RESPONSE WAS INTERPRETED AS PROPORTIONAL TO THE PARTICLE PROJECTED SURFACE AREA. COMPARISON BETWEEN A RIGHT ANGLE SCATTERING AND A NEAR FORWARD ANGLE SCATTERING OPTICAL COUNTER SHOWS THE NEAR FORWARD ANGLE SCATTERING INSTRUMENT TO INDICATE PROPORTIONALLY MORE LARGE PARTICLES.

AVAILABILITY - A. R. MCFARLAND OR MILOS TOMAIDES, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA 55455

AEROSOL + PARTICLE SIZE + *ELECTRON MICROSCOPY + ANALYTICAL TECHNIQUE, CALIBRATION + *AGGLOMERATE + *AEROSOL PROPERTIES + PARTICLE SIZE DISTRIBUTION

7-32263

KROLIKOWSKI TS
VIOLENTLY SPRAYED SODIUM-AIR REACTION IN AN ENCLOSED VOLUME
ARGONNE NATIONAL LABORATORY
ANL-7472 +. 65 PAGES, 30 FIGURES, 12 TABLES, 32 REFERENCES, SEPTEMBER 1968

TEN-GRAM AMOUNTS OF MOLTEN NA (350-425 C) WERE INJECTED BY A PNEUMATIC-PISTON SPRAY INJECTOR WITH PRESSURES OF 1000-1500 PSIG INTO A CLOSED REACTION CHAMBER 91.44 CM HIGH AND 15.24 CM IN DIAMETER, CONTAINING DRY AIR OR DRY AIR/NITROGEN MIXTURES. THE RATE OF PRESSURE RISE RESULTING FROM THE BURNING SODIUM WAS MEASURED DURING THE SPRAYING INTERVAL. THE RATE OF PRESSURE RISE WAS A MEASURE OF THE REACTION RATE. DEVELOPED MATHEMATICAL MODEL TO PREDICT BURNING RATE AND TEMPERATURE OF A SINGLE SPHERICAL PARTICLE OF SODIUM MOVING THROUGH AIR DEPLETED IN OXYGEN.

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-32263 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00
COPY, \$0.65 MICROFICHE

FIRE + ANALYTICAL MODEL + CHEMICAL KINETICS + SODIUM + EXPLOSION + PARTICLE SIZE DISTRIBUTION + CHEMICAL
REACTION + SPRAY, GENERAL

7-32264 ALSO IN CATEGORY 17
RICHMAN RB + POLLOCK CW
CORROSION AND WEAR SURVEILLANCE IN THE PLUTONIUM RECYCLE TEST REACTOR THROUGH DECEMBER 1967
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-726 +. 25 PAGES, 5 REFERENCES, JULY 1968

CONTINUING SURVEILLANCE OF CORROSION AND WEAR AT THE PRTR INVOLVES VISUAL, X-RAY, AND ULTRASONIC
INSPECTIONS OF SELECTED PARTS OF EVERY FLUID SYSTEM, PLUS MEASUREMENTS FROM ELECTRICAL RESISTANCE
PROBES AND COUPON SAMPLES IN SOME OF THE SYSTEMS. ALL PRTR SYSTEMS ARE IN GOOD CONDITION EXCEPT
FOR CERTAIN PORTIONS OF THE SECONDARY SYSTEM, WHERE REPAIRS OF CONVENTIONAL EQUIPMENT HAVE BEEN
REQUIRED MAINLY BECAUSE OF MECHANICAL DAMAGE.

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

*CORROSION + REACTOR, TEST + PRTR (TR) + *SURVEILLANCE PROGRAM + COOLANT CHEMISTRY + REACTOR, AEC OWNED +
REACTOR, PRESSURE TUBE + FUEL ELEMENT + CLADDING + FAILURE, FUEL ELEMENT + REACTOR, HWR + X-RAY + DEUTERIUM

7-32645 ALSO IN CATEGORY 17
CHANGE 31 - FILTERS FOR EMERGENCY DUCT
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO W.F. HALL, WNYKC, FEBRUARY 18, 1969, DCKET 50-57

CORRECTS FILTER-ASSEMBLY DESCRIPTIONS TO AS-BUILT CONDITION. ONE ACTIVATED CHARCOAL FILTER
BRACKETED BY ABSOLUTE FILTERS SHALL PROVIDE OVERALL ATTENUATION FACTORS OF 0.0001 FOR 0.3-MICRON
PARTICLES AND 0.004 FOR VOLATILIZED IODINE. *** IN-PLACE TESTING SCHEDULE NOT IN T.S. YOUR
STAFF DOUBTS NEED FOR PERIODIC TESTS AND HAS AGREED TO SUBMIT IN 6 MONTHS A REANALYSIS OF THIS
FILTER SYSTEM ON CONSEQUENCES OF DESIGN-BASIS ACCIDENT.

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

*FILTER, ABSOLUTE + REACTOR, RESEARCH + *CHARCOAL + TECHNICAL SPECIFICATIONS + FILTER EFFICIENCY + ACCIDENT,
CONSEQUENCES + PULSTAR (RR) + *FILTER + ACCIDENT, DESIGN BASE

7-32650 ALSO IN CATEGORIES 11 AND 12
ROW TH
SPRAY AND POOL ABSORPTION TECHNOLOGY PROGRAM
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4360 +. 32 PAGES, 21 FIGURES, 17 TABLES, REFERENCES, APRIL 1969

PRESENT PLANT DESIGNS INCLUDE CONTAINMENT BUILDING SPRAY SYSTEMS FOR PRESSURIZED-WATER REACTORS
AND PRESSURE-SUPPRESSION POOLS FOR BOILING-WATER REACTORS. THIS PROGRAM WAS ESTABLISHED TO
INVESTIGATE THE GAS-LIQUID SYSTEMS ASSOCIATED WITH THESE SAFEGUARDS CONCEPTS. THE INVESTIGATIONS
INCLUDE A SEARCH FOR SOLUTIONS EXHIBITING A HIGH REMOVAL RATE FOR MOLECULAR AND ORGANIC IODINE.
THE BEST SOLUTIONS FROM THIS SEARCH ARE USED IN SINGLE-DROP WIND-TUNNEL EXPERIMENTS TO DETERMINE
THE REMOVAL CHARACTERISTICS MORE ACCURATELY. THE ADDITIVES MOST APPLICABLE TO INDUSTRIAL USES
ARE THEN APPLIED IN ENGINEERING-SCALE TESTS IN ADDITION TO CORROSION AND THERMAL AND RADIATION
STABILITY TESTS.

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

*FISSION PRODUCT, IODINE + EXPERIMENT, GENERAL + *FISSION PRODUCT, AIRBORNE + FISSION PRODUCT RELEASE, GENERAL
+ IODINE + *CONTAINMENT SPRAY + NSPP + SPRAY, GENERAL + CORROSION + *ENGINEERED SAFETY FEATURE + PARTICLE,
RADIOACTIVE + *REACTOR, POWER + *CONTAINMENT RESEARCH AND DEVELOPMENT

7-32753 ALSO IN CATEGORY 13
SENNEWALD G + DAVID C + WURM JG
HALIDE SLAGGING OF RARE EARTH FISSION PRODUCTS IN MOLTEN URANIUM
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA, ITALY
EUR-4184-E +. 34 PAGES, 8 FIGURES, TABLES, 28 REFERENCES, NOVEMBER 1968

STUDIED THE EXTRACTION OF CERIUM AND LANTHANUM FROM MOLTEN IRRADIATED URANIUM WITH A MOLTEN SALT
BATH CONTAINING UC13. THE USE OF U235C13 AS A CHLORINATING AGENT SEEMS TO BE VERY ATTRACTIVE.
ALSO, U235 LOSSES TO THE SALT BATH BY ISOTOPIC EXCHANGE ARE NEGLIGIBLE.

AVAILABILITY - CENTER FOR INFORMATION AND DOCUMENTATION, HANDELSBLATT GMBH, EURATOM INFORMATION, POSTFACH
1102, DUSSELDORF, GERMANY

*ITALY + EURATOM + *FISSION PRODUCT, NONVOLATILE + CERIUM + CHLORINE + *FUEL ELEMENT + URANIUM + *FABRICATION
+ LANTHANUM

CATEGORY 7
FISSION PRODUCT RELEASE, TRANSPORT, AND REMOVAL

7-32855 ALSO IN CATEGORY 12
WHITE JF
PHYSICO-CHEMICAL STUDIES OF CLAD UO2 IN POTENTIAL MELTDOWN ENVIRONMENTS
NUCLEAR SYSTEMS PROGRAMS, GENERAL ELECTRIC, CINCINNATI, OHIO
29 PAGES, FIGURES, TABLES, EXTRACTED FROM GEMP-1010, DECEMBER 31, 1968

THE OBJECTIVE OF THIS PROGRAM IS TO DETERMINE THE BEHAVIOR OF ZIRCALOY-CLAD UO2 FUEL ELEMENTS IN STEAM AND IN STEAM-AIR MIXTURES 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.

*REACTOR, POWER + PROPERTY, PHYSICAL + STEAM + TESTING + *ZIRCALOY + *URANIUM DIOXIDE + *FAILURE, CLADDING + *CLADDING + EXPERIMENT, GENERAL

7-32859 ALSO IN CATEGORIES 12 AND 17
CUNNINGHAM GW + EVANS EA + HANSON JE
TRENDS IN IRRADIATED FUELS AND MATERIALS EXAMINATION
BATTTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-2274 + CONF-690305-1 +. 9 PAGES, JANUARY 6, 1969, FROM REMOTE HANDLING AND EXAMINATION IN THE FAST REACTOR FIELD MEETING, IDAHO FALLS, IDAHO

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 CONTINUALLY 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. THE LARGE NUMBERS OF SPECIMENS TO BE EXAMINED WILL MOST ASSUREDLY REQUIRE THE APPLICATION OF AUTOMATION AND ELECTRONIC DATA PROCESSING TO MINIMIZE COSTS AND TIME.

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

FUEL, PELLET TYPE + *FUEL ELEMENT + *EXAMINATION + *REACTOR, GENERAL + *IRRADIATION TESTING

CATEGORY 8
SOURCES OF ENERGY RELEASE UNDER ACCIDENT CONDITIONS

8-29749 ALSO IN CATEGORY 7
KOZLOV GI + KOZLOVA SG
CALCULATIONS OF THE RATES OF REACTIONS OF CARBON WITH GASES
INSTITUT ATOMNOI ENERGII, AKADEMIYA NAUK SSSR
4 PAGES, RUSSIAN J. OF PHYS. CHEM., 41(5), PP. 568-571 (MAY 1967)

THE HIGH TEMPERATURE REACTION OF CARBON WITH OXYGEN, CARBON DIOXIDE, OR WATER VAPOR IS POSTULATED TO BE CONTROLLED BY THE CONCENTRATION OF ATOMIC OXYGEN IN THE GAS PHASE. COMPARISON BETWEEN THE THEORETICAL MODEL AND THE EXPERIMENTAL DATA IS DISCUSSED

*ANALYTICAL MODEL + CHEMICAL REACTION + COMPARISON, THEORY AND EXPERIENCE + *OXYGEN + *CARBON DIOXIDE +
*CHEMICAL KINETICS + *WATER VAPOR + *THEORETICAL INVESTIGATION + *CARBON + USSR

8-30707 ALSO IN CATEGORY 5
WHITE JF
INTERIM SUMMARY OF WORK APPLICABLE TO ECC ON PHYSICO-CHEMICAL STUDIES OF CLAD UO2 UNDER REACTOR ACCIDENT CONDITIONS
GENERAL ELECTRIC, CINCINNATI
GEMP-619 +. 40 PAGES, 8 FIGURES, 10 TABLES, JUNE 1968

AN INTERIM SUMMARY OF WORK BY GE-NSP ON PHYSICAL-CHEMICAL STUDIES OF CLAD UO2 UNDER REACTOR LOSS-OF-COOLANT ACCIDENT CONDITIONS. WORK INCLUDES (1) KINETICS OF OXIDATION OF UO2 BY STEAM, OXIDATION OF ZIRCALOY-4 BY STEAM AND AIR, AND OXIDATION OF 304L STAINLESS STEEL BY STEAM AND AIR, (2) TESTS DETERMINING DEFORMATION AND FAILURE MODE OF ZIRCALOY-4 CLADDING UNDER ACCIDENT CONDITIONS, (3) TENSILE STRENGTH MEASUREMENTS ON ZIRCALOY-4 AND 304L STAINLESS STEEL, (4) THERMAL CONDUCTIVITY MEASUREMENTS ON ZIRCALOY-4, 304L STAINLESS STEEL, AND UO2, AND (5) ELECTRICAL RESISTIVITY AND THERMAL EMITTANCE MEASUREMENTS ON ZIRCALOY-4.

*CHEMICAL KINETICS + *FAILURE, CLADDING + *ZIRCALOY + ACCIDENT, LOSS OF COOLANT + *METAL WATER REACTION + *AIR
+ *TENSILE PROPERTY + *FUEL MELTDOWN + CHEMICAL REACTION + *STEAM + *STEEL, STAINLESS + ACTIVATION ENERGY +
*PROPERTY, PHYSICAL + GE NSP + *OXIDATION + *URANIUM DIOXIDE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-27493 ALSO IN CATEGORIES 12 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. III
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-3 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. III, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTION ON CONTROL AND INSTRUMENTATION. DESCRIBES THE SAFETY-RELATED INSTRUMENTATION SYSTEMS FOR THE REACTOR PROTECTION SYSTEMS, CONTAINMENT AND VESSEL ISOLATION CONTROL, CORE STANDBY COOLING, NEUTRON MONITORING, AND MAIN STEAM-LINE MONITORING SYSTEM. OPERATIONAL SYSTEM DISCUSSED INCLUDE REFUELING INTERLOCKS, REACTOR MANUAL CONTROL, REACTOR VESSEL INSTRUMENTATION, RECIRCULATION FLOW CONTROL, AND 8 OTHERS.

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

REACTOR, BWR + DUANE ARNOLD ENERGY CENTER (BWR) + REACTOR SAFETY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, PROTECTIVE + *INSTRUMENT, GENERAL + *INSTRUMENT, CONTROL

9-28972 ALSO IN CATEGORIES 14 AND 17
ETO T
OPERATION RECORDS AND EXPERIENCES FOR JPDR
JAPAN ATOMIC ENERGY RESEARCH INST.
8 PAGES, KARYOKU HATSUDEN, 18, PAGE 524-31, (JUNE 1967), (IN JAPANESE)

CRITICAL IN AUGUST WITH POWER GENERATION IN OCT. 1963. THE SEAL WHERE A CONTROL ROD PENETRATED WAS DAMAGED, AND ITS REPAIR REQUIRED SIX MONTHS. UPON RE-START OF OPERATION, ALL PLANT CHARACTERISTICS WERE EXAMINED IN AUGUST 1965. DURING THE SUBSEQUENT TWO YEARS OF OPERATION NO MAJOR TROUBLES OCCURRED. IN THIS PERIOD VARIOUS TESTS WERE PERFORMED ON THE PLANT. IN 1966 IT PASSED THE LAW-STIPULATED, REGULAR PLANT-INSPECTION. THE PLANT CHARACTERISTICS IN NORMAL OPERATION AND THE REGULAR INSPECTION ARE DESCRIBED, PLUS THE TREATMENT OF LIQUID AND GASEOUS WASTES AND THE RADIATION CONTROL.

SEAL + REACTOR, POWER + *WASTE DISPOSAL, GENERAL + FAILURE, SCRAM MECHANISM + *OPERATING EXPERIENCE SUMMARY + JAPAN

9-29040 ALSO IN CATEGORY 17
BATCH ML + KLINKMAN AE
EVALUATION OF NOISE ANALYSIS FOR THE ENRICO FERMI REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APJA-NTS-13 +. 90 PAGES, FIGURES, TABLES, REFERENCES, JAN. 1968

THE ANALYSIS OF RESULTS COVERED THE FOLLOWING ASPECTS - (1) SEARCH FOR INDICATIONS OF INSTABILITY, (2) EXAMINATION OF POWER SPECTRAL DISTRIBUTION OF VARIOUS SIGNALS, (3) MEASUREMENT OF THE AMPLITUDE OF THE TRANSFER FUNCTION BETWEEN VARIOUS PARAMETERS, (4) MEASUREMENT OF THE TIME LAG BETWEEN THE VARIOUS PARAMETERS, AND (5) MEASUREMENT OF THE RELATIVE AMOUNT OF COHERENT SIGNAL BETWEEN INPUT AND OUTPUT PARAMETERS. THE STUDY INDICATES THAT THROUGH NOISE ANALYSIS MEANINGFUL RESULTS CAN BE OBTAINED IN EACH OF THESE ASPECTS AND POINTS UP CHANGES IN RECORDING TECHNIQUES AND SELECTION OF PARAMETERS WHICH COULD LEAD TO IMPROVED ACCURACY, RELIABILITY, AND UNDERSTANDING OF FUTURE WORK.

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

REACTOR, FAST + TRANSFER FUNCTION + REACTOR, BREEDER + FERMI (LMFBR) + REACTOR, LMCR + INSTABILITY + *NOISE ANALYSIS + *NOISE CROSS CORRELATION

9-29263
FUJISAKI Y + MASUDA T
DEVELOPMENTAL INVESTIGATION ON DRIVING MECHANISM FOR CONTROL RODS OF BOILINGWATER TYPE POWER REACTOR
TOKYO SHIBAURA ELECTRIC COMPANY, LTD.
6 PAGES, TOSHIBA REBYU 21, PAGES 1278-83 (DECEMBER 1966) (IN JAPANESE)

TRIAL MANUFACTURE AND TESTS WERE MADE WITH SUCCESS ON TWO TYPES OF HYDRAULIC DRIVING MECHANISMS FOR CONTROL RODS OF BWR TYPE POWER REACTORS. PERFORMANCE TESTS WERE CONDUCTED ON SHIMS AND SCRAMS UNDER DIFFERENT CONDITIONS - UNDER NORMAL PRESSURE AT NORMAL TEMPERATURE, AND UNDER HIGH PRESSURE AND TEMPERATURE OF UP TO 74 KG SQ. CM AND 289 C, AND ENDURANCE TESTS WERE MADE THROUGH SCRAMS REPEATED 2,000 TIMES. SUFFICIENT DATA WERE OBTAINED FOR DESIGN AND MANUFACTURE OF PRACTICAL CONTROL MECHANISMS OF THIS KIND.

FABRICATION + JAPAN + *REACTOR, BWR + *CONTROL ROD DRIVE + TEST, CONTROL ROD DRIVE

9-29264 ALSO IN CATEGORY 6
YUSA H
MEASUREMENT OF STEAM VOID FRACTION IN JPDR
HITACHI LTD., TOKYO
6 PAGES, HITACHI HYORON 48(11) PAGES 1-6 (NOVEMBER 1966)

VOID FRACTIONS IN JPDR WERE MEASURED USING A VOID METER. THE VOID METER HAS HIGH SENSITIVITY AND WITHSTANDS SEVERE IN-CORE CONDITIONS INCLUDING HIGH TEMPERATURE, PRESSURE, AND RADIATION LEVELS. THE VOID DISTRIBUTION WAS ESTABLISHED AT THE UPPER PART OF THE CHIMNEY AND THE DOWN-COMER

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29264 *CONTINUED*

ENTRANCE. THE DIGITAL VOID METER AND THE RESULTS OF MEASUREMENTS ARE DESCRIBED.

JAPAN + IN CORE MEASUREMENT + MEASUREMENT, GENERAL + *VOID COEFFICIENT + REACTOR, BWR + *INSTRUMENT, FLOW

9-29265

KIRYU K

CANNED-TYPE, CONTROL-ROD DRIVE FOR JMTR

HITACHI, LTD., TOKYO

4 PAGES, HITACHI HYDRON 48(7), PAGES 19-22 (JULY 1966)

CONSTRUCTION OF THE TEN CONTROL-ROD DRIVES, ONE IN TRIAL AND NINE OPERATIONAL ONES, FOR THE JAERIS JMTR AT ORAI, WAS UNDERTAKEN BY HITACHI, LTD. THE JMTR DESIGN IS BASED ON THE ERR DESIGN OF THE U.S. THE CANNED TYPE CONTROL-ROD DRIVE FOR THIS REACTOR WAS DEVELOPED INDEPENDENTLY BY HITACHI, LTD. THE TEST OF MOCKUP OF THE DRIVE-ROD HAS SHOWN THAT IT IS SUPERIOR TO THE CONVENTIONAL SEALED-AXIS TYPE.

REACTOR, RESEARCH + *CONTROL ROD DRIVE + TEST, CONTROL ROD DRIVE + JAPAN

9-29266

LONG E + QUARMBY RB

REACTOR ELECTRICAL EQUIPMENT

ENGLISH ELECTRIC COMPANY, WHETSTONE, ENGLAND

4 PAGES, ELEC. REV. (LONDON) 180, PAGES 168-71 (FEB. 3, 1967)

THE APPLICATION OF THE PRINCIPLES OF RELIABILITY, SAFETY, AND SYSTEMS ENGINEERING TO THE DESIGN OF EQUIPMENT IS REVIEWED, AND THE SCOPE FOR ITS USE OUTSIDE THE REACTOR FIELD IS SUGGESTED.

EXAMPLES OF EQUIPMENT INCLUDE CONTROL AND SAFETY SYSTEMS, ELECTROMECHANICAL AND ELECTROMAGNETIC PUMPS, ELECTRICALLY OPERATED VALVES, AND REFUELING SYSTEMS.

*QUALITY ASSURANCE + RELIABILITY, COMPONENT + *EQUIPMENT DESIGN + INSTRUMENT, COMPONENT

9-29267

ALSO IN CATEGORY 4

COOMBE JR

PLUM BROOKS CRYOGENIC IRRADIATION TEST FACILITY

WESTINGHOUSE ASTRONUCLEAR LAB., LARGE, PA.

2 PAGES, CRYOGENIC AND ENGINEERING NEWS, 2(6), PAGES 16-17 (JUNE 1967)

EXPERIMENTAL APPARATUS AND ITS USE FOR CRYOGENIC TEMPERATURE EFFECT STUDIES ON THE NUCLEAR ENGINE ROCKET FOR A VEHICLE APPLICATION (NERVA) REACTORS IN THE NASA PLUM BROOK REACTOR FACILITY ARE DESCRIBED. THE HORIZONTAL THROUGH HOLE NO. 1 (HT-1) WHICH SERVES AS THE EXPERIMENTAL ACCESS TO THE REACTOR CORE IS DISCUSSED. THE WATER-COOLED FACILITY WAS USED TO TEST RESISTANCE TEMPERATURE TRANSDUCERS, STRAIN GAGES, LINEAR DISPLACEMENT TRANSDUCERS, MECHANICAL COMPONENTS, PRESSURE TRANSDUCERS, ACCELEROMETERS, AND MATERIALS FOR THE NERVA PROGRAM.

IRRADIATION FACILITY + *TEST, INSTRUMENT RESPONSE + NERVA PROGRAM + CONTAINMENT PENETRATION, GENERAL + NUCLEAR ROCKET + *CRYOGENICS + INSTRUMENT, GENERAL + INSTRUMENT, COMPONENT + *INSTRUMENT, TEMPERATURE + REACTOR, RESEARCH

9-29268

HAINZELIN MJ

FUEL HANDLING. EVOLUTION OF THE TECHNIQUE

6 PAGES, ASSN. TECH. ENER. NUCL. NO. 62, PAGES 32-7 (NOV.-DEC. 1966)

THE DEVELOPMENT OF THE FUEL ELEMENT GRAPPLES AND THEIR ELECTRO-CARRIER CABLES FOR USE IN THE EDF-3 REACTOR IS OUTLINED. THE CONDITIONS TO WHICH THE GRAPPLE AND ITS CABLE ARE EXPOSED ARE CONSIDERED. THE JUNCTION BETWEEN THE CHARGING WEIGHT AND THE DISCHARGE CHANNEL IS SKETCHED. A CROSS SECTION IS GIVEN OF THE ELECTRIC GRAPPLE AND ITS COUNTER-WEIGHTS. POSSIBLE FUTURE EVOLUTION OF FUEL HANDLING TECHNIQUES IS BRIEFLY CONSIDERED.

*FUEL HANDLING + FRANCE + DESIGN STUDY + *SYSTEM DESCRIPTION + REACTOR, POWER

9-29269

ALSO IN CATEGORY 10

BORST A + HUHSE P + PETZOLD E

PRESSURE-GLASS CABLE BUSHINGS FOR REACTOR SAFETY CASINGS

6 PAGES, AT. STROM, 13, PAGES 27-32 (FEB.-MARCH 1967)

CABLE CONNECTIONS THROUGH A REACTOR SAFETY CASING MUST BE CONSTRUCTED SO THAT THEY ARE GASTIGHT AND TEMPERATURE RESISTANT. A POSSIBLE TECHNICAL SOLUTION IS THE PRESSURE-GLASS CABLE BUSHING, WHICH WAS DEVELOPED FROM THE ELECTRODE BUSHINGS FOR MERCURY VAPOUR RECTIFIERS. ON THE BASIS OF THE PHYSICAL PRINCIPLES OF PRESSURE-GLASS MELTING, A DESCRIPTION IS GIVEN OF THE SPECIAL TECHNICAL REQUIREMENTS FOR THIS NEW TYPE OF COMPONENT FOR REACTOR ENGINEERING IN REGARD TO MECHANICAL AND ELECTRICAL PROPERTIES, AND THE CONSTRUCTIONAL SOLUTIONS. A REPORT IS ALSO GIVEN ON MANUFACTURE AND INSTALLATION.

FABRICATION + *EQUIPMENT DESIGN + SEAL + *CONTAINMENT PENETRATION, ELECTRICAL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29276
LEWINS J
OPTIMAL SYSTEM OPERATION WITH STATE RESTRICTIONS
5 PAGES, NUCLEAR ENERGY, PAGES 53-7 (MAR.-APR. 1967)

GIVES A CLASSICAL FORMULATION OF PONTRYAGINS OPTIMAL CONTROL THEORY. APPLICATION OF THE THEORY IS DEMONSTRATED TO THE PROBLEMS OF TIME OPTIMAL CONTROL, MINIMUM WASTED ENERGY, AND MINIMUM ENERGY IN REGARD TO OPTIMUM NUCLEAR REACTOR CONTROL.

PONTRYAGINS PRINCIPLE + REACTOR CONTROL + MATHEMATICAL TREATMENT + THEORETICAL INVESTIGATION

9-29296 ALSO IN CATEGORIES 7 AND 17
HBWR QUARTERLY PROGRESS REPORT, APRIL-JUNE 1968
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
HPR-102 +. 224 PAGES, 80 FIGURES, 47 TABLES, 15 REFERENCES, AUG. 1968

(PAGES 14-33) - AFTER INDICATION THAT IFA-4, 40, AND 125 HAD FAILED, THEY WERE TESTED IN A VACUUM COFFIN ARRANGEMENT. ACTIVITY HELD UP IN OFFGAS FILTER INDICATED ONE HAD NOT FAILED. (PAGES 31-39) - CONDENSED STEAM SHOWS IODINE AT 6-10% THAT IN MODERATOR. PRELIMINARY TESTS ON ADDITION OF VARIOUS CHEMICAL FORMS SHOWS HIGH CH₃I CARRYOVER POSSIBLE DURING CONTINUOUS PRODUCTION OF ORGANIC IODIDES. (PAGES 44-66) - DIRECT DIGITAL CONTROL OF REACTOR POWER FOR 2 HOURS, CAUSED DIFFERENCES IN POWER SPECTRAL DENSITY AT LOW FREQUENCY. (PAGES 121-132) - BURNOUT TESTS WITH 2 ELEMENTS SUMMARIZED.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES FOR THE U.S. AND OVER SEAS

*PARTITION COEFFICIENT + FUEL ELEMENT + R-AND D PROGRAM + PERFORMANCE LIMIT + CONTROLLER + IRRADIATION TESTING + REACTOR POWER + STEAM + OPERATING EXPERIENCE + BURNOUT HEAT FLUX + *ORGANIC IODIDE + HBWR (BWR) + REACTOR, BWR + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

9-29317
DOUET P + GRAFTIEUX J + ROGUIN A
STUDY OF CAN RUPTURE DETECTION INSTALLATIONS
COMMISSARIA A L ENERGIE ATOMIQUE, SACLAY, FRANCE
CEA-R-3342 +. 90 PAGES, DECEMBER 1967

A PROJECT WAS BEGUN TO STUDY ALL ASPECTS OF SHEATH RUPTURES. CHAPTER I DEALS WITH THE FISSION-PRODUCT DETECTOR AND THE APPLICATION OF ITS RESULTS AS A FUNCTION OF THE CONDITIONS IMPOSED BY THE REACTOR. CHAPTER II ATTEMPTS TO CODIFY THE RUPTURES OF THE SHEATH IN ORDER TO DEDUCE SOME RULES FOR CHOOSING THE MODE OF EXPLORATION OF CHANNELS AND THE VELOCITY AT WHICH THIS EXPLORATION SHOULD BE MADE. CHAPTER III EXAMINES AND COMPARES SEVERAL POSSIBILITIES FOR ORGANIZATION OF GROUPING OF PNEUMATIC SAMPLES. IN CHAPTER IV THE PROBLEM OF THE FORTUITOUS COINCIDENCE OF SEVERAL SIMULTANEOUS RUPTURES OF THE SHEATH AND THE INCIDENCE OF DISCHARGE ON THE AVAILABILITY OF THE D.R.G. INSTALLATIONS ARE DISCUSSED.

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

REVIEW + DESIGN STUDY + FRANCE + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT

9-29318
LE TILLY Y
STUDY OF THE PROBLEMS ARISING FROM THE USE OF THERMAL NEUTRON DETECTORS IN A PULSED REGIME. APPLICATION TO THE DEVELOPMENT OF A DIGITAL TRANSFEROMETER
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY
CEA-R-3241 +. 77 PAGES, DECEMBER 1967

SEVERAL PROBLEMS WERE STUDIED CONCERNING THE TREATMENT OF SIGNALS FROM FAST FISSION DETECTORS, PARTICULARLY WHEN THEY ARE USED FOR MEASUREMENTS OF TRANSFER FUNCTIONS OF REACTORS. A NUMERICAL TRANSFEROMETER WAS ASSEMBLED WHICH ACCOMPLISHED IN REAL TIME THE HARMONIC ANALYSIS OF SIGNALS FROM THESE DETECTORS OR, MORE GENERALLY, FROM THE SIGNALS, HAVING THE FORM OF A SERIES OF FREQUENCY-MODULATED PULSES.

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

THERMAL NEUTRON + *NOISE ANALYSIS + INSTRUMENT, COMPONENT + INSTRUMENT, NUCLEAR

9-29323
DALFES A + BELIARD L + CAZEMAJOU J + FROELICHER B
INTERRELATION OF TWO DETECTORS IN A NUCLEAR REACTORS
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY
SC-T-68-1532 +. 51 PAGES, JULY 9, 1968

AUTO AND CROSS-CORRELATION FUNCTIONS OF SIGNALS GIVEN BY NEUTRON DETECTORS SITUATED IN A SUBCRITICAL NUCLEAR REACTOR ARE DETERMINED BY NUMERICAL METHOD. VALUES OF THE PROMPT NEUTRONS DECAY CONSTANT OBTAINED BY MEANS OF THE AUTOCORRELATION FUNCTION OF EACH DETECTOR AND THE CROSS-CORRELATION FUNCTION OF THE TWO DETECTORS ARE COMPARED TO THE REFERENCE VALUE GIVEN BY A CLASSICAL PULSED NEUTRON MEASUREMENT. AGREEMENT BETWEEN RESULTS SEEMS TO BE SATISFACTORY.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29323 *CONTINUED*
AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00
COPY, \$0.65 MICROFICHE

MATHEMATICAL TREATMENT + NEUTRON + *NOISE ANALYSIS + INSTRUMENT, COMPONENT + INSTRUMENT, NUCLEAR

9-29629 ALSO IN CATEGORY 15

MURGATROYD JL
THE KRYPTON-85 LEAK TEST
UKAEA, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, GREAT BRITAIN
AWRE-022/68 +. 29 PAGES, 8 FIGURES, TABLES, MARCH 1968

DESCRIBES THE SOAK PROCEDURE AND OF THE OPERATION AND CALIBRATION OF THE COUNTING EQUIPMENT USED IN THE KRYPTON-85 LEAK TEST FOR DETERMINING LEAK RATES OF EVACUATED TUBES. SHOWS THAT ONE MAY DETECT A MINIMUM AIR LEAK RATE OF 1(-12) ATM CC S(-1), THE LIMIT BEING SET BY THE BACKGROUND RADIATION. THE MINIMUM ACTIVITY WHICH MAY BE DETECTED UNAMBIGUOUSLY BY THE APPARATUS IS ABOUT 0.045 CI. GIVES THE TESTING AND RESULTS OBTAINED ON TWO ALTERNATIVE COUNTING SYSTEMS, CALIBRATED BY A TYPICAL SHELL FILLED WITH KR-85 TO AN ACTIVITY OF 0.45 CI +/- 10%, THE LOWEST ACTIVITY STANDARD AVAILABLE WITHOUT TOO GREAT A LOSS OF DISPENSING ACCURACY.

AVAILABILITY - HEAD OF TECHNICAL SERVICES, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, ENGLAND

*LEAK RATE + *LEAK + TESTING + *COUNTER + *KRYPTON + *INSTRUMENT CALIBRATION

9-29656
WILLIAMS D + WHITTLE N
SCINTILLATION GUARD DETECTORS FOR LOW-ACTIVITY BETA MEASUREMENTS WITH G-M COUNTERS.
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-R-5722 +. 7 PAGES, 2 FIGURES, 13 REFERENCES, JUNE 1968

DESCRIBES DESIGN OF COMPACT PLASTIC-SCINTILLATOR GUARD DETECTORS FOR LOW BACKGROUND BETA MEASUREMENT. PERFORMANCE IS COMPARED WITH OTHER AVAILABLE GUARD DETECTORS, AND BACKGROUND COUNT-RATE REDUCTIONS ARE DEMONSTRATED.

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

EQUIPMENT DESIGN + COUNTER + BETA EMITTER + INSTRUMENT, COMPONENT + *INSTRUMENT, RADIATION MONITORING

9-29676 ALSO IN CATEGORY 17

COE RN
PLUGGING OF BORIC ACID INJECTION AT SAN ONOFRE
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19 AND 20, (NOVEMBER 25, 1968), DOCKET 50-206, TYPE--PWR,
MFG--WEST., AE--BECHTEL

(LETTER NOV. 5) PLUGGING WAS DISCOVERED ON OCT. 14 WHEN BLEND WATER MAKEUP TO THE VOLUME CONTROL TANK WAS AUTOMATICALLY CALLED FOR. A BORON FLOW DEVIATION ALARM WAS RECEIVED, AND THE OPERATOR FOUND BOTH TRANSFER PUMPS WOULD OPERATE BUT WITH NO FLOW. BY STARTING AND STOPPING THE PUMPS SEVERAL TIMES, THE TRANSFER PUMPS FLOW WAS ESTABLISHED IN 5 MIN., AND INJECTION PUMP FLOW IN ANOTHER 5. THE REFUELING STORAGE TANK BORON WAS STILL AVAILABLE, SO TECH. SPEC. REDUNDANCY NOT VIOLATED. TRACE HEATING WAS NORMAL. RECIRCULATION OF TANK CONTENTS FOR 10 MINUTES 3 TIMES A DAY WILL NOW BE REQUIRED, CONTINUOUS RECIRCULATION WILL BE EVALUATED.

SAN ONOFRE (PWR) + RECONCENTRATION + SHUTDOWN SYSTEM, SECONDARY + FAILURE, SEQUENTIAL + OPERATOR ACTION + *FAILURE, SIMULTANEOUS + REACTOR, PWR + POISON, SOLUBLE + BORON

9-29768
BEADLES RL + NELSON AC + BATTS JR
PRACTICAL RELIABILITY VOLUME II- COMPUTATION
RESEARCH TRIANGLE INSTITUTE
NASA-CR-1127 +. 131 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

PLACES IN PERSPECTIVE THE ROLE OF AUTOMATIC DIGITAL COMPUTATIONS IN DESIGN FOR RELIABILITY. THE ORIENTATION TO RELIABILITY IS PROVIDED IN A BRIEF PERSPECTIVE OF RELIABILITY TASKS AND THE RELATION OF THE COMPUTER TO THEM. SECTIONS OF THE REPORT TREAT SPECIFIC RELIABILITY TASKS AND EXPLORE THE MATHEMATICAL METHODS RELATED TO THEM AND HOW THE COMPUTER IS USED TO IMPLEMENT THEM. SOME SPECIFIC COMPUTER PROGRAMS ARE IDENTIFIED AND THEIR USE ILLUSTRATED BY EXAMPLES. PARAMETER VARIATION ANALYSIS AND RELIABILITY PREDICTION ARE TREATED IN MORE DETAIL THAN OTHERS SINCE THESE AREAS OF APPLICATION ARE PARTICULARLY SUITED TO COMPUTER METHODS.

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

*COMPUTER PROGRAM + *RELIABILITY ANALYSIS + MONTE CARLO + FORECAST + COMPUTER, DIGITAL + TESTING

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29769 ALSO IN CATEGORY 17
COSTNER RA + TABOR WH
OPERATING MANUAL FOR THE POOL CRITICAL ASSEMBLY (PCA)
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2340 +. 135 PAGES, AUGUST 23, 1968

THE PHILOSOPHY OF OPERATION FOR THE POOL CRITICAL ASSEMBLY WAS EVOLVED FROM A NUMBER OF YEARS OF EXPERIENCE. THE CONTROL SYSTEM IS DESIGNED TO BE FAIL SAFE. THE OPERATOR IS CONSIDERED AN INTEGRAL PART OF THE CONTROL SYSTEM. EFFORTS ARE MADE TO ENSURE THAT THE REACTOR SAFETY SYSTEM IS CAPABLE OF RESPONDING AS INTENDED TO ABNORMAL CONDITIONS, AND UNDER NO CIRCUMSTANCES IS ROUTINE OPERATION PERMITTED WITH ANY PORTION OF THE SAFETY SYSTEM DISABLED. THE MATERIAL IN THIS DOCUMENT IS APPLICABLE EQUALLY TO ROUTINE AND NONROUTINE CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00
C6PY, \$0.65 MICROFICHE

REACTOR, RESEARCH + *PROCEDURES AND MANUALS + ORNL + OPERATION + INSTRUMENT CALIBRATION

9-29871
PADILLA A + PETERSON RE + REGIMBAL JJ
FFTF CORE INSTRUMENTATION BASES AND REQUIREMENTS
BATTELLE NORTHWEST LABORATORY, PACIFIC NORTHWEST LAB., RICHLAND, WASH.
2 PAGES, 1 FIGURE, 2 REFERENCES, ANS TRANS. 11(2), PAGES 693-94, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D.C., 20545 NOVEMBER 10-15, 1968

REQUIREMENTS FOR REACTOR CORE INSTRUMENTATION IN THE FAST FLUX TEST FACILITY WERE ESTABLISHED FROM A COMPREHENSIVE EVALUATION OF POTENTIAL LIMITING ACCIDENT CONDITIONS AND FROM CONSIDERATION OF EXPERIMENTAL OBJECTIVES. PROTECTION OF THE CORE AGAINST THE CONSEQUENCES OF LOSS OF COOLANT FLOW, OVERPOWER, AND FAILED FUEL IS THE FUNDAMENTAL SAFEGUARDS OBJECTIVE OF IN-CORE INSTRUMENTATION. THEREFORE, THE STUDY WAS FOCUSED UPON TIME-TEMPERATURE CHARACTERISTICS DURING THESE EVENTS.

REACTOR, LMCR + REACTOR, TEST + DESIGN CRITERIA + FFTF (TR) + REACTOR, FAST + INSTRUMENT, PROTECTIVE + *INSTRUMENT, IN CORE

9-29880
BURWELL DL
ERROR ANALYSIS OF A CALORIMETER FOR NUCLEAR HEATING MEASUREMENT
WESTINGHOUSE ASTRONUCLEAR LABORATORY, PITTSBURGH, PA.
2 PAGES, 3 REFERENCES, ANS TRANS. 11(2), PAGES 463-64, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

CONCERNED WITH CALCULATING THE ERRORS IN NUCLEAR HEATING MEASUREMENTS MADE WITH ALUMINUM PEDESTAL-TYPE COLORIMETERS. THE STUDY REPRESENTS A THOROUGH AND RIGOROUS TREATMENT OF THE ERRORS IN SUCH MEASUREMENTS.

HEAT TRANSFER + *ERROR ANALYSIS + *MEASUREMENT, TEMPERATURE + INSTRUMENT, TEMPERATURE

9-29881 ALSO IN CATEGORY 11
BLEY WN + MASON EA
MEASUREMENT OF THE NEUTRON AND GAMMA DOSE IN A NUCLEAR REACTOR
MASS. INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
1 PAGE, 1 FIGURE, 2 REFERENCES, ANS TRANS. 11(2), PAGE 463, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

EXTENSIVE DESIGN AND EXPERIMENTAL STUDIES OF ADIABATIC CALORIMETERS AND NEUTRON DOSIMETERS WERE MADE TO INCREASE THE USEFULNESS OF THESE DEVICES IN RESEARCH AND TEST REACTORS. A COMPREHENSIVE COMPUTER PROGRAM WAS DEVELOPED AND USED TO EVALUATE THE ERRORS ARISING IN CALORIMETRY DUE TO THE EFFECTS OF HEATING IN THE THERMOCOUPLE WIRE, THERMAL CONTACT BETWEEN THE THERMOCOUPLE BEAD AND THE SAMPLE, AND THE EFFECTS OF THE DIFFERENT HEATING RATES ARISING IN THE THERMOCOUPLE MATERIAL AND THE CALORIMETRIC MATERIAL DUE TO WIDELY DIFFERENT VALUES OF THE SPECIFIC HEAT.

COMPUTER PROGRAM + INSTRUMENT CALIBRATION + INSTRUMENT, TEMPERATURE + *INSTRUMENT, RADIATION MONITORING + DOSE + NEUTRON + GAMMA

9-29883 ALSO IN CATEGORY 15
MOTZ JW
CALIBRATION PROCEDURES FOR RADIATION MEASUREMENTS
NATIONAL BUREAU OF STANDARDS, DEPT. OF COMMERCE, WASH., D. C. 20545
1 PAGE, 1 FIGURE, 1 TABLE, ANS TRANS. 11(2), PAGE 460, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

FOR A GIVEN RADIATION FIELD, EACH DETECTOR HAS A PARTICULAR RESPONSE WHICH IS QUANTITATIVELY EXPRESSED BY THE READING OF A METER IN THE DETECTOR SYSTEM. TO INTERPRET THIS READING IN TERMS OF THE QUANTITY OF INTEREST TO THE USER, IT IS NECESSARY TO CALIBRATE THE DETECTOR AND ITS READOUT SYSTEM WITH A STANDARD INSTRUMENT. THE STANDARD INSTRUMENT IS SELECTED ACCORDING TO THE ACCURACY WITH WHICH A GIVEN PARAMETER CAN BE MEASURED IN THE DIFFERENT RADIATION FIELDS OF INTEREST TO THE USER.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29883 *CONTINUED*
DOSIMETRY, GENERAL + *INSTRUMENT, RADIATION MONITORING + *INSTRUMENT CALIBRATION

9-29887
GIBSON GW + GRABER MJ + MARCHBANKS MF + FRANCIS WC
THE DEVELOPMENT OF BORON-ALUMINUM FOILS AS NEUTRON ABSORBERS IN TEST REACTOR FUEL ELEMENTS
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
1 PAGE, ANS TRANS. 11(2), PAGE 487, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C.,
20545 NOV. 10-15, 1968

DESCRIBES A MEANS DEVELOPED FOR CONTROLLING THE BORON ADDITION WHILE STILL USING THE CONVENTIONAL
WROUGHT ALLOY TECHNIQUE TO FABRICATE THE FUEL PLATES. THIS DEVELOPMENT HAS BEEN ADOPTED BY A
COMMERCIAL FABRICATOR TO MAKE ETR FUEL ELEMENTS.

REACTOR, TEST + ETR (TR) + POISON, BURNABLE + REACTOR, TEST + REACTOR, AEC OWNED + *FUEL ELEMENT +
*FABRICATION + BORON

9-29888 ALSO IN CATEGORY 5
HAMPEL VE + KOOPMAN RP
REACTIVITY SELF-CONTROL ON POWER AND TEMPERATURE IN REACTORS COOLED BY HEAT-PIPES
LAWRENCE RADIATION LABORATORY, WESTWOOD, CAL.
2 PAGES, 1 FIGURE, 7 REFERENCES, ANS TRANS. 11(2), PAGES 433-34, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR
SOCIETY, WASHINGTON, D.C., 20545 NOV. 10-15, 1968

RECENT DESIGNS OF SMALL, FAST-SPECTRUM NUCLEAR REACTORS FOR SPACE POWER TAKE ADVANTAGE OF THE VERY
HIGH THERMAL CONDUCTANCE PECULIAR TO HEATPIPES. REACTORS COOLED BY HEATPIPES CAN BE DESIGNED
WITH STRONG SELF-REGULATION. ACCORDING TO ANALYSIS THERE EXISTS A FUNCTIONAL RELATIONSHIP
BETWEEN THE MASS OF THE HEATPIPE FLUID AT THE EVAPORATOR END, I.E., IN THE FUELED CORE, AND THE
HEAT FLUX AT WHICH THE HEATPIPES OPERATE. AN INCREASE IN CORE POWER OR CORE TEMPERATURE IS SHOWN
TO MOVE SOME OF THE HEATPIPE FLUID AWAY FROM THE EVAPORATOR END TOWARD THE CONDENSING END.

THEORETICAL INVESTIGATION + HEAT PIPE + *REACTIVITY EFFECT + *REACTOR, SPACE + REACTOR CONTROL

9-29889
COHN CE + KARAM RA + MARSHALL JE + VAN DOORNINCK JM
COMPUTER-AIDED CALIBRATION OF A FINE AUTOROD
ARGONNE NATIONAL LABORATORY, ARGONNE, ILL.
2 PAGES, 1 FIGURE, 5 REFERENCES, ANS TRANS. 11(2), PAGES 566-67, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR
SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

THE FINE AUTOROD ON THE FAST CRITICAL ZPR-6 ASSEMBLY-6, A SERVO-CONTROLLED ROD OF VERY SMALL
WORTH, WAS ACCURATELY CALIBRATED WITH THE AID OF THE DDP-24 COMPUTER IN ARGONNE REACTOR PHYSICS
LABORATORY. USE OF THE COMPUTER GAVE THE NEEDED ACCURACY IN MUCH LESS RUNNING TIME THAN WITH NON-
COMPUTER METHODS.

*CONTROL ROD CALIBRATION + OPERATING EXPERIENCE + ZPR 6 (CAF) + CRITICAL ASSEMBLY FACILITY + SERVOMECHANISM +
COMPUTER, DIGITAL

9-29890
RAUSCH W + BACHUS KP + DECKEN CB
A FAST METHOD FOR THE DETERMINATION OF NEUTRON-PHYSICAL PROPERTIES FOR CORE ELEMENTS IN PEBBLE-BED REACTORS
BROWN BOVERI/KRUPP, GERMANY
1 PAGE, 2 REFERENCES, ANS TRANS. 11(2), PAGE 567, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY,
WASHINGTON, D. C., 20545 NOV. 10-15, 1968

IN THE CASE OF THE 300-MW(E) THTR PROTOTYPE, THE CIRCULATION FREQUENCY IS RELATIVELY HIGH WITH 500
ELEMENTS PER HOUR. A SPECIAL REACTIVITY MEASUREMENT IS APPLIED WHERE THE ELEMENTS PASS THROUGH A
CRITICAL FACILITY AND THE RESULTANT CHANGE IN NEUTRON FLUX IS ANALYZED. MEASUREMENTS HAVE BEEN
PERFORMED WITH DIFFERENT PEBBLE-TYPE ELEMENTS. RESULTS SHOW THAT, FOR THE THTR PROTOTYPE, AN
ACCURACY IN BURNUP DETERMINATION OF BETTER THAN 10% MAY BE OBTAINED. CONSIDERING THE GREAT
NUMBER (675,000) OF ELEMENTS IN THE CORE, THIS ACCURACY FOR A SINGLE ELEMENT APPEARS TO BE QUITE
SUFFICIENT.

CRITICAL ASSEMBLY FACILITY + TEST, PHYSICS + FUEL ELEMENT + CONTROL ROD + *MEASUREMENT, REACTIVITY + *CORE
COMPONENTS

9-29891
ASQUITH DS + BURTON CM
COINCIDENCE TECHNIQUES IN HFIR EXPERIMENT PROTECTION
OAK RIDGE NATIONAL LABORATORY, TENN.
1 PAGE, 1 FIGURE, ANS TRANS. 11(2), PAGE 627, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON,
D. C., 20545 NOVEMBER 10-15, 1968

BECAUSE A LARGE NUMBER OF INSTRUMENTS WILL BE REQUIRED BY THE EXPERIMENTS, AND THE REACTOR
DOWNTIME WILL BE SHORT, ON-LINE INSTRUMENT TESTING AND CALIBRATION WILL BE A NECESSITY.
CONSEQUENTLY, EACH EXPERIMENT WILL POSSESS ITS OWN TWO-OUT-OF-THREE COINCIDENCE PROTECTION
NETWORKS. THESE WILL ALSO PREVENT TWO SIMULTANEOUS SPURIOUS TRIPS IN TWO DIFFERENT EXPERIMENTS

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29891 *CONTINUED*

FROM CAUSING A REACTOR SHUTDOWN. A SLIGHTLY MODIFIED COINCIDENCE CIRCUIT PERMITS A SINGLE CHANNEL UNDER TEST TO BE CONNECTED WITH ITS CORRESPONDING SERVO MOTOR BY MEANS OF THE TEST BUTTON WITHOUT INTERFERING WITH THE ACTION OF THE TWO REMAINING CHANNELS.

REACTOR, FLUX TRAP + TEST, ON LINE + REACTOR, RESEARCH + HFIR (FTRI) + REACTOR, AEC OWNED + *INSTRUMENT, COINCIDENT

9-29920 ALSO IN CATEGORY 17
ERRATIC WATER LEVEL INDICATION DUE TO LEAK
SAXTON NUCLEAR EXPERIMENTAL CORPORATION

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(50), PAGE 31, (DEC. 9, 1968), DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

ON OCT. 4, SAXTON WAS PLACED IN THE HOT SHUTDOWN CONDITION. AT 700 PM ERRATIC INDICATION WAS OBSERVED ON STEAM GENERATOR WATER LEVEL AND ON PRIMARY COOLANT FLOW. AT 1100 PM PRESSURIZER LEVEL AND PRESSURE INDICATION BECAME ERRATIC. A GLAND NUT ON A D/P CELL HAD LEAKED WATER THAT PENETRATED INTO OTHER D/P CELL TRANSMITTERS. NO GASKETS HAD BEEN INSTALLED IN THEIR VAPORTIGHT HOUSINGS.

REACTOR, PWR + FAILURE, INSTALLATION ERROR + LEAK + PRESSURIZER + MAIN COOLING SYSTEM + SAXTON (PWR) + STEAM GENERATOR + INSTRUMENT, PRESSURE + *INSTRUMENT, LIQUID LEVEL DETECTION + *INSTRUMENT, ABNORMAL INDICATION

9-29938 ALSO IN CATEGORY 7

SILK MG
THE ENERGY SPECTRUM OF THE GAMMA RADIATION IN THE DAPHNE CORE
UKAEA, BERKS HARWELL
AERE-M 2038 +. 10 FIGURES, 2 TABLES, REFERENCES, JUNE 1968

THE USE OF A SMALL LITHIUM-DRIFTED SILICON DETECTOR ENABLED THE DETERMINATION OF THE SPECTRUM OF THE GAMMA-RADIATION IN THE DAPHNE CORE. SPECTRA WERE DETERMINED DURING LOW-POWER RUNS AND ALSO AFTER SHUTDOWN. THE SPECTRUM RECORDED BY THE SPECTROMETER, ARISING MAINLY FROM COMPTON ELECTRONS, WAS ITERATIVELY UNFOLDED TO YIELD THE INCIDENT GAMMA-RAY SPECTRUM. CALCULATIONS OF REASONABLE ACCURACY ARE AVAILABLE FOR THE SPECTRA BOTH AT POWER AND AFTER SHUTDOWN, AND THESE ARE IN GOOD AGREEMENT WITH THE EXPERIMENTAL RESULTS.

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

*SPECTROMETRY, GAMMA + COMPARISON, THEORY AND EXPERIENCE + X-RAY + REACTOR PHYSICS + *GAMMA

9-29978 ALSO IN CATEGORY 17

RANDALL JO + ROUX DP
SIMPLE EFFECTIVE MODIFICATIONS FOR MINIMIZING COMPENSATION PROBLEMS IN POOL REACTORS
TEXAS A AND M UNIVERSITY
3 PAGES, 2 FIGURES, 1 REFERENCE, NUCLEAR SAFETY, 9(6), PP. 522-24 (NOV.-DEC. 1968)

(TEXAS A AND M) - VERTICAL AIR FILLED COLLIMATORS REACHING DOWN TO THE TOP OF THE REFLECTOR ACT AS BEAM HOLES TO ENHANCE THE N/GAMMA RATIO BY PREFERENTIAL SCATTERING OF NEUTRONS UP THE TUBE TO A STANDARD C/C. TUBE PLUS 1/2 IN. OF LEAD GIVES A FACTOR OF 50 REDUCTION IN CURRENT FROM GAMMA ACTION TO GIVE 5 DECADES OF RANGE FOLLOWING SCRAM. *** (ORNL) - DELIBERATE DESENSITIZATION OF MULTI-SECTION PCP CHAMBERS (BEING DESIGNED) TOGETHER WITH DESIGN TO MAXIMIZE N/GAMMA SENSITIVITY RATIO, ALLOWED THEIR LOCATION WITHIN 20 IN. OF BSR CORE AT 2 MW. THIS GIVES AT LEAST 6 DECADES OF RANGE.

REACTOR, POOL TYPE + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + BEAM HOLE + SHIELDING + CHAMBER, ION + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, INTERMEDIATE RANGE

9-29995 ALSO IN CATEGORY 17
FAILURE OF LOG COUNT RATE CHANNELS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-15 +. 2 PAGES, DECEMBER 23, 1968

DURING INITIAL STARTUP, NEITHER STARTUP RANGE CHANNEL SHOWED ANY MULTIPLICATION AS EXPECTED AFTER THE CORE WAS HALF LOADED, THOUGH IN CORE DETECTORS DID. NO SOURCE CHECK HAD BEEN MADE AFTER FINAL POSITIONING OF CHAMBERS. *** DETECTORS WERE HELD IN PLACE BY BRAIDED WIRE, WHICH HAD STRETCHED ENOUGH UNDER THE WEIGHT OF THE CHAMBER TO PULL OUT A SIGNAL CABLE CONNECTION. SHORTENING THE BRAIDED CABLE 2 IN. ELIMINATED THE PROBLEM.

REACTOR STARTUP EXPERIENCE + SOURCE, NEUTRON + REACTOR, AEC OWNED + FAILURE, DESIGN ERROR + REACTOR, TEST + FAILURE, OPERATOR ERROR + INSTRUMENT CALIBRATION + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, STARTUP RANGE

9-29996 ALSO IN CATEGORY 17
ERROR IN SHIM CYLINDER INDEXING
U.S. ATOMIC ENERGY COMMISSION
ROE-68-14 +. 2 PAGES, DECEMBER 20, 1968

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-29996 *CONTINUED*

DURING STARTUP OF THE SECOND CORE, CRITICALITY REQUIRED ROTATION OF HAFNIUM/BERYLLIUM REFLECTOR DRUMS 40 DEG BEYOND PREDICTED. INVESTIGATION REVEALED THAT 8 DRUMS HAD ZERO POSITIONS 70 DEG FROM INTENDED. *** POWER DISTRIBUTION IMPROVEMENT REQUIRED SHIFTING THE ZERO POSITIONS OF THESE 8 DRUMS BY 35 DEG BY A MODIFICATION TO A DRIVE PART USED TO INDEX THE DRUMS. TWO OF THESE TYPES OF DRIVE PARTS WERE INTERCHANGED IN THE TABULATION OF PARTS. ONCE ASSEMBLED, THEY COULD NOT BE CHECKED.

*REACTIVITY EFFECT, ANOMALOUS + REACTOR, AEC OWNED + FAILURE, INSTALLATION ERROR + REACTOR, TEST + *CONTROL ROD DRIVE + REACTOR STARTUP EXPERIENCE + *MODIFICATION, SYSTEM OR EQUIPMENT + INCIDENT, HUMAN ERROR + INSTRUMENT, POSITION

9-29997 ALSO IN CATEGORY 17
A SUMMARY OF EVENTS INVOLVING THE TRANSIENT RODS OF TRIGA RESEARCH REACTORS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-17 +. 3 PAGES, DECEMBER 26, 1968

RECENT DIFFICULTIES AT DIFFERENT FACILITIES INCLUDE - (1) WORN RUBBER SEATS IN THE SOLENOID LEAKED PRESSURE TO THE REVERSE SIDE OF THE RELEASE DIAPHRAGM, PREVENTING IT FROM RELEASING WHEN DEENERGIZED. (2) EXCESSIVE RUBBING OF THE NEEDLE ASSEMBLY INCREASED SOLENOID VALVE SCRAM TIME. (3) RELAY FAILURE ALLOWED TRANSIENT ROD MOVEMENT DESPITE SHIM ROD ALREADY MOVED. (4) TRANSIENT ROD DID NOT DROP ON SCRAM, DID DROP WHEN PRESSURE MANUALLY VENTED BUT WITHDREW WHEN PRESSURE REAPPLIED. SCRAMMED WHEN SOLENOID POWER REMOVED. NO CAUSE FOUND. (5) RUST ON THE INSIDE TOP OF THE CARRIAGE WAS PICKING UP THE ROD WHEN CARRIAGE WAS WITHDRAWN, EVEN THOUGH AIR PRESSURE WAS OFF.

*FAILURE, SCRAM MECHANISM + REACTOR, PULSED + TRIGA (RR) + RESPONSE TIME + OPERATING EXPERIENCE SUMMARY + *OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + *CONTROL ROD DRIVE + MAINTENANCE AND REPAIR + CORROSION + LEAK + INSTRUMENT, RELAY

9-29999 ALSO IN CATEGORY 17
LOSS OF WATER IN THE STEAM DRUM OF AN EXPERIMENTAL POWER REACTOR
U. S. ATOMIC ENERGY COMMISSION
ROE-68-13 +. 2 PAGES, DECEMBER 19, 1968

PRIMARY SYSTEM TEMPERATURE STARTED RISING WHILE THE REACTOR WAS AT 50% POWER AND WAS ASCRIBED TO FAILURE OF A SECONDARY PUMP. DURING THE SHUTDOWN, STEAM DRUM WATER LEVEL WAS NOT OBSERVED IN THE SIGHT GLASS. POOR CONTRAST AND LOCATION OF TV MONITOR IN CONTROL ROOM MADE THAT INEFFECTIVE. HIGH WATER LEVEL ALARM ON CONDENSATE STORAGE HAD BEEN REMOVED THE WEEK BEFORE. *** A FIBER GEAR IN THE WATER LEVEL RECORDER-CONTROLLER HAD WORN SO TEETH DID NOT ENGAGE. THIS GAVE INADEQUATE FEED-WATER AND PREVENTED A RECORD OF FALLING LEVEL AND ALARM. *** SEPARATION OF CONTROL FROM ALARM/RECORDING FUNCTIONS WOULD HAVE PREVENTED THIS.

REACTOR SAFETY SYSTEM + INCIDENT, EQUIPMENT + CONTROLLER + REACTOR, POWER + REACTOR, AEC OWNED + TEMPERATURE TRANSIENT + *INDEPENDENCE + *FAILURE, COMPONENT + STEAM GENERATOR + INSTRUMENT, CONTROL + INSTRUMENT, RECORDER + *INSTRUMENT, LIQUID LEVEL DETECTION

9-30023 ALSO IN CATEGORIES 12 AND 18
MONTICELLO FINAL SAR VOL. II
NORTHERN STATES POWER COMPANY
50263-2+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS SECTIONS TITLED PLANT CONTAINMENT SYSTEMS, ENGINEERED SAFEGUARDS, PLANT INSTRUMENTATION AND CONTROL SYSTEMS, AND PLANT ELECTRICAL SYSTEMS. CONTAINMENT IS BY A PRESSURE-SUPPRESSION SYSTEM. SAFEGUARDS INCLUDE CORE SPRAY, RESIDUAL HEAT REMOVAL, HIGH-PRESSURE INJECTION, AN AUTOMATIC PRESSURE-RELIEF SYSTEM, FLOW RESTRICTION, CONTROL-ROD-VELOCITY LIMITERS AND DRIVE-HOUSING SUPPORTS, AND A STANDBY LIQUID CONTROL SYSTEM. INSTRUMENTATION SYSTEMS ARE DETAILED.

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

MONTICELLO (BWR) + *SYSTEM DESCRIPTION + EMERGENCY POWER, ELECTRIC + ELECTRIC POWER, GENERAL + REPORT, SAR + ELECTRIC POWER, SHUTDOWN + *ENGINEERED SAFETY FEATURE + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + *INSTRUMENT, CONTROL

9-30079 ALSO IN CATEGORY 4
SCHICK OJ
MARKOV PROCESSES AND SOME AEROSPACE APPLICATIONS
DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA
RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14135, P.204, NOV. 12, 1968

THE BASIC PROPERTIES OF MARKOV PROCESSES ARE DEFINED, AND THEIR APPLICATION TO DECISION MAKING IS SHOWN. MODELS, WHICH ARE PROBABILISTIC IN FORM, ARE DERIVED FOR THE DISCRETE AND CONTINUOUS MARKOV PROCESSES, AN R-DIMENSIONAL PROCESS, THE WIENER PROCESS, AND THE POISSON PROCESS. EXAMPLES ARE PROVIDED TO SHOW THEIR USE IN RELIABILITY EQUATIONS, OPTIMAL REPLACEMENT POLICIES, PHYSICS, AVAILABILITY MODELS, AND INDUSTRIAL APPLICATIONS.

PROBABILITY + *RELIABILITY ANALYSIS + *ANALYTICAL MODEL + MATHEMATICAL TREATMENT

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30080

BARLOW RE + PROSCHAN F

A NOTE ON TESTS FOR MONOTONE FAILURE RATE BASED ON INCOMPLETE DATA

CALIFORNIA UNIVERSITY, BERKELEY

RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14139, P.204, APR. 1968

TESTS FOR EXPONENTIAL VERSUS IFRA (INCREASING FAILURE RATE AVERAGE) DISTRIBUTIONS BASED ON INCOMPLETE DATA ARE DEFINED AND SHOWN TO BE UNBIASED. THE TESTS ARE MOTIVATED BY A CLASS OF TESTS CONSIDERED IN DETAIL BY BICKEL AND DOKSUM. TESTS FOR EXPONENTIAL VERSUS IFRA DISTRIBUTIONS BASED ON THE RANKS OF TOTAL TIME ON TEST STATISTICS ARE ALSO CONSIDERED.

*THEORETICAL INVESTIGATION + DATA PROCESSING + RELIABILITY ANALYSIS + *FAILURE, GENERAL

9-30081

TUNG SS

A METHOD FOR ESTIMATED ERRORS IN SYSTEM RELIABILITY PREDICTION

TRW SYSTEMS GROUP, POWER SYSTEMS DIVISION, REDONDO BEACH, CALIFORNIA

RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14152, P.205, MAY 1968

DERIVATION OF A SET OF MATHEMATICAL MODELS FOR ESTIMATING ERRORS IN SYSTEM RELIABILITY PREDICTION. A NUMBER OF METHODS, SUCH AS THE MONTE CARLO METHOD, FOR ESTIMATING ERRORS INVOLVED IN FAILURE RATE OR MTBF OF COMPONENTS IN THE SYSTEM, AND INCORPORATING THESE ERRORS INTO SYSTEM RELIABILITY PREDICTION ARE PRESENTED. THE FINAL RESULT IS THAT A CONFIDENCE INTERVAL CAN BE DETERMINED FOR THE PREDICTED SYSTEM RELIABILITY ON THE BASIS OF ERROR ESTIMATE.

ANALYTICAL MODEL + MONTE CARLO + *ERROR ANALYSIS + *FORECAST + RELIABILITY, SYSTEM

9-30082

ALSO IN CATEGORY 17

WILLIAMS HL

ASSIGNING A VALUE TO HUMAN RELIABILITY

MARTIN MARIETTA CORPORATION, AEROSPACE GROUP, ORLANDO, FLA

RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14137, P.206, JULY 4, 1968

DISCUSSION OF SOME OF THE IMPORTANT FACTORS RELATING TO THE PREDICTING OF HUMAN RELIABILITY. SERIES AND PARALLEL BLOCK DIAGRAMS ARE DISCUSSED ON THE BASIS OF SUCH DATA AS THE EXACT NATURE OF THE TASK FACING THE HUMAN OPERATOR, OPERATING STEPS, AND CRITERIA FOR CORRECT PERFORMANCE. THE INHERENT DIFFERENCE BETWEEN DEPENDENT AND INDEPENDENT EVENTS WITH RESPECT TO RELIABILITY PREDICTION IS CONSIDERED, METHODS FOR SETTING UP PROBABILITY EQUATIONS ARE OUTLINED, AND A BASIC REVIEW OF THE LAWS OF CHANCE IS PRESENTED.

*FORECAST + *OPERATOR ACTION + RELIABILITY ANALYSIS + PROBABILITY

9-30083

INSKIP FA

REDUNDANCY IN DIGITAL SYSTEMS

ROYAL AIRCRAFT ESTABLISHMENT, ENGLAND

RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14169, P.208, NOV. 12, 1968

USE OF REDUNDANCY TO IMPROVE THE RELIABILITY OF DIGITAL SYSTEM IS DISCUSSED, ALONG WITH POSSIBLE WAYS OF USING REDUNDANCY AT THE COMPONENT, FUNCTIONAL, AND HIGHER LEVELS. SOME NUMERICAL VALUES ARE PRESENTED FOR A SYSTEM TYPICAL OF A SMALL DATA-HANDLING SYSTEM, AND ATTENTION IS GIVEN TO THE NOR GATE AND ITS RELIABILITY, AS WELL AS TO THE RELIABILITY OF THE OTHER COMPONENTS OF THE CIRCUIT. METHOD OF PERFORMING A RELIABILITY ANALYSIS ON THE BASIS OF TRANSISTOR FAILURES IS PRESENTED, A MAJORITY VOTING ARRANGEMENT IS DISCUSSED, AND QUADDED OR QUADRUPLICATING LOGIC IS CONSIDERED FOR APPLYING REDUNDANCY. ASSEMBLY AND TESTING TECHNIQUES AS WELL AS RELATIVE POWER REQUIREMENTS ARE NOTED.

COMPUTER, DIGITAL + RELIABILITY, SYSTEM + *REDUNDANCE + INSTRUMENT, COMPONENT

9-30084

BEAVER RJ + MARTIN MM

THE STATUS OF EUROPEUM COMPOUNDS FOR REACTIVITY CONTROL IN NUCLEAR REACTORS

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-P-4097 +. 23 PAGES, OCTOBER 1968

EUROPEUM IS AN ATTRACTIVE ELEMENT FOR CONTROLLING EXCESS REACTIVITY IN THERMAL REACTORS BECAUSE OF ITS HIGH THERMAL NEUTRON ABSORPTION CROSS SECTION OF 3980 BARNS AND ITS RESISTANCE TO IRRADIATION DAMAGE. COMPOUNDS OF EUROPEUM, PARTICULARLY EUROPEUM SESQUIOXIDE (EU₂O₃), EUROPEUM TITANATE (EU₂Ti₂O₇), AND EUROPEUM MOLYBDATE (EU₅3MO₁₁), HAVE BEEN DEVELOPED FOR THESE APPLICATIONS. PROCEDURES ARE DESCRIBED FOR PREPARING THESE COMPOUNDS AND DISPERSING THEM IN STAINLESS STEEL AND ALUMINUM. CHEMICAL STABILITY, PHYSICAL PROPERTIES, AND IRRADIATION BEHAVIOR OF THE DISPERSIONS ARE REPORTED.

AVAILABILITY - R. J. BEAVER AND/OR M. M. MARTIN, METALS AND CERAMICS DIVISION, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE 37830

*CONTROL ROD + DESCRIBING FUNCTION + *EUROPEUM + REVIEW + MATERIAL

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30085
BLALOCK TV + NOWLIN CH
TIME-VARIANT FILTERS FOR GENERATING BIPOLAR PULSES WITH SIGNAL-TO-NOISE RATIOS OF UNIPOLAR PULSES IN NUCLEAR PULSE AMPLIFIERS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-P-4148 +. 19 PAGES, 1967

A TIME-VARIANT FILTER EMPLOYING A SIMPLE GATING TECHNIQUE WAS DEVELOPED TO PRODUCE BIPOLAR PULSES WITH SIGNAL-TO-NOISE RATIOS AS GOOD AS THOSE OF UNIPOLAR PULSES. THE GATED BIPOLAR PULSE DISCUSSED HERE HAS A SIGNAL-TO-NOISE RATIO OF A UNIPOLAR PULSE SHAPED LIKE THE FIRST LOBE OF THE BIPOLAR PULSE. FOR THE SPECIAL CASE OF SYMMETRICAL BIPOLAR PULSE SHAPING, THE IMPROVEMENT IN SIGNAL-TO-NOISE RATIO OVER THE SINGLE MEASUREMENT OF THE BIPOLAR SIGNAL PRODUCED BY CONVENTIONAL TIME-INVARIANT FILTERS IS 41.11, AND THE IMPROVEMENT OVER THE TIME-INVARIANT PEAK-TO-PEAK MEASUREMENT IS 22.51.

AVAILABILITY - T. V. BLALOCK AND/OR C. H. NOWLIN, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
*FILTER DESIGN + INSTRUMENT, NUCLEAR + INSTRUMENT, AMPLIFIER + INSTRUMENT, PULSE

9-30087
STEGEMANN D
RECENT RESULTS OF NOISE ANALYSIS, INVESTIGATIONS OF THE FAST-THERMAL ARGONAUT-REACTOR STARK AT KARLSRUHE EUR-3230E +. 16 PAGES, 4 FIGURES, SEPTEMBER 2, 1965

THREE TYPES OF STATISTICAL EXPERIMENTS WERE INVESTIGATED - (1) FREQUENCY ANALYSIS OF NOISE, (2) ROSSI-ALPHA EXPERIMENT, AND (3) ANALYSIS OF PROBABILITY DISTRIBUTIONS, A NEW VERSION OF THE VARIANCE OVER MEAN TECHNIQUE. MEASUREMENTS WITH THE THREE METHODS WERE MADE IN THE FAST-THERMAL-ARGONAUT-REACTOR STARK. THE RESULTS WERE COMPARED WITH THOSE FROM THE PULSED-SOURCE TECHNIQUE. COMPARISONS OF MEASURED PROMPT NEUTRON DECAY CONSTANTS SHOWED GOOD AGREEMENT BETWEEN THE FOUR METHODS.

GERMANY + *REACTOR, FAST + FREQUENCY SPECTRA + *NOISE ANALYSIS + ROSSI ALPHA + *REACTOR, THERMAL + PROBABILITY

9-30088
KOSOROK JR
SOFTWARE DESIGN FOR THE PROGRAMMED CONTROL AND INSTRUMENTATION SYSTEM OF A NUCLEAR REACTOR
BATTELLE MEMORIAL INSTITUTE, RICHLAND, WASHINGTON
BNWL-SA-1917 +. 10 PAGES, JUNE 7, 1968

DESIGN OF CONTROL COMPUTER PROGRAMS FOR HEAT AND GAS SYSTEMS IS DISCUSSED FOR THE HIGH TEMPERATURE LATTICE TEST REACTOR (HLLTR) AT RICHLAND, WASH. EVALUATION TESTS ON THE HYBRID SIMULATION AND ON THE REAL HEATING SYSTEM SHOWED THAT MOST DESIGN CRITERIA WERE MET.

HANFORD SITE + COMPUTER CONTROL + DESIGN STUDY + *COMPUTER PROGRAM + INSTRUMENT, PROCESS

9-30089
APPLICATIONS OF ULTRASONIC ENERGY - ULTRASONIC INSTRUMENTATION FOR NUCLEAR APPLICATIONS
AEROPROJECTS INCORPORATED, WEST CHESTER, PENNSYLVANIA
NYO-3622-15 +. 5 PAGES, 2 FIGURES, APRIL 18, 1968

THIS REPORT IS ONE OF A SERIES OF SUCH REPORTS CONCERNED WITH USE OF ULTRASONICS IN MEASUREMENT PROBLEMS IN REACTORS. DEVELOPMENT OF INSTRUMENTS HAS STARTED (THEORY, DESIGN OF PROTOTYPE, TESTING A UNIT). TOPICS - ULTRASONIC INSTRUMENTS FOR DETECTING INCIPIENT BOILING IN MODERATOR METAL, ULTRASONIC FLOWMETER FOR MOLTEN-METAL OR FUSED-SALT SYSTEMS.

BUBBLE NUCLEATION + INSTRUMENT, IN CORE + INSTRUMENT, FLOW + INSTRUMENT, TEMPERATURE + INSTRUMENT, COOLANT QUALITY

9-30090 ALSO IN CATEGORY 6
PAGE DI
SCATTERING LAW $S(\alpha, \beta)$ -VALUES FOR A MIXTURE OF LIGHT WATER AND HEAVY WATER
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL, BERKSHIRE
AERE-R 5832 +. 28 TABLES, 1968

THE DIFFERENTIAL SCATTERING CROSS-SECTIONS FOR A MIXTURE OF EQUAL PARTS OF LIGHT WATER AND HEAVY WATER AT 300 K WERE MEASURED FOR NEUTRONS OF 0.101 EV AND 0.056 EV INCIDENT ENERGY. THE RESULTS ARE GIVEN AS TABLES OF SCATTERING LAW $S(\alpha, \beta)$ -VALUES DERIVED DIRECTLY FROM THE EXPERIMENTAL DATA. THE VALUES COVER RANGES OF ENERGY AND MOMENTUM TRANSFERS OF 0-0.13 EV AND 1.17/A RESPECTIVELY.

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

DATA PROCESSING + TEST, PHYSICS + CROSS SECTION + HEAVY WATER + *MODERATOR + *WATER, GENERAL

9-30091

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30091 *CONTINUED*
CLARK RA + MELTON BJ + WINKELMAN CR
TEST OPERATION OF A PROTOTYPE, SOLID-STATE, HELIUM PURIFICATION CELL
LOS ALAMOS SCIENTIFIC LABORATORY, LOS ALAMOS, NEW MEXICO
LA-3794 +. 11 PAGES, 8 FIGURES, 2 TABLES, JANUARY 30, 1967

TWO SOLID-STATE HELIUM DIFFUSERS WERE TESTED AND THEIR PERFORMANCE DETERMINED UNDER THERMAL CONDITIONS, RADIATION EXPOSURE, AND PRESSURE GRADIENTS TYPICAL OF A REACTOR COVER-GAS PURIFICATION SYSTEM. ALMOST COMPLETE REMOVAL OF IMPURITIES AR, N₂, O₂, CH₄, H₂), XE, AND KR FROM HELIUM IN A SINGLE PASS THROUGH THE DIFFUSERS WAS DEMONSTRATED. AT OPERATING TEMPERATURES ABOVE 400 C, H₂ WAS DETECTED IN HELIUM DELIVERED BY THE DIFFUSERS. MEASUREMENTS WERE MADE OF HELIUM FLOW RATES THROUGH THE DIFFUSERS AT TEMPERATURES FROM 250 TO 500 C, AND THE DIFFUSION CONSTANT WAS DETERMINED.

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

*COOLANT PURIFICATION SYSTEM + *TEST, FILTER SYSTEM + DIFFUSION + HELIUM + SOLID STATE DEVICE + FILTRATION + INSTRUMENT, COOLANT QUALITY

9-30093
HEADINGTON WL + STEWART ME + ZANE JO
FAULT TREE ANALYSIS OF THE PBF TRANSIENT ROD DRIVE SYSTEM
PHILLIPS PETROLEUM COMPANY, IDAHO FALLS, IDAHO
IDO-17274 +. 140 PAGES, 56 FIGURES, 1 TABLE, NOVEMBER 1968

PRESENTS RESULTS OF A STUDY USING FAULT-TREE-ANALYSIS METHODS FOR CRITICAL ASSESSMENT OF PBF TRANSIENT ROD SYSTEM. INCLUDED IS A DESCRIPTION OF THESE METHODS EXEMPLIFIED BY THEIR APPLICATION TO PBF SYSTEM. RESULTS OF STUDY INDICATE THIS APPROACH CAN BE APPLIED FOR RELIABILITY EVALUATION OF THOSE ENGINEERED SAFETY SYSTEMS ASSOCIATED WITH REACTOR POWER PLANTS. IN PARTICULAR, THIS APPROACH PROVIDES A TOOL WHICH COULD BE USED TO DEMONSTRATE COMPLIANCE WITH RELIABILITY STANDARDS FOR SAFETY SYSTEMS.

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

*RELIABILITY ANALYSIS + REACTOR, SAFETY RESEARCH + REACTOR, PULSED + *ANALYTICAL TECHNIQUE, GENERAL + PBF (S-RR) + ENGINEERED SAFETY FEATURE + FAULT + REACTOR, AEC OWNED + CONTROL ROD DRIVE

9-30094 ALSO IN CATEGORY 6
WEAVER LE
REACTOR DYNAMICS AND CONTROL
UNIVERSITY OF ARIZONA, TUCSON, ARIZONA
304 PAGES, FIGURES, TABLES, 10 REFERENCES, AMERICAN ELSEVIER PUBLISHING COMPANY, 1968

THIS TEXT IS AN INTRODUCTION TO THE STATE-VARIABLE APPROACH AND THE APPLICATION OF VARIOUS STATE-SPACE TECHNIQUES TO REACTOR DYNAMICS AND CONTROL. CHAPTER HEADINGS - (1) SYSTEM REPRESENTATION IN THE STATE SPACE, (2) EQUATIONS OF REACTOR DYNAMICS, (3) STABILITY IN THE STATE SPACE, (4) STABILITY OF NUCLEAR SYSTEMS, (5) OPTIMIZATION IN THE STATE-SPACE, (6) CLOSED-LOOP OPTIMAL CONTROL, (7) OPTIMAL CONTROL OF NUCLEAR SYSTEMS, (8) CONTROL-SYSTEM DESIGN BY STATE-VARIABLE FEEDBACK, (9) STATE-VARIABLE-FEEDBACK DESIGN OF REACTOR CONTROL SYSTEMS.

DESIGN STUDY + *REACTOR CONTROL + THEORETICAL INVESTIGATION + *REACTOR DYNAMICS + CONTROL SYSTEM + SYSTEM DESCRIPTION

9-30158 ALSO IN CATEGORY 4
HART WM
DESIGN OF TEST FIXTURE FOR REMOTELY TESTING STRAIN GAGES IN A CRYOGENIC AND RADIATION ENVIRONMENT
AEROJET-GENERAL CORPORATION
PROCEEDINGS 15TH CONF. ON REMOTE SYSTEMS TECH., P.127, 1967

DURING THE DEVELOPMENT PROGRAM FOR THE NUCLEAR ROCKET ENGINE, IT BECAME EVIDENT THAT STRAIN GAGES WOULD BE SUITABLE FOR BOTH DIAGNOSTIC INSTRUMENTATION ON THE ENGINE STRUCTURAL MEMBERS AS WELL AS THE SENSING ELEMENT IN INSTRUMENTATION TRANSDUCERS. A PROGRAM WAS ESTABLISHED TO SURVEY AND EVALUATE VARIOUS STRAIN-GAGE CONFIGURATIONS IN THE COMBINED CRYOGENIC-RADIATION ENVIRONMENT IN WHICH THE INSTRUMENTS WOULD BE REQUIRED TO OPERATE.

AVAILABILITY - W.M. HART, AEROJET-GENERAL CORP., SACRAMENTO, CALIF. 95801

NUCLEAR ROCKET + DESIGN STUDY + IRRADIATION TESTING + *MEASUREMENT, STRAIN GAGE + *REMOTE MANIPULATING AND VIEWING + CRYOGENICS + *TEST, INSTRUMENT RESPONSE + INSTRUMENT, COMPONENT

9-30159 ALSO IN CATEGORY 15
YOUNG GW
A LONG-DISTANCE, REMOTE INDICATING RADIATION SURVEY MONITOR
EDGERTON, GERMESHAUSEN AND GRIER, INC.
PROCEEDINGS 15TH CONF. ON REMOTE SYSTEM TECH., 1967, P.277

DURING TESTS OF NUCLEAR ROCKET ENGINES AT THE NUCLEAR ROCKET DEVELOPMENT STATION IN NEVADA, THERE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30159 *CONTINUED*

IS A NEED TO MONITOR RADIATION LEVELS REMOTELY AROUND THE ROCKET TEST CELL AREA AND THROUGHOUT THE SITE. THE SYSTEM DESCRIBED USES MANY REMOTE DETECTORS AT VARIOUS LOCATIONS IN THE TEST SITE AREA, EACH OF WHICH REPORTS ITS RADIATION ENVIRONMENT OVER A RANGE OF 1 MR/H TO 1000 R/H TO A CENTRAL COLLECTION POINT VIA SEVERAL MILES OF ORDINARY TWISTED-PAIR TELEPHONE WIRES.

AVAILABILITY - GORDON W. YOUNG - EDGERTON, GERMESHAUSEN AND GRIER, INC., LAS VEGAS, NEVADA 89101

SYSTEM DESCRIPTION + NRDL + *MONITOR, ENVIRONMENTAL + *INSTRUMENT, RADIATION MONITORING

9-30200 ALSO IN CATEGORY 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-12 +. 14 PAGES, AUGUST 8, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INITIAL CRITICALITY ACHIEVED BY BORON DILUTION 0104 AM JULY 24, 67, AND PHYSICS TEST CONTINUED. ON JULY 31, CONTROL VALVE LEAKAGE LIMITED TURBINE ROLL TO 200 RPM. DURING FUEL LOADING, BORON IN WATER DECREASED FROM 2837 TO 2682 PPM BECAUSE OF DILUTION BY CLEAN WATER TO THE SEALS OF THE PURIFICATION PUMP (MODIFIED TO USE PUMP DISCHARGE WATER). TENTATIVE VALUES OF VARIOUS PHYSICS PARAMETERS LISTED.

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

PUMP + MODIFICATION, SYSTEM OR EQUIPMENT + SEAL + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + *DILUTION + *REACTOR STARTUP TESTING + COOLANT PURIFICATION SYSTEM + REPORT, OPERATIONS + REACTOR, PWR + *SHUTDOWN SYSTEM, SECONDARY

9-30206 ALSO IN CATEGORY 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-28 +. 7 PAGES, NOVEMBER 19, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ROD 30 SLIPPED FROM 307 STEPS TO 265 STEPS DURING 492 MWE OPERATIONS, ACTUATING A NEUTRON FLUX RATE OF CHANGE RUNBACK TO 445 MWE. BURNUP REMAINED AT 120 PPM BORON PER MWD/MTU, AND CORE REACHED 421 OF LIFE. ***OPERATION OF EVAPORATOR AND CONCENTRATOR IS UNSATISFACTORY.

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

HADDAM NECK (PWR) + WASTE TREATMENT, LIQUID + *ACCIDENT, CONTROL ROD DROPIN + FUEL BURNUP + EVAPORATION + REPORT, OPERATIONS + FAILURE, EQUIPMENT + REACTOR, PWR + INSTRUMENT, RATE OF CHANGE + *INSTRUMENT, ABNORMAL INDICATION

9-30207 ALSO IN CATEGORIES 5 AND 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATING REPORT NO. 68-11, DEC. 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SEVERAL LOAD REDUCTIONS WERE MADE FOR TESTS ON TURBINE CONTROL VALVE. HIGHEST WORTH ROD WAS INSERTED FOR 48 HR TO MEASURE ITS CHANGE IN WORTH (ABOUT 0.3 R PERCENT) AND CHANGE IN HOT CHANNEL FACTOR (FW CHANGED FROM 1.11 TO 1.85). FLUX TILT WAS ORIGINALLY 14 PERCENT, INCREASING TO A MAXIMUM OF 23 PERCENT AND REACHING EQUILIBRIUM AT 12 PERCENT. TILT REVERSED WHEN ROD WITHDRAWN. *** 4 RODS WERE RUN IN ONE AT A TIME, VERIFYING THAT AT LEAST 2 POWER RANGE CHANNELS WOULD DETECT THIS. INDIVIDUAL STEPS WERE INDISTINGUISHABLE FROM THE DOPPLER INSERTIONS ON THE REACTIVITY COMPUTER, ONE OF THE FOUR LEAST REACTIVE RODS GAVE A 37 MWE DECREASE AND AN 11 PERCENT FLUX TILT, OBVIOUS TO THE MOST CASUAL OBSERVER.

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

HADDAM NECK (PWR) + REACTOR, PWR + HOT CHANNEL FACTOR + *ACCIDENT, CONTROL ROD DROPIN + FLUX TILT + REPORT, OPERATIONS + INSTRUMENT, OPERATING REACTIVITY + *MEASUREMENT, REACTIVITY + *INSTRUMENT, ABNORMAL INDICATION

9-30208 ALSO IN CATEGORY 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATING REPORT NO. 68-11, DECEMBER 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

NOS. 1 AND 4 STEAM GENERATORS CANNOT BE OPERATED AT DESIGN LEVEL WITHOUT CARRYOVER. ***THE REACTOR SCRAMMED 18 NOV. FOR NO KNOWN CAUSE, THE TURBINE INDICATING A REACTOR TRIP AND THE REACTOR INDICATING A TURBINE TRIP. ON RESTART, TURBINE LOADING BECAME ERRATIC (EXCEEDING 100 MWE IN SECONDS) DUE TO METAL FILINGS BINDING THE FEEDBACK SLEEVE OF THE PILOT VALVE. NO REASON HAS BEEN FOUND FOR THE SCRAM. ***INJECTION OF 18 GPH STEAM INTO CONTAINMENT REDUCED TRITIUM CONCENTRATION BY A FACTOR OF 6.1 AND 25 GPH REDUCED BY 8. TRITIUM LEVEL ROSE IMMEDIATELY ON STOPPING STEAM, EITHER DUE TO POOR MIXING OR INSUFFICIENT TIME (45 HR) FOR NEW EQUILIBRIUM LEVEL TO BE REACHED.

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

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30208 *CONTINUED*
FLOW BLOCKAGE + HADDAM NECK (PWR) + *SCRAM, SPURIOUS + STEAM + PARTITION COEFFICIENT + REPORT, OPERATIONS + ACCIDENT, COLD COOLANT + *AIRBORNE RELEASE + VALVE + TURBINE + STEAM GENERATOR + REACTOR, PWR + FAILURE, COMPONENT + CONTAINMENT, HIGH PRESSURE + *TRITIUM + INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, ABNORMAL INDICATION

9-30216 ALSO IN CATEGORY 17
CONTROL ROD SWELLING
UNION CARBIDE CORPORATION
1 PAGE, LETTER TO DRL, DEC. 19, 1968, DOCKET 50-54

ROUTINE QUARTERLY INSPECTION OF CONTROL RODS ON DEC. 13 SHOWED SERIAL NUMBER 1 ROD HAD SWELLED MORE THAN 0.355 IN. BUT LESS THAN 0.375. THIS ROD HAS HAD ABOUT 1300 MWD SERVICE. *** CLOSE INSPECTION SHOWED A SINGLE PIT MARK IN A WELD, WHICH PROBABLY ADMITTED WATER WHICH DECOMPOSED. THE OTHER RODS IN THE ORIGINAL COMPLEMENT WILL BE INSPECTED FOR SIMILAR CORROSION.

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

*CONTROL ROD + EXAMINATION + CARBIDE + WELDS + REACTOR, RESEARCH + BORON + DAMAGE + CONTROL ROD BURNUP + CORROSION + *EXPANSION + LEAK

9-30223 ALSO IN CATEGORIES 6 AND 17
STARTUP ON SPONTANEOUS FISSION
CORNELL UNIVERSITY
2 PAGES, LETTER TO H.L. PRICE, DRL, FEBRUARY 15, 1968, DOCKET 50-97

NORMALLY WE USE A ONE CURIE PU-BE SOURCE, GIVING 1.9×10^{16} TH N/SEC. USING THE 2.1(ENRICHED FUEL, WE HAVE A SPONTANEOUS FISSION YIELD BETWEEN 15,620 AND 7510 N/SEC, MORE THAN 2(THAT OF THE SOURCE. THE IMPORTANCE OF A NEUTRON PRODUCED IN THE CORE IS MUCH GREATER THAN FROM THE SOURCE. EXPERIENCE SHOWS THE SAFETY INSTRUMENTS QUITE RESPONSIVE TO THE SPONTANEOUS FISSIONS, WHICH IS THEREFORE ADEQUATE AS A STARTUP SOURCE. FOR FUTURE EXPERIMENTS, THE SOURCE WILL PROVIDE AN UNDESIRABLE BACKGROUND EVEN WHEN STORED.

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

TECHNICAL SPECIFICATIONS + *REACTOR STARTUP, LOW SOURCE + CRITICALITY EXPERIMENT

9-30224 ALSO IN CATEGORIES 16 AND 17
USE OF METEOROLOGY INSTRUMENTATION FOR ON SITE EMERGENCY
UNIVERSITY OF VIRGINIA
1 PAGE, LETTER TO DRL, DEC. 20, 1968, DOCKET 50-62

FOLLOWING OUR OCT. 21/NOV. 21 LETTERS PROPOSING TO REMOVE OUR WEATHER STATION, WE UNDERSTAND THERE IS SOME DRL CONCERN REGARDING THE NEED TO KNOW WIND DIRECTION DURING EMERGENCY EVACUATION. WHILE WE REJECT THE POSSIBILITY OF SUCH EVACUATION IS REMOTE, WE WILL RETAIN A WIND VANE AND ANEMOMETER, WITH INDICATION ON THE FIRST FLOOR REACTOR BUILDING.

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

TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + REACTOR, POWER + *EMERGENCY PROCEDURE + *INSTRUMENT, METEOROLOGICAL

9-30227 ALSO IN CATEGORY 17
NBS REACTOR OPERATIONS REPORT 2 JULY-SEPT. 1968
U.S. DEPT. OF COMMERCE
21 PAGES, 4 TABLES, NOVEMBER 19, 1968, DOCKET 50-184

SUMMARIZES LOW POWER PHYSICS TESTS ON FULL CORE. SHADOWING REDUCES SHIM ROD WORTH BY 30((SHIM 1 MEASURES \$8.9, YET CONTROLS \$12.6 WHEN OTHER RODS OUT). BEAM PORTS GAIN REACTIVITY (UP TO \$0.24) WHEN FLOODED WITH D2O, LOSE REACTIVITY (UP TO \$0.11) WHEN FLOODED WITH H2O. ***REPORT LISTS MAINTENANCE, MODIFICATIONS, SURVEILLANCE TESTS AND PLANT CHANGES (NONE).

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

REACTOR, HWR + REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + NBS + CONTROL ROD INTERACTION + REACTIVITY EFFECT + BEAM HOLE + *REACTOR STARTUP TESTING

9-30240 ALSO IN CATEGORY 17
AMENDMENT TO AGN-201 LICENSE
THE UNIV. OF NEW MEXICO
25 PAGES, FIGURES, TABLES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 11, 1968, DOCKET 50-252

REQUESTS PERMISSION TO - (1) RELOCATE AGN-201 TO NEW ENGINEERING CENTER BUILDING 90 YARDS AWAY (NOT REQUIRING A NEW SITE EVALUATION). (2) INCREASE POWER FROM 0.1 TO 5 WATTS (AS AT OTHER SIMILAR FACILITIES). (3) UPDATE I AND C SYSTEM (AS DONE AT ANL AGN-201, REPLACING SENSITROL SCRAM RELAYS WITH ELECTRONIC TRIPS, REVISING STARTUP CHANNEL TO COVER ENTIRE RANGE). (4) MAKING CHANGES TO PERMIT PULSING WITH A 14 MEV (D,T) SOURCE (AS WAS ALLOWED IN 1963-64 WHEN THE REACTOR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30240 *CONTINUED*
WAS OPERATED AT THE BERKELEY CAMPUS). ***REPORT DESCRIBES MODIFICATIONS AND THEIR EFFECTS ON PERSONNEL SAFETY.

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

REACTOR, PULSED + *MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR SAFETY SYSTEM + *POWER UPGRATING + SOURCE, NEUTRON + TECHNICAL SPECIFICATIONS + AGN (TNG) + ACCELERATOR + INSTRUMENT, STARTUP RANGE

9-30248 ALSO IN CATEGORY 17
PROPOSED TECH SPEC CHANGE - TEMPERATURE ALARM SETPOINT
RHODE ISLAND NUCLEAR SCIENCE CENTER
1 PAGE, LETTER TO DRL, DEC. 10, 1968, DOCKET 50-193

SINCE THE COOLANT TEMPERATURE RISE ACROSS THE CORE AT 2 MW IS 8 F, THE ALARM SETPOINTS OF 110 F (INLET) AND 123 F (OUTLET) ARE INCONSISTENT. RAISING THE INLET ALARM SETPOINT TO 115 F HAS NO EFFECT ON SAFETY.

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

*SETPOINT + REACTOR, RESEARCH + MAIN COOLING SYSTEM + TECHNICAL SPECIFICATIONS + *INSTRUMENT, TEMPERATURE

9-30262 ALSO IN CATEGORY 17
STUCK TRIGA TRANSIENT ROD PISTON
WASHINGTON STATE UNIVERSITY, PULLMAN, WASH.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15121, PAGE 15, JAN. 13, 1969, DOCKET 50-27

(LETTER, DEC. 23.) ON DEC. 18, DURING PREPARATION FOR A TEST OF PULSE ROD DYNAMICS USING HIGH SPEED PHOTOGRAPHY, THE PULSE ROD PISTON STUCK AND WOULD NOT DROP WHEN AIR WAS RELEASED. DIRT WAS WIPE FROM THE CYLINDER, LEAVING A VARNISH RING AT THE TOP FOR THE O-RING TO HANG UP ON. THE RING WAS REMOVED WITH ETHANOL AND SYSTEM OPERATED PROPERLY.

PNEUMATIC SYSTEM + REACTOR, RESEARCH + LUBRICATION + REACTOR, PULSED + TRIGA (RR) + CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM

9-30281 ALSO IN CATEGORY 17
LACBWR REACTOR VESSEL WATER LEVEL INDICATION ANOMALY
ALLIS-CHALMERS
2 PAGES, LETTER TO P.A. MORRIS, DRL, JUNE 20, 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REQUESTS SYSTEM BE LEFT AS IS FOR TESTING. TWENTY-TWO INCHES (OF THE 28 OF SWELLING INITIALLY FOUND DIFFERENCE BETWEEN VOIDED WATER LEVEL IN VESSEL AND UNVOIDED WATER IN STANDPIPE) ARE DUE TO LOWER THAN ANTICIPATED STANDPIPE TEMPERATURES. REACTOR HAS BEEN OPERATING 3 INCHES ABOVE THE HIGH WATER LEVEL SCRAM POINT (BASED ON UNVOIDED LEVEL). THE VOIDED LEVEL IS WITHIN TECHNICAL SPECIFICATIONS.

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

LACROSSE (BWR) + PRESSURE VESSEL + INCIDENT, EQUIPMENT + FAILURE, DESIGN ERROR + REACTOR, BWR + *TEMPERATURE GRADIENT + *INSTRUMENT, LIQUID LEVEL DETECTION + *INSTRUMENT, ABNORMAL INDICATION

9-30284 ALSO IN CATEGORY 17
CHANGE 7 - MODIFICATION OF 15 ROD DRIVES
U.S. ATOMIC ENERGY COMMISSION
5 PAGES, LETTER TO PRWA, JUNE 4, 1968, DOCKET 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

ALLOWS CHANGE AFTER SATISFACTORY OPERATION SINCE JUNE 67 OF 2 DRIVES WITH ADDED (1) TORQUE SPRING TO OVERCOME FRICTION ON INITIAL INSERTION, (2) CENTRIFUGAL BRAKE TO LIMIT VELOCITY AND HENCE ENERGY ON DECELERATION, (3) OIL RESERVOIR TO COMPENSATE FOR LEAKAGE. *** TEST PROGRAM REVIEWED IN SAFETY EVALUATION.

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

REACTOR, BWR + *CONTROL ROD DRIVE + TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + SHOCK ABSORBER + ACCUMULATOR + TEST, SYSTEM OPERABILITY + *MODIFICATION, SYSTEM OR EQUIPMENT + BONUS (ISR)

9-30288 ALSO IN CATEGORY 17
CHANGE 3 - FUEL ELEMENTS
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO E. CREUTZ, G-GA INC., SEPTEMBER 18, 1968, DOCKET 50-240

AUTHORIZES USE OF CARBON (AS A DILUENT) AND OTHER POISONS FOR HTGR MOCKUP FACILITY PROVIDED POISONS ARE SOLID WITH MELTING POINT ABOVE 600 C, SECURED TO PREVENT INADVERTENT MOVEMENT WHEN WORTH EXCEEDS \$3.00. *** PROOF TEST THAT A TEMPERATURE RISE OF 200 C WILL EXPEL FUEL COMPACTS MAY BE MADE YEARLY INSTEAD OF QUARTERLY BECAUSE TWO YEARS TESTING HAVE SHOWN RELIABILITY OF EXPULSION MECHANISM.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30288 *CONTINUED*

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

RELIABILITY, SYSTEM + REACTOR, HTGR + *TEST INTERVAL + TEST, PROOF + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS + *REACTOR FUSE + *POISON, FIXED

9-30310 ALSO IN CATEGORY 17

SLUGGISH TRIGA TRANSIENT-ROD DROP
THE PENNSYLVANIA STATE UNIVERSITY

2 PAGES, LETTER TO P.A. MORRIS, DRL, JULY 29, 1968, DOCKET 50-5

ON JAN. 5, 68, DURING ROUTINE PRESTARTUP TESTS, THE OPERATOR NOTED THAT THE TRANSIENT ROD AIR VALVE WAS TAKING 2-3 SEC TO RELEASE, RATHER THAN THE LESS THAN 1 SEC NORMAL. ON ONE OCCASION, IT FAILED TO RELEASE. THE DISMANTLED VALVE SHOWED EVIDENCE OF GUIDE RUBBING AND WAS REPLACED.

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

*VALVE + TRIGA (RR) + REACTOR, RESEARCH + FAILURE, COMPONENT + *FAILURE, SCRAM MECHANISM

9-30413 ALSO IN CATEGORIES 6 AND 18

AEC QUESTIONS ON RANCHO SECO
U.S. ATOMIC ENERGY COMMISSION

11 PAGES, LETTER FROM AEC DRL TO SACRAMENTO MUNICIPAL UTIL. DIST., MARCH 21, 1968, DOCKET 50-312, TYPE--PWR, MFG--B+W, AE--BECHTEL

CONTAINS 81 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, REACTOR DESCRIPTION, SPATIAL KINETICS, AND INSTRUMENTATION AND CONTROL. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR SAFETY SYSTEM + *AEC QUESTION + REACTOR KINETICS + DESIGN CRITERIA + RANCHO SECO (PWR) + REACTOR, PWR + REACTOR DESCRIPTION + CONSTRUCTION PERMIT PROCESS + INSTRUMENT, CONTROL

9-30414 ALSO IN CATEGORIES 2 AND 18

AEC QUESTIONS ON MAINE YANKEE
U.S. ATOMIC ENERGY COMMISSION

19 PAGES, LETTER FROM AEC DRL TO MAINE YANKEE ATOMIC POWER CO., MARCH 20, 1968, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

CONTAINS 101 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN SITE METEOROLOGY, SHARED COMPONENTS, THERMAL SHOCK ON REACTOR COOLANT SYSTEM, JUSTIFICATION OF HEAT FLUXES, NOT OF COOLANT PIPING AND STRESS LIMITS OF CORE INTERNALS, AND INSTRUMENTATION AND CONTROLS DETAILS. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + STRESS ANALYSIS + NDT DATA + MAIN COOLING SYSTEM + MAINE YANKEE (PWR) + REACTOR SAFETY SYSTEM + SITE CLIMATOLOGY + SHARED COMPONENTS + *AEC QUESTION + HEAT TRANSFER ANALYSIS + CONSTRUCTION PERMIT PROCESS + PIPING + INSTRUMENT, CONTROL

9-30418 ALSO IN CATEGORIES 5 AND 18

AEC QUESTIONS ON ZION 1 AND 2
U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JAN. 15, 1968, DOCKETS 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

CONTAINS 38 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN INSTRUMENTATION AND CONTROL, VENTILATION SYSTEM FOR CONTAINMENT, DESIGN BASIS FOR CONTROL-ROOM SHIELDING, AND LOSS-OF-COOLANT-ACCIDENT ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + CONTROL PANEL/ROOM + ACCIDENT, LOSS OF COOLANT + REACTOR SAFETY SYSTEM + REACTOR, PWR + SHIELDING + *AEC QUESTION + VENTILATION SYSTEM + DESIGN CRITERIA + INSTRUMENT, CONTROL + ZION 1 (PWR) + ZION 2 (PWR)

9-30419 ALSO IN CATEGORY 18

REVIEW OF THREE MILE ISLAND CONTROL ROD DRIVE DESIGN
U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO METROPOLITAN EDISON CO., JAN. 7, 1969 DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

METROPOLITAN EDISON HAD REFERENCED THE PROPOSED NEW DESIGN TO INFORMATION CONTAINED IN OYSTER CREEK NO. 2 APPLICATION AMEND. 4 (DOCKET 50-320), BUT DRL SITES 5 POINTS OF DIFFERENCE AND REQUESTS RESPONSE.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30419 *CONTINUED*
 AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, D.C. 20545 (\$0.25 CENTS/PAGE)
 COMPARISON, REACTOR CHARACTERISTICS + *CONTROL ROD DRIVE + REACTOR, PWR + THREE MILE ISLAND 1 (PWR) + *DESIGN
 CRITERIA + THREE MILE ISLAND 2 (PWR)

9-30454 ALSO IN CATEGORY 6
 BEESON CL
 MEASUREMENT OF THE ZERO POWER TRANSFER FUNCTION OF THE KANSAS STATE UNIVERSITY TRIGA MARK II NUCLEAR REACTOR
 KANSAS STATE UNIVERSITY, MANHATTEN, KANSAS
 TID-24579 +. 1966, 130P.

THE PURPOSE OF THE WORK WAS THE DESIGN AND CONSTRUCTION OF A LINEAR MOTION PILE OSCILLATOR, AND
 THE MEASUREMENT OF THE ZERO POWER TRANSFER FUNCTION OF THE K.S.U. TRIGA MARK-II REACTOR.
 COMPUTER PROGRAMS WERE DEVELOPED TO PERFORM LEAST SQUARES ANALYSES ON THE MEASURED GAIN AND PHASE
 SHIFT TO DETERMINE THE RATIO OF THE EFFECTIVE DELAYED NEUTRON FRACTION TO THE PROMPT NEUTRON
 LIFETIME.

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

REACTOR, RESEARCH + DELAYED NEUTRON + COMPUTER PROGRAM + *TRANSFER FUNCTION + *OSCILLATOR, REACTIVITY +
 MEASUREMENT, REACTIVITY + TRIGA (RR)

9-30476
 AZUMA M
 METHOD FOR ADJUSTING THE REACTIVITY OF A COMBINED-TYPE NUCLEAR REACTOR
 HITACHI LTD.
 JAPANESE PATENT 1967-19540 +. OCTOBER 2, 1967

THE METHOD PROPOSED HAS THE FOLLOWING ADVANTAGES - ADJUSTMENT OF THE REACTIVITY OVER THE EXTENSIVE
 AREA WITH A SIMPLE MECHANISM, SUITABLE PROTECTION OF THE REACTOR, AND FAVORABLE OPERATION OF THE
 REACTOR. THE REACTOR IS DIVIDED INTO A PLURALITY OF CONCENTRIC NUCLEAR REGIONS. BETWEEN THE
 REGIONS, CONTROL RODS ENTER THE REACTOR FROM THE BOTTOM WITH VERTICAL AXIAL MOVEMENT. EACH
 CONTROL ROD IS T-SHAPED IN CROSS SECTION. THE PLATE, CORRESPONDING TO THE UPPER BAR OF THE T,
 FACES THE CENTRAL NUCLEAR REGION, AND THE PLATE, CORRESPONDING TO THE UPRIGHT BAR, PROTRUDES TO
 THE OUTER REGION.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., \$0.30 PER PAGE

JAPAN + CONTROL ROD INTERACTION + PATENT + *REACTOR CONTROL + REACTIVITY EFFECT

9-30477
 SUGAYA J
 REACTOR CONTROL ELEMENT
 HITACHI LTD.
 JAPANESE PATENT 1967-17904 +. OCTOBER 17, 1967

THE REACTOR CONTROL ELEMENT, FROM TOP TO BOTTOM, CONSISTS OF A GUIDE TUBE, A POISON CYLINDRICAL-
 TUBE AND THE CONNECTED FUEL BELOW IT, AN ELEMENT SUPPORT-TUBE, AND A ROD RUNNING FROM THE GUIDE
 TUBE TO THE SUPPORT TUBE THROUGH THE POISON AND FUEL. BY TURNING A HANDLE ATTACHED TO THE UPPER
 END OF THE GUIDE TUBE, THE POISON AND THE FUEL CYLINDER ARE RAISED, BEING DETACHED FROM THE
 SUPPORT TUBE BY MEANS OF A HOOK DEVICE RELEASED AT THE LOWER END OF THE ROD.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C., 20545, \$0.30 PER PAGE

PATENT + EQUIPMENT DESIGN + JAPAN + *CONTROL ROD + POISON, FIXED

9-30478
 SEKI K
 RADIOACTIVITY-ADJUSTMENT DEVICE
 HITACHI LTD.
 JAPANESE PATENT 1967-17908 +. OCTOBER 17, 1967

IN DETECTING THE RADIOACTIVITY OF NUCLEAR FUEL RODS OR THEIR DAMAGE IN THE REACTOR CORE, THE FLUID
 NEARBY IS LED TO THE MEASURING POINT OUTSIDE THE REACTOR THROUGH A PIPE. A SHORT FLEXIBLE PIPE
 IS SET AT AN APPROPRIATE POINT ON THE LEADING PIPE. ACCORDING TO THE HALF-LIFE OF A PARTICULAR
 RADIONUCLIDE TO BE MEASURED, THIS FLEXIBLE PIPE IS ADJUSTED WITH RESPECT TO ITS VOLUME. THE
 RESULT IS IMPROVED MEASUREMENT OF THE RADIONUCLIDES.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. 20545, \$0.30 PER PAGE

JAPAN + PATENT + FISSION PRODUCT RELEASE, GENERAL + MONITORING SYSTEM, RADIATION + *INSTRUMENT, DETECTION
 FAILED FUEL ELEMENT

9-30479
 SUGAYA J

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30479 *CONTINUED*
REACTOR CONTROL RODS
HITACHI LTD.
JAPANESE PATENT 1967-17903 +. OCTOBER 17, 1967

THE METHOD PROPOSED HAS THE FOLLOWING ADVANTAGES - THE POSSIBILITY OF INSERTING OR WITHDRAWING AN EXPERIMENTAL FACILITY OR FUEL ELEMENTS WITHOUT DETACHING THE PLATES OF CONTROL-ROD GUIDE TUBES, AND THE COMPACTNESS AND THE INCREASED COOLANT FLOW. CONTROL RODS ARE LOCATED AMONG THE FUEL ELEMENTS, AND, TO PREVENT THE ABRASION BETWEEN THE FUEL ELEMENT AND CONTROL ROD, A GUIDE TUBE IS PROVIDED FOR THE LATTER. THESE GUIDE TUBES ARE SUPPORTED, WITH RESPECT TO ONE ANOTHER, BY AN ARRANGEMENT OF HORIZONTAL SUPPORT RODS EXTENDING RADially FROM THE UPPER PART OF THE CENTRAL GUIDE TUBE.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. 20545, \$0.30 PER PAGE

STRUCTURAL INTEGRITY + *CONTROL ROD + JAPAN + EQUIPMENT DESIGN + PATENT

9-30480 ALSO IN CATEGORY 6
ARCIPIANI B + BIRKHOFF G + BONDAR L + HAGE W
DETERMINATION OF REACTIVITY WORTHS AND PHOTONEUTRON EFFICIENCY IN ROD DROP MEASUREMENTS
EURATOM-CCR, ISPRA, ITALY
2 PAGES, ENERG. NUCL. (MILAN), 15(2), PAGES 56-7 (FEBRUARY 1968)

DESCRIBES PROCEDURE FOR ASSESSING THE REACTIVITY WORTH AND THE PHOTONEUTRON EFFICIENCY IN ROD DROP MEASUREMENTS PERFORMED ON TWO HEAVY WATER-MODERATED REACTORS AT ISPRA. THE TWO REACTORS WERE THE ISPRA-1 REACTOR, WITH A STRONG CONSTANT BACKGROUND SOURCE, AND THE ESSOR REACTOR AT ZERO POWER, WITH A CORE LOADED IN THE DRIVER ZONE ONLY. BOTH REACTORS USE HIGHLY ENRICHED U-235 FUEL ELEMENTS.

REACTOR, HWR + TEST, DROP + ITALY + MEASUREMENT, REACTIVITY + *CONTROL ROD WORTH + *REACTIVITY EFFECT

9-30532 ALSO IN CATEGORY 17
REPAIR OF ROTARY SPECIMEN ASSEMBLY
UNIVERSITY OF ILLINOIS
INRL-19A +. 3 PAGES, DECEMBER 7, 1965 (50-151)

(SECOND BREAK). PREVIOUS APPROVED PROCEDURES USED. ASSEMBLY WAS RAISED 6 FT ABOVE CORE AND LEFT, THEN SCHEDULED OPERATION MADE. *** FISSION COUNTING RATE WAS 53 PER CENT THAT BEFORE REMOVAL, REACTIVITY GAIN WAS \$0.045. POWER WAS LIMITED BY REACTIVITY CHANGE AND BY FUEL TEMP. INCREASE. LINEAR/PER CENT POWER INDICATIONS WERE 53/70 KW AND 137/180 KW AT WHAT WAS NOMINALLY 100/250 KW, WHICH HEATUP RATES INDICATED 88/230 KW. ***REPAIR WAS POSSIBLE (WITHOUT REMOVAL FROM WATER) OF BROKEN PIN IN CONNECTOR. LOW POWER VALVES WERE DUE TO GRADUAL CHANGES, CHAMBER POSITIONS HAVE BEEN CORRECTED.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*MAINTENANCE AND REPAIR + SAFETY REVIEW + REPORT, OPERATIONS ANALYSIS + TRIGA (RR) + REACTOR, RESEARCH + IRRADIATION FACILITY + REACTOR POWER + REACTIVITY EFFECT + INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, POWER RANGE

9-30538 ALSO IN CATEGORY 17
ROD DROP ANALYSIS
UNIVERSITY OF ILLINOIS
INRL-14 +. 10 PAGES, FIGURES, TABLES, MAY 24, 1963 (50-151)

RESPONSE TIMES OF VARIOUS PORTIONS OF CIRCUITRY AND MECHANICS FOLLOWING SCRAM WERE MEASURED ACCURATELY FOR MAGNET RELEASED RODS. (TOTAL)-0.463 SEC. (DASH POT DECELERATION)-0.068 SEC. (MAGNET RELEASE)-0.041 SEC. INITIAL MAGNET CURRENT WAS VARIED FROM 169 MA (0.406 SEC) TO 68 (0.397 SEC). ACCELERATION COMPUTED (18 FT/SEC SQ) AND NEGATIVE REACTIVITY VS TIME GRAPHED. INITIAL INDICATION OF NEGATIVE CONTROL IS WITHIN 0.020 SEC, AND MAXIMUM EXCESS REACTIVITY IS CANCELLED IN 0.235 SEC.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*CONTROL ROD SCRAM MECHANISM + MEASUREMENT, GENERAL + SHUTDOWN MARGIN + REPORT, OPERATIONS ANALYSIS + MEASUREMENT, SUBCRITICALITY + TRIGA (RR) + *RESPONSE TIME + REACTOR, RESEARCH + REACTOR, PULSED

9-30543 ALSO IN CATEGORY 17
PULSE ROD REACTIVITY
UNIVERSITY OF ILLINOIS
INRL-10 +. 3 PAGES, FEBRUARY 21, 1962 (50-151)

REPORT TO AEC OF DIFFICULTIES (ESSENTIALLY SAME AS INRL-9). TWICE PEAK POWER SCRAMS FOLLOWED \$2.00 PULSES. THE FIRST (ON THE 13TH \$2 PULSE) WAS APPARENTLY DUE TO MOVEMENT TO MAXIMUM OUT POSITION BY LOOSE COUPLING PINS. AFTER THE SECOND, PRECISE RECALIBRATION OF THE REG ROD SHOWED INCREASED VALUE DUE TO OTHER ROD POSITIONS, GIVING THE TRUE PULSE ROD WORTH AS \$2.30 INSTEAD OF \$2.05. MOST OF THIS WAS DUE TO INCREASED AIR PRESSURE (LONGER STROKE) AND ROTATED POSITION. *** REPRODUCIBLE RESULTS HAVE BEEN OBTAINED SINCE RECALIBRATION.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30543 *CONTINUED*
AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + REACTOR, PULSED + CONTROL ROD DRIVE + TRIGA (RR) + *CONTROL ROD CALIBRATION + FAILURE, EQUIPMENT + *SCRAM, SPURIOUS + INSTRUMENT, POWER RANGE

9-30544 ALSO IN CATEGORY 17
ADJUSTMENT OF CONTROL ROD REACTIVITY WORTHS
UNIVERSITY OF ILLINOIS
INRL-9 +. 5 PAGES, 3 FIGURES, FEBRUARY 14, 1962 (50-151)

JULY 61 PULSE ROD MEASURED \$2.11, AUG. 30, \$2.05. HOWEVER, ON NOV. 15, A PEAK POWER SCRAM CAME FROM A \$2 PULSE, AND DEC. CALIBRATION SHOWED \$2.05. AFTER A DEC. 8 PEAK POWER SCRAM, PULSES WERE LIMITED TO \$1.75. *** REG. ROD WAS CALIBRATED AS \$2.13-.16 (DEPENDING ON SHIM POSITION, AND THIS WAS USED TO ESTIMATE SHIM WORTH AS \$4.35, AND PULSE ROD AS \$2.30. (INCREASE ATTRIBUTED TO REG. ROD CHANGED VALUE, INCREASED AIR PRESSURE WITHDRAWN MORE, AND ROTATION TOWARDS CORE). *** ONE SCRAM COULD HAVE BEEN CAUSED BY LOOSE PINS, ANOTHER BY REPLACEMENT OF GRAPHITE WITH CADMIUM IN A BEAM HOLE (\$0.30), CHANGING FLUX DISTRIBUTION.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

TRIGA (RR) + CONTROL ROD INTERACTION + REACTOR, RESEARCH + SCRAM, SPURIOUS + *CONTROL ROD WORTH + REPORT, OPERATIONS ANALYSIS + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PULSED + BEAM HOLE

9-30549 ALSO IN CATEGORY 17
EFFECTS OF CONTROL ROD POSITION ON POWER LEVEL INDICATION
UNIVERSITY OF ILLINOIS
INRL-4 +. 3 PAGES, 1 FIGURE, MAY 2, 1961 (50-151)

ON A FEW OCCASIONS WITH THE SHIM ROD AT 650, A POWER SCRAM WOULD OCCUR DURING NORMAL OVERRIDE AFTER 100 KW WAS REACHED. SHIM ROD WAS INSERTED AT 100 KW, AND SERVO MOVED REG ROD FROM 769 TO 331 WHILE POWER WENT FROM 96 TO 110 KW. *** LINEAR CHAMBER (NEAR REG ROD) AND PER CENT POWER (NEAR SHIM ROD) WERE BEING SHADOWED. LINEAR AND LOG-N SIGNAL LEADS WERE REVERSED, AND A SIMILAR TEST SHOWED POWER SHIFT WAS FROM 98 TO 102 KW. *** CARE SHOULD BE TAKEN IN POSITIONING CHAMBERS WITH RESPECT TO RODS, AND OPERATOR SHOULD CONTROL ERRORS DURING RESEARCH MEASUREMENTS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

MEASUREMENT, GENERAL + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + OPERATOR ACTION + CONTROL ROD INTERACTION + REACTOR POWER + INSTRUMENT, POSITION + *INSTRUMENT, ABNORMAL INDICATION

9-30550 ALSO IN CATEGORY 17
POWER CALIBRATION OF TRIGA-II
UNIVERSITY OF ILLINOIS
INRL-3 +. 4 PAGES, 1 FIGURE, 1961 (50-151)

SIX CALROD HEATERS (GIVING 9.6 MW) WERE PLACED IN D-RING CORE POSITIONS TO OBTAIN A HEATUP RATE OF POOL WATER, KEEPING WATER WITHIN 2 C OF SHIELD-CONCRETE TEMP. NEUTRON INSTRUMENTS WERE POSITIONED ACCORDING TO GA INSTRUCTION, AND THE CALROD CALIBRATION WAS 0.958 THE NEUTRON INDICATION. CHAMBERS WERE REPOSITIONED TO AGREE WITH CALRODS. *** CALRODS GAVE A RISE OF 0.506 C/HR PER KW IN THE 4490 GAL TANK.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

MEASUREMENT, TEMPERATURE + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + *REACTOR POWER + INSTRUMENT CALIBRATION + INSTRUMENT, TEMPERATURE

9-30573 ALSO IN CATEGORY 17
MOINEREAU P
USE OF NUMERICAL COMPUTERS FOR MONITORING AND OPERATING NUCLEAR REACTORS
COMPAGNIE INTERNATIONALE POUR L INFORMATIQUE, PARIS
5 PAGES, ATOMPRAXIS, 14, PAGES 165-9 (APR.-MAY 1968)

ANALYZES THE FUNCTIONS THAT ARE USUALLY COMPUTER-PROCESSED IN A REACTOR. THE ORGANIZATION OF THE CORRESPONDING DATA-PROCESSING SYSTEM IS DESCRIBED. THE MOST IMPORTANT CONCLUSIONS OF THE CURRENT EXPERIMENTS ARE OUTLINED.

REACTOR, POWER + COMPUTER CONTROL + *DATA PROCESSING

9-30581
SHOUMAN ML
PROBABILISTIC RELIABILITY - AN ENGINEERING APPROACH
POLYTECHNIC INSTITUTE OF BROOKLYN, N. Y.
524 PAGES, 116 REFERENCES, MCGRAW HILL BOOK COMPANY, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(1), PAGE 1 (JANUARY 1969)

RELIABILITY CONCEPTS AND APPROACHES ARE RELATED TO BASIC PROBABILITY MATHEMATICS IN A TEXTBOOK FOR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30581 *CONTINUED*

COLLEGE AND INDUSTRIAL COURSES. PROBABILITY AND DIFFERENTIAL EQUATIONS ARE REVIEWED, AS ARE SET THEORY, CONTINUOUS AND DISCRETE RANDOM VARIABLES, MOMENTS, MARKOV MODELS, AND ESTIMATION THEORY. COMBINATORIAL RELIABILITY IS TREATED, INCLUDING SERIES AND PARALLEL CONFIGURATIONS, GENERAL TECHNIQUES, AND VARIOUS MODELS. CATASTROPHIC-FAILURE MODELS CONSIDER TREATMENT OF FAILURE DATA. FAILURE MODES, HAZARD RATE AND FAILURE DENSITY, AND HAZARD MODELS. APPROXIMATION AND BOUNDS, GENERAL APPROACHES TO COMPUTATION, AND COMPUTER METHODS OF ANALYZING SYSTEM RELIABILITY ARE DESCRIBED.

*RELIABILITY ANALYSIS + MONTE CARLO + RELIABILITY, COMPONENT + REVIEW + STATISTICAL ANALYSIS + RELIABILITY, SYSTEM + COMPUTER PROGRAM + *PROBABILITY + SURVEY, GENERAL + RELIABILITY, COMPONENT + COMPUTER PROGRAM

9-30582

GAERTNER WM

SELF-REPAIR--NEXT MAJOR SYSTEMS DESIGN GOAL

GAERTNER RESEARCH INC., STAMFORD, CONN.

6 PAGES, 5 REFERENCES, PAGES 79-84 IN - 1968 PRODUCT ASSURANCE CONFERENCE AND TECHNICAL EXHIBIT, LONG ISLAND, N.Y., JUNE 7-8, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(1), PAGE 13 (JANUARY 1969)

A SELF-REPAIR APPROACH FOR ELECTRONIC SYSTEMS DESIGN IS DESCRIBED WHICH IS COMPATIBLE WITH EXISTING AND FUTURE MICROELECTRONIC TECHNOLOGY AND WHICH IS CONSIDERED TO PROVIDE ADVANTAGES WITH TECHNOLOGY AND WHICH IS CONSIDERED TO PROVIDE ADVANTAGES WITH RESPECT TO MAINTAINABILITY AND LOGISTICS SUPPORT AS WELL AS COST EFFECTIVENESS. THE SYSTEM CONTAINS BUILT-IN ADAPTABLE BACK-UP CIRCUITS THAT ARE SWITCHED INTO THE SIGNAL PATH IN RESPONSE TO THE FAULT ISOLATION BY BUILT-IN TEST EQUIPMENT.

SOLID STATE DEVICE + *RELIABILITY, COMPONENT + INSTRUMENT, COMPONENT + INSTRUMENT, RELAY + INSTRUMENT, SWITCH

9-30583

COREN RL + MATCOVICH TJ

PACKAGING AND RELIABILITY IN INTEGRATED CIRCUITS

C AND M ASSOCIATES, MAPLE GLEN, PA.

4 PAGES, 13 REFERENCES, PAGES 137-40 IN - 1968 PRODUCT ASSURANCE CONFERENCE AND TECHNICAL EXHIBIT, LONG ISLAND, NEW YORK, JUNE 7-8, 1968 TRANSACTIONS. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(1), PAGES 13-14 (JANUARY 1969)

RELIABILITY CONSIDERATIONS IN SOLID STATE DEVICES AND INTEGRATED CIRCUITS ARE DISCUSSED, ALONG WITH SOME PRESENT-DAY INTERCONNECTION TECHNIQUES AND A PACKAGING SCHEME TO IMPROVE IC RELIABILITY IS CONSIDERED TO BE IN THE LEAD CONNECTIONS TO THE OUTSIDE WORLD, AND THE USE OF HYBRID CIRCUITS IS CONSIDERED A PRACTICAL MEANS OF OVERCOMING THIS LIMITATION.

ELECTRICAL CONDUCTION + RELIABILITY, COMPONENT + SOLID STATE DEVICE + INSTRUMENT, COMPONENT

9-30584

CALABRO SR

SYSTEM EFFECTIVENESS

AEROSPACE TECHNOLOGY CORP.

7 PAGES, 3 REFERENCES, PAGES 201-07 IN - 1968 PRODUCT ASSURANCE CONFERENCE AND TECHNICAL EXHIBIT, LONG ISLAND, N.Y., JUNE 7-8, 1968. ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 9(1), PAGE 14 (JANUARY 1969)

MISSION RELIABILITY, OPERATIONAL READINESS, AND DESIGN ADEQUACY ARE DISCUSSED AS THE PRINCIPAL SYSTEM EFFECTIVENESS FACTORS. THESE THREE FACTORS ARE, IN TURN, AFFECTED BY HUMAN FACTORS, LOGISTICS, COSTS, ADMINISTRATION, AND OPERATIONAL MILITARY CHARACTERISTICS. THE TOTAL OF ALL THESE DEFINE THE REQUIRED CAPABILITY OF THE SYSTEM TO ACHIEVE ITS EFFECTIVENESS OR THE DESIRED FUNCTION IN THE MODE AND MANNER OF ITS APPLICATION. INTRINSIC AND OPERATIONAL AVAILABILITY, STORAGE AND FREE TIME, REPAIRABILITY, SERVICEABILITY, AND OPERATING TIME ARE THE OPERATIONAL CHARACTERISTICS DISCUSSED. RELIABILITY AND MAINTAINABILITY ARE CONSIDERED. ATTENTION IS GIVEN TO QUANTITATIVE MEASUREMENTS OF SYSTEM EFFECTIVENESS, AND A GENERAL EQUATION IS INCLUDED FOR OPERATIONAL READINESS.

DESIGN STUDY + REVIEW + OPERATOR ACTION + *RELIABILITY, SYSTEM

9-30585

MELISSINDS AC + STINSON WJ

DATA ON CHERENKOV COUNTERS

ROCHESTER UNIVERSITY, NEW YORK

UR-875-255 +. 31 PAGES, FIGURES, 3 TABLES, REFERENCES, SEPTEMBER 5, 1968

DESIGN DETAILS AND OPERATIONAL DATA ARE PRESENTED FOR SEVERAL TYPES OF DIFFERENTIAL AND THRESHOLD CHERENKOV COUNTERS DESIGNED AND BUILT BY THE PARTICLE PHYSICS GROUP AT THE UNIVERSITY OF ROCHESTER.

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

COMPARISON, THEORY AND EXPERIENCE + *COUNTER + EQUIPMENT DESIGN + INSTRUMENT, NUCLEAR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30586 ALSO IN CATEGORY 17
MARTIN RD
CONTROL-ROD MATERIAL PROBLEMS OF RESEARCH REACTORS
UNIVERSITY OF MICHIGAN
10 PAGES, 41 REFERENCES, NUCLEAR SAFETY 10(1), PAGES 63-72 (JAN.-FEB. 1969)

CONTROL-ROD MATERIAL PROBLEMS IN RESEARCH REACTORS HAVE NOT CAUSED ANY SERIOUS REACTOR ACCIDENTS. HOWEVER, REPETITION OF POOR DESIGNS (B4C-POWDER-FILLED POOL-REACTOR CONTROL RODS) AND INSUFFICIENT MECHANICAL TESTING OF FULL-SIZED CONTROL RODS (DEFORMATION OF MTR AND ORR ALUMINUM-CLAD CADMIUM) HAVE RESULTED IN SOME PROBLEMS THAT COULD HAVE BEEN AVOIDED. THE POWER-REACTOR OPERATING EXPERIENCE WITH CRACKED BORON-STAINLESS STEEL CONTROL RODS MAY BE PERTINENT TO RESEARCH REACTORS OPERATING IN THE MEGAWATT REGIONS. AS RESEARCH-REACTOR OPERATING EXPERIENCE WITH VARIOUS CONTROL-ROD MATERIALS INCREASES, AN IMPROVED MEANS OF REGULARLY DISSEMINATING OPERATIONAL-PROBLEM INFORMATION IS NEEDED.

REVIEW + CADMIUM + DESIGN STUDY + *CONTROL ROD + CORROSION + *OPERATING EXPERIENCE + FAILURE, CLADDING + *MATERIAL + BORON + REACTOR, RESEARCH + EXPANSION

9-30587
EPLER EP
COMMON MODE FAILURE CONSIDERATIONS IN THE DESIGN OF SYSTEMS FOR PROTECTION AND CONTROL
OAK RIDGE NATIONAL LABORATORY
8 PAGES, 3 TABLES, 4 REFERENCES, NUCLEAR SAFETY 10(1), PAGES 38-45 (JAN.-FEB. 1969)

A FAILURE OF INSTRUMENTATION IN THE CONTROL SYSTEM CAN INITIATE THE NEED FOR REACTOR PROTECTION. IF THE SAME CIRCUMSTANCES ALSO CAN INDUCE FAILURE OF THE INSTRUMENTATION THAT WAS PROVIDED TO PROTECT AGAINST THE CONTROL FAILURE, A POTENTIALLY HAZARDOUS SITUATION EXISTS. SIMILAR, OR PARTICULARLY IDENTICAL, INSTRUMENTS ARE SUSCEPTIBLE TO SUCH COMMON MODE FAILURES. EXAMINATION OF SIMULTANEOUS FAILURE INCIDENTS IN REACTOR PROTECTION SYSTEMS INDICATES THAT THE USE OF IDENTICAL CHANNELS OF INSTRUMENTS IS ONLY marginally acceptable for protection alone. IDENTICAL CHANNELS IN BOTH THE PROTECTION AND CONTROL SYSTEMS ARE UNACCEPTABLE IF PROTECTION AGAINST FAILURES OF THE CONTROL CHANNELS IS PROVIDED SOLELY BY THE IDENTICAL CHANNELS IN THE PROTECTION SYSTEM.

SAFETY PRINCIPLES AND PHILOSOPHY + *REACTOR SAFETY SYSTEM + *OPERATING EXPERIENCE + DESIGN CRITERIA + INSTRUMENT, PROTECTIVE

9-30588 ALSO IN CATEGORY 10
HANADA K
DEVICE FOR RELEASING THE PEAK PRESSURE BY A VALVE
NIPPON ATOMIC INDUSTRIES GROUP CO., LTD.
JAPANESE PATENT 1967-17911 +. OCTOBER 17, 1967

BY THE METHOD PROPOSED, THE PEAK PRESSURE FROM THE BYPASS TO THE BOILING REACTOR, OCCURRING IN CUTTING OFF THE TURBINED DUE TO THE OPENING OF THE CIRCUIT BREAKER CONNECTED TO THE GENERATORS, CAN BE REMOVED. THIS LEADS TO THE NON-SHUT-DOWN OF THE REACTOR. THE OPERATION IS DEFINITE, SIMPLE, AND LOW COST. A PEAK PRESSURE RELEASE VALVE IS INSTALLED IN THE BYPASS SYSTEM. THIS VALVE OPENS FOR A BRIEF PERIOD BEFORE THE OPENING OF THE USUAL BYPASS VALVES TO RELEASE THE INITIAL PEAK STEAM TO THE CONDENSER, AND HENCE TO RELEASE THE PEAK PRESSURE.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 CENTS/COPY)

*PRESSURE RELIEF + PATENT + JAPAN + VALVE + STEAM + BYPASS + INSTRUMENT, PRESSURE

9-30589 ALSO IN CATEGORY 11
BILSBOROUGH R + OTALLAMHAIN C
MEANS FOR CONTROLLING THE FLOW OF HEAT THROUGH WALLS
NUCLEAR POWER PLANT CO., LTD, AEI-JOHN THOMPSON NUCLEAR ENERGY CO., LTD.
BRITISH PATENT 1,115,263 +. MAY 29, 1968

THE DESCRIPTION OF A THERMAL INSULATION SYSTEM FOR A BOILING REACTOR CONCRETE PRESSURE VESSEL IS PRESENTED. THE INSULATION SYSTEM CONSISTS OF A SOLID MATERIAL WITH SUBLAYERS AND PASSAGES FORMED BETWEEN THE INSULATION AND PRESSURE VESSEL WALL. WATER COOLANT IS FORCED THROUGH THE INSULATION PASSAGES TO COOL THE PRESSURE VESSEL WALL SURFACE.

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

*THERMAL INSULATION + *CONTAINMENT DESIGN + PATENT + SYSTEM DESCRIPTION + UNITED KINGDOM + INSTRUMENT, CONTROL

9-30590
ACKROYD RT + PERKS MA
LIQUID REFLECTOR CONTROL FOR NUCLEAR REACTORS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY
U. S. PATENT 3,383,285 +. MAY 14, 1968

A NUCLEAR REACTOR HAVING A CORE SURROUNDED BY A SEGMENTED REFLECTOR IS DESCRIBED. REACTIVITY CONTROL IN THE REACTOR IS OBTAINED BY ALTERING THE REFLECTOR GEOMETRY. THE REFLECTOR SEGMENTS ARE EXTENDED IN JUXTAPOSED RELATIONSHIP FROM TOP TO BOTTOM, AND THE LIQUID LEVEL IN EACH SEGMENT IS REGULATED BY GAS PRESSURE. THE REFLECTOR MAY CARRY FERTILE MATERIAL AND IS IN THE LIQUID

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30590 *CONTINUED*
METAL FORM.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.49 CENTS/COPY)

REACTOR CONTROL + LIQUID + PATENT + *REACTIVITY EFFECT + *REFLECTOR + UNITED STATES

9-30591

SUZUKI Y
DEVICE FOR SUPPLYING GAS IN THE SCRAM OPERATION OF A SAFETY CONTROL ROD
FUJI ELECTRIC MFG. CO., LTD.
JAPANESE PATENT 1967-19543 +. OCTOBER 2, 1967

THE METHOD PROPOSED HAS THE FOLLOWING ADVANTAGES - SIMPLE CONSTRUCTION, LOW COST, AND CERTAIN OPERATION. THE DEVICE CONSISTS OF A PISTON ROD WHICH IS CONNECTED TO A SAFETY CONTROL ROD, A CYLINDER CONTAINING THE PISTON, A PRESSURE TANK CONNECTED TO THE PRESSURE SIDE OF THE CYLINDER, A CONSTANT-PRESSURE TANK TO SUPPLY PRESSURIZED GAS TO THE TANK AND TO CONTROL THE PRESSURE IN THE PRESSURE SIDE OF THE CYLINDER, A PIPING CONNECTING THE TWO TANKS, A THROTTLE VALVE INSTALLED IN THE CONNECTING PIPING, AND A PRESSURIZED-GAS SOURCE TO SUPPLY GAS TO THE CONSTANT-PRESSURE TANK.

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

ACCUMULATOR + *CONTROL ROD SCRAM MECHANISM + JAPAN + SYSTEM DESCRIPTION + PATENT + EQUIPMENT DESIGN + INSTRUMENT, PRESSURE

9-30592

MAZAKI G
DEVICE FOR DRAWING OUT A RADIOACTIVE SAMPLE
MITSUBISHI ATOMIC POWER INDUSTRIES, INC.
JAPANESE PATENT 1967-24625 +. NOVEMBER 27, 1967

BY THE DEVICE PROPOSED, A SAMPLE IRRADIATED IN THE REACTOR CORE CAN BE DRAWN OUT OF THE CORE SAFELY ENCLOSED IN A SHIELD. THE SAMPLE HOLDER IS CONNECTED TO ITS SUPPORT PLUG THROUGH THE MOUTH PIECES ATTACHED TO THE HOLDER AND PLUG. BETWEEN THE TWO IS A JOINT ON THE OUTSIDE OF WHICH ARE CUT GROOVES FOR LEAK AND OTHER WIRES. IN THIS SECTION THERE ALSO ARE A SHIELDING BODY CONTAINING THE SUPPORT, AND THE DRIVE FOR MOVING THIS SUPPORT BACK AND FORWARD WITHIN THE BODY. LOCATED AT THE POSITION CORRESPONDING TO THE GROOVES IN THE SHIELDING CUTTING MECHANISM WITH A CUTTER TO SEPARATE THE SAMPLE HOLDER FROM ITS SUPPORT PLUG.

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

IRRADIATION TESTING + *REMOTE MANIPULATING AND VIEWING + PATENT + JAPAN + SAMPLING

9-30593

MURAKAWA H
DEVICE FOR TESTING THE SCRAM CHARACTERISTICS OF A REACTOR SAFETY ROD
FUJI ELECTRIC MFG. COMPANY
JAPANESE PATENT 1967-17905 +. OCTOBER 17, 1967

THE DEVICE CONSISTS OF THE SUPPORT PLATE FOR A REACTOR SAFETY-CONTROL MECHANISM WITH ONE END ATTACHED TO THE MECHANISM SUPPORT PLATE AND THE OTHER TO THE REACTOR CORE, TWO SUPPORTING PLATES FIXED AT EITHER END OF THE DEVICE SUPPORT, A FIXED CONTACT-ELEMENT LOCATED INTERMEDIATELY BETWEEN THE TWO PLATES, A RESISTANCE WIRE EXTENDED BETWEEN THE TWO PLATES, AN ELEMENT ATTACHED TO THE CONTROL-ROD DRIVING ROD, OSCILLOGRAPH CIRCUITS CONNECTED TO BOTH ENDS OF BOTH THE TWO ELEMENTS WITH DC POWER SOURCES, AND AN OSCILLOGRAPH CIRCUIT WHICH CONNECTS A LEAD WIRE WITH A DC POWER SOURCE.

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

CONTROL ROD SCRAM MECHANISM + *TEST, CONTROL ROD DRIVE + JAPAN + PATENT

9-30594

OKADA S
ROD FOR GRABBING AND HANDLING A RADIOACTIVE MATERIAL IN A NUCLEAR REACTOR
TOKYO SHIBAURA ELECTRIC CO., LTD.
JAPANESE PATENT 1967-19559 +. OCTOBER 2, 1967

THE GRABBING AND HANDLING ROD PROPOSED IS DESIGNED FOR SWIMMING-POOL TYPE REACTOR. THE DEVICE CONSISTS OF A HANDLING ROD, A GRIPPING DEVICE INSTALLED AT THE BOTTOM END OF THIS ROD FOR GRABBING AND RELEASING A RADIOACTIVE MATERIAL, A MEANS INSTALLED ALONG THE ROD FOR TRANSMITTING THE POWER OF GRABBING OR RELEASING TO THE GRIPPING DEVICE AT THE BOTTOM END, AND A PLURALITY OF LEVER MECHANISMS TO OPERATE THE POWER TRANSMITTING AND GRIPPING DEVICE INSTALLED ALONG THE ROD AT INTERVALS.

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

REACTOR, POOL TYPE + JAPAN + *REMOTE MANIPULATING AND VIEWING + PATENT

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30595
TAKASHIMA Y
DEVICE FOR RELEASING THE PRESSURE AT THE TIME OF AN ACCIDENT IN NUCLEAR-SUPERHEATING TYPE REACTOR PLANT
HITACHI LTD.
JAPANESE PATENT 1967-15504 +. AUGUST 26, 1967

IN A NUCLEAR-SUPERHEATING TYPE REACTOR PLANT, WHEN A RUPTURE OCCURS IN THE SUPERHEATED-STEAM PIPING TO THE TURBINES, WATER IN THE BOILING REGION IN THE REACTOR TENDS TO ENTER THE CENTRAL SUPER-HEATING REGION CAUSING THE INCREASE OF NUCLEAR REACTIVITY IN THE SUPERHEATING REGION. BY THE DEVICE PROPOSED, THE PRESSURE IN THE BOILING REGION IS RELEASED. OUTSIDE THE REACTOR PRESSURE-VESSEL, A PRESSURE-RELEASE VALVE IS INSTALLED WHICH CONNECTS TO THE HEATED SATURATED STEAM ROOM ABOVE THE SUPERHEATING REGION AND TO THE SUPERHEATED STEAM PIPING. TO THIS VALVE IS ALSO CONNECTED AN OUTWARD PRESSURE-RELEASING PIPE.

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

PIPING + PATENT + *PRESSURE RELIEF + STEAM + JAPAN + VALVE + *INSTRUMENT, PRESSURE

9-30596
AZUMA M
DEVICE FOR ADJUSTING THE REACTIVITY OF NUCLEAR-SUPERHEATING TYPE REACTORS
HITACHI LTD.
JAPANESE PATENT 1967-17906 +. OCTOBER 17, 1967

IN THE SUPERHEATING TYPE REACTOR, THE MIDDLE OF THE REACTOR CORE IS THE SUPERHEATING REGION, AND THE OUTER REGION IS THE BOILING REGION. BETWEEN THESE TWO REGIONS IS PROVIDED AN ANNULAR-IN-CROSS-SECTION SPACE FORMED BY METAL PLATES. OUTSIDE OF THE REACTOR PRESSURE-VESSEL, A DRUM, CONTAINING A NEUTRON-ABSORBING LIQUID, IS INSTALLED. NEUTRON-ABSORBING LIQUID IN THE DRUM IS LED TO THE ANNULAR SPACE IN THE REACTOR CORE. AN INERT GAS FILLS THE UPPER PART OF THE ANNULAR SPACE AND THE DRUM.

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

*REACTOR CONTROL + POISON, SOLUBLE + FLOW, ANNULAR + REACTIVITY EFFECT + JAPAN + PATENT

9-30597
OGURA N
REACTOR-CONTROL TUBES OPERATED BY THE PRESSURE
MITSUBISHI ATOMIC POWER INDUSTRIES INC.
JAPANESE PATENT 1967-17907 +. OCTOBER 17, 1967

THE METHOD PROPOSED HAS THE FOLLOWING ADVANTAGES - A REDUCTION IN THE NUMBER OF CONTROL ELEMENTS, THE AVOIDANCE OF THE USUAL DRIVING MECHANISM, AND A RESULTING REDUCTION OF COST. THE METHOD CAN BE APPLIED TO LIQUID-MODERATOR REACTORS. THE GAS-FILLED CONTROL TUBES, THE UPPER END OF WHICH IS SEALED AND THE BOTTOM END WHICH IS OPEN, ARE ARRANGED APPROPRIATELY WITHIN THE LIQUID MODERATOR IN THE REACTOR CORE. THE INCREASE OF PRESSURE IN THE REACTOR FORCES LIQUID MODERATOR INTO THE TUBES, THROUGH THE BOTTOM OPENING, WHILE PRESSURIZING THE GAS IN THE TUBE.

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

*MODERATOR + JAPAN + *LIQUID + REACTOR CONTROL + PATENT

9-30642 ALSO IN CATEGORIES 11 AND 18
REACTOR VESSEL REPAIR - FINAL REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
25 PAGES, FIGURES, TABLES, AMENDMENT 35 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 21, 1968, DOCKET 50-219,
TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DURING FIELD HYDROSTATIC TEST OF PRESSURE VESSEL A SMALL LEAK EMANATED FROM A AREA NEAR A CONTROL ROD DRIVE HOUSING. THE PRIMARY SYSTEM INCLUDING VESSEL WAS CHEMICALLY CLEANED AND PERSONNEL SENT INTO VESSEL TO INVESTIGATE THE SOURCE OF LEAK. DYE PENETRANT EXAMINATION REVEALED LEAK WAS RESULT OF WELDING FLAWS AND INCOMPLETE FUSION IN WELD MADE TO JOIN CONTROL ROD DRIVE HOUSING TO SUB TUBE. THIS REPORT CONTAINS RESULTS OF INVESTIGATIONS PERFORMED, SUMMARY OF BASIC DATA OBTAINED, CONCLUSIONS REACHED AND DESCRIPTION OF REPAIR PROGRAM ADOPTED TO RETURN VESSEL TO DESIGN CONDITION.

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

*CONTROL ROD DRIVE + FAULT + *SUPPORT STRUCTURE + *PRESSURE VESSEL + OYSTER CREEK 1 (BWR) + FAILURE, GENERAL + CONTAINMENT INTEGRITY + CONTAINMENT PENETRATION, GENERAL + REVIEW + *MAINTENANCE AND REPAIR + MAIN COOLING SYSTEM + FAILURE, FABRICATION ERROR + REACTOR, BWR + *WELDING + WELDS + FLAW + FAILURE, INSTALLATION ERROR

9-30645 ALSO IN CATEGORIES 11 AND 18
PRESSURE VESSEL REPAIR PROCEDURES
JERSEY CENTRAL POWER AND LIGHT CO.
30 PAGES, AMENDMENT 36 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 27, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + RUE

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30645 *CONTINUED*

CONTAINS DETAILED PROCEDURES FOR REPAIRING THE FAULTY WELDS JOINING CONTROL-ROD-DRIVE HOUSING TO
STUB TUBES (SEE AMEND. 35 FOR COMPLETE REPORT).

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

REACTOR, BWR + FAILURE, INSTALLATION ERROR + FAULT + *SUPPORT STRUCTURE + FAILURE, FABRICATION ERROR + OYSTER
CREEK 1 (BWR) + *WELDS + CONTAINMENT INTEGRITY + *PROCEDURES AND MANUALS + FLAW + *PRESSURE VESSEL +
*MAINTENANCE AND REPAIR + WELDING + *CONTROL ROD DRIVE

9-30683 ALSO IN CATEGORY 7

MOCHIZUKI K + MAKINO K

CONTROL OF THE OFF-GASES AND ITS PROBLEMS IN JPDR

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

6 PAGES, GENSHIRYOKU KOGYO 13(5), PAGES 27-32 (MAY 1967), (IN JAPANESE)

THE OFF-GASES OF JPDR (JAPAN POWER DEMONSTRATION REACTOR) INCLUDE HYDROGEN AND NITROGEN
(RADIOACTIVE) IN THE GAS AFTER THE MAIN CONDENSER, ARGON-41 FROM ARGON IN THE AIR, AND FISSION-
PRODUCT GASES (KR, XE, ETC.) WHEN THE FUEL IS RUPTURED. ALTHOUGH NONRADIOACTIVE, THE HYDROGEN MAY
BURN OR EXPLODE IN THE PIPING. IT IS, THEREFORE, NECESSARY TO CONTROL IT, ESPECIALLY IN THE JPDR
WHERE OFF-GAS STORAGE TANKS ARE INCORPORATED. CONTROL METHODS AND PROBLEMS ARE DESCRIBED.

FISSION PRODUCT RELEASE, GENERAL + FAILURE, FUEL ELEMENT + REACTOR SAFETY SYSTEM + *HYDROGEN + NITROGEN +
XENON + *FIRE + KRYPTON + *NOBLE GAS + ARGON + *FISSION PRODUCT RETENTION + *INSTRUMENT, RADIATION MONITORING

9-30736 ALSO IN CATEGORY 6

AFANASEV VA + KEBADZE BV + SANKOVSKII GA + GRITSKOV VI + SOKOLOV IN + ADAMOVSKII LA + MARKIN SA

EXPERIMENTAL RESEARCH OF BOILING WATER REACTOR STABILITY

5 PAGES, 8 REFERENCES, AT. ENERG. (USSR), 24, PAGES 363-7 (APRIL 1968)

THE EXPERIMENTAL DATA ON THE DETERMINATION OF BOILING WATER REACTOR STEADY STATE OPERATION RANGE
ARE PRESENTED. THE INVESTIGATION WAS PERFORMED BY APPLYING PERIODICAL PERTURBATIONS (REACTIVITY
OSCILLATION) AND BY STATISTIC METHODS. AT A SERIES OF OPERATING CONDITIONS THE REACTOR POWER
INCREASED TO VALUES AT WHICH UNDAMPING OSCILLATIONS OCCURRENCE IS MAINLY DUE TO HIGH REACTIVITY
POWER COEFFICIENT. IT IS SHOWN THAT THE DAMPING TIME CONSTANT OF NEUTRON POWER AUTOCORRELATION
FUNCTION CAN BE USED EFFECTIVELY FOR STABILITY THRESHOLD PREDICTION.

TESTING + *REACTOR STABILITY + USSR + *REACTOR, BWR

9-30737

KUVSHINNIKOV BA

CONTROL SYSTEM FOR POWER INSTALLATIONS

92 PAGES, ATOMIZDAT, 1967

EIGHT ARTICLES ARE INCLUDED ON THE CONTROL SYSTEMS AND DYNAMIC CHARACTERISTICS OF NUCLEAR POWER
REACTORS AT VARIOUS CONDITIONS OF OPERATION METHODS AND TYPES OF CONTROL. COOLANT SYSTEMS ARE
COVERED IN THE FIRST 4 ARTICLES, REACTOR STARTUP TO FULL POWER IN THE NEXT TWO, THEN SYSTEM
STABILIZATION, AND FINALLY DYNAMICS OF PULSE SYSTEMS. THE MAIN CHARACTERISTICS OF THE REGULATORY
ELEMENTS ARE ALSO DESCRIBED.

*REACTOR CONTROL + USSR + REACTOR STARTUP EXPERIENCE + *CONTROL SYSTEM + INSTRUMENT, CONTROL + INSTRUMENT,
TEMPERATURE + INSTRUMENT, COOLANT QUALITY

9-30741

JASCHEK H

SIMULATION AND CONTROL OF NUCLEAR POWER PLANTS WITH NATURAL CIRCULATION BOILING WATER REACTORS

TECHNISCHE HOCHSCHULE, MUNICH

4 PAGES, ATOMPRAXIS 14, PAGES 161-4 (APRIL-MAY 1968)

THE DESIGN AND OPERATION OF A NUCLEAR POWER PLANT NECESSITATES THE INVESTIGATION OF THE DYNAMIC
BEHAVIOR OF THE SYSTEM IN ITS ENTIRETY. MANY OF THE CONTROLLED ELEMENTS WITHIN THE PLANT ARE
HEAVILY NON-LINEAR AND THUS THE CLASSICAL METHODS OF CONTROL THEORY ARE INAPPLICABLE FOR SUCH AN
INVESTIGATION. A MATHEMATICAL MODEL IS SYNTHESIZED NOT ONLY FOR THE REACTOR BUT ALSO FOR THE
PIPELINES, THE VALVES, AND THE TURBINE. WITH SUCH A MODEL, IT IS POSSIBLE TO INVESTIGATE THE
INTERPLAY BETWEEN THE INITIAL PRESSURE REGULATOR AND THE BYPASS PRESSURE REGULATOR. DUE TO THE
COMPLEXITY OF THE PROBLEM, A DIGITAL COMPUTER (APACHE PROGRAM) WAS USED TO GENERATE A CORRECT AND
SYSTEMATIC PATCHING OF THE ANALOG COMPUTER.

COMPUTER PROGRAM + THEORETICAL INVESTIGATION + GERMANY + *REACTOR CONTROL + *SIMULATION + ANALYTICAL MODEL

9-30743

NEUENHAIN P

SIMULATION AND CONTROL OF SODIUM-COOLED THERMAL REACTORS

TECHNISCHE HOCHSCHULE, MUNICH

4 PAGES, ATOMPRAXIS 14, PAGES 157-60 (APRIL-MAY 1968)

USE OF AN ANALOG COMPUTER FOR THE SIMULATION OF A SODIUM-COOLED THERMAL REACTOR IS DESCRIBED.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30743 *CONTINUED*

DYNAMIC RESPONSE OF THE REACTOR IS DISCUSSED. EFFECTS OF MODERATOR TEMPERATURE COEFFICIENTS ON REACTIVITY ARE SHOWN. USE OF AN ON-OFF CONTROLLER WITH THE REACTOR IS DISCUSSED. A BLOCK DIAGRAM OF THE REACTOR AND CONTROL SYSTEM IS SHOWN. CONTROL OPTIMIZATION IS DISCUSSED.

REACTOR, LMCR + *REACTOR CONTROL + COMPUTER, ANALOG + *SIMULATION + REACTOR DYNAMICS + INSTRUMENT, CONTROL

9-30744 ALSO IN CATEGORY 11

WIJCKER H

SOME SAFETY ASPECTS OF THE KSTR (KEMA SUSPENSION TEST REACTOR)

KEMA, ARNHEM, NETHERLANDS

28 PAGES, RCN (REACTOR CENT. NED.) MEDED., NO. 27, PAGES 53-70 (1968)

THE REACTIVITY OF THE REACTOR CAN BE REDUCED BY DUMPING OF SUSPENSION OR SUSPENDED PARTICLES IN A DUMP VESSEL AND BY THE NEGATIVE TEMPERATURE COEFFICIENT OF THE SYSTEM. CONNECTIONS IN THE REACTOR VESSEL AND ITS PIPES ARE MADE BY FLANGES, WHICH ARE SURROUNDED BY A CHAMBER FILLED WITH CLEAN WATER UNDER HIGH PRESSURE. VALUES OF AIR PRESSURE IN THE VESSEL COMPARTMENTS AND IN THE REACTOR BUILDING THAT MAY OCCUR UPON BREAKAGE OF THE REACTOR ARE ESTIMATED AND THEIR CONSEQUENCES FOR THE CONSTRUCTION OF THE STRUCTURES DISCUSSED.

REACTOR, TEST + REACTIVITY, NEGATIVE + NETHERLANDS + CONTAINMENT, PRESSURE RELIEF + CONTAINMENT, PRESSURE SUPPRESSION + *REACTOR SAFETY SYSTEM

9-30745

SIDDALL E

CONTROL OF NUCLEAR POWER REACTORS

ATOMIC ENERGY OF CANADA, LTD.

CANADIAN PATENT 783,668 +. APRIL 23, 1968

A METHOD IS DESCRIBED FOR MAINTAINING A UNIFORM REACTIVITY LEVEL IN ALL REGIONS OF LARGE REACTORS. ZR ALLOY TUBES OF ABOUT 0.125 IN. DIAMETER ARE PLACED VERTICALLY AMONG THE HORIZONTAL FUEL CHANNELS IN THE CALANDRIA TANK. A SERIES OF CONTAINERS ARE FORMED FROM SMALL SECTIONS OF THESE TUBES AT PRE-DETERMINED LOCATIONS. PROVISION IS MADE FOR PUMPING, UNDER HE PRESSURE, A NEUTRON-ABSORBING FLUID SUCH AS H3BO3 IN AND OUT OF THE CONTAINERS SO AS TO VARY THE NEUTRON FLUX AS REQUIRED.

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

REACTIVITY EFFECT + *CONTROL ROD, SHIM SAFETY + REACTOR CONTROL + PATENT + CANADA + REACTOR, LARGE + *POISON, SOLUBLE + INSTRUMENT, CONTROL

9-30746

EBATA Y

METHOD FOR CONTROLLING A NUCLEAR REACTOR

HITACHI LTD.

JAPANESE PATENT 1967-24618 +. NOVEMBER 27, 1967

THE INSERTION OF A STRONGLY ABSORBING CONTROL ROD IN THE REACTOR CORE IS AVOIDED TO FLATTEN THE NEUTRON-FLUX DISTRIBUTION. AS THE REGULATING ROD, A POSITIVE (NEUTRON ABSORBING) SHIM AND A NEGATIVE (THE OPPOSITE) SHIM ROD, AND A NEUTRON ABSORBER DISSOLVED IN THE COOLANT (OR MODERATOR) ARE USED. A DEVICE FOR ADJUSTING THE ABSORBER CONCENTRATION IS INSTALLED IN THE COOLANT CIRCULATING SYSTEM. WHEN THE REGULATING ROD HAS REACHED THE UPPER WITHDRAWN LIMIT, THE NEGATIVE SHIM ROD IS INSERTED INTO THE CORE. THEN, THIS INSERTION IS DETECTED, AND THE ABSORBER CONCENTRATION IS DECREASED BY THE ADJUSTER AS THE NEGATIVE ROD IS WITHDRAWN.

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

PATENT + POISON, SOLUBLE + *CONTROL ROD PROGRAM + *REACTOR CONTROL + CONTROL ROD, SHIM SAFETY + JAPAN

9-30747

MASUDA Y

DEVICE FOR DRIVING A REACTOR CONTROL ROD

TOKYO SHIDARA ELECTRIC CO., LTD.

JAPANESE PATENT 1967-24619 +. NOVEMBER 27, 1967

IN THE CONTROL-ROD DRIVING DEVICE DESCRIBED, THE INDICATION OF THE CONTROL-ROD POSITION IS ACCURATE, AND IN A REACTOR SCRAM THE DAMAGE TO THE ASSOCIATED INSTRUMENT CAN BE PREVENTED. IT INCLUDES THE CONTROL ROD (DRIVEN BY A WIRE AND DRUM), A DISK INSTALLED MIDWAY ON THE WIRE, A RACK INSTALLED ONTO THE DISK, A PINION ENGAGING WITH THE RACK, THE POSITION INDICATOR, AND A GEAR DEVICE. IN A REACTOR SCRAM, THE DISK AND RACK ARE DISCONNECTED FROM EACH OTHER BY MEANS OF THE GEAR DEVICE, AND THE CONTROL ROD DROPS BY GRAVITATION WHILE THE RACK FALLS SLOWLY.

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

JAPAN + *CONTROL ROD DRIVE + PATENT

9-30748

ALSO IN CATEGORY 11

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-30748 *CONTINUED*
ELIAS P + GOLDFUSS G
A PROTOTYPE PORTABLE PUMP AND OXIDE-CLEANUP SYSTEM FOR EBR-11 ROTATING SHIELD PLUG SEALS
ARGONNE NATIONAL LABORATORY
ANL-7379 +. 23 PAGES, 9 FIGURES, AUGUST 1967

INVESTIGATED THE OCCASIONAL STICKING OF TWO, MOTOR-DRIVEN, ROTATING SHIELD PLUGS PREPARATORY TO EXCHANGE OF FUEL AND OR SPECIAL SUBASSEMBLIES CONTAINING IRRADIATION-TEST SPECIMENS. POTENTIAL SOURCES OF STICKING - ACCUMULATIONS OF OXIDE MATERIAL IN THE BISMUTH-TIN ALLOY ROTARY FREEZE SEAL ON EACH PLUG. THIS REPORT DESCRIBES THE MEASURES USED TO REDUCE OXIDATION, MANUAL TECHNIQUES USED FOR BATCH-TYPE REMOVAL OF OXIDE MATERIAL, AND A PORTABLE PUMP AND CLEANUP SYSTEM DESIGNED TO EXPEDITE REMOVAL OF OXIDE MATERIAL.

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

PUMP + REACTOR, FAST + EBR 1 AND 2 (RE) + REACTOR, AEC OWNED + *SEAL + *OXIDATION + REACTOR, LMCR + REACTOR, TEST + DECONTAMINATION + SHIELDING + INSTRUMENT, TEMPERATURE

9-30893 ALSO IN CATEGORY 17
PLANS TO IMPROVE OPERATION
UNIVERSITY OF MARYLAND
2 PAGES, LETTER TO L.D. LOW, COMPLIANCE, NOVEMBER 23, 1968, DOCKET 50-166.

(REPLY TO LETTER OF OCT. 24.) (A) REMOVAL OF INDIVIDUAL CONTROL RODS FOR MAINTENANCE FOLLOWED PROCEDURE IN OUR 1961 LETTER TO AEC. SAFETY COMMITTEE OBSERVED MAINTENANCE. SHUTDOWN MARGIN WILL BE DETERMINED PERIODICALLY. (B) NEW CONSOLE IN SPRING OF 1969 WILL ALLOW CHECK OF PERIOD AND HIGH-FLUX SCRAM SETTINGS. (C) EXCESS REACTIVITY WILL BE MEASURED NEXT SEMESTER. (D) EARLY IN 1968, REACTOR-LEVEL INSTRUMENTATION WAS CHECKED BY SOURCE MULTIPLICATION. NEXT SEMESTER WE WILL FLUX-MAP AND POWER-CALIBRATE THE REACTOR.

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

SHUTDOWN MARGIN + SETPOINT + MAINTENANCE AND REPAIR + REACTOR, RESEARCH + TEST, SYSTEM OPERABILITY + REACTOR POWER + REACTOR, POOL TYPE + MODIFICATION, SYSTEM OR EQUIPMENT + INSTRUMENT, PROTECTIVE + COMPLIANCE + INSTRUMENT CALIBRATION

9-30960 ALSO IN CATEGORY 15
RUSHING DE ET AL
COMMON LABORATORY INSTRUMENTS FOR MEASUREMENT OF RADIOACTIVITY
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE PUBL. NO. 999-RH-32 +. APRIL 1967, 104P.

THIS SECOND REPORT, ISSUED UNDER THE AUSPICES OF THE INTERLABORATORY TECHNICAL ADVISORY COMMITTEE, WAS PREPARED BY THE SUBCOMMITTEE ON PHYSICS AND INSTRUMENTATION. IT CLARIFIES REQUIREMENTS AND CHARACTERISTICS OF INSTRUMENTATION USED TO MEASURE LEVELS OF IONIZING RADIATION EXPERIENCED BY MAN IN HIS ENVIRONMENT, AND ASSISTS RESPONSIBLE RADIOLOGICAL HEALTH AGENCIES IN SELECTING OPTIMUM SURVEILLANCE AND COUNTING SYSTEMS.

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

INSTRUMENT, PROTECTIVE + INSTRUMENT, SURVEILLANCE + *MONITOR, PERSONNEL + PARTICLE, RADIOACTIVE + COUNTER + CHAMBER, ION + *MONITOR, ENVIRONMENTAL + *INSTRUMENT, NUCLEAR + INSTRUMENT CALIBRATION + SPECTROMETRY, GAMMA

9-31240
BARLOW RE
SOME RECENT DEVELOPMENTS IN RELIABILITY THEORY
UNIVERSITY OF CALIFORNIA
AD-675034 +. JULY 1968, 18P., 30 REFERENCES

SURVEYS PROBLEMS AND RECENT DEVELOPMENTS IN SOME SELECTED AREAS OF NONPARAMETRIC RELIABILITY THEORY. THE PAPER IS DIVIDED INTO THREE PARTS - (1) MODELS FOR LIFE DISTRIBUTION, (2) TESTS OF HYPOTHESES, AND (3) ESTIMATION PROCEDURES

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

ANALYTICAL MODEL + *THEORETICAL INVESTIGATION + REVIEW + *RELIABILITY ANALYSIS + MATHEMATICAL TREATMENT

9-31241
SWANSON CD
FAST FLUX TEST FACILITY INSTRUMENTATION REQUIREMENTS
BATTELLE-NORTHWEST, RICHLAND, WASH., PACIFIC NORTHWEST LAB.
BNWL-SA-1826 +. SEPTEMBER 1968, 54P.

THE FAST FLUX TEST FACILITY IS THE MAJOR IRRADIATION TEST FACILITY PLANNED FOR THE LIQUID METAL FAST BREEDER REACTOR PROGRAM. THIS PAPER DISCUSSES THE FACILITY INSTRUMENTATION REQUIREMENTS, PLACING PARTICULAR EMPHASIS ON OUT-OF-CORE INSTRUMENTATION. IN-CORE INSTRUMENTATION REQUIREMENTS ARE DESCRIBED IN MORE GENERAL TERMS DUE TO THEIR GREATER DEPENDENCE ON REACTOR CONCEPT DECISIONS.

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-31241 *CONTINUED*

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

REACTOR, LMFBF + INSTRUMENT, TEMPERATURE + INSTRUMENT, COOLANT QUALITY + *FFTF (TRI) + CONTAINMENT INSTRUMENTATION + INSTRUMENT, FUEL SCANNING + *IRRADIATION FACILITY + INSTRUMENT, PROCESS + MONITOR, GENERAL + *INSTRUMENT, GENERAL

9-31242
WEBSTER LR
RELIABILITY - 110 YEARS OF INCREASING COMPLEXITY AND VALUE
RADIATION INC.
4 PAGES, 4 REFERENCES, FROM 7TH RELIABILITY AND MAINTAINABILITY CONFERENCE, CALIF., JULY 14-17, 1968, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 9(3), P. 39 (MARCH 1969)

THE EVOLUTION OF THE SYSTEM APPROACH IS DISCUSSED, WITH THIS APPROACH DEFINED AS A PROCESS USED IN GENERATING A COMPLETELY INTEGRATED SYSTEM DESIGN TO ACCOMPLISH OBJECTIVES WHICH, IN TURN, RESULT FROM NEEDS. AS THE TREND OF TECHNOLOGICAL DEVELOPMENT IS CLEARLY TOWARD AN INCREASING INTEGRATION OF THE ENGINEERING AND MANAGEMENT FUNCTIONS, THE USE OF THE SYSTEM APPROACH CAN BE CONSIDERED THE FIRST MAJOR MILESTONE IN THIS TREND. THE VIEW IS OFFERED THAT IN THE FUTURE RELIABILITY WILL REMAIN A REGULATORY FUNCTION IN THE SENSE OF FORMULATING AND IMPLEMENTING AN OPTIMUM SYSTEM DESIGN AND MANAGEMENT STRATEGY.

REVIEW + *RELIABILITY, SYSTEM + DESIGN STUDY + ECONOMICS + RELIABILITY ANALYSIS

9-31243
MUEHLHAUSER O
A HIGH-EFFICIENCY HYDRAULICALLY DAMPED SPRING BANK FOR BRAKING AND INTERCEPTING NUCLEAR REACTOR CONTROL RODS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
EURFNR-530 +. FEBRUARY 1968, 82P (TRANSLATION OF REPORT KFK-735)

A SPRING WITH A DAMPING SYSTEM WAS DEVELOPED FOR IN-CORE USE TO BRAKE THE SAFETY ROD INSERTED IN THE CASE OF SCRAM SHUTDOWN AND TO INTERCEPT ANY FUEL BUNDLES WHICH BECOME DETACHED. THE SPRING CONSISTS OF INDIVIDUAL SADDLE-SHAPED WARPED DISCS, WHICH, IN THE SAME WAY AS PLATE SPRINGS, ARE GROUPED TOGETHER IN A BANK AND INSTALLED IN A HOUSING. THE DAMPING IS EFFECTED BY FORCING OUT THE LIQUID BETWEEN THE INDIVIDUAL DISCS AND THE WALL OF THE HOUSING.

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

*SHOCK ABSORBER + *HYDRAULIC EFFECT + DESIGN STUDY + DAMPING + FUEL ELEMENT CLUSTER + CONTROL ROD.

9-31249 ALSO IN CATEGORY 17
POWER OPERATION WITH FULLY INSERTED CONTROL ROD
UNITED STATES ATOMIC ENERGY COMMISSION
ROE 69-5 +. FEBRUARY 5, 1969

CHECK OF A CONTROL-ROD LVDT POSITION INDICATOR REVEALED A SHORT, SO OPERATIONS CONTINUED 19 DAYS UNTIL IN-CORE FLUX DATA REVEALED SKEWED POWER DISTRIBUTION. POLARITY ON THE MOVABLE GRIPPER COIL HAD BEEN REVERSED AFTER THE CABLE-TRAY FIRE AND REPAIR, ALLOWING ROD TO DRIFT INTO THE CORE. IN-CORE THERMOCOUPLE MAPS WERE NOT ADEQUATELY ANALYZED. TWICE DAILY OUT-OF-CORE ION-CHAMBER READINGS WERE PLOTTED ON A SCALE SO SMALL THE 10% FLUX TILT DID NOT SHOW UP. PAST LVDT TROUBLES LEAD TO BELIEF THAT ROD POSITION WAS OK.

POWER DISTRIBUTION + FLUX TILT + FAILURE, SCRAM MECHANISM + *FAILURE, ADMINISTRATIVE CONTROL + *FAILURE, COMPONENT + *INSTRUMENT, POSITION + CONTROL ROD + INSTRUMENT, IN CORE + *ACCIDENT, CONTROL ROD DROPIN

9-31312
FURET J + LANDAUER C
SHUTDOWN CHANNELS AND FITTED INTERLOCKS IN ATOMIC REACTORS
COMMISSARIAT A L ENERGIE ATOMIQUE, SACLAY (FRANCE)
CEA-R-3550 +. 28 PAGES, OCTOBER 1968 (IN FRENCH)

CATALOG CONSISTS OF TABLES (ONE PER REACTOR) GIVING THE FOLLOWING INFORMATION - NUMBER AND TYPE OF DETECTORS, RANGE OF SHUTDOWN CHANNELS, NATURE OF ASSOCIATED ELECTRONICS, THRESHOLDS SETTING OF ALARMS, FITTED INTERLOCKS.

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

*REACTOR SAFETY SYSTEM + INSTRUMENT, PROTECTIVE + *PROCEDURES AND MANUALS + FRANCE + INSTRUMENT, GENERAL + INSTRUMENT, COMPONENT

9-31344 ALSO IN CATEGORY 7
STANSFIELD OM
IRRADIATION-INDUCED DIMENSIONAL CHANGE IN BORONATED GRAPHITE CONTROL ROD ABSORBERS FOR THE FORT ST. VRAIN HTGR

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-31344 *CONTINUED*

GULF GENERAL ATOMIC, INC., CALIF.
GAMD-8619 +. 21 PAGES, 5 FIGURES, 3 TABLES, 15 REFERENCES, JUNE 19, 1968

DIMENSIONAL CHANGE IN NEUTRON-IRRADIATED BORONATED GRAPHITE IS PROBABLY DUE PRIMARILY TO A COMPLEX INTERACTION OF EFFECTS FROM FAST-NEUTRON DAMAGE, THERMAL-NEUTRON CAPTURE BY B-10, AND SWELLING OF B4C PARTICLES. A MODEL FOR B-10 BURNUP AND DIMENSIONAL CHANGE IN A TYPICAL ABSORBER COMPACT WAS DEVELOPED TAKING INTO ACCOUNT EFFECT OF A B-10 BURNUP GRADIENT AND INTERACTION OF RESULTING DAMAGE ZONES. USE OF THE MODEL IN CONJUNCTION WITH IRRADIATION DATA MADE POSSIBLE AN ESTIMATE OF DIMENSIONAL CHANGE IN A FORT ST. VRAIN ABSORBER COMPACT (40 WT(BORON) FOR 6 YEARS SERVICE AT 50(AND 100(DUTY FACTORS. WITH EXTRUSIONS, 1.0(AND 2.0(EXPANSION CAN BE EXPECTED IN THE AXIAL AND RADIAL DIRECTIONS, RESPECTIVELY. AT 50(DUTY FACTOR, THERE WILL BE LESS EXPANSION IN ALL CASES, AND PERHAPS SOME RADIAL CONTRACTION FOR HOT-MOLDED COMPACTS.

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

CONTROL ROD FABRICATION + *CONTROL ROD + *GRAPHITE + REACTOR, HTGR + *EXPANSION + *RADIATION EFFECT +
*RADIATION DAMAGE + ANALYTICAL MODEL + RADIOISOTOPE + CONTROL ROD BURNUP + *BORON + FT. ST. VRAIN (HTGR)

9-31412 ALSO IN CATEGORIES 12 AND 13
MOLTEN-SALT REACTOR PROGRAM-SEMI-ANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 31, 1968
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4344 +. 333 PAGES, FIGURES, TABLES, FEBRUARY 1969

REPORT OF ACTIVITIES OF PROGRAM AT ORNL.

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

CORROSION + FISSION PRODUCT RELEASE, GENERAL + *MSRE (RE) + *FUEL REPROCESSING + DESIGN STUDY + MATERIAL +
*IRRADIATION TESTING + REACTOR, AEC OWNED + INSTRUMENT, GENERAL + TESTING + *REACTOR, MOLTEN SALT +
*EXPERIMENT, GENERAL + GRAPHITE + ALLOY

9-31435 ALSO IN CATEGORY 17
KANTOR ME + MENZEL HF + SCHLICHT RW
PEACH BOTTOM INITIAL POWER PLANT PERFORMANCE (RESULTS OF POSTCONSTRUCTION R AND D TEST PROCEDURES DE-1, GE-1,
GO-2, DP-1, AND GP-10)
GULF GENERAL ATOMIC, INC., CALIF.
GAMD-7903 +. 78 PAGES, FIGURES, TABLES, MARCH 29, 1968

(HISTORY FROM JAN. 1967 INITIAL POWER TO JULY FULL POWER.) PRIMARILY A DESCRIPTION OF HEAT-BALANCE VERIFICATION (HOUSE LOAD FOUND TO BE 4.7 INSTEAD OF 6.0 MWE), STEAM GENERATOR (HOT SPOTS DUE TO INADEQUATE INTERNAL BAFFLING) AND MAIN CIRCULATOR PERFORMANCE. ERRATIC RESISTANCE-TEMPERATURE DETECTORS WERE REPLACED BY CR-AL THERMOCOUPLES. CALIBRATION ERRORS IN DP HELIUM FLOW TRANSMITTERS AT FIRST LOOKED LIKE NUCLEAR-POWER-CHANNEL CALIBRATION SHIFTS.

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

*REACTOR STARTUP EXPERIENCE + REACTOR POWER + R AND D PROGRAM + INSTRUMENT, TEMPERATURE + REACTOR, GCR +
INSTRUMENT, FLOW + REACTOR, HTGR + INSTRUMENT, ABNORMAL INDICATION + REACTOR, GRAPHITE MODERATED + PEACH
BOTTOM 1 (HTGR) + INSTRUMENT, POWER RANGE

9-32089 ALSO IN CATEGORY 17
SINGLE COMPONENT FAILURE COULD DISABLE ALL AUTOMATIC SCRAMS
CORNELL UNIVERSITY
5 PAGES, 2 FIGURES, LETTER TO DIRECTOR, DRL, FEBRUARY 20, 1969, DOCKET 50-157

FAILURE OF ANY ONE OF SEVEN COMPONENTS (T310, R331, CR311, C317 AND S3058, S3068, S30780) COULD DISABLE ALL AUTOMATIC SCRAMS BECAUSE A SCRAM RELAY IS ENERGIZED TO OPEN A CONTACT IN THE SCRAM BUS. SCRAM RELAY POWER SUPPLY MUST BE KEPT HIGH ENOUGH TO ACTUATE RELAY. MODIFICATION IS TO ADD A RELAY WHICH REMOVES MAGNET CURRENT WHEN SCRAM RELAY VOLTAGE IS LESS THAN 125(THE VOLTAGE NECESSARY TO OPERATE THE RELAY. INCLUDES PUSH BUTTONS TO TEST AND RESET THIS CIRCUIT. SCRAM CIRCUIT BEFORE AND AFTER FEB. 18, 1969, MODIFICATION INCLUDED.

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

*REACTOR SAFETY SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + TRIGA (RR) + *INDEPENDENCE + REACTOR, RESEARCH +
INSTRUMENT, RELAY + INSTRUMENT, CONTROL + TECHNICAL SPECIFICATIONS + FAILURE, COMPONENT + *SINGLE FAILURE
CRITERION + *FAILURE, DESIGN ERROR

9-32296 ALSO IN CATEGORIES 10 AND 17
NS SAVANNAH ROD DRIVES OUT DUE TO ONE PHASE OPEN IN MOTORS
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, LETTER TO P.A. MORRIS, DRL, FEBRUARY 24, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

ON JAN. 20, CONTROL RODS WERE EXERCISED WHILE SHIP WAS TIED UP AT DOCK. ROD A-2 WOULD NOT DRIVE,

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-32296 *CONTINUED*

SO MAIN CIRCUIT BREAKER WAS CLEANED. THEN ROD WOULD DRIVE OUT FOR BOTH IN AND OUT SIGNALS. FAULTY BREAKER WAS CAUSING ONE PHASE TO BE OPEN. ***INVESTIGATION OF THE 2-PHASE 3-WIRE SYSTEM SHOWED THAT 13 OF THE 21 RODS WOULD DRIVE OUT ON AN IN SIGNAL WHEN ONE PHASE WAS OPEN, WITH THE STARTING PHASE SHIFT SUPPLIED BY BLOWER MOTOR IN PARALLEL. THE OTHER EIGHT WERE ONES MOST FREQUENTLY MOVED AND HAD ENOUGH FRICTION TO PREVENT SUCH OPERATION. ***TESTS SHOW THAT A PERMANENT INDEPENDENT POWER SOURCE FOR BLOWERS HAS ELIMINATED THE PROBLEM.

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

FAILURE, DESIGN ERROR + *ACCIDENT, CONTROL ROD WITHDRAWAL + ELECTRIC POWER, UNINTERRUPTED + NS SAVANNAH (PWR)
+ *FAILURE, COMPONENT + REACTOR, PWR + PHASE CHANGE + *CONTROL ROD DRIVE

9-32299 ALSO IN CATEGORY 17
HTGR CRITICAL FACILITY CHANGES, 1968
GULF GENERAL ATOMIC

2 PAGES, LETTER TO D.J. SKOVHOLT, DRL, MARCH 5, 1969, DOCKET 50-240

(1) EARTHQUAKE-SENSOR SENSITIVITY INCREASED BY REDUCING CONTACT AREA AND WEIGHT ON CONTACTS. (2) ION CHAMBERS ARE POWERED FROM BATTERIES, CHANGED QUARTERLY, TO GIVE STABLE, NOISE-FREE POWER. (3) SAFETY-ROD MOUNTING MADE MORE ADJUSTABLE TO AVOID DRILLING NEW BOLT HOLES TO IMPROVE ALIGNMENT. (4) COUNTING CHANNEL POWER SUPPLY CHANGED FROM HAMNER NV-15 TO NV-19. ***AC VOLTAGE REGULATOR ADDED. DETECTORS USED FOR MONITORING LINAC FLIGHT PATH NOW CALIBRATED IN A GAMMA IRRADIATION FACILITY AND RESPONSE VERIFIED BY PORTABLE GAMMA SOURCE FOLLOWING REINSTALLATION. PORTABLE SOURCE WAS USED FOR CALIBRATION.

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

*NOISE + SCRAM, SPURIOUS + *INSTRUMENT CALIBRATION + ELECTRIC POWER, UNINTERRUPTED + INSTRUMENT, EARTHQUAKE + CRITICAL ASSEMBLY FACILITY + *ACCELERATOR + REACTOR, HTGR + MONITOR, AREA + REPORT, OPERATIONS SUMMARY + *INSTRUMENT, NUCLEAR

9-32307 ALSO IN CATEGORY 17
NBSR OPERATIONS REPORT 3, OCT.-DEC. 1968
NATIONAL BUREAU OF STANDARDS

16 PAGES, OPERATIONS REPORT NO. 3, FEBRUARY 26, 1969, DOCKET 50-184

POWER REMAINED BELOW 5 KW. PREPARATIONS MADE FOR POWER INCREASE. BASE-LINE NEUTRON AND GAMMA FLUX AND SPECTRA MEASURED IN EXPERIMENTAL FACILITIES. ***BF3 DETECTORS REPLACED WITH B-10 TYPE. SENSITIVITY WAS 10 X THAT REQUIRED. PREAMPLIFIER REMOVED. THERMAL-COLUMN LEAK DETECTION CHANGED FROM ULTRASONIC TO SPARK-PLUG TYPE. ***ALARM SETPOINTS LISTED FOR NORMAL OPERATION. INFRARED FUEL-TEMPERATURE-MEASURING INSTRUMENT WAS CALIBRATED.

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

INSTRUMENT, LIQUID LEVEL DETECTION + REPORT, OPERATIONS SUMMARY + FLUX DISTRIBUTION + BEAM HOLE + IRRADIATION FACILITY + REACTOR, HWR + INSTRUMENT, TEMPERATURE + *MODIFICATION, SYSTEM OR EQUIPMENT + INSTRUMENT, STARTUP RANGE + FUEL ELEMENT + REACTOR, RESEARCH + REACTOR STARTUP TESTING + INSTRUMENT, ALARM + NBS

9-32311 ALSO IN CATEGORY 17
SAN ONOFRE TEMPERATURE ANOMALIES CURED
SOUTHERN CALIFORNIA EDISON COMPANY

1 PAGE, LETTER TO D.J. SKOVHOLT, AEC-DRL, JANUARY 15, 1969, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

SAN ONOFRE REACHED 450 MWE (1300 MWTH) ON DEC. 27, 1968, QUITE SMOOTHLY WITH ALL PARAMETERS WITHIN EXPECTED LIMITS. CORE DELTA T WAS 44.1 F, WELL BELOW 46.8 F DESIGN VALUE, INDICATING THAT OUR CONCLUSIONS IN THE DEC. 10, 1968, REPORT WERE CORRECT - CORE FLOW EXCEEDS DESIGN VALUE. IN-CORE MEASUREMENTS INDICATE POWER DISTRIBUTION IS AS EXPECTED.

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

INSTRUMENT, TEMPERATURE + *REACTOR POWER + SAN ONOFRE (PWR) + TEMPERATURE GRADIENT + POWER DISTRIBUTION + REACTOR, PWR + *INSTRUMENT, ABNORMAL INDICATION

9-32314 ALSO IN CATEGORY 17
PERIOD BYPASS NEEDED TO USE TRIGA MODE SWITCH
TEXAS A AND M UNIVERSITY

2 PAGES, LETTER TO D.J. SKOVHOLT, JANUARY 21, 1969, DOCKET 50-128

REQUESTS DELETION OF PERIOD FROM REQUIRED SAFETY CIRCUITS, OTHER TRIGAS DO NOT HAVE A PERIOD SCRAM. SINCE JAN. 62 INITIAL OPERATION, A PERIOD BYPASS KEYLOCK HAS BEEN USED DURING LOG-N CALIBRATION DURING OPERATION. ONLY SROS HAVE ACCESS TO KEY LOCKED IN MANAGERS OFFICE. TRIGA CONVERSION SAR DID NOT DISCUSS BYPASS, POINTED OUT BY COMPLIANCE. BYPASS IS CURRENTLY USED TO PREVENT SPURIOUS SCRAMS WHENEVER MODE SWITCH (BETWEEN PULSE AND STEADY STATE) IS USED. BECAUSE OF TRIGA FUEL, SCRAM IS ONLY AN OPERATIONAL ASSISTANCE DURING STARTUP.

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

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-32314 *CONTINUED*
SAFETY PRINCIPLES AND PHILOSOPHY + REACTOR, RESEARCH + REACTOR, PULSED + REACTOR SAFETY SYSTEM + TRIGA (RR) + ADMINISTRATIVE CONTROL + *SCRAM, SPURIOUS + *INSTRUMENT, PERIOD + TECHNICAL SPECIFICATIONS

9-32334 ALSO IN CATEGORY 17
1968 ANNUAL OPERATIONS REPORT
VIRGINIA POLYTECHNIC INSTITUTE
6 PAGES, LETTER TO AEC-DRL, JANUARY 31, 1969, DOCKET 50-124

FIRST INSPECTION (JAN. 1968) SINCE SUSTAINED 100-KW OPERATION SHOWED AIR DUCT BETWEEN CORE AND STACK HAD COMPLETELY ELIMINATED MOISTURE CONDENSATION. MASONITE SHEETS ADDED IN 1960 AS A MOISTURE BARRIER WERE EMBRITTLED AND THEREFORE REMOVED. FUEL WAS GOOD. ***ON JAN. 15, ONE SHIM ROD FAILED TO INSERT DUE TO SLIGHT MISALIGNMENT. ON JAN. 15, REACTOR WAS OPERATED AT ABOUT 130 KW, AND HEAT BALANCE CONSIDERED INCORRECT BECAUSE ALL NEUTRON DETECTORS AGREED. FOIL ACTIVATION SHOWED HEAT BALANCE CORRECT. (CONCLUSION) CALIBRATION SHIFTED BECAUSE INSULATING POLYETHYLENE MOISTURE COVERS WERE REMOVED FROM ALL DETECTORS, AND PROTECTIVE CAN WAS GROUNDED.

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

REPORT, OPERATIONS SUMMARY + *INSTRUMENT, ABNORMAL INDICATION + REACTOR POWER + REACTOR, RESEARCH + HUMIDITY + SAFETY PRINCIPLES AND PHILOSOPHY + FAILURE, SCRAM MECHANISM + INSTRUMENT CALIBRATION + *INSTRUMENT, POWER RANGE + FAILURE, ADMINISTRATIVE CONTROL + REFLECTOR

9-32465 ALSO IN CATEGORY 17
MEASUREMENTS AT 1 MW SHOW SAFETY CHAMBER VARIES FROM 84 TO 106
UNIVERSITY OF CALIFORNIA, BERKELEY
2 PAGES, LETTER TO DRL, MARCH 17, 1969, DOCKET 50-224

9 MEASUREMENTS WITH DIFFERENT CONTROL-ROD POSITIONS WERE TAKEN OF SAFETY CHANNEL READING WHEN LINEAR CHANNEL READING WAS KEPT AT 1 MW. POOL HEATUP AT 7.3 C/HR (SECONDARY OFF) SHOWED REACTOR WAS AT 1 TO 0.9 MW. READINGS RANGED FROM 84 TO 106(. TO COMPLY WITH LICENSE, OPERATOR WOULD HAVE TO ADJUST SAFETY SETPOINT HOURLY, NOT A GOOD SAFETY PRACTICE. ***PRESENT CHAMBER (6 IN. BELOW BOTTOM GRID) COULD BE RELOCATED BUT MIGHT NOT WORK. A SECOND CHAMBER (COMPENSATED 10N CHAMBER INSTEAD OF GAMMA CHAMBER) WOULD NOT HAVE A WIDE ENOUGH RANGE FOR PULSE RECORDING. ***REQUEST ISSUANCE OF CHANGE REQUESTED APRIL, 1968.

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

INSTRUMENT CALIBRATION + REACTOR POWER + *INSTRUMENT, ABNORMAL INDICATION + TRIGA (RR) + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + CONTROL ROD PROGRAM + TECHNICAL SPECIFICATIONS + *INSTRUMENT, POWER RANGE

9-32627 ALSO IN CATEGORIES 5 AND 17
REPORT ON THE FUEL MELTING INCIDENT IN THE ENRICO FERMI ATOMIC POWER PLANT
POWER REACTOR DEVELOPMENT COMPANY
50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

DESCRIBES THE OCT. 5 HAPPENINGS (FLOW BLOCKAGE DUE TO ZIRCONIUM PLATE CAUSED PARTIAL MELTDOWN, RELEASING FISSION GAS AND LOSING EXCESS REACTIVITY), RESULTS OF INVESTIGATIONS (ZIRCONIUM FROM CONICAL FLOW GUIDE, FUEL FAILURE DID NOT PROPAGATE, FLOW REDUCTIONS CAME ONLY FROM ZIRCONIUM SEGMENT), PLANT MODIFICATION (ON-LINE COMPUTER WILL ALARM ON DEVIATION FROM CALCULATED VALUE OF REACTIVITY BALANCE, FISSION PRODUCTS, OR SUBASSEMBLY DELTA T AND WILL LATER CAUSE SCRAM). STARTUP TEST PROGRAM OUTLINED. APPENDICES GIVE DETAILS ON FUEL EXAMINATION. *** OCT. 5 OPERATION WAS TO CHECK EARLIER HIGH DELTA T IN ELEMENTS WHICH MELTED.

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

*FUEL MELTDOWN + REACTOR, LMC + REMOTE MANIPULATING AND VIEWING + REACTOR, BREEDER + INCIDENT, GENERAL + REPORT, OPERATIONS ANALYSIS + INSTRUMENT, TEMPERATURE + EXAMINATION + INSTRUMENT, OPERATING REACTIVITY + INCIDENT, RECOVERY FROM + *FLOW BLOCKAGE + COMPUTER CONTROL + INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT + REACTOR, LMFBR + REACTOR, FAST + FERMI (LMFBR)

9-32628 ALSO IN CATEGORY 17
FERMI MELTDOWN INDICATIONS
POWER REACTOR DEVELOPMENT COMPANY
32 PAGES, FIGURES, TABLES, PP. 5-37 OF REPORT ON FUEL MELTING INCIDENT, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH

AUGUST OPERATION SHOWED HIGH OUTLET TEMPERATURES FROM SEVERAL FUEL ELEMENTS. ELEMENTS WERE MOVED TO SEE IF THE CAUSE WAS POOR FLOW DISTRIBUTION (THE OCT. 5 OPERATION WAS TO TEST THIS). HOT REACTIVITY AT 1 MW WAS OK. DELAYS DURING THE DAY LEAD TO RECORDING THERMOCOUPLE DATA DURING POWER USE, RATHER THAN INCREASING POWER IN STEPS AND MONITORING TEMPERATURES. AT 20 MWTH IN AUTOMATIC CONTROL THE DN/DT SIGNAL BECAME ERRATIC. AS THIS HAD BEEN EXPERIENCED BEFORE AT THIS POWER LEVEL AND AS THE NOISE DISAPPEARED IN MANUAL CONTROL, REACTOR POWER AGAIN RAISED IN AUTOMATIC TIL ALL RODS BEING 9 IN. WITHDRAWN INSTEAD OF 6 IN. CAUSED THE SRO TO HALT POWER INCREASE, THEN HIGH ELEMENT OUTLET TEMPERATURES (3X NORMAL) AND RADIATION ALARMS RESULTED IN MANUAL SHUTDOWN. ANALYSIS SHOWED A LOSS OF \$0.005/MW FROM 6 TO 18 MW, THEN LOSS OF \$0.013/MW ABOVE THIS, WITH A NET LOSS OF \$0.26 (11.5 FUEL LOSS AND 6.9 FUEL BOWING). THE FISSION PRODUCT DETECTOR (CHARGED WIRE IN REACTOR VESSEL OFFGAS) WAS BEING CALIBRATED DURING POWER INCREASES, AND

CATEGORY 9
NUCLEAR INSTRUMENTATION, CONTROL, AND SAFETY SYSTEMS

9-32628 *CONTINUED*

REQUIRED 3 OR 7 MIN SOAK TIMES. THE LAST MEASUREMENT WAS OFF SCALE.

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

FUEL MELTDOWN + REACTOR, LMCR + REACTOR, BREEDER + OPERATING EXPERIENCE + NOISE + REACTOR, LMFBR + REACTOR,
FAST + FERMI (LMFBR) + *PERIOD METER + REACTIVITY EFFECT, ANOMALOUS + REPORT, OPERATIONS ANALYSIS + *FLOW
BLOCKAGE + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-27532 ALSO IN CATEGORIES 14 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. IV
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-4 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 4, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS DESCRIBING THE ELECTRICAL POWER SYSTEMS, RADIOACTIVE WASTE SYSTEMS, AUXILIARY SYSTEMS, POWER CONVERSION SYSTEMS, STATION STRUCTURES AND SHIELDING, AND CONDUCT OF OPERATIONS.

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

REPORT, PSAR + ELECTRIC POWER, ALTERNATE + *ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + ELECTRIC POWER, AUXILIARY + *EMERGENCY POWER, ELECTRIC + STRUCTURAL INTEGRITY + ELECTRIC POWER, SHUTDOWN + DUANE ARNOLD ENERGY CENTER (BWR) + SHIELDING + BUILDING + AUXILIARY COOLING SYSTEM + REACTOR, BWR + *SYSTEM DESCRIPTION

10-29269 ALSO IN CATEGORY 9
BORST A + HUHSE P + PETZOLD E
PRESSURE-GLASS CABLE BRUSHINGS FOR REACTOR SAFETY CASINGS
6 PAGES, AT. STROM, 13, PAGES 27-32 (FEB.-MARCH 1967)

CABLE CONNECTIONS THROUGH A REACTOR SAFETY CASING MUST BE CONSTRUCTED SO THAT THEY ARE GASTIGHT AND TEMPERATURE RESISTANT. A POSSIBLE TECHNICAL SOLUTION IS THE PRESSURE-GLASS CABLE BUSHING, WHICH WAS DEVELOPED FROM THE ELECTRODE BUSHINGS FOR MERCURY VAPOUR RECTIFIERS. ON THE BASIS OF THE PHYSICAL PRINCIPLES OF PRESSURE-GLASS MELTING, A DESCRIPTION IS GIVEN OF THE SPECIAL TECHNICAL REQUIREMENTS FOR THIS NEW TYPE OF COMPONENT FOR REACTOR ENGINEERING IN REGARD TO MECHANICAL AND ELECTRICAL PROPERTIES, AND THE CONSTRUCTIONAL SOLUTIONS. A REPORT IS ALSO GIVEN ON MANUFACTURE AND INSTALLATION.

FABRICATION + *EQUIPMENT DESIGN + SEAL + *CONTAINMENT PENETRATION, ELECTRICAL

10-29566 ALSO IN CATEGORY 18
INTERNATIONAL CONFERENCE AND EXHIBITION ON A WORLD REVIEW OF NUCLEAR REACTORS AND RADIOISOTOPES, MONTREAL, QUEBEC, CANADA, MAY 28-31, 1967
CONF-670522 +. 556 PAGES, TORONTO, CANADIAN NUCLEAR ASSOCIATION, 1967

INCLUDED ARE 28 PAPERS ON VARIOUS TECHNICAL, ECONOMIC, AND LEGAL ASPECTS OF WORLDWIDE DEVELOPMENT OF POWER REACTORS AND RADIOISOTOPES. SEPARATE ABSTRACTS WERE PREPARED FOR 12 OF THE PAPERS, AND ABSTRACTS OF 7 PAPERS APPEAR IN PREVIOUS ISSUES OF NSA. THEY MAY BE LOCATED UNDER CONF-670522 IN THE REPORT NUMBER INDEXES.

REACTOR, POWER + ECONOMICS + REACTOR DESCRIPTION + LAW + RADIOISOTOPE

10-30092
MONTEITH OB
PRELIMINARY RELIABILITY ANALYSIS OF THE PRIMARY ELECTRICAL POWER SYSTEM, SYSTEM 11
PACIFIC NORTHWEST LABORATORY, RICHLAND, WASHINGTON
DNWL 621 +. 2 PAGES, FEBRUARY 1969

REPORTS A PRELIMINARY RELIABILITY PREDICTION FOR THE FFTF PRIMARY ELECTRICAL POWER SYSTEM. THE EFFECT OF LIGHTNING (OR UNKNOWN) SURGES ON SYSTEM RELIABILITY IS INCLUDED, AND THE SYSTEM AVAILABILITY IS DETERMINED. A CALCULATION OF EXPECTED UNAVAILABILITY OF THE FFTF CAUSED BY SYSTEM OUTAGES IS PRESENTED.

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

REACTOR, LMC + *ELECTRIC POWER, NORMAL + ELECTRIC POWER, AUXILIARY + *RELIABILITY ANALYSIS + REACTOR, FAST + REACTOR, TEST + FFTF (TR)

10-30203 ALSO IN CATEGORY 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-15 +. 14 PAGES, NOVEMBER 17, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

REACTOR PRESSURE HAS BEEN LOWERED FROM 2150 PSIG TO 2000 PSIG FOR CORE 1 TO MINIMIZE PRESSURIZER SAFETY VALVE LEAKAGE. LOSS OF VITAL POWER CAUSED 3 SCRAMS (BLOWN FUSE, GROUNDED DURING MAINTENANCE).

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

HADDAM NECK (PWR) + LOW + *PRESSURE, INTERNAL + REACTOR, PWR + *SCRAM, REAL + *SETPOINT + EMERGENCY POWER, ELECTRIC + MAIN COOLING SYSTEM + REPORT, OPERATIONS

10-30204 ALSO IN CATEGORIES 5 AND 17
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-16 +. 16 PAGES, DECEMBER 19, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-30204 *CONTINUED*

TESTS (LOAD REJECTION AT 250 MWE, LOSS OF FLOW AT 278 MWE, DROPPED ROD AT 400 MWE) RUN INCLUDED NATURAL CIRCULATION FLOW INDICATION FOLLOWING TRIP FROM 50% POWER. IN-CORE FLUX MAPS WERE TAKEN, AND MINIMUM DNBR WAS 4.0. FLUX MAPS TAKEN WITH A ROD IN AND A ROD OUT. THREE TRIPS OCCURRED FROM VITAL BUS GROUNDING (FUSE REPLACEMENT, LIGHT BULB REPLACEMENT, AND SYSTEM CHECKOUT).
***VITAL BUS IS NOW SPLIT INTO 4 BUSES, EACH WITH AN INVERTER. EACH BUS CAN ALSO BE FED FROM ANOTHER INVERTER.

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

ACCIDENT, LOSS OF FLOW + REPORT, OPERATIONS + HADDAM NECK (PWR) + *MODIFICATION, SYSTEM OR EQUIPMENT + *ELECTRIC POWER, VITAL + ACCIDENT, LOAD REJECTION + REACTOR, PWR + *REACTOR STARTUP EXPERIENCE + SCRAM, REAL + ACCIDENT, CONTROL ROD DROPIN + *TEST, PROOF + INSTRUMENT, IN CORE + HEAT TRANSFER, NATURAL CONVECTION

10-30243 ALSO IN CATEGORIES 12 AND 17
CITATION FOR UNSATISFACTORY DIESEL PERFORMANCE

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO S.R. KNAPP, CONN. YANKEE AT. POWER CO., DEC. 20, 1968 DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INSPECTION NOV. 14 AND DEC. 3, 1968, REVEALED THAT FAILURE OF AN ENGINEERED SAFEGUARD WAS NOT REPORTED TO THE AEC, AS REQUIRED BY THE LICENSE. DIESELS FAILED FOLLOWING AUTOMATIC STARTING AND LOADING DURING THE APRIL 27, 68, LOSS OF SITE POWER. IN ADDITION THE DIESELS OPERATED UNSATISFACTORY ON 3 OCCASIONS. TESTS PERFORMED SINCE DO NOT SIMULATE THE APRIL 68 CONDITIONS, AND THE REACTOR WAS RESTARTED APRIL 27 FOLLOWING THE DIESEL FAILURES WITHOUT THE DIESELS BEING TESTED AND WITHOUT ADEQUATE REVIEW OF THE SIGNIFICANCE OF THE DIESEL FAILURE. PLEASE PROVIDE US WITH A REPORT OF THE FAILURE OF THE DIESEL POWER SYSTEM ON APRIL 27.

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

FAILURE, ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + TEST, SYSTEM OPERABILITY + ACCIDENT, LOSS OF POWER + SURVEILLANCE PROGRAM + REACTOR, PWR + *INCIDENT, EQUIPMENT + *EMERGENCY POWER, ELECTRIC + GENERATOR, ENGINE

10-30588 ALSO IN CATEGORY 9

HANADA K

DEVICE FOR RELEASING THE PEAK PRESSURE BY A VALVE

NIPPON ATOMIC INDUSTRIES GROUP CO., LTD.

JAPANESE PATENT 1967-17911 +. OCTOBER 17, 1967

BY THE METHOD PROPOSED, THE PEAK PRESSURE FROM THE BYPASS TO THE BOILING REACTOR, OCCURRING IN CUTTING OFF THE TURBINED DUE TO THE OPENING OF THE CIRCUIT BREAKER CONNECTED TO THE GENERATORS, CAN BE REMOVED. THIS LEADS TO THE NON-SHUT-DOWN OF THE REACTOR. THE OPERATION IS DEFINITE, SIMPLE, AND LOW COST. A PEAK PRESSURE RELEASE VALVE IS INSTALLED IN THE BYPASS SYSTEM. THIS VALVE OPENS FOR A BRIEF PERIOD BEFORE THE OPENING OF THE USUAL BYPASS VALVES TO RELEASE THE INITIAL PEAK STEAM TO THE CONDENSER, AND HENCE TO RELEASE THE PEAK PRESSURE.

AVAILABILITY - U. S. PATENT OFFICE, DEPARTMENT OF COMMERCE, WASHINGTON, D. C. (\$0.30 CENTS/COPY)

*PRESSURE RELIEF + PATENT + JAPAN + VALVE + STEAM + BYPASS + INSTRUMENT, PRESSURE

10-30598 ALSO IN CATEGORIES 5 AND 17

SPECIFIC HADDAM NECK OPERATING EXPERIENCE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-21 +. 10 PAGES, FIGURES, TABLES, OPERATION REPORT NO. 68-4, MAY 14, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

TURBINE FLANGE REPAIRS COMPLETED 13TH, AND IN-CORE MEASUREMENTS (AT 3% POWER) OF REDISTRIBUTION OF FLUX IN DROPPED AND EJECTED ROD SITUATIONS COMPLETED THE 19TH. (27TH) ON RESTORING A 115 KV OUTSIDE LINE, A SWITCHING PROCEDURE WAS USED WHICH DEGUARDED A TRANSFER TRIP RELAY, CAUSING SITE FEEDER BREAKERS TO OPEN, INTERRUPTING STATION SERVICE POWER AT 490 MWE. STATION WAS ON EMERGENCY POWER FOR 25 MIN BEFORE NORMAL POWER RESTORED. ***FUNCTIONAL CHECKS OF CONTAINMENT FAN DAMPER HAVE BEEN TROUBLE FREE. ELECTRIC OPERATORS ARE BEING CHANGED TO AIR OPERATORS.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE + ACCIDENT, CONTROL ROD DROPIN + POWER DISTRIBUTION + TURBINE + ACCIDENT, LOAD REJECTION + ACCIDENT, CONTROL ROD EJECTION + MEASUREMENT, GENERAL + FAILURE, EQUIPMENT + REPORT, OPERATIONS + MAINTENANCE AND REPAIR + HADDAM NECK (PWR) + ACCIDENT, LOSS OF POWER + REACTOR, PWR + *CONTAINMENT AIR COOLING + *FAILURE, OPERATOR ERROR + EMERGENCY POWER, ELECTRIC

10-30608 ALSO IN CATEGORY 17

YANKEE DIESEL FAILURE ON TEST

YANKEE ATOMIC ELECTRIC CO., BOSTON, MASS.

7 PAGES, FIGURES, TABLES, YANKEE OPERATION REPORT 94, (OCT. 1968), NOVEMBER 15, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AFTER A ROUTINE TEST OF THE EMERGENCY DIESEL SEPT. 24, ENGINE RESTART GAVE CRANKING BUT NOT OPERATION. AFTER RESET OF PROTECTIVE RELAYS, ENGINE STARTED ON NORMAL PROCEDURE. *** TRIPPING

CATEGORY 10
ELECTRICAL POWER SYSTEMS

10-30608 *CONTINUED*

THE ENGINE FROM LOCAL PANEL CAUSED DIFFICULTY. ALARM PANEL SWITCH MUST BE ON BEFORE THE DIESEL CAN BE STARTED, AND DIESEL MUST START BEFORE A TIME DELAY RELAY SOUNDS ALARM (OVERCRANK) AND CLOSES SOLENOID FUEL VALVE. WHEN THIS RELAY OPERATES, ALARM CAN BE CANCELLED BUT RELAY MUST BE RESET BEFORE RESTARTING. APPARENTLY ENGINE RESTART WAS ATTEMPTED BEFORE RELAY WAS RESET.

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

TEST, SYSTEM OPERABILITY + EMERGENCY POWER, ELECTRIC + YANKEE (PWR) + *GENERATOR, ENGINE + REPORT, OPERATIONS + REACTOR, PWR + CONTROL SYSTEM + *FAILURE, OPERATOR ERROR

10-30742

DUNSMORE C

NUCLEAR EMERGENCY POWER SUPPLY

3 PAGES, POWER ENG., 72(6), PAGES 34-6 (JUNE 1968)

IMPORTANT FEATURES OF A NA-COOLED FAST BREEDER REACTOR THAT SHOULD BE CONSIDERED WHEN DESIGNING AN EMERGENCY POWER SYSTEM ARE DISCUSSED. THE ADVANTAGES TO THE STEAM-WATER CYCLE OF INTEGRATING THE EMERGENCY SUPPLY INTO THE NORMAL AUXILIARY SYSTEM ARE EXAMINED.

*EMERGENCY POWER, ELECTRIC + REACTOR, FAST + REACTOR, BREEDER + ELECTRIC POWER, AUXILIARY

10-32296 ALSO IN CATEGORIES 9 AND 17

NS SAVANNAH ROD DRIVES OUT DUE TO ONE PHASE OPEN IN MOTORS

FIRST ATOMIC SHIP TRANSPORT INC.

2 PAGES, LETTER TO P.A. MORRIS, DRL, FEBRUARY 24, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

ON JAN. 20, CONTROL RODS WERE EXERCISED WHILE SHIP WAS TIED UP AT DOCK. ROD A-2 WOULD NOT DRIVE, SO MAIN CIRCUIT BREAKER WAS CLEARED. THEN ROD WOULD DRIVE OUT FOR BOTH IN AND OUT SIGNALS. FAULTY BREAKER WAS CAUSING ONE PHASE TO BE OPEN. ***INVESTIGATION OF THE 2-PHASE 3-WIRE SYSTEM SHOWED THAT 13 OF THE 21 RODS WOULD DRIVE OUT ON AN IN SIGNAL WHEN ONE PHASE WAS OPEN, WITH THE STARTING PHASE SHIFT SUPPLIED BY BLOWER MOTOR IN PARALLEL. THE OTHER EIGHT WERE ONES MOST FREQUENTLY MOVED AND HAD ENOUGH FRICTION TO PREVENT SUCH OPERATION. ***TESTS SHOW THAT A PERMANENT INDEPENDENT POWER SOURCE FOR BLOWERS HAS ELIMINATED THE PROBLEM.

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

FAILURE, DESIGN ERROR + *ACCIDENT, CONTROL ROD WITHDRAWAL + ELECTRIC POWER, UNINTERRUPTED + NS SAVANNAH (PWR) + *FAILURE, COMPONENT + REACTOR, PWR + PHASE CHANGE + *CONTROL ROD DRIVE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-27050 ALSO IN CATEGORIES 12 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. 11
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-2 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. 2, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS ON REACTOR COOLANT SYSTEMS, CONTAINMENT, AND CORE STANDBY COOLING SYSTEMS. DESCRIBES VESSEL AND FITTINGS TO VESSEL FOR APPURTENANCES, PRESSURE RELIEF SYSTEM FOR NUCLEAR SYSTEM, VENTURI FLOW RESTRICTIONS FOR LOSS-OF-COOLANT ACCIDENT, ISOLATION VALVES, PRESSURE-SUPPRESSION CONTAINMENT AND CORE STANDBY COOLING SYSTEM WHICH PROVIDES CONTINUITY OF CORE COOLING OVER COMPLETE RANGE OF LINE-BREAK SIZES AND CONSISTS OF HIGH-PRESSURE COOLANT INJECTION-PRESSURE RELIEF VALVES TO DEPRESSURIZE REACTOR-CORE SPRAY AND LOW-PRESS. COOLANT INJECTION WHICH IS AN OPERATING MODE OF THE RESIDUAL HEAT REMOVAL SYSTEM.

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

ENGINEERED SAFETY FEATURE + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + *CORE SPRAY + CONTAINMENT, PRESSURE RELIEF + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *MAIN COOLING SYSTEM + REACTOR DESCRIPTION + DUANE ARNOLD ENERGY CENTER (BWR) + COOLING, SHUTDOWN

11-27062 ALSO IN CATEGORIES 1 AND 2
CONSIDERATION AFFECTING STEAM POWER PLANT SITE SELECTION
OFFICE OF SCIENCE AND TECHNOLOGY
132 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 5, 1969

DISCUSSES VARIOUS ASPECTS OF POWER PLANT SITING WHICH AFFECT BOTH INDUSTRY AND THE GENERAL PUBLIC. IT CONTAINS CHAPTERS ON (1) NEED FOR SITES, (2) PHYSICAL REQUIREMENTS, (3) NUCLEAR SITING, (4) AIR-POLLUTION FACTORS, (5) WATER-POLLUTION CONTROL, (6) SPORT AND AESTHETIC CONSIDERATIONS, (7) RURAL DEVELOPMENT, (8) RELIABILITY, (9) TRANSMISSION, (10) MULTIPURPOSE SITING, (11) THE ROLE OF STATES IN SITING. ALSO INCLUDES APPENDICES ON (A) NUCLEAR PLANT ENGINEERING, (B) ENVIRONMENTAL RESEARCH FOR NUCLEAR SITING, (C) NUCLEAR SAFETY R AND D, (D) AIR POLLUTANTS, (E) SULFUR DIOXIDE R AND D, (F) METEOROLOGY.

ECOLOGICAL CONSIDERATION + THERMAL POLLUTION + *SITING, REACTOR + ENVIRONMENTAL CONDITION + REACTOR, POWER + METEOROLOGICAL SUPPORT + ATMOSPHERIC POLLUTION + RADIATION IN PERSPECTIVE + SULFUR DIOXIDE + R AND D PROGRAM + REGULATION, STATE + HYDROLOGICAL CONSIDERATION, GENERAL + *SITING, GENERAL + RIVER, GENERAL + RADIATION, PUBLIC EDUCATION + QUALITY ASSURANCE

11-27084 ALSO IN CATEGORIES 14 AND 18
AEC QUESTIONS AND REVISIONS TO PSAR
INDIANA AND MICHIGAN ELECTRIC CO.
60 PAGES, FIGURES, TABLES, REFERENCES, AMEND. 6 TO COOK 1 AND 2 LICENSE APPLICATION, SEPT. 13, 1968, DOCKET 50-315/316

CONTAINS RESPONSES TO 14 AEC QUESTIONS SUBMITTED BY LTR. SEPT. 10, 1968, PLUS REVISION PAGES TO PSAR. QUESTIONS CONCERN IODINE, FISSION-PRODUCT RELEASE, AND ICE-CONDENSER CONTAINMENT.

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

COOK 1 (PWR) + COOK 2 (PWR) + FISSION PRODUCT RELEASE, GENERAL + REACTOR, PWR + *AEC QUESTION + *CONTAINMENT, ICE CONDENSER + *CONTAINMENT DESIGN + FISSION PRODUCT, IODINE + REPORT, PSAR

11-27303 ALSO IN CATEGORIES 5 AND 18
BLOWDOWN FORCES AND CONTAINMENT DESIGN ANALYSIS
ROCHESTER GAS AND ELECTRIC CO.
15 PAGES, FIGURES, TABLES, AMENDMENT 13 TO GINNA LICENSE APPLICATION (SUPP. 7 TO FSAR), DEC. 13, 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

CONTAINS ADDITIONAL AND REVISION PAGES FOR FSAR CONCERNING THE ANALYSES OF BLOWDOWN FORCES AND THE CONTAINMENT STRUCTURAL DESIGN.

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

STRESS ANALYSIS + STRUCTURAL ANALYSIS, DYNAMIC + GINNA (PWR) + CONTAINMENT DESIGN + REACTOR, PWR + *BLOWDOWN + ACCIDENT, LOSS OF COOLANT + *ACCIDENT ANALYSIS + CONTAINMENT STRUCTURE + REPORT, SAR

11-20490
GRAHAM JA + MILLAN JF + APPL FJ
FATIGUE DESIGN HANDBOOK
DEERE AND COMPANY + CATERPILLER TRACTOR CO.
132 PAGES, FIGURES, TABLES, 34 REFERENCES, SOCIETY OF AUTOMOTIVE ENGINEERS, INC., NEW YORK, N.Y., 1968

THE OBJECTIVE OF THIS MANUAL IS TO PROVIDE PROCEDURES TO ENABLE THE ENGINEER AND THE DESIGNER TO APPLY INFORMATION ON FATIGUE PROPERTIES OF MATERIALS AND COMPONENTS IN MAKING DECISIONS ON DESIGN DETAILS. WRITTEN SPECIFICALLY WITH THE NEEDS OF THE ENGINEERS AND DESIGNERS IN MIND, IT CONTAINS MANY REFERENCES TO DESIGN SITUATIONS. THE AUTHORS, FOR THE SAKE OF SHOWING A METHOD OF DESIGNING FOR FATIGUE, AVOIDED WHEREVER POSSIBLE ANY DISCUSSION ON THE RELATIVE MERITS OF THE MANY THEORIES ON FATIGUE. THUS IT IS HOPED THAT THIS FATIGUE DESIGN HANDBOOK WILL SUPPLY THE READER A READILY

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-28490 *CONTINUED*
AVAILABLE AND USABLE PROCEDURE FOR FATIGUE DESIGN.

PROPERTY, PHYSICAL + *DESIGN CRITERIA + STRESS ANALYSIS + *STEEL + PROBABILITY + STRESS STRAIN DATA +
*FAILURE, FATIGUE

11-28987 ALSO IN CATEGORY 7
CONNER JG + POREMBA SW
COMPENDIUM OF PROPERTIES AND CHARACTERISTICS FOR SELECTED LMFBR CLADDING MATERIALS
BATTELLE MEMORIAL INST., COLUMBUS, OHIO
BMI-1900 +. 234 PAGES, MAY 15, 1968

REVIEWS WELDING, RADIATION DAMAGE, STRENGTH AND DUCTILITY AT HIGH (600 C) TEMPERATURES,
COMPATIBILITY WITH FUEL AND SODIUM FOR AUSTENITIC SS AND NICKEL-BASED ALLOYS, VANADIUM ALLOYS,
NIOBIUM ALLOYS FOR OXIDE, CARBIDE, NITRIDE, AND OXIDE FUELS.

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

REACTOR, FAST + INCOLOY + RADIATION DAMAGE + REACTOR, LMFBR + *PROPERTY, PHYSICAL + STEEL, STAINLESS +
*CLADDING

11-29539 ALSO IN CATEGORY 12
MARCHEKIAS AH
STRESS ANALYSIS OF A REACTOR CORE SUPPORT STRUCTURE CONSISTING OF TWO INTERCONNECTED MULTIREGION PLATES
ARGONNE NATIONAL LABORATORY
ANL-7162(SUPPL.) +. 69 PAGES, 26 FIGURES, 1 TABLE, 3 REFERENCES, MARCH 1968

THE STRESS ANALYSIS OF A COUPLED AXISYMMETRIC TWO-PLATE CORE SUPPORT STRUCTURE HAS BEEN DESCRIBED
IN THE FIRST PART OF ANL-7162. THE PRIMARY PURPOSE OF THIS PORTION IS THE PRESENTATION OF THE
CORRESPONDING COMPUTER PROGRAM. IN ADDITION, EXTRA ANALYTICAL DEVELOPMENTS WHICH HAD NOT BEEN
INCLUDED IN THE FIRST PORTION ARE GIVEN IN THIS PART. THIS ADDITIONAL ANALYSIS MODIFIES, BUT IN
NO WAY REPLACES, THE PREVIOUS PRESENTATION. SINCE THE ANALYSIS GIVEN IN THIS PRESENTATION IS A
CONTINUATION OF THE PRECEDING WORK, THE SAME SEQUENCE OF EQUATIONS AND FIGURES IS CONTINUED. THE
SAME NOMENCLATURE IS ALSO PRESERVED IN THIS PORTION OF THE REPORT. HOWEVER, NEW SYMBOLS ARE
IDENTIFIED WHEREVER USED.

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

*REACTOR, GENERAL + *STRESS ANALYSIS + *SUPPORT STRUCTURE + *COMPUTER PROGRAM + *THEORETICAL INVESTIGATION

11-29574 ALSO IN CATEGORY 18
JOVANIC M + MOJOVIC L
A 500 MW BWX TYPE NUCLEAR POWER PLANT
9 PAGES, NUKL. ENERG. 5(4), PAGES 7-15 (1967)

A 500 MW(E) REACTOR USES NATURAL U AND HEAVY WATER BOILING IN THE FUEL CHANNELS. THE REACTOR IS
IN A PRESTRESSED CONCRETE VESSEL WHICH TOGETHER WITH A SYSTEM OF PRESSURE DAMPING MAKES A UNIFIED
STRUCTURE. THE CIRCULATION OF THE COOLANT IN THE CORE IS NATURAL. TWO TURBO-GENERATORS ARE USED
IN THE DIRECT STEAM CYCLE. THE FUEL DISCHARGE IS CONTINUOUS AND ON LINE. THE PLANT HAS BEEN
DESIGNED FOR BASE LOADS AND IS CAPABLE OF AUTOMATICALLY ADJUSTING TO LOAD VARIATIONS IN A 75 TO
100% RANGE. THROUGH SPECIAL DESIGN THE OUTPUT OF THE REACTOR CAN BE UNDER 75%, AND COME DOWN
EVEN TO ZERO, ENABLING THE PLANT TO RESUME OPERATION IN THE GRID AFTER A SHORT COMPLETE
UNLOADING.

REACTOR, POWER + REFUELING, ON LINE + PRESSURE VESSEL + *DESIGN STUDY + REACTOR, HWR + CONCRETE, PRESTRESSED +
REACTOR, BWR

11-29604 ALSO IN CATEGORY 18
LEO MB
EXPERIENCE IN THE CONSTRUCTION OF NUCLEAR POWER PLANTS
ELECTRICITE DE FRANCE, PARIS
8 PAGES, ASSN. TECH. ENERG. NUCL. NO. 62, PAGES 15-22 (NOV.-DEC. 1966)

SHOWS CONNECTION BETWEEN DESIGN, PLANNING, AND CONSTRUCTION OF A NUCLEAR POWER PLANT. THE
CHARACTERISTICS OF NUCLEAR POWER PLANTS STUDIED ARE ORGANIZATION OF THE CONSTRUCTION, DIMENSIONS
AND WEIGHTS OF THE MATERIAL, NUCLEAR CLEANLINESS HANDLING DEVICES, AND THE ASSEMBLY FRAME.
SPECIFIC EXAMPLES ARE GIVEN FROM THE SAINT-LAURENT REACTOR.

FRANCE + REACTOR, POWER + *CONTAINMENT CONSTRUCTION

11-29622 ALSO IN CATEGORY 4
HULTGREN RD
RESPONSE OF A THIN-WALLED SHORT CLOSED CYLINDER TO AN ARBITRARY MOVING PRESSURE WAVE OF SHORT TIME DURATION
VIRGINIA UNIV., CHARLOTTESVILLE
SC-CR-67-2630 +. 119 PAGES, 8 FIGURES, 1 TABLE, 21 REFERENCES, AUG. 1967

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-29622 *CONTINUED*

PRESENTS AN ANALYSIS OF THE DYNAMIC DEFORMATION AND STRESS CHARACTERISTICS OF A THIN-WALLED, SHORT CYLINDER ACTED ON BY A MOVING PRESSURE WAVE OF SHORT DURATION. IT INCLUDES THE EFFECTS OF LARGE RADIAL DEFLECTIONS, PLASTICITY OF THE CROSS SECTION, KINEMATIC STRAIN HARDENING, AND LONGITUDINAL AND CIRCUMFERENTIAL STIFFENERS IN THE CYLINDER. SPECIFICALLY, THE HAZARD INFORMATION DESIRED IS THE TEMPERATURE AND PRESSURE PROFILES OF A MISSILE LAUNCH ABORT. WITH THIS INFORMATION DESIGNERS CAN MORE RATIONALLY DEVELOP PLANS TO MAINTAIN INTEGRITY OF THE RADIOACTIVE MATERIAL CONTAINER.

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

*CYLINDER + ACCIDENT ANALYSIS + ACCIDENT, HYPOTHETICAL + COMPUTER PROGRAM + *AEROSPACE SAFETY + *PRESSURE, EXTERNAL + ACCIDENT, GENERAL + ACCIDENT, CONSEQUENCES

11-29881 ALSO IN CATEGORY 9

BLEY WN + MASON EA

MEASUREMENT OF THE NEUTRON AND GAMMA DOSE IN A NUCLEAR REACTOR

MASS. INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

1 PAGE, 1 FIGURE, 2 REFERENCES, ANS TRANS. 11(2), PAGE 463, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

EXTENSIVE DESIGN AND EXPERIMENTAL STUDIES OF ADIABATIC CALORIMETERS AND NEUTRON DOSIMETERS WERE MADE TO INCREASE THE USEFULNESS OF THESE DEVICES IN RESEARCH AND TEST REACTORS. A COMPREHENSIVE COMPUTER PROGRAM WAS DEVELOPED AND USED TO EVALUATE THE ERRORS ARISING IN CALORIMETRY DUE TO THE EFFECTS OF HEATING IN THE THERMOCOUPLE WIRE, THERMAL CONTACT BETWEEN THE THERMOCOUPLE BEAD AND THE SAMPLE, AND THE EFFECTS OF THE DIFFERENT HEATING RATES ARISING IN THE THERMOCOUPLE MATERIAL AND THE CALORIMETRIC MATERIAL DUE TO WIDELY DIFFERENT VALUES OF THE SPECIFIC HEAT.

COMPUTER PROGRAM + INSTRUMENT CALIBRATION + INSTRUMENT, TEMPERATURE + *INSTRUMENT, RADIATION MONITORING + DOSE + NEUTRON + GAMMA

11-29944 ALSO IN CATEGORY 7

BRIZES WF + FRANCE LL

COMPRESSIVE CREEP BEHAVIOR OF NIOBIUM CARBIDE - GRAPHITE COMPOSITES

WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA., ASTRONUCLEAR LAB

WANT-TME-1761 +. 8 FIGURES, 1 TABLE, 11 REFERENCES, 1967

THE COMPRESSIVE CREEP BEHAVIOR OF COLD-PRESSED AND SINTERED NIOBIUM CARBIDE-GRAPHITE COMPOSITES WAS STUDIED AS A FUNCTION OF TEMPERATURE AND COMPOSITION. THE EQUATION PRESENTED IS PROPOSED TO REPRESENT THE CREEP BEHAVIOR OF GRAPHITE RICH COMPOSITES AS A FUNCTION OF COMPOSITION AND STRESS. THE ACTIVATION ENERGY, ACTIVATION VOLUME AND STRESS DEPENDENCE OF CREEP WERE DETERMINED, AND THE POSSIBLE MECHANISMS CONTROLLING DEFORMATION WERE EXAMINED.

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

STRESS + CREEP PROPERTY + NOZZLE + *GRAPHITE + *CARBIDE + ACTIVATION ENERGY + *CREEP + *NIOBIUM

11-30021 ALSO IN CATEGORIES 2 AND 18

MONTICELLO FINAL SAR VOL. IV

NORTHERN STATES POWER COMPANY

53263-4+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS 3 APPENDICES - SEISMIC DESIGN CRITERIA, PLANT QUALITY-ASSURANCE PROGRAM, AND PLANT COMPARATIVE EVALUATION WITH THE PROPOSED AEC 70 DESIGN CRITERIA. EARTHQUAKE ANALYSIS INCLUDED FOR REACTOR BUILDING, DRYWELL, AND PRESSURE VESSEL.

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

*AEC DESIGN CRITERIA + MONTICELLO (BWR) + *EARTHQUAKE ENGINEERING + *DESIGN CRITERIA + BUILDING + REACTOR, BWR + QUALITY ASSURANCE + CONTAINMENT, PRESSURE SUPPRESSION + PRESSURE VESSEL + STRUCTURAL INTEGRITY + SITE CRITERIA, EARTHQUAKE + REPORT, SAR

11-30086 ALSO IN CATEGORIES 5 AND 13

RADIATION SHIELD PLUG OVERPRESSURIZATION HAZARD

U.S. ATOMIC ENERGY COMMISSION

USAEC SERIOUS ACCIDENTS ISSUE NO. 295, DECEMBER 9, 1968

A HIGH-PRESSURE GAS RELEASE OCCURRED IN A 6-IN.-DIAM SHIELD PLUG, ONE OF MANY SUCH PLUGS USED IN THE WALLS OF A RADIOACTIVE MATERIALS LABORATORY HOT CELL COMPLEX. THIS 3-IN.-LONG 200-LB STEEL-ENCASED CONCRETE PLUG WAS FOUND LYING IN THE OPERATIONS AREA, WITH THE SMALL END (EXPOSED TO THE CELL SIDE OF THE WALL) RUPTURED. NO DAMAGE TO THE HOT CELL COMPLEX, NO RELEASE OF RADIOACTIVE MATERIALS, AND NO INJURIES.

*HOT CELL + CONTAINMENT EQUIPMENT HATCH + RADIOCHEMICAL PLANT SAFETY + PRESSURE, INTERNAL + *PRESSURE RELIEF + *HAZARD, RELATIVE

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30125 ALSO IN CATEGORY 7
RAU RC + LAOD RL + MOTEFF J
RADIATION DAMAGE IN VANADIUM
GENERAL ELECTRIC COMPANY, MISSILE AND SPACE DIVISION, CINCINNATI, OHIO
(GEMP-612) + CONF 680905-3 +. 3 PAGES, 1968

TRANSMISSION ELECTRON MICROSCOPY HAS BEEN USED TO STUDY THE MICROSTRUCTURE OF VANADIUM IRRADIATED AT REACTOR AMBIENT TEMPERATURE (ABOUT 70 C) TO A FAST (E GREATER THAN 1 MEV) TIME-INTEGRATED NEUTRON FLUX OF 5×10^{19} N/CM². POST-IRRADIATION ANNEALING AT OTHER HIGHER TEMPERATURES WAS USED FOR FURTHER STUDY. THE OBSERVATIONS OF THE TEST ARE GIVEN.

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

*TEMPERATURE REACTIVITY EFFECT + EXPERIMENT, GENERAL + RADIONUCLIDE, INDUCED + *RADIATION EFFECT + *VANADIUM + REACTOR POWER + RADIATION DAMAGE

11-30132 ALSO IN CATEGORIES 12 AND 18
PLANT SYSTEM DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 2, JANUARY 13, 1969, DOCKET 50-334

DESCRIBES AND GIVES DESIGN CRITERIA FOR COOLANT SYSTEM WITH APPENDIX ON NEUTRON FLUX AND NDT FOR VESSEL SAMPLES, CONTAINMENT, SAFEGUARDS, INSTRUMENTATION, AND ELECTRICAL SYSTEMS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE STRUCTURE, OPERATED SUBATMOSPHERICALLY AND DESIGNED FOR 45 PSIG AND 280 F FOR DBA. SAFEGUARDS INCLUDE SAFETY INJECTION, CONTAINMENT SPRAY, AND CONTAINMENT VACUUM SYSTEM.

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

*SYSTEM DESCRIPTION + REACTOR SAFETY SYSTEM + NDT DATA + *REACTOR DESCRIPTION + AEC DESIGN CRITERIA + NEUTRON + REACTOR, PWR + DESIGN CRITERIA + PRESSURE, SUBATMOSPHERIC + REPORT, PSAR + CONTAINMENT DESIGN + MAIN COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + PRESSURE VESSEL + RADIATION DAMAGE + ENGINEERED SAFETY FEATURE + INSTRUMENT, CONTROL

11-30167 ALSO IN CATEGORY 17
ARCHER JC
BUILDING BREATHING SPACE INTO A REACTOR CONTAINMENT VESSEL
BURNS AND ROE, INC.
2 PAGES, POWER, 11, PAGES 116-117 (NOVEMBER 1967)

(PROBLEM) PROVIDE FOR THERMAL EXPANSION OF CONTAINMENT YET NOT LEAVE A GAP LARGE ENOUGH FOR A MISSILE TO PENETRATE BEFORE PUSHING AGAINST CONCRETE. (SOLUTION) COVER THE COMPLETED STEEL VESSEL WITH 2.75-IN. OF ASBESTOS FIBER, MAGNESITE CEMENT MATERIAL THAT IS INELASTICLY COMPRESSIBLE, COVER WITH PLASTIC, INSTALL THE CONCRETE FORMS AND POUR CONCRETE, HEAT VESSEL TO 180 F, AND PRESSURIZE TO 40 PSIG AFTER CONCRETE DRIES. THIS LEFT AN AIR GAP OF 1-3 INCHES.

CONTAINMENT, PRESSURE SUPPRESSION + CONCRETE + REACTOR, BWR + THERMAL MECHANICAL EFFECT + MISSILE GENERATION AND PROTECTION + *CONTAINMENT CONSTRUCTION + OYSTER CREEK 1 (BWR)

11-30213 ALSO IN CATEGORY 17
SELECTED ELK RIVER OPERATING EXPERIENCE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-65 +. 19 PAGES, AUGUST 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ALUMINUM REFERENCE CHAMBERS WERE FOUND TO LEAK DURING CONTAINMENT PRESSURE TESTS AND WERE REPLACED BY COPPER CHAMBER BECAUSE THAT DUCTILE MATERIAL COULD WITHSTAND MORE PHYSICAL ABUSE. NO FURTHER WORK WAS DONE ON PRIMARY SYSTEM LEAK DETECTION WHILE WAITING FOR DECISION.

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

ELK RIVER (BWR) + REPORT, OPERATIONS + *CONTAINMENT REFERENCE MEASURING SYSTEM + TEST, LEAK RATE + REACTOR, BWR

11-30244 ALSO IN CATEGORY 17
MAIN STEAM ISOLATION VALVE PACKING
CONNECTICUT YANKEE ATOMIC POWER COMPANY
1 PAGE, LETTER TO DRL, DEC. 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROPOSED CHANGE 9 (NDV. 12, 1968) REQUESTED TEST INTERVAL FOR MAIN STEAM VALVE BE INCREASED FROM WEEKLY TO MONTHLY, WITH TUNED CLOSURE BEING DONE DURING REFUELING. ***THE VALVE PACKING IS GRAPHITE IMPREGNATED AND CONTAINS A SACRIFICIAL METAL BECAUSE OF GRAPHITE CORROSIVE AGENT. TO ELIMINATE NEED FOR PERIODIC REPACKING, ON A RECENT MAINTENANCE SHUTDOWN WE REPLACED THE PACKING WITH A NEW DESIGN THAT HAS THE SAME ANTICORROSION CAPABILITIES YET DOES NOT NEED A SACRIFICIAL RING. ***WE REQUEST YOU DELAY ACTION ON THIS CHANGE UNTIL WE NOTIFY YOU THIS PACKING HAS AN ACCEPTABLE SERVICE HISTORY.

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

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30244 *CONTINUED*

FAILURE, COMPONENT + HADDAM NECK (PWR) + *TEST INTERVAL + *CONTAINMENT PENETRATION, PIPE + REACTOR, PWR + *SEAL + TECHNICAL SPECIFICATIONS + *VALVE + CONTAINMENT ISOLATION

11-30290. ALSO IN CATEGORIES 12 AND 17
PROPOSED CHANGE 5 - ISOLATION VALVE CLOSURE TIME
U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER TO S.R. KNAPP, CYAP CO., MAY 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS WEEKLY TEST ON LINE FOR MOVEMENT OF STEAM LINE ISOLATION VALVE FOR 1.5 INCHES. TEN SEC CLOSURE TIME SHALL BE VERIFIED EACH SCRAM IF NOT DONE WITHIN LAST 3 MONTHS. MAX. INTERVAL IS 6 MONTHS. ***SAFETY EVALUATION REVIEWS VARIOUS ANALYSES ON LIMITING SECONDARY COOLANT INVENTORY, RELEASE, PRIMARY SYSTEM COOLDOWN REACTIVITY EFFECTS, AND SHUTDOWN MARGIN. SAFETY OF REACTOR WOULD NOT BE COMPROMISED BY FAILURE OF DEVICE TO LIMIT VALVE OPERATOR TRAVEL.

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

*RESPONSE TIME + REACTOR, PWR + CONTAINMENT PENETRATION, PIPE + TEST, SYSTEM OPERABILITY + *CONTAINMENT ISOLATION + TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + SLOW + ACCIDENT, STEAM LINE RUPTURE + VALVE + HADDAM NECK (PWR)

11-30296 ALSO IN CATEGORY 18
ADDITIONAL SAFETY FEATURES NEEDED
NORTH CAROLINA STATE UNIVERSITY

9 PAGES, DRL SAFETY EVALUATION OF NC STATE U, NCSU PULSTAR, SEPT. 6, 1968 DOCKET 50-297

CONTROL SYSTEM FOR CONTAINMENT AND VENTILATION NEED MINOR CHANGES TO MEET SINGLE FAILURE CRITERION. ADDED FEATURES NEEDED TO IDENTIFY POTENTIAL LEAKAGE FROM THE PRIMARY COOLANT LOOP MAIN PIPING AND COOLANT TANK WHICH ARE BURIED UNDERGROUND. ADDITIONAL ANALYTICAL EFFORT NEEDED TO JUSTIFY ABSENCE OF A HIGH TEMP. SCRAM FOR PROTECTIVE SYSTEM. ANALYSIS BY DRL SHOWS THAT EVEN IF ALL THE FUEL PINS CLADDING RUPTURED, RESULTING DOSES WOULD BE AT LEAST A FACTOR OF 2 LESS THAN 10CFR100 GUIDELINES. ARGON-41 RELEASE COULD APPROACH LIMITS, SO LIMITING CONDITIONS ON USE OF BEAM TUBES WILL BE DEVELOPED.

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

FISSION PRODUCT RELEASE, GENERAL + LEAK + CONTAINMENT, LOW PRESSURE + VENTILATION SYSTEM + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + PIPING + MODIFICATION, SYSTEM OR EQUIPMENT + MAIN COOLING SYSTEM + *SAFETY EVALUATION + PULSTAR (RR) + ARGON + BEAM HOLE + INSTRUMENT, CONTROL + INSTRUMENT, SURVEILLANCE

11-30308 ALSO IN CATEGORY 17
CHANGE 79 - PH RANGE FROM 4.5 TO 10.5
U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER TO L.E. MINNICK, YAEC, MAY 2, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS PH OF COOLANT TO BE BETWEEN 4.5 AND 10.5, A CHANGE FROM 5.0-10.5 NECESSITATED BY CORE VI NEEDING 1700 PPM BORON MAX., INSTEAD OF PREVIOUS 1300 MAX. DRL CONCERNS OF INCREASED CORROSION RATE AND HYDROGEN EMBRITTLEMENT DISCUSSED. ***APRIL 68 IMPRESSIONS OF ERODED REACTOR VESSEL CLAD INDICATE CORROSION HAS NOT EXCEEDED 0.008 IN. PUBLISHED RATE REMAINS WITHIN BOUNDS UNTIL PH DECREASES TO 4.0. STEEL SPECIMENS EXPOSED AT SIMULATED YANKEE CONDITIONS SHOWED NO SIGNIFICANT HYDROGEN ABSORPTION.

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

STEEL + TECHNICAL SPECIFICATIONS + *EMBRITTLEMENT + PRESSURE VESSEL + REACTOR, PWR + *COOLANT CHEMISTRY + YANKEE (PWR) + TEST, PRESSURE VESSEL + STRUCTURAL INTEGRITY + SAFETY EVALUATION + PH REACTIVITY EFFECT + HYDROGEN + *CORROSION + OUT OF PILE LOOPS AND EXPERIMENTS

11-30316 ALSO IN CATEGORIES 12 AND 13
NUCLEAR SAFETY QUARTERLY REPORT. AUGUST, SEPTEMBER, OCTOBER, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-726 1. DECEMBER 1960, 49 FIGURES, 14 TABLES

REPORTING PERIOD COVERS WORK ON CONTAINMENT SYSTEMS, PARTICLE TRANSPORT TO SURFACES BY CONDENSING STEAM, CRACK DETECTION IN PRESSURE PIPING BY ACOUSTIC EMISSION, FIXATION OF RADIOACTIVE RESIDUES AND THE HEAVY-SECTION STEEL TECHNOLOGY PROGRAM.

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

WASTE TREATMENT, FIXATION + *REACTOR, GENERAL + GLASS + PIPING + CONTAINMENT, GENERAL + *FUEL REPROCESSING + FISSION PRODUCT TRANSPORT + *WASTE DISPOSAL, GENERAL + IRRADIATION TESTING

11-30323 ALSO IN CATEGORY 18
CONTAINMENT BUILDING TENDONS
METROPOLITAN EDISON COMPANY

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30323 *CONTINUED*
15 PAGES, FIGURES, TABLES, AMENDMENT 11 TO 3 MILE ISLAND CONST. PERMIT APPLICATION, JULY 1, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

PROVIDES INFORMATION ON THE USE OF 170-WIRE POST-TENSIONING TENDONS IN THE REACTOR CONTAINMENT BUILDING INSTEAD OF THE 90-WIRE TENDONS. AMENDMENT ALSO TRANSMITS REPLACEMENT SHEETS FOR PSAR (AN ATTACHMENT TO AEC QUESTION 7.11, AND A BINDER - VOL. 5 - FOR SUPPLEMENTS 3, 4, AND 5 CONTAINED IN VOL. 4). ATTACHMENT 1 TO QUESTION 7.11 IS TITLED - REPORT ON DESIGN AND TESTING OF END-ANCHORAGES FOR THE 170-WIRE BBRV SYSTEM.

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

REACTOR, PWR + SUPPORT STRUCTURE + CONTAINMENT DESIGN + REPORT, PSAR + *STEEL + STRUCTURAL INTEGRITY + TESTING + *CONCRETE, PRESTRESSED + CONTAINMENT STRUCTURE + *MODIFICATION, SYSTEM OR EQUIPMENT + AEC QUESTION + CONTAINMENT CONSTRUCTION + THREE MILE ISLAND 1 (PWR)

11-30350 ALSO IN CATEGORIES 5 AND 18
SUPPLEMENT 4 TO GINNA FSAR - REVISIONS TO PSAR
ROCHESTER GAS AND ELECTRIC CO.

50244-7 +. 100 PAGES, FIGURES, TABLES, AMENDMENT 10 TO GINNA LICENSE APPLICATION, OCT. 10, 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

SIGNIFICANT INFORMATION - REVISIONS TO SEISMIC CLASSIFICATION OF STRUCTURES, PRESSURE-VESSEL-CONSTRUCTION CRITERIA, CONTROL-ROD-DRIVE DESIGN, CONTAINMENT-TENDON SURVEILLANCE, MISSILE PROTECTION, CORE INJECTION SYSTEM, ENVIRONMENTAL PROTECTION, DECAY-HEAT GENERATION IN CHARCOAL FILTERS, COMMUNICATION SYSTEM, EMERGENCY POWER, DECONTAMINATION, SAFETY- FEATURE EVALUATION, RELEASE OF RADIOACTIVE LIQUIDS, CORE THERMAL ANALYSIS, SITE-BOUNDARY DOSES. NEW INFO ON LAKE DILUTION MIXING OF WASTES, NUCLEAR-DESIGN EVALUATION, PREOPERATIONAL TESTING.

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

WASTE MANAGEMENT + TEST, PREOPERATIONAL + CHARCOAL + DECAY HEAT + CONTAINMENT STRUCTURE + OFF SITE + DECONTAMINATION + SAFETY EVALUATION + THERMAL ANALYSIS + WASTE DISPOSAL, LIQUID + CONTROL ROD DRIVE + PRESSURE VESSEL + REACTOR, PWR + CONCRETE + MISSILE GENERATION AND PROTECTION + STEEL + RADIOACTIVITY RELEASE + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + SURVEILLANCE PROGRAM + GINNA (PWR) + FILTER + SUPPORT STRUCTURE + HAZARDS ANALYSIS + COMMUNICATION SYSTEM + DOSE + DESIGN CRITERIA + ENGINEERED SAFETY FEATURE + REPORT, PSAR

11-30398 ALSO IN CATEGORY 18

NEIDIG RE

SUPPLEMENT TO AMENDMENT 11 - CONTAINMENT BUILDING TENDONS

METROPOLITAN EDISON COMPANY

2 PAGES, LETTER TO P. A. MORRIS, USAEC, DRL, JULY 10, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

REQUESTS AMENDMENT TO CONSTRUCTION PERMIT CPPR-40 TO PROVIDE FOR USE OF 170-WIRE BBRV POST-TENSIONING TENDONS IN THE CONTAINMENT BUILDING TO REPLACE 90-WIRE TENDONS.

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

STRUCTURAL INTEGRITY + CONTAINMENT DESIGN + *SUPPORT STRUCTURE + *CONCRETE, PRESTRESSED + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PWR + *STEEL + CONTAINMENT CONSTRUCTION + CONTAINMENT STRUCTURE + THREE MILE ISLAND 1 (PWR)

11-30405 ALSO IN CATEGORY 14

HOLZWORTH ML + GIRDLER RM + COSTAS LP + RION WC

HOW TO PREVENT STRESS-CORROSION CRACKING OF RADIOACTIVE WASTE STORAGE TANKS

SAVANNAH RIVER LABORATORY

2 PAGES, MATER. PROTECT. 7, PAGES 36-8 (JANUARY 1968)

NITRATE STRESS CORROSION CRACKING CAUSED LEAKAGE OF SEVERAL ONE-MILLION-GALLON UNDERGROUND CARBON STEEL TANKS STORING RADIOACTIVE WASTE SOLUTIONS. TESTS SHOWED THAT THE LEAKS WERE CAUSED BY CLASSICAL STRESS CORROSION CRACKING AND WERE NOT RELATED TO THE RADIOACTIVITY OF THE WASTES. CORROSION TESTS ARE PRESENTED THAT SHOW THAT FULL STRESS RELIEF IS THE ONLY RELIABLE METHOD OF PREVENTING STRESS CORROSION IN UNDERGROUND CARBON-STEEL TANKS CONTAINING RADIOACTIVE WASTE SOLUTIONS.

*WELDS + *LEAK + TEST, LEAK LOCATION + *STORAGE CONTAINER + *WASTE STORAGE + SAVANNAH RIVER PLANT + *STRESS CORROSION

11-30406 ALSO IN CATEGORIES 5 AND 18

AEC QUESTIONS ON CALVERT CLIFFS 1 AND 2

U.S. ATOMIC ENERGY COMMISSION

25 PAGES, LETTER FROM AEC DRL TO BALTIMORE GAS AND ELECTRIC CO., SEPT. 16, 1968, DOCKETS 50-317-318

CONTAINS 132 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE DATA, CONTAINMENT STRUCTURE, EMERGENCY CORE COOLING, THERMAL-SHOCK EFFECT ON REACTOR COMPONENTS, AND FAILED FUEL DETECTION. (QUESTIONS ONLY - NO ANSWERS)

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30406 *CONTINUED*

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

THERMAL MECHANICAL EFFECT + CORE COMPONENTS + EMERGENCY COOLING CONSIDERATIONS + REACTOR, PWR + DESIGN CRITERIA + CONTAINMENT STRUCTURE + CONSTRUCTION PERMIT PROCESS + *AEC QUESTION + CALVERT CLIFFS 2 (PWR) + CALVERT CLIFFS 1 (PWR) + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

11-30410 ALSO IN CATEGORIES 12 AND 18

AEC QUESTIONS ON COOK 1 AND 2

U.S. ATOMIC ENERGY COMMISSION

11 PAGES, LETTER FROM AEC DRL TO INDIANA AND MICHIGAN ELECTRIC CO., AUGUST 26, 1968, DOCKET 50-315/316

CONTAINS 86 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE, INSTRUMENTATION, SAFETY FEATURES, CONTAINMENT, ACCIDENT ANALYSIS, AND OPERATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

COOK 1 (PWR) + CONTAINMENT DESIGN + ACCIDENT ANALYSIS + SITING, REACTOR + CONSTRUCTION PERMIT PROCESS + COOK 2 (PWR) + REACTOR, PWR + SYSTEM DESCRIPTION + *AEC QUESTION + ENGINEERED SAFETY FEATURE + INSTRUMENT, GENERAL

11-30411 ALSO IN CATEGORY 18

AEC QUESTIONS ON COOK 1 AND 2 REACTOR

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO INDIANA AND MICHIGAN ELECTRIC CO., SEPT. 10, 1968, DOCKET 50-315/316

CONTAINS 14 QUESTIONS REGARDING THE ICE-CONDENSER CONTAINMENT DESIGN WHICH ARE TO BE ANSWERED IN ORDER FOR DRL TO COMPLETE THE REVIEW OF APPLICATION FOR CONSTRUCTION PERMIT. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + COOK 2 (PWR) + *CONTAINMENT, ICE CONDENSER + COOK 1 (PWR) + *AEC QUESTION + *CONTAINMENT DESIGN + LICENSE STATUS

11-30412 ALSO IN CATEGORY 18

AEC QUESTIONS ON RANCHO SECO

U.S. ATOMIC ENERGY COMMISSION

18 PAGES, LETTER FROM AEC DRL TO SACRAMENTO MUNICIPAL UTILITIES DIST., APRIL 10, 1968, DOCKET 50-312, TYPE--PWR, MFG--B+W, AE--BECHTEL

CONTAINS 120 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN CONTAINMENT AND STRUCTURE DESIGN, STRESS LOADS ON CONTAINMENT, MATERIALS, CORROSION PROTECTION QUALITY ASSURANCE, TESTING, AND SURVEILLANCE SPECIFICATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + *AEC QUESTION + TESTING + MATERIAL + CONTAINMENT STRUCTURE + REACTOR, PWR + SURVEILLANCE PROGRAM + RANCHO SECO (PWR) + CONTAINMENT VESSEL LOADING + QUALITY ASSURANCE + SYSTEM DESCRIPTION + STRUCTURAL INTEGRITY

11-30415 ALSO IN CATEGORIES 2 AND 18

AEC QUESTION ON KEWAUNEE

U.S. ATOMIC ENERGY COMMISSION

14 PAGES, LETTER FROM AEC DRL TO WISCONSIN PUBLIC SERVICE CORP., MARCH 8, 1968, DOCKET 50-305, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

CONTAINS 98 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE, REACTOR, THERMAL SHOCK TO PIPING AND CORE COMPONENTS, PRESSURE-VESSEL CRITERIA, SEISMIC DESIGN, CONTAINMENT DESIGN, ENGINEERED SAFEGUARDS, INSTRUMENTATION, ELECTRICAL SYSTEMS, AND THE SAFETY ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + DESIGN CRITERIA + KEWAUNEE (PWR) + REACTOR DESCRIPTION + SAFETY ANALYSIS + PIPING + CORE COMPONENTS + ENGINEERED SAFETY FEATURE + MAIN COOLING SYSTEM + CONSTRUCTION PERMIT PROCESS + ELECTRIC POWER, GENERAL + PRESSURE VESSEL + *AEC QUESTION + THERMAL MECHANICAL EFFECT + SITING, REACTOR

11-30417 ALSO IN CATEGORIES 2 AND 18

AEC QUESTIONS ON BROWNS FERRY 3

U.S. ATOMIC ENERGY COMMISSION

10 PAGES, LETTER FROM AEC DRL TO TVA, JAN. 26, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

CONTAINS 59 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN EFFECTS OF TORNADOES AND EARTHQUAKES ON SECONDARY CONTAINMENT, SAFETY FEATURES FOR MISSILE PROTECTION, EMERGENCY ELECTRICAL SYSTEM, SHARED COMPONENTS, AND DESIGN CRITERIA.

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30417 *CONTINUED*
(QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE ENGINEERING + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *AEC QUESTION + CONSTRUCTION PERMIT PROCESS + CONTAINMENT DESIGN + BROWNS FERRY 3 (BWR) + EMERGENCY POWER, ELECTRIC + DESTRUCTIVE WIND + DESIGN CRITERIA + MISSILE GENERATION AND PROTECTION

11-30420 ALSO IN CATEGORIES 2 AND 18

AEC QUESTION ON FT. ST. VRAIN

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER FROM AEC DRL TO PUBLIC SERVICE CO. OF COLORADO, MARCH 14, 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS 9 QUESTIONS TO BE ANSWERED TO SUPPORT LICENSE APPLICATION AND A LIST OF 14 ITEMS TO BE DISCUSSED AT ACRS MEETING. QUESTIONS CONCERN PCRV THERMAL BARRIER, R AND D ON SAFETY ITEMS, COATINGS ON FUEL PARTICLES, DESIGN CRITERIA, AND CONSEQUENCES OF EARTHQUAKE. DISCUSSION ITEMS CONCERN PCRV, ACCIDENTS, CIRCULATORS, AND CONSTRUCTION. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE + ACRS + CONSTRUCTION PERMIT PROCESS + THERMAL SHIELD + REACTOR, HTGR + FUEL, PELLET TYPE + COATING + ACCIDENT, CONSEQUENCES + *AEC QUESTION + ENGINEERED SAFETY FEATURE + FT. ST. VRAIN (HTGR) + CONCRETE, PRESTRESSED + PRESSURE VESSEL + R AND D PROGRAM + COATED PARTICLE

11-30421 ALSO IN CATEGORY 18

AEC QUESTIONS ON FORT ST. VRAIN

U.S. ATOMIC ENERGY COMMISSION

1 PAGE, LETTER FROM AEC DRL TO PUBLIC SERVICE CO. OF COLORADO, FEB. 2, 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

REQUESTS ADDITIONAL INFORMATION TO ASSIST REVIEW OF LICENSE APPLICATION. (1) DISCUSS THE PROPOSED 70 AEC GENERAL DESIGN CRITERIA, (2) PROVIDE REASONS WHY ADDITIONAL TESTING OF PCRV IS NOT NEEDED, AND (3) ANALYZE CONSEQUENCES OF CONTAINMENT LINER COOLING SYSTEM TUBES FAILING AND WATER ENTERING PCRV CAVITY. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + PRESSURE VESSEL + FAILURE, PIPE + FT. ST. VRAIN (HTGR) + AEC DESIGN CRITERIA + *AEC QUESTION + CONTAINMENT LINER + ACCIDENT ANALYSIS + TESTING + AUXILIARY COOLING SYSTEM + REACTOR, HTGR + CONCRETE, PRESTRESSED

11-30423 ALSO IN CATEGORY 18

AEC QUESTION ON MILLSTONE POINT

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER FROM AEC DRL TO MILLSTONE POINT CO., JULY 17, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

CONTAINS 22 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN QUALITY CONTROL, OPERATIONS, AND CONTAINMENT VESSEL WELDING AND CRACKS. (QUESTIONS ONLY - NO ANSWERS.)

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

AEC QUESTION + QUALITY ASSURANCE + MILLSTONE POINT (BWR) + REACTOR, BWR + WELDING + FAILURE, FABRICATION ERROR + CONTAINMENT CONSTRUCTION + LICENSE STATUS

11-30429 ALSO IN CATEGORIES 2 AND 18

AEC QUESTIONS ON OYSTER CREEK 1

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER TO JERSEY CENTRAL P AND L CO., FROM AEC DRL, OCT. 16, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 30 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATIONS FOR OPERATING LICENSE. QUESTIONS CONCERN SEISMIC DESIGN, INSTRUMENTATION, CONTAINMENT, AND EMERGENCY PLANNING. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE ENGINEERING + OYSTER CREEK-1 (BWR) + REACTOR, BWR + CONTAINMENT DESIGN + DESIGN CRITERIA + *AEC QUESTION + EMERGENCY PROCEDURE + LICENSE STATUS + INSTRUMENT, CONTROL

11-30450 ALSO IN CATEGORY 18

AUTHORIZATION TO CALVERT CLIFFS 1 AND 2 TO PLACE CONCRETE AND TENDONS BEFORE PERMIT ISSUED

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO BALTIMORE GAS AND ELECTRIC CO., JAN. 10, 1969, DOCKETS 50-317-318

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30450 *CONTINUED*

EXEMPTION GRANTED SO SCHEDULE FOR COMMERCIAL OPERATION CAN BE MET, BUT IT IS EMPHASIZED THAT THE GRANTING OF EXEMPTION HAS NO EFFECT ON GRANTING OR DENIAL OF CONSTRUCTION PERMITS AND DOES NOT CONSTITUTE APPROVAL OF CONTAINMENT STRUCTURE.

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

*REGULATION, AEC + CALVERT CLIFFS 1 (PWR) + CONSTRUCTION PERMIT PROCESS + CONTAINMENT STRUCTURE + *FOUNDATION ENGINEERING + *CONTAINMENT CONSTRUCTION + CALVERT CLIFFS 2 (PWR) + *CONCRETE + REACTOR, PWR + CONCRETE, PRESTRESSED

11-30578 ALSO IN CATEGORIES 1 AND 7

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR SEPTEMBER-OCTOBER 1968

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2425 +. JANUARY 1969, 156 PAGES

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

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

11-30579 ALSO IN CATEGORIES 1 AND 7

COTTRELL WB

ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM BIMONTHLY REPORT FOR MAY-JUNE 1968

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2283 +. JULY 30, 1968, 170 PAGES

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

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

11-30589 ALSO IN CATEGORY 9

BILSBOROUGH R + OTALLAMHAIN C

MEANS FOR CONTROLLING THE FLOW OF HEAT THROUGH WALLS

NUCLEAR POWER PLANT CO., LTD, AEI-JOHN THOMPSON NUCLEAR ENERGY CO., LTD.

BRITISH PATENT 1,115,263 +. MAY 29, 1968

THE DESCRIPTION OF A THERMAL INSULATION SYSTEM FOR A BOILING REACTOR CONCRETE PRESSURE VESSEL IS PRESENTED. THE INSULATION SYSTEM CONSISTS OF A SOLID MATERIAL WITH SUBLAYERS AND PASSAGES FORMED BETWEEN THE INSULATION AND PRESSURE VESSEL WALL. WATER COOLANT IS FORCED THROUGH THE INSULATION PASSAGES TO COOL THE PRESSURE VESSEL WALL SURFACE.

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

*THERMAL INSULATION + *CONTAINMENT DESIGN + PATENT + SYSTEM DESCRIPTION + UNITED KINGDOM + INSTRUMENT, CONTROL

11-30609 ALSO IN CATEGORIES 12 AND 18

SEFOR FSAR VOL. I - REACTOR DESCRIPTION

GENERAL ELECTRIC CO.

200 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT VOL. 1, JULY 21, 1967,

DOCKET 50-231

CONTAINS SECTIONS ON SUMMARY DESCRIPTION, SITE, REACTOR, COOLANT SYSTEM, SHIELDING, CONTAINMENT,

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30609 *CONTINUED*

SAFEGUARDS WASTE CONTROL, AND INSTRUMENTATION. A 20-MWT SODIUM-COOLED FAST-BREEDER PU02-U23802 FUELED EXPERIMENTAL REACTOR TO GAIN EXPERIENCE WITH SUCH REACTORS AND PARTICULARLY THE DOPPLER COEFF. AND ITS EFFECT ON REACTOR RESPONSE. CONTROLLED BY 10 MOVABLE NICKEL REFLECTORS AND 18 FIXED B4C RODS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE BARRIER SURROUNDED BY WELDED A-2128 STEEL VESSEL. SODIUM INLET TEMP., 700 F, OUTLET TEMP., 820 F AT 5000 GPM. DELTA P IN MAIN LOOP, 31-PSI. PUMP DISCHARGE, 55 PSIG. SAFEGUARDS INCLUDE CONTAINMENT INERTING SAFETY VESSEL OF STEEL AROUND REACTOR VESSEL, 4 COOLANT SYSTEMS, AND CORE DISPERSION ASSEMBLY TO PREVENT CRITICAL MASS IF CORE AND VESSEL DISSASSEMBLE.

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

CONTAINMENT ATMOSPHERE, INERT + CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + REACTOR STABILITY + DOPPLER EFFECT + REPORT, SAR + ARGON + REACTOR, LMFBR + *DOPPLER COEFFICIENT + WASTE MANAGEMENT + PLUTONIUM DIOXIDE + *REACTOR DESCRIPTION + CORE COMPONENTS + *SEFOR (RE) + CONTAINMENT, MULTIPLE + SYSTEM DESCRIPTION + REACTOR, LMCR + MAIN COOLING SYSTEM + NITROGEN + R AND D PROGRAM + EXPERIMENT, GENERAL + SHIELDING + FUEL ELEMENT + SODIUM + SITING, REACTOR + PRESSURE VESSEL + INSTRUMENT, CONTROL

11-30610 ALSO IN CATEGORIES 2 AND 18

SUPPLEMENT 3 TO PSAR - ADDITIONAL INFORMATION TO AEC QUESTIONS IN SUPPLEMENT 1

NIAGARA MOHAWK POWER CORPORATION

24 PAGES, AMENDMENT 3 TO EASTON LICENSE APPLICATION (SUPPL. 3 TO PSAR), APRIL 16, 1968, DOCKET 50-300, TYPE--BWR, MFG--G.E., AE--STONE + WEBSTER

BRIEF INFORMATION CONCERNING MAXIMUM PROBABLE FLOOD, RESPONSE OF UPSTREAM DAMS, EARTHQUAKE ACCELERATION RESPONSE SPECTRA, AEC DESIGN CRITERION 35 ON BRITTLE FRACTURE OF REACTOR COOLANT PRESS. BOUNDARY, VESSEL STUB TUBES, RESIDUAL HEAT REMOVAL SYSTEM, TRITIUM, TORNADO EMERGENCY POWER, SAFETY SYSTEM, CLEANUP SYSTEM, AND SEISMIC ANALYSIS.

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

DESTRUCTIVE WIND + COOLING, SHUTDOWN + REPORT, PSAR + ACCELERATION + EARTHQUAKE + PRESSURE VESSEL + PIPING + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + FLOOD + TRITIUM + RESPONSE SPECTRUM + *AEC QUESTION + EASTON (BWR) + AEC DESIGN CRITERIA + BRITTLE FRACTURE + REACTOR, BWR + CONTROL ROD DRIVE + WELDING + REACTOR SAFETY SYSTEM + AUXILIARY COOLING SYSTEM

11-30637 ALSO IN CATEGORIES 2 AND 18
SEISMICITY ANALYSIS

WESTON GEOPHYSICAL RESEARCH, INC. WESTON, MASS.

50309-2 +. 77 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 3 TO MAINE YANKEE LICENSE APPLICATION, SEPT. 26, 1967, DOCKET 50-309, TYPE--PWR, MFG--G.E., AE--STONE + WEBSTER

EVALUATES PAST EARTHQUAKES WHICH HAVE BEEN RECORDED HISTORICALLY AND INSTRUMENTALLY, TO ESTABLISH THE MAXIMUM EARTHQUAKE EXPECTED AT SITE. FACTORS ARE DEPTH OF FOCUS OF EARTHQUAKE, ENERGY RELEASED, TYPE OF EARTH MATERIAL THROUGH WHICH THE SEISMIC WAVES ARE TRANSMITTED, AND GEOLOGICAL ENVIRONMENT. NEAREST EARTHQUAKE WAS IN BRUNSWICK AREA, JANUARY 20, 1881. PLACING EARTHQUAKE AT BRUNSWICK AND ATTENUATING IT TO SITE, RESULTS IN INTENSITY 6 OR A MAXIMUM GROUND ACCELERATION OF .07 TO .075 G. ESTIMATE OF MAXIMUM CREDIBLE EARTHQUAKE BY DOUBLING THE DESIGN ACCELERATION APPEARS TO BE VALID FOR THIS SITE. TSUNAMIS SHOULD HAVE NO MEASURABLE EFFECT ON THIS SITE.

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

EARTHQUAKE PREDICTION + REACTOR, PWR + EARTHQUAKE RECORDS + *SITE CRITERIA, EARTHQUAKE + EARTHQUAKE + EARTHQUAKE EPICENTER + MAINE YANKEE (PWR) + DESIGN CRITERIA + SITING, REACTOR + ANALYTICAL MODEL + *COMPARISON, THEORY AND EXPERIENCE

11-30640 ALSO IN CATEGORIES 5 AND 18
INTEGRITY ANALYSIS OF REACTOR VESSEL INTERNALS

JERSEY CENTRAL POWER AND LIGHT COMPANY

13 PAGES, 5 FIGURES, AMENDMENT 12 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

GIVES STRUCTURAL DESIGN CRITERIA, DESCRIPTION OF STRUCTURAL COMPONENTS, AND AN ANALYSIS OF EACH FOR RECIRCULATION-LINE AND STEAM-LINE BREAK. CONCLUDES THAT IN THE REAL WORLD THE PROBABILITY OF A SMALL BREAK IS MUCH GREATER THAN THE MAX. DESIGN BREAK AND THAT THE CORE STRUCTURAL ANALYSIS HAS CONSERVATISM PILED UPON CONSERVATISM, AND STILL THE STRUCTURE CAN BE SHOWN BY RATIONAL ANALYSIS TO WITHSTAND THE ACCIDENT CONDITIONS AND ACCIDENT LOADING. COMPONENTS ANALYZED - LOWER SHROUD AND SUPPORT CORE, UPPER SHROUD, CORE SUPPORT PLATE, GUIDE TUBES, AND FUEL CHANNELS.

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

SYSTEM CAPABILITY + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *STRUCTURAL ANALYSIS, DYNAMIC + RELIABILITY ANALYSIS + PRESSURE VESSEL + *STRUCTURAL INTEGRITY + *CORE COMPONENTS + OYSTER CREEK 1 (BWR) + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS + FUEL ELEMENT + STRESS ANALYSIS + DESIGN CRITERIA + SYSTEM OPERABILITY IN ACCIDENT + SUPPORT STRUCTURE + ACCIDENT ANALYSIS + RELIABILITY, COMPONENT

11-30641 ALSO IN CATEGORIES 12 AND 18
CORE SPRAY FINAL DESIGN - PERFORMANCE EVALUATION
JERSEY CENTRAL POWER AND LIGHT COMPANY

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30641 *CONTINUED*

7 PAGES, 4 FIGURES, AMENDMENT 30 TO OYSTER CREEK 1 LICENSE APPLICATION, DECEMBER 4, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

TO IMPROVE FLOW DISTRIBUTION OF CORE SPRAY SYSTEMS, A LOW VELOCITY SPRAY DISTRIBUTOR WAS ADDED TO CORE SPRAY TEST SECTION MOCKUP AND TEST RESULTS PROVED VERY FAVORABLE. THIS ARRANGEMENT ADOPTED AS FINAL DESIGN AND REPLACES THAT REPORTED IN AMEND. 10. SINCE THIS AFFECTS ONLY SPRAY DISTRIBUTION AND NOT OTHER PARAMETERS, PERFORMANCE EVALUATION PRESENTED IN AMENDMENT 10 REMAINS UNCHANGED.

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

*FLOW DISTRIBUTION + OYSTER CREEK 1 (BWR) + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR + ENGINEERED SAFETY FEATURE + CORE SPRAY

11-30642 ALSO IN CATEGORIES 9 AND 18

REACTOR VESSEL REPAIR - FINAL REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY

25 PAGES, FIGURES, TABLES, AMENDMENT 35 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 21, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DURING FIELD HYDROSTATIC TEST OF PRESSURE VESSEL A SMALL LEAK EMANATED FROM A AREA NEAR A CONTROL ROD DRIVE HOUSING. THE PRIMARY SYSTEM INCLUDING VESSEL WAS CHEMICALLY CLEANED AND PERSONNEL SENT INTO VESSEL TO INVESTIGATE THE SOURCE OF LEAK. DYE PENETRANT EXAMINATION REVEALED LEAK WAS RESULT OF WELDING FLAWS AND INCOMPLETE FUSION IN WELD MADE TO JOIN CONTROL ROD DRIVE HOUSING TO STUB TUBE. THIS REPORT CONTAINS RESULTS OF INVESTIGATIONS PERFORMED, SUMMARY OF BASIC DATA OBTAINED, CONCLUSIONS REACHED AND DESCRIPTION OF REPAIR PROGRAM ADOPTED TO RETURN VESSEL TO DESIGN CONDITION.

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

*CONTROL ROD DRIVE + FAULT + *SUPPORT STRUCTURE + *PRESSURE VESSEL + OYSTER CREEK 1 (BWR) + FAILURE, GENERAL + CONTAINMENT INTEGRITY + CONTAINMENT PENETRATION, GENERAL + REVIEW + *MAINTENANCE AND REPAIR + MAIN COOLING SYSTEM + FAILURE, FABRICATION ERROR + REACTOR, BWR + *WELDING + WELDS + FLAW + FAILURE, INSTALLATION ERROR

11-30643 ALSO IN CATEGORIES 2 AND 18

PRESSURE VESSEL DESIGN REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY

100 PAGES, FIGURES, TABLES, AMENDMENT 16 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 15, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DETAILED REPORT. GIVES DESIGN REQUIREMENTS, THOROUGH REPORT OF TENSILE TESTS OF THE SA302B STEEL SPECIMENS. GIVES REPRODUCTION OF THE VESSEL PURCHASE SPECIFICATION, 24 SEPARATE INSPECTION REPORTS FOR VESSEL AND COMPONENTS, EQUATIONS AND ANALYSIS OF THE ALLOWABLE STRESS LOADS WHICH MAY BE APPLIED TO PIPING, AND A REPORT INCLUDING ALL ASPECTS OF THE SEISMIC ANALYSIS OF THE VESSEL, INCLUDING RING SUPPORTS AND JET LOADS.

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

EARTHQUAKE ENGINEERING + COMPONENTS, MISCELLANEOUS + *CORE COMPONENTS + PIPING + *PRESSURE VESSEL + INFORMATION RETRIEVAL + STRESS ANALYSIS + *DESIGN CRITERIA + HYDRODYNAMIC ANALYSIS + EXAMINATION + MAIN COOLING SYSTEM + *DESIGN STUDY + OYSTER CREEK 1 (BWR) + SYSTEM DESCRIPTION + REACTOR, BWR + CODES AND STANDARDS + ADMINISTRATIVE CONTROL + CONTAINMENT VESSEL LOADING

11-30644 ALSO IN CATEGORIES 1 AND 18

VESSEL REPAIR - ADDITIONAL INFORMATION
JERSEY CENTRAL POWER AND LIGHT CO.

50 PAGES, FIGURES, TABLES, AMENDMENT 37 TO OYSTER CREEK 1 LICENSE APPLICATION, MAY 1, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

SEE ALSO AMEND. 35 (FINAL REPORT) AND AMEND. 36 (REPAIR PROCEDURES). CONCLUSIONS OF THIS AMEND. ARE - SAFETY EVALUATIONS COMPONENTS OR WELDS SHOW STUB TUBE FLAWS WOULD PROPAGATE TO OTHER VESSEL COMPONENTS. A COMPREHENSIVE TEST AND ANALYTICAL PROGRAM HAS BEEN UNDERTAKEN TO DETERMINE CAUSES OF DEFECTS. TO DATE A SPECIFIC FAILURE CAUSE HAS NOT BEEN IDENTIFIED. STRESS CALCULATIONS HAVE BEEN MADE TO EVALUATE ACCEPTABILITY OF PROPOSED REPAIRS FOR 40-YEAR LIFETIME OF PLANT. CONCLUSIVE CALCULATIONAL RESULTS SHOW DESIGN FULLY MEETS FATIGUE-LIFE CRITERIA AND ALLOWABLE STRESSES. REPAIR, IN-SERVICE INSPECTION, AND SELECTION OF MATERIALS WITH RESPECT TO BRITTLE FRACTURE PROTECTION -- ALL CONTRIBUTE TO ACCEPTABILITY OF VESSEL FOR LIFETIME OF PLANT.

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

*PRESSURE VESSEL + CONTAINMENT INTEGRITY + FLAW + WELDING + *MAINTENANCE AND REPAIR + CONTROL ROD DRIVE + WELDS + FAILURE, FABRICATION ERROR + OYSTER CREEK 1 (BWR) + BRITTLE FRACTURE + SAFETY ANALYSIS + CODES AND STANDARDS + REACTOR, BWR + FAULT + FAILURE, INSTALLATION ERROR + TESTING + SUPPORT STRUCTURE

11-30645 ALSO IN CATEGORIES 9 AND 18

PRESSURE VESSEL REPAIR PROCEDURES
JERSEY CENTRAL POWER AND LIGHT CO.

30 PAGES, AMENDMENT 36 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 27, 1968, DOCKET 50-219, TYPE--BWR, MFG--

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30645 *CONTINUED*
G.E., AE--BURNS + ROE

CONTAINS DETAILED PROCEDURES FOR REPAIRING THE FAULTY WELDS JOINING CONTROL-ROD-DRIVE HOUSING TO STUB TUBES (SEE AMEND. 35 FOR COMPLETE REPORT).

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

REACTOR, BWR + FAILURE, INSTALLATION ERROR + FAULT + *SUPPORT STRUCTURE + FAILURE, FABRICATION ERROR + OYSTER CREEK 1 (BWR) + *WELDS + CONTAINMENT INTEGRITY + *PROCEDURES AND MANUALS + FLAW + *PRESSURE VESSEL + *MAINTENANCE AND REPAIR + WELDING + *CONTROL ROD DRIVE

11-30646 ALSO IN CATEGORIES 1 AND 18
PLANT QUALITY ASSURANCE REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
20 PAGES, FIGURES, TABLES, AMENDMENT 27 TO OYSTER CREEK 1 LICENSE APPLICATION, DEC. 4, 1967, DOCKET 50-219,
TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DESCRIBES PROGRAM, SYSTEMS REQUIRING SPECIAL EMPHASIS, ORGANIZATION AND RESPONSIBILITIES, AND RECORD-KEEPING.

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

ADMINISTRATIVE CONTROL + *QUALITY ASSURANCE + CONTAINMENT CONSTRUCTION + INFORMATION RETRIEVAL + SAFETY PRINCIPLES AND PHILOSOPHY + ENGINEERED SAFETY FEATURE + CODES AND STANDARDS + CONTAINMENT DESIGN + REACTOR, BWR + OYSTER CREEK 1 (BWR)

11-30649 ALSO IN CATEGORIES 12 AND 18
STEAM ISOLATION VALVE - ANALYSIS OF OPERABILITY
JERSEY CENTRAL POWER AND LIGHT COMPANY
60 PAGES, FIGURES, TABLES, AMENDMENT 33 TO OYSTER CREEK 1 LICENSE APPLICATION, JANUARY 5, 1968, DOCKET 50-219,
TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONCERNS OPERABILITY OF MAIN STEAM LINE ISOLATION VALVES IN EVENT A MAIN STEAM LINE RUPTURES EXTERNAL TO THE DRYWELL. DOCUMENTS WORK COMPLETED, IN PROGRESS, AND PLANNED, INCLUDING ANALYSIS OF BLOWDOWN ACCIDENT, ANALYSIS OF VALVE CAPABILITY, ANALYSIS OF INTERNAL COMPONENT LOADING UNDER ACCIDENT CONDITIONS, RESULTS OF VALVE TESTS CONDUCTED TO DATE, AND PLANS FOR FURTHER TESTING AT SITE AND OFF SITE. A FINAL REPORT WILL INCLUDE RESULTS OF FULL SCALE MAIN STEAM ISOLATION VALVE TESTS.

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

COMPARISON, THEORY AND EXPERIENCE + REACTOR, BWR + ACCIDENT, STEAM LINE RUPTURE + RELIABILITY, COMPONENT + OYSTER CREEK 1 (BWR) + ON SITE WORK + SAFETY ANALYSIS + PRESSURE VESSEL + *RELIABILITY ANALYSIS + TESTING + OFF SITE + *VALVE + SYSTEM CAPABILITY + TEST, SYSTEM OPERABILITY + TEST, BENCH + BLOWDOWN + CORE COMPONENTS + *SYSTEM OPERABILITY IN ACCIDENT + *CONTAINMENT ISOLATION + ACCIDENT ANALYSIS + CONTAINMENT VESSEL LOADING

11-30651 ALSO IN CATEGORIES 7 AND 18
SUPPLEMENT 9 TO PSAR - CHARCOAL FILTER
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
6 PAGES, AMENDMENT 10 TO INDIAN POINT 3 LICENSE APPLICATION (SUPPL. 9 TO PSAR), DEC. 27, 1968, DOCKET 50-286,
TYPE--PWR, MFG--WEST., AE--UNITED ENGR.

CONTAINS DESCRIPTION OF R AND D PROGRAM FOR CHARCOAL-FILTER PERFORMANCE IN REMOVING METHYL IODIDE FROM CONTAINMENT ATMOSPHERE, PLUS REPLACEMENT PAGES FOR SUPPL. 7.

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

CONTAINMENT FILTERING SYSTEM + FISSION PRODUCT RETENTION + REACTOR, PWR + *R AND D PROGRAM + CHARCOAL + *FILTER + FISSION PRODUCT, IODINE + INDIAN POINT 3 (PWR) + *ORGANIC IODIDE + REPORT, PSAR

11-30740 ALSO IN CATEGORY 12
LARRICK AP + WEED RD
NUCLEAR REACTOR SYSTEMS - DECONTAMINATION
BATTELLE MEMORIAL INST., RICHLAND, WASHINGTON
4 PAGES, MATER. PROTECT. 7, PAGES 34-7 (APRIL 1968)

THE PROBLEM OF ALKALINE STRESS CORROSION CRACKING OF STEELS IN NUCLEAR REACTOR SYSTEMS WAS EXAMINED BY TESTS OF CRACKING OF PILOT PLANT LOOP EQUIPMENT AND STEEL TEST COUPONS. ALSO, COMPLETE IMMERSION AND RINSING EFFECTS ON CRACKING WERE STUDIED. IT WAS CONCLUDED THAT ALKALINE STRESS CORROSION CRACKING WOULD NOT RESULT FROM THE USE OF ALKALINE PERMANGANATE DECONTAMINATING SOLUTIONS UNLESS THE SYSTEM CONTAINS CREVICES OR LEAK AREAS WHICH CANNOT BE RINSED EFFECTIVELY.

*STRESS CORROSION + TESTING + METAL, ALKALI + TEST, DESTRUCTIVE + *STEEL + DECONTAMINATION + PIPING

11-30744 ALSO IN CATEGORY 9
WIJCKER H

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30744 *CONTINUED*
SOME SAFETY ASPECTS OF THE KSTR (KEMA SUSPENSION TEST REACTOR)
KEMA, ARNHEM, NETHERLANDS
28 PAGES, RCN (REACTOR CENT. NED.) MEDED., NO. 27, PAGES 53-70 (1968)

THE REACTIVITY OF THE REACTOR CAN BE REDUCED BY DUMPING OF SUSPENSION OR SUSPENDED PARTICLES IN A DUMP VESSEL AND BY THE NEGATIVE TEMPERATURE COEFFICIENT OF THE SYSTEM. CONNECTIONS IN THE REACTOR VESSEL AND ITS PIPES ARE MADE BY FLANGES, WHICH ARE SURROUNDED BY A CHAMBER FILLED WITH CLEAN WATER UNDER HIGH PRESSURE. VALUES OF AIR PRESSURE IN THE VESSEL COMPARTMENTS AND IN THE REACTOR BUILDING THAT MAY OCCUR UPON BREAKAGE OF THE REACTOR ARE ESTIMATED AND THEIR CONSEQUENCES FOR THE CONSTRUCTION OF THE STRUCTURES DISCUSSED.

REACTOR, TEST + REACTIVITY, NEGATIVE + NETHERLANDS + CONTAINMENT, PRESSURE RELIEF + CONTAINMENT, PRESSURE SUPPRESSION + *REACTOR SAFETY SYSTEM

11-30748 ALSO IN CATEGORY 9
ELIAS P + GOLDFUSS G
A PROTOTYPE PORTABLE PUMP AND OXIDE-CLEANUP SYSTEM FOR EBR-11 ROTATING SHIELD PLUG SEALS
ARGONNE NATIONAL LABORATORY
ANL-7379 +. 23 PAGES, 9 FIGURES, AUGUST 1967

INVESTIGATED THE OCCASIONAL STICKING OF TWO, MOTOR-DRIVEN, ROTATING SHIELD PLUGS PREPARATORY TO EXCHANGE OF FUEL AND OR SPECIAL SUBASSEMBLIES CONTAINING IRRADIATION-TEST SPECIMENS. POTENTIAL SOURCES OF STICKING - ACCUMULATIONS OF OXIDE MATERIAL IN THE BISMUTH-TIN ALLOY ROTARY FREEZE SEAL ON EACH PLUG. THIS REPORT DESCRIBES THE MEASURES USED TO REDUCE OXIDATION, MANUAL TECHNIQUES USED FOR BATCH-TYPE REMOVAL OF OXIDE MATERIAL, AND A PORTABLE PUMP AND CLEANUP SYSTEM DESIGNED TO EXPEDITE REMOVAL OF OXIDE MATERIAL.

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

PUMP + REACTOR, FAST + EBR 1 AND 2 (RE) + REACTOR, AEC OWNED + *SEAL + *OXIDATION + REACTOR, LMCR + REACTOR, TEST + DECONTAMINATION + SHIELDING + INSTRUMENT, TEMPERATURE

11-30890
SHEFFLER KD + STEIGERWALD
GENERATION OF LONG TIME CREEP DATA ON REFRACTORY ALLOYS AT ELEVATED TEMPERATURES
TRW EQUIPMENT LABORATORIES
NASA-CR-72433 +. 50 PAGES, FIGURES, TABLES, JULY 15, 1968

THE MOLYBDENUM-BASE ALLOYS TZC AND TZM, AND THE TANTALUM-BASE ALLOYS T-111, TA-10W, AND ASTAR 811C ARE BEING CREEP-TESTED AT TEMPERATURES OF 1600-2600 F (870 TO 1427 C) IN A VACUUM (LESS THAN 1×10^{-8} TORR). TEST PARAMETERS ARE GENERALLY CHOSEN TO PROVIDE EXTENSIONS OF 0.5 TO 1 IN TESTS AS LONG AS 15,000 HR.

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

*CREEP + TANTALUM + *REACTOR, POWER + *CREEP PROPERTY + TESTING + *REACTOR, GENERAL + *MOLTEN FUEL + MOLYBDENUM + *FUEL REPROCESSING + EXPERIMENT, GENERAL

11-30962 ALSO IN CATEGORIES 5 AND 17
KOBAYAKAWA T
HEAVY WATER LEAKAGE AND ITS COUNTER-MEASURES IN JRR-2
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
GENSHIRYOKU KOGYO, 12 (7), P27-32 +. JULY 1966 (IN JAPANESE)

A LEAKAGE OF HEAVY WATER INTO THE THERMAL-SHIELD WATER FROM THE JRR-2 REACTOR CORE OCCURRED. DISASSEMBLY OF THE UPPER PART OF THE REACTOR DISCLOSED THAT THE LEAKAGE HAD OCCURRED AT THE PACKING OF THE CIRCUMFERENCE OF THE SUPPORT RING FOR THE HEAVY-WATER CORE. LEAKAGE PREVENTION WAS ACHIEVED BY FILLING A PART OF THE SUPPORT RING WITH AN EPOXY BINDING AGENT. SINCE THE WORK HAD TO BE PERFORMED VERY CLOSE TO THE REACTOR CORE, ADEQUATE PROVISION WAS MADE FOR THE REQUIRED TOOLS AND PERSONNEL. THE HEAVY WATER LEAKAGE AND ITS COUNTERMEASURES ARE DESCRIBED.

OPERATING EXPERIENCE + MAINTENANCE AND REPAIR + JAPAN + THERMAL SHIELD + *HEAVY WATER + *LEAK

11-30967 ALSO IN CATEGORIES 5 AND 17
DUNCAN RN
STAINLESS STEEL FAILURE INVESTIGATION PROGRAM FINAL SUMMARY REPORT
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
GEAP-5530 +. FEBRUARY 1968, 74P., 41 REFERENCES, 31 FIGURES

HIGHLY STRESSED 304-SS AND OTHER AUSTENITIC ALLOYS FAILED FROM STRESS-ASSISTED INTERGRANULAR CORROSION EVEN WHEN THERE WERE NO CARBIDE PRECIPITATES IN THE GRAIN BOUNDARY. CORROSION TESTING IN LOOPS WITH GRAIN BOUNDARY MICROHARDNESS AND POLARIZATION REVEALED THAT FAILURE IS STRONGLY INFLUENCED BY C, SI, AND K IMPURITIES, RATHER THAN BY VARIATION IN CR/NI CONTENT. ANALYTICAL MODEL DEVELOPED. 304-SS CLAD CRACKS WERE FOUND WHERE LOCAL SURFACE STRAINS EXCEEDED 0.006 IN./IN. INVESTIGATION BEGAN AFTER BWR FUEL-CLAD FAILURES. YANKEE 348-SS CLAD IS ABOUT HALF AS SUSCEPTIBLE BECAUSE OF FINER GRAIN SIZE THAN 304. HYDROGEN EMBRITTLEMENT NEITHER CONFIRMED NOR

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-30967 *CONTINUED*

DENIED. DEPOSITED CRUD ON FUEL ELEMENTS CONTAINED 10 PPM CHLORIDE, EVEN WHEN COOLANT KEPT BELOW 0.1 PPM IN CHLORIDE CONTENT.

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

FAILURE, FUEL ELEMENT + *STEEL, STAINLESS + *SURFACE FILM DEPOSIT + RECONCENTRATION + HYDROGEN + STRESS + PERFORMANCE LIMIT + REACTOR, PWR + OUT OF PILE LOOPS AND EXPERIMENTS + ANALYTICAL MODEL + EMBRITTLEMENT + R AND D PROGRAM + *FAILURE, CLADDING + REPORT, OPERATIONS ANALYSIS + REACTOR, POWER + COOLANT CHEMISTRY + BODY CENTERED CUBIC CRYSTAL + *STRESS CORROSION + REACTOR, BWR + CHLORIDE

11-31246 ALSO IN CATEGORIES 5 AND 17

PICKETT AE

INVESTIGATION OF INTERGRANULAR CRACKING OF NONSENSITIZED AUSTENITIC STAINLESS STEELS IN CIRCULATING AUTOCLAVES

GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

GEAP-5495 +. JUNE 1967, 35 PAGES, 17 REFERENCES, 18 FIGURES

TESTS IN A 650 F FECL₂ DILUTE SOLUTION OF SUSCEPTIBILITY TO INTERGRANULAR STRESS CRACKING OF NONSENSITIZED 304-SS FUEL CLADDING SHOWED ATTACK MECHANISM CHANGED ABOVE 550 F. NO INFLUENCE OF OXYGEN OR RADIATION EXPOSURE TO 10,000 MW/TU. YANKEE 348-SS IS HALF AS SUSCEPTIBLE. HIGH NICKEL CONTENT INCREASES TIME TO FAILURE, WHILE HIGH SILICON HAS NO EFFECT. LOW PH, CHLORIDE IONS, AND HIGH STRESS PROMOTED CRACKING. ***REPORT DESCRIBES AUTOCLAVE STUDIES OF AISI AND EUROPEAN AUSTENITIC STEELS FOLLOWING CRACKING OF EARLY BWR STEEL CLADDING. SOLUTION WAS FOUND A GOOD ACCELERATED TEST.

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

*R AND D PROGRAM + COOLANT CHEMISTRY + *STRESS CORROSION + OUT OF PILE LOOPS AND EXPERIMENTS + FUEL ELEMENT + *STEEL, STAINLESS + *FAILURE, CLADDING + CHLORIDE + REACTOR, PWR + REACTOR, BWR

11-31247 ALSO IN CATEGORIES 5 AND 17

ARMJO JS

EFFECTS OF IMPURITY ADDITIONS ON THE INTERGRANULAR CORROSION OF HIGH PURITY FE-CR-NI AUSTENITIC ALLOYS

GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA

GEAP-5047 +. OCTOBER 1966, 16 PAGES, 9 FIGURES, 26 REFERENCES

DETERMINED THE EFFECTS OF ALLOYING ADDITIONS ON THE INTERGRANULAR CORROSION OF NONSENSITIZED AUSTENITIC ALLOYS IN BOILING NITRIC ACID-DICHROMATE SOLUTIONS. CONTROLLED ADDITIONS OF C, N, O, MN, S, SI, AND P TO A HIGH-PURITY 141 CR, 141 NI, BAL FE ALLOY AND SUBSEQUENT CORROSION TESTS IN BOILING 5N HNO₃-0.46N HEXAVALENT CR SOLUTIONS SHOW THAT ONLY SI AND P PROMOTE INTERGRANULAR CORROSION SUSCEPTIBILITY OF NONSENSITIZED ALLOYS. ELIMINATION OF SI AND P FROM AUSTENITIC ALLOYS OF OTHERWISE COMMERCIAL PURITY ELIMINATES SUSCEPTIBILITY TO INTERGRANULAR ATTACK.

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

OUT OF PILE LOOPS AND EXPERIMENTS + FAULT + *FAILURE, CLADDING + R AND D PROGRAM + STRESS CORROSION + *STEEL, STAINLESS + REACTOR, BWR + IMPURITY

11-31346

KRAMER D + GARR KR + PARD AG

HELIUM EMBRITTLEMENT OF A FERRITIC STAINLESS STEEL

ATOMICS INTERNATIONAL

AT-AEC-12763 +. 20 PAGES, 6 FIGURES, 3 TABLES, 6 REFERENCES, DECEMBER 31, 1968

HELIUM WAS INJECTED INTO SMALL TENSILE SAMPLES OF TYPE-405 STAINLESS STEEL BY ALPHA-PARTICLE IRRADIATION FROM A CYCLOTRON. SUBSEQUENT TENSILE TESTING AT 550, 650, AND 750 C REVEALED AN INCREASING LOSS OF DUCTILITY WITH TEMPERATURE, WHICH REACHED 55% AT 750 C. THE PRESENCE OF HELIUM CAUSED THE FAILURE MODE TO CHANGE FROM TRANS- TO INTERGRANULAR FAILURE. THE GRAIN-BOUNDARY CRACKS ORIGINATED AS SMALL VOIDS ADJACENT TO GRAIN-BOUNDARY CARBIDE PARTICLES. LARGE HELIUM BUBBLES, FOUND ATTACHED TO CARBIDE PARTICLES, ARE RESPONSIBLE FOR THE VOID FORMATION, PRESUMABLY THROUGH THE ACTION OF GRAIN-BOUNDARY SLIDING.

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

*REACTOR, GENERAL + *FAILURE, FATIGUE + *STEEL, STAINLESS + EQUIPMENT, GENERAL + *EMBRITTLEMENT + HELIUM + *EXPERIMENT, GENERAL + *FRACTURE TOUGHNESS

11-31351

CORUM JM + GOODPASTURE DW

DESIGN AND FEASIBILITY STUDY OF A LARGE-SCALE TEST SIMULATING THE TIME-DEPENDENT BEHAVIOR OF A PRESTRESSED CONCRETE REACTOR VESSEL

OAK RIDGE NATIONAL LAB., TENN.

ORNL-TM-2390 +. 88 PAGES, FIGURES, TABLES, 38 REFERENCES, FEBRUARY 1969

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-31351 *CONTINUED*

OVER THE 30-YEAR DESIGN LIFE OF A PRESTRESSED CONCRETE REACTOR VESSEL, THE EFFECTS OF THE THERMAL CONDITIONS IMPOSED ON THE STRUCTURE PRESENT A MAJOR UNCERTAINTY WITH REGARD TO PREDICTING LONG-TERM VESSEL BEHAVIOR. BASIC RESEARCH AND DEVELOPMENT PROGRAMS ARE UNDERWAY OR ARE BEING PLANNED TO PROVIDE THE NEEDED ANALYTICAL METHODS AND MATERIALS DATA. IT IS GENERALLY AGREED, HOWEVER, THAT ULTIMATELY THE VALIDITY OF THE ANALYTICAL METHODS AND MATERIALS DATA MUST BE DEMONSTRATED BY DESIGNING, ANALYZING, AND CAREFULLY TESTING A REALISTICALLY SIZED AND SHAPED STRUCTURE SUBJECTED TO CONDITIONS SIMILAR TO THOSE IN A ACTUAL VESSEL.

*CONCRETE, PRESTRESSED + *REACTOR, GENERAL + *FAILURE, GENERAL + CONTAINMENT DESIGN + *CONCRETE + DESIGN STUDY

11-32270 ALSO IN CATEGORY 12
ROSENBERG GS + NARASIMHAN KY + WAMBSGANSS MW
COOLANT-STRUCTURE COUPLING DURING A RAPID INSERTION OF ENERGY
ARGONNE NATIONAL LAB., ILL.
ANL-7502 +. 44 PAGES, 13 FIGURES, 1 TABLE, 12 REFERENCES, OCTOBER 1968

THIS REPORT PRESENTS THE RESULTS OF A SERIES OF PRELIMINARY STUDIES LEADING TO AN EVENTUAL ASSESSMENT OF THE INFLUENCE OF THE BOUNDING STRUCTURE ON THE RESULTS OF OUT-OF-PILE COOLANT-DYNAMICS INVESTIGATIONS, AND THE APPLICATION OF THE RESULTS OF THESE INVESTIGATIONS TO AN ACTUAL REACTORS. IT IS POSTULATED THAT THE BOUNDING STRUCTURE CAN COUPLE WITH THE COOLANT DYNAMICS AND, ACTING AS AN ENERGY-ABSORBING MECHANISM, MATERIALLY INFLUENCE THE CHARACTERISTICS AND PROPAGATION OF COOLANT TRANSIENTS FOLLOWING A DISTURBANCE. THE STUDIES PRESENTED DEMONSTRATE THIS COUPLING AND ITS DEPENDENCE ON STRUCTURAL FLEXIBILITY AND GEOMETRY.

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

*OUT OF PILE LOOPS AND EXPERIMENTS + *THEORETICAL INVESTIGATION + *REACTOR, GENERAL + *COOLANT QUALITY

11-32629 ALSO IN CATEGORIES 5 AND 17
EXAMINATION OF MELTED FERMI FUEL
POWER REACTOR DEVELOPMENT COMPANY
55 PAGES, FIGURES, TABLES, APPENDIXES B AND C OF REPORT ON THE FUEL MELTING INCIDENT, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

AN UNMELTED ELEMENT SHOWED ABOUT 200 PPM HYDROGEN IN CLAD (WELL BELOW 5000 SPALLING LEVEL), HIGH VALUES FROM A PARTICULAR MELT INGOT. OTHERWISE NORMAL. ANOTHER ELEMENT THERMOCOUPLE READING HIGHER THAN A MELTED ELEMENT, WAS ONLY BADLY BOWED. *** MOLTEN FUEL ADHERED TO STEEL CLAD BUT DID NOT PENETRATE. HYDROGEN CONTENT REACHED 4000 PPM WITHOUT CRACKING. ONLY XE-KR FOUND IN COVER GAS. CS, SR, I, BA-LA FOUND IN SODIUM COOLANT. WHILE THERE WAS A COMMON HOLE IN THE WRAPPER CANS BETWEEN MELTED ELEMENT, NO EVIDENCE OF INTERCHANGE OF FUEL. FLOW TESTS AND HEAT TRANSFER ANALYSIS SHOWED ABOUT 3(NOMINAL FLOW IN TWO MELTED ELEMENTS, 30 AND 7(FLOW IN DAMAGED ADJACENT ELEMENTS.

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

SODIUM + FISSION PRODUCT RETENTION + REACTOR, BREEDER + FERMI (LMFBR) + REPORT, OPERATIONS ANALYSIS + *HEAT TRANSFER ANALYSIS + STRUCTURAL INTEGRITY + REACTOR, FAST + FAILURE, FUEL ELEMENT + *EXAMINATION + REACTOR, LMCR + EMBRITTEMENT + *FUEL MELTDOWN + HYDRIDE + FLOW BLOCKAGE + ZIRCALOY + REACTOR, LMFBR

11-32644 ALSO IN CATEGORY 17
PROPOSED CHANGE 9 - STEAM ISOLATION VALVE TEST INTERVALS
CONNECTICUT YANKEE ATOMIC POWER COMPANY
3 PAGES, LETTER TO DRL, NOVEMBER 12, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CHANGE FROM WEEKLY TO MONTHLY TEST OF 1.5-IN. MOTION, WITH 10-SEC CLOSURE TIME TO BE VERIFIED DURING REFUELING. *** EARLY IN 1968, MATERIAL INCOMPATIBILITY BETWEEN PACKING AND VALVE STEM RESULTED IN CORROSION AND BINDING. NEW MATERIAL HAS BEEN PROVED BY WEEKLY STROKING. VALVES ARE IN AN EXPOSED ELEVATED SPOT, WORKERS ARE EXPOSED TO ELEMENTS 4 HR PER WEEK, AND WINTER IS COMING. *** 30 SATISFACTORY STROKING TESTS SHOWED NO ABNORMALITIES. TEN FULL CLOSURES OF LESS THAN 2.5 SEC HAVE RESULTED.

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

REACTOR, PWR + FAILURE, DESIGN ERROR + *CONTAINMENT ISOLATION + TECHNICAL SPECIFICATIONS + TEST, ON LINE + HADDAM NECK (PWR) + *VALVE + *RESPONSE TIME + CORROSION + *TEST INTERVAL

11-32646 ALSO IN CATEGORIES 5 AND 17
REPORT ON PRIMARY SYSTEM LEAKAGE DETECTION
PACIFIC GAS AND ELECTRIC COMPANY
10 PAGES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 3, LETTER OF MARCH 8, 1968). INACCESSIBLE PORTIONS DURING OPERATION VESSEL AND PIPING INSIDE DRYWELL, NO PUMPS OR VALVES THERE. LEAK DETECTION IS BASED ON A 50-GAL INCREASE IN 380-GAL DRYWELL LOWER HEAD SHIELDING WATER CAUSING ALARM. (BACKUP IS THE WET/DRY BULB TEMPERATURE TAKEN DAILY FROM CONTAINMENT LEAKAGE, SHOWN SENSITIVE TO 0.1 GPM BY JAN. 1966 LEAK). LEAK RATES GREATER THAN 4.7 GPM WILL FLOOD HEAD AREA AND CAUSE SHUTDOWN. LEAK RATES OUTSIDE DRYWELL DEPEND ON INSPECTION AND COUNTERS TO RECORD NUMBERS OF TIMES SUMP PUMPS START/STOP. 7000-

CATEGORY 11
CONTAINMENT OF NUCLEAR FACILITIES

11-32646 *CONTINUED*
GAL RECEIVER TANK CAN INDICATE 0.1 GPM IN LEAKAGE.

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

SURVEILLANCE PROGRAM + CONTAINMENT LEAK MONITOR + OPERATOR ACTION + REACTOR, BWR + LEAK RATE + HUMBOLDT BAY (BWR) + *MAIN COOLING SYSTEM + *TEST, LEAK LOCATION

11-32647 ALSO IN CATEGORIES 12 AND 17
REPORT ON PRIMARY SYSTEM AND EMERGENCY CORE COOLING SYSTEM INSPECTION AND TESTING PROGRAM
PACIFIC GAS AND ELECTRIC COMPANY
20 PAGES, 4 FIGURES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 4 - MARCH 8, 1968, LETTER.) PERIODIC HYDRO TEST AND VISUAL INSPECTION RELIED ON, VESSEL INSPECTION PROGRAM DESCRIBED. (1) OTHER REACTOR VESSEL INTERNAL PROBLEMS ARE FOLLOWED, MECHANICAL FASTENERS ARE INSPECTED. (2) THERMAL CYCLING PROBLEMS LOOKED FOR, A PREOPERATIONAL REVIEW ELIMINATED POTENTIAL CRACKING OF A MIXING TEE IN CONTROL-ROD-DRIVE WATER. (3) WE USED INCONEL CONTROL-ROD-DRIVE STUB TUBES, NO SPECIAL INSPECTION NEEDED. (4) HEAT-AFFECTED ZONES IN SS PRIMARY PIPING WERE CHECKED BY NDT IN OCT. 68, NO EVIDENCE OF PROBLEMS. *** ROUTINE TESTS OF CORE SPRAY SYSTEM DESCRIBED.

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

*MAIN COOLING SYSTEM + NOZZLE + INCONEL + *TEST, SYSTEM OPERABILITY + HUMBOLDT BAY (BWR) + REACTOR, BWR + TEST, NONDESTRUCTIVE + FASTENER + PRESSURE VESSEL + WELDING + FAILURE, EQUIPMENT + *EXAMINATION + CONTROL ROD DRIVE + *CORE SPRAY + EMERGENCY COOLING CONSIDERATIONS

11-32650 ALSO IN CATEGORIES 7 AND 12
ROW TH
SPRAY AND POOL ABSORPTION TECHNOLOGY PROGRAM
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4360 +. 32 PAGES, 21 FIGURES, 17 TABLES, REFERENCES, APRIL 1969

PRESENT PLANT DESIGNS INCLUDE CONTAINMENT BUILDING SPRAY SYSTEMS FOR PRESSURIZED-WATER REACTORS AND PRESSURE-SUPPRESSION POOLS FOR BOILING-WATER REACTORS. THIS PROGRAM WAS ESTABLISHED TO INVESTIGATE THE GAS-LIQUID SYSTEMS ASSOCIATED WITH THESE SAFEGUARDS CONCEPTS. THE INVESTIGATIONS INCLUDE A SEARCH FOR SOLUTIONS EXHIBITING A HIGH REMOVAL RATE FOR MOLECULAR AND ORGANIC IODINE. THE BEST SOLUTIONS FROM THIS SEARCH ARE USED IN SINGLE-DROP WIND-TUNNEL EXPERIMENTS TO DETERMINE THE REMOVAL CHARACTERISTICS MORE ACCURATELY. THE ADDITIVES MOST APPLICABLE TO INDUSTRIAL USES ARE THEN APPLIED IN ENGINEERING-SCALE TESTS IN ADDITION TO CORROSION AND THERMAL AND RADIATION STABILITY TESTS.

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

*FISSION PRODUCT, IODINE + EXPERIMENT, GENERAL + *FISSION PRODUCT, AIRBORNE + FISSIION PRODUCT RELEASE, GENERAL + IODINE + *CONTAINMENT SPRAY + NSPP + SPRAY, GENERAL + CORROSION + *ENGINEERED SAFETY FEATURE + PARTICLE, RADIOACTIVE + *REACTOR, POWER + *CONTAINMENT RESEARCH AND DEVELOPMENT

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-26643 ALSO IN CATEGORIES 5 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. V
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-5 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 5, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS A SECTION ON PLANT SAFETY ANALYSIS AND APPENDIX A - PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS. ANALYSES GIVEN FOR ABNORMAL OPERATIONAL TRANSIENTS CAUSED BY SINGLE EQUIPMENT FAILURES OR OPERATOR ERRORS AND ACCIDENTS. TABLES GIVEN SUMMARIZING CONSEQUENCES OF FAILURES AND ACCIDENTS. DESIGN BASIS ACCIDENTS INCLUDE CONTROL ROD DROP, LOSS OF COOLANT, REFUELING, AND MAIN STEAM LINE BREAK. MAIN STEAM LINE BREAK GIVES THE LARGEST OFF SITE DOSE - 11 REMS TO THYROID. APPENDIX DEFINES THE APPLICATION OF INDUSTRIAL CODES AND SPECIFICATIONS TO THE DESIGN, FABRICATION, INSPECTION, AND TESTING OF PIPING AND EQUIPMENT WHICH ARE WITHIN THE PRESSURE BOUNDARY.

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

PIPING + MAIN COOLING SYSTEM + ACCIDENT ANALYSIS + DUANE ARNOLD ENERGY CENTER (BWR) + ACCIDENT, LOSS OF COOLANT + DOSE + QUALITY ASSURANCE + HAZARDS ANALYSIS + OFF SITE + CODES AND STANDARDS + REACTOR, BWR + FAILURE, EQUIPMENT + ACCIDENT, STEAM LINE RUPTURE + REACTOR TRANSIENT + ACCIDENT, REFUELING + REPORT, PSAR + ENGINEERED SAFETY FEATURE + *SAFETY ANALYSIS + FAILURE, OPERATOR ERROR + ACCIDENT, CONTROL ROD DROP IN + *ACCIDENT, DESIGN BASE

12-27050 ALSO IN CATEGORIES 11 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. II
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-2 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. 2, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS ON REACTOR COOLANT SYSTEMS, CONTAINMENT, AND CORE STANDBY COOLING SYSTEMS. DESCRIBES VESSEL AND FITTINGS TO VESSEL FOR MAINTENANCE, PRESSURE RELIEF SYSTEM FOR NUCLEAR SYSTEM, VENTURI FLOW RESTRICTIONS FOR LOSS-OF-COOLANT ACCIDENT, ISOLATION VALVES, PRESSURE-SUPPRESSION CONTAINMENT AND CORE STANDBY COOLING SYSTEM WHICH PROVIDES CONTINUITY OF CORE COOLING OVER COMPLETE RANGE OF LINE-BREAK SIZES AND CONSISTS OF HIGH-PRESSURE COOLANT INJECTION-PRESSURE RELIEF VALVES TO DEPRESSURIZE REACTOR-CORE SPRAY AND LOW-PRESS. COOLANT INJECTION WHICH IS AN OPERATING MODE OF THE RESIDUAL HEAT REMOVAL SYSTEM.

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

ENGINEERED SAFETY FEATURE + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + *CORE SPRAY + CONTAINMENT, PRESSURE RELIEF + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *MAIN COOLING SYSTEM + REACTOR DESCRIPTION + DUANE ARNOLD ENERGY CENTER (BWR) + COOLING, SHUTDOWN

12-27090 ALSO IN CATEGORY 18
AEC DESIGN CRITERIA, QUESTIONS, R AND D, AND SAFETY FEATURES
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
175 PAGES, FIGURES, TABLES, REFERENCES, AMEND. 5 TO SALEM 1 AND 2 LICENSE APPLICATION, MAR. 14, 1968, DOCKET 50-272/311, TYPE--PWR, MFG--WEST., AE--PUBLIC SERVICE OF N.J.

AMEND. 5 ADDS VOL. 5 TO PSAR CONTAINING NEW INFORMATION ON (1) COMPARISON OF PLANT DESIGN WITH 70 AEC DESIGN CRITERIA, (2) ANSWERS TO 14 AEC QUESTIONS, (3) DISCUSSION OF R AND D PROGRAM SCHEDULE, AND (4) COMPARISON OF SAFETY FEATURES WITH DIABLO CANYON. MISCELLANEOUS REVISED PAGES TO PSAR ARE INCLUDED IN AMEND.

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

REACTOR, PWR + *AEC DESIGN CRITERIA + REPORT, PSAR + *ENGINEERED SAFETY FEATURE + AEC QUESTION + R AND D PROGRAM + COMPARISON, REACTOR CHARACTERISTICS + DIABLO CANYON 1 (PWR) + SALEM 1 (PWR) + SALEM 2 (PWR)

12-27493 ALSO IN CATEGORIES 9 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. III
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-3 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. III, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTION ON CONTROL AND INSTRUMENTATION. DESCRIBES THE SAFETY-RELATED INSTRUMENTATION SYSTEMS FOR THE REACTOR PROTECTION SYSTEMS, CONTAINMENT AND VESSEL ISOLATION CONTROL, CORE STANDBY COOLING, NEUTRON MONITORING, AND MAIN STEAM-LINE MONITORING SYSTEM. OPERATIONAL SYSTEM DISCUSSED INCLUDE REFUELING INTERLOCKS, REACTOR MANUAL CONTROL, REACTOR VESSEL INSTRUMENTATION, RECIRCULATION FLOW CONTROL, AND 8 OTHERS.

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

REACTOR, BWR + DUANE ARNOLD ENERGY CENTER (BWR) + REACTOR SAFETY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, PROTECTIVE + *INSTRUMENT, GENERAL + *INSTRUMENT, CONTROL

12-29008 ALSO IN CATEGORIES 7 AND 13
VOGEL RC + PROUDER + ROYAL J
CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT JULY-DECEMBER 1967
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-29008 *CONTINUED*
ANL-7425 +. 197 PAGES, FIGURES, TABLES, MAY 1968

REPORT INCLUDES WORK ON LABORATORY-SCALE INVESTIGATIONS AND ENGINEERING STUDIES OF PYROCHEMICAL AND VOLATILITY PROCESSES. ONE SECTION REVIEWS PROGRESS IN MATERIALS CHEMISTRY AND THERMODYNAMICS OF HIGH TEMPERATURE MATERIALS, CHEMISTRY OF IRRADIATED FAST REACTOR FUELS, PREPARATION OF CERAMIC FUELS, CHEMISTRY OF LIQUID METALS. THERMAL AND FAST REACTOR SAFETY STUDIES ARE SUMMARIZED.

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

*REACTOR, FAST + *REACTOR, GENERAL + *FUEL REPROCESSING + ACCIDENT, LOSS OF COOLANT + *REACTOR, THERMAL + CERAMICS + URANIUM + *EXPERIMENT, GENERAL + ACCIDENT, GENERAL + VOLATILITY PROCESS + PYROCHEMICAL + PLUTONIUM + SAFETY PROGRAM

12-29009 ALSO IN CATEGORY 13
LEGGETT RD + KEMPER RS
STATUS OF THORIUM FUEL TECHNOLOGY
BATTELLE NORTHWEST, PACIFIC NORTHWEST LABORATORY, BATTELLE BOULEVARD, RICHLAND, WASH.
BNWL-861 +. 172 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

THORIUM METAL POSSESSES ATTRACTIVE PROPERTIES FOR CONSIDERATION AS A FERTILE MATERIAL IN THE FUEL OF A NUCLEAR REACTOR. THE ISOTROPIC CRYSTAL STRUCTURE OF THORIUM (FCC BELOW 1400 C AND BCC ABOVE 1400 C) OBVIATES CONCERN OVER IRRADIATION GROWTH OR GROWTH INDUCED SWELLING, WHICH ARE IMPORTANT FACTORS TO CONSIDER WITH ANISOTROPIC FUELS SUCH AS URANIUM. THE HIGH MELTING POINT OF THORIUM (APPROXIMATELY 1750 C) IS ALSO AN ASSET. SUCH DESIRABLE FEATURES OF THORIUM, COUPLED WITH THE INCENTIVE TO UTILIZE THORIUM AS A MEANS OF EXTENDING OUR NUCLEAR ENERGY RESERVES, HAVE LED TO RESEARCH INVESTIGATIONS OF THE BASIC IRRADIATION EFFECTS ON THORIUM AND TO PROTOTYPICAL FUEL ELEMENT IRRADIATIONS.

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

*REACTOR, HWR + *PROPERTY, PHYSICAL + *THORIUM + TENSILE PROPERTY + *FABRICATION + THERMAL PROPERTY + *FUEL ELEMENT + EXPANSION + *ALLOY + *REACTOR, GENERAL

12-29310 ALSO IN CATEGORY 5
KARWAT H
A NONLINEAR MULTINODE TRANSIENT STUDY FOR A BOILING WATER REACTOR
TECHNISCHE HOCHSCHULE MUNCHEN, GERMANY
MRR-34 +. 40 PAGES, FIGURES, 3 REFERENCES, SEPTEMBER 1967

A MULTINODE TRANSIENT MODEL WAS DEVELOPED TO INVESTIGATE PRESSURE AND COOLANT FLOW EFFECTS ON THE INTERNAL STRUCTURE OF BOILING WATER REACTORS DURING INTERMEDIATE TRANSIENTS. THE MODEL CONSISTS OF 8 PRESSURE NODES WHICH DESCRIBE THE THERMOHYDRAULIC BEHAVIOUR OF THE PRIMARY COOLANT SYSTEM. APPLICATION OF MASS-, ENERGY-, AND MOMENTUM-CONSERVATION LAWS TO THESE NODES RESULTS IN A SYSTEM OF 40 DIFFERENTIAL EQUATIONS WHICH ARE SOLVED NUMERICALLY BY A DIGITAL COMPUTER. A SHORT DESCRIPTION OF THE PHYSICAL MODEL IS GIVEN.

THERMAL ANALYSIS + DYNAMICS, NONLINEAR + SYSTEM DESCRIPTION + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + ACCIDENT ANALYSIS + PRESSURE TRANSIENT + FLOW, TWO PHASE

12-29526 ALSO IN CATEGORIES 13 AND 14
NUCLEAR SAFETY QUARTERLY REPORT, NOV., DECEMBER, 1967, JANUARY, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC
DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY
BATTELLE NORTHWEST
BNWL-816 +. 148 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 1968

REPORT COVERS ENGINEERED SAFEGUARD STUDIES, MONITORING, STUDIES, FIXATION OF RADIOACTIVE RESIDUES, ENVIRONMENTAL STUDIES, AND HEAVY SECTION STEEL TECHNOLOGY PROGRAM. VARIOUS PROGRAMS COVERED ARE CONTAINMENT, AEROSOL CONTROL, CRACK DETECTION IN PRESSURE PIPING, DISPOSAL OF REACTOR OFF-GAS INTO SOIL, POT SOLIDIFICATION, PHOSPHATE GLASS SOLIDIFICATION, SPRAY SOLIDIFICATION, STORAGE, IRRADIATION EFFECTS ON PRESSURE VESSEL STEELS, AND STRESS IN STEEL SECTIONS.

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

WASTE TREATMENT, LIQUID + AEROSOL + *FUEL REPROCESSING + *REACTOR, GENERAL + CONTAINMENT, GENERAL + IRRADIATION TESTING + STEEL + GLASS + WASTE DISPOSAL, SOLID + *ENGINEERED SAFETY FEATURE + *WASTE TREATMENT, GENERAL + WASTE DISPOSAL, GAS + *EXPERIMENT, GENERAL + CALCINATION + PIPING

12-29539 ALSO IN CATEGORY 11
MARCHERTAS AH
STRESS ANALYSIS OF A REACTOR CORE SUPPORT STRUCTURE CONSISTING OF TWO INTERCONNECTED MULTIREGION PLATES
ARGONNE NATIONAL LABORATORY
ANL-7162(SUPPL.) +. 69 PAGES, 26 FIGURES, 1 TABLE, 3 REFERENCES, MARCH 1968

THE STRESS ANALYSIS OF A COUPLED AXISYMMETRIC TWO-PLATE CORE SUPPORT STRUCTURE HAS BEEN DESCRIBED IN THE FIRST PART OF ANL-7162. THE PRIMARY PURPOSE OF THIS PORTION IS THE PRESENTATION OF THE

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-29539 *CONTINUED*

CORRESPONDING COMPUTER PROGRAM. IN ADDITION, EXTRA ANALYTICAL DEVELOPMENTS WHICH HAD NOT BEEN INCLUDED IN THE FIRST PORTION ARE GIVEN IN THIS PART. THIS ADDITIONAL ANALYSIS MODIFIES, BUT IN NO WAY REPLACES, THE PREVIOUS PRESENTATION. SINCE THE ANALYSIS GIVEN IN THIS PRESENTATION IS A CONTINUATION OF THE PRECEDING WORK, THE SAME SEQUENCE OF EQUATIONS AND FIGURES IS CONTINUED. THE SAME NOMENCLATURE IS ALSO PRESERVED IN THIS PORTION OF THE REPORT. HOWEVER, NEW SYMBOLS ARE IDENTIFIED WHEREVER USED.

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

*REACTOR, GENERAL + *STRESS ANALYSIS + *SUPPORT STRUCTURE + *COMPUTER PROGRAM + *THEORETICAL INVESTIGATION

12-29764

HOPKINS GC

A NUMERICAL STUDY OF EXCURSIONS IN UHTREX LOADED WITH URANIUM-THORIUM FUEL ELEMENTS

LOS ALAMOS SCIENTIFIC LABORATORY, NEW MEXICO

LA-3959 +. 6 PAGES, 1 FIGURE, 7 TABLES, MAY 1968

A URANIUM-THORIUM LOADING HAS BEEN PROPOSED FOR THE ULTRA HIGH TEMPERATURE REACTOR EXPERIMENT (UHTREX). CALCULATIONS HAVE BEEN MADE FOR THIS LOADING FOR EXCURSIONS RESULTING FROM STEP REACTIVITY INPUTS OF 20 CENTS TO \$2.00. THORIUM RETARDS THE TRANSIENT SIGNIFICANTLY.

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

*FUEL ELEMENT + URANIUM + REACTOR, HTGR + DOPPLER EFFECT + *THEORETICAL INVESTIGATION + REACTOR, GCR + MODERATOR + GRAPHITE + THORIUM + REACTOR, AEC OWNED + *UHTREX (GCR)

12-29910 ALSO IN CATEGORIES 7 AND 13

BECK WN + FOUSEK RJ + KITTEL JH

THE IRRADIATION BEHAVIOR OF HIGH-BURNUP URANIUM-PLUTONIUM ALLOY PROTOTYPE FUEL ELEMENTS

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

ANL-7388 +. 47 PAGES, 26 FIGURES, 17 TABLES, 28 REFERENCES, MAY 1968

ALLOYS CONTAINING BOTH URANIUM AND PLUTONIUM ARE BEING DEVELOPED AS FUELS FOR FAST BREEDER REACTORS. THESE INVESTIGATIONS STUDIED VARIATIONS IN THE (1) PLUTONIUM CONCENTRATION IN THE FUEL PIN, (2) CLADDING WALL THICKNESS, (3) IRRADIATION TEMPERATURE, (4) VENTED PLENUMS, (5) TYPE OF CLADDING MATERIALS, AND (6) TYPE OF FUEL MATERIALS (SOLID FUEL, DISK-TYPE FUEL, AND SODIUM-IMPREGNATED POWDER FUEL). THE INVESTIGATIONS DETERMINED FISSION-GAS RELEASE FROM THE FUEL AS A FACTOR OF VOLUME EXPANSION, AND MAXIMUM ATTAINABLE FUEL BURNUPS.

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

URANIUM + *IRRADIATION TESTING + ZIRCONIUM + EXPERIMENT, GENERAL + ALLOY + *REACTOR, BREEDER + FISSION PRODUCT RETENTION + TITANIUM + EXPANSION + PLUTONIUM + *FABRICATION + *REACTOR, FAST + CLADDING + *FUEL ELEMENT

12-29950 ALSO IN CATEGORY 13

KITAZUME M + OGUSHI A

BUILD-UP FACTORS FOR GAMMA-RAY PENETRATION THROUGH MULTIPLE LAYERS OF REACTOR SHIELDING

ORNL-TR-1906 +. 26 PAGES, 1967

MULTIPLE-LAYER TRANSMISSION EXPERIMENTS WERE PERFORMED USING A PLANE 10-CI CO-60 SOURCE TO GIVE A MONODIRECTIONAL BEAM TO STUDY MEANS OF CALCULATING THE DOSE BUILDUP FACTORS NECESSARY FOR GAMMA-SHIELD DESIGN. THE ACCURACY OF THE EMPIRICAL EQUATIONS PROPOSED BY KALES, BRODER, AND KITAZUME WAS CHECKED. GENERALLY SPEAKING, THERE WAS POOR AGREEMENT BETWEEN THE RESULTS OBTAINED BY THE KALES AND BRODER EQUATIONS. WHEN CALCULATED VALUES FOR MONOLAYER BUILDUP FACTORS WERE TAKEN, THE KITAZUME EQUATION GAVE RESULTS 5-15% GREATER THAN THE EXPERIMENTALLY DERIVED VALUES. THE RESULTS OF THIS INVESTIGATION INDICATE THAT THE CALCULATION OF MULTI-LAYER BUILDUP FACTORS TO BE USED IN SHIELDING DESIGN IS BEST ACHIEVED BY COMBINING THE BRODER AND KITAZUME EQUATIONS, AND THE RESULTS SHOULD BE VALID WITHIN 15%.

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

COBALT + *REACTOR, GENERAL + *FUEL REPROCESSING + *SHIELDING + LEAD + JAPAN + WATER, GENERAL + STEEL + COMPARISON, THEORY AND EXPERIENCE + GAMMA + MATHEMATICAL TREATMENT + EXPERIMENT, GENERAL

12-30023 ALSO IN CATEGORIES 9 AND 18

MONTICELLO FINAL SAR VOL. II

NORTHERN STATES POWER COMPANY

50263-2+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS SECTIONS TITLED PLANT CONTAINMENT SYSTEMS, ENGINEERED SAFEGUARDS, PLANT INSTRUMENTATION AND CONTROL SYSTEMS, AND PLANT ELECTRICAL SYSTEMS. CONTAINMENT IS BY A PRESSURE-SUPPRESSION SYSTEM. SAFEGUARDS INCLUDE CORE SPRAY, RESIDUAL HEAT REMOVAL, HIGH-PRESSURE INJECTION, AN AUTOMATIC PRESSURE-RELIEF SYSTEM, FLOW RESTRICTION, CONTROL-ROD-VELOCITY LIMITERS AND DRIVE-HOUSING SUPPORTS, AND A STANDBY LIQUID CONTROL SYSTEM. INSTRUMENTATION SYSTEMS ARE DETAILED.

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30023 *CONTINUED*

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

MONTICELLO (BWR) + *SYSTEM DESCRIPTION + EMERGENCY POWER, ELECTRIC + ELECTRIC POWER, GENERAL + REPORT, SAR + ELECTRIC POWER, SHUTDOWN + *ENGINEERED SAFETY FEATURE + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + *INSTRUMENT, CONTROL

12-30113 ALSO IN CATEGORY 7

MCCLINTOCK DR
PERFORMANCE OF ZIRCALOY CLAD FUEL RODS IN SAXTON
WESTINGHOUSE ELECTRIC CORPORATION, PITTSBURGH, PA.
WCAP-3269-43 +. 53 PAGES, 28 FIGURES, 3 TABLES, 8 REFERENCES

SIX EXPERIMENTAL ASSEMBLIES CONTAINING ZIRCALOY-CLAD UO₂ FUEL RODS WERE IRRADIATED AS PART OF THE SAXTON REACTOR CORE TO PROOF TEST MATERIALS AND FABRICATION VARIABLES CONSIDERED FOR USE IN A LARGE PLANT CHEMICAL-SHIM ENVIRONMENT. DETAILED EXAMINATIONS WERE PERFORMED ON SELECTED FUEL RODS, INCLUDING INTENTIONALLY DAMAGED RODS, REPRESENTING PEAK BURNUPS TO 17,000 MWD/MTU AND INTEGRATED FAST FLUX EXPOSURE. RESULTS SHOWED SATISFACTORY PERFORMANCE IN ALL CASES. NO EFFECT OF THE BORATED ENVIRONMENT OR OF IN-PILE EXPOSURE ON THE CORROSION RATE AND ASSOCIATED HYDROGEN PICKUP OF THE ZIRCALOY CLADDING WAS DETERMINED.

AVAILABILITY - WESTINGHOUSE ELECTRIC CORPORATION, ATOMIC POWER DIVISIONS, P. O. BOX 355, PITTSBURGH, PA. 15230

URANIUM DIOXIDE + *FUEL ELEMENT + *IRRADIATION TESTING + CORROSION + ZIRCALOY + EXPERIMENT, GENERAL + *SAXTON (PWR) + CRUD + REACTOR, PWR + CLADDING

12-30128 ALSO IN CATEGORY 15

WRIGHT CN + HOY JE + SPLICHAL WF
SAVANNAH RIVER PLANT CRITICALITY DOSIMETRY SYSTEM
SAVANNAH RIVER LABORATORY, AIKEN, SOUTH CAROLINA
DP-1006 (REV. 1) +. SEPTEMBER 1968, 23 PAGES, 5 FIGURES, 4 TABLES

FISSIONABLE MATERIALS ARE HANDLED AND PROCESSED AT THE SAVANNAH RIVER PLANT. ALTHOUGH THE PROBABILITY OF AN ACCIDENTAL CRITICALITY OCCURRING IS SMALL, THE POSSIBILITY MUST BE CONSIDERED. THIS REPORT DESCRIBES THE METHODS WHICH WOULD BE USED TO SEGREGATE EXPOSED AND NONEXPOSED PERSONNEL AND TO DETERMINE NEUTRON AND GAMMA DOSES RECEIVED BY THOSE WHO WERE EXPOSED.

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

GAMMA + MEASUREMENT, REACTIVITY + *DOSE + *ACCIDENT, HYPOTHETICAL + *ACCIDENT, CRITICALITY + *DOSIMETRY, GENERAL + HAZARD, RELATIVE + NEUTRON + COMPUTER PROGRAM + *INSTRUMENT, GENERAL

12-30132 ALSO IN CATEGORIES 11 AND 18

PLANT SYSTEM DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 2, JANUARY 13, 1969, DOCKET 50-334

DESCRIBES AND GIVES DESIGN CRITERIA FOR COOLANT SYSTEM WITH APPENDIX ON NEUTRON FLUX AND NDT FOR VESSEL SAMPLES, CONTAINMENT, SAFEGUARDS, INSTRUMENTATION, AND ELECTRICAL SYSTEMS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE STRUCTURE, OPERATED SUBATMOSPHERICALLY AND DESIGNED FOR 45 PSIG AND 280 F FOR DBA. SAFEGUARDS INCLUDE SAFETY INJECTION, CONTAINMENT SPRAY, AND CONTAINMENT VACUUM SYSTEM.

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

*SYSTEM DESCRIPTION + REACTOR SAFETY SYSTEM + NDT DATA + *REACTOR DESCRIPTION + AEC DESIGN CRITERIA + NEUTRON + REACTOR, PWR + DESIGN CRITERIA + PRESSURE, SUBATMOSPHERIC + REPORT, PSAR + CONTAINMENT DESIGN + MAIN COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + PRESSURE VESSEL + RADIATION DAMAGE + ENGINEERED SAFETY FEATURE + INSTRUMENT, CONTROL

12-30243 ALSO IN CATEGORIES 10 AND 17

CITATION FOR UNSATISFACTORY DIESEL PERFORMANCE
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO S.R. KNAPP, CONN. YANKEE AT. POWER CO., DEC. 20, 1968 DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INSPECTION NOV. 14 AND DEC. 3, 1968, REVEALED THAT FAILURE OF AN ENGINEERED SAFEGUARD WAS NOT REPORTED TO THE AEC, AS REQUIRED BY THE LICENSE. DIESELS FAILED FOLLOWING AUTOMATIC STARTING AND LOADING DURING THE APRIL 27, 68, LOSS OF SITE POWER. IN ADDITION THE DIESELS OPERATED UNSATISFACTORYLY ON 3 OCCASIONS. TESTS PERFORMED SINCE DO NOT SIMULATE THE APRIL 68 CONDITIONS, AND THE REACTOR WAS RESTARTED APRIL 27 FOLLOWING THE DIESEL FAILURES WITHOUT THE DIESELS BEING TESTED AND WITHOUT ADEQUATE REVIEW OF THE SIGNIFICANCE OF THE DIESEL FAILURE. PLEASE PROVIDE US WITH A REPORT OF THE FAILURE OF THE DIESEL POWER SYSTEM ON APRIL 27.

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

FAILURE, ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + TEST, SYSTEM OPERABILITY +

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30243 *CONTINUED*
ACCIDENT, LOSS OF POWER + SURVEILLANCE PROGRAM + REACTOR, PWR + *INCIDENT, EQUIPMENT + *EMERGENCY POWER, ELECTRIC + GENERATOR, ENGINE

12-30249 ALSO IN CATEGORIES 5 AND 17
REPORT ON HADDAM NECK POWER UPGRATING
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
2 PAGES, LETTER TO G.T. SEABORG, AEC, DECEMBER 12, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ACRS APPROVES UPGRATING FROM 1473 TO 1825 MWTH. IN A YEAR WHEN THE NEXT CORE IS INSTALLED, NEW DIESELS AND IMPROVED EMERGENCY CORE COOLING WILL HAVE BEEN INSTALLED. AT THIS TIME, THE LOSS OF COOLANT ACCIDENTS SHOULD BE REANALYZED (BECAUSE OF CHANGED POWER DISTRIBUTION) AND REVIEWED BY REGULATORY STAFF.

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

EMERGENCY COOLING CONSIDERATIONS + TECHNICAL SPECIFICATIONS + HADDAM NECK (PWR) + REACTOR, PWR + POWER UPGRATING + SAFETY REVIEW + ACCIDENT, LOSS OF COOLANT + ACRS + MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE

12-30290 ALSO IN CATEGORIES 11 AND 17
PROPOSED CHANGE 5 - ISOLATION VALVE CLOSURE TIME
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER TO S.R. KNAPP, CYAP CO., MAY 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS WEEKLY TEST ON LINE FOR MOVEMENT OF STEAM LINE ISOLATION VALVE FOR 1.5 INCHES. TEN SEC CLOSURE TIME SHALL BE VERIFIED EACH SCRAM IF NOT DONE WITHIN LAST 3 MONTHS. MAX. INTERVAL IS 6 MONTHS. ***SAFETY EVALUATION REVIEWS VARIOUS ANALYSES ON LIMITING SECONDARY COOLANT INVENTORY, RELEASE, PRIMARY SYSTEM COOLODOWN REACTIVITY EFFECTS, AND SHUTDOWN MARGIN. SAFETY OF REACTOR WOULD NOT BE COMPROMISED BY FAILURE OF DEVICE TO LIMIT VALVE OPERATOR TRAVEL.

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

*RESPONSE TIME + REACTOR, PWR + CONTAINMENT PENETRATION, PIPE + TEST, SYSTEM OPERABILITY + *CONTAINMENT ISOLATION + TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + SLOW + ACCIDENT, STEAM LINE RUPTURE + VALVE + HADDAM NECK (PWR)

12-30311 ALSO IN CATEGORIES 17 AND 18
VALVE CLOSURE DELAY IN STEAM LINE RUPTURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
4 PAGES, AMENDMENT 18 TO LICENSE APPLICATION, FEBRUARY 1, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED SAR PAGES FOR OFF SITE DOSE EVALUATION BASED ON A 10 SEC DELAY OF VALVE CLOSURE AND 300 L STEAM FLOW. ****A MAXIMUM 1-131 CONTENT OF 9.7 CURIES COULD BE CONTAINED IN THE STEAM GENERATORS, AND IF ALL THIS WERE RELEASED, THE THYROID DOSE AT THE BOUNDARY WOULD BE 3 REMS. CALCULATED ACTUAL RELEASE WOULD GIVE 0.06 R. MAXIMUM REACTIVITY GAIN IS 1.01 (, 100 SEC AFTER THE BREAK. MINIMUM DNBR IS 1.65 AT 9.1 SEC AFTER BREAK.

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

*RESPONSE TIME + OFF SITE + HADDAM NECK (PWR) + REPORT, SAR + *CONTAINMENT ISOLATION + REACTOR, PWR + DOSE + *SAFETY ANALYSIS + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS

12-30316 ALSO IN CATEGORIES 11 AND 13
NUCLEAR SAFETY QUARTERLY REPORT. AUGUST, SEPTEMBER, OCTOBER, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC DIVISION
OF REACTOR DEVELOPMENT AND TECHNOLOGY
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-926 +. DECEMBER 1968, 49 FIGURES, 14 TABLES

REPORTING PERIOD COVERS WORK ON CONTAINMENT SYSTEMS, PARTICLE TRANSPORT TO SURFACES BY CONDENSING STEAM, CRACK DETECTION IN PRESSURE PIPING BY ACOUSTIC EMISSION, FIXATION OF RADIOACTIVE RESIDUES AND THE HEAVY-SECTION STEEL TECHNOLOGY PROGRAM.

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

WASTE TREATMENT, FIXATION + *REACTOR, GENERAL + GLASS + PIPING + CONTAINMENT, GENERAL + *FUEL REPROCESSING + FISSION PRODUCT TRANSPORT + *WASTE DISPOSAL, GENERAL + IRRADIATION TESTING

12-30410 ALSO IN CATEGORIES 11 AND 18
AEC QUESTIONS ON COOK 1 AND 2
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, LETTER FROM AEC DRL TO INDIANA AND MICHIGAN ELECTRIC CO., AUGUST 26, 1968, DOCKET 50-315/316

CONTAINS 86 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30410 *CONTINUED*

CONCERN SITE, INSTRUMENTATION, SAFETY FEATURES, CONTAINMENT, ACCIDENT ANALYSIS, AND OPERATIONS.
(QUESTIONS ONLY - NO ANSWERS.)

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

COOK 1 (PWR) + CONTAINMENT DESIGN + ACCIDENT ANALYSIS + SITING, REACTOR + CONSTRUCTION PERMIT PROCESS + COOK 2 (PWR) + REACTOR, PWR + SYSTEM DESCRIPTION + *AEC QUESTION + ENGINEERED SAFETY FEATURE + INSTRUMENT, GENERAL

12-30425 ALSO IN CATEGORIES 5 AND 18

AEC QUESTIONS ON DRESDEN 2 AND 3

U.S. ATOMIC ENERGY COMMISSION

14 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JUNE 27, 1968, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

CONTAINS A LIST OF 91 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN QUALITY CONTROL, CODES AND STANDARDS, ENGINEERED SAFETY FEATURES, THERMAL MARGINS IN CORE DESIGN, AND CONSEQUENCES OF EQUIPMENT MALFUNCTIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ENGINEERED SAFETY FEATURE + DRESDEN 2 (BWR) + ACCIDENT, CONSEQUENCES + DRESDEN 3 (BWR) + FUEL ELEMENT + DESIGN CRITERIA + *AEC QUESTION + REACTOR, BWR + SAFETY MARGIN + FAILURE, EQUIPMENT + THERMAL CONSIDERATION + CODES AND STANDARDS + QUALITY ASSURANCE

12-30609 ALSO IN CATEGORIES 11 AND 18

SEFOR FSAR VOL. I - REACTOR DESCRIPTION

GENERAL ELECTRIC CO.

200 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT VOL. 1, JULY 21, 1967, DOCKET 50-231

CONTAINS SECTIONS ON SUMMARY DESCRIPTION, SITE, REACTOR, COOLANT SYSTEM, SHIELDING, CONTAINMENT, SAFEGUARDS WASTE CONTROL, AND INSTRUMENTATION. A 20-MWT SODIUM-COOLED FAST-BREEDER PU02-U23802 FUELED EXPERIMENTAL REACTOR TO GAIN EXPERIENCE WITH SUCH REACTORS AND PARTICULARLY THE DOPPLER COEFF. AND ITS EFFECT ON REACTOR RESPONSE. CONTROLLED BY 10 MOVABLE NICKEL REFLECTORS AND 18 FIXED B4C RODS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE BARRIER SURROUNDED BY WELDED A-212B STEEL VESSEL. SODIUM INLET TEMP., 700 F, OUTLET TEMP., 820 F AT 5000 GPM. DELTA P IN MAIN LOOP, 31-PSI. PUMP DISCHARGE, 55 PSIG. SAFEGUARDS INCLUDE CONTAINMENT INERTING SAFETY VESSEL OF STEEL AROUND REACTOR VESSEL, 4 COOLANT SYSTEMS, AND CORE DISPERSION ASSEMBLY TO PREVENT CRITICAL MASS IF CORE AND VESSEL DISSASSEMBLE.

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

CONTAINMENT ATMOSPHERE, INERT + CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + REACTOR STABILITY + DOPPLER EFFECT + REPORT, SAR + ARGON + REACTOR, LMFBR + *DOPPLER COEFFICIENT + WASTE MANAGEMENT + PLUTONIUM DIOXIDE + *REACTOR DESCRIPTION + CORE COMPONENTS + *SEFOR (RE) + CONTAINMENT, MULTIPLE + SYSTEM DESCRIPTION + REACTOR, LMCB + MAIN COOLING SYSTEM + NITROGEN + R AND D PROGRAM + EXPERIMENT, GENERAL + SHIELDING + FUEL ELEMENT + SODIUM + SITING, REACTOR + PRESSURE VESSEL + INSTRUMENT, CONTROL

12-30631 ALSO IN CATEGORIES 5 AND 18

EFFECT OF N FROM ACCUMULATIONS ON CORE COOLING DURING LOCA

INDIANA AND MICHIGAN ELECTRIC COMPANY

50315-12 +. 25 PAGES, FIGURES, TABLES, AMENDMENT 8 TO COOK 1 AND 2 LICENSE APPLICATION, OCTOBER 23, 1968, DOCKETS 50-315/316

THE EFFECTS ON CORE COOLING OF NITROGEN GAS FROM THE EXHAUSTED ACCUMULATORS IS ASSESSED AND INCLUDES A SUMMARY OF ECCS DESIGN EXPECTATIONS, CALCULATIONS THAT DEMONSTRATE THAT THE LOCA DESIGN CRITERIA ARE SATISFIED, EVEN UNDER A HYPOTHETICAL SITUATION WHEN THE ACCUMULATOR NITROGEN FORCES THE WATER FROM THE SYSTEM, AND RESULTS THAT INDICATE THAT THE PROBLEM IS NOT SIGNIFICANT. FINALLY, IT IS SHOWN THAT THE TOTAL CALCULATED METAL-WATER REACTION REMAINS WITHIN EARLIER EXPECTATIONS OF 0.11 EVEN FOR A HYPOTHETICAL WORST PERFORMANCE OF THE ACCUMULATOR NITROGEN.

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

ACCIDENT, CONSEQUENCES + *NITROGEN + ACCIDENT, LOSS OF COOLANT + *HAZARD, RELATIVE + METAL WATER REACTION + SAFETY ANALYSIS + *EMERGENCY COOLING CONSIDERATIONS + HAZARDS ANALYSIS + *FLOW BLOCKAGE + *HEAT TRANSFER

12-30641 ALSO IN CATEGORIES 11 AND 18

CORE SPRAY FINAL DESIGN - PERFORMANCE EVALUATION

JERSEY CENTRAL POWER AND LIGHT COMPANY

7 PAGES, 4 FIGURES, AMENDMENT 30 TO OYSTER CREEK 1 LICENSE APPLICATION, DECEMBER 4, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

TO IMPROVE FLOW DISTRIBUTION OF CORE SPRAY SYSTEMS, A LOW VELOCITY SPRAY DISTRIBUTOR WAS ADDED TO CORE SPRAY TEST SECTION MOCKUP AND TEST RESULTS PROVED VERY FAVORABLE. THIS ARRANGEMENT ADOPTED AS FINAL DESIGN AND REPLACES THAT REPORTED IN AMEND. 10. SINCE THIS AFFECTS ONLY SPRAY DISTRIBUTION AND NOT OTHER PARAMETERS, PERFORMANCE EVALUATION PRESENTED IN AMENDMENT 10 REMAINS UNCHANGED.

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30641 *CONTINUED*
AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, 1717 H ST., WASHINGTON, DC 20545 (\$0.25 CENTS/PAGE)

*FLOW DISTRIBUTION + OYSTER CREEK 1 (BWR) + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR + ENGINEERED SAFETY FEATURE + CORE SPRAY

12-30648 ALSO IN CATEGORIES 5 AND 18
EMERGENCY CORE COOLING EFFECTIVENESS
JERSEY CENTRAL POWER AND LIGHT COMPANY
50 PAGES, FIGURES, TABLES, AMENDMENT 10 TO OYSTER CREEK 1 LICENSE APPLICATION, AUGUST 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PERFORMANCE OF THE CORE SPRAY SYSTEM FOLLOWING POSTULATED LOSS OF COOLANT ACCIDENT IS DESCRIBED AS A FUNCTION OF BREAK SIZE INCLUDING CORE SPRAY DATA COLLECTED ON PROTOTYPE FUEL BUNDLE ASSEMBLIES OVER POWER RANGE OF INTEREST. CONCLUDES THAT CORE SPRAY IS AN EFFECTIVE MEANS OF TERMINATING THE CORE HEATUP TRANSIENT OVER THE COMPLETE SPECTRUM OF LOSS OF COOLANT ACCIDENTS UP TO THE COMPLETE RUPTURE OF THE MAIN RECIRCULATION LINE. PEAK CLAD TEMPS. ACROSS THE BREAK SPECTRUM FOR 1860 MWT OPERATION VARY FROM 1800 F FOR THE 6.22 FT2 DESIGN BREAK TO LESS THAN 1000 F FOR BREAKS BELOW .004 FT2. 1 OF FUEL RODS PERFORATED BASED ON END EOL BURNUP DISTRIBUTION ARE 201 FOR DESIGN BREAK AND NONE FOR BREAKS UNDER .025 FT2. SYSTEM BY ITSELF CAN EASILY PROTECT CORE FROM MELTING OVER THE BREAK SPECTRUM FROM 0.2 FT2 TO THE 6.22 FT2 DESIGN BREAK.

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

FUEL BURNUP + *CORE SPRAY + *EMERGENCY COOLING CONSIDERATIONS + FUEL MELTDOWN + *ACCIDENT, LOSS OF COOLANT + REACTOR, BWR + OYSTER CREEK 1 (BWR) + *SYSTEM CAPABILITY + FAILURE, PIPE + SYSTEM DESCRIPTION + TEMPERATURE TRANSIENT + CORE MELTDOWN + ENGINEERED SAFETY FEATURE + EMERGENCY SYSTEM

12-30649 ALSO IN CATEGORIES 11 AND 18
STEAM ISOLATION VALVE - ANALYSIS OF OPERABILITY
JERSEY CENTRAL POWER AND LIGHT COMPANY
60 PAGES, FIGURES, TABLES, AMENDMENT 33 TO OYSTER CREEK 1 LICENSE APPLICATION, JANUARY 5, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONCERNS OPERABILITY OF MAIN STEAM LINE ISOLATION VALVES IN EVENT A MAIN STEAM LINE RUPTURES EXTERNAL TO THE DRYWELL. DOCUMENTS WORK COMPLETED, IN PROGRESS, AND PLANNED, INCLUDING ANALYSIS OF BLOWDOWN ACCIDENT, ANALYSIS OF VALVE CAPABILITY, ANALYSIS OF INTERNAL COMPONENT LOADING UNDER ACCIDENT CONDITIONS, RESULTS OF VALVE TESTS CONDUCTED TO DATE, AND PLANS FOR FURTHER TESTING AT SITE AND OFF SITE. A FINAL REPORT WILL INCLUDE RESULTS OF FULL SCALE MAIN STEAM ISOLATION VALVE TESTS.

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

COMPARISON, THEORY AND EXPERIENCE + REACTOR, BWR + ACCIDENT, STEAM LINE RUPTURE + RELIABILITY, COMPONENT + OYSTER CREEK 1 (BWR) + ON SITE WORK + SAFETY ANALYSIS + PRESSURE VESSEL + *RELIABILITY ANALYSIS + TESTING + OFF SITE + *VALVE + SYSTEM CAPABILITY + TEST, SYSTEM OPERABILITY + TEST, BENCH + BLOWDOWN + CORE COMPONENTS + *SYSTEM OPERABILITY IN ACCIDENT + *CONTAINMENT ISOLATION + ACCIDENT ANALYSIS + CONTAINMENT VESSEL LOADING

12-30662
SAWTELLE GR
INSULATION OF THE FFTF CLOSED LOOP TUBES
BATTTELLE MEMORIAL INSTITUTE
BNWL-755 +. FIGURES, TABLES, 22 REFERENCES, NOVEMBER 1968

THE FFTF CLOSED-LOOP TUBES WILL OPERATE IN LIQUID SODIUM AT A TEMPERATURE UP TO 1400 F WITH A WALL TEMPERATURE DIFFERENCE OF 400 F. METHODS OF PROVIDING INSULATION TO REDUCE HEAT TRANSFER AND THERMAL STRESSES TO ACCEPTABLE LEVELS ARE EVALUATED. A TWIN-WALL TUBE WAS CHOSEN TO PROVIDE AN ANNULAR GAP, ISOLATED FROM THE SODIUM, FOR THE INSULATING MATERIALS, AND TO PROVIDE A GAS CIRCULATION CHANNEL FOR CONTROLLING THE THERMAL CONDUCTIVITY OF THE TUBE WALL.

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

*EQUIPMENT, GENERAL + *FFTF (TRI) + THERMAL INSULATION + *REACTOR, GENERAL + HEAT TRANSFER + SODIUM + IN PILE LOOP

12-30664 ALSO IN CATEGORY 13
WINEGARDNER WK
CONSIDERATIONS ON THE MEDIA FOR DECAY STORAGE OF FUEL ELEMENTS
BATTTELLE MEMORIAL INSTITUTE
BNWL-909 +. 34 PAGES, 23 REFERENCES, NOVEMBER 1968

PREPARED IN RESPONSE TO FFTF DIVISION REQUEST FOR INFORMATION AND RECOMMENDATIONS CONCERNING THE DECAY STORAGE OF IRRADIATED FUEL ELEMENTS. SUMMARIZES INFORMATION OF STORAGE TECHNIQUES. DISCUSSES INFORMATION RELATED TO FUEL CLADDING CORROSION PROBLEMS THAT MAY RESULT FROM DECAY STORAGE. CONTAINS RECOMMENDATIONS CONCERNING STORAGE MEDIA.

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

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-30664 *CONTINUED*

*FUEL STORAGE + REACTOR, FAST + REACTOR, LMCR + *FUEL REPROCESSING + FFTF (TR) + REACTOR, TEST + CORROSION +
*REACTOR, GENERAL

12-30666 ALSO IN CATEGORY 13

ARD PA + HECK EN + MCJILTON CH
SURVEY OF REACTOR FACILITIES FOR PRESSURE TUBE IRRADIATION
BATTELLE MEMORIAL INSTITUTE
BNWL-872 +. 48 PAGES, 15 FIGURES, 3 TABLES, NOVEMBER 1968

THIS SURVEY WAS MADE TO DETERMINE HOW WELL THE AVAILABLE REACTOR SPACE MET THE HEAVY WATER REACTOR
PROGRAM CRITERIA FOR FAST NEUTRON IRRADIATION OF A ZIRCONIUM-ALLOY PRESSURE TUBE AND TO DEFINE
THE REQUIREMENTS AND COSTS OF PROVIDING FACILITIES FOR THIS IRRADIATION.

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

*IRRADIATION FACILITY + *REACTOR, GENERAL + *REACTOR, HWR

12-30740 ALSO IN CATEGORY 11

LARRICK AP + WEED RD
NUCLEAR REACTOR SYSTEMS - DECONTAMINATION
BATTELLE MEMORIAL INST., RICHLAND, WASHINGTON
4 PAGES, MATER. PROTECT. 7, PAGES 34-7 (APRIL 1968)

THE PROBLEM OF ALKALINE STRESS CORROSION CRACKING OF STEELS IN NUCLEAR REACTOR SYSTEMS WAS
EXAMINED BY TESTS OF CRACKING OF PILOT PLANT LOOP EQUIPMENT AND STEEL TEST COUPONS. ALSO,
COMPLETE IMMERSION AND RINSING EFFECTS ON CRACKING WERE STUDIED. IT WAS CONCLUDED THAT ALKALINE
STRESS CORROSION CRACKING WOULD NOT RESULT FROM THE USE OF ALKALINE PERMANGANATE DECONTAMINATING
SOLUTIONS UNLESS THE SYSTEM CONTAINS CREVICES OR LEAK AREAS WHICH CANNOT BE RINSED EFFECTIVELY.

*STRESS CORROSION + TESTING + METAL, ALKALI + TEST, DESTRUCTIVE + *STEEL + DECONTAMINATION + PIPING

12-30758 ALSO IN CATEGORY 7

NORMAN JH + WINCHELL P + DIXON JM + ROOS BW + KORTS RF
SPHERES - DIFFUSION-CONTROLLED FISSION PRODUCT RELEASE AND ABSORPTION
GULF GENERAL ATOMIC, INC.
GA-8582 +. JUNE 10, 1968, 20P.

IN A FALLOUT PROGRAM, THESE EFFORTS HAVE LED TO ALTERING THE MATHEMATICS OF DIFFUSION FOR SIMPLE
BOUNDARY CONDITIONS TO FORM THE BASIS FOR (1) AN EXPERIMENTAL METHOD OF DETERMINING DIFFUSION
COEFFICIENTS OF VOLATILE SOLUTES AND (2) A CALCULATIONAL METHOD FOR ESTIMATING DIFFUSION PROFILES
FOR TIME-DEPENDENT SOURCES AND TIME-DEPENDENT DIFFUSION COEFFICIENTS. THE LATTER METHOD HAS BEEN
EXPANDED INTO A CALCULATIONAL SYSTEM FOR ESTIMATING THE DISTRIBUTION OF FISSION PRODUCTS IN
FALLOUT. IN A FISSION-PRODUCT RELEASE PROGRAM, A NUMERICAL CALCULATIONAL MODEL CAPABLE OF
HANDLING DIFFUSION IN A MULTICOATED SPHERICAL PARTICLE HAS BEEN PROGRAMMED AND A PARAMETRIC STUDY
BASED ON THE PROPERTIES OF THE COATING AND THE KERNEL HAS RESULTED IN AN UNDERSTANDING OF THE
RELEASE BEHAVIOR OF SUCH PARTICLES.

FUEL ELEMENT + *THEORETICAL INVESTIGATION + *REACTOR, GENERAL + DIFFUSION + *COATED PARTICLE + SPHERE +
*FISSION PRODUCT RELEASE, GENERAL + PARTICLE, RADIOACTIVE

12-31333 ALSO IN CATEGORY 13

NISLE RG
RECENT RESEARCH ON THORIUM AT THE MATERIALS TESTING REACTOR
IDAHO NUCLEAR CORP., IDAHO FALLS
IN-1254 +. 45 PAGES, FIGURES, TABLES, 26 REFERENCES, SEPTEMBER 1968

THE CONCEPT OF A COMPOSITE EQUILIBRIUM, ANALOGOUS TO THE TRANSIENT EQUILIBRIUM OF EVANS IS
DEVELOPED AND SHOWN TO BE USEFUL FOR CONTINUOUS IRRADIATIONS. THE SENSITIVITY OF ITS VALUE TO
CYCLED IRRADIATIONS AND ITS LIMITATIONS UNDER CONDITIONS OF RANDOMLY INTERRUPTED IRRADIATIONS ARE
POINTED OUT. PROBLEMS OF FLUX LEVEL AND SPECTRUM MEASUREMENT DURING IRRADIATION ARE DISCUSSED,
AND AREAS WHERE IMPROVEMENTS ARE NEEDED ARE INDICATED. A SIZEABLE PORTION OF THE EFFORT WAS
DEVOTED TO THE DEVELOPMENT OF CALCULATIONAL TECHNIQUES FOR INTERPRETATION OF THE DATA.

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

IRRADIATION TESTING + THORIUM + *REACTOR, GENERAL + *FABRICATION + *FUEL ELEMENT + *EXPERIMENT, GENERAL

12-31410 ALSO IN CATEGORIES 7 AND 13

DAWSON FG
PLUTONIUM UTILIZATION PROGRAM - TECHNICAL ACTIVITIES QUARTERLY REPORT, SEPTEMBER, OCTOBER, NOVEMBER 1968
BATTELLE NORTHWEST, WASH.
BNWL-963 +. 40 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1969

EXAMINATION OF VIBRATIONALLY PACKED FUEL RODS IRRADIATED IN THE FERTF INDICATES THAT THE COLUMNAR

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-31410 *CONTINUED*

GRAIN GROWTH AND SINTERING FORMED DURING IRRADIATION ARE WITHIN APPROXIMATELY $\pm 5\%$ OF THE CALCULATED VALUES. THE PEAK BURNUP OF INTERNAL PRESSURE INSTRUMENTED VIBRATIONALLY COMPACTED UO₂-PUO₂ FUEL RODS IS 10,800 MWD/MTM. THESE EXPERIMENTS WILL BE SUPPLEMENTED BY THE IRRADIATION OF SIMILARLY INSTRUMENTED UO₂-PUO₂ PELLET-CONTAINING RODS IN PRTR.

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

*REACTOR, FAST + *FABRICATION + FUEL, PELLET TYPE + URANIUM DIOXIDE + *IRRADIATION TESTING + PLUTONIUM DIOXIDE + VIBRATORY COMPACTION + *FUEL ELEMENT

12-31411 ALSO IN CATEGORIES 13 AND 15

VALENTINE AM + MEYER DD + ROMERO WF
AIR MONITORING AND ITS EVOLUTAIION AT THE LASL PLUTONIUM FACILITY
LOS ALAMOS SCIENTIFIC LAB., CALIF.
LA-4076 +. 11 PAGES, 11 FIGURES, 5 REFERENCES, JANUARY 24, 1969

DISCUSSES A PROGRAM TO MONITOR AIRBORNE CONTAMINATION IN THE WORKING ENVIRONMENT OF A PLUTONIUM FACILITY. ONLY THOSE ASPECTS MOST CLOSELY ASSOCIATED WITH OPERATIONAL MONITORING ARE INCLUDED, AND, AS A RESULT, SEVERAL SIDE TOPICS IN THE REALM OF AIR MONITORING ARE NOT MENTIONED. TECHNIQUES, EQUIPMENT, RECORDS, AND POLICY ARE DISCUSSED, IN ADDITION TO AIR CONCENTRATION TRENDS, EQUIPMENT EVOLUTION, COST, MANPOWER REQUIREMENTS, AND INHERENT SHORTCOMINGS.

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

*PLUTONIUM + *REACTOR, GENERAL + *FABRICATION + *FUEL REPROCESSING + *FUEL ELEMENT + *RADIOISOTOPE + *MONITOR, AIR + *FUEL CONVERSION

12-31412 ALSO IN CATEGORIES 9 AND 13

MOLTEN-SALT REACTOR PROGRAM-SEMI-ANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 31, 1968
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4344 +. 333 PAGES, FIGURES, TABLES, FEBRUARY 1969

REPORT OF ACTIVITIES OF PROGRAM AT ORNL.

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

CORROSION + FISSION PRODUCT RELEASE, GENERAL + *MSRE (RE) + *FUEL REPROCESSING + DESIGN STUDY + MATERIAL + *IRRADIATION TESTING + REACTOR, AEC OWNED + INSTRUMENT, GENERAL + TESTING + *REACTOR, MOLTEN SALT + *EXPERIMENT, GENERAL + GRAPHITE + ALLOY

12-32270 ALSO IN CATEGORY 11

ROSENBERG GS + NARASIMHAN KY + WAMBSGANSS MW
COOLANT-STRUCTURE COUPLING DURING A RAPID INSERTION OF ENERGY
ARGONNE NATIONAL LAB., ILL.
ANL-7502 +. 44 PAGES, 13 FIGURES, 1 TABLE, 12 REFERENCES, OCTOBER 1968

THIS REPORT PRESENTS THE RESULTS OF A SERIES OF PRELIMINARY STUDIES LEADING TO AN EVENTUAL ASSESSMENT OF THE INFLUENCE OF THE BOUNDING STRUCTURE ON THE RESULTS OF OUT-OF-PILE COOLANT-DYNAMICS INVESTIGATIONS, AND THE APPLICATION OF THE RESULTS OF THESE INVESTIGATIONS TO AN ACTUAL REACTORS. IT IS POSTULATED THAT THE BOUNDING STRUCTURE CAN COUPLE WITH THE COOLANT DYNAMICS AND, ACTING AS AN ENERGY-ABSORBING MECHANISM, MATERIALLY INFLUENCE THE CHARACTERISTICS AND PROPAGATION OF COOLANT TRANSIENTS FOLLOWING A DISTURBANCE. THE STUDIES PRESENTED DEMONSTRATE THIS COUPLING AND ITS DEPENDENCE ON STRUCTURAL FLEXIBILITY AND GEOMETRY.

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

*OUT OF PILE LOOPS AND EXPERIMENTS + *THEORETICAL INVESTIGATION + *REACTOR, GENERAL + *COOLANT QUALITY

12-32303 ALSO IN CATEGORY 17

CONTAMINATION FOUND IN WASHED PIPE INTERIORS
CONSUMERS POWER COMPANY
10 PAGES, HALLAM MONTHLY RETIREMENT REPORT NO. 28, NOVEMBER 1968, DOCKET 115-3, TYPE--LMR, MFG--A.E., AE--BECHTEL

DEMOLITION BEGAN. A NOV. 1 COMPLIANCE SURVEY FOUND 1 MRAD/HR AT CONTACT INSIDE WASHED SCRAP PRIMARY PIPING THAT HAD BEEN SURVEYED AT THE ENDS OF THE CUT SEGMENTS. RADIATION LEVELS WERE TO BE MEASURED INSIDE THE PIPE, SO A SURVEY METER WAS MADE TO FIT ON A LONG POLE. PRIMARY 14.-IN. PIPING WAS FOUND TO READ 0.1 TO 1.8 MRAD/HR, HIGHEST AT WELDS NEAR TEES OR ELBOWS, ALSO AT SODIUM OXIDE DEPOSITS AT PIPE REDUCTIONS. PRIMARY PIPE WILL BE SEGREGATED AND REMONITORED BEFORE DISPOSAL.

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

REACTOR, LMR + *CONTAMINATION + DECOMMISSIONING + REACTOR, POWER + DECONTAMINATION + *PIPING + SODIUM +

ACCESSION NUMBER 12-31410 TO 12-32303

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-32303 *CONTINUED*
COMPLIANCE + HALLAM (LMR)

12-32310 ALSO IN CATEGORIES 14 AND 17
REQUEST FOR EXTENSION OF EXPIRATION DATE OF PROVISIONAL OPERATING LICENSE
U.S. ATOMIC ENERGY COMMISSION
7 PAGES, EXTENSION OF LICENSE REQUEST, MARCH 17, 1969, DOCKET 50-201

(LICENSE CSF-1.) EXTENSION TO OCT. 19, 1970, ON THE GROUNDS THAT ACTUAL OPERATING EXPERIENCE IS NEEDED WITH (1) HIGH-BURNUP FUELS AND FUELS CONTAINING MEASURABLE RADIOIODINE HAVE NOT BEEN PROCESSED. 22,000 MWD/T AV BURNUP FUEL WILL SOON BE PROCESSED. (2) LIQUID WASTE CAN BE CONFINED AT 10 TO 15(MPC. AEC REQUEST FOR STUDIES ON LOWERING DISCHARGE LEVELS MAY REQUIRE SUBSTANTIAL FACILITY CHANGES. ***DECOMMISSIONING COSTS ESTIMATED TO BE AT \$100,000 PER WEEK FOR 4-6 WEEKS.

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

R AND D PROGRAM + FUEL REPROCESSING + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + TECHNICAL SPECIFICATIONS + OPERATING EXPERIENCE SUMMARY + NFS + FISSION PRODUCT, IODINE + MODIFICATION, SYSTEM OR EQUIPMENT

12-32647 ALSO IN CATEGORIES 11 AND 17
REPORT ON PRIMARY SYSTEM AND EMERGENCY CORE COOLING SYSTEM INSPECTION AND TESTING PROGRAM
PACIFIC GAS AND ELECTRIC COMPANY
20 PAGES, 4 FIGURES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 4 - MARCH 8, 1968, LETTER.) PERIODIC HYDRO TEST AND VISUAL INSPECTION RELIED ON, VESSEL INSPECTION PROGRAM DESCRIBED. (1) OTHER REACTOR VESSEL INTERNAL PROBLEMS ARE FOLLOWED, MECHANICAL FASTENERS ARE INSPECTED. (2) THERMAL CYCLING PROBLEMS LOOKED FOR, A PREOPERATIONAL REVIEW ELIMINATED POTENTIAL CRACKING OF A MIXING TEE IN CONTROL-ROD-DRIVE WATER. (3) WE USED INCONEL CONTROL-ROD-DRIVE STUB TUBES, NO SPECIAL INSPECTION NEEDED. (4) HEAT-AFFECTED ZONES IN SS PRIMARY PIPING WERE CHECKED BY NDT IN OCT. 68, NO EVIDENCE OF PROBLEMS. *** ROUTINE TESTS OF CORE SPRAY SYSTEM DESCRIBED.

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

*MAIN COOLING SYSTEM + NOZZLE + INCONEL + *TEST, SYSTEM OPERABILITY + HUMBOLDT BAY (BWR) + REACTOR, BWR + TEST, NONDESTRUCTIVE + FASTENER + PRESSURE VESSEL + WELDING + FAILURE, EQUIPMENT + *EXAMINATION + CONTROL ROD DRIVE + *CORE SPRAY + EMERGENCY COOLING CONSIDERATIONS

12-32650 ALSO IN CATEGORIES 7 AND 11
ROW TH
SPRAY AND POOL ABSORPTION TECHNOLOGY, PROGRAM
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4360 +. 32 PAGES, 21 FIGURES, 17 TABLES, REFERENCES, APRIL 1969

PRESENT PLANT DESIGNS INCLUDE CONTAINMENT BUILDING SPRAY SYSTEMS FOR PRESSURIZED-WATER REACTORS AND PRESSURE-SUPPRESSION POOLS FOR BOILING-WATER REACTORS. THIS PROGRAM WAS ESTABLISHED TO INVESTIGATE THE GAS-LIQUID SYSTEMS ASSOCIATED WITH THESE SAFEGUARDS CONCEPTS. THE INVESTIGATIONS INCLUDE A SEARCH FOR SOLUTIONS EXHIBITING A HIGH REMOVAL RATE FOR MOLECULAR AND ORGANIC IODINE. THE BEST SOLUTIONS FROM THIS SEARCH ARE USED IN SINGLE-DROP WIND-TUNNEL EXPERIMENTS TO DETERMINE THE REMOVAL CHARACTERISTICS MORE ACCURATELY. THE ADDITIVES MOST APPLICABLE TO INDUSTRIAL USES ARE THEN APPLIED IN ENGINEERING-SCALE TESTS IN ADDITION TO CORROSION AND THERMAL AND RADIATION STABILITY TESTS.

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

*FISSION PRODUCT, IODINE + EXPERIMENT, GENERAL + *FISSION PRODUCT, AIRBORNE + FISSION PRODUCT RELEASE, GENERAL + IODINE + *CONTAINMENT SPRAY + NSPP + SPRAY, GENERAL + CORROSION + *ENGINEERED SAFETY FEATURE + PARTICLE, RADIOACTIVE + *REACTOR, POWER + *CONTAINMENT RESEARCH AND DEVELOPMENT

12-32654 ALSO IN CATEGORY 6
BROWN NJ + MCCAULEY FW
FAST REACTOR DESIGN ANALYSIS CODES
UNIVERSITY OF CALIFORNIA, LIVERMORE
UCRL-50429 +. 294 PAGES, FIGURES, TABLES, REFERENCES, JULY 3, 1968

PRESENTS A CONSISTENT METHOD OF NUCLEAR REACTOR DESIGN ANALYSIS USEFUL FOR SURVEY OR SPECIFIC PROGRAM REQUIREMENTS. THE METHOD EXEMPLIFIED TREATS THE ADVANCED, FAST SPECTRUM, URANIUM MONONITRIDE SYSTEMS ASSOCIATED WITH THE LAWRENCE RADIATION LABORATORY SPACE POWER PROGRAM. IN ADDITION TO DETAILING THE SPECIFIC TECHNIQUES USED TO COUPLE THE MECHANICAL-THERMAL/NEUTRONIC ANALYSIS, A COMPLETE CODE LISTING FOR BOTH CONVECTIVELY COOLED AND HEATPIPE REACTORS IS GIVEN. A 16-GROUP INTERIM CROSS SECTION LIBRARY, WEIGHTED FOR VARIOUS FAST SPECTRUM REACTORS, AS WELL AS A GENERALIZED THERMAL SPECTRUM SYSTEM, IS INCLUDED. THE SPECIFIC NEUTRONIC ANALYSIS USED IS A STRIPPED VERSION OF THE DTF-II TRANSPORT CODE TO WHICH ADDITIONAL S-SUB-N QUADRATURE SET USER INFORMATION HAS BEEN ADDED.

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

CATEGORY 12
PLANT SAFETY FEATURES - REACTOR

12-32654 *CONTINUED*
*REACTOR, FAST + DATA PROCESSING + *COMPUTER PROGRAM + REACTOR, SPACE + *DESIGN STUDY

12-32655 ALSO IN CATEGORIES 13 AND 18
HAGINOYA T
PRESENT STATUS OF RESEARCH AND DEVELOPMENT ON SAFEGUARDS TECHNIQUES
5 PAGES, NIPPON GENSIRYOKU GAKKAISHI, 10, PAGES 502-506 (SEPT. 1968) (IN JAPANESE)

THE DEVELOPMENT OF SAFEGUARDS TECHNIQUES INCREASES IN IMPORTANCE WITH THE WIDENING PRACTICAL APPLICATION OF NUCLEAR POWER GENERATION. THE MOST EFFECTIVE MANNER OF APPLYING SAFEGUARDS MEASURES IS TO COVER THE ENTIRE FUEL CYCLE, WITH INSPECTIONS CONDUCTED ON THE KEYPOINTS OF THE FUEL CYCLE. THE SUCCESS OF SUCH A PROCEDURE DEPENDS ON IMPROVEMENTS IN AVAILABLE SAFEGUARDS TECHNIQUE. DEVELOPMENTS IN THE DOMAIN MUST BE PURSUED ALONG TWO LINES - INSTRUMENTATION AND SYSTEMS. IN EVERY CASE, THE STRATEGIC POINT IS THE REPROCESSING PLANT AND NOT THE NUCLEAR REACTOR ITSELF.

SAFETY PRINCIPLES AND PHILOSOPHY + *R AND D PROGRAM + *FUEL REPROCESSING + *ENGINEERED SAFETY FEATURE + FUEL HANDLING

12-32855 ALSO IN CATEGORY 7
WHITE JF
PHYSICO-CHEMICAL STUDIES OF CLAD UO₂ IN POTENTIAL MELTDOWN ENVIRONMENTS
NUCLEAR SYSTEMS PROGRAMS, GENERAL ELECTRIC, CINCINNATI, OHIO
29 PAGES, FIGURES, TABLES, EXTRACTED FROM GEMP-1010, DECEMBER 31, 1968

THE OBJECTIVE OF THIS PROGRAM IS TO DETERMINE THE BEHAVIOR OF ZIRCALOY-CLAD UO₂ FUEL ELEMENTS IN STEAM AND IN STEAM-AIR MIXTURES 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.

*REACTOR; POWER + PROPERTY, PHYSICAL + STEAM + TESTING + *ZIRCALOY + *URANIUM DIOXIDE + *FAILURE, CLADDING + *CLADDING + EXPERIMENT, GENERAL

12-32859 ALSO IN CATEGORIES 7 AND 17
CUNNINGHAM GW + EVANS EA + HANSON JE
TRENDS IN IRRADIATED FUELS AND MATERIALS EXAMINATION
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-2274 + CONF-690305-1 +. 9 PAGES, JANUARY 6, 1969, FROM REMOTE HANDLING AND EXAMINATION IN THE FAST REACTOR FIELD MEETING, IDAHO FALLS, IDAHO

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 CONTINUALLY 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. THE LARGE NUMBERS OF SPECIMENS TO BE EXAMINED WILL MOST ASSUREDLY REQUIRE THE APPLICATION OF AUTOMATION AND ELECTRONIC DATA PROCESSING TO MINIMIZE COSTS AND TIME.

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

FUEL, PELLET TYPE + *FUEL ELEMENT + *EXAMINATION + *REACTOR, GENERAL + *IRRADIATION TESTING

12-32861 ALSO IN CATEGORIES 5 AND 13
BAUMANN W + CASAL V + HOFFMANN H + MOELLER R + RUST K
FUEL ELEMENTS WITH SPIRAL SPACERS FOR FAST BREEDER REACTORS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
EURFNR-571 + KFK-768 +. 107 PAGES, 46 FIGURES, APRIL 1968

SPIRAL SPACERS ARE PLANNED FOR FUEL ELEMENTS OF FAST BREEDERS WITH A SMALL COOLANT FRACTION. THESE CAN BE WIRES WOUND SPIRALLY AROUND THE FUEL ROD OR CAN BE FINNED CLADDING. TO DETERMINE THE INFLUENCES OF GEOMETRY AND CONFIGURATION, HEAT TRANSFER AND PRESSURE DROP, SURFACE ROUGHNESS, TRANSVERSE COOLANT MIXING, TEMPERATURE DISTRIBUTION AND STRENGTH CHARACTERISTICS IN THE CLADS, ON FUEL ELEMENT CHARACTERISTICS, THEORETICAL AND EXPERIMENTAL STUDIES WERE MADE OF MULTI-ROD CLUSTERS AND VARIOUS CONFIGURATIONS OF SPIRAL SPACERS. THE STUDIES ARE RECAPITULATED IN THE REPORT.

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

GERMANY + *EXPERIMENT, GENERAL + *REACTOR, BREEDER + *FABRICATION + TEMPERATURE GRADIENT + PRESSURE DROP + FUEL ELEMENT CLUSTER + HEAT TRANSFER EXPERIMENT + *REACTOR, FAST

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-29007

SHINN WA + STEINDLER MJ
LABORATORY INVESTIGATIONS IN SUPPORT OF FLUID-BED FLUORIDE VOLATILITY PROCESSES PART XVIII. NEUTRON COUNTING AS AN ANALYTICAL METHOD FOR PLUTONIUM FLUORIDES
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7402 +. 52 PAGES, FIGURES, TABLES, APRIL 1968

COUNTING OF NEUTRONS GENERATED IN PLUTONIUM FLUORIDES WAS INVESTIGATED AS A METHOD OF QUANTITATIVELY DETERMINING PLUTONIUM HEXAFLUORIDE AS WELL AS PLUTONIUM TETRAFLUORIDE ALONE OR MIXED WITH ALUMINA OR SODIUM FLUORIDE. THE PLUTONIUM FLUORIDES WERE OBTAINED BY PROCESSING SIMULATED, SPENT REACTOR FUELS BY THE FLUID-BED FLUORIDE-VOLATILITY PROCESS. PORTABLE NEUTRON DETECTORS, INCLUDING SEVERAL SCINTILLATORS AND A SMALL COUNTER USING A HE-3 TUBE, WERE ASSEMBLED AND TESTED FOR USE IN SURVEYING PROCESS EQUIPMENT. RESULTS OBTAINED WITH TWO CONFIGURATIONS OF THE HE-3 DETECTOR IN PARAFFIN-CADMIUM NEUTRON SHIELDS INDICATE THAT A MODERATELY DIRECTIONAL RESPONSE CAN BE OBTAINED WITH A PORTABLE NEUTRON DETECTOR.

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

NEUTRON + PLUTONIUM + *FUEL REPROCESSING + EXPERIMENT, GENERAL + *FLUORIDE + PLUTONIUM DIOXIDE + *VOLATILITY PROCESS + *COUNTER

13-29008

ALSO IN CATEGORIES 7 AND 12

VOGEL RC + PROUD ER + ROYAL J
CHEMICAL ENGINEERING DIVISION SEMIANNUAL REPORT JULY-DECEMBER 1967
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7425 +. 197 PAGES, FIGURES, TABLES, MAY 1968

REPORT INCLUDES WORK ON LABORATORY-SCALE INVESTIGATIONS AND ENGINEERING STUDIES OF PYROCHEMICAL AND VOLATILITY PROCESSES. ONE SECTION REVIEWS PROGRESS IN MATERIALS CHEMISTRY AND THERMODYNAMICS OF HIGH TEMPERATURE MATERIALS, CHEMISTRY OF IRRADIATED FAST REACTOR FUELS, PREPARATION OF CERAMIC FUELS, CHEMISTRY OF LIQUID METALS. THERMAL AND FAST REACTOR SAFETY STUDIES ARE SUMMARIZED.

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

*REACTOR, FAST + *REACTOR, GENERAL + *FUEL REPROCESSING + ACCIDENT, LOSS OF COOLANT + *REACTOR, THERMAL + CERAMICS + URANIUM + *EXPERIMENT, GENERAL + ACCIDENT, GENERAL + VOLATILITY PROCESS + PYROCHEMICAL + PLUTONIUM + SAFETY PROGRAM

13-29009

ALSO IN CATEGORY 12

LEGGETT RD + KEMPER RS
STATUS OF THORIUM FUEL TECHNOLOGY
BATTELLE NORTHWEST, PACIFIC NORTHWEST LABORATORY, BATTELLE BOULEVARD, RICHLAND, WASH.
BNWL-861 +. 172 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

THORIUM METAL POSSESSES ATTRACTIVE PROPERTIES FOR CONSIDERATION AS A FERTILE MATERIAL IN THE FUEL OF A NUCLEAR REACTOR. THE ISOTROPIC CRYSTAL STRUCTURE OF THORIUM (FCC BELOW 1400 C AND BCC ABOVE 1400 C) OBVIATES CONCERN OVER IRRADIATION GROWTH OR GROWTH INDUCED SWELLING, WHICH ARE IMPORTANT FACTORS TO CONSIDER WITH ANISOTROPIC FUELS SUCH AS URANIUM. THE HIGH MELTING POINT OF THORIUM (APPROXIMATELY 1750 C) IS ALSO AN ASSET. SUCH DESIRABLE FEATURES OF THORIUM, COUPLED WITH THE INCENTIVE TO UTILIZE THORIUM AS A MEANS OF EXTENDING OUR NUCLEAR ENERGY RESERVES, HAVE LED TO RESEARCH INVESTIGATIONS OF THE BASIC IRRADIATION EFFECTS ON THORIUM AND TO PROTOTYPICAL FUEL ELEMENT IRRADIATIONS.

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

*REACTOR, HWR + *PROPERTY, PHYSICAL + *THORIUM + TENSILE PROPERTY + *FABRICATION + THERMAL PROPERTY + *FUEL ELEMENT + EXPANSION + *ALLOY + *REACTOR, GENERAL

13-29030

ALSO IN CATEGORY 15

EDMONDS E + THOMAS IH
MOVABLE PERSONNEL SHIELD FOR ACCESS TO HOT CELLS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY (SCOTLAND)
TRG-REPORT-1720 +. 9 PAGES, 3 FIGURES, 4 REFERENCES, JUNE 21, 1968

WITH DEVELOPING EXPERIMENTAL TECHNIQUES AND CHANGING OBJECTIVES, ENTRY INTO HOT CELLS FROM TIME TO TIME IS HIGHLY DESIRABLE. EVEN AFTER EXTENDED REMOTE CLEANDOWN, RADIATION LEVELS IN HOT CELLS WORKING WITH HIGH SPECIFIC ACTIVITY MAY RESTRICT PERSONNEL ENTRY TO UNREASONABLY SHORT WORKING TIMES. A PARTICULAR SOLUTION TO THIS PROBLEM, USING A LEAD BOX TO SHIELD THE OPERATOR, HAS BEEN USED VERY SUCCESSFULLY ON MANY OCCASIONS. THE TECHNIQUE AND PROPOSED DEVELOPMENTS OF IT ARE DESCRIBED.

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

*LEAD + *HIGH RADIATION + *SHIELDING + *PERSONNEL PROTECTIVE DEVICE

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-29031 ALSO IN CATEGORY 15
SMITH JW + CLAYTON RF
PERSONNEL DOSIMETRY DURING THE DECONTAMINATION OF A HIGHLY RADIOACTIVE AREA
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-R-5678 +. 16 PAGES, 4 FIGURES, 6 TABLES, 9 REFERENCES, JUNE 1968

AN OPERATION TO DECONTAMINATE A BLOCK OF REMOTE-HANDLING CELLS WAS SPEEDED CONSIDERABLY BY USING THERMOLUMINESCENT DOSIMETERS (T.L.D.) TO PROVIDE IMMEDIATE DOSIMETRY CONTROL. THE DOSES RECEIVED TO ANY PART OF THE BODY DURING 450 ENTRIES INTO THE CELLS WERE KEPT BELOW THE PLANNED DOSES (THE I.C.R.P. QUARTERLY DOSES) IN 96% OF ALL CASES DESPITE EXTREMELY HIGH LEVELS OF STRONTIUM-90/YTTRIUM-90 CONTAMINATION. AN ATTEMPT WAS MADE TO USE THE LARGE NUMBERS OF RESULTS (9000 T.L.D. AND 2000 FILM DOSIMETERS) TO PROVIDE INFORMATION ON THE RELATIVE PERFORMANCE OF THE DOSIMETERS UNDER DIFFICULT OPERATIONAL CONDITIONS. T.L.D. UNDER-READ COMPARED TO FILM DOSIMETERS BY 10% TO 34% DEPENDING UPON THE POSITION ON THE BODY. THE POSSIBLE CAUSES OF THESE VARIATIONS ARE DISCUSSED IN DETAIL.

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

*CONTAMINATION + STRONTIUM + *ICRP + *DOSE + YTTRIUM + *DOSIMETRY, THERMOLUMINESCENCE + *DECONTAMINATION + *REMOTE MANIPULATING AND VIEWING

13-29278 ALSO IN CATEGORY 15
LAFONTAINE I
RISKS OF RADIOACTIVE INTERNAL CONTAMINATION OF WORKERS AND METHODS OF PREVENTION
CEN, MOL, BELG.
11 PAGES, J. BELGE RADIOL. 50, PAGES 293-303 (1967)

INTERNAL CONTAMINATION HAZARDS OF WORKERS IN RESEARCH LABORATORIES AND INDUSTRIAL INSTALLATIONS ARE ASSESSED. VARIOUS WAYS IN WHICH CONTAMINATING MATERIALS ENTER THE BODY, AND THE PHYSIOLOGICAL BEHAVIOR OF SOME OF THESE ARE DISCUSSED. THE MEANS, COLLECTIVE AND INDIVIDUAL, WHEREBY CONTAMINATION CAN BE PREVENTED, TAKING INTO CONSIDERATION AMONG OTHER THINGS, THE DEMARCATION OF WORKING AREAS, THE DISPOSAL OF GASEOUS EFFLUENTS, THE MONITORING OF WORKING AREAS AND WORKERS INDIVIDUAL EQUIPMENT ARE EXAMINED.

*RADIOISOTOPE + *FUEL REPROCESSING + MONITOR, AREA + *MINING + WASTE TREATMENT, GAS + *FUEL ELEMENT + *CONTAMINATION + *REACTOR, GENERAL + MONITOR, ENVIRONMENTAL + *FUEL CONVERSION + *FABRICATION

13-29279 ALSO IN CATEGORY 15
BURTON LK + COLE JS
ENVIRONMENTAL RADIOACTIVITY AND BODY BURDEN
BERKELEY NUCLEAR LAB. ENG.
CONF-555 +. 8 PAGES, PAGES 309-16 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

DESCRIBES CURRENT INVESTIGATIONS ON THE DEVELOPMENT OF INSTRUMENTS TO PROVIDE A RAPID MEASURE OF CONTAMINATION FROM SPECIFIC NUCLIDES AND THE INTERNAL DOSE TO THE INDIVIDUAL FROM GIVEN CONTAMINATION LEVELS. HAZARDS TO THE WORKER ARE DETERMINED BY MONITORING EITHER THE AIR BREATHED BY THE WORKER, OR THE BODY BURDEN. A BIOLOGICAL MONITORING PROGRAM IS BEING DEVELOPED.

BIOLOGICAL CONCENTRATION, MAN + MONITOR, ENVIRONMENTAL + *FUEL ELEMENT + MONITOR, AIR + DOSE MEASUREMENT, INTERNAL + *FABRICATION + *FUEL REPROCESSING + MONITOR, PERSONNEL + *REACTOR, GENERAL + *RADIOISOTOPE + CONTAMINATION + *FUEL CONVERSION + INSTRUMENT, AIR SAMPLING + INSTRUMENT, GENERAL

13-29280
NISHIWAKI Y + NISHIOKA H
REMOVAL OF THE RADIOACTIVE SURFACE CONTAMINATIONS
TOKYO INSTITUTE OF TECH.
CONF-555 +. 13 PAGES, PAGES 377-89 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS, 1967, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

THE FOLLOWING LEVELS OF CONTAMINATION ARE DEFINED - FREE CONTAMINATION (CAN BE EASILY REMOVED BY AIR OR VACUUM, BY APPLYING THE WATER OR SMEAR TEST), LOOSE CONTAMINATION (CAN NOT BE REMOVED WITHOUT APPLYING DECONTAMINATION AGENTS), AND FIXED CONTAMINATION (CAN NOT BE REMOVED WITHOUT REMOVAL OF SOME PORTIONS OF THE CONTAMINATED SURFACE). THE THREE LEVELS OF CONTAMINATION WERE MEASURED USING SR-89, I-131, AND FISSION PRODUCTS DEPOSITION ON THE SMOOTH NONPOROUS SURFACE OF GLASS AND THE ROUGH POROUS SURFACE OF COTTON TEXTILE.

*RADIOISOTOPE + *DECONTAMINATION + SURFACE CONTAMINATION + *FABRICATION + *TRANSPORTATION AND HANDLING + *FUEL REPROCESSING + *FUEL CONVERSION + *WASTE DISPOSAL, GENERAL + *REACTOR, GENERAL + *FUEL ELEMENT + CONTAMINATION

13-29526 ALSO IN CATEGORIES 12 AND 14
NUCLEAR SAFETY QUARTERLY REPORT, NOV., DECEMBER, 1967, JANUARY, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC
DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY
BATTELLE NORTHWEST
BNWL-816 +. 148 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 1960

REPORT COVERS ENGINEERED SAFEGUARD STUDIES, MONITORING, STUDIES, FIXATION OF RADIOACTIVE RESIDUES,

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-29526 *CONTINUED*

ENVIRONMENTAL STUDIES, AND HEAVY SECTION STEEL TECHNOLOGY PROGRAM. VARIOUS PROGRAMS COVERED ARE CONTAINMENT, AEROSOL CONTROL, CRACK DETECTION IN PRESSURE PIPING, DISPOSAL OF REACTOR OFF-GAS INTO SOIL, POT SOLIDIFICATION, PHOSPHATE GLASS SOLIDIFICATION, SPRAY SOLIDIFICATION, STORAGE, IRRADIATION EFFECTS ON PRESSURE VESSEL STEELS, AND STRESS IN STEEL SECTIONS.

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

WASTE TREATMENT, LIQUID + AEROSOL + *FUEL REPROCESSING + *REACTOR, GENERAL + CONTAINMENT, GENERAL + IRRADIATION TESTING + STEEL + GLASS + WASTE DISPOSAL, SOLID + *ENGINEERED SAFETY FEATURE + *WASTE TREATMENT, GENERAL + WASTE DISPOSAL, GAS + *EXPERIMENT, GENERAL + CALCINATION + PIPING

13-29542

GUIDANCE FOR THE CONTROL OF RADIATION HAZARDS IN URANIUM MINING
FEDERAL RADIATION COUNCIL, WASHINGTON, D.C.
NP-17440 +. 60 PAGES, FIGURES, TABLES, REFERENCES, SEPT. 1967

CONTAINS BACKGROUND MATERIAL USED IN THE DEVELOPMENT OF GUIDANCE FOR FEDERAL AGENCIES IN REGULATORY PROGRAMS CONCERNING RADIATION PROTECTION IN THE MINING OF URANIUM ORE.

AVAILABILITY - SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402 (\$0.40)

RADON + *RADIATION SAFETY AND CONTROL + *URANIUM + BIBLIOGRAPHY + *MINING + BIOLOGICAL CONCENTRATION, MAN

13-29545

KINOSHITA M
AIR-CONTAMINATION CONTROL IN THE PU FUEL DEVELOPMENT FACILITY
ATOMIC FUEL CORP., TOKYO
5 PAGES, GENSIRYOKU KOGYO 13(11), PAGES 46-50 (NOV.1967)

THE PU FUEL DEVELOPMENT FACILITY WAS COMPLETED AND HAS OPERATED SATISFACTORILY WITHOUT MAJOR AIR-CONTAMINATIONS. FACILITY IS EQUIPPED WITH GLOVE BOXES AND IS USED FOR PRODUCTION OF PLUTONIUM OXIDE AND ITS MIXTURE WITH URANIUM OXIDE, FABRICATION OF FUEL ASSEMBLIES, AND ASSOCIATED TESTS AND EXPERIMENTS. CHARACTERISTIC FEATURES OF THE PU AIR-CONTAMINATION, FUNDAMENTAL STRUCTURE OF THE AIR-CONTAMINATION CONTROL, GLOVE BOXES AND VENTILATION SYSTEM, SAFETY HANDLING OF PLUTONIUM, OCCURRENCE OF AIR CONTAMINATIONS, COLLECTIVE MONITORING, SURVEY BY INDIVIDUAL WORKERS THEMSELVES, AND AIR MONITORING ARE DISCUSSED.

PLUTONIUM + JAPAN + *PLUTONIUM OXIDE + *VENTILATION SYSTEM + *GLOVE BOX + MONITOR, PERSONNEL + MONITOR, AIR + *FABRICATION + *FUEL ELEMENT

13-29550

PLESSY L + IHAVERI J
INDUSTRIAL PROCESSING OF IRRADIATED U-MO FUELS
8 PAGES, BULL. INFORM. SCI. TECH. (PARIS), NO. 123, PAGES 59-66 (FEBRUARY 1968)

ADAPTATION OF THE PUREX SCHEME TO U-MO FUELS CAUSES SERIOUS PROBLEMS ONLY FOR THE CONCENTRATION OF FISSION PRODUCTS SOLUTIONS OWING TO MOLYBDENUM INSOLUBILITY IN ACID MEDIUM. THE INDUSTRIAL CONDITIONS FOR OBTAINING CONCENTRATES AT 100 G/L ARE - ADDITION OF PHOSPHORIC ACID (SEQUESTERING THE MOLYBDENUM AT THE BEGINNING OF CONCENTRATION- 0.33M IN THE END OF CYCLE) HOLDING ACIDITY BETWEEN 1.4 AND 1.6 N DURING CONCENTRATION, AND LOWERING OF ACIDITY TO 1.0 N AT THE END OF CYCLE FOR STORAGE. BY WAY OF COMPENSATION, FUEL DISSOLUTION WAS MORE RAPID THAN FOR NONALLOYED URANIUM.

SOLVENT EXTRACTION PROCESS + MOLYBDENUM + FUEL REPROCESSING + DISSOLUTION + URANIUM + FRANCE

13-29892

ALSO IN CATEGORY 14
MANESS RF + MCELROY JL + HARTLEY JN + SCHWAB MR
FIXATION OF RADIOACTIVE RESIDUES
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-894 +. OCTOBER 1968

DISCUSSION OF EFFORTS AND RESULTS ARE GIVEN IN EACH OF THE FOLLOWING - PHOSPHATE-GLASS SOLIDIFICATION, SPRAY SOLIDIFICATION, ADVANCED SOLIDIFICATION TECHNIQUES, DEVELOPMENT STUDIES ON SOLIDIFICATION PROCESSES AND HEAT TRANSFER, WASTE FROM CHEMICAL PROCESSING, LOW-LEVEL WASTE TREATMENT, AND AN EVALUATION OF THE STUDY OF SOLIDIFIED WASTE PRODUCTS.

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

*GLASS + *WASTE DISPOSAL, GENERAL + *WASTE TREATMENT, FIXATION + *SPRAY, GENERAL + BATTELLE NORTHWEST + *HEAT TRANSFER + *FUEL REPROCESSING + *FUEL REPROCESSING + R AND D PROGRAM + *WASTE TREATMENT, GENERAL

13-29893

ALSO IN CATEGORIES 1 AND 15
FOSTER RF
ENVIRONMENTAL STUDIES
BATTELLE NORTHWEST, RICHLAND, WASHINGTON

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-29893 *CONTINUED*
BNWL-894 +. P.4.1, OCTOBER 1968

STUDIED DISPOSAL OF REACTOR OFF-GAS INTO SOIL SYSTEMS TO DETERMINE GAS MOVEMENT IN THE FIELD. RESULTS REPORTED. SIMULATION MODELING OF THERMAL GENERATION IN SELECTED RIVER SYSTEMS, TO INVESTIGATE THE EFFECTS OF FUTURE NUCLEAR POWER PLANTS ON TEMPERATURES OF THE UPPER MISSISSIPPI BASIN, WAS CONTINUED, AND PROGRESS IS REPORTED. ALSO FIELD DATA WERE OBTAINED FOR A TEST SIMULATION OF THE THERMAL REGIME OF THE PHELPS COUNTY (NEBRASKA) IRRIGATION CANAL, DOWNSTREAM FROM THE CANADA POWER PLANT, TO PROVIDE INFORMATION RELATIVE TO USE OF IRRIGATION WATERS FOR COOLING OF POWER REACTORS.

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

REACTOR, POWER + *WATER, IRRIGATION + MODEL TESTING + REACTOR, BWR + R AND D PROGRAM + TRACER, GAS + RIVER, GENERAL + BATTELLE NORTHWEST + *XENON + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GAS + *THERMAL POLLUTION + *FUEL REPROCESSING + NRTS + DRESDEN 3 (BWR) + DRESDEN 2 (BWR)

13-29909 ALSO IN CATEGORY 7
FARKAS MS + CHENEY D + BROCKWAY CM + STORHOK VM
THE DEVELOPMENT OF BEO-THO2-PUO2 FUELS
BATTELLE MEMORIAL INST., COLUMBUS, OHIO
BML-X-10242 +. 28 PAGES, FIGURES, 5 REFERENCES, SEPT. 27, 1968

STUDIES INDICATED THAT THE SOLID SOLUBILITIES OF THO2, PUO2, AND TH (0.5)PU(0.5)DIOXIDE IN BEO ARE LESS THAN 0.05 M/D AT TEMPERATURES BELOW 1700 C. THE MINIMUM SOLIDUS TEMPERATURE IN THE BEO-THO2-PUO2 SYSTEM IS 2150 C AND OCCURS AT THE BEO-PUO2 EUTETIC. (TH,PU)O2 SOLID SOLUTIONS WERE CHEMICALLY STABLE IN WET HELIUM, CO2, AND AIR AT 1600 C. IN HYDROGEN, HOWEVER, THE SOLID SOLUTION DECOMPOSED TO (TH,PU)O2-X AND PU2O3. TECHNIQUES FOR FABRICATING FUEL OXIDE DISPERSIONS IN HIGH-DENSITY FINE-GRAINED BEO MATRICES WERE DEVELOPED.

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

*FUEL, PELLET TYPE + PHASE CHANGE + SOL-GEL PROCESS + *FABRICATION + *FUEL ELEMENT + PLUTONIUM DIOXIDE + *FUEL CONVERSION + EXPERIMENT, GENERAL + THORIUM + BERYLLIUM

13-29910 ALSO IN CATEGORIES 7 AND 12
BECK WN + FOUSEK RJ + KITTEL JH
THE IRRADIATION BEHAVIOR OF HIGH-BURNUP URANIUM-PLUTONIUM ALLOY PROTOTYPE FUEL ELEMENTS
ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS
ANL-7388 +. 47 PAGES, 26 FIGURES, 17 TABLES, 28 REFERENCES, MAY 1968

ALLOYS CONTAINING BOTH URANIUM AND PLUTONIUM ARE BEING DEVELOPED AS FUELS FOR FAST BREEDER REACTORS. THESE INVESTIGATIONS STUDIED VARIATIONS IN THE (1) PLUTONIUM CONCENTRATION IN THE FUEL PIN, (2) CLADDING WALL THICKNESS, (3) IRRADIATION TEMPERATURE, (4) VENTED PLENUMS, (5) TYPE OF CLADDING MATERIALS, AND (6) TYPE OF FUEL MATERIALS (SOLID FUEL, DISK-TYPE FUEL, AND SODIUM-IMPREGNATED POWDER FUEL). THE INVESTIGATIONS DETERMINED FISSION-GAS RELEASE FROM THE FUEL AS A FACTOR OF VOLUME EXPANSION, AND MAXIMUM ATTAINABLE FUEL BURNUPS.

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

URANIUM + *IRRADIATION TESTING + ZIRCONIUM + EXPERIMENT, GENERAL + ALLOY + *REACTOR, BREEDER + FISSION PRODUCT RETENTION + TITANIUM + EXPANSION + PLUTONIUM + *FABRICATION + *REACTOR, FAST + CLADDING + *FUEL ELEMENT

13-29950 ALSO IN CATEGORY 12
KITAZUME M + OGUSHI A
BUILD-UP FACTORS FOR GAMMA-RAY PENETRATION THROUGH MULTIPLE LAYERS OF REACTOR SHIELDING
ORNL-TR-1906 +. 26 PAGES, 1967

MULTIPLE-LAYER TRANSMISSION EXPERIMENTS WERE PERFORMED USING A PLANE 10-CI CO-60 SOURCE TO GIVE A MONODIRECTIONAL BEAM TO STUDY MEANS OF CALCULATING THE DOSE BUILDUP FACTORS NECESSARY FOR GAMMA-SHIELD DESIGN. THE ACCURACY OF THE EMPIRICAL EQUATIONS PROPOSED BY KALES, BRODER, AND KITAZUME WAS CHECKED. GENERALLY SPEAKING, THERE WAS POOR AGREEMENT BETWEEN THE RESULTS OBTAINED BY THE KALES AND BRODER EQUATIONS. WHEN CALCULATED VALUES FOR MONOLAYER BUILDUP FACTORS WERE TAKEN, THE KITAZUME EQUATION GAVE RESULTS 5-15% GREATER THAN THE EXPERIMENTALLY DERIVED VALUES. THE RESULTS OF THIS INVESTIGATION INDICATE THAT THE CALCULATION OF MULTI-LAYER BUILDUP FACTORS TO BE USED IN SHIELDING DESIGN IS BEST ACHIEVED BY COMBINING THE BRODER AND KITAZUME EQUATIONS, AND THE RESULTS SHOULD BE VALID WITHIN 15%.

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

COBALT + *REACTOR, GENERAL + *FUEL REPROCESSING + *SHIELDING + LEAD + JAPAN + WATER, GENERAL + STEEL + COMPARISON, THEORY AND EXPERIENCE + GAMMA + MATHEMATICAL TREATMENT + EXPERIMENT, GENERAL

13-30024
SIMMONDS GE + HARRISON DA

CATEGORY 13.
PLANT SAFETY FEATURES - NONREACTOR

13-30024 *CONTINUED*

A METHOD OF EXPLOSION VENTING A BUILDING
RUTHERFORD HIGH ENERGY LABORATORY, ENGINEERING SERVICES DEPARTMENT, CHILTON DIDCOT BERKSHIRE
RHEL/R-168 +. JULY 1968

BUILDINGS WHICH HOUSE PLANT CONTAINING LARGE AMOUNTS OF LIQUID PROPANE REQUIRE SPECIAL TREATMENT
TO MINIMIZE THE RISKS WHICH CAN ARISE. DESCRIBES METHOD FOR ACHIEVING THE NECESSARY VENTING
SHOULD THE PROPANE LEAK AND EXPLODE.

CONTAINMENT DESIGN + CONTAINMENT, PRESSURE RELIEF + EXPLOSION + SOLVENT EXTRACTION PROCESS + DESIGN CRITERIA +
*FUEL REPROCESSING + UNITED KINGDOM + CONTAINMENT STRUCTURE + INDUSTRIAL SAFETY

13-30039 ALSO IN CATEGORIES 15 AND 17

KOCH RC
FINAL DECONTAMINATION PLANS FOR UP LAB
LETTER TO REVIDN V COMPLIANCE, USAEC, BERKELEY, CALIF., SEPTEMBER 6, 1968, FROM R. C. KOCH

COMPLETE PROCEDURES FOR FINAL DECONTAMINATION AND DISMANTLING PU PROCESSING LAB AT 801 N. LAKE
STREET, BURBANK, CALIFORNIA (HOT CELL, STORAGE POOL, MACHINE SHOP, CHEM LAB). POOL CONTAMINATED
WITH SOLUBLE CS-137 AND CO-60, OTHER SURFACES WITH PU-238 TO 5 X 10(6TH) DPM/100 SQ CM. NEUTRON
FIELDS RANGE 10-280 MREM/HR.

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

COMPLIANCE + DECOMMISSIONING + SOURCE, RADIATION + SOURCE MATERIAL + SOURCE, NEUTRON + *DECONTAMINATION +
PLUTONIUM + COBALT + HOT CELL + RADIOISOTOPE + CESIUM + FABRICATION FACILITY

13-30086 ALSO IN CATEGORIES 5 AND 11

RADIATION SHIELD PLUG OVERPRESSURIZATION HAZARD
U.S. ATOMIC ENERGY COMMISSION
USAEC SERIOUS ACCIDENTS ISSUE NO. 295, DECEMBER 9, 1968

A HIGH-PRESSURE GAS RELEASE OCCURRED IN A 6-IN.-DIAM SHIELD PLUG, ONE OF MANY SUCH PLUGS USED IN
THE WALLS OF A RADIOACTIVE MATERIALS LABORATORY HOT CELL COMPLEX. THIS 3-IN.-LONG 200-LB STEEL-
ENCASED CONCRETE PLUG WAS FOUND LYING IN THE OPERATIONS AREA, WITH THE SMALL END (EXPOSED TO THE
CELL SIDE OF THE WALL) RUPTURED. NO DAMAGE TO THE HOT CELL COMPLEX, NO RELEASE OF RADIOACTIVE
MATERIALS, AND NO INJURIES.

*HOT CELL + CONTAINMENT EQUIPMENT HATCH + RADIOCHEMICAL PLANT SAFETY + PRESSURE, INTERNAL + *PRESSURE RELIEF +
*HAZARD, RELATIVE

13-30127 ALSO IN CATEGORY 14

SCHEIDHAUER J
IMMEDIATE SUPERVISION OF THE COASTAL SITE AT THE LA HAGUE CENTRE
FRANCE. COMMISSARIAT A L ENERGIE ATOMIQUE
CEA-R-3459 +. MARCH 1968, 33 PAGES (IN FRENCH)

THE DISPOSAL INTO THE SEA OF THE RESIDUAL WATERS FROM A PLANT PROCESSING IRRADIATED FUELS MEANS
THAT A VERY CLOSE WATCH HAS TO BE KEPT ON THE CORRESPONDING COASTAL ZONE. THE MATERIAL
ORGANISATION OF SUCH A SUPERVISION, AND THE SAMPLING TECHNIQUES, ARE DESCRIBED. THESE LATTER
CONCERN FLORA, FAUNA, SEDIMENTS, AND SEA-WATER. RESULTS OBTAINED USING VARIOUS ANALYTICAL AND
ROUTINE MEASUREMENT METHODS ARE PRESENTED.

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

*MONITORING PROGRAM, ENVIRONMENTAL + FUEL, POWDER TYPE + SAMPLING + *WASTE DISPOSAL, OCEAN + MONITOR,
TELEMETRY + *BIOLOGICAL CONCENTRATION, VEGETATION + SURFACE WATER, SEDIMENT + *MEASUREMENT, REACTIVITY +
*SURVEILLANCE PROGRAM + IRRADIATION FACILITY + ANALYTICAL TECHNIQUE, GENERAL + *SURFACE WATER, DISPOSAL MEDIA
+ RADIATION PROTECTION, ORGANIZATION + OCEAN AND SEA

13-30246 ALSO IN CATEGORIES 15 AND 17

CHANGE 9 - USE OF KR-85 CHECK SOURCES
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO NFS AND NY S-A SDA, DEC. 31, 1968, DOCKET 50-201

APPROVED USE OF KR-85 TO PERMIT GREATER FLEXIBILITY IN CALIBRATION AND FUNCTIONAL CHECKS OF THE
GAS SECTION OF THE STACK MONITOR. KR-85 TO BE USED IS 0.02(OF THE AMOUNT THAT MAY BE RELEASED
DAILY UNDER NFS TECHNICAL SPECIFICATIONS. ALLOWS POSSESSION OF 3 CURIES KR-85.

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

NFS + KRYPTON + TECHNICAL SPECIFICATIONS + FUEL REPROCESSING + RADIOACTIVITY RELEASE + *MONITOR, STACK +
*MONITOR, GAS + BYPRODUCT MATERIAL + *INSTRUMENT CALIBRATION

13-30313

SHEFEIK JJ
CENTRAL REPROCESSING PLANT FOR HTGR FUELS

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-30313 *CONTINUED*
GULF GENERAL ATOMIC INC., SAN DIEGO
GAND-8382 +. 131 PAGES, 29 FIGURES, 18 TABLES, 42 REFERENCES, OCT. 16, 1967

A CONCEPTUAL DESIGN AND REPROCESSING COSTS HAVE BEEN DEVELOPED FOR A PLANT TO RECOVER THE THORIUM AND URANIUM FROM SPENT HTGR FUEL ELEMENTS. A SOLVENT EXTRACTION PROCESS IS USED - FLOWSHEETS, DRAWINGS, OPERATING MANPOWER SCHEDULE ARE INCLUDED. PLANT IS SIZED TO SERVE A 15,000 MW(E) HTGR ECONOMY.

THORIUM + *DESIGN STUDY + *SOLVENT EXTRACTION PROCESS + REACTOR, HTGR + URANIUM + *FUEL REPROCESSING

13-30316 ALSO IN CATEGORIES 11 AND 12
NUCLEAR SAFETY QUARTERLY REPORT. AUGUST, SEPTEMBER, OCTOBER, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-926 +. DECEMBER 1968, 49 FIGURES, 14 TABLES

REPORTING PERIOD COVERS WORK ON CONTAINMENT SYSTEMS, PARTICLE TRANSPORT TO SURFACES BY CONDENSING STEAM, CRACK DETECTION IN PRESSURE PIPING BY ACOUSTIC EMISSION, FIXATION OF RADIOACTIVE RESIDUES AND THE HEAVY-SECTION STEEL TECHNOLOGY PROGRAM.

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

WASTE TREATMENT, FIXATION + *REACTOR, GENERAL + GLASS + PIPING + CONTAINMENT, GENERAL + *FUEL REPROCESSING + FISSION PRODUCT TRANSPORT + *WASTE DISPOSAL, GENERAL + IRRADIATION TESTING

13-30403 ALSO IN CATEGORY 14
SAIDL J + SAFAR O
HIGH LEVEL RADIOACTIVE WASTE BURIAL IN CZECHOSLOVAKIA
INST. OF NUCLEAR RESEARCH, REZ, CZECH.
2 PAGES, JAD. ENERG., 14, PAGES 150-141 (APRIL 1968)(IN CZECH)

THE PRELIMINARY PROJECT OF UTILIZING THE ABANDONED LIMESTONE MINE RICHARD NEAR LITOMERICE, FOR THE STORAGE OF HIGH LEVEL RADIOACTIVE WASTES FROM THE REPROCESSING PLANTS WHICH HAVE BEEN CONVERTED INTO SOLID AND CHEMICALLY RESISTANT MATERIALS, IS GIVEN.

WASTE DISPOSAL, LIQUID + CZECHOSLOVAKIA + RADIATION SAFETY AND CONTROL + SITING, CHEMICAL PROCESS PLANT + WASTE DISPOSAL, SOLID + ENVIRONMENTAL CONDITION + FUEL REPROCESSING + GEOLOGICAL CONSIDERATION, GENERAL + WASTE STORAGE + WASTE DISPOSAL, ECONOMICS + HYDROLOGICAL CONSIDERATION, GENERAL + MINING

13-30456 ALSO IN CATEGORY 15
BRANSGROVE AN + CECERS KE
ALPHA-BETA-GAMMA SURFACE CONTAMINATION MONITOR A.A.E.C. TYPE 165
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/M-84 +. 17 PAGES, 3 FIGURES, JULY 1968

THE A.A.E.C. TYPE 165 MONITOR IS A PORTABLE INSTRUMENT, FITTED WITH RECHARGEABLE BATTERIES AND DESIGNED FOR A VARIETY OF USES BY HEALTH PHYSICISTS OR PERSONS WORKING IN AREAS CONTAMINATED BY RADIOACTIVITY. FITTED WITH ONE ALPHA AND ONE BETA-GAMMA PROBE, THE INSTRUMENT REGISTERS 0-10,000 COUNTS/SEC IN FOUR LINEAR RANGES. AN ALARM MAY BE PRE-SET AT LOW RADIATION LEVELS. THE INSTRUMENT ALSO HAS CONNECTIONS FOR EXTERNAL SCALERS AND RECORDERS.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES IN THE U.S. AND OVER SEAS

GAMMA + *FUEL ELEMENT + *REACTOR, GENERAL + *FUEL REPROCESSING + *EQUIPMENT DESIGN + *FABRICATION + *ENRICHMENT FACILITY + *RADIOISOTOPE + *FUEL CONVERSION + ALPHA EMITTER + BETA EMITTER + *MONITOR, GENERAL

13-30474 ALSO IN CATEGORIES 7 AND 14
BAETSLE LH + SOUFFRIAU J
INSTALLATION OF CHEMICAL BARRIERS IN AQUIFERS AND THEIR SIGNIFICANCE IN ACCIDENTAL CONTAMINATION
CENTRE D ETUDE DE L-ENERGIE NUCLEAIRE, MOL, BELGIUM
STI/PUB-156 + CONF-670512 +. 12 PAGES, PAGES 229-40 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, VIENNA, INTERNATIONAL ATOMIC ENERGY AGENCY, 1967, FROM JOINT IAEA/ENEA SYMPOSIUM

PRINCIPLES OF CHEMICAL BARRIER FORMATION ARE REVIEWED AND THE PRINCIPAL RESULTS OF LABORATORY RESEARCH ON THE SYSTEM SILICA-HF-ANTIMONIC ACID ARE DISCUSSED IN SOME DETAIL. FIELD EXPERIMENTS HAVE DELINEATED THE ZONE CREATED BY INJECTING REAGENTS TRACED WITH BR-82 INTO AN AQUIFER. THE ECONOMICS OF BARRIER FORMATION ARE DISCUSSED IN THE CONCLUSIONS. FINALLY A DESCRIPTION IS GIVEN OF THE MOST SUITABLE EXPERIMENTAL PROCEDURE FOR THE INJECTION OF THE REAGENTS HF AND K₂H₂SB₂O₇ INTO THE AQUIFER. THE RETENTION CAPACITY OF THE INSTALLED BARRIER FOR SR IS ALSO DISCUSSED IN RELATION TO ITS SIGNIFICANCE FOR ENVIRONMENTAL SAFETY AT REPROCESSING PLANTS.

*BROMINE + *WASTE TREATMENT, FIXATION + *WASTE DISPOSAL, TERRESTRIAL + RADIOCHEMICAL PROCESSING + *TRACER, RADIOACTIVE + STRONTIUM + FUEL REPROCESSING

13-30663

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-30663 *CONTINUED*

BRETON DL + SCHAPPEL RB + MERRIMAN JR + PASHLEY JH + LITTLEFIELD CC + HABIGER KE
A CONCEPTUAL STUDY OF A FLUORIDE VOLATILITY PLANT FOR REPROCESSING LIGHT WATER REACTOR FUELS
OAK RIDGE GASEOUS DIFFUSION PLANT, OAK RIDGE, TENN.
K-1759 +. DECEMBER 24, 1968, 15 TABLES, 33 FIGURES, 200 P (APPROX)

PRESENTS AN ENGINEERING EVALUATION OF A FLUORIDE VOLATILITY PROCESS FOR RECOVERY OF URANIUM AND PLUTONIUM FROM SPENT LOW-ENRICHMENT NUCLEAR POWER REACTOR FUELS. THE STUDY WAS INITIATED IN 1966 AT THE REQUEST OF THE USAEC, WITH TWO PRIMARY GOALS IN MIND. FIRST, IT WAS IMPORTANT TO OBTAIN GUIDANCE ON THE QUESTION OF VOLATILITY-PROCESS ECONOMICS AS APPLIED TO POWER REACTOR FUELS, AND SECOND, AN INDEPENDENT ASSESSMENT OF THE TECHNOLOGICAL FEASIBILITY OF THE PROCESS EXTRAPOLATED TO PLANT SCALE WAS CONSIDERED DESIRABLE. THE PLANT THROUGHPUT WAS ASSUMED TO BE 300 TONS OF URANIUM PER YEAR, WHICH IS THE EXPECTED PROCESSING LOAD REQUIRED FOR NEWLY CONSTRUCTED AND PLANNED NUCLEAR POWER REACTORS FOR THE EARLY PART OF THE 1970S.

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

*VOLATILITY PROCESS + WASTE TREATMENT, GENERAL + *DESIGN STUDY + EQUIPMENT, GENERAL + *FLUORIDE + OFF GAS +
BROMINE + *FUEL REPROCESSING

13-30664

ALSO IN CATEGORY 12

WINEGARDNER WK
CONSIDERATIONS ON THE MEDIA FOR DECAY STORAGE OF FUEL ELEMENTS
BATTELLE MEMORIAL INSTITUTE
BNWL-909 +. 34 PAGES, 23 REFERENCES, NOVEMBER 1968

PREPARED IN RESPONSE TO FFTF DIVISION REQUEST FOR INFORMATION AND RECOMMENDATIONS CONCERNING THE DECAY STORAGE OF IRRADIATED FUEL ELEMENTS. SUMMARIZES INFORMATION OF STORAGE TECHNIQUES. DISCUSSES INFORMATION RELATED TO FUEL CLADDING CORROSION PROBLEMS THAT MAY RESULT FROM DECAY STORAGE. CONTAINS RECOMMENDATIONS CONCERNING STORAGE MEDIA.

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

*FUEL STORAGE + REACTOR, FAST + REACTOR, LMCR + *FUEL REPROCESSING + FFTF (TR) + REACTOR, TEST + CORROSION +
*REACTOR, GENERAL

13-30666

ALSO IN CATEGORY 12

ARD PA + HECK EN + MCJILTON CH
SURVEY OF REACTOR FACILITIES FOR PRESSURE TUBE IRRADIATION
BATTELLE MEMORIAL INSTITUTE
BNWL-872 +. 48 PAGES, 15 FIGURES, 3 TABLES, NOVEMBER 1968

THIS SURVEY WAS MADE TO DETERMINE HOW WELL THE AVAILABLE REACTOR SPACE MET THE HEAVY WATER REACTOR PROGRAM CRITERIA FOR FAST NEUTRON IRRADIATION OF A ZIRCONIUM-ALLOY PRESSURE TUBE AND TO DEFINE THE REQUIREMENTS AND COSTS OF PROVIDING FACILITIES FOR THIS IRRADIATION.

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

*IRRADIATION FACILITY + *REACTOR, GENERAL + *REACTOR, HWR

13-30693

ALSO IN CATEGORY 15

RADIATION HAZARD CONTROLS IN URANIUM MINES
6 PAGES, COM. NAZ. ENERG. NUCL. NOTIZ., 14, PAGES 97-102 (JAN. 1968), (IN ITALIAN)

THE PUBLIC HEALTH SERVICE OF THE UNITED STATES IN COLLABORATION WITH THE A.E.C. AND OTHER GOVERNMENT AGENCIES DEVELOPED GUIDELINES FOR THE CONTROL OF RADIATION HAZARDS IN URANIUM MINES. ENVIRONMENTAL CONDITIONS IN URANIUM MINES ARE OUTLINED, AND BIOLOGICAL EFFECTS FROM EXPOSURE TO RADON AND ITS DECAY PRODUCTS ARE SUMMARIZED. BASIC SAFETY STANDARDS ARE PROPOSED.

*URANIUM + *USAEC + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *RADIATION PROTECTION,
ORGANIZATION + UNITED STATES + *MINING + *BIOLOGICAL CONCENTRATION, MAN

13-30926

ALSO IN CATEGORIES 1 AND 17

CORRECTIVE ACTION ON FUEL PROCESSING
KERR-MCGEE CORPORATION
1 PAGE, LETTER TO L.O. LOW, COMPLIANCE NOV. 25, 1968

(REPLY TO CITATION OF NOV. 6.) FREE-STANDING 11-LITER BOTTLES OF FUEL SOLUTION NOW STORED IN SAFE CONFIGURATION. ***GLOVE BOXES HAVE 20-MIL-THICK GLOVES FOR UAL POWDER PRODUCTION, WITH FEW PUNCTURES AND NO TEARS. EIGHT AIR-SAMPLING LOCATIONS (INSTEAD OF 5) ARE SAMPLED EACH DAY. PRODUCTION IS STOPPED FOR CLEANING IF AIRBORNE CONCENTRATION EXCEEDS PERMISSIBLE.

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

FUEL ELEMENT + SURVEY, RADIATION, GENERAL + CRITICALITY SAFETY + GLOVE BOX + FUEL REPROCESSING + FABRICATION +
FAILURE, ADMINISTRATIVE CONTROL + AIRBORNE RELEASE + COMPLIANCE

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-30970 ALSO IN CATEGORY 14

WADACHI Y

SURFACE CHEMICAL STUDIES ON RADIOACTIVE CONTAMINATION AND DECONTAMINATION OF SOLID SURFACES
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
JAERI 1165 +. MAY 1968, 32P. (IN JAPANESE)

THE MECHANISMS OF RI AQUEOUS SOLUTION CONTAMINATION AND ITS DECONTAMINATION OF SOLID SURFACES WERE STUDIED SURFACE CHEMICALLY. SOLID SURFACES WERE CLASSIFIED INTO PERMEABLE (COTTON CLOTH) AND IMPERMEABLE (METAL, PAINT, PLASTIC) SURFACES, CONCERNING RI AQUEOUS CONTAMINATION, AND THE MECHANISMS OF CONTAMINATION WERE CLASSIFIED ACCORDING TO THE ACTIONS OF DECONTAMINANTS. BASED ON THESE CLASSIFICATIONS, THE MECHANISMS OF SOLID SURFACE RADIOACTIVE CONTAMINATION AND DECONTAMINATION WERE STUDIED SYSTEMATICALLY BY MEANS OF THE WASHING OF RI CONTAMINATED SURFACES WITH WATER, SURFACTANTS AND DECONTAMINANTS. IN ADDITION, STUDIES WERE CARRIED OUT ON THE MECHANISMS OF THE CONTAMINATION AND DECONTAMINATION OF SOLID SURFACE (ACTIVE CARBON POWDER) WHICH IS DIFFICULT TO CLASSIFY INTO PERMEABLE OR IMPERMEABLE SURFACE.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, NAKA-GUN, IBARAKI-KEN, JAPAN

JAPAN + *RADIOISOTOPE + *FUEL CONVERSION + *FUEL REPROCESSING + SURFACE CONTAMINATION + EXPERIMENT; GENERAL + *REACTOR; GENERAL + DECONTAMINATION

13-30975

STATUS AND PROGRESS REPORT FOR THORIUM FUEL CYCLE DEVELOPMENT FOR PERIOD ENDING DECEMBER 31, 1966
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-4275 +. JANUARY 1969, 181P., 14 REFERENCES, TABLES, FIGURES

PROGRESS REPORTED OF WORK ON THORIUM-URANIUM RECYCLE FACILITY, SOL-GEL PROGRESS DEVELOPMENT, IRRADIATION OF COATED-PARTICLE FUELS, BULK OXIDE PROCESS DEVELOPMENT, IRRADIATION OF BULK OXIDE FUELS, AND DRYING, SINTERING, AND GAS-EVOLUTION STUDIES ON SOL-GEL UO₂ MICROSPHERES.

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

*FUEL REPROCESSING + URANIUM + *FUEL CONVERSION + FABRICATION + URANIUM DIOXIDE + ORNL + *IRRADIATION TESTING + FUEL, PELLET TYPE + *FUEL ELEMENT + GRAPHITE + SOL-GEL PROCESS + THORIUM

13-31333

ALSO IN CATEGORY 12

NISLE RG

RECENT RESEARCH ON THORIUM AT THE MATERIALS TESTING REACTOR

IDAHO NUCLEAR CORP., IDAHO FALLS

IN-1254 +. 45 PAGES, FIGURES, TABLES, 26 REFERENCES, SEPTEMBER 1968

THE CONCEPT OF A COMPOSITE EQUILIBRIUM, ANALOGOUS TO THE TRANSIENT EQUILIBRIUM OF EVANS IS DEVELOPED AND SHOWN TO BE USEFUL FOR CONTINUOUS IRRADIATIONS. THE SENSITIVITY OF ITS VALUE TO CYCLED IRRADIATIONS AND ITS LIMITATIONS UNDER CONDITIONS OF RANDOMLY INTERRUPTED IRRADIATIONS ARE POINTED OUT. PROBLEMS OF FLUX LEVEL AND SPECTRUM MEASUREMENT DURING IRRADIATION ARE DISCUSSED, AND AREAS WHERE IMPROVEMENTS ARE NEEDED ARE INDICATED. A SIZEABLE PORTION OF THE EFFORT WAS DEVOTED TO THE DEVELOPMENT OF CALCULATIONAL TECHNIQUES FOR INTERPRETATION OF THE DATA.

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

IRRADIATION TESTING + THORIUM + *REACTOR, GENERAL + *FABRICATION + *FUEL ELEMENT + *EXPERIMENT, GENERAL

13-31347

ALSO IN CATEGORY 14

MCELROY JL + COOLEY CR + DEMIER WV + MENDEL JE + SUDDATH JC + BLOMEKE JO

POT CALCINATION PERFORMANCE DURING FIRST RADIOACTIVE TESTS IN WASTE SOLIDIFICATION ENGINEERING PROTOTYPES - WASTE SOLIDIFICATION PROGRAM, VOL. IV

PACIFIC NORTHWEST LABORATORY + OAK RIDGE NATIONAL LABORATORY

BNWL-814 +. 60 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

SOLIDIFICATION OF HIGH LEVEL RADIOACTIVE WASTE BY THE OAK RIDGE NATIONAL LABORATORY POT CALCINATION PROCESS WAS SUCCESSFULLY DEMONSTRATED. NEARLY 4 MILLION CURIES OF RADIOACTIVITY WERE PROCESSED IN SIX FULL SCALE TESTS AT PACIFIC NORTHWEST LABORATORY. RADIOACTIVITY WAS INCREASED FROM 85,000 CURIES IN THE FIRST RUN TO 1.3 MILLION CURIES IN THE SIXTH RUN. THE RATE OF HEAT GENERATION WITHIN THE POT INCREASED FROM 600 TO 5100 WATTS, RESPECTIVELY. THE CALCINED WASTE IN AN 8 INCH DIAMETER POT REPRESENTED 1.2 TONNES OF POWER REACTOR FUEL (20,000 MWD/TON AT 15 MW/TON SPECIFIC POWER) AFTER 1 YEAR OUT OF REACTOR.

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

WASTE TREATMENT, LIQUID + EXPERIMENT, GENERAL + *FUEL REPROCESSING + *CALCINATION + EQUIPMENT, GENERAL

13-31348

ALSO IN CATEGORY 14

KELLY VP

WASTE SOLIDIFICATION PROGRAM - VOL. III - DESIGN FEATURES OF THE FACILITIES AND EQUIPMENT FOR THE WSEP PRODUCT

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-31348 *CONTINUED*
EVALUATION PROGRAM
BATTELLE NORTHWEST, WASH.
BNWL-832 +. 50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

A PROGRAM WAS IMPLEMENTED WITHIN PACIFIC NORTHWEST LABORATORY TO STUDY THE WASTE POTS FILLED WITH SOLIDIFIED HIGHLY RADIOACTIVE WASTES IN THE WASTE SOLIDIFICATION ENGINEERING PROTOTYPES. THE PROGRAM, TERMED THE WSEP PRODUCT EVALUATION PROGRAM, WAS ESTABLISHED TO EVALUATE PROPERTIES SUCH AS WASTE POT INTEGRITY AND SOLIDIFIED WASTE STABILITY RELATING PARTICULARLY TO THE NUCLEAR SAFETY ASPECTS OF WASTE MANAGEMENT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151 \$3.00
COPY, \$2.65 MICROFICHE

WASTE TREATMENT, LIQUID + DESIGN CRITERIA + FUEL REPROCESSING + WASTE TREATMENT, SOLID + EXPERIMENT, GENERAL +
WASTE DISPOSAL, GENERAL + EQUIPMENT, GENERAL + WASTE DISPOSAL, SOLID

13-31349
OBRIEN K
TABLES FOR THE DETERMINATION OF THE LATERAL SHIELDING REQUIREMENTS OF HIGH ENERGY ACCELERATORS
HEALTH AND SAFETY LAB., NEW YORK OPERATIONS OFFICE, NEW YORK, AEC
HASL-203 +. 72 PAGES, 1 FIGURE, 14 TABLES, 11 REFERENCES, NOVEMBER 1968

TABLES OF BARRIER FACTORS WERE CONSTRUCTED TO PERMIT THE RAPID DETERMINATION OF NEUTRON DOSE-EQUIVALENT RATES TRANSMITTED THROUGH THE LATERAL SHIELDING OF A PROTON OR ELECTRON ACCELERATOR. SHIELD THICKNESSES RANGE FROM 100 TO 2000 G/CM². WATER CONCENTRATIONS RANGE FROM 0 TO 40% BY WEIGHT. THE TABLES APPLY TO ACCELERATED BEAMS HAVING ENERGIES GREATER THAN ABOUT 0.8 GEV.

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

*ACCELERATOR + *RADIOISOTOPE + *SHIELDING

13-31352
DELNAY RL
GLOVEBOXES LINED WITH TEFLON
DOW CHEMICAL COMPANY, COLORADO
RFP-823 +. 4 PAGES, FEBRUARY 7, 1969

GLOVEBOXES MADE FROM CARBON STEEL AND LINED WITH TEFLON RESIN PRODUCE A CORROSION-FREE ENCLOSURE FOR THE ANALYSIS OF ULTRA-PURE PLUTONIUM. GLOVEBOX HARDWARE AND ACCESSORIES ARE MADE FROM TEFLON OR KEL-F RESINS, OR METAL COATED WITH A KEL-F DISPERSION.

AVAILABILITY - R.L. DELNAY, THE DOW CHEMICAL COMPANY, ROCKY FLATS DIVISION, P.O. BOX 888, GOLDEN, COLORADO 80401

*REACTOR, GENERAL + EQUIPMENT, GENERAL + *FUEL CONVERSION + *FABRICATION + *GLOVE BOX + DESIGN STUDY +
*RADIOISOTOPE + *FUEL ELEMENT + *FUEL REPROCESSING

13-31408
MERCER BW + AMES LL + PARKHURST RG
REMOVAL OF CS-137 FROM ALKALINE CONDENSATE WASTES
BATTELLE MEMORIAL INST., PACIFIC NORTHWEST LAB., WASH.
BNWL-829 +. 35 PAGES, 17 FIGURES, 2 TABLES, 5 REFERENCES, NOVEMBER 1968

CESIUM-137 IS EFFECTIVELY REMOVED FROM ITS, SX, AND 242-T CONDENSATES BY ION EXCHANGE ON AW 500 COLUMNS. THE AW-500 COLUMNS WERE CAPABLE OF PROCESSING 5000 OR MORE COLUMN-VOLUMES TO BREAKTHROUGH OF THE CS-137. A 7M NaNO₃ SOLUTION WAS EFFECTIVE FOR REGENERATING THE AW-500 COLUMNS. REGENERATION WAS ACCOMPLISHED IN 10 TO 20 COLUMN-VOLUMES AT 65 TO 70 C. ALTHOUGH CS-137 MAY BE REDUCED TO DRINKING-WATER LIMITS (1710 MPC(W) 168 HR) IT DOES NOT APPEAR LIKELY THAT ALL THE RADIONUCLIDES IN ITS CONDENSATE CAN BE ECONOMICALLY REDUCED TO THIS LEVEL. WHILE THE OTHER FISSION PRODUCTS SUCH AS RU-106 CAN BE REMOVED WITH STRONG BASE AND STRONG ACID ION EXCHANGE RESINS, NO PRACTICAL METHOD EXISTS FOR REMOVING THE TRITIUM. A DF OF ABOUT 10 IS REQUIRED TO MEET THE DRINKING WATER LIMIT IN ITS CONDENSATE FOR BOTH RU-106 AND H-3.

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

*WASTE TREATMENT, LIQUID + *FUEL REPROCESSING + WASTE MANAGEMENT + *CESIUM + TRITIUM + *EVAPORATION + ION
EXCHANGE + EXPERIMENT, GENERAL

13-31409 ALSO IN CATEGORY 15
KNOLL KC
EFFECT OF DETERGENTS ON ABSORPTION OF RADIONUCLIDES BY SOIL
BATTELLE NORTHWEST, WASH.
BNWL-859 +. 3 PAGES, 1 TABLE, JANUARY 1969

THE UPTAKE OF CS-137 AND SR-85 BY SOIL FROM DECONTAMINATING SOLUTIONS CONTAINING DETERGENTS WAS STUDIED. SEVEN DETERGENTS WERE USED IN THE STUDY, EACH AT TWO LEVELS OF CONCENTRATION. IN

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-31409 *CONTINUED*

GENERAL, THE ADSORPTION OF CS-137 BY SOIL WAS IMPAIRED IN THE PRESENCE OF DETERGENTS. ADSORPTION OF SR-85 BY SOIL FROM SOLUTIONS CONTAINING DETERGENTS WAS EQUAL TO OR BETTER THAN THE ADSORPTION BY SOIL IN THE ABSENCE OF DETERGENTS. ANY CHANGES WHICH OCCURRED WERE MORE PRONOUNCED AT HIGHER CONCENTRATIONS.

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

EXPERIMENT, GENERAL + *FUEL REPROCESSING + *WASTE DISPOSAL, TERRESTRIAL + CESIUM + *SOIL, RADIONUCLIDE
MOVEMENT THROUGH + *ADSORPTION + STRONTIUM

13-31410 ALSO IN CATEGORIES 7 AND 12

DAWSON FG

PLUTONIUM UTILIZATION PROGRAM - TECHNICAL ACTIVITIES QUARTERLY REPORT, SEPTEMBER, OCTOBER, NOVEMBER 1968
BATTELLE NORTHWEST, WASH.

BNWL-963 +. 40 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1969

EXAMINATION OF VIBRATIONALLY PACKED FUEL RODS IRRADIATED IN THE FERTF INDICATES THAT THE COLUMNAR GRAIN GROWTH AND SINTERING FORMED DURING IRRADIATION ARE WITHIN APPROXIMATELY +- 5% OF THE CALCULATED VALUES. THE PEAK BURNUP OF INTERNAL PRESSURE INSTRUMENTED VIBRATIONALLY COMPACTED UO2-PUO2 FUEL RODS IS 10,800 MWD/MTM. THESE EXPERIMENTS WILL BE SUPPLEMENTED BY THE IRRADIATION OF SIMILARLY INSTRUMENTED UO2-PUO2 PELLET-CONTAINING RODS IN PRTR.

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

*REACTOR, FAST + *FABRICATION + FUEL, PELLET TYPE + URANIUM DIOXIDE + *IRRADIATION TESTING + PLUTONIUM DIOXIDE
+ VIBRATORY COMPACTION + *FUEL ELEMENT

13-31411 ALSO IN CATEGORIES 12 AND 15

VALENTINE AM + MEYER DD + ROMERO WF

AIR MONITORING AND ITS EVOLUTAIION AT THE LASL PLUTONIUM FACILITY
LOS ALAMOS SCIENTIFIC LAB., CALIF.

LA-4076 +. 11 PAGES, 11 FIGURES, 5 REFERENCES, JANUARY 24, 1969

DISCUSSES A PROGRAM TO MONITOR AIRBORNE CONTAMINATION IN THE WORKING ENVIRONMENT OF A PLUTONIUM FACILITY. ONLY THOSE ASPECTS MOST CLOSELY ASSOCIATED WITH OPERATIONAL MONITORING ARE INCLUDED, AND, AS A RESULT, SEVERAL SIDE TOPICS IN THE REALM OF AIR MONITORING ARE NOT MENTIONED. TECHNIQUES, EQUIPMENT, RECORDS, AND POLICY ARE DISCUSSED, IN ADDITION TO AIR CONCENTRATION TRENDS, EQUIPMENT EVOLUTION, COST, MANPOWER REQUIREMENTS, AND INHERENT SHORTCOMINGS.

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

*PLUTONIUM + *REACTOR, GENERAL + *FABRICATION + *FUEL REPROCESSING + *FUEL ELEMENT + *RADIOISOTOPE + *MONITOR,
AIR + *FUEL CONVERSION

13-31412 ALSO IN CATEGORIES 9 AND 12

MOLTEN-SALT REACTOR PROGRAM-SEMI-ANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 31, 1968
OAK RIDGE NATIONAL LAB., TENN.

ORNL-4344 +. 333 PAGES, FIGURES, TABLES, FEBRUARY 1969

REPORT OF ACTIVITIES OF PROGRAM AT ORNL.

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

CORROSION + FISSION PRODUCT RELEASE, GENERAL + *MSRE (RE) + *FUEL REPROCESSING + DESIGN STUDY + MATERIAL +
*IRRADIATION TESTING + REACTOR, AEC OWNED + INSTRUMENT, GENERAL + TESTING + *REACTOR, MOLTEN SALT +
*EXPERIMENT, GENERAL + GRAPHITE + ALLOY

13-31958 ALSO IN CATEGORY 14

KNOLL KC

CATALYTIC OXIDATION OF RADIOACTIVELY CONTAMINATED ORGANIC WASTES
BATTELLE NORTHWEST

BNWL-856 +. 10 PAGES, 4 FIGURES, 3 REFERENCES, JANUARY 1969

A METHOD FOR OXIDIZING LIQUID ORGANIC WASTES FROM A NUCLEAR FUEL SEPARATIONS PLANT USING A CATALYTIC BED AS A METHOD OF DISPOSAL WAS INVESTIGATED. WASTES WERE FED EITHER AS A LIQUID OR VAPOR, TOGETHER WITH A FLOW OF AIR, THROUGH THE CATALYST BED. OXIDATION TOOK PLACE WITH GENERATION OF HEAT. OFF-GASES WERE CONTAINED AND COULD BE MONITORED. A LIST OF SOME CATALYSTS USED AS WELL AS THE ORGANICS OXIDIZED ARE PRESENTED.

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

*FUEL REPROCESSING + *RADIOISOTOPE + OXIDATION + *WASTE TREATMENT, LIQUID + CATALYST

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-32309 ALSO IN CATEGORY 17
OVEREXPOSURE DUE TO COMMUNICATION BREAKDOWN
NUCLEAR FUEL SERVICES
2 PAGES, LETTER TO L.D. LOW, COMPLIANCE, JANUARY 14, 1969, DOCKET 50-201

ON DECEMBER 20, 1968, A MAINTENANCE MAN ENTERED THE GENERAL CRANE ROOM TO REPAIR CRANE. HAND-EXPOSURE RATE WAS 200 TO 700 MRADS/HOUR, WITH THE STATED PRECAUTION OF DO NOT WORK ON CRANE MOTORS AND REEL (THESE AREAS HAD MUCH HIGHER RADIATION READINGS). PRIOR TO HIS ENTRY, HE HAD 16.934 REMS (EXTREMITY) IN THE CURRENT QUARTER AND HAD RECEIVED AN ADDITIONAL 4.800 REMS TO HIS EXTREMITIES (TOTAL 21.734 REMS). ***A MISUNDERSTANDING BETWEEN HEALTH AND SAFETY AND THE MAINTENANCE MAN AS TO INTENDED WORK CAUSED THE INDIVIDUAL TO HANDLE UNMONITORED SURFACES. MAINTENANCE SUPERVISION HAS BEEN ASKED TO RESTRESS IMPORTANCE OF ADEQUATE COMMUNICATION OF WORK DESCRIPTION TO HEALTH AND SAFETY.

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

NFS + RADIATION SAFETY AND CONTROL + MAINTENANCE AND REPAIR + *FAILURE, ADMINISTRATIVE CONTROL + FUEL REPROCESSING + *PERSONNEL EXPOSURE, RADIATION + FUEL HANDLING MACHINE

13-32630 ALSO IN CATEGORY 14
DISPOSAL OF RADIOACTIVE WASTE INTO THE GROUND
INTERNATIONAL ATOMIC ENERGY AGENCY
STI/PUB/156 +. 666 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF A SYMPOSIUM, VIENNA, MAY 29-JUNE 2, 1967

PROCEEDINGS OF SYMPOSIUM CO-SPONSORED BY ENEA AND IAEA (5/9-6/2/67) ATTENDED BY PERSONS FROM 24 COUNTRIES AND 3 INTERNATIONAL ORGANIZATIONS. THERE ARE 10 PAPERS ON OPERATIONAL EXPERIENCE, 11 ON UPTAKE AND MIGRATION, 5 ON SITE SELECTION, 5 ON BURIED SOLIDIFIED WASTES, 12 ON SALT DISPOSAL AND DISPOSAL INTO DEEP OR POROUS FORMATIONS. THE PAPERS REFLECT THE BROAD EFFORT EXPANDED BY NATIONAL AUTHORITIES AND RESEARCHERS TO ACHIEVE A SOLUTION TO THE LOW-LEVEL-WASTE-DISPOSAL PROBLEM - A SOLUTION THAT IS BOTH ECONOMICAL AND COMPATIBLE WITH EXACTING STANDARDS OF SAFETY. DISCUSSIONS OF PAPERS ARE INCLUDED.

*RADIOISOTOPE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GENERAL + *REACTOR, GENERAL + WASTE DISPOSAL, LIQUID + IAEA + HYDROLOGICAL CONSIDERATION, GENERAL + *SITING, WASTE DISPOSAL + ENEA + *FUEL REPROCESSING + RADIOCHEMICAL PROCESSING + WASTE DISPOSAL, TERRESTRIAL + SOIL MECHANICS + WASTE DISPOSAL, SALT + SALT + WASTE MANAGEMENT + WASTE DISPOSAL, SOLID

13-32652
CLEVELAND JM + THOMPSON MA
FLUORIDE VOLATILITY 1968
DOW CHEMICAL COMPANY, COLORADO
CONF-680610 +. 202 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF THE ROCKY FLATS FLUORIDE VOLATILITY CONFERENCE, JUNE 24-25, 1968

THIRTEEN PAPERS OF INTEREST TO THOSE ENGAGED IN VOLATILITY REPROCESSING AND PLUTONIUM PURIFICATION.

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

*FUEL REPROCESSING + URANIUM + REACTOR, FAST + EXPERIMENT, GENERAL + FLUORINE + FLUORIDE + REACTOR, THERMAL + PLUTONIUM + *VOLATILITY PROCESS + FLUIDIZED BED

13-32655 ALSO IN CATEGORIES 12 AND 18
HAGINOYA T
PRESENT STATUS OF RESEARCH AND DEVELOPMENT ON SAFEGUARDS TECHNIQUES
5 PAGES, NIPPON GENSIRYOKU GAKKAISHI, 10, PAGES 502-506 (SEPT. 1968) (IN JAPANESE)

THE DEVELOPMENT OF SAFEGUARDS TECHNIQUES INCREASES IN IMPORTANCE WITH THE WIDENING PRACTICAL APPLICATION OF NUCLEAR POWER GENERATION. THE MOST EFFECTIVE MANNER OF APPLYING SAFEGUARDS MEASURES IS TO COVER THE ENTIRE FUEL CYCLE, WITH INSPECTIONS CONDUCTED ON THE KEYPOINTS OF THE FUEL CYCLE. THE SUCCESS OF SUCH A PROCEDURE DEPENDS ON IMPROVEMENTS IN AVAILABLE SAFEGUARDS TECHNIQUE. DEVELOPMENTS IN THE DOMAIN MUST BE PURSUED ALONG TWO LINES - INSTRUMENTATION AND SYSTEMS. IN EVERY CASE, THE STRATEGIC POINT IS THE REPROCESSING PLANT AND NOT THE NUCLEAR REACTOR ITSELF.

SAFETY PRINCIPLES AND PHILOSOPHY + *R AND D PROGRAM + *FUEL REPROCESSING + *ENGINEERED SAFETY FEATURE + FUEL HANDLING

13-32753 ALSO IN CATEGORY 7
SENNEWALD G + DAVID C + WURM JG
HALIDE SLAGGING OF RARE EARTH FISSION PRODUCTS IN MOLTEN URANIUM
EUROPEAN ATOMIC ENERGY COMMUNITY, ISPRA, ITALY
EUR-4184-E +. 34 PAGES, 8 FIGURES, TABLES, 28 REFERENCES, NOVEMBER 1968

STUDIED THE EXTRACTION OF CERIUM AND LANTHANUM FROM MOLTEN IRRADIATED URANIUM WITH A MOLTEN SALT BATH CONTAINING UC13. THE USE OF U235C13 AS A CHLORINATING AGENT SEEMS TO BE VERY ATTRACTIVE.

CATEGORY 13
PLANT SAFETY FEATURES - NONREACTOR

13-32753 *CONTINUED*

ALSO, U235 LOSSES TO THE SALT BATH BY ISOTOPIC EXCHANGE ARE NEGLIGIBLE.

AVAILABILITY - CENTER FOR INFORMATION AND DOCUMENTATION, HANDELSBLATT GMBH, EURATOM INFORMATION, POSTFACH 1102, DUSSELDORF, GERMANY

*ITALY + EURATOM + *FISSION PRODUCT, NONVOLATILE + CERIUM + CHLORINE + *FUEL ELEMENT + URANIUM + *FABRICATION + LANTHANUM

13-32861 ALSO IN CATEGORIES 5 AND 12
BAUMANN W + CASAL V + HOFFMANN H + MOELLER R + RUST K
FUEL ELEMENTS WITH SPIRAL SPACERS FOR FAST BREEDER REACTORS
KERNFORSCHUNGSZENTRUM, KARLSRUHE, WEST GERMANY
EURFNR-571 + KFK-768 +. 107 PAGES, 46 FIGURES, APRIL 1968

SPIRAL SPACERS ARE PLANNED FOR FUEL ELEMENTS OF FAST BREEDERS WITH A SMALL COOLANT FRACTION. THESE CAN BE WIRES WOUND SPIRALLY AROUND THE FUEL ROD OR CAN BE FINNED CLADDING. TO DETERMINE THE INFLUENCES OF GEOMETRY AND CONFIGURATION, HEAT TRANSFER AND PRESSURE DROP, SURFACE ROUGHNESS, TRANSVERSE COOLANT MIXING, TEMPERATURE DISTRIBUTION AND STRENGTH CHARACTERISTICS IN THE CLADS, ON FUEL ELEMENT CHARACTERISTICS, THEORETICAL AND EXPERIMENTAL STUDIES WERE MADE OF MULTI-ROD CLUSTERS AND VARIOUS CONFIGURATIONS OF SPIRAL SPACERS. THE STUDIES ARE RECAPITULATED IN THE REPORT.

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

GERMANY + *EXPERIMENT, GENERAL + *REACTOR, BREEDER + *FABRICATION + TEMPERATURE GRADIENT + PRESSURE DROP + FUEL ELEMENT CLUSTER + HEAT TRANSFER EXPERIMENT + *REACTOR, FAST

13-32862
PAYRISSAT M + WURM JG
DECLADDING OF UO₂-PUO₂ STAINLESS STEEL FAST REACTOR FUELS BY LIQUID METALS
ARGONNE NATIONAL LABORATORY
ANL-TRANS-707 + CONF-681040-5 +. 14 PAGES, FROM SYMPOSIUM ON NONAQUEOUS REPROCESSING, MOL, BELGIUM, 28-29 OCTOBER 1968

DESCRIBES A NEW PROCESS FOR FUEL ELEMENT DECLADDING BY LIQUID METALS. IT IS ESSENTIALLY APPLIED TO STAINLESS-STEEL CLAD UO₂-PUO₂ FUELS FOR FAST REACTORS. THIS METHOD PERMITS THE DISSOLUTION OF THE CLADDING, SEPARATION OF THE FUEL, ITS CONCENTRATION FOR CHEMICAL REPROCESSING AND ITS REFABRICATION ON THE REACTOR SITE. THE STUDY SHOWED THAT AN ALLOY BASED ON ANTIMONY IS PARTICULARLY SUITED FOR THE DISSOLUTION OF STAINLESS STEEL AT A TEMPERATURE BELOW 1000 C.

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

REACTOR, FAST + STEEL, STAINLESS + EURATOM + EXPERIMENT, GENERAL + *URANIUM DIOXIDE + CLADDING + *PLUTONIUM DIOXIDE + *FUEL REPROCESSING + *DISSOLUTION + BELGIUM

13-32899
HILBORN HS
SAVANNAH RIVER LABORATORY ISOTOPIC POWER AND HEAT SOURCES - QUARTERLY PROGRESS REPORT - OCTOBER - DECEMBER 1968, PART I - COBALT-60
SAVANNAH RIVER LABORATORY
DP-1192-1 +. 19 PAGES, 7 FIGURES, 4 TABLES, 14 REFERENCES, FEBRUARY 1969

PRELIMINARY (THEORETICAL) ANALYSES INDICATE THAT COO AND COO-MGO SOLID SOLUTIONS ARE PROMISING HIGH TEMPERATURE FUEL FORMS OF CO-60. EXTRAPOLATION OF STRESS-RUPTURE DATA FROM THE LITERATURE INDICATES THAT SUPERALLOY CAPSULES WILL PERFORM SATISFACTORILY FOR 5 YEARS AT 1000 C OR HIGHER. HAYNES 25 HAS THE HIGHEST LONG-TERM STRENGTH OF THE MATERIALS TESTED. SATISFACTORY PERFORMANCE OF AN INACTIVE INCONEL 600 CAPSULE AT 1000 C FOR 10,000 HR (1.14 YR) WAS CONFIRMED BY DESTRUCTIVE EXAMINATION. MORE INTERNAL REACTION THAN EXPECTED WAS REVEALED BY DESTRUCTIVE EXAMINATION OF TWO ACTIVE CAPSULES AFTER 10,000 HR AT 900 C.

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

TESTING + STRESS RUPTURE + *COBALT + *ENERGY SOURCE + FABRICATION + *RADIOISOTOPE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-27084 ALSO IN CATEGORIES 11 AND 18
AEC QUESTIONS AND REVISIONS TO PSAR
INDIANA AND MICHIGAN ELECTRIC CO.
60 PAGES, FIGURES, TABLES, REFERENCES, AMEND. 6 TO COOK 1 AND 2 LICENSE APPLICATION, SEPT. 13, 1968, DOCKET 50-315/316

CONTAINS RESPONSES TO 14 AEC QUESTIONS SUBMITTED BY LTR. SEPT. 10, 1968, PLUS REVISION PAGES TO PSAR. QUESTIONS CONCERN IODINE, FISSION-PRODUCT RELEASE, AND ICE-CONDENSER CONTAINMENT.

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

COOK 1 (PWR) + COOK 2 (PWR) + FISSION PRODUCT RELEASE, GENERAL + REACTOR, PWR + *AEC QUESTION + *CONTAINMENT, ICE CONDENSER + *CONTAINMENT DESIGN + FISSION PRODUCT, IODINE + REPORT, PSAR

14-27532 ALSO IN CATEGORIES 10 AND 18
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. IV
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-4 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 4, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS DESCRIBING THE ELECTRICAL POWER SYSTEMS, RADIOACTIVE WASTE SYSTEMS, AUXILIARY SYSTEMS, POWER CONVERSION SYSTEMS, STATION STRUCTURES AND SHIELDING, AND CONDUCT OF OPERATIONS.

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

REPORT, PSAR + ELECTRIC POWER, ALTERNATE + *ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + ELECTRIC POWER, AUXILIARY + *EMERGENCY POWER, ELECTRIC + STRUCTURAL INTEGRITY + ELECTRIC POWER, SHUTDOWN + DUANE ARNOLD ENERGY CENTER (BWR) + SHIELDING + BUILDING + AUXILIARY COOLING SYSTEM + REACTOR, BWR + *SYSTEM DESCRIPTION

14-28911 ALSO IN CATEGORY 15
BERYLLIUM-7 IN OCEAN WATER
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH. + INSTITUTE OF MARINE SCIENCES, UNIV. OF MIAMI, MIAMI, FLORIDA
3 PAGES, 1 FIGURE, 14 REFERENCES, SCIENCE, 161, PAGE 879-881, (AUG. 30, 1968)

CONCENTRATION OF BERYLLIUM-7, PRODUCED BY COSMIC RAYS, WAS MEASURED IN WATERS COLLECTED FROM BOTH THE ATLANTIC AND PACIFIC OCEANS. THIS SHORT-LIVED NUCLIDE IS WELL SUITED AS A TRACER FOR INTERACTIONS AT THE AIR-SEA INTERFACE AND FOR THE MEASUREMENT OF RAPID MIXING PROCESSES IN THE SURFACE LAYER OF THE OCEAN.

*SURFACE WATER, NUCLIDE OCCURRENCE + TRACER, RADIOACTIVE + *OCEAN AND SEA + *BERYLLIUM

14-28912
BOLCH WE + SELLECK RE + KAUFMAN WJ
GAS DISPERSION IN POROUS MEDIA. PECLET-REYNOLDS NUMBER CORRELATIONS
CALIFORNIA UNIV., BERKELEY. SANITARY ENGINEERING RESEARCH LAB.
SERL-67-10 +. 134 PAGES, 62 FIGURES, 9 TABLES, 144 REFERENCES, NOV. 1967

A MATHEMATICAL MODEL ANALOGOUS TO MOLECULAR DIFFUSION WAS DEVELOPED FOR A TRACE PULSE INJECTED INTO A CARRIER GAS FLOWING THROUGH 16-FOOT LONG, 2-INCH DIAMETER COLUMNS CONTAINING VARIOUS GRANULAR MEDIA. LONGITUDINAL DISPERSION COEFFICIENTS DETERMINED FROM THE BREAK-THROUGH PEAKS WERE CORRELATED IN TERMS OF A PECLET-REYNOLDS-SCHMIDT NUMBER SYSTEM. THE RANGE OF REYNOLDS NUMBERS WAS SUFFICIENT TO DESCRIBE THE ENTIRE LAMINAR REGION. AN EXPRESSION WAS DEVELOPED WHICH ACCOMMODATES MAJOR VARIATIONS IN PARAMETERS AND DESCRIBES LONGITUDINAL DISPERSION IN THE LAMINAR REGION. CONSIDERABLE RESEARCH EFFORT AND THEORETICAL ANALYSIS WAS GIVEN TO THE CONCEPT OF TORTUOSITY. A HIGHLY UNIFORM, HORIZONTALLY STRATIFIED, MICROPLATE MEDIUM PROVIDED A COMPARISON OF A MATHEMATICAL MODEL WITH AN EXPERIMENTAL VALUE. MOLECULAR DIFFUSION COEFFICIENTS FOR THE RADIOACTIVE TRACER-CARRIER GAS BINARY SYSTEM WERE DETERMINED EXPERIMENTALLY AND COMPARED TO CALCULATED VALUES.

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

*WASTE DISPOSAL, GAS + WASTE DISPOSAL, TERRESTRIAL + MODEL TESTING + TRACER, RADIOACTIVE + WASTE DISPOSAL, BEDROCK + ANALYTICAL MODEL

14-28958
PRESTON A + JEFFERIES DF + DUTTON JW
THE CONCENTRATION OF CS-137 AND SR-90 IN THE FLESH OF BROWN TROUT TAKEN FROM RIVERS AND LAKES IN THE BRITISH ISLES BETWEEN 1961 AND 1966, THE VARIABLES DETERMINING THE CONCENTRATIONS AND THEIR USE IN RADIOLOGICAL ASSESSMENTS
FISHERIES RADIOBIOLOGICAL LAB., LOWESTOFT, ENG.
22 PAGES, 10 FIGURES, 4 TABLES, WATER RESEARCH, 1, PAGES 475-496, PERGAMON PRESS, (JULY 1967)

THE CONCENTRATIONS ARE REPORTED FROM TWO COMPLEMENTARY STUDIES - A DETAILED STUDY OVER A SIX-YEAR PERIOD OF LAKE TRAWSFYNNOD, COMPARING QUANTITIES OF DEPOSITED RADIOACTIVE FALLOUT AND WATER AND FLESH CONCENTRATIONS FOR BOTH RADIONUCLIDES, AND GENERAL SURVEYS OF WATERS THROUGHOUT THE BRITISH ISLES. IT IS SHOWN THAT STRONTIUM-90, AT OR BELOW I.C.R.P. PUBLIC-DRINKING-WATER CONCENTRATIONS, IS UNLIKELY TO BE A HAZARD AS A RESULT OF THE HUMAN CONSUMPTION OF TROUT FROM ANY AREA IN THE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-28958 *CONTINUED*

BRITISH ISLES, BUT THAT CAESIUM-137 IS A POTENTIAL HAZARD IN SOME AREAS DOWN TO CONSUMPTION RATES AS LOW AS 0.4 G OF FLESH PER DAY.

*ECOLOGICAL CONSIDERATION + CALCIUM + POTASSIUM + *SURFACE WATER, NUCLIDE OCCURRENCE + *STRONTIUM + UNITED KINGDOM + *CESIUM + *BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS

14-28959

SRINATH EG + BAI B + MEERA PS

REMOVAL OF RADIOACTIVE PHOSPHORUS FROM SEWAGE BY ACTIVATED SLUDGE

INDIAN INST. OF SCIENCE, BANGALORE

5 PAGES, 4 FIGURES, 5 TABLES, 12 REFERENCES, WATER AND WASTE TREATMENT, 11, PAGE 410-414, (OCT. 1967)

FACTORS INFLUENCING THE REMOVAL BY ACTIVATED SLUDGE OF RADIOPHOSPHORUS ADDED TO RAW SEWAGE WERE STUDIED. THE RAPID REMOVAL OF THE P-32 IS LARGELY DUE TO THE VORTICELLID PROTOZOA, SUCH AS THE EPISTYLIS SPECIES, IN THE SLUDGE.

*WASTE TREATMENT, LIQUID + *WATER POLLUTION + *POPULATION EXPOSURE + *PHOSPHORUS

14-28972

ALSO IN CATEGORIES 9 AND 17

ETO T

OPERATION RECORDS AND EXPERIENCES FOR JPDR

JAPAN ATOMIC ENERGY RESEARCH INST.

8 PAGES, KARYOKU HATSUDEN, 18, PAGE 524-31, (JUNE 1967), (IN JAPANESE)

CRITICAL IN AUGUST WITH POWER GENERATION IN OCT. 1963. THE SEAL WHERE A CONTROL ROD PENETRATED WAS DAMAGED, AND ITS REPAIR REQUIRED SIX MONTHS. UPON RE-START OF OPERATION, ALL PLANT CHARACTERISTICS WERE EXAMINED IN AUGUST 1965. DURING THE SUBSEQUENT TWO YEARS OF OPERATION NO MAJOR TROUBLES OCCURRED. IN THIS PERIOD VARIOUS TESTS WERE PERFORMED ON THE PLANT. IN 1966 IT PASSED THE LAW-STIPULATED, REGULAR PLANT-INSPECTION. THE PLANT CHARACTERISTICS IN NORMAL OPERATION AND THE REGULAR INSPECTION ARE DESCRIBED, PLUS THE TREATMENT OF LIQUID AND GASEOUS WASTES AND THE RADIATION CONTROL.

SEAL + REACTOR, POWER + *WASTE DISPOSAL, GENERAL + FAILURE, SCRAM MECHANISM + *OPERATING EXPERIENCE SUMMARY + JAPAN

14-29027

ALSO IN CATEGORY 17

DRY RADIOACTIVE WASTE UNLOADING INCIDENT

US ATOMIC ENERGY COMMISSION

HEALTH AND SAFETY INFORMATION ISSUE NO. 269 +. 1 PAGE, SEPT. 27, 1968

WHEN A CASK LOAD OF CANNED WASTE WAS DUMPED INTO AN UNDERGROUND CAISSON, RADIOACTIVE DUST ESCAPED, CONTAMINATING THE CASK, ITS TRUCK, THE PERSONNEL, AND THE IMMEDIATE GROUND AREA. THE PERSONNEL, CASK, AND TRUCK WERE DECONTAMINATED, AND THE CONTAMINATED EARTH WAS BURIED IN PLACE. THE ACCIDENT WAS COSTLY, AND WAYS TO PREVENT RECURRENCE WERE INVESTIGATED.

*WASTE TRANSPORTATION + *CASK OPERATING EXPERIENCE + *WASTE HANDLING + WASTE DISPOSAL, TERRESTRIAL + *RADIATION SAFETY AND CONTROL + *RADIOACTIVITY RELEASE + CONTAMINATION + METEOROLOGY

14-29028

STRAUB CP + MURTHY GK + CAMPBELL JE

IODINE-131 IN FOODS

ROBERT A. TAFT SANITARY ENGINEERING CENTER, CINCINNATI

36 PAGES, 9 FIGURES, 8 TABLES, REFERENCES, RESIDUE REV., 13, PAGE 33-68, (1966)

THE FOLLOWING ASPECTS OF RADIOIODINE CONTAMINATION OF FOODS ARE REVIEWED, SOURCES OF PRODUCTION, FORMS OF I-131 BIOLOGICAL TRANSPORT MECHANISMS, ENTRY INTO FOOD CHAIN AND METABOLISM, SAMPLING AND SAMPLING TECHNIQUES IN MILK, VEGETATION, AND OTHER ENVIRONMENTAL SAMPLES, NATURE OF I-131 IN MILK, CONCENTRATION IN MILK, METHODS FOR DETERMINING I-131 IN MILK, PROTECTION GUIDES AND REGULATIONS, AND COUNTERMEASURES.

POPULATION EXPOSURE + NUCLEAR DETONATION + DIETARY HABIT + ENVIRONMENTAL CONDITION + ION EXCHANGE + SAMPLING + SORPTION + METEOROLOGY + TRANSPORT PROPERTY + IODIDE + IODINE + CONTAMINATION + BIOLOGICAL CONCENTRATION, MAN + ANALYTICAL TECHNIQUE, FOOD + FALLOUT + ECOLOGICAL CONSIDERATION + BIOLOGICAL CONCENTRATION, FOOD

14-29234

ALSO IN CATEGORY 15

LENGEMANN FW + WENTWORTH RA + HILTZ FL

PREDICTING THE CS-137 INTAKE FROM MILK OF A HUMAN POPULATION AFTER A SINGLE, SHORT-TERM DEPOSITION OF THE RADIONUCLIDE

NEW YORK STATE VETERINARY COLLEGE, ITHACA

9 PAGES, HEALTH PHYSICS, 14, PAGES 101-9 (FEBRUARY 1968)

A RAPID MEANS OF ASSESSING THE HUMAN DOSE-COMMITMENT OF CS-137 FOLLOWING A NUCLEAR INCIDENT IS PRESENTED. THE IMPORTANT ADVANTAGE IS THAT CALCULATIONS REST UPON KNOWLEDGE OF MILK LEVELS RATHER THAN UPON VALUES OF SURFACE CONTAMINATION OF PASTURE, WHICH ARE MOST DIFFICULT TO OBTAIN AND INTERPRET. THE EFFECTS OF PRACTICAL COUNTER-MEASURES ARE ALSO DISCUSSED.

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-29234 *CONTINUED*
*BIOLOGICAL CONCENTRATION, MILK + CESIUM + *BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *NUCLEAR DETONATION

14-29243 ALSO IN CATEGORY 15

FRANKE T
ESTIMATION OF THE DOSE RATE OF FALLOUT DEPOSITION BY X-RAY SPECTROMETRY
MAX PLANCK-INSTITUT FÜR BIOPHYSIK, FRANKFURT, AM MAIN
CONF-555 +. 3 PAGES, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964, NEW YORK PERGAMON PRESS, 1967

A VEHICLE FOR MOBILE X-RAY SPECTROMETRY MEASUREMENTS OF DEPOSITED FALLOUT WAS CONSTRUCTED. INSTRUMENTS IN THE VEHICLE ARE DESCRIBED AND METHODS FOR CALIBRATION AND OPERATION ARE EXPLAINED. IT IS POSSIBLE TO ACCURATELY CALCULATE VERY SMALL DOSE RATES. THE METHOD IS ALSO APPLICABLE TO THE CONTROL OF DOSE RATES IN THE AREA SURROUNDING REACTORS, LABORATORIES WORKING WITH RADIOISOTOPES, AS WELL AS FOR DETECTING THE HAZARDS TO THE POPULATION FROM GAMMA-EMITTING RADIOISOTOPES DEPOSITED ON THE GROUND.

POPULATION EXPOSURE + *FALLOUT + *DEPOSITION + DOSE CALCULATION, EXTERNAL + *X-RAY + MONITOR, ENVIRONMENTAL + *SPECTROMETRY, GAMMA + INSTRUMENT CALIBRATION + INSTRUMENT, SURVEILLANCE

14-29257 ALSO IN CATEGORY 15

SCHROEDER RJ + BRANDLY PJ + COURTER RD
REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND RADIOLOGICAL FALLOUT
7 PAGES, PROC. U. S. LIVESTOCK SANIT. ASSN., 68, PAGES 241-7 (1964)

THE REPORT OF A FEDERAL COMMITTEE SPONSORED BY THE DEPT. OF HEALTH, EDUCATION, AND WELFARE RELATING TO FALLOUT AND OTHER HEALTH HAZARDS PERTINENT TO LIVESTOCK IS OUTLINED. IT CONCERNS MAINLY THE PROTECTION ACTION GUIDE. THE GUIDE IS DEFINED AS THE PROJECTED ABSORBED DOSE TO INDIVIDUALS IN THE GENERAL POPULATION THAT WARRANTS PROTECTIVE ACTION FOLLOWING A CONTAMINATING EVENT. THE PROJECTED DOSE IS THE DOSE THAT WOULD BE RECEIVED IN THE FUTURE BY INDIVIDUALS IN THE POPULATION GROUP FROM THE CONTAMINATING EVENT IF NO PROTECTIVE ACTION IS TAKEN.

*IODINE + *FALLOUT + DOSE + RADIATION PROTECTION, ORGANIZATION + *BIOLOGICAL CONCENTRATION, GENERAL + NUCLEAR DETONATION + *POPULATION EXPOSURE

14-29261

SUMIYA S + MURAMATSU T
RADIOACTIVE WASTE TREATMENT FACILITIES
EBARA MFG. COMPANY, LTD.
3 PAGES, FAPIG (TOKYO) NO. 39, PAGES 260-2 (JANUARY 1966) (IN JAPANESE)

THE CCP, MISC, AND EVAP SYSTEMS FOR TREATMENT OF RADIOACTIVE WASTES FROM JAPANESE POWER PLANTS ARE DESCRIBED. THE CCP SYSTEM TREATS WATER OVERFLOWING FROM THE FUEL COOLING POND, WITH CAPACITY OF 130 CU. METERS PER DAY. THE MISC SYSTEM ALSO HAS A SIMILAR CAPACITY AND TREATS MISCELLANEOUS LIQUID WASTES. IN THE EVAP SYSTEM HIGHLY RADIOACTIVE LIQUID WASTES FROM REGENERATION OF ION EXCHANGE TOWERS IN THE OTHER TWO SYSTEMS ARE TREATED.

COOLING, GENERAL + WASTE STORAGE + WASTE MANAGEMENT + *CONDENSATION + WASTE TREATMENT, EQUIPMENT + *FILTRATION + *WASTE TREATMENT, LIQUID + *DESALINATION + *ION EXCHANGE

14-29262 ALSO IN CATEGORY 15

BACKMANN R + GRÜETER HJ
DEMONSTRATION OF A RADIOACTIVE SUBSTANCE IN THE LUNG OF A URANIUM MINER
UNIVERSITY OF MÜNSTER, GERMANY
5 PAGES, VERHANDL. DEUT. GES. PATHOL, 49, PAGES 300-4 (1965)

ALPHA-RAY ACTIVITY COULD BE DEMONSTRATED IN THE LUNGS OF A 36-YR-OLD MAN, WHO HAD BEEN WORKING IN A URANIUM MINE FOR 3 YEARS, 10 YEARS AGO. THE ACTIVITY WAS DUE TO INCORPORATED ALPHA-PARTICLE EMITTERS WHICH HAD PROBABLY BEEN TAKEN UP IN THE COURSE OF THE MAN'S ACTIVITY IN THE URANIUM MINE. FISSION PRODUCTS OF THE RADIOACTIVE FALLOUT COULD BE DEMONSTRATED ALSO IN NORMAL LUNGS BY USING GAMMA RAY SPECTROMETRY.

*BIOLOGICAL CONCENTRATION, MAN + *FISSION PRODUCT RELEASE, GENERAL + *ALPHA EMITTER + MINING + *SPECTROMETRY, GAMMA + *URANIUM + FALLOUT

14-29288 ALSO IN CATEGORIES 15 AND 17

REPORT OF AN ACCIDENTAL SPILL OF RADIO PHOSPHORUS
AMERICAN MEDICAL ASSOCIATION, INST. OF BIOMEDICAL RESEARCH
15 PAGES, TABLES, REFERENCES, LETTER TO D L AND R, OCTOBER 3, 1968

ON SEPT. 5, 1968, MOUSE EMBRYO CELLS LOADED WITH 5 MILLICURIES OF P-32 WERE BEING HOMOGENIZED AT 16,000 RPM. THE HOMOGENIZER CAME APART, SPRAYING TWO MEN AND THE ENTIRE ROOM. ROOM WAS PROFESSIONALLY DECONTAMINATED. ***ALTHO THIS WAS THE FIRST DISASSEMBLY KNOWN, FUTURE OPERATIONS WILL BE IN A HOOD. ALL SAFETY PROCEDURES WERE REEXAMINED AND TIGHTENED. THE PROCEDURES MANUAL WILL BE AMPLIFIED AND CLARIFIED.

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

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-29288 *CONTINUED*

*CONTAMINATION + BYPRODUCT MATERIAL + FAILURE, EQUIPMENT + SAFETY REVIEW + PHOSPHORUS + TRACER, RADIOACTIVE

14-29404 ALSO IN CATEGORY 7

WEEREN HO

DISPOSAL OF RADIOACTIVE WASTES BY HYDRAULIC FRACTURING- PART IV, DESIGN OF ORNLS SHALE-FRACTURING PLANT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

ORNL-P-2174 +. 8 FIGURES, 8 REFERENCES, 1 TABLE, 1966

THE SHALE FRACTURING PROGRAM HAS BEEN CONCERNED WITH THE DEVELOPMENT OF A TECHNIQUE FOR THE SAFE AND ECONOMIC DISPOSAL OF LARGE BATCHES OF RADIOACTIVE WASTE BY MIXING THE WASTE WITH CEMENT AND INJECTING THE MIX INTO BEDS OF SHALE AT DEPTHS OF ABOUT 1000 FEET. A FACILITY WAS BUILT AT ORNL TO MAKE A SERIES OF SEVEN EXPERIMENTAL INJECTIONS. LARGE VOLUMES OF WASTE SOLUTION (UP TO 150,000 GALLONS PER INJECTION) WERE SUCCESSFULLY INJECTED. PRECISE CONTROL OF THE PROPORTIONING OF CEMENT AND WASTE SOLUTION REMAINS A DIFFICULT PROBLEM. THE FACILITY IS NOW SCHEDULED FOR MODIFICATION FOR REGULAR DISPOSAL OF LABORATORY WASTE.

*WASTE TREATMENT, FIXATION + *WASTE HANDLING + WASTE DISPOSAL, HYDRAULIC FRACTURING

14-29408 ALSO IN CATEGORY 7

SCHAFER WF + BOEGLY WJ + BRADSHAW RL + PARKER FL

PROJECT SALT VAULT- DESIGN OF EQUIPMENT

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-P-3918 +. 23 PAGES, REFERENCES, 1965

HANDLING, TRANSFER, AND STORAGE TECHNIQUES APPLICABLE TO HIGH-LEVEL SOLID WASTE DISPOSAL OPERATIONS WERE SUCCESSFULLY DEMONSTRATED WITH SHORT-COOLED ETR FUEL ASSEMBLIES. THE DESIGN OF EQUIPMENT FOR THE ENCAPSULATION OF THE FUEL ASSEMBLIES, CROSS-COUNTRY SHIPMENT, TRANSFER FROM THE SURFACE TO THE MINE LEVEL, MOVEMENT WITHIN THE MINE, AND TRANSFER INTO STORAGE IS DESCRIBED. THE OPERATIONS ARE UNIQUE IN THAT HIGH-LEVEL RADIOACTIVE MATERIALS ARE TRANSFERRED FROM A SHIPPING CASK ON THE SURFACE TO THE MINE LEVEL 1000 FT BELOW WITHOUT THE USE OF HOT CELLS.

WASTE DISPOSAL, TERRESTRIAL + WASTE TREATMENT, SOLID + WASTE DISPOSAL, SOLID + *WASTE TREATMENT, FIXATION + *WASTE STORAGE + TRANSPORTATION AND HANDLING + *SHIPPING CONTAINER + *WASTE DISPOSAL, GENERAL + WASTE HANDLING + WASTE TREATMENT, GENERAL + *WASTE TRANSPORTATION

14-29526 ALSO IN CATEGORIES 12 AND 13

NUCLEAR SAFETY QUARTERLY REPORT, NOV., DECEMBER, 1967, JANUARY, 1968 FOR NUCLEAR SAFETY BRANCH OF USAEC

DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY

BATTELLE NORTHWEST

BNWL-816 +. 148 PAGES, FIGURES, TABLES, REFERENCES, SEPTEMBER 1968

REPORT COVERS ENGINEERED SAFEGUARD STUDIES, MONITORING, STUDIES, FIXATION OF RADIOACTIVE RESIDUES, ENVIRONMENTAL STUDIES, AND HEAVY SECTION STEEL TECHNOLOGY PROGRAM. VARIOUS PROGRAMS COVERED ARE CONTAINMENT, AEROSOL CONTROL, CRACK DETECTION IN PRESSURE PIPING, DISPOSAL OF REACTOR OFF-GAS INTO SOIL, POT SOLIDIFICATION, PHOSPHATE GLASS SOLIDIFICATION, SPRAY SOLIDIFICATION, STORAGE, IRRADIATION EFFECTS ON PRESSURE VESSEL STEELS, AND STRESS IN STEEL SECTIONS.

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

WASTE TREATMENT, LIQUID + AEROSOL + *FUEL REPROCESSING + *REACTOR, GENERAL + CONTAINMENT, GENERAL + IRRADIATION TESTING + STEEL + GLASS + WASTE DISPOSAL, SOLID + *ENGINEERED SAFETY FEATURE + *WASTE TREATMENT, GENERAL + WASTE DISPOSAL, GAS + *EXPERIMENT, GENERAL + CALCINATION + PIPING

14-29585 ALSO IN CATEGORY 17

WOLFF U

RADIOACTIVITY AND WATER CHEMISTRY IN THE BOILING-WATER REACTOR

AEG-TELEFUNKEN, FRANKFURT AM MAIN

3 PAGES; AT. STROM, 14, PAGES 49-51 (FEB.-MAR. 1968)

THE METHODS USED FOR CONTROLLING RADIOACTIVE SUBSTANCES ARE DISCUSSED. IT IS SHOWN THAT EVEN IF FUEL DAMAGE OCCURS TO AN EXTENT WHICH HAS NOT EVEN BEEN APPROACHED IN ABOUT 40 REACTOR OPERATING YEARS, AND IF UNRESTRICTED OPERATION OF THE POWER STATION IS CONTINUED, RADIOACTIVE ISOTOPES EMITTED FROM THE POWER STATION ARE AT THE MOST IN THE MAXIMUM PERMISSIBLE CONCENTRATIONS. RELEASE OF RADIOACTIVE SUBSTANCES IN WATER CAN BE PREVENTED. BWRs OF THIS DESIGN ARE INDEPENDENT OF POSITION FROM SAFETY STANDPOINT.

PARTITION COEFFICIENT + OFF GAS + *COOLANT CHEMISTRY + STACK + GERMANY + REACTOR, BWR + FAILURE, FUEL ELEMENT + *SOURCE, CONTINUOUS

14-29631

TALSKY J + GOETTE H

TREATMENT OF RADIOACTIVE EFFLUENT AND WASTES CONTAINING ISOTOPES OF SHORT AND MEDIUM HALF-LIVES FROM THE

RADIOCHEMICAL LABORATORY, GRIESHEIM

FARBWERKE HOECHST AG, FRANKFURT AM MAIN

6 PAGES, CHEM.-ING.-TECH., 40, PAGES 296-301 (MARCH 1968) (IN GERMAN)

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-29631 *CONTINUED*

THE WASTE WATER IS CLASSIFIED ACCORDING TO COMPOSITION AND ORIGIN AND TREATED SEPARATELY. PRECIPITATION OF THE RADIONUCLIDES WITH SPECIAL COMBINATIONS OF FLOCKING AGENTS HAS PROVED A SUITABLE METHOD OF PURIFICATION. THE SOLID WASTES ARE DIVIDED INTO CATEGORIES CORRESPONDING TO THEIR HALF-LIVES AND REPROCESSED OR DISPOSED OF SEPARATELY.

*WASTE DISPOSAL, SOLID + GERMANY + PRECIPITATION + *EFFLUENT + *WASTE TREATMENT, LIQUID + *RADIOCHEMICAL PROCESSING

14-29632

KRAUSE H + NENTWICH O
DECONTAMINATION OF RADIOACTIVE EFFLUENTS AT KERFORSCHUNGSZENTRUM KARLSRUHE
GESELLSCHAFT FUER KERNFORSCHUNG MBH, KARLSRUHE, GER.
5 PAGES, CHEM.-ING.-TECH., 40, PAGES 301-305 (MARCH 1968) (IN GERMAN)

THE RADIOACTIVE EFFLUENTS (APPROX. 10,000 CUBIC METERS PER YEAR) ARE DECONTAMINATED BY CHEMICAL PRECIPITATION, ION EXCHANGE, OR EVAPORATION IN VAPOUR-RECOMPRESSION EVAPORATORS, ACCORDING TO THEIR CONTENT OF RADIONUCLIDES AND NON-ACTIVE SUBSTANCES. THE EVAPORATION PROCESS WAS FOUND TO BE THE LEAST DEPENDENT ON THE COMPOSITION OF THE EFFLUENTS, AND CHEMICAL PRECIPITATION AND ION EXCHANGE WERE FOUND TO BE LESS EFFECTIVE. THE HIGHLY RADIOACTIVE CONCENTRATES OBTAINED FROM THE DECONTAMINATION PROCESS ARE SEALED IN CONCRETE OR BITUMEN FOR DISPOSAL.

*WASTE DISPOSAL, SOLID + CHEMICAL REACTION + GERMANY + *WASTE TREATMENT, FIXATION + VAPOR, VAPOR PRESSURE + CONCRETE + *EFFLUENT + PRECIPITATION + EVAPORATION + *DECONTAMINATION + ION EXCHANGE

14-29633

V. ERICHSEN L
SEPARATION AND SECURING OF RADIONUCLIDES FROM LIQUID WASTE
UNIV., BONN
29 PAGES, FORTSCHR. CHEM. FORSCH., 9, PAGES 295-323 (OCT. 1967) (IN GERMAN)

THE VARIOUS TECHNIQUES FOR DECONTAMINATION ARE REVIEWED - DILUTION, CONCENTRATION BY DISTILLATION, PRECIPITATION (USING HYDROXIDE, CA PHOSPHATE, CA CARBONATE, COMPLEXES, SILICATE, CA SOAP, DESTRUCTION OF PRECIPITATES, SEDIMENT SEPARATION), AND ION EXCHANGE-ADSORPTION TECHNIQUES WITH INORGANIC EXCHANGE MATERIALS. THE HANDLING OF RADIOACTIVE CONCENTRATES IS DISCUSSED IN TERMS OF SOLIDIFICATION. EMPHASIS PLACED ON HYDRAULIC BINDING, DRYING, CALCINATION AND SINTERING, INORGANIC FUSION, AND SPECIAL BINDING MATERIALS. COMPARISON OF TECHNIQUES IS MADE. APPLICATION OF THESE TECHNIQUES TO DIFFERENT LIQUID WASTES IS ILLUSTRATED. FINAL STORAGE IN TANKS, BURIAL VAULTS, CERTAIN GEOLOGICAL FORMATIONS, AND MINERAL DEPOSITS, INCLUDING SALT AND CRYSTALLINE ROCKS, IS REVIEWED.

ADSORPTION + PRECIPITATION + CALCIUM + *WASTE TREATMENT, SOLID + *WASTE TREATMENT, LIQUID + GERMANY + SEDIMENT + *WASTE DISPOSAL, GENERAL + PHOSPHATE + ION EXCHANGE + *DECONTAMINATION + CONDENSATION + DILUTION + WASTE STORAGE + *WASTE TREATMENT, FIXATION

14-29675

ALSO IN CATEGORY 17

BJELDANES MN
FAILURE OF PVC LINE RELEASES LIQUID WASTE
NORTHERN STATES POWER CO.
1 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19, (NOVEMBER 25, 1968), DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

(LETTER OCT. 8) DURING RELOCATION OF PATHFINDER LIQUID WASTE DISCHARGE LINE, A COUPLING IN THE POLYVINYL CHLORIDE LINE WAS FOUND SEPARATED. THREE 55 GAL BARRELS OF SOIL CONTAINING 0.92 MILLICURIE OF ZN-65 WILL BE PROCESSED AS DRY WASTE.

REACTOR, BWR + REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, TERRESTRIAL + PLASTICS + PATHFINDER (ISR) + *RADIOACTIVITY RELEASE + FAILURE, PIPE

14-29892

ALSO IN CATEGORY 13

MANESS RF + MCELROY JL + HARTLEY JN + SCHWAB MR
FIXATION OF RADIOACTIVE RESIDUES
BATTELLE NORTHWEST, RICHLAND, WASHINGTON
BNWL-894 +. OCTOBER 1968

DISCUSSION OF EFFORTS AND RESULTS ARE GIVEN IN EACH OF THE FOLLOWING - PHOSPHATE-GLASS SOLIDIFICATION, SPRAY SOLIDIFICATION, ADVANCED SOLIDIFICATION TECHNIQUES, DEVELOPMENT STUDIES ON SOLIDIFICATION PROCESSES AND HEAT TRANSFER, WASTE FROM CHEMICAL PROCESSING, LOW-LEVEL WASTE TREATMENT, AND AN EVALUATION OF THE STUDY OF SOLIDIFIED WASTE PRODUCTS.

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

*GLASS + *WASTE DISPOSAL, GENERAL + *WASTE TREATMENT, FIXATION + *SPRAY, GENERAL + BATTELLE NORTHWEST + *HEAT TRANSFER + *FUEL REPROCESSING + *FUEL REPROCESSING + R AND D PROGRAM + *WASTE TREATMENT, GENERAL

14-30108

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30108 *CONTINUED*
BIOLOGY AND HEALTH PHYSICS DIVISION PROGRESS REPORT, APRIL 1 - JUNE 30, 1968
ATOMIC ENERGY OF CANADA LTD., CHALK RIVER
AECL-3158 +. 44 PAGES, 4 FIGURES, AUGUST 1968

HYDROGEN ISOTOPES IN THE HYDROLOGIC CYCLE - REGIONAL AND TIME VARIATIONS OF ISOTOPES OF HYDROGEN IN NATURAL WATERS CAN CONTRIBUTE VALUABLE INFORMATION ON MOVEMENT OF WATER THROUGH HYDROLOGIC CYCLE. TRITIUM, PRODUCED IN ATMOSPHERE BY COSMIC RADIATION OR RELEASED IN THERMONUCLEAR TESTS, SERVES AS TRACER FOR RECENT ATMOSPHERIC WATER AS IT IS TRANSFERRED THROUGH VARIOUS NATURAL RESERVOIRS OF THE WORLD--ATMOSPHERIC, CONTINENTAL AND OCEANIC. THE SMALL VARIATIONS OBSERVED IN NATURAL DEUTERIUM CONCENTRATIONS, ESTABLISHED BY ISOTOPIC FRACTIONATION IN EVAPORATIVE AND CONDENSATIVE PROCESSES IN NATURE, GIVE INFORMATION ON THESE ASPECTS OF HYDROLOGIC CYCLE.

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

DISPERSION + *GROUND WATER, NUCLIDE OCCURRENCE + *DEUTERIUM + *ATMOSPHERIC DIFFUSION + STRATOSPHERE + TRACER, RADIOACTIVE + *TRITIUM + TESTING + OCEAN AND SEA + NUCLEAR DETONATION + DEPOSITION + *HYDROGEN + TROPOSPHERE + *ECOLOGICAL CONSIDERATION + EVAPORATION + RAINOUT + COSMIC RADIATION + CONDENSATION + *SURFACE WATER, NUCLIDE OCCURRENCE + PRECIPITATION + ISOTOPIC FRACTIONATION + CANADA

14-30118
CHRISTENSON CW
TREATMENT OF HIGHLY RADIOACTIVE WASTES
LOS ALAMOS SCIENTIFIC LABORATORY
LA-DC-10006 +. 28 P., OCTOBER 25, 1968

THIS REPORT IS CONFINED TO THE WASTE GENERATED AND HANDLED AT HANFORD, U.S.A., BECAUSE THEY HAVE BEEN IN OPERATION THE LONGEST AND HAVE PERHAPS GENERATED MORE WASTES THAN AT ANY OTHER SITE. OF THE SEVERAL METHODS OF PROCESSING NUCLEAR FUEL, THE PUREX PROCESS IS THE MOST WIDELY USED. THE PUREX PROCESS INVOLVES SOLVENT EXTRACTION FROM A NITRIC ACID SOLUTION USING A BLEND OF TRIBUTYL PHOSPHATE AND KEROSENE. WITH THE CURRENT OPERATING EXPERIENCE AND SUCCESS OF THIS PROCESS AND ITS ECONOMIC ATTRACTIVENESS, INITIAL POWER FUEL REPROCESSING PLANTS WILL PROBABLY CONTINUE TO USE THE PUREX PROCESS WITH SOME MINOR VARIATIONS, WHICH ARE ALSO DISCUSSED.

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

SOIL, RADIONUCLIDE MOVEMENT THROUGH + FUEL REPROCESSING + HANFORD SITE + VAPOR, VAPOR PRESSURE + *SOLVENT EXTRACTION PROCESS + CALCINATION + *HIGH RADIATION + *WASTE STORAGE + FILTER + WASTE DISPOSAL, SOLID + WASTE TREATMENT, ECONOMICS + WASTE MANAGEMENT + LEAK + *WASTE TREATMENT, LIQUID + STACK + CONDENSATION

14-30119
CHRISTENSON CW
TREATMENT OF LOW AND INTERMEDIATE LEVEL RADIOACTIVE CONCENTRATES
LOS ALAMOS SCIENTIFIC LABORATORY
LA-DC-10005 +. 63 P., OCTOBER 1968

ALL TREATMENT PROCESSES FOR THE HANDLING OF LOW- AND INTERMEDIATE-LEVEL WASTES PRODUCE A CONCENTRATE WHICH GENERALLY HAS TO BE CONDITIONED BEFORE FINAL DISPOSAL. THESE CONCENTRATES MAY BE THE SLUDGE FROM EVAPORATION PLANTS, CHEMICAL TREATMENT SLUDGES OR SPENT ION EXCHANGE MATERIAL. THE GENERALLY ACCEPTED METHODS DISCUSSED IN THIS PAPER ARE SOLAR EVAPORATION, FILTRATION (GRAVITY, PRESSURE AND VACUUM), CENTRIFUGATION, INCORPORATION INTO BITUMEN OR ASPHALT, AND INCORPORATION INTO CEMENT AND VERMICULITE.

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

*EVAPORATION + *SOIL + WASTE MANAGEMENT + *CONCRETE + *FILTRATION + IAEA + *WASTE TREATMENT, FIXATION

14-30120
CHRISTENSON CW
GROUND DISPOSAL OF LIQUIDS
LOS ALAMOS SCIENTIFIC LABORATORY
LA-DC-10004 +. OCTOBER 25, 1968, 11P.

THE USE OF THE GROUND FOR DISPOSAL OPERATIONS IS BASED ON TWO FUNDAMENTAL PROPERTIES. FIRST, THE MINERALS FROM WHICH THE SUBSOILS ARE COMPOSED GENERALLY HAVE A MARKED SORPTION CAPACITY FOR MOST URANIUM FISSION PRODUCTS AS WELL AS FOR MANY OTHER RADIOISOTOPES. SECONDLY, THE MASS OF SOIL COVERING A DISPOSAL PROVIDES GOOD RADIATION SHIELDING AND PERMANENT PHYSICAL PROTECTION TO PEOPLE ABOVE GROUND. GROUND DISPOSAL IS DISCUSSED RELATIVE TO ITS MOST IMPORTANT CRITERIA, I.E., SOIL TYPE, PROXIMITY TO STREAMS, VOLUME OF WASTE, SITING, HYDROLOGY, GEOLOGY, AND DEEP INJECTIONS.

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

*GEOLOGICAL CONSIDERATION, GENERAL + *HYDROLOGICAL CONSIDERATION, GENERAL + ION EXCHANGE + *SITING, GENERAL + IAEA + SORPTION + WASTE DISPOSAL, BEDROCK + *SURFACE WATER, DISPOSAL MEDIA + CHEMICAL REACTION + *WASTE DISPOSAL, LIQUID + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + EFFLUENT + WASTE MANAGEMENT

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30122
MCCLAIN WC
DISPOSAL OF RADIOACTIVE WASTES BY HYDRAULIC FRACTURING
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-P-4196 +. 32 PAGES, 15 REFERENCES, 1968

ALTHOUGH HYDRAULIC FRACTURING HAS BEEN SHOWN TO BE A SAFE AND ECONOMICAL METHOD OF WASTE DISPOSAL AT 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 + *WASTE DISPOSAL, LIQUID + ANNULUS + ROCK MECHANICS + STRESS + *ORNL +
*SITING, GENERAL + FUEL REPROCESSING + TESTING + WASTE DISPOSAL, ECONOMICS + *SEISMOLOGY + *GEOLOGICAL
CONSIDERATION, GENERAL

14-30123
SPITSYN EY
TREATMENT AND DISPOSAL OF RADIOACTIVE WASTES
AEC-TR-6881 +. 107 PAGES, ATOMIZDAT MOSKVA, 1965 (TRANSLATED FROM RUSSIAN)

DISCUSSES THE MANY ASPECTS OF WASTE MANAGEMENT, INCLUDING DISPOSAL, TREATMENT, TRANSPORTATION, AND BURIAL. TECHNIQUES FOR THE DISPOSAL OF RADIOACTIVE WASTES MUST BE STILL FURTHER IMPROVED. THIS IS BEING DONE IN THE USSR AND OTHER COUNTRIES AND NEW METHODS AND NEW TYPES OF EQUIPMENT ARE BEING DEVELOPED. MANY OF THE CURRENTLY USED PROCESSES WILL CONTINUE TO BE EXTENSIVELY USED IN THE FUTURE. IMPROVEMENTS IN THESE METHODS WILL PROCEED MAINLY TOWARD DEVELOPING NEW TYPES OF EQUIPMENT, NEW MATERIALS AND REAGENTS TO INTENSIFY THE TECHNOLOGICAL PROCESSES.

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

WASTE TREATMENT, GENERAL + RADIATION SAFETY AND CONTROL + USSR + *WASTE DISPOSAL, GENERAL + *WASTE
TRANSPORTATION + *EVAPORATION + *PRECIPITATION + *WASTE MANAGEMENT + *POPULATION EXPOSURE + *ION EXCHANGE

14-30127 ALSO IN CATEGORY 13
SCHEIDHAUER J
IMMEDIATE SUPERVISION OF THE COASTAL SITE AT THE LA HAGUE CENTRE
FRANCE. COMMISSARIAT A L ENERGIE ATOMIQUE
CEA-R-3459 +. MARCH 1968, 33 PAGES (IN FRENCH)

THE DISPOSAL INTO THE SEA OF THE RESIDUAL WATERS FROM A PLANT PROCESSING IRRADIATED FUELS MEANS THAT A VERY CLOSE WATCH HAS TO BE KEPT ON THE CORRESPONDING COASTAL ZONE. THE MATERIAL ORGANISATION OF SUCH A SUPERVISION, AND THE SAMPLING TECHNIQUES, ARE DESCRIBED. THESE LATTER CONCERN FLORA, FAUNA, SEDIMENTS, AND SEA-WATER. RESULTS OBTAINED USING VARIOUS ANALYTICAL AND ROUTINE MEASUREMENT METHODS ARE PRESENTED.

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

*MONITORING PROGRAM, ENVIRONMENTAL + FUEL, POWDER TYPE + SAMPLING + *WASTE DISPOSAL, OCEAN + MONITOR,
TELEMETRY + *BIOLOGICAL CONCENTRATION, VEGETATION + SURFACE WATER, SEDIMENT + *MEASUREMENT, REACTIVITY +
*SURVEILLANCE PROGRAM + IRRADIATION FACILITY + ANALYTICAL TECHNIQUE, GENERAL + *SURFACE WATER, DISPOSAL MEDIA
+ RADIATION PROTECTION, ORGANIZATION + OCEAN AND SEA

14-30129 ALSO IN CATEGORIES 1 AND 15
JACOBS DG
SOURCES OF TRITIUM AND ITS BEHAVIOR UPON RELEASE TO THE ENVIRONMENT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
TID-24635 + ORNL-NSIC-39 +. 90P., DEC. 1968

AN ATTEMPT IS MADE IN THIS STATE-OF-THE-ART-REPORT TO SUMMARIZE SOME OF THE IMPORTANT PROPERTIES OF TRITIUM AND TO USE THESE PROPERTIES IN PREDICTING THE IMPACT OF DIVERSE RELEASES OF TRITIUM ON LOCAL AND WORLDWIDE POPULATIONS. DESPITE INADEQUACIES OF PRESENT INFORMATION ON THE BEHAVIOR OF TRITIUM, WE CAN CONCLUDE, IN OUR PRESENT POWER ECONOMY, TRITIUM POSES NO SEVERE WORLDWIDE EXPOSURE PROBLEMS. HOWEVER, IT WILL CONTINUE TO OFFER HANDLING AND ENVIRONMENTAL CONTAMINATION PROBLEMS. ALSO REPORTED IS INFORMATION CONCERNING SOURCES, ENRICHMENT, MONITORING, MOVEMENT, AND PROJECTED PRODUCTION OF TRITIUM.

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

DEPOSITION + SURFACE CONTAMINATION + DISPERSION + TROPOSPHERE + DIFFUSION + TRITIUM + RADIOACTIVITY RELEASE +
DILUTION + GROUND WATER, GENERAL + EVAPORATION + OCEAN AND SEA + RAINOUT + POPULATION EXPOSURE + RADIATION
SAFETY AND CONTROL + CONDENSATION + REACTOR, POWER + FUEL REPROCESSING + HYDROLOGICAL CONSIDERATION, GENERAL
+ THERMAL CONSIDERATION + ENVIRONMENTAL CONDITION + CHROMATOGRAPHY + STRATOSPHERE + INSTRUMENT, RADIATION
MONITORING

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30131
LOMENIC TF + BRADSHAW RL
MODEL PILLAR TESTS FOR EVALUATING THE STRUCTURAL STABILITY OF OPENINGS IN ROCK SALT UTILIZED FOR THE DISPOSAL OF RADIOACTIVE WASTES
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
ORNL-P-4188 +. 26P., 1965

PERHAPS THE MOST PROMISING GEOLOGIC ENVIRONMENT FOR THE DISPOSAL OF LARGE AMOUNTS OF HEAT-GENERATING HIGH-LEVEL RADIOACTIVE WASTE IS SUBTERRANEAN ROCK SALT DEPOSITS. TO DESIGN AN ACTUAL DISPOSAL FACILITY IN SALT, IT IS NECESSARY THAT THE EFFECTS OF ELEVATED TEMPERATURE, LOAD, AND STRATIGRAPHIC RELATIONS ON STRUCTURAL OPENINGS BE DETERMINED. TO PREDICT FLOW IN ROCK SALT, SCALE MODELS OF SALT PILLARS AND THEIR SURROUNDING ROOMS HAVE BEEN FABRICATED FROM CORES TAKEN IN MINES AT LYONS AND HUTCHINSON (KANSAS), RETSO (NEW YORK), DETROIT (MICHIGAN), GRAND SALINE (TEXAS), COTE BLANCHE (LOUISIANA), AND ASSE (GERMANY).

THERMAL PROPERTY + TESTING + CREEP BEHAVIOR + *WASTE DISPOSAL, SALT + *GEOLOGICAL CONSIDERATION, GENERAL + DESIGN CRITERIA + *FLOW THEORY AND EXPERIMENTS + *DEFORMATION + STRESS + *MODEL TESTING

14-30135 ALSO IN CATEGORY 15
HEALTH PHYSICS DIVISION ANNUAL PROGRESS REPORT FOR PERIOD ENDING JULY 31, 1968
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-4316 +. 324 PAGES, OCTOBER 1968

PROGRESS OF THE HEALTH PHYSICS DIVISION AT ORNL IS REPORTED AS FOLLOWS - PART I, RADIOACTIVE WASTE DISPOSAL - (1) FATE OF TRACE ELEMENTS AND RADIONUCLIDES IN TERRESTRIAL ENVIRONMENT, (2) DISPOSAL OF HYDRAULIC FRACTURING, (3) DISPOSAL IN NATURAL SALT FORMATIONS, (4) ENGINEERING, ECONOMIC, AND SAFETY EVALUATIONS, (5) EARTHQUAKE AND REACTOR SAFETY, (6) DOSE ESTIMATION STUDIES RELATED TO PEACEFUL USES OF NUCLEAR EXPLOSIVES, (7) RELATED CO-OPERATIVE PROJECTS. PART II, RADIATION ECOLOGY. PART III, RADIATION PHYSICS. PART IV, RADIATION DOSIMETRY RESEARCH. PART V, INTERNAL DOSIMETRY.

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

DOSE CALCULATION, INTERNAL + *WASTE DISPOSAL, HYDRAULIC FRACTURING + DOSE CALCULATION, EXTERNAL + *ECOLOGICAL CONSIDERATION + RADIATION SAFETY AND CONTROL + AQUATIC ORGANISMS + EARTHQUAKE + *WASTE DISPOSAL, SALT + *TRITIUM + *POPULATION EXPOSURE + HEALTH PHYSICS TRAINING + *WASTE DISPOSAL, ECONOMICS + *REACTOR SAFETY SYSTEM + *DOSIMETRY, GENERAL + COMPUTER PROGRAM + *WASTE MANAGEMENT + THEORETICAL INVESTIGATION + *WASTE DISPOSAL, TERRESTRIAL

14-30314
BROWN DW
EVALUATION OF SOLIDIFIED WASTE PRODUCTS. STUDY OF THE HIGH TEMPERATURE STORAGE OF SOLIDIFIED WASTE PRODUCTS CONTAINING SULFATE
BATTTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-926 + UC-41 +. 9 PAGES, 8 FIGURES, DECEMBER 1968

THIS EXPERIMENT IS DESIGNED TO DETERMINE WHETHER THE SULFATE IN SOLIDIFIED WASTE PRODUCTS CONTAINING SULFATE WILL DECOMPOSE UNDER CONDITIONS OF HIGH TEMPERATURE STORAGE AND RESULT IN EXCESSIVE VESSEL PRESSURIZATION. EXPERIMENT WAS INCONCLUSIVE.

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

*DECAY HEAT + R AND D PROGRAM + *PRESSURE VESSEL + HIGH TEMPERATURE + CALCINATION + *WASTE STORAGE

14-30315
SIEMENS DH + KELLY VP
PRODUCT MEASUREMENTS, TESTING AND STORAGE. SOLIDS STORAGE ENGINEERING TEST FACILITY (SSETF)
BATTTELLE NORTHWEST LABORATORY, RICHLAND, WASHINGTON
BNWL-926 + UC41 +. P5.32, DECEMBER 1968

PROGRESS IS REPORTED ON INSTALLATION OF FACILITIES FOR THE TESTING PROGRAMS.

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

CHAMBER, ION + *R AND D PROGRAM + SHIELDING + *HOT CELL + CALCINATION + WASTE HANDLING + *TESTING + *WASTE STORAGE

14-30363 ALSO IN CATEGORY 15
THOMPSON JC
COMPARISON OF I-131 INTAKE FROM MILK AND NON-MILK FOODS
CORNELL UNIVERSITY
6 PAGES, HEALTH PHYSICS, 14, PAGES 483-8 (MAY 1968)

NON-MILK I-131 INTAKE COULD MAKE A SIGNIFICANT CONTRIBUTION TO TOTAL I-131 INTAKE AMONG CERTAIN POPULATION GROUPS. ESTIMATIONS WERE MADE FOR SOME OF THESE GROUPS DURING THE JUNE TO SEPTEMBER

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30363 *CONTINUED*

1962 PERIOD. THE POSSIBILITY OF A 20-40% NON-MILK I-131 CONTRIBUTION WAS INDICATED FOR FARM FAMILIES, RURAL FAMILIES WITH GARDENS, AND OTHER NON-URBAN POPULATION CATEGORIES. SINCE THERE ARE NEARLY 50 MILLION PERSONS IN THE U.S. INCLUDED IN THESE GROUPINGS, THE NATURE AND MAGNITUDE OF THIS CONTRIBUTION SHOULD BE MORE CAREFULLY EXAMINED. THE SOLUTION TO THE PROBLEM MAY SIMPLY REQUIRE CONVERTING TO PROCESSED FOODS WHEN THE OCCASION DEMANDS ACTION, BUT NO PROCEDURES OR PLANS HAVE BEEN ESTABLISHED TO MEET THIS NEED.

*BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, MAN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) +
*BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *IODINE + *FALLOUT + *POPULATION EXPOSURE

14-30402

KEPAK F

DECONTAMINATION OF RADIORUTHENIUM FROM RADIOACTIVE WATERS BY SORPTION ON INORGANIC AND ORGANIC SORBENTS
INST. OF NUCLEAR RESEARCH, REZ, CZECH.
3 PAGES, JAD. ENERG., 14, PAGES 131-133 (APRIL 1968) (IN CZECH)

ECONOMIC ASPECTS OF TREATING RADIOACTIVE WASTES BY SORPTION ARE DISCUSSED. A BRIEF REVIEW IS GIVEN OF METHODS FOR DECONTAMINATION OF RUTHENIUM ISOTOPES FROM RADIOACTIVE WASTE WATER BY ADSORPTION ON INORGANIC ABSORBERS SUCH AS UNSOLUBLE METAL SULFIDES AND HYDRATES, HYDRATED OXIDES, PHOSPHATES, POWDERED METALS, AND NATURAL ABSORBERS AND ON CELLULOSE BASE OR HUMIC ACID ABSORBERS, AND ORGANIC ION CHANGERS.

*WASTE TREATMENT, LIQUID + OXIDE + *ADSORPTION + *ION EXCHANGE + METAL + *SORPTION + WASTE TREATMENT,
ECONOMICS + PHOSPHATE + DECONTAMINATION + RUTHENIUM

14-30403 ALSO IN CATEGORY 13

SAIDL J + SAFAR O

HIGH LEVEL RADIOACTIVE WASTE BURIAL IN CZECHOSLOVAKIA
INST. OF NUCLEAR RESEARCH, REZ, CZECH.

2 PAGES, JAD. ENERG., 14, PAGES 150-141 (APRIL 1968) (IN CZECH)

THE PRELIMINARY PROJECT OF UTILIZING THE ABANDONED LIMESTONE MINE RICHARD NEAR LITOMERICE, FOR THE STORAGE OF HIGH LEVEL RADIOACTIVE WASTES FROM THE REPROCESSING PLANTS WHICH HAVE BEEN CONVERTED INTO SOLID AND CHEMICALLY RESISTANT MATERIALS, IS GIVEN.

WASTE DISPOSAL, LIQUID + CZECHOSLOVAKIA + RADIATION SAFETY AND CONTROL + SITING, CHEMICAL PROCESS PLANT +
WASTE DISPOSAL, SOLID + ENVIRONMENTAL CONDITION + FUEL REPROCESSING + GEOLOGICAL CONSIDERATION, GENERAL +
WASTE STORAGE + WASTE DISPOSAL, ECONOMICS + HYDROLOGICAL CONSIDERATION, GENERAL + MINING

14-30405 ALSO IN CATEGORY 11

HOLZWORTH ML + GIRDLER RM + COSTAS LP + RION WC

HOW TO PREVENT STRESS-CORROSION CRACKING OF RADIOACTIVE WASTE STORAGE TANKS

SAVANNAH RIVER LABORATORY

2 PAGES, MATER. PROTECT. 7, PAGES 36-8 (JANUARY 1968)

NITRATE STRESS CORROSION CRACKING CAUSED LEAKAGE OF SEVERAL ONE-MILLION-GALLON UNDERGROUND CARBON STEEL TANKS STORING RADIOACTIVE WASTE SOLUTIONS. TESTS SHOWED THAT THE LEAKS WERE CAUSED BY CLASSICAL STRESS CORROSION CRACKING AND WERE NOT RELATED TO THE RADIOACTIVITY OF THE WASTES. CORROSION TESTS ARE PRESENTED THAT SHOW THAT FULL STRESS RELIEF IS THE ONLY RELIABLE METHOD OF PREVENTING STRESS CORROSION IN UNDERGROUND CARBON-STEEL TANKS CONTAINING RADIOACTIVE WASTE SOLUTIONS.

*WELDS + *LEAK + TEST, LEAK LOCATION + *STORAGE CONTAINER + *WASTE STORAGE + SAVANNAH RIVER PLANT + *STRESS
CORROSION

14-30428 ALSO IN CATEGORIES 15 AND 18

COMMENTS ON RADIOLOGICAL SAFETY AT OYSTER CREEK 1

JERSEY CENTRAL LIGHT AND POWER COMPANY

4 PAGES, AMENDMENT 26 TO OYSTER CREEK 1 LICENSE APPLICATION, NOVEMBER 28, 1967, DOCKET 50-219, TYPE--BWR, MFG--
G-E., AE--BURNS + ROE

COMMENTS ON FISH-AND-WILDLIFE-SERVICE LETTERS TO AEC - (1) PLANT IS 50 MILES FROM PHILADELPHIA, NET ELECTRICAL POWER WILL BE 60 MW. TRACER STUDIES PERFORMED ONLY IN AUG. AND SEPT. 1963, ONLY 2 DILUTION PUMPS NEEDED TO MAINTAIN LIMIT OF 95 F AT BUOY IN BARNEGOT BAY. (2) COOPERATION WITH N.J. DEPT. OF HEALTH WILL CONTINUE. (3) PROGRAM OF SAMPLING CLAMS, WATER, AND SEDIMENT WILL CONTINUE EVERY 4 WKS DURING FIRST YEAR OF POWER OPERATION. (4) NO JUSTIFICATION FOR A REPORT EVERY 3 MONTHS, PROPOSE 6 MONTHS. (5) IF SAMPLING PROGRAM REQUIRES, PLANT RADWASTE DESIGN AND OPERATION WILL BE REVIEWED. (6) RADIOACTIVITY CONCENTRATION FOR FISH BASED ON FISH MOBILITY, DILUTION, AND DISCHARGE CONCENTRATION.

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

*WASTE DISPOSAL, LIQUID + OFF SITE + FISSION PRODUCT RELEASE, GENERAL + OYSTER CREEK 1 (BWR) + REACTOR, BWR +
OCEAN AND SEA + *WASTE MANAGEMENT + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *SURVEY,
RADIATION, ENVIRONMENTAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30461 ALSO IN CATEGORY 15
SPANGLER GW + WILLIS CA
PERMISSIBLE CONTAMINATION LIMITS
UNIVERSITY OF CALIFORNIA, LOS ANGELES
CONF-555 +. 8 PAGES, PAGES 151-8 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967. FROM
INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

THE ESTABLISHMENT OF PERMISSIBLE CONTAMINATION LIMITS (PCL), PRESENTS A PRACTICAL APPROACH TO
CONTROL OF RADIOACTIVE CONTAMINATION HAZARDS. VALUES FOR PCL BASED ON A CONSERVATIVE ASSESSMENT
OF POTENTIAL INHALATION AND DIRECT RADIATION HAZARD ARE SUFFICIENT TO PROTECT OTHER SURFACE
CONTAMINATION HAZARDS. CURRENT DATA APPEAR INSUFFICIENT FOR THE ESTABLISHMENT OF SPECIFIC PCL
VALUES FOR EACH INDIVIDUAL ISOTOPE.

SURFACE CONTAMINATION + BETA EMITTER + ALPHA EMITTER + GAMMA EMITTER + HAZARD, RELATIVE + *MAXIMUM PERMISSIBLE
DOSE (MPD)

14-30462 ALSO IN CATEGORY 15
BLATZ H + EISENBUD M
THE ESTABLISHMENT OF LIMITS FOR RADIOACTIVE SURFACE CONTAMINATION
NEW YORK UNIVERSITY., NEW YORK CITY OFFICE OF RADIATION CONTROL
CONF-555 +. 5 PAGES, PAGES 163-7 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967. FROM
INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

A SURVEY OF THE EXPOSURE OF WORKERS IN THE RADIUM DIAL PAINTING INDUSTRY IN AND AROUND NEW YORK
CITY WAS CONDUCTED. RESULTS INDICATED THAT NO RELIABLE RELATION BETWEEN SURFACE CONTAMINATION
AND HEALTH HAZARDS COULD BE ESTABLISHED. WORK SURFACE CONTAMINATION LIMITS USED IN FOREIGN
COUNTRIES WERE COMPARED WITH RESULTS OF THIS STUDY. LEGAL CONSIDERATIONS OF HEALTH HAZARDS FROM
SURFACE CONTAMINATION ARE POINTED OUT.

*SURFACE CONTAMINATION + CONTAMINATION + *RADIUM + RADON + AIRBORNE RELEASE

14-30463 ALSO IN CATEGORY 15
GLAUBERMAN H + BOOTMANN WR + BRESLIN AJ
STUDIES OF THE SIGNIFICANCE OF SURFACE CONTAMINATION
USAEC, NEW YORK
CONF-555 +. 10 PAGES, PP 169-78 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS, 1967. FROM INTERNATIONAL
SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

DIFFERENCES IN THE RELATION BETWEEN AIR-DUST CONCENTRATION AND REMOVABLE SURFACE CONTAMINATION
WERE OBSERVED AT TWO FACILITIES OF THE HEALTH AND SAFETY LABORATORY. NO CORRELATION WAS FOUND
BETWEEN RESULTS OF SPECIFIC EXPERIMENTS AND SURFACE AND AIR CONTAMINATION MEASUREMENTS PERFORMED
DURING NORMAL OPERATIONS IN URANIUM AND BERYLLIUM FACILITIES.

BERYLLIUM + URANIUM + PLUTONIUM + *RESUSPENSION + AIRBORNE RELEASE + *SURFACE CONTAMINATION + CONTAMINATION

14-30464 ALSO IN CATEGORY 15
PRINCE JR + WANG CH
A METHOD FOR EVALUATING SURFACE CONTAMINATION OF SOFT BETA EMITTERS
OREGON STATE UNIVERSITY, CORVALLIS
CONF-555 +. 5 PAGES, PAGES 179-83 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS 1967, FROM INTERNATIONAL
SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

THE TECHNIQUE OF LIQUID SCINTILLATION COUNTING WAS APPLIED TO EVALUATION OF SWIPES FROM SURFACES
CONTAMINATED WITH SOFT BETA EMITTERS. THE COUNTING EFFICIENCY OF A NUMBER OF COMPOUNDS
CONTAINING C-14 OR H-3 WAS DETERMINED. RESULTS ARE PRESENTED IN TABULAR FORM. IN VIEW OF THE
SIMPLICITY OF THE METHOD AND ITS SUITABILITY FOR RAPID EVALUATION OF LARGE NUMBERS OF SAMPLES, IT
CAN BE RECOMMENDED FOR A VARIETY OF APPLICATIONS.

*BETA EMITTER + *SAMPLING + RADIOCHEMICAL ANALYSIS + CARBON + *SURFACE CONTAMINATION + TRITIUM

14-30465 ALSO IN CATEGORY 15
ROYSTER GW + FISH BR
TECHNIQUES FOR ASSESSING REMOVABLE SURFACE CONTAMINATION
OAK RIDGE NATIONAL LABORATORY, TENN
CONF-555 +. 7 PAGES, PP 201-7 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967, FROM INTERNATIONAL
SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

MEASUREMENTS OF SURFACE CONTAMINATION BY SMEAR AND ADHESIVE PAPER TECHNIQUES ARE EVALUATED AND A
THIRD PROCEDURE IS DESCRIBED. THIS NEW TECHNIQUE EMPLOYS AIR IMPINGEMENT TO REDISPERSE LOOSE
CONTAMINATION FROM THE SURFACE. THE RESULTING AIRBORNE MATERIAL IS THEN COLLECTED ON A FILTER
AND ANALYZED. SURFACE CHARACTERISTICS AFFECTING THE MEASUREMENT AND REDISPERSION OF PARTICULATES
ARE DISCUSSED. THE EFFECT OF PARTICLE SIZE ON THE MEASUREMENT AND REDISPERSION OF PARTICULATES
IS PRESENTED IN GRAPH FORM.

*AIRBORNE RELEASE + *DECONTAMINATION + *SURFACE CONTAMINATION + SAMPLING + PARTICLE SIZE

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30466 ALSO IN CATEGORY 15
BRUYNESTEYN W
RADIATION MAGNITUDES AND UNITS
FYSISCH LABORATORIUM RIJSUNIVERSITEIT, UTRECHT
21 PAGES, NED. TIJDSCHR. NATUURK, 33, PAGES 134-54 (APR-MAY 1967), (IN DUTCH)

THE RADIATION MAGNITUDES AND UNITS OF THE VARIOUS BRANCHES OF STUDY (INTERACTION BETWEEN RADIATION AND MATTER, REACTOR PHYSICS, RADIOLOGY, RADIOBIOLOGY, PHOTOMETRY, AND ACOUSTICS) ARE DEFINED AND COMPARED WITH EACH OTHER.

REACTOR PHYSICS + RADIOLOGY + *RADIATION UNIT

14-30472 ALSO IN CATEGORY 7
SACHSE G + ROSENBERGER H
FUSION OF RADIOACTIVE CONCENTRATES IN GLASSES OR CERAMICS. PART 2. SUITABILITY INVESTIGATIONS OF LOOSE MINERALS FROM NATIVE DEPOSITS
ZENTRALINSTITUT FUER KERNFORSCHUNG, DRESDEN
6 PAGES, KERNENERGIE 10, PAGES 344-9 (NOVEMBER 1967), (IN GERMAN)

THE PROPERTIES OF NATIVE LOOSE MINERALS ARE DESCRIBED, ESPECIALLY OF PLASTIC CLAYS OF VARIOUS COMPOSITION AND UTILIZATION, OF THE DECOMPOSITION PRODUCTS OF SYENITE, OF A PALEOZOIC SLATE, AND OF A GLAZE LOAM. AMONG THE 30 RAW MATERIALS, 14 OF WHICH ARE BEING STUDIED IN DETAIL, FOUR SAMPLES SHOWED GOOD OR VERY GOOD PROPERTIES WITH RESPECT TO BOTH MELTING BEHAVIOR AND RETENTION.

SINTERING + *WASTE TREATMENT, FIXATION + *WASTE TREATMENT, SOLID + *WASTE DISPOSAL, TERRESTRIAL

14-30473 ALSO IN CATEGORY 7
DLOUHY Z
MOVEMENT OF RADIONUCLIDES IN THE AERATED ZONE
NUCLEAR RESEARCH INST., REZ, CZECHOSLOVAKIA
STI/PUB-156 + CONF-670512 +. 9 PAGES, PAGES 241-9 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, FROM JOINT IAEA/ENEA SYMPOSIUM, VIENNA, AUSTRIA, 1967

SAMPLES OF SELECTED NATURAL MATERIALS WERE EXAMINED IN DETAIL IN THE LABORATORY, UNDER BOTH BATCH AND DYNAMIC CONDITIONS, AND THE RESULTS WERE USED TO PREDICT THE BEHAVIOR OF SELECTED RADIONUCLIDES IN THE FIELD EXPERIMENTS. THE FIELD EXPERIMENTS WITH SELECTED RADIONUCLIDES WERE CARRIED OUT WITH SMALL CRIBS EXCAVATED IN THE GROUND. THE RESULTS SHOWED A SMALL DIFFERENCE BETWEEN THE THEORETICAL AND EXPERIMENTAL DISTRIBUTIONS OF ALL THE RADIONUCLIDES STUDIED.

RUTHENIUM + *WASTE TREATMENT, FIXATION + ZIRCONIUM + CESIUM + NIOBIUM + STRONTIUM + FISSION PRODUCT TRANSPORT + *WASTE DISPOSAL, TERRESTRIAL + CERIUM

14-30474 ALSO IN CATEGORIES 7 AND 13
BAETSLE LH + SOUFFRIAU J
INSTALLATION OF CHEMICAL BARRIERS IN AQUIFERS AND THEIR SIGNIFICANCE IN ACCIDENTAL CONTAMINATION
CENTRE D ETUDE DE L-ENERGIE NUCLEAIRE, MOL, BELGIUM
STI/PUB-156 + CONF-670512 +. 12 PAGES, PAGES 229-40 OF DISPOSAL OF RADIOACTIVE WASTES INTO THE GROUND, VIENNA, INTERNATIONAL ATOMIC ENERGY AGENCY, 1967, FROM JOINT IAEA/ENEA SYMPOSIUM

PRINCIPLES OF CHEMICAL BARRIER FORMATION ARE REVIEWED AND THE PRINCIPAL RESULTS OF LABORATORY RESEARCH ON THE SYSTEM SILICA-HF-ANTIMONIC ACID ARE DISCUSSED IN SOME DETAIL. FIELD EXPERIMENTS HAVE DELINEATED THE ZONE CREATED BY INJECTING REAGENTS TRACED WITH BR-82 INTO AN AQUIFER. THE ECONOMICS OF BARRIER FORMATION ARE DISCUSSED IN THE CONCLUSIONS. FINALLY A DESCRIPTION IS GIVEN OF THE MOST SUITABLE EXPERIMENTAL PROCEDURE FOR THE INJECTION OF THE REAGENTS HF AND K₂H₂SiO₇ INTO THE AQUIFER. THE RETENTION CAPACITY OF THE INSTALLED BARRIER FOR SR IS ALSO DISCUSSED IN RELATION TO ITS SIGNIFICANCE FOR ENVIRONMENTAL SAFETY AT REPROCESSING PLANTS.

*BROMINE + *WASTE TREATMENT, FIXATION + *WASTE DISPOSAL, TERRESTRIAL + RADIOCHEMICAL PROCESSING + *TRACER, RADIOACTIVE + STRONTIUM + FUEL REPROCESSING

14-30475 ALSO IN CATEGORIES 7 AND 16
BEGEMANN F + FRIEDMAN I
TRITIUM AND DEUTERIUM IN ATMOSPHERIC METHANE
MAX-PLANCK INSTITUT FUER CHEMIE, MAINZ
5 PAGES, J. GEOPHYS. RES., 73, PAGES 1149-53 (FEB. 15, 1968)

TEN SAMPLES OF ATMOSPHERIC METHANE COLLECTED AT OBERHAUSEN GERMANY, AND GARY, INDIANA, BETWEEN 1960 AND 1963 WERE ANALYZED FOR THEIR TRITIUM AND DEUTERIUM CONTENT. RESULTS SHOW THE TRITIUM CONCENTRATION IN THE NORTHERN HEMISPHERE TO HAVE BEEN ESSENTIALLY CONSTANT SINCE 1958, THE TIME THE FIRST SAMPLES WERE ANALYZED. EXISTING THEORIES TO EXPLAIN THE ORIGIN OF TRITIATED METHANE ARE DISCUSSED AND REJECTED AS HIGHLY IMPROBABLE. THE DATA CAN BEST BE EXPLAINED BY ASSUMING THAT LEAKAGE OF TRITIATED METHANE INTO THE ATMOSPHERE FROM SOURCES IN NUCLEAR INDUSTRY LOCATED IN THE NORTHERN HEMISPHERE OCCURRED FOR A PERIOD OF YEARS PRIOR TO 1958, AND THEN THE LEAK WAS ESSENTIALLY CLOSED.

*DEUTERIUM + *AIRBORNE RELEASE + *TRITIUM + GERMANY + *ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30530 ALSO IN CATEGORY 17
LEAKAGE OF FISSION PRODUCT GASES FROM A TRIGA FUEL ELEMENT
UNIVERSITY OF ILLINOIS
INRL-21 +. 4 PAGES, OCTOBER 24, 1966 (50-151)

11 HOURS AFTER THE SPARE INSTRUMENTED FUEL ELEMENT WAS PLACED IN E-RING AND 250 KW BEGAN, INCREASED AIR PARTICULATE ACTIVITY WAS NOTED. HIGH READINGS AT TANK TOP CAME FROM THERMOCOUPLE WIRES (500 MR/HR CONTACT). AIR FILTER DECAYED WITH 20 MIN HALF-LIFE. EXHAUST STACK DETECTOR DID NOT SHOW A NOTICABLE INCREASE ABOVE AR-41. AIR DATA INDICATED REACTOR ROOM R8-88 WAS 5 X 10 (MINUS 9TH) MICROCC/CC FOR 10 HOURS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REACTOR, PULSED + TRIGA (RR) + MONITOR, STACK + *FAILURE, CLADDING + FISSION GAS RELEASE + MONITOR, GAS + REPORT, OPERATIONS ANALYSIS + FUEL ELEMENT + REACTOR, RESEARCH + INSTRUMENT, IN CORE + INSTRUMENT, TEMPERATURE

14-30569 ALSO IN CATEGORY 17
LA CROSSE BOILING WATER REACTOR AND OPERATING MANUAL. VOLUME VII. WASTE COLLECTION AND TREATMENT
ALLIS-CHALMERS MFG.
ACNP-68505-G +. 95 PAGES, 8 FIGURES, APRIL 1968

DESCRIBES SYSTEMS AND OPERATING PROCEDURES IN GENERAL DETAILS WITHOUT GIVING PRECISE MOTION-BY-MOTION PROCEDURES OR CHECK LISTS. COVERS WASTE COLLECTION, TREATMENT, TRANSFER, AND DISPOSAL OPERATIONS FOR WASTE GAS AND LIQUID.

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

REACTOR, BWR + *WASTE HANDLING + WASTE TREATMENT, EQUIPMENT + LACROSSE (BWR) + PROCEDURES AND MANUALS

14-30626 ALSO IN CATEGORY 18
RADIOACTIVE LIQUID RELEASE AND REVISIONS TO PSAR
COMMONWEALTH EDISON COMPANY
15 PAGES, FIGURES, TABLES, AMENDMENT 8 TO ZION 1 AND 2 LICENSE APPLICATION, MAY 3, 1968, DOCKETS 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

NEW INFORMATION ON ACCIDENTAL RELEASE OF RADIOACTIVE LIQUIDS DISCUSSES DESIGN OF SYSTEMS AND COMPONENTS TO HANDLE SUCH LIQUIDS. REVISED PAGES CONTAIN INFORMATION CONFIRMING MATTERS DISCUSSED AT MEETING WITH ACRS ON APRIL 17, 1968, CONCERNING R AND D PROGRAM, EMERGENCY COOLING SYSTEM, ROD-BURST PROGRAM, CONTAINMENT SPRAY, AND AUXILIARY ELECTRICAL.

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

SYSTEM CAPACITY + *WASTE MANAGEMENT + REACTOR, PWR + ZION 2 (PWR) + CONTAINMENT DESIGN + REPORT, PSAR + FAILURE, FUEL ELEMENT + CONTAINMENT STRUCTURE + GENERATOR, ENGINE + ZION 1 (PWR) + *WASTE DISPOSAL, LIQUID + WASTE TREATMENT, LIQUID + AEC QUESTION

14-30652 ALSO IN CATEGORIES 2 AND 18
AEC QUESTIONS ON SHOREHAM
DIVISION OF REACTOR LICENSING
28 PAGES, LETTER FROM DRL TO LONG ISLAND LIGHT CO., JANUARY 21, 1969, DOCKET 50-322

CONTAINS LIST OF 127 QUESTIONS (NO ANSWERS) ENCOMPASSING SUBJECTS OF PSAR, DESIGN INNOVATIONS FOR MIXING AND PROCESSING OF POST ACCIDENT EFFLUENTS, AND INFLUENCE OF AIRPORT PROXIMITY. ALSO CONFIRMS SHOREHAM CONSTRUCTION DELAY AND INCREASE IN DESIGN POWER.

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

AEC QUESTION + SHOREHAM (BWR) + WASTE TREATMENT, GENERAL + SITING, REACTOR + WASTE MANAGEMENT + REACTOR, BWR

14-30682 ALSO IN CATEGORY 7
CADLE RD
RULE OF METHYLENE IN THE PRODUCTION OF ATMOSPHERIC TRITIATED METHANE
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, BOULDER, COLO.
3 PAGES, J. GEOPHYS. RES., 72, PAGES 2251-3 (APRIL 15, 1967)

TRITIATED METHANE IN THE ATMOSPHERE RESULTS FROM TROPOSPHERIC EXCHANGE OF METHANE WITH TRITIATED HYDROGEN THAT HAS MIXED DOWNWARD FROM THE STRATOSPHERE. SPECIFICALLY, IT IS SUGGESTED THAT METHYLENE MAY BE PRODUCED FROM METHANE BY ELECTRICAL DISCHARGE AND OTHER IONIZATION PROCESSES IN THE LOWER ATMOSPHERE. AN EXPERIMENTAL INVESTIGATION WAS PERFORMED TO DETERMINE WHETHER ANY ATMOSPHERIC CONSTITUENTS WOULD REACT PREFERENTIALLY WITH METHYLENE PREVENTING ITS REACTION WITH TRITIATED HYDROGEN. IT WAS CONCLUDED THAT IT IS HIGHLY UNLIKELY THAT REACTIONS OF METHYLENE PRODUCE TRITIATED METHANE IN THE ATMOSPHERE.

*ATMOSPHERIC CHEMISTRY + *TRITIUM + ELECTROSTATIC CHARGE + *STRATOSPHERE + CHEMICAL KINETICS + ATMOSPHERIC POLLUTION + *CHEMICAL REACTION

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30695

HOOTMAN JP

PROCESSING OF RADIOACTIVE WASTE IN THE NETHERLANDS

REACTOR INST., DELFT, NETHERLANDS

17 PAGES, RCN (REACTOR CENT. NED.) MEDED., NO. 28, PAGES 97-113 (1968), (IN DUTCH)

THE BINDING OF SEVERAL CATIONS BY CLAY AND PEAT BOG WAS STUDIED EXPERIMENTALLY. RIVER CLAY BINDS CS, Y, AND CO VERY WELL. BINDING BY PEAT BOG OF SR IS CONSIDERABLY DEPENDENT ON THE PRESENCE OF OTHER IONS. CLAY AND PEAT BOG IN THE DUTCH SOIL HAVE A HUGE PURIFICATION CAPACITY.

*SOIL + *YTTRIUM + *STRONTIUM + *WASTE TREATMENT, FIXATION + *ION EXCHANGE + WASTE MANAGEMENT + CESIUM + *COBALT

14-30697

SMEETS L

PROCESSING OF RADIOACTIVE WASTE IN PETTEN

REACTOR CENTRUM NEDERLAND, PETTEN NETHERLANDS

9 PAGES, RCN (REACTOR CENT. NED.) MEDED., NO. 28, PAGES 115-23 (1966), (IN DUTCH)

WASTE WATER WITH LOW ACTIVITY UP TO 15 MCI/DAY IS DRAINED BY A PIPELINE EXTENDING 4 KM INTO THE NORTH SEA. IF NECESSARY $Ca_3(PO_4)_2$ AND $Fe(OH)_3$ ARE PRECIPITATED FIRST. LOW-ACTIVITY SOLID WASTE IS COMPRESSED AND STORED. HIGH-ACTIVITY MATERIAL IS STORED UNDERGROUND IN CONCRETE CONTAINERS. SO FAR, STORAGE FACILITIES OUTSIDE THE LABORATORY AREA HAVE BEEN UNNECESSARY.

*WASTE DISPOSAL, LIQUID + IRON + WASTE TRANSPORTATION + *WASTE TREATMENT, LIQUID + STORAGE CONTAINER + *CONCRETE + *OCEAN AND SEA + PRECIPITATION + CALCIUM + *WASTE STORAGE

14-30698

SPITSYN VI + BALUKOVA VO + BAGRETSOV VF

PHYSICAL AND CHEMICAL CONDITIONS OF UNDERGROUND BURIAL OF RADIOACTIVE WASTES

4 PAGES, AT. ENERG. (USSR), 24, PAGES 133-6 (FEB. 1968), (IN RUSSIAN)

DETERMINED THE BASIC COMPLEX OF PHYSICAL-CHEMICAL STUDIES NECESSARY FOR EVALUATION OF THE UNDERGROUND BURIAL OF LIQUID RADIOACTIVE WASTES. THE CONDITIONS FOR THE BURIAL OF THE DEACTIVATED WASTES NIIAR WERE DESCRIBED. RATIONAL TECHNOLOGICAL PROCEDURES, GUARANTEEING THE STABILITY OF THE LIQUID PHASE DURING COMBINATION OF THE WASTES WITH SUBTERRANEAN MEDIA, WERE ESTABLISHED. GENERAL CONDITIONS FOR THE SORPTION OF RADIOACTIVE ISOTOPES DURING BURIAL IN SUBTERRANEAN WATER IN STRATA WITH HIGH-MINERAL WATER CONTENT WERE EXAMINED.

RADIOISOTOPE + *SORPTION + USSR + WASTE MANAGEMENT + WASTE STORAGE + *ION EXCHANGE + *WASTE DISPOSAL, LIQUID

14-30891

RICHTER D

LOHMEN CENTRE FOR THE TREATMENT AND DISPOSAL OF RADIOACTIVE WASTES OF THE STATE CENTRE OF RADIOLOGICAL

PROTECTION

STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, PIRNA, GERMANY

3 PAGES, ISOTOPENPRAXIS, 4, PAGES 32-34 (JAN. 1968) (IN GERMAN)

THE METHODS AND TECHNIQUES USED AT THE LOHMEN CENTER FOR THE TREATMENT AND DISPOSAL OF RADIOACTIVE WASTES ARE BRIEFLY DESCRIBED. THE COLLECTION AND TRANSPORTATION FACILITIES FOR TRANSFERRING THE WASTE MATERIALS TO THE PROCESSING CENTER ARE ILLUSTRATED.

*WASTE TRANSPORTATION + WASTE MANAGEMENT + *WASTE HANDLING + *WASTE TREATMENT, GENERAL + RADIOLOGICAL ASSISTANCE + *WASTE DISPOSAL, GENERAL

14-30892

KAWABATA T

STUDIES ON THE SORPTION AND RELEASE OF RADIONUCLIDES BY RIVER SEDIMENTS

NATIONAL INST. OF HEALTH, TOKYO

12 PAGES, J. RADIAT. RES. 8, PAGES 20-31 (MARCH 1967)

FACTORS AFFECTING THE SORPTION OF VARIOUS RADIONUCLIDES BY A RIVER SEDIMENT SAMPLE IN THE FRESH OR SALINE WATER WERE EXAMINED. IN ADDITION, RELEASE OF RADIONUCLIDES IN THE SEDIMENTS WHEN IT WAS EXPOSED TO THE SEA WATER WAS STUDIED. WATER AND SEDIMENT SAMPLES WERE COLLECTED AT SEVERAL PLACES ALONG THE SAGAMI RIVER, AND RADIONUCLIDES USED WERE SR-90, CS-137, MN-54, CO-60, CR-51 AND FE-59.

SAMPLING + *SEDIMENT + OCEAN AND SEA + IRON + RIVER, GENERAL + CHROMIUM + *DESORPTION + CESIUM + MANGANESE + STRONTIUM + *SORPTION + COBALT + *HYDROLOGICAL CONSIDERATION, GENERAL

14-30970

ALSO IN CATEGORY 13

WADACHI Y

SURFACE CHEMICAL STUDIES ON RADIOACTIVE CONTAMINATION AND DECONTAMINATION OF SOLID SURFACES

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

JAERI 1165 +. MAY 1968, 32P. (IN JAPANESE)

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30970 *CONTINUED*

THE MECHANISMS OF RI AQUEOUS SOLUTION CONTAMINATION AND ITS DECONTAMINATION OF SOLID SURFACES WERE STUDIED SURFACE CHEMICALLY. SOLID SURFACES WERE CLASSIFIED INTO PERMEABLE (COTTON CLOTH) AND IMPERMEABLE (METAL, PAINT, PLASTIC) SURFACES, CONCERNING RI AQUEOUS CONTAMINATION, AND THE MECHANISMS OF CONTAMINATION WERE CLASSIFIED ACCORDING TO THE ACTIONS OF DECONTAMINANTS. BASED ON THESE CLASSIFICATIONS, THE MECHANISMS OF SOLID SURFACE RADIOACTIVE CONTAMINATION AND DECONTAMINATION WERE STUDIED SYSTEMATICALLY BY MEANS OF THE WASHING OF RI CONTAMINATED SURFACES WITH WATER, SURFACTANTS AND DECONTAMINANTS. IN ADDITION, STUDIES WERE CARRIED OUT ON THE MECHANISMS OF THE CONTAMINATION AND DECONTAMINATION OF SOLID SURFACE (ACTIVE CARBON POWDER) WHICH IS DIFFICULT TO CLASSIFY INTO PERMEABLE OR IMPERMEABLE SURFACE.

AVAILABILITY - DIVISION OF TECHNICAL INFORMATION, JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKAI-MURA, NAKA-GUN, IBARAKI-KEN, JAPAN

JAPAN + *RADIOISOTOPE + *FUEL CONVERSION + *FUEL REPROCESSING + SURFACE CONTAMINATION + EXPERIMENT, GENERAL + *REACTOR, GENERAL + DECONTAMINATION

14-30973

DAGEN A + ALM M + SACHSE G + HAENTZSCHEL H

THE ECONOMY OF THE COLLECTION TREATMENT AND DISPOSAL OF RADIOACTIVE WASTES IN THE G.D.R. DECONTAMINATION OF RADIOACTIVE WASTES BY CONTACT PRECIPITATION
STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN (EAST GERMANY)
SZS-10/68 +. 1968, 42P.

SOLID AND LIQUID RADIOACTIVE WASTES ARE EXCLUSIVELY COLLECTED BY THE RADIATION PROTECTION CENTRE AND TREATED IN A PILOT PLANT BY DISTILLATION, PRECIPITATION, ION EXCHANGE, OR BALING. THE RESULTING CONCENTRATES ARE PACKED IN 200-L STEEL DRUMS AND STORED IN MINE GALLERIES. THE PARAMETERS OF THE PILOT PLANT AS WELL AS THE TREATED WASTES ARE DESCRIBED. TO ESTIMATE THE TOTAL COSTS OF THE DISPOSAL OF THE DIFFERENT WASTES, A COST EVALUATION IS PERFORMED OF THE SINGLE PROCESSES (COLLECTION, TREATMENT, AND DISPOSAL). THE TOTAL COSTS PER UNIT VOLUME OF WASTE ARE PRESENTED FOR THE SEVERAL KINDS OF WASTE.

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

BALING + WASTE MANAGEMENT + EVAPORATION + WASTE DISPOSAL, GENERAL + *WASTE TREATMENT, LIQUID + *WASTE TREATMENT, ECONOMICS + GERMANY + *WASTE TREATMENT, SOLID + ION EXCHANGE + *STORAGE CONTAINER + PRECIPITATION + *WASTE DISPOSAL, ECONOMICS + *WASTE STORAGE

14-30977

ALSO IN CATEGORY 15

BELL MC + COLE CV

VULNERABILITY OF FOOD CROP AND LIVESTOCK PRODUCTION TO FALLOUT RADIATION

UT-AEC AGRICULTURAL RESEARCH LAB., OAK RIDGE, TENN.

TID-24459 +. SEPT. 7, 1967, 34P.

REVIEWS THE EFFECTS OF RADIATION ON FOOD CROPS AND LIVESTOCK TO PROPERLY EVALUATE THE VULNERABILITY OF FOOD PRODUCTION TO FALLOUT RADIATION. FOOD SUPPLIES AND FOOD PRODUCTION HAVE ALWAYS PLAYED IMPORTANT ROLES IN RECOVERY FROM MAJOR DISASTERS. MUCH MORE INFORMATION IS NEEDED ON THE RADIATION SENSITIVITY AT DIFFERENT STAGES OF GROWTH FOR THE PRINCIPAL FOOD CROPS TO GAMMA AND BETA RADIATION. DIRECT RETENTION OF FALLOUT DATA ARE NEEDED FOR PLANTS AND ANIMALS, ALONG WITH GASTROINTESTINAL SENSITIVITY DATA FOR GRAZING LIVESTOCK. CATTLE ARE ONE OF OUR MAIN FOOD RESERVES (VALUED AT \$16 BILLION), AND DATA ARE NEEDED ON INTERACTION OF RADIATION INSULTS TO THESE LIVESTOCK WHICH HAVE LITTLE PROTECTION FROM FALLOUT.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VIRGINIA 22151, \$9.00 COPY, \$3.65 MICROFICHE

*BIOLOGICAL CONCENTRATION, FOOD + RADIOBIOLOGY + *BIOLOGICAL CONCENTRATION, ANIMAL + *FALLOUT + *RADIATION DAMAGE + BETA EMITTER + RADIATION SAFETY AND CONTROL + GAMMA EMITTER

14-30983

OTTO R + HECHT P + BOSCHOLM J + SACHSE G + SCHLENKRICH H

EXPERIMENTAL REPORT ON THE DECONTAMINATION OF RADIOACTIVE WASTES OF THE INSTITUTE FOR APPLIED RADIOACTIVITY ACCORDING TO THE PRECIPITATION METHOD

STAATLICHE ZENTRALE FUER STRAHLENSCHUTZ, BERLIN (EAST GERMANY)

SZS-9/68 +. SEPT. 1968

REPORTS ON THE CONSTRUCTION OF THE DISCONTINUALLY WORKING PURIFICATION PLANT FOR RADIOACTIVE SEWAGE INSTALLED IN THE INSTITUTE OF APPLIED RADIOACTIVITY, AND ON THE EXPERIENCE GATHERED DURING THE FIVE YEARS OF OPERATION. THE DECONTAMINATION TAKES PLACE BY ADDITION OF CaCl_2 , $\text{Fe}_2(\text{SO}_4)_3$, Na_3PO_4 AND FOLLOWING FLOCCULATION AT PH 10 TO 11. EXCEPTIONALLY A PRECIPITATION OF FES MUST BE PERFORMED. BY THIS METHOD UP TO 99% OF THE RADIOACTIVITY IS REMOVED. THE PLANT SATISFIES THE SPECIAL DEMANDS.

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

STRONTIUM + IRON + CALCIUM + CESIUM + COBALT + SODIUM + *PRECIPITATION + *ADSORPTION + *WASTE TREATMENT, GENERAL + *DECONTAMINATION

14-30984

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-30984 *CONTINUED*
FALLOUT SITUATION IN DENMARK, FINLAND, NORWAY, AND SWEDEN IN 1965-1966
A/AC-82/G/L-1159 +. OCT. 2, 1967, 25P.

THIS SUMMARY REPORT DEALS PRIMARILY WITH THE OCCURRENCE OF THE LONG-LIVED FALLOUT NUCLIDES STRONTIUM-90 AND CESIUM-137. ONLY A FEW ATMOSPHERIC NUCLEAR TESTS HAVE BEEN CARRIED OUT SINCE 1962, AND THEY HAVE NOT CONTRIBUTED SIGNIFICANTLY TO THE FALLOUT DEPOSITION.

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

PRECIPITATION + NUCLEAR DETONATION + FINLAND + NORWAY + DENMARK + RADIATION SAFETY AND CONTROL + CESIUM + STRONTIUM + DEPOSITION + POPULATION EXPOSURE + *BIOLOGICAL CONCENTRATION, FOOD + *DIETARY HABIT + *BIOLOGICAL CONCENTRATION, ANIMAL + METEOROLOGY + SWEDEN + *FALLOUT

14-31244
AMAVIS R + SMEETS J
RADIOACTIVE CONTAMINATION OF WATER-A NEW APPROACH NEEDED
EURATOM 7 (3) 67-73 +. SEPT 1968

RADIOACTIVE CONTAMINATION OF WATER IS DISCUSSED WITH A REVIEW OF SOURCES OF RADIOACTIVE CONTAMINATION, BOTH ACCIDENTAL AND INTENTIONAL, THE BEHAVIOR OF RADIOISOTOPES IN THE HYDROSPHERE, AND THE HAZARDS TO PUBLIC HEALTH FROM SUCH CONTAMINATION. THE RESEARCH ACTIVITIES OF THE COMMISSION OF THE EUROPEAN COMMUNITIES FOR INVESTIGATING, EVALUATING, AND CONTROLLING RADIOACTIVE CONTAMINATION OF WATER ARE OUTLINED, AND FURTHER INTERNATIONAL COOPERATION IN THESE ENDEAVORS IS RECOMMENDED.

RADIOACTIVITY RELEASE + *POPULATION EXPOSURE + WATER POLLUTION + *FALLOUT + *WASTE DISPOSAL, OCEAN + SEDIMENT + WATER, IRRIGATION + NUCLEAR DETONATION + WATER, DRINKING + ACCIDENT, GENERAL + *WASTE DISPOSAL, RIVER + *BIOLOGICAL CONCENTRATION, FOOD + SURFACE WATER, NUCLIDE OCCURRENCE + *BIOLOGICAL CONCENTRATION, MAN + *HAZARD, RELATIVE + TESTING + *HYDROLOGICAL CONSIDERATION, GENERAL + RADIATION SAFETY AND CONTROL + SURFACE WATER, DISPOSAL MEDIA

14-31347 ALSO IN CATEGORY 13
MCELROY JL + COOLEY CR + DEMIER WV + MENDEL JE + SUDDATH JC + BLOMEKE JO
POT CALCINATION PERFORMANCE DURING FIRST RADIOACTIVE TESTS IN WASTE SOLIDIFICATION ENGINEERING PROTOTYPES - WASTE SOLIDIFICATION PROGRAM, VOL. IV
PACIFIC NORTHWEST LABORATORY + OAK RIDGE NATIONAL LABORATORY
BNWL-814 +. 60 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

SOLIDIFICATION OF HIGH LEVEL RADIOACTIVE WASTE BY THE OAK RIDGE NATIONAL LABORATORY POT CALCINATION PROCESS WAS SUCCESSFULLY DEMONSTRATED. NEARLY 4 MILLION CURIES OF RADIOACTIVITY WERE PROCESSED IN SIX FULL SCALE TESTS AT PACIFIC NORTHWEST LABORATORY. RADIOACTIVITY WAS INCREASED FROM 85,000 CURIES IN THE FIRST RUN TO 1.3 MILLION CURIES IN THE SIXTH RUN. THE RATE OF HEAT GENERATION WITHIN THE POT INCREASED FROM 600 TO 5100 WATTS, RESPECTIVELY. THE CALCINED WASTE IN AN 8 INCH DIAMETER POT REPRESENTED 1.2 TONNES OF POWER REACTOR FUEL (20,000 MWD/TON AT 15 MW/TON SPECIFIC POWER) AFTER 1 YEAR OUT OF REACTOR.

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

WASTE TREATMENT, LIQUID + EXPERIMENT, GENERAL + *FUEL REPROCESSING + *CALCINATION + EQUIPMENT, GENERAL

14-31348 ALSO IN CATEGORY 13
KFIIY VP
WASTE SOLIDIFICATION PROGRAM - VOL. III - DESIGN FEATURES OF THE FACILITIES AND EQUIPMENT FOR THE WSEP PRODUCT EVALUATION PROGRAM
BATTELLE NORTHWEST, WASH.
BNWL-832 +. 50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 1968

A PROGRAM WAS IMPLEMENTED WITHIN PACIFIC NORTHWEST LABORATORY TO STUDY THE WASTE POTS FILLED WITH SOLIDIFIED HIGHLY RADIOACTIVE WASTES IN THE WASTE SOLIDIFICATION ENGINEERING PROTOTYPES. THE PROGRAM, TERMED THE WSEP PRODUCT EVALUATION PROGRAM, WAS ESTABLISHED TO EVALUATE PROPERTIES SUCH AS WASTE POT INTEGRITY AND SOLIDIFIED WASTE STABILITY RELATING PARTICULARLY TO THE NUCLEAR SAFETY ASPECTS OF WASTE MANAGEMENT.

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

WASTE TREATMENT, LIQUID + DESIGN CRITERIA + FUEL REPROCESSING + WASTE TREATMENT, SOLID + EXPERIMENT, GENERAL + WASTE DISPOSAL, GENERAL + EQUIPMENT, GENERAL + WASTE DISPOSAL, SOLID

14-31958 ALSO IN CATEGORY 13
KNOLL KC
CATALYTIC OXIDATION OF RADIOACTIVELY CONTAMINATED ORGANIC WASTES
BATTELLE NORTHWEST
BNWL-856 +. 10 PAGES, 4 FIGURES, 3 REFERENCES, JANUARY 1969

A METHOD FOR OXIDIZING LIQUID ORGANIC WASTES FROM A NUCLEAR FUEL SEPARATIONS PLANT USING A CATALYTIC BED AS A METHOD OF DISPOSAL WAS INVESTIGATED. WASTES WERE FED EITHER AS A LIQUID OR

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-31958 *CONTINUED*

VAPOR, TOGETHER WITH A FLOW OF AIR; THROUGH THE CATALYST BED. OXIDATION TOOK PLACE WITH GENERATION OF HEAT. OFF-GASES WERE CONTAINED AND COULD BE MONITORED. A LIST OF SOME CATALYSTS USED AS WELL AS THE ORGANICS OXIDIZED ARE PRESENTED.

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

*FUEL REPROCESSING + *RADIOISOTOPE + OXIDATION + *WASTE TREATMENT, LIQUID + CATALYST

14-32256 ALSO IN CATEGORY 7

LUYKX FF + VAN DER STRICHT EA
CONSEQUENCES OF ACTIVITY RELEASE
EURATOM

8 PAGES, 1 TABLE, 27 REFERENCES, NUCLEAR SAFETY 10(1), PAGES 54-62 (JAN.-FEB. 1969)

56 PAPERS WERE PRESENTED, AND ONE PANEL DISCUSSION WAS HELD. PAPERS WERE DIVIDED INTO GENERAL-REVIEW PAPERS AND PAPERS ON CHARACTERISTICS AND CONTROL OF AIRBORNE RADIOACTIVE POLLUTANTS, TECHNIQUES FOR SAMPLING, INSTRUMENTS FOR ASSAYING SPECIFIC NUCLIDES, AND SPECIAL TOPICS.

*ANALYTICAL TECHNIQUE, AIR + RADIONUCLIDE, INDUCED + *SAMPLING + *AIRBORNE RELEASE + INSTRUMENT, GENERAL + RADIOCHEMICAL ANALYSIS

14-32310 ALSO IN CATEGORIES 12 AND 17

REQUEST FOR EXTENSION OF EXPIRATION DATE OF PROVISIONAL OPERATING LICENSE

U.S. ATOMIC ENERGY COMMISSION

7 PAGES, EXTENSION OF LICENSE REQUEST, MARCH 17, 1969, DOCKET 50-201

(LICENSE CSF-1.1 EXTENSION TO OCT. 19, 1970, ON THE GROUNDS THAT ACTUAL OPERATING EXPERIENCE IS NEEDED WITH (1) HIGH-BURNUP FUELS AND FUELS CONTAINING MEASURABLE RADIOIODINE HAVE NOT BEEN PROCESSED. 22,000 MWD/T AV BURNUP FUEL WILL SOON BE PROCESSED. (2) LIQUID WASTE CAN BE CONFINED AT 10 TO 154 MPC. AEC REQUEST FOR STUDIES ON LOWERING DISCHARGE LEVELS MAY REQUIRE SUBSTANTIAL FACILITY CHANGES. ***DECOMMISSIONING COSTS ESTIMATED TO BE AT \$100,000 PER WEEK FOR 4-6 WEEKS.

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

R AND D PROGRAM + FUEL REPROCESSING + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + TECHNICAL SPECIFICATIONS + OPERATING EXPERIENCE SUMMARY + NFS + FISSION PRODUCT, IODINE + MODIFICATION, SYSTEM OR EQUIPMENT

14-32573

SEYFRIED P + LEFILLATRE G + RODIER J + COCHET JC + CUDEL Y + BRICHET L

UNDERWATER CUTTING OF HIGHACTIVITY RADIOACTIVE WASTE

COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN (FRANCE)

CEA-R-3629 +. 18 PAGES, 4 FIGURES, NOVEMBER 1968 (IN FRENCH)

RADIOACTIVE WASTE HAS BEEN TREATED TO ENSURE THAT RADIO-ELEMENTS ARE NOT RELEASED FOR A VERY LONG TIME. IN THE CASE OF HIGHACTIVITY WASTE CONTAINING RADIO-ELEMENTS OF SHORT HALF-LIFE, A PRELIMINARY STORAGE PERMITTING A SUFFICIENT DECREASE IN ACTIVITY MAKES IT POSSIBLE SUBSEQUENTLY TO USE THE SAME TREATMENT AS FOR LOW-ACTIVITY WASTE. SINCE THE ACTIVE OR CONTAMINATED PORTIONS ARE IN MOST CASES WELL LOCALIZED, IT IS USEFUL TO SEPARATE THEM ACCORDING TO THEIR ACTIVITY LEVEL. THERE RESULTS A CONSIDERABLE DECREASE IN THE AMOUNTS WHICH HAVE BEEN STOCKED. AT THE MARCOULE CENTRE, THESE DISMANTLING OPERATIONS ARE CARRIED OUT USING A PLASMA TORCH OR A PNEUMATIC SAW, IN A SWIMMING POOL CONTAINING DE-IONIZED WATER.

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

*ENERGY LEVEL + WATER, GENERAL + RADIATION SAFETY AND CONTROL + HIGH RADIATION + *WASTE TREATMENT, GENERAL + DECONTAMINATION + RELEASE RATE + *WASTE STORAGE + FRANCE

14-32575

SEYFRIED P

SOME CRITERIA FOR CHOOSING PRESSES FOR THE COMPACTION OF RADIOACTIVE WASTE

COMMISSARIAT A L ENERGIE ATOMIQUE, CHUSCLAN (FRANCE)

CEA-R-3619 +. 27 PAGES, FIGURES, 7 REFERENCES, OCTOBER 1968 (IN FRENCH)

THE CHOICE OF A PRESS FOR COMPACTING LOW-ACTIVITY RADIO-ACTIVE WASTE DEPENDS ON THE POSSIBILITY OF RECOVERING THE COLLECTION CONTAINERS AND THE FINAL STORAGE CONTAINERS. THESE FACTORS WILL DETERMINE THE GENERAL ORGANIZATION OF THE MACHINE AND THE POSSIBLE LIMITATIONS TO THE COMPACTING PRESSURES. THE NATURE OF THE WASTE THEN MAKES IT POSSIBLE TO DETERMINE THE OPTIMUM PRESSURE CORRESPONDING TO THE BEST COMPRESSION POWER. IT SEEMS THAT IT IS POSSIBLE TO DISTINGUISH TWO TYPES OF WASTE ACCORDING TO THEIR BEHAVIOUR ON COMPACTION. THE COST OF THE MACHINES IS RELATED TO THE PRESSURE CHOSEN.

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

*STORAGE CONTAINER + WASTE TREATMENT, ECONOMICS + BALING + WASTE TREATMENT, FIXATION + *WASTE TREATMENT, SOLID + *COMPACTION + *EQUIPMENT, GENERAL

CATEGORY 14
RADIONUCLIDE RELEASE AND MOVEMENT IN THE ENVIRONMENT

14-32630 ALSO IN CATEGORY 13
DISPOSAL OF RADIOACTIVE WASTE INTO THE GROUND
INTERNATION ATOMIC ENERGY AGENCY

STI/PUB/156 +. 666 PAGES, FIGURES, TABLES, REFERENCES, PROCEEDINGS OF A SYMPOSIUM, VIENNA, MAY 29-JUNE 2, 1967

PROCEEDINGS OF SYMPOSIUM CO-SPONSORED BY ENEA AND IAEA (5/9-6/2/67) ATTENDED BY PERSONS FROM 24 COUNTRIES AND 3 INTERNATIONAL ORGANIZATIONS. THERE ARE 10 PAPERS ON OPERATIONAL EXPERIENCE, 11 ON UPTAKE AND MIGRATION, 5 ON SITE SELECTION, 5 ON BURIED SOLIDIFIED WASTES, 12 ON SALT DISPOSAL AND DISPOSAL INTO DEEP OR POROUS FORMATIONS. THE PAPERS REFLECT THE BROAD EFFORT EXPANDED BY NATIONAL AUTHORITIES AND RESEARCHERS TO ACHIEVE A SOLUTION TO THE LOW-LEVEL-WASTE-DISPOSAL PROBLEM - A SOLUTION THAT IS BOTH ECONOMICAL AND COMPATIBLE WITH EXACTING STANDARDS OF SAFETY. DISCUSSIONS OF PAPERS ARE INCLUDED.

*RADIOISOTOPE + SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GENERAL + *REACTOR, GENERAL + WASTE DISPOSAL, LIQUID + IAEA + HYDROLOGICAL CONSIDERATION, GENERAL + *SITING, WASTE DISPOSAL + ENEA + *FUEL REPROCESSING + RADIOCHEMICAL PROCESSING + WASTE DISPOSAL, TERRESTRIAL + SOIL MECHANICS + WASTE DISPOSAL, SALT + SALT + WASTE MANAGEMENT + WASTE DISPOSAL, SOLID

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-11409 ALSO IN CATEGORY 1
JANKOWSKI FJ
RADIATION IN PERSPECTIVE - EFFECT OF LOW-INTENSITY RADIATION ON MAN
RUTGERS UNIVERSITY
3 PAGES, 1 FIGURE, 1 TABLE, NUCLEAR SAFETY 7(1), PAGES 12-14, (FALL 1965)

SIXTH IN SERIES OF ARTICLES, PART A. THE RATIO OF RADIATION-DOSE-RATE THRESHOLD FOR SOMATIC DAMAGE TO THE NORMAL BACKGROUND DOSE RATE IS OF THE ORDER OF A FEW HUNDRED (100 TO 500). THIS IS IN THE RANGE OF THE RATIO OF HARMFUL CONCENTRATION OF SEVERAL CHEMICALS TO THE AMOUNT NEEDED OR BELIEVED TO BE NEEDED FOR HEALTH. THIS OBSERVATION RAISES THE QUESTION AS TO WHETHER ALL RADIATION IS HARMFUL, A QUESTION WHICH HAS BEEN RAISED BEFORE AND WHICH IS UNDER INVESTIGATION. IT ALSO SUGGESTS FURTHER EXPERIMENTS AT LOW OR VERY LOW (BELOW BACKGROUND) DOSE RATES.

RADIATION IN PERSPECTIVE + *DOSE + RADIATION DAMAGE + *RADIATION EFFECT + *PERSONNEL EXPOSURE; RADIATION + RADIATION, PUBLIC EDUCATION

15-27323 ALSO IN CATEGORIES 5 AND 18
SAFETY ANALYSIS AND SYSTEMS DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 3, JANUARY 13, 1969, DOCKET 50-334

CONTAINS SECTIONS ON AUXILIARY AND EMERGENCY SYSTEMS, STEAM AND POWER CONVERSION SYSTEMS, WASTE DISPOSAL AND RADIATION PROTECTION, CONDUCT OF OPERATIONS, INITIAL TESTS, THE SAFETY ANALYSIS, AND APPENDICES ON RADIATION SOURCES FROM CORE AND FUEL ROD GAP - QUALITY ASSURANCE - AND SEISMIC DESIGN. WORST ACCIDENT (DESIGN BASIS ACCIDENT) IS A DOUBLE-ENDED REPTURE OF HOT-LEG COOLANT PIPE (27.5 IN. ID), TOTAL LOSS OF NORMAL OUTSIDE POWER, TOTAL LOSS OF COOLANT, AND RELEASE OF FISSION PRODUCT INVENTORY TO CONTAINMENT. THE 2-HR THYROID DOSE AT BOUNDARY IS 461 OF 10CFR100 LIMIT FOR CONTAINMENT LEAKAGE TIME OF 40 MIN, AND 381 FOR EXPECTED LEAKAGE TIME OF 23.5 MIN.

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

AEC DESIGN CRITERIA + REPORT, PSAR + REACTOR STARTUP TESTING + EMERGENCY COOLING CONSIDERATIONS + *ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + AUXILIARY COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + *ACCIDENT ANALYSIS + DESIGN CRITERIA + QUALITY ASSURANCE + ACCIDENT, CONSEQUENCES + EARTHQUAKE ENGINEERING + SYSTEM DESCRIPTION + OFF SITE + *SAFETY ANALYSIS + FISSION PRODUCT RELEASE, GENERAL + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REACTOR DESCRIPTION + DOSE + *HAZARDS ANALYSIS + ACCIDENT, DESIGN BASE

15-28676 ALSO IN CATEGORY 17
DATA FROM RADIATION PROTECTION PROGRAMS
DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, CANADA
NP-16971 +. 24 PAGES, 8 TABLES, 5 REFERENCES, JUNE 1967

THE RADIATION PROTECTION DIVISION CONDUCTS A NATION-WIDE PROGRAM OF FALLOUT MONITORING, INCLUDING ANALYSES OF AIR PARTICULATES, PRECIPITATION, MILK, WATER, WHEAT, SOIL AND HUMAN BONE. THIS REPORT CONTAINS THE RESULTS OF ANALYSES CARRIED OUT ON SAMPLES COLLECTED IN MAY, 1967. IT INCLUDES DATA ON AIR, PRECIPITATION AND MILK. THE RESULTS OF THE ANALYSIS OF SAMPLES OF HARD RED SPRING WHEAT FROM THE 1966 CROP YEAR ARE ALSO INCLUDED IN THIS REPORT. THE SAMPLES WERE OBTAINED FROM THE NINE WHEAT SAMPLING DISTRICTS (FIG. 2) AS FOR PREVIOUS YEARS.

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

BIOLOGICAL CONCENTRATION, MILK + *SURVEILLANCE PROGRAM + PRECIPITATION + REACTOR POWER + BIOLOGICAL CONCENTRATION, GENERAL + CANADA + *SURVEY, RADIATION, ENVIRONMENTAL + ANALYTICAL TECHNIQUE, GENERAL + *RADIATION PROTECTION, ORGANIZATION + PARTICULATE + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + FALLOUT

15-28910
DIERCKIKSR + HAGE W + VAN MAUWE A
MEASUREMENT OF SMALL REACTIVITIES BY THE DIRECT REACTIVITY METER METHOD
EURATOM, CCR, ISPRA, ITALY
7 PAGES, 7 FIGURES, 5 TABLES, 6 REFERENCES, NUCLEAR INSTRUMENTS AND METHODS, 63, PAGE 166-172, (MAR. 4, 1968)

THE USE OF A DIRECT ANALOG REACTIVITY METER WAS STUDIED FOR MEASUREMENT OF SMALL REACTIVITIES. THE DIFFERENCE BETWEEN THE STABLE REACTOR FLUX AND THE INSTANTANEOUS FLUX IS PROCESSED IN A SPECIALLY DESIGNED REACTIVITY METER PRODUCING AN OUTPUT WHICH IS THE CAUSAL REACTIVITY CHANGE AS A FUNCTION OF TIME. WITH A SIMPLIFIED REACTOR MODEL AN ERROR ANALYSIS WAS MADE, AND TEST MEASUREMENTS EXECUTED ON THE ECO REACTOR.

*RADIATION MODEL + *FLUX DISTRIBUTION + *ERROR ANALYSIS + TESTING + MATHEMATICAL STUDY + *MEASUREMENT, REACTIVITY

15-28911 ALSO IN CATEGORY 14
BERYLLIUM-7 IN OCEAN WATER
BATTELLE MEMORIAL INSTITUTE, PACIFIC NORTHWEST LAB., RICHLAND, WASH. + INSTITUTE OF MARINE SCIENCES, UNIV. OF MIAMI, MIAMI, FLORIDA
3 PAGES, 1 FIGURE, 14 REFERENCES, SCIENCE, 161, PAGE 879-881, (AUG. 30, 1968)

CONCENTRATION OF BERYLLIUM-7, PRODUCED BY COSMIC RAYS, WAS MEASURED IN WATERS COLLECTED FROM BOTH

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-28911 *CONTINUED*

THE ATLANTIC AND PACIFIC OCEANS. THIS SHORT-LIVED NUCLIDE IS WELL SUITED AS A TRACER FOR INTERACTIONS AT THE AIR-SEA INTERFACE AND FOR THE MEASUREMENT OF RAPID MIXING PROCESSES IN THE SURFACE LAYER OF THE OCEAN.

*SURFACE WATER, NUCLIDE OCCURRENCE + TRACER, RADIOACTIVE + *OCEAN AND SEA + *BERYLLIUM

15-29030 ALSO IN CATEGORY 13

EDMONDS E + THOMAS IH
MOVABLE PERSONNEL SHIELD FOR ACCESS TO HOT CELLS
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY (SCOTLAND)
TRG-REPORT-1720 +. 9 PAGES, 3 FIGURES, 4 REFERENCES, JUNE 21, 1968

WITH DEVELOPING EXPERIMENTAL TECHNIQUES AND CHANGING OBJECTIVES, ENTRY INTO HOT CELLS FROM TIME TO TIME IS HIGHLY DESIRABLE. EVEN AFTER EXTENDED REMOTE CLEANUP, RADIATION LEVELS IN HOT CELLS WORKING WITH HIGH SPECIFIC ACTIVITY MAY RESTRICT PERSONNEL ENTRY TO UNREASONABLY SHORT WORKING TIMES. A PARTICULAR SOLUTION TO THIS PROBLEM, USING A LEAD BOX TO SHIELD THE OPERATOR, HAS BEEN USED VERY SUCCESSFULLY ON MANY OCCASIONS. THE TECHNIQUE AND PROPOSED DEVELOPMENTS OF IT ARE DESCRIBED.

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

*LEAD + *HIGH RADIATION + *SHIELDING + *PERSONNEL PROTECTIVE DEVICE

15-29031 ALSO IN CATEGORY 13

SMITH JW + CLAYTON RF
PERSONNEL DOSIMETRY DURING THE DECONTAMINATION OF A HIGHLY RADIOACTIVE AREA
ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL (ENGLAND)
AERE-R-5678 +. 16 PAGES, 4 FIGURES, 6 TABLES, 9 REFERENCES, JUNE 1968

AN OPERATION TO DECONTAMINATE A BLOCK OF REMOTE-HANDLING CELLS WAS SPEEDED CONSIDERABLY BY USING THERMOLUMINESCENT DOSIMETERS (T.L.D.) TO PROVIDE IMMEDIATE DOSIMETRY CONTROL. THE DOSES RECEIVED TO ANY PART OF THE BODY DURING 450 ENTRIES INTO THE CELLS WERE KEPT BELOW THE PLANNED DOSES (THE I.C.R.P. QUARTERLY DOSES) IN 96% OF ALL CASES DESPITE EXTREMELY HIGH LEVELS OF STRONTIUM-90/YTTRIUM-90 CONTAMINATION. AN ATTEMPT WAS MADE TO USE THE LARGE NUMBERS OF RESULTS (9000 T.L.D. AND 2000 FILM DOSIMETERS) TO PROVIDE INFORMATION ON THE RELATIVE PERFORMANCE OF THE DOSIMETERS UNDER DIFFICULT OPERATIONAL CONDITIONS. T.L.D. UNDER-READ COMPARED TO FILM DOSIMETERS BY 10% TO 34% DEPENDING UPON THE POSITION ON THE BODY. THE POSSIBLE CAUSES OF THESE VARIATIONS ARE DISCUSSED IN DETAIL.

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

*CONTAMINATION + STRONTIUM + *ICRP + *DOSE + YTTRIUM + *DOSIMETRY, THERMOLUMINESCENCE + *DECONTAMINATION + *RFMOTF MANIPULATING AND VIEWING

15-29234 ALSO IN CATEGORY 14

LENGEMANN FW + WENTWORTH RA + HILTZ FL
PREDICTING THE CS-137 INTAKE FROM MILK OF A HUMAN POPULATION AFTER A SINGLE, SHORT-TERM DEPOSITION OF THE RADIONUCLIDE
NEW YORK STATE VETERINARY COLLEGE, ITHACA
9 PAGES, HEALTH PHYSICS, 14, PAGES 101-9 (FEBRUARY 1968)

A RAPID MEANS OF ASSESSING THE HUMAN DOSE-COMMITMENT OF CS-137 FOLLOWING A NUCLEAR INCIDENT IS PRESENTED. THE IMPORTANT ADVANTAGE IS THAT CALCULATIONS REST UPON KNOWLEDGE OF MILK LEVELS RATHER THAN UPON VALUES OF SURFACE CONTAMINATION OF PASTURE, WHICH ARE MOST DIFFICULT TO OBTAIN AND INTERPRET. THE EFFECTS OF PRACTICAL COUNTER-MEASURES ARE ALSO DISCUSSED.

*BIOLOGICAL CONCENTRATION, MILK + CESIUM + *BIOLOGICAL CONCENTRATION, MAN + *FALLOUT + *NUCLEAR DETONATION

15-29243 ALSO IN CATEGORY 14

FRANKE T
ESTIMATION OF THE DOSE RATE OF FALLOUT DEPOSITION BY X-RAY SPECTROMETRY
MAX PLANCK-INSTITUT FÜR BIOPHYSIK, FRANKFURT, AM MAIN
CONF-555 +. 3 PAGES, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964, NEW YORK PERGAMON PRESS, 1967

A VEHICLE FOR MOBILE X-RAY SPECTROMETRY MEASUREMENTS OF DEPOSITED FALLOUT WAS CONSTRUCTED. INSTRUMENTS IN THE VEHICLE ARE DESCRIBED AND METHODS FOR CALIBRATION AND OPERATION ARE EXPLAINED. IT IS POSSIBLE TO ACCURATELY CALCULATE VERY SMALL DOSE RATES. THE METHOD IS ALSO APPLICABLE TO THE CONTROL OF DOSE RATES IN THE AREA SURROUNDING REACTORS, LABORATORIES WORKING WITH RADIOISOTOPES, AS WELL AS FOR DETECTING THE HAZARDS TO THE POPULATION FROM GAMMA-EMITTING RADIOISOTOPES DEPOSITED ON THE GROUND.

POPULATION EXPOSURE + *FALLOUT + *DEPOSITION + DOSE CALCULATION, EXTERNAL + *X-RAY + MONITOR, ENVIRONMENTAL + *SPECTROMETRY, GAMMA + INSTRUMENT CALIBRATION + INSTRUMENT, SURVEILLANCE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-29257 ALSO IN CATEGORY 14
SCHROEDER RJ + BRANDLY PJ + COURTER RD
REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND RADIOLOGICAL FALLOUT
7 PAGES, PROC. U. S. LIVESTOCK SANIT. ASSN., 68, PAGES 241-7 (1964)

THE REPORT OF A FEDERAL COMMITTEE SPONSORED BY THE DEPT. OF HEALTH, EDUCATION, AND WELFARE RELATING TO FALLOUT AND OTHER HEALTH HAZARDS PERTINENT TO LIVESTOCK IS OUTLINED. IT CONCERNS MAINLY THE PROTECTION ACTION GUIDE. THE GUIDE IS DEFINED AS THE PROJECTED ABSORBED DOSE TO INDIVIDUALS IN THE GENERAL POPULATION THAT WARRANTS PROTECTIVE ACTION FOLLOWING A CONTAMINATING EVENT. THE PROJECTED DOSE IS THE DOSE THAT WOULD BE RECEIVED IN THE FUTURE BY INDIVIDUALS IN THE POPULATION GROUP FROM THE CONTAMINATING EVENT IF NO PROTECTIVE ACTION IS TAKEN.

*IODINE + *FALLOUT + DOSE + RADIATION PROTECTION, ORGANIZATION + *BIOLOGICAL CONCENTRATION, GENERAL + NUCLEAR DETONATION + *POPULATION EXPOSURE

15-29259
LIN FM + CAMERON JR
BIBLIOGRAPHY OF THERMOLUMINESCENT DOSIMETRY
UNIVERSITY OF WISCONSIN
20 PAGES, 505 REFERENCES, HEALTH PHYSICS 14, PAGES 495-514 (MAY 1968)

BIBLIOGRAPHY CONTAINS 505 REFERENCES.

*BIBLIOGRAPHY + MONITOR, PERSONNEL + *DOSIMETRY, THERMOLUMINESCENCE

15-29260
SPLICHAL WF
WALK-OVER ALPHA HAND AND SHOE MONITOR USING AIR PROPORTIONAL DETECTORS
SAVANNAH RIVER LABORATORY, AIKEN, S. C.
2 PAGES, HEALTH PHYSICS 14, PAGES 520-1 (MAY 1968)

A WALK-OVER ALPHA MONITOR WAS DEVELOPED TO SURVEY HANDS AND SHOES OF PERSONNEL WHEN THEY EXIT A CONTROLLED AREA. MORE PEOPLE CAN BE CHECKED IN LESS TIME THIS WAY THAN BY CONVENTIONAL STAND-ON HAND AND SHOE MONITORS OR OTHER SURVEY INSTRUMENTS. APPROXIMATELY 3000 DIS/MIN OF ALPHA-EMITTING MATERIAL ON THE HANDS OR SHOES OF A PERSON CROSSING THE MONITOR AT A NORMAL PACE WILL ACTUATE AN ALARM.

*RADIATION SAFETY AND CONTROL + *MONITOR, PERSONNEL + ALPHA EMITTER + SURVEY, GENERAL

15-29262 ALSO IN CATEGORY 14
BACKMANN R + GRUETER HJ
DEMONSTRATION OF A RADIOACTIVE SUBSTANCE IN THE LUNG OF A URANIUM MINER
UNIVERSITY OF MÜNSTER, GERMANY
5 PAGES, VERHANDL. DEUT. GES. PATHOL. 49, PAGES 300-4 (1965)

ALPHA-RAY ACTIVITY COULD BE DEMONSTRATED IN THE LUNGS OF A 36-YR-OLD MAN, WHO HAD BEEN WORKING IN A URANIUM MINE FOR 3 YEARS, 10 YEARS AGO. THE ACTIVITY WAS DUE TO INCORPORATED ALPHA-PARTICLE EMITTERS WHICH HAD PROBABLY BEEN TAKEN UP IN THE COURSE OF THE MAN'S ACTIVITY IN THE URANIUM MINE. FISSION PRODUCTS OF THE RADIOACTIVE FALLOUT COULD BE DEMONSTRATED ALSO IN NORMAL LUNGS BY USING GAMMA RAY SPECTROMETRY.

*BIOLOGICAL CONCENTRATION, MAN + *FISSION PRODUCT RELEASE, GENERAL + *ALPHA EMITTER + MINING + *SPECTROMETRY, GAMMA + *URANIUM + FALLOUT

15-29278 ALSO IN CATEGORY 13
LAFONTAINE I
RISKS OF RADIOACTIVE INTERNAL CONTAMINATION OF WORKERS AND METHODS OF PREVENTION
CEN, MOL, BELG.
11 PAGES, J. BELGE RADIOL. 50, PAGES 293-303 (1967)

INTERNAL CONTAMINATION HAZARDS OF WORKERS IN RESEARCH LABORATORIES AND INDUSTRIAL INSTALLATIONS ARE ASSESSED. VARIOUS WAYS IN WHICH CONTAMINATING MATERIALS ENTER THE BODY, AND THE PHYSIOLOGICAL BEHAVIOR OF SOME OF THESE ARE DISCUSSED. THE MEANS, COLLECTIVE AND INDIVIDUAL, WHEREBY CONTAMINATION CAN BE PREVENTED, TAKING INTO CONSIDERATION AMONG OTHER THINGS, THE DEMARCATION OF WORKING AREAS, THE DISPOSAL OF GASEOUS EFFLUENTS, THE MONITORING OF WORKING AREAS AND WORKERS INDIVIDUAL EQUIPMENT ARE EXAMINED.

*RADIOISOTOPE + *FUEL REPROCESSING + MONITOR, AREA + *MINING + WASTE TREATMENT, GAS + *FUEL ELEMENT + *CONTAMINATION + *REACTOR, GENERAL + MONITOR, ENVIRONMENTAL + *FUEL CONVERSION + *FABRICATION

15-29279 ALSO IN CATEGORY 13
BURTON LK + COLE JS
ENVIRONMENTAL RADIOACTIVITY AND BODY BURDEN
BERKELEY NUCLEAR LAB. ENG.
CONF-555 +. 8 PAGES, PAGES 309-16 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-29279 *CONTINUED*

DESCRIBES CURRENT INVESTIGATIONS ON THE DEVELOPMENT OF INSTRUMENTS TO PROVIDE A RAPID MEASURE OF CONTAMINATION FROM SPECIFIC NUCLIDES AND THE INTERNAL DOSE TO THE INDIVIDUAL FROM GIVEN CONTAMINATION LEVELS. HAZARDS TO THE WORKER ARE DETERMINED BY MONITORING EITHER THE AIR BREATHED BY THE WORKER, OR THE BODY BURDEN. A BIOLOGICAL MONITORING PROGRAM IS BEING DEVELOPED.

BIOLOGICAL CONCENTRATION, MAN + MONITOR, ENVIRONMENTAL + *FUEL ELEMENT + MONITOR, AIR + DOSE MEASUREMENT, INTERNAL + *FABRICATION + *FUEL REPROCESSING + MONITOR, PERSONNEL + *REACTOR, GENERAL + *RADIOISOTOPE + CONTAMINATION + *FUEL CONVERSION + INSTRUMENT, AIR SAMPLING + INSTRUMENT, GENERAL

15-29288 ALSO IN CATEGORIES 14 AND 17
REPORT OF AN ACCIDENTAL SPILL OF RADIO PHOSPHORUS
AMERICAN MEDICAL ASSOCIATION, INST. OF BIOMEDICAL RESEARCH
15 PAGES, TABLES, REFERENCES, LETTER TO D L AND R, OCTOBER 3, 1968

ON SEPT. 5, 1968, MOUSE EMBRYO CELLS LOADED WITH 5 MILLICURIES OF P-32 WERE BEING HOMOGENIZED AT 16,000 RPM. THE HOMOGENIZER CAME APART, SPRAYING TWO MEN AND THE ENTIRE ROOM. ROOM WAS PROFESSIONALLY DECONTAMINATED. ***ALTHO THIS WAS THE FIRST DISASSEMBLY KNOWN, FUTURE OPERATIONS WILL BE IN A HOOD. ALL SAFETY PROCEDURES WERE REEXAMINED AND TIGHTENED. THE PROCEDURES MANUAL WILL BE AMPLIFIED AND CLARIFIED.

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

*CONTAMINATION + BYPRODUCT MATERIAL + FAILURE, EQUIPMENT + SAFETY REVIEW + PHOSPHORUS + TRACER; RADIOACTIVE

15-29406 ALSO IN CATEGORY 7
MURKAN KZ
COMMON SOURCES OF HUMAN EXPOSURE TO IONIZING RADIATION IN THE UNITED STATES
OAK RIDGE NATIONAL LABORATORY
ORNL-P-3910 +. 10 PAGES

IN TERMS OF BIOLOGICAL CONSEQUENCES, IT DOESN'T MATTER WHETHER A RADIOISOTOPE IS PRODUCED IN A NUCLEAR REACTOR OR HIGH VOLTAGE ACCELERATOR OR IS OF NATURAL ORIGIN. EXPOSURES FROM X AND GAMMA RAYS OR ALPHA, BETA AND NEUTRON PARTICLES IN TERMS OF REM UNITS OR GRAM REM UNITS PRODUCE EQUAL DAMAGE. LIKEWISE, AN EXPOSURE TO X-RAYS OF A GIVEN VOLTAGE IN THESE UNITS IS THE SAME WHETHER IT IS GENERATED BY A MEDICAL X-RAY MACHINE, A COLOR TELEVISION SET OR A HIGH VOLTAGE VACUUM SWITCH. IN FACT, SUCH EXPOSURE IS THE SAME WHETHER GENERATED BY X-RAYS OR GAMMA RAYS FROM A COBALT-60 SOURCE IF THE ENERGY DISTRIBUTIONS ARE THE SAME. IN ALL THESE CASES, THE RADIATION SOURCE SHOULD BE KEPT UNDER PROPER SURVEILLANCE AND ADEQUATE CONTROL OF THE HEALTH PHYSICIST AT ALL TIMES IF ITS CONCENTRATION AND AVAILABILITY TO MAN ARE SUFFICIENT TO PRODUCE A RISK OF EXPOSURE IN EXCESS OF THOSE LEVELS ESTABLISHED BY THE NCRP, ICRP, AND THE FRC FOR THE OCCUPATIONAL WORKER AND FOR MEMBERS OF THE POPULATION AT LARGE.

*RADIATION SAFETY AND CONTROL + HIGH RADIATION + *X-RAY + *RADIATION, PUBLIC EDUCATION + RADIATION PROTECTION, ORGANIZATION + RADIATION IN PERSPECTIVE + *SAFETY PRINCIPLES AND PHILOSOPHY + GAMMA

15-29629 ALSO IN CATEGORY 9
MURGATROYD JL
THE KRYPTON-85 LEAK TEST
UKAEA, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, GREAT BRITAIN
AWRE-022/68 +. 29 PAGES, 8 FIGURES, TABLES, MARCH 1968

DESCRIBES THE SOAK PROCEDURE AND OF THE OPERATION AND CALIBRATION OF THE COUNTING EQUIPMENT USED IN THE KRYPTON-85 LEAK TEST FOR DETERMINING LEAK RATES OF EVACUATED TUBES. SHOWS THAT ONE MAY DETECT A MINIMUM AIR LEAK RATE OF 1(-12) ATM CC S(-1), THE LIMIT BEING SET BY THE BACKGROUND RADIATION. THE MINIMUM ACTIVITY WHICH MAY BE DETECTED UNAMBIGUOUSLY BY THE APPARATUS IS ABOUT 0.045 CI. GIVES THE TESTING AND RESULTS OBTAINED ON TWO ALTERNATIVE COUNTING SYSTEMS, CALIBRATED BY A TYPICAL SHELL FILLED WITH KR-85 TO AN ACTIVITY OF 0.45 CI +/- 10%, THE LOWEST ACTIVITY STANDARD AVAILABLE WITHOUT TOO GREAT A LOSS OF DISPENSING ACCURACY.

AVAILABILITY - HEAD OF TECHNICAL SERVICES, ATOMIC WEAPONS RESEARCH ESTABLISHMENT, ALDERMASTON, BERKSHIRE, ENGLAND

*LEAK RATE + *LEAK + TESTING + *COUNTER + *KRYPTON + *INSTRUMENT CALIBRATION

15-29651
REPORT OF ACTIVITIES, SEPTEMBER 1967
SERVICE CENTRAL DE PROTECTION CONTRE LES RAYONNEMENTS IONISANTS, LE VESINET (FRANCE)
SCPRI(RM)-IX-1967 AND SUPPL. +. 28 PAGES, SEPT. 1967 (IN FRENCH)

MONTHLY REPORT OF THE CENTRAL SERVICE FOR PROTECTION AGAINST IONIZING RADIATIONS (SCPRI), A TECHNICAL DEPARTMENT OF THE FRENCH MINISTRY OF SOCIAL AFFAIRS (LABOUR AND PUBLIC HEALTH). INCLUDES INTERPRETATION OF MAIN RESULTS OF ENVIRONMENTAL SURVEY, STATEMENT OF CONTROL AND ASSISTANCE OPERATIONS IN A WORK ENVIRONMENT, AND A MONTHLY BIBLIOGRAPHICAL SELECTION.

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

BIBLIOGRAPHY + OPERATION + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + FRANCE + *HEALTH PHYSICS TRAINING + *MONITOR, PERSONNEL + *RADIATION PROTECTION, ORGANIZATION + *MONITOR, GENERAL

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-29883 ALSO IN CATEGORY 9

MOTZ JW

CALIBRATION PROCEDURES FOR RADIATION MEASUREMENTS

NATIONAL BUREAU OF STANDARDS, DEPT. OF COMMERCE, WASH., D. C. 20545

1 PAGE, 1 FIGURE, 1 TABLE, ANS TRANS. 11(2), PAGE 460, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

FOR A GIVEN RADIATION FIELD, EACH DETECTOR HAS A PARTICULAR RESPONSE WHICH IS QUANTITATIVELY EXPRESSED BY THE READING OF A METER IN THE DETECTOR SYSTEM. TO INTERPRET THIS READING IN TERMS OF THE QUANTITY OF INTEREST TO THE USER, IT IS NECESSARY TO CALIBRATE THE DETECTOR AND ITS READOUT SYSTEM WITH A STANDARD INSTRUMENT. THE STANDARD INSTRUMENT IS SELECTED ACCORDING TO THE ACCURACY WITH WHICH A GIVEN PARAMETER CAN BE MEASURED IN THE DIFFERENT RADIATION FIELDS OF INTEREST TO THE USER.

DOSIMETRY, GENERAL + *INSTRUMENT, RADIATION MONITORING + *INSTRUMENT CALIBRATION

15-29893 ALSO IN CATEGORIES 1 AND 13

FOSTER RF

ENVIRONMENTAL STUDIES

BATTELLE NORTHWEST, RICHLAND, WASHINGTON

BNWL-894 +. P.4.1, OCTOBER 1968

STUDIED DISPOSAL OF REACTOR OFF-GAS INTO SOIL SYSTEMS TO DETERMINE GAS MOVEMENT IN THE FIELD. RESULTS REPORTED. SIMULATION MODELING OF THERMAL GENERATION IN SELECTED RIVER SYSTEMS, TO INVESTIGATE THE EFFECTS OF FUTURE NUCLEAR POWER PLANTS ON TEMPERATURES OF THE UPPER MISSISSIPPI BASIN, WAS CONTINUED, AND PROGRESS IS REPORTED. ALSO FIELD DATA WERE OBTAINED FOR A TEST SIMULATION OF THE THERMAL REGIME OF THE PHELPS COUNTY (NEBRASKA) IRRIGATION CANAL, DOWNSTREAM FROM THE CANADA POWER PLANT, TO PROVIDE INFORMATION RELATIVE TO USE OF IRRIGATION WATERS FOR COOLING OF POWER REACTORS.

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

REACTOR, POWER + *WATER, IRRIGATION + MODEL TESTING + REACTOR, BWR + R AND D PROGRAM + TRACER, GAS + RIVER, GENERAL + BATTELLE NORTHWEST + *XENON + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + *WASTE DISPOSAL, GAS + *THERMAL POLLUTION + *FUEL REPROCESSING + NRTS + DRESDEN 3 (BWR) + DRESDEN 2 (BWR)

15-29924

MCLAUGHLIN WL

DYE SYSTEMS FOR DOSIMETRY OF INTENSE RADIATION FIELDS

NATIONAL BUREAU OF STANDARDS, DEPT. OF COMMERCE, WASH., D. C., 20545

3 PAGES, 1 TABLE, 4 REFERENCES, ANS TRANS. 11(2), PAGES 460-62, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

PRESENTS THE FIRST RESULTS OF A STUDY IN PROGRESS AT THE NBS CENTER FOR RADIATION RESEARCH ON THE DEVELOPMENT OF CHEMICAL DOSIMETERS AS STANDARD INSTRUMENTS FOR MEASURING LARGE RADIATION DOSES. CALIBRATION PROCEDURES FOR DETERMINING SENSITOMETRIC RESPONSE FUNCTIONS OF DYE SYSTEMS SHOW THAT CERTAIN TYPES OF DYE SOLUTIONS PROVIDE ABSORBED DOSE READINGS IN FIELDS OF VARIOUS LET RADIATIONS.

NBS + GAMMA EMITTER + *DOSIMETRY, GENERAL + SORPTION + *HIGH RADIATION + DOSE + *CODES AND STANDARDS + *INSTRUMENT, RADIATION MONITORING + *INSTRUMENT CALIBRATION

15-29925

TOCHILIN E

NEUTRON AND GAMMA-RAY DOSIMETRY IN REACTOR MEASUREMENTS

U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY

1 PAGE, 1 TABLE, ANS TRANS. 11(2), PAGE 462, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., NOV. 10-15, 1968

DOSIMETRY IN HIGH-INTENSITY MIXED RADIATION FIELDS REQUIRES TWO TYPES OF MEASUREMENT, ONE TO DETERMINE ABSORBED DOSE IN INORGANIC MATERIALS AND THE OTHER TO EVALUATE RADIATION DAMAGE IN CRYSTALLINE MATERIALS AND METALS. STUDIES IN RADIATION CHEMISTRY AND BIOLOGY REQUIRE THAT THE ENERGY ABSORBED FROM BOTH GAMMA RAYS AND NEUTRONS BE DETERMINED. ON THE OTHER HAND, RADIATION DAMAGE IN SOLIDS IS CAUSED MAINLY BY ATOMIC DISPLACEMENTS PRODUCED BY NEUTRON COLLISIONS. RADIATION DAMAGE PARAMETERS ARE BETTER RELATED TO NEUTRON FLUX AND SPECTRUM THAN TO ABSORBED DOSE. REACTOR DOSIMETRY IN ITS BROADEST SENSE WILL REQUIRE MEASUREMENT OF ABSORBED DOSE FROM NEUTRON, ABSORBED DOSE FROM GAMMA RAYS, NEUTRON FLUX DENSITY, AND NEUTRON SPECTRUM.

DOSE MEASUREMENT, INTERNAL + *DOSIMETRY, GENERAL + *NEUTRON + *HIGH RADIATION + *MEASUREMENT, REACTIVITY + *GAMMA EMITTER + RADIATION DAMAGE + SORPTION

15-29979 ALSO IN CATEGORY 17

SEMINARS ON MEDICAL PLANNING AND CARE IN RADIATION ACCIDENTS

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

NUCLEAR SAFETY 9(6), P. 521, NOV.-DEC. 1968

(SEMINARS) TWO HAVE BEEN HELD- NEXT WILL BE EAST COAST IN SPRING 1969. SESSIONS ARE FOR PHYSICIANS WITH NO PRIOR EXPERIENCE, INTENDED FOR AEC LICENSEE AND HOSPITAL PERSONNEL. COVERS

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-29979 *CONTINUED*

DIAGNOSIS AND CARE OF ACUTE RADIATION ILLNESS, TRANSFER AND ADMISSION TO HOSPITALS. *** (SHORT COURSES) ROUTINELY GIVEN BY NCRH. INCLUDE REACTOR SAFETY, RADIOLOGICAL HEALTH, MANAGEMENT OF RADIATION ACCIDENTS.

RADIOLOGICAL ASSISTANCE + TRAINING + RADIATION INJURY TREATMENT + CERTIFICATION + STAFFING

15-30001 ALSO IN CATEGORY 17

HAND EXPOSURE FROM COBALT 60 SOURCE

U. S. ATOMIC ENERGY COMMISSION

SERIOUS ACCIDENTS NO. 297 +. 3 PAGES, DECEMBER 12, 1968

A 10 CURIE CO-60 SOURCE AND A 300 CURIE SOURCE WERE RECEIVED TOGETHER AND STORED FOR 3 WEEKS. AFTER THEIR REMOVAL, A ROUTINE SURVEY FOUND THE SHIPPING CONTAINER CONTAMINATED. THE 10 CURIE SOURCE WAS FOUND CONTAMINATED. DURING DECONTAMINATION, A SCREW TOP WAS FOUND LOOSE AND CONTENTS DUMPED OUT BY HAND (DESPITE INSTRUCTION TO USE TOOLS), ASSUMING CONTENTS WAS A CAPSULE. PELLETS FOUND INSTEAD, AND REPLACED BY HAND, USING TWEEZERS. FILM BADGES LATER SHOWED (A) 655 (+-45%) REM LEFT HAND AND 54 REM RIGHT HAND, (B) 23 REM LEFT HAND AND 10 REM RIGHT HAND. SELF READING DOSIMETERS WERE NOT WORN. PARTIAL BODY SHIELDING WAS USED.

*DECONTAMINATION + *SOURCE, RADIATION + PERSONNEL PROTECTIVE DEVICE + INCIDENT, EXPOSURE + INCIDENT, NONREACTOR + COBALT

15-30039 ALSO IN CATEGORIES 13 AND 17

KOCH RC

FINAL DECONTAMINATION PLANS FOR UP LAB

LETTER TO REVIEW V COMPLIANCE, USAEC, BERKELEY, CALIF., SEPTEMBER 6, 1968, FROM R. C. KOCH

COMPLETE PROCEDURES FOR FINAL DECONTAMINATION AND DISMANTLING PU PROCESSING LAB AT 801 N. LAKE STREET, BURBANK, CALIFORNIA (HOT CELL, STORAGE POOL, MACHINE SHOP, CHEM LAB). POOL CONTAMINATED WITH SOLUBLE CS-137 AND CO-60, OTHER SURFACES WITH PU-238 TO 5 X 10⁶TH DPM/100 SQ CM. NEUTRON FIELDS RANGE 10-280 MREM/HR.

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

COMPLIANCE + DECOMMISSIONING + SOURCE, RADIATION + SOURCE MATERIAL + SOURCE, NEUTRON + *DECONTAMINATION + PLUTONIUM + COBALT + HOT CELL + RADIOISOTOPE + CESIUM + FABRICATION FACILITY

15-30104 ALSO IN CATEGORY 17

SURVEY OF ENVIRONMENTAL RADIOACTIVITY IN THE VICINITY OF INDIAN POINT STATION FEBRUARY 1, 1968 THROUGH JULY 31, 1968

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

AUGUST 21, 1968, 10 PAGES, 8 TABLES, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

GIVES RESULTS OF MEASUREMENTS OBTAINED DURING 2/1/68 THRU 7/1/68 BASED ON A CONTINUOUS MONITORING PROGRAM FROM MID-1958 UNTIL AFTER THE PLANT BECAME OPERATIONAL IN 1962. DIFFERENT PHASES OF THE PROGRAM COVERED STACK DISCHARGES, LIQUID EFFLUENTS, SAMPLE COLLECTION, COUNTING, SPECTRAL ANALYSIS OF VEGETATION, ALGAE, SOIL AND RIVER BOTTOM SEDIMENTS, AND THE MEASUREMENT OF CONCENTRATION OF RADIOACTIVE PARTICLES IN THE AIR.

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

INDIAN POINT 1 (PWR) + REACTOR, PWR + FALLOUT + BIOLOGICAL CONCENTRATION, ALGAE + RIVER, GENERAL + AIR + BIOLOGICAL CONCENTRATION, VEGETATION + FILTER + GROSS BETA + PARTICULATE + GAMMA EMITTER + SURFACE WATER, NUCLIDE OCCURRENCE + MONITOR, STACK + MONITOR, ENVIRONMENTAL + MONITOR, BACKGROUND + MONITOR, TELEMETRY

15-30109

WRAY ET

ENVIRONMENTAL MONITORING ASSOCIATED WITH DISCHARGES OF RADIOACTIVE WASTE DURING 1967 FROM UKAEA ESTABLISHMENTS

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL

AHSB(RP)-R-36 +. 23 PAGES, 21 TABLES, 7 REFERENCES, JULY 1968

DESCRIBES RESULTS OF ENVIRONMENTAL MONITORING UNDERTAKEN TO CONFIRM THAT DISCHARGES OF RADIOACTIVE WASTE DURING 1967 FROM EACH OF THE PRINCIPAL UKAEA ESTABLISHMENTS PRODUCED NO HAZARD IN ENVIRONMENT. RESULTS SUMMARIZED AND COMPARED WITH DERIVED WORKING LIMITS TO FACILITATE AN APPRECIATION OF STANDARDS OF SAFETY ACHIEVED.

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

WASTE DISPOSAL, LIQUID + RADON + HAZARD, RELATIVE + RADIUM + STRONTIUM + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + EFFLUENT + BIOLOGICAL CONCENTRATION, MILK + RIVER, THAMES + WASTE MANAGEMENT + CALCIUM + WASTE DISPOSAL, SOLID + MONITOR, ENVIRONMENTAL + RADIATION SAFETY AND CONTROL + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS

15-30117

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30117 *CONTINUED*

NG YC + BURTON CA + THOMPSON SE + TANDY RK + KRETNER HK + PRATT MW
PREDICTION OF THE MAXIMUM DOSAGE TO MAN FROM THE FALLOUT OF NUCLEAR DEVICES IV. HANDBOOK FOR ESTIMATING THE
MAXIMUM INTERNAL DOSE FROM RADIONUCLIDES RELEASED TO THE BIOSPHERE
UNIVERSITY OF CALIFORNIA, LAWRENCE RADIATION LABORATORY, LIVERMORE
UCRL-50,163, PT. IV +. 124 PAGES, TABLES, MAY 14, 1968

PART IV OF THIS SERIES IS A SPECIAL-PURPOSE HANDBOOK FOR ESTIMATING THE MAXIMUM INTERNAL DOSE TO
MAN FROM RADIONUCLIDES RELEASED TO THE BIOSPHERE. THIS HANDBOOK, WHICH IS TO BE CONTINUOUSLY
UPDATED AND IS TO BE EXPANDABLE, LISTS THE PERTINENT DATA FOR ALL ISOTOPES WHOSE HALF-LIVES ARE
GREATER THAN 12 HOURS. THE FIRST ISSUE IS DEVOTED TO ESTIMATION OF THE DOSAGE RESULTING FROM
CONTAMINATION OF AGRICULTURAL LANDS AS DESCRIBED IN THE PREVIOUS PARTS OF THE UCRL-50163 SERIES.
THE HANDBOOK WILL SOON BE UPDATED TO INCLUDE THE AQUATIC ENVIRONMENTS.

DEPOSITION + *BIOLOGICAL CONCENTRATION, MILK + *SOIL, NUCLIDE OCCURRENCE + *NUCLEAR DETONATION + *SURFACE
CONTAMINATION + *FALLOUT + TROPOSPHERE + *DOSE MEASUREMENT, INTERNAL + *DOSE CALCULATION, INTERNAL +
*BIOLOGICAL CONCENTRATION, MAN + RADIOACTIVITY RELEASE + STRATOSPHERE + BIOLOGICAL CONCENTRATION,
AGRICULTURAL PRODUCE

15-30121

BROWN JBC + GUYTON FM + HALL JA + HARVEY JR + WEBB GAM
RECOMMENDATIONS CONCERNING THE USE OF THE PERSONAL NEUTRON ALBEDO DOSIMETER
BERKELEY NUCLEAR LABORATORIES
RD-BR-828 +. 29 P., OCTOBER 18, 1968

A SYSTEM OF PERSONNEL NEUTRON DOSIMETRY IS DESCRIBED WHICH UTILIZES A DETECTOR TO MONITOR THE
THERMAL NEUTRON ALBEDO AT THE BODY SURFACE RESULTING FROM INCIDENT NEUTRONS OF ALL ENERGIES. THE
RESPONSE OF THE DOSIMETER AS A FUNCTION OF INCIDENT NEUTRON ENERGY HAS BEEN INVESTIGATED BOTH
THEORETICALLY AND EXPERIMENTALLY. A PROTOTYPE DOSIMETER HAS BEEN DESIGNED AND ITS PERFORMANCE
DETERMINED IN NUCLEAR POWER STATION ENVIRONMENTS. THE DOSIMETER HAS A MINIMUM DETECTABLE TOTAL
NEUTRON DOSE OF 5 MREM, AN IMPROVEMENT OF GREATER THAN 100 TO 1 COMPARED WITH THE FAST NEUTRON
TRACK FILMS WHEN USED IN CIVIL NUCLEAR POWER STATION ENVIRONMENTS. RECOMMENDATIONS ARE MADE FOR
THE ADOPTION OF THE DOSIMETER BY THE C.E.G.B.

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

FAST NEUTRON + *THERMAL NEUTRON + *DOSIMETRY, GENERAL + *MONITOR, PERSONNEL + INSTRUMENT CALIBRATION +
*INSTRUMENT, RADIATION MONITORING

15-30124

SHUMWAY BW + FRANK AL
ANGULAR RADIATION CHARACTERISTICS OF ROUGH SURFACES CONTAMINATED WITH FALLOUT SIMULANT
U. S. NAVAL RADIOLOGICAL DEFENSE LABORATORY, SAN FRANCISCO, CALIFORNIA
USNRDL-TR-68-37 +. FEBRUARY 29, 1968, 17 FIGURES, 14 REFERENCES

THE UNSCATTERED RADIATION FROM ROUGH SURFACES WAS MEASURED USING A NaI(TL) SPECTROMETER. THE
SURFACES WERE PREPARED FROM ROCKS OF GRADED SIZE AND FOR DIFFERENT SPACINGS BETWEEN THE ROCKS.
SOME SURFACES WERE DRY AND SOME STICKY. WHETHER OR NOT A SURFACE WAS STICKY AND, IF STICKY, THE
ANGLE OF INCIDENCE OF THE CONTAMINANT UPON THE SURFACE AFFECTED THE ANGULAR INTENSITY OF THE
RADIATION MARKEDLY. FOR ONE STICKY SURFACE THE ACTIVITY DEPOSITION WAS STUDIED IN DETAIL. THE
FINDINGS TOGETHER WITH THE ANGULAR INTENSITY MEASUREMENTS SUGGESTED A NEW MATHEMATICAL MODEL TO
REPRESENT STICKY SURFACES.

GOLD + DEPOSITION + *RADIATION MODEL + *SURFACE CONTAMINATION + SURVEY, RADIATION, GENERAL + *MEASUREMENT,
REACTIVITY + MATHEMATICAL TREATMENT + INSTRUMENT CALIBRATION

15-30126

LAGOUTINE F
WEAK CURRENT MEASUREMENT, APPLICATION TO THE DETERMINATION OF EXPOSURE DOSES
FRANCE. COMMISSARIAT A L ENERGIE ATOMIQUE
CEA-R-3584 +. SEPTEMBER 1968, 4 FIGURES, 9 PAGES (IN FRENCH)

OUTLINES A METHOD FOR THE ABSOLUTE MEASUREMENT OF WEAK CURRENTS PRODUCED IN AN IONIZATION CHAMBER.
THE MEASURING ASSEMBLY CONSISTS BASICALLY OF CAVITY IONIZATION CHAMBERS CONNECTED TO AN
ELECTROMETRIC DEVICE. WHEN USED TO MEASURE EXPOSURE DOSE RATES, THIS APPARATUS CAN COVER A RANGE
FROM 10 MILLIROENTGENS/HOUR TO 15,000 ROENTGENS/HOUR.

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

*CHAMBER, ION + *DOSE MEASUREMENT, EXTERNAL + DOSIMETRY, GENERAL + MEASUREMENT, GENERAL + *DOSE MEASUREMENT,
INTERNAL + INSTRUMENT, RADIATION MONITORING

15-30128

ALSO IN CATEGORY 12

WRIGHT CN + HOY JE + SPILCHAL WF
SAVANNAH RIVER PLANT CRITICALITY DOSIMETRY SYSTEM
SAVANNAH RIVER LABORATORY, AIKEN, SOUTH CAROLINA
DP-1006 (REV. 1) +. SEPTEMBER 1968, 23 PAGES, 5 FIGURES, 4 TABLES

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30128 *CONTINUED*

FISSIONABLE MATERIALS ARE HANDLED AND PROCESSED AT THE SAVANNAH RIVER PLANT. ALTHOUGH THE PROBABILITY OF AN ACCIDENTAL CRITICALITY OCCURRING IS SMALL, THE POSSIBILITY MUST BE CONSIDERED. THIS REPORT DESCRIBES THE METHODS WHICH WOULD BE USED TO SEGREGATE EXPOSED AND NONEXPOSED PERSONNEL AND TO DETERMINE NEUTRON AND GAMMA DOSES RECEIVED BY THOSE WHO WERE EXPOSED.

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

GAMMA + MEASUREMENT, REACTIVITY + *DOSE + *ACCIDENT, HYPOTHETICAL + *ACCIDENT, CRITICALITY + *DOSIMETRY, GENERAL + HAZARD, RELATIVE + NEUTRON + COMPUTER PROGRAM + *INSTRUMENT, GENERAL

15-30129 ALSO IN CATEGORIES 1 AND 14

JACOBS DG
SOURCES OF TRITIUM AND ITS BEHAVIOR UPON RELEASE TO THE ENVIRONMENT
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
TID-24635 + ORNL-NSIC-39 +. 90P., DEC. 1968

AN ATTEMPT IS MADE IN THIS STATE-OF-THE-ART-REPORT TO SUMMARIZE SOME OF THE IMPORTANT PROPERTIES OF TRITIUM AND TO USE THESE PROPERTIES IN PREDICTING THE IMPACT OF DIVERSE RELEASES OF TRITIUM ON LOCAL AND WORLDWIDE POPULATIONS. DESPITE INADEQUACIES OF PRESENT INFORMATION ON THE BEHAVIOR OF TRITIUM, WE CAN CONCLUDE, IN OUR PRESENT POWER ECONOMY, TRITIUM POSES NO SEVERE WORLDWIDE EXPOSURE PROBLEMS. HOWEVER, IT WILL CONTINUE TO OFFER HANDLING AND ENVIRONMENTAL CONTAMINATION PROBLEMS. ALSO REPORTED IS INFORMATION CONCERNING SOURCES, ENRICHMENT, MONITORING, MOVEMENT, AND PROJECTED PRODUCTION OF TRITIUM.

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

DEPOSITION + SURFACE CONTAMINATION + DISPERSION + TROPOSPHERE + DIFFUSION + TRITIUM + RADIOACTIVITY RELEASE + DILUTION + GROUND WATER, GENERAL + EVAPORATION + OCEAN AND SEA + RAINOUT + POPULATION EXPOSURE + RADIATION SAFETY AND CONTROL + CONDENSATION + REACTOR, POWER + FUEL REPROCESSING + HYDROLOGICAL CONSIDERATION, GENERAL + THERMAL CONSIDERATION + ENVIRONMENTAL CONDITION + CHROMATOGRAPHY + STRATOSPHERE + INSTRUMENT, RADIATION MONITORING

15-30130

VAN AS D + FOURIE HD + VLEGGAAR CH
ENVIRONMENTAL RADIOACTIVITY AT THE NATIONAL NUCLEAR RESEARCH CENTRE, PELINDABA
ATOMIC ENERGY BOARD, PELINDABA, PRETORIA (SOUTH AFRICA)
PEL-181 +. 20P., AUG. 1967

MEASUREMENTS MADE DURING 1967 OF TOTAL ACTIVITIES OF CERTAIN INDIVIDUAL NUCLIDES IN SAMPLES OF SOIL, VEGETATION, WATER, SEDIMENT, WATERPLANTS, PLANKTON, FISH, MILK AND AGRICULTURAL PRODUCTS FROM THE ENVIRONMENT AROUND THE NATIONAL NUCLEAR RESEARCH CENTRE (NNRC) AT PELINDABA ARE REPORTED. GROSS ACTIVITIES ARE COMPARED WITH THE VALUES OF PREVIOUS YEARS AND THE RESULTS OF FALLOUT MEASUREMENTS ARE GIVEN. NO INCREASES COULD BE DETECTED DUE TO THE OPERATIONS AT THE NNRC.

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

BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + BIOLOGICAL CONCENTRATION, MILK + ENVIRONMENTAL CONDITION + MONITORING PROGRAM, ENVIRONMENTAL + GROSS BETA + *SAMPLING + BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS + *FALLOUT + SOUTH AFRICA + ECOLOGICAL CONSIDERATION + GROSS GAMMA + BIOLOGICAL CONCENTRATION, ALGAE + GROSS ALPHA + BIOLOGICAL CONCENTRATION, VEGETATION

15-30133 ALSO IN CATEGORY 1

TAPE GF
ENVIRONMENTAL ASPECTS OF OPERATION OF CENTRAL POWER PLANTS
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
AEC PRESS RELEASE NO. S-54-68 +. 18 PAGES, 7 FIGURES, DECEMBER 20, 1968

CONSIDERS ENVIRONMENTAL RELATIONS TO THE GROWTH OF THE INCREASINGLY IMPORTANT POWER INDUSTRY, THE SIGNIFICANT ENVIRONMENTAL CONSEQUENCES THAT MUST BE FACED IN CONSIDERING THE LOCATIONS OF CENTRAL POWER STATIONS. THE PROBLEM OF WASTE DISPOSAL, EFFICIENCY OF PLANT OPERATION, THERMAL POLLUTION, BIOLOGICAL PRODUCTIVITY THROUGH INDUCED UPWELLING IN THE OCEAN, AND OTHER ASPECTS OF RESEARCH ARE DISCUSSED.

*THERMAL CONSIDERATION + *SITING, OFF SHORE + SITING, GENERAL + OCEAN AND SEA + *STEAM GENERATOR + *ENVIRONMENTAL CONDITION + WATER, GENERAL + *REACTOR, POWER + WATER, IRRIGATION + CONGRESSIONAL ACTIVITY + USAEC + WATER POLLUTION + WASTE DISPOSAL, GENERAL + *AQUATIC ORGANISMS + *THERMAL POLLUTION + *BIOTA

15-30135 ALSO IN CATEGORY 14

HEALTH PHYSICS DIVISION ANNUAL PROGRESS REPORT FOR PERIOD ENDING JULY 31, 1968
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
ORNL-4316 +. 324 PAGES, OCTOBER 1968

PROGRESS OF THE HEALTH PHYSICS DIVISION AT ORNL IS REPORTED AS FOLLOWS - PART I, RADIOACTIVE WASTE DISPOSAL - (1) FATE OF TRACE ELEMENTS AND RADIONUCLIDES IN TERRESTRIAL ENVIRONMENT, (2) DISPOSAL OF HYDRAULIC FRACTURING, (3) DISPOSAL IN NATURAL SALT FORMATIONS, (4) ENGINEERING, ECONOMIC, AND

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30135 *CONTINUED*

SAFETY EVALUATIONS, (5) EARTHQUAKE AND REACTOR SAFETY, (6) DOSE ESTIMATION STUDIES RELATED TO PEACEFUL USES OF NUCLEAR EXPLOSIVES, (7) RELATED CO-OPERATIVE PROJECTS. PART II, RADIATION ECOLOGY. PART III, RADIATION PHYSICS. PART IV, RADIATION DOSIMETRY RESEARCH. PART V, INTERNAL DOSIMETRY.

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

DOSE CALCULATION, INTERNAL + *WASTE DISPOSAL, HYDRAULIC FRACTURING + DOSE CALCULATION, EXTERNAL + *ECOLOGICAL CONSIDERATION + RADIATION SAFETY AND CONTROL + AQUATIC ORGANISMS + EARTHQUAKE + *WASTE DISPOSAL, SALT + *TRITIUM + *POPULATION EXPOSURE + HEALTH PHYSICS TRAINING + *WASTE DISPOSAL, ECONOMICS + *REACTOR SAFETY SYSTEM + *DOSIMETRY, GENERAL + COMPUTER PROGRAM + *WASTE MANAGEMENT + THEORETICAL INVESTIGATION + *WASTE DISPOSAL, TERRESTRIAL

15-30159 ALSO IN CATEGORY 9

YOUNG GW
A LONG-DISTANCE, REMOTE INDICATING RADIATION SURVEY MONITOR
EDGERTON, GERMESHAUSEN AND GRIER, INC.
PROCEEDINGS 15TH CONF. ON REMOTE SYSTEM TECH., 1967, P.277

DURING TESTS OF NUCLEAR ROCKET ENGINES AT THE NUCLEAR ROCKET DEVELOPMENT STATION IN NEVADA, THERE IS A NEED TO MONITOR RADIATION LEVELS REMOTELY AROUND THE ROCKET TEST CELL AREA AND THROUGHOUT THE SITE. THE SYSTEM DESCRIBED USES MANY REMOTE DETECTORS AT VARIOUS LOCATIONS IN THE TEST SITE AREA, EACH OF WHICH REPORTS ITS RADIATION ENVIRONMENT OVER A RANGE OF 1 MR/H TO 1000 R/H TO A CENTRAL COLLECTION POINT VIA SEVERAL MILES OF ORDINARY TWISTED-PAIR TELEPHONE WIRES.

AVAILABILITY - GORDON W. YOUNG - EDGERTON, GERMESHAUSEN AND GRIER, INC., LAS VEGAS, NEVADA 89101

SYSTEM DESCRIPTION + NRDL + *MONITOR, ENVIRONMENTAL + *INSTRUMENT, RADIATION MONITORING

15-30196 ALSO IN CATEGORY 17

UNUSUAL OCCURRENCE REPORT 21, ARC AIR CUTTING ON CONTAMINATED STAINLESS STEEL PLATE
NORTHERN STATES POWER COMPANY
NSP-6802(APP. II) +. 10 PAGES, NOVEMBER 19, 1968, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PICNEER SERV.

ON JULY 3, ARC CUTTING OF A HOLE IN THE DEMISTER STORAGE STAND RELEASED ENOUGH SURFACE CONTAMINATION IN 15 MIN FOR THE WELDER TO INHALE 51 THE CO-60 AND 11 THE ZN-65 BODY BURDEN. WHILE A RADIATION WORK PERMIT WAS POSTED AT THE AIRLOCK DOOR, RADIATION LEVELS OF 100 MR/HR FROM THE STAND WERE NOTED BEFORE COMMENCING WORK. LATER, SMEARS SHOWED ABOUT 500,000 DPM/SMEAR. THE WELDERS NOSE SMEARED 3,600 DPM/SMEAR. ***WORK ORDERS, REVIEWED BY ASST. PLANT SUPT., ARE NOW REQUIRED FOR ALL MAINTENANCE WORK OUTSIDE THE SHOP. ***WHOLE BODY COUNTS USED TO BACK CALCULATE AIRBORNE CONCENTRATION AS 32 MPC. LETTER TO PLANT PERSONNEL REVIEWS WELL THE AIRBORNE RADIOACTIVITY PROBLEMS FACED IN MAINTENANCE.

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

INHALATION + FAILURE, ADMINISTRATIVE CONTROL + COBALT + INCIDENT, HUMAN ERROR + *WELDING + PATHFINDER (ISR) + *CONTAMINATION + REACTOR, INTERNAL SUPERHEAT + ZINC + COUNTER, WHOLE BODY + RADIATION SAFETY AND CONTROL + REACTOR, BWR + AIRBORNE RELEASE + DECOMMISSIONING

15-30246 ALSO IN CATEGORIES 13 AND 17

CHANGE 9 - USE OF KR-85 CHECK SOURCES
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO NPS AND NY 5-A SDA, DEC. 31, 1968, DOCKET 50-201

APPROVED USE OF KR-85 TO PERMIT GREATER FLEXIBILITY IN CALIBRATION AND FUNCTIONAL CHECKS OF THE GAS SECTION OF THE STACK MONITOR. KR-85 TO BE USED IS 0.021 OF THE AMOUNT THAT MAY BE RELEASED DAILY UNDER NPS TECHNICAL SPECIFICATIONS. ALLOWS POSSESSION OF 3 CURIES KR-85.

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

NPS + KRYPTON + TECHNICAL SPECIFICATIONS + FUEL REPROCESSING + RADIOACTIVITY RELEASE + *MONITOR, STACK + *MONITOR, GAS + BYPRODUCT MATERIAL + *INSTRUMENT CALIBRATION

15-30250 ALSO IN CATEGORIES 1 AND 17

AEC AMENDS REPORTING REQUIREMENTS FOR RADIATION EXPOSURE INFORMATION
U.S. ATOMIC ENERGY COMMISSION
AEC PRESS RELEASE L-285 +. 1 PAGE, DECEMBER 18, 1968

10 CFR 20 AMENDMENTS WERE PUBLISHED IN THE FEDERAL REGISTER (DEC. 19, 1968) TO REQUIRE ANNUAL REPORTS TO THE AEC (FROM INDUSTRIAL OPERATIONS) OF INDIVIDUAL DOSES FOR CENTRALIZED RECORD KEEPING.

REACTOR, RESEARCH + REACTOR, POWER + REGULATION, AEC + *RADIATION EXPOSURE, RECORD KEEPING + BYPRODUCT MATERIAL

15-30265 ALSO IN CATEGORY 17

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30265 *CONTINUED*

KELLER FR

EFFECTS OF FUEL AND EXPERIMENT FAILURES UPON TEST REACTOR OPERATIONS

IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO

1 PAGE, 1 FIGURE, ANS TRANS. 11(2), PAGE 625, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

MTR AND ETR (28 REACTOR-YEARS) EXPERIENCE SHOWS FUELED CAPSULE BREAKS CAN HAVE AS SERIOUS EFFECTS ON EFFLUENT ACTIVITY AS FUEL ELEMENT FAILURES (EG MTR/ETR EFFLUENT ACTIVITY 60-66 SHOWN). ONLY MTR CAPSULE FAILURE OF FEB. 23, 1963 CORRELATED TO HIGH DISCHARGE. *** USEFUL TECHNIQUES DESCRIBED. (1) DECONTAMINATION PROCEDURES (SPECIAL FOAM DECONTAMINANT DEVELOPED). (2) CUSTOM SHIELDING FOR HOT SPOTS. (3) HIGHLY DEVELOPED TRAINING AIDS. (4) CRAFTSMAN CROSS TRAINING TO SPREAD EXPOSURE. (5) DETAILED PLANNING OF SHUTDOWN WORK. (6) DAILY LOGGING OF PERSONNEL RADIATION EXPOSURE.

AVAILABILITY - F. R. KELLER, IDAHO NUCLEAR CORPORATION, P. O. BOX 1845, IDAHO FALLS, IDAHO

REACTOR, TEST + DECONTAMINATION + ETR (TR) + *IN PILE LOOP + SHIELDING + RADIATION SAFETY AND CONTROL + MAINTENANCE AND REPAIR + REACTOR, AEC OWNED + REACTOR, RESEARCH + *FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE SUMMARY + MTR (TR) + TRAINING + WASTE DISPOSAL, LIQUID

15-30279 ALSO IN CATEGORY 17

CORRESPONDENCE ON TRITIUM PAINTING

THEODORE R. SCHWALM, INC.

2 PAGES, LETTER TO COMPLIANCE, OCTOBER 3, 1968

IN ANSWER TO CITATION OF SEPT. 24, 1968 - (1) GLOVE-BOX DUCT TO MAIN EXHAUST IS CLOSED, AND CONTINUED AIR SAMPLES SHOW WITHIN LIMITS. (2) THESE TESTS HAVE BEEN PERFORMED FOR YEARS BY THE MATERIAL SUPPLIER, SATISFACTORY TO PREVIOUS AEC INSPECTORS. (3) AIR SAMPLES JUNE-AUGUST 68 OF PAINTING ROOM WERE SATISFACTORY. ***(REPLY NOV 12.) (1) YOU SHOULD ENSURE THAT THIS DOES NOT INCREASE AIRBORNE ACTIVITY FROM TRITIUM STORED THERE. (2) CERTIFICATION BY SUPPLIER OF PAINT (VIBRATION AND IMMERSION) REQUIRED. (3) SAMPLES FROM OUTSIDE FACILITY ARE INADEQUATE. STACK DISCHARGES ARE ABOVE MPC, SHOULD CONTINUE TO BE USED WITH DILUTION CALCULATIONS.

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

GLOVE BOX + VENTILATION SYSTEM + DILUTION + BYPRODUCT MATERIAL + *STACK + *MONITORING PROGRAM, ENVIRONMENTAL + TRITIUM + COMPLIANCE + SURFACE, PAINTED + AIRBORNE RELEASE

15-30291 ALSO IN CATEGORY 17

EXEMPTION FROM 10 CFR 20.203 (C)(2)

CONNECTICUT YANKEE ATOMIC POWER COMPANY

3 PAGES, LETTER TO DL AND R, MARCH 1, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SUPPLEMENTARY INFORMATION TO JAN. 3, 1968, REQUEST TO SUBSTITUTE ADMINISTRATIVE CONTROL OF ENTRY TO HIGH RADIATION AREAS IN LIEU OF VISIBLE OF AUDIBLE ALARMS. (1) REVIEW OF PAST ACCIDENTS SHOWS MANY TIMES FACILITY ALARM DEVICES WERE AT FAULT DUE TO PERSONNEL OVERDEPENDENCE ON THEM. AWARENESS OF ACTUAL LEVELS IS THE KEY FACTOR. (2) AREAS WILL BE POSTED, MEASURED CURRENT LEVELS NOTED. KEYS TO HIGH RADIATION AREAS KEPT BY SUPERVISORS AND AO. RWP SYSTEM IS USED AND REQUIRES CONTINUOUS MONITORING IN HIGH RADIATION AREAS.

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

HADDAM NECK (PWR) + REACTOR, PWR + FAILURE, EQUIPMENT + INCIDENT COMPILATION + MONITOR, AREA + REGULATION, AEC + TECHNICAL SPECIFICATIONS + INFORMATION RETRIEVAL + RADIATION SAFETY AND CONTROL + *HIGH RADIATION + *ADMINISTRATIVE CONTROL

15-30361

KUDDO K + TAMURA H

RADIATION MONITORING IN THE ELECTRICAL COMMUNICATION LABORATORY

ELECTRICAL COMMUN. LAB., TOKYO

6 PAGES, HOKEN BUTSURI 1(1), PAGES 2-7 (SEPTEMBER 1966) (IN JAPANESE)

EXPERIENCE IN RADIATION MONITORING AT THE ELECTRICAL COMMUNICATION LABORATORY IS REPORTED. PERSONNEL MONITORING, LABORATORY MONITORING, AND FIELD MONITORING ARE THE MAIN ACTIVITIES IN THE LABORATORY AND HAVE BEEN CARRIED OUT FROM 1962 TO THE PRESENT TIME. THE METHODS OF MONITORING AND THE WORKING LIMITS ARE SIMILAR TO THOSE USED IN THE JAPANESE ATOMIC ENERGY RESEARCH INSTITUTE. THE RADIATION LEVELS WERE KEPT LOWER THAN THE MAXIMUM PERMISSIBLE.

*MONITOR, ENVIRONMENTAL + *MONITOR, PERSONNEL + JAPAN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *PERSONNEL EXPOSURE, RADIATION + *SURFACE CONTAMINATION

15-30362

MINAMI K + FUKUDA S

DERIVATION OF THE WORKING LIMITS OF THE SKIN SURFACE CONTAMINATION

JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO

11 PAGES, HOKEN BUTSURI 1(1), PAGES 20-30 (SEPTEMBER 1966)

LIMITS OF CONTAMINATION ON THE SKIN SURFACE, EMPLOYED AS A GUIDE FOR THE RADIATION PROTECTION FOR

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30362 *CONTINUED*

OCCUPATIONALLY EXPOSED INDIVIDUALS, WERE DERIVED BY TAKING INTO ACCOUNT THE EXTERNAL EXPOSURE DOSE TO THE SKIN AND THE INTERNAL EXPOSURE DOSE RECEIVED BY THE INHALATION, INGESTION, AND SKIN PENETRATION OF THE CONTAMINANTS. THE ADEQUACY OF THE DERIVED LIMITS IS DISCUSSED IN RELATION TO THE DETECTION PROBABILITY OF A HAND-FOOT MONITOR FOR HAND CONTAMINATION. THE CONTAMINATION LIMITS FOR THE SKIN, THAT WERE ADOPTED IN OTHER ESTABLISHMENTS, ARE ALSO REVIEWED.

*INGESTION + *INHALATION + *DOSE MEASUREMENT, EXTERNAL + SURFACE CONTAMINATION + COUNTER + *DOSE MEASUREMENT, INTERNAL + *BIOLOGICAL CONCENTRATION, MAN + *MONITOR, PERSONNEL

15-30363 ALSO IN CATEGORY 14

THOMPSON JC

COMPARISON OF I-131 INTAKE FROM MILK AND NON-MILK FOODS

CORNELL UNIVERSITY

6 PAGES, HEALTH PHYSICS, 14, PAGES 483-8 (MAY 1968)

NON-MILK I-131 INTAKE COULD MAKE A SIGNIFICANT CONTRIBUTION TO TOTAL I-131 INTAKE AMONG CERTAIN POPULATION GROUPS. ESTIMATIONS WERE MADE FOR SOME OF THESE GROUPS DURING THE JUNE TO SEPTEMBER 1962 PERIOD. THE POSSIBILITY OF A 20-40% NON-MILK I-131 CONTRIBUTION WAS INDICATED FOR FARM FAMILIES, RURAL FAMILIES WITH GARDENS, AND OTHER NON-URBAN POPULATION CATEGORIES. SINCE THERE ARE NEARLY 50 MILLION PERSONS IN THE U.S. INCLUDED IN THESE GROUPINGS, THE NATURE AND MAGNITUDE OF THIS CONTRIBUTION SHOULD BE MORE CAREFULLY EXAMINED. THE SOLUTION TO THE PROBLEM MAY SIMPLY REQUIRE CONVERTING TO PROCESSED FOODS WHEN THE OCCASION DEMANDS ACTION, BUT NO PROCEDURES OR PLANS HAVE BEEN ESTABLISHED TO MEET THIS NEED.

*BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, MAN + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + *IODINE + *FALLOUT + *POPULATION EXPOSURE

15-30365

BECK HL + BENNETT BG + MCCRAW TF

EXTERNAL RADIATION LEVELS ON BIKINI ATOLL, MAY 1967

NEW YORK OPERATIONS OFFICE, AEC

HASL-190 +. 79 PAGES, 27 FIGURES, 2 TABLES, 7 REFERENCES, DEC. 1967

AN INTENSIVE RADIOLOGICAL SURVEY OF THE ISLANDS OF BIKINI ATOLL WAS CONDUCTED IN APRIL-MAY 1967 TO DETERMINE LEVELS AND COMPONENTS OF THE EXTERNAL GAMMA RADIATION FIELDS IN THIS FORMER WEAPONS TESTING AREA. TOTAL EXPOSURE RATES WERE FOUND TO VARY CONSIDERABLY FROM SITE TO SITE AND ISLAND TO ISLAND. LEVELS MEASURED OVER SOIL RANGES FROM LESS THAN 10 MICROROENTGENS/HR TO OVER 500 MICROROENTGENS/HR. MAJOR CONTRIBUTORS TO THE RADIATION FIELDS USUALLY INCLUDED CS-137, CO-60, SB-125, AND RH-102M, WITH A LARGE NUMBER OF OTHER ISOTOPES PRESENT.

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

*SPECTROMETRY, GAMMA + SOIL + *SURVEILLANCE PROGRAM + GAMMA EMITTER + *SAMPLING + RADIOLOGICAL ASSISTANCE + TESTING + *SOIL, NUCLIDE OCCURRENCE + *SURVEY, RADIATION, GENERAL + CHAMBER, GAMMA + TEST, WEAPONS (HP ASPECTS) + *INSTRUMENT, RADIATION MONITORING

15-30366

DE BORTOLI M + GAGLIONE P

SITE SURVEILLANCE WITHIN EUARTOM JRC AT ISPRA

EUROPEAN ATOMIC ENERGY COMMUNITY

EUR-4051 +. 42 PAGES, 2 FIGURES, 30 TABLES, MAY 13, 1968

RESULTS OF SITE SURVEY MEASUREMENTS PERFORMED WITHIN THE FENCE OF THE ISPRA ESTABLISHMENT DURING 1967 ARE REPORTED AND BRIEFLY DISCUSSED. MOST OF THE CONTAMINATION FOUND ON THE SITE IS DUE TO THE WORLD-WIDE FALLOUT.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES IN THE U.S. AND OVER SEAS

*RADIATION SAFETY AND CONTROL + *SURVEILLANCE PROGRAM + CONTAMINATION + *FALLOUT + ITALY

15-30394

PAIX D

BACKGROUND RATES IN TRITIUM COUNTING - THE EFFECT OF THE VIAL

PRINCE HENRY HOSPITAL, LITTLE BAY, AUSTRALIA

3 PAGES, INT. J. APPL. RADIAT. ISOTOP., 19, PAGES 162-164 (FEB. 1968)

WHEN SPECIMENS ARE ASSAYED BY LIQUID SCINTILLATION COUNTING, THE RADIOACTIVITY OF THE VIAL MAY CONTRIBUTE SIGNIFICANTLY TO THE BACKGROUND COUNT-RATE. THIS CONTRIBUTION MAY VARY MARKEDLY BETWEEN VIALS OF DIFFERING TYPE, OR EVEN BETWEEN VIALS FROM A SUPPOSEDLY UNIFORM SUPPLY. THESE EFFECTS LIMIT THE PRECISION WITH WHICH THE NET COUNT-RATES CAN BE ESTABLISHED WHEN (AS IS USUAL) A SINGLE BLANK IS MADE TO SERVE AS BACKGROUND FOR A NUMBER OF SAMPLES. THE EFFECT IN A COUNTER SET TO A TRITIUM CHANNEL WAS INVESTIGATED BY COUNTING A LARGE NUMBER OF SPECIMENS CONSISTING OF 10 +- 0.1 ML OF BRAYS MIXTURE IN GLASS AND POLYTHENE VIALS. EACH WAS COUNTED FOR 30 MIN (EXCEPT WHERE OTHERWISE STATED). THREE TYPES OF POLYTHENE AND GLASS VIALS WERE EXAMINED. WIDE VARIATIONS WERE FOUND.

*TRITIUM + COUNTER + SPECTROMETRY, GAMMA + *ANALYTICAL TECHNIQUE, CALIBRATION

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30400
FUKUDA S + SAKAGISHI S
MONITORING AND EVALUATION OF INHALED AIRBORNE RADIOACTIVE MATERIALS
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
12 PAGES, KUKI SEIJO, 4(5), PAGES 40-51 (FEB. 1967)(IN JAPANESE)

MONITORING AND DETECTION METHODS FOR AIR CONTAMINATION DUE TO RADIOACTIVE MATERIALS IN THE WORKING ENVIRONMENT ARE REVIEWED FROM THE VIEWPOINT OF THE EVALUATION AND PROTECTION OF THE INHALATION HAZARDS.

*SAMPLING + *AIR + *INHALATION + JAPAN + PARTICLE, RADIOACTIVE + HAZARD, RELATIVE + *MONITORING PROGRAM, ENVIRONMENTAL + *IODINE + CONCENTRATION, MAXIMUM + *MONITOR, PERSONNEL + *MONITOR, ENVIRONMENTAL + *INSTRUMENT, SURVEILLANCE

15-30401
HOLLAND RW
PLANNING A MEDICAL UNIT FOR HANDLING CONTAMINATED PERSONS FOLLOWING A RADIATION ACCIDENT
OAK RIDGE NATIONAL LABORATORY, TENN.
13 PAGES, 9 FIGURES, 1 TABLE, 28 REFERENCES, NUCLEAR SAFETY, 10(1), PAGES 72-84 (JAN.-FEB. 1969)

INJURIES SUSTAINED AT THE TIME OF A RADIATION ACCIDENT ARE RELATIVELY RARE IN THE UNITED STATES, BUT, AS THE USE OF NUCLEAR ENERGY EXPANDS, THERE MAY BE MORE OF THEM. IN THE YEARS SINCE THE SL-1 INCIDENT, IN WHICH THREE WORKERS DIED, THERE HAS BEEN MUCH PRIVATE DISCUSSION ABOUT THE ADVISABILITY OF CONSTRUCTING DECONTAMINATION FACILITIES AT SITES WHERE RADIATION ACCIDENTS ARE POSSIBLE, BUT LITTLE HAS BEEN WRITTEN FOR PUBLICATION. IN THIS ARTICLE IDEAS AND RECOMMENDATIONS ARE PRESENTED ON THE DESIGN OF SUCH A DECONTAMINATION FACILITY. THESE IDEAS WERE FORMED BY BOTH INDUSTRIAL MEDICAL PRACTICE AT ORNL AND BY DISCUSSION WITH PERSONNEL AT OTHER SITES.

*RADIOLOGICAL ASSISTANCE + *CONTAMINATION + NUCLEAR INCIDENT DOSIMETER + *RADIOBIOLOGY + HEALTH PHYSICS TRAINING + *BIOMEDICAL + RADIATION DAMAGE + *DECONTAMINATION + *ACCIDENT, GENERAL + *RADIATION SAFETY AND CONTROL + USAEC + RADIATION INJURY TREATMENT

15-30404
ONISHI T
RADIATION CONTROL METHODS AT PLUTONIUM LABORATORY IN JAERI
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
4 PAGES, HOKEN BUTSURI 1(1), PAGES 8-11 (SEPT. 1966)(IN JAPANESE)

DESCRIBES RADIATION CONTROL METHODS AT A PLUTONIUM LABORATORY, SUCH AS CONTAMINATION CONTROL, ROOM AIR MONITORING, STACK DUST MONITORING, AND MONITORING OF SOLID AND LIQUID WASTES.

CONTAMINATION + *RADIATION SAFETY AND CONTROL + *PLUTONIUM + JAPAN + *MONITOR, LIQUID + *MONITOR, STACK + *MONITOR, SOLID + *MONITOR, ENVIRONMENTAL

15-30428 ALSO IN CATEGORIES 14 AND 18
COMMENTS ON RADIOLOGICAL SAFETY AT OYSTER CREEK 1
JERSEY CENTRAL LIGHT AND POWER COMPANY
4 PAGES, AMENDMENT 26 TO OYSTER CREEK 1 LICENSE APPLICATION, NOVEMBER 28, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

COMMENTS ON FISH-AND-WILDLIFE-SERVICE LETTERS TO AEC - (1) PLANT IS 50 MILES FROM PHILADELPHIA, NET ELECTRICAL POWER WILL BE 60 MW. TRACER STUDIES PERFORMED ONLY IN AUG. AND SEPT. 1963, ONLY 2 DILUTION PUMPS NEEDED TO MAINTAIN LIMIT OF 95 F AT BUOY IN BARNEGOT BAY. (2) COOPERATION WITH N.J. DEPT. OF HEALTH WILL CONTINUE. (3) PROGRAM OF SAMPLING CLAMS, WATER, AND SEDIMENT WILL CONTINUE EVERY 4 WKS DURING FIRST YEAR OF POWER OPERATION. (4) NO JUSTIFICATION FOR A REPORT EVERY 3 MONTHS, PROPOSE 6 MONTHS. (5) IF SAMPLING PROGRAM REQUIRES, PLANT RADWASTE DESIGN AND OPERATION WILL BE REVIEWED. (6) RADIOACTIVITY CONCENTRATION FOR FISH BASED ON FISH MOBILITY, DILUTION, AND DISCHARGE CONCENTRATION.

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

*WASTE DISPOSAL, LIQUID + OFF SITE + FISSION PRODUCT RELEASE, GENERAL + OYSTER CREEK 1 (BWR) + REACTOR, BWR + OCEAN AND SEA + *WASTE MANAGEMENT + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *SURVEY, RADIATION, ENVIRONMENTAL

15-30447 ALSO IN CATEGORIES 5 AND 18
STANFORD LE + HAMRICK TP + BINFORD FT
DESCRIPTION AND SAFETY ANALYSIS OF SIGNIFICANT CHANGE OF THE BULK SHIELDING REACTOR FOR 2-MW OPERATION
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2231 +. 107 PAGES, FIGURES, TABLES, MAY 15, 1968

MODIFICATIONS TO MAIN COOLING SYSTEM TO INSTALL FORCED COOLING ARE TO BE COMPLETED BY OCT. 1966, PERMITTING POWER UPGRATING FROM 1 TO 2 MW MODIFICATIONS AND REACTOR ARE DESCRIBED IN DETAIL. THE MCA ASSUMES MELTING OF 50% OF FUEL AFTER 28 MONTHS OF CONTINUOUS OPERATION (LOSS OF COOLANT TESTS HAVE BEEN PERFORMED WITH NO DAMAGE TO ELEMENTS). DOSE FROM MCA, 1 KM DOWNWIND FROM STACK IS THE MAXIMUM AND IS .194 MREM INTERNAL AND 2.5 RADS EXTERNAL.

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

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30447 *CONTINUED*
COPY, \$0.65 MICROFICHE

*REACTOR DESCRIPTION + ACCIDENT ANALYSIS + MAIN COOLING SYSTEM + DOSE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, AEC OWNED + REPORT, SAR + *SAFETY ANALYSIS + *POWER UPGRATING + REACTOR, RESEARCH + ACCIDENT, MAXIMUM CREDIBLE (MCA) + *BSR (RR) + OFF SITE

15-30456 ALSO IN CATEGORY 13
BRANSGROVE AN + CECERS KE
ALPHA-BETA-GAMMA SURFACE CONTAMINATION MONITOR A.A.E.C. TYPE 165
AUSTRALIAN ATOMIC ENERGY COMMISSION RESEARCH ESTABLISHMENT, LUCAS HEIGHTS
AAEC/M-84 +. 17 PAGES, 3 FIGURES, JULY 1968

THE A.A.E.C. TYPE 165 MONITOR IS A PORTABLE INSTRUMENT, FITTED WITH RECHARGEABLE BATTERIES AND DESIGNED FOR A VARIETY OF USES BY HEALTH PHYSICISTS OR PERSONS WORKING IN AREAS CONTAMINATED BY RADIOACTIVITY. FITTED WITH ONE ALPHA AND ONE BETA-GAMMA PROBE, THE INSTRUMENT REGISTERS 0-10,000 COUNTS/SEC IN FOUR LINEAR RANGES. AN ALARM MAY BE PRE-SET AT LOW RADIATION LEVELS. THE INSTRUMENT ALSO HAS CONNECTIONS FOR EXTERNAL SCALERS AND RECORDERS.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES IN THE U.S. AND OVER SEAS

GAMMA + *FUEL ELEMENT + *REACTOR, GENERAL + *FUEL REPROCESSING + *EQUIPMENT DESIGN + *FABRICATION + *ENRICHMENT FACILITY + *RADIOISOTOPE + *FUEL CONVERSION + ALPHA EMITTER + BETA EMITTER + *MONITOR, GENERAL

15-30461 ALSO IN CATEGORY 14
SPANGLER GW + WILLIS CA
PERMISSIBLE CONTAMINATION LIMITS
UNIVERSITY OF CALIFORNIA, LOS ANGELES
CONF-555 +. 8 PAGES, PAGES 151-8 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967. FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

THE ESTABLISHMENT OF PERMISSIBLE CONTAMINATION LIMITS (PCL), PRESENTS A PRACTICAL APPROACH TO CONTROL OF RADIOACTIVE CONTAMINATION HAZARDS. VALUES FOR PCL BASED ON A CONSERVATIVE ASSESSMENT OF POTENTIAL INHALATION AND DIRECT RADIATION HAZARD ARE SUFFICIENT TO PROTECT OTHER SURFACE CONTAMINATION HAZARDS. CURRENT DATA APPEAR INSUFFICIENT FOR THE ESTABLISHMENT OF SPECIFIC PCL VALUES FOR EACH INDIVIDUAL ISOTOPE.

SURFACE CONTAMINATION + BETA EMITTER + ALPHA EMITTER + GAMMA EMITTER + HAZARD, RELATIVE + *MAXIMUM PERMISSIBLE DOSE (MPD)

15-30462 ALSO IN CATEGORY 14
BLATZ H + EISENBUD M
THE ESTABLISHMENT OF LIMITS FOR RADIOACTIVE SURFACE CONTAMINATION
NEW YORK UNIVERSITY., NEW YORK CITY OFFICE OF RADIATION CONTROL
CONF-555 +. 5 PAGES, PAGES 163-7 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967. FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

A SURVEY OF THE EXPOSURE OF WORKERS IN THE RADIUM DIAL PAINTING INDUSTRY IN AND AROUND NEW YORK CITY WAS CONDUCTED. RESULTS INDICATED THAT NO RELIABLE RELATION BETWEEN SURFACE CONTAMINATION AND HEALTH HAZARDS COULD BE ESTABLISHED. WORK SURFACE CONTAMINATION LIMITS USED IN FOREIGN COUNTRIES WERE COMPARED WITH RESULTS OF THIS STUDY. LEGAL CONSIDERATIONS OF HEALTH HAZARDS FROM SURFACE CONTAMINATION ARE POINTED OUT.

*SURFACE CONTAMINATION + CONTAMINATION + *RADIUM + RADON + AIRBORNE RELEASE

15-30463 ALSO IN CATEGORY 14
GLAUBERMAN H + BOOTHMAN WR + BRESLIN AJ
STUDIES OF THE SIGNIFICANCE OF SURFACE CONTAMINATION
USAEC, NEW YORK
CONF-555 +. 10 PAGES, PP 169-78 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS, 1967. FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

DIFFERENCES IN THE RELATION BETWEEN AIR-DOUST CONCENTRATION AND REMOVABLE SURFACE CONTAMINATION WERE OBSERVED AT TWO FACILITIES OF THE HEALTH AND SAFETY LABORATORY. NO CORRELATION WAS FOUND BETWEEN RESULTS OF SPECIFIC EXPERIMENTS AND SURFACE AND AIR CONTAMINATION MEASUREMENTS PERFORMED DURING NORMAL OPERATIONS IN URANIUM AND BERYLLIUM FACILITIES.

BERYLLIUM + URANIUM + PLUTONIUM + *RESUSPENSION + AIRBORNE RELEASE + *SURFACE CONTAMINATION + CONTAMINATION

15-30464 ALSO IN CATEGORY 14
PRINCE JR + WANG CH
A METHOD FOR EVALUATING SURFACE CONTAMINATION OF SOFT BETA EMITTERS
OREGON STATE UNIVERSITY, CORVALLIS
CONF-555 +. 5 PAGES, PAGES 179-83 OF SURFACE CONTAMINATION, NEW YORK PERGAMON PRESS 1967, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN. JUNE 1964

THE TECHNIQUE OF LIQUID SCINTILLATION COUNTING WAS APPLIED TO EVALUATION OF SWIPES FROM SURFACES

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30464 *CONTINUED*

CONTAMINATED WITH SOFT BETA EMITTERS. THE COUNTING EFFICIENCY OF A NUMBER OF COMPOUNDS CONTAINING C-14 OR H-3 WAS DETERMINED. RESULTS ARE PRESENTED IN TABULAR FORM. IN VIEW OF THE SIMPLICITY OF THE METHOD AND ITS SUITABILITY FOR RAPID EVALUATION OF LARGE NUMBERS OF SAMPLES, IT CAN BE RECOMMENDED FOR A VARIETY OF APPLICATIONS.

*BETA EMITTER + *SAMPLING + RADIOCHEMICAL ANALYSIS + CARBON + *SURFACE CONTAMINATION + TRITIUM

15-30465 ALSO IN CATEGORY 14

ROYSTER GW + FISH BR

TECHNIQUES FOR ASSESSING REMOVABLE SURFACE CONTAMINATION

OAK RIDGE NATIONAL LABORATORY, TENN

CONF-555 +. 7 PAGES, PP 201-7 OF SURFACE CONTAMINATION, NEW YORK, PERGAMON PRESS, 1967, FROM INTERNATIONAL SYMPOSIUM ON SURFACE CONTAMINATION, GATLINBURG, TENN., JUNE 1964

MEASUREMENTS OF SURFACE CONTAMINATION BY SMEAR AND ADHESIVE PAPER TECHNIQUES ARE EVALUATED AND A THIRD PROCEDURE IS DESCRIBED. THIS NEW TECHNIQUE EMPLOYS AIR IMPINGEMENT TO REDISPERSE LOOSE CONTAMINATION FROM THE SURFACE. THE RESULTING AIRBORNE MATERIAL IS THEN COLLECTED ON A FILTER AND ANALYZED. SURFACE CHARACTERISTICS AFFECTING THE MEASUREMENT AND REDISPERSION OF PARTICULATES ARE DISCUSSED. THE EFFECT OF PARTICLE SIZE ON THE MEASUREMENT AND REDISPERSION OF PARTICULATES IS PRESENTED IN GRAPH FORM.

*AIRBORNE RELEASE + *DECONTAMINATION + *SURFACE CONTAMINATION + SAMPLING + PARTICLE SIZE

15-30466 ALSO IN CATEGORY 14

BRUYNESTEYN W

RADIATION MAGNITUDES AND UNITS

FYSISCH LABORATORIUM RIJSUNIVERSITEIT, UTRECHT

21 PAGES, NED. TIJDSCHR. NATUURK, 33, PAGES 134-54 (APR-MAY 1967), (IN DUTCH)

THE RADIATION MAGNITUDES AND UNITS OF THE VARIOUS BRANCHES OF STUDY (INTERACTION BETWEEN RADIATION AND MATTER, REACTOR PHYSICS, RADIOLOGY, RADIOBIOLOGY, PHOTOMETRY, AND ACOUSTICS) ARE DEFINED AND COMPARED WITH EACH OTHER.

REACTOR PHYSICS + RADIOLOGY + *RADIATION UNIT

15-30633 ALSO IN CATEGORIES 5 AND 18

SEFOR FSAR VOL. II - SAFETY ANALYSIS

GENERAL ELECTRIC COMPANY

150 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOL. 2, JULY 21, 1967, DOCKET 50-231

CONTAINS SECTIONS ON AUXILIARY SYSTEMS, EXPERIMENTAL PROGRAM AND EQUIPMENT, CONDUCT OF OPERATIONS, ELECTRIC POWER SUPPLY, AND THE SAFETY ANALYSIS. APPENDICES INCLUDE AN ANALOG MODEL OF SEFOR, RESULTS OF MOCKUP TESTS IN ZPR-3, BLAST SHIELDING AND DESIGN, AND RADIOLOGICAL EFFECTS CALCULATIONS. SAFETY ANALYSIS CONSIDERS THE SAFETY FEATURES FOR OPERATION, POSITIVE REACTIVITY INSERTIONS, AND LOSS OF COOLANT FLOW. THE MHA IS A SUDDEN INCREASE IN POWER DENSITY FOLLOWED BY LOSS OF COOLANT FLOW LEADING TO RAPID FUEL MELTING AND COMPACTION OF CORE INTO A SUPERCRITICAL MASS, WHEREAS THE CONTAINMENT DESIGN CRITERIA IS SUCH THAT IT MEETS A SET OF CONDITIONS MORE SEVERE THAN THOSE PREDICTED FOR THE MHA. THE CALCULATIONAL BASIS FOR RADIOLOGICAL EFFECTS ASSUMES CONDITIONS MORE THAN THOSE FOR THE MHA AND CONTAINMENT CAPABILITY LESS EFFECTIVE THAN THOSE OF THE DESIGN CRITERIA.

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

SIMULATION + SHIELDING + *REACTOR DESCRIPTION + DOPPLER EFFECT + *ANALYTICAL MODEL + SYSTEM CAPABILITY + ELECTRIC POWER, NORMAL + COMPUTER, ANALOG + ACCIDENT, LOSS OF FLOW + DOSE + TEST, PHYSICS + REPORT, SAR + ANALOG SIMULATION + OFF SITE + *SEFOR (RE) + ACCIDENT, HYPOTHETICAL + EXPERIMENT, GENERAL + REACTOR, LMCR + ENGINEERED SAFETY FEATURE + DOPPLER COEFFICIENT + *ACCIDENT ANALYSIS + *SAFETY ANALYSIS + REACTOR, LMFR + *HAZARDS ANALYSIS + *SYSTEM DESCRIPTION + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT DESIGN + MOCKUP + *R AND D PROGRAM

15-30634 ALSO IN CATEGORIES 1 AND 18

AEC QUESTION - QUAD CITIES 1 AND 2 AND MEDICAL EMERGENCY PLANS

U.S. ATOMIC ENERGY COMMISSION, DIV. REACTOR LICENSING

1 PAGE, LETTER FROM ORL TO COMMONWEALTH EDISON CO., JANUARY 21, 1969, DOCKETS 50-254/265, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

REQUESTS MEDICAL PLANS FOR A RADIATION EMERGENCY AND THE EMERGENCY PLAN FOR THE SITE (QUESTION ONLY - NO ANSWER).

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

RADIATION INJURY TREATMENT + *RADIATION SAFETY AND CONTROL + AEC QUESTION + ADMINISTRATIVE CONTROL + RADIATION PROTECTION, ORGANIZATION + REACTOR, BWR + RADIOLOGICAL ASSISTANCE + *EMERGENCY PROCEDURE + SAFETY PRINCIPLES AND PHILOSOPHY + QUAD CITIES 1 (BWR) + QUAD CITIES 2 (BWR)

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30693 ALSO IN CATEGORY 13
RADIATION HAZARD CONTROLS IN URANIUM MINES
6 PAGES, COM. NAZ. ENERG. NUCL. NOTIZ., 14, PAGES 97-102 (JAN. 1968), (IN ITALIAN)

THE PUBLIC HEALTH SERVICE OF THE UNITED STATES IN COLLABORATION WITH THE A.E.C. AND OTHER GOVERNMENT AGENCIES DEVELOPED GUIDELINES FOR THE CONTROL OF RADIATION HAZARDS IN URANIUM MINES. ENVIRONMENTAL CONDITIONS IN URANIUM MINES ARE OUTLINED, AND BIOLOGICAL EFFECTS FROM EXPOSURE TO RADON AND ITS DECAY PRODUCTS ARE SUMMARIZED. BASIC SAFETY STANDARDS ARE PROPOSED.

*URANIUM + *USAEC + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *RADIATION PROTECTION, ORGANIZATION + UNITED STATES + *MINING + *BIOLOGICAL CONCENTRATION, MAN

15-30696
NARROG J
NEUTRON DOSIMETRY FOR PERSONNEL MONITORING IN RADIATION PROTECTION
LANDES INSTITUT FUER ARBEITSSCHUTZ UND ARBEITSMEDIZIN, KARLSRUHE, GER.
5 PAGES, ATOMWIRT., ATOMTECH., 12, PAGES 443-7 (AUG.-SEPT. 1967), (IN GERMAN)

REVIEWS PERSONNEL DOSIMETRY FOR DEALING WITH NEUTRON RADIATION FROM EXISTING LITERATURE SUPPLEMENTED BY EXPERIMENTS AND EXPERIENCE FROM AN OFFICIAL PERSONNEL MONITORING STATION. THE METHODS ARE DESCRIBED, AND NEWER DEVELOPMENTS ARE ALSO BRIEFLY MENTIONED. THE NUCLEAR FILM STANDS OUT IN THE SURVEY AS THE METHOD MOST USED AT PRESENT. THE USE OF NUCLEAR FILMS AS DOSIMETERS IN THE SAME SENSE AS A GAMMA RADIATION DOSIMETER HAS LITTLE MEANING IN THE CASE OF REACTORS, ACCELERATORS, AND RADIOACTIVE NEUTRON SOURCES SINCE THEY REPRESENT ONLY A QUALITATIVE METHOD FOR THE DETERMINATION OF FAST NEUTRONS.

*FAST NEUTRON + CADMIUM + GAMMA EMITTER + DOSE + *NEUTRON + *DOSIMETRY, PHOTOGRAPHIC + *THERMAL NEUTRON + CHAMBER, ION + *MONITOR, PERSONNEL

15-30738 ALSO IN CATEGORY 1
DECREE NO. 67-228 OF 15 MARCH 1967 CONTAINING ADMINISTRATIVE REGULATIONS CONCERNING THE PROTECTION OF WORKERS FROM THE HAZARDS OF IONIZING RADIATION
28 PAGES, JOURNAL OFFICIEL DE LA REPUBLIQUE FRANCAISE, NUMBER 69, PAGES 2754-71 (MARCH 22, 1967)

THIS DECREE REPLACES DECREE OF 1934. IT CONTAINS PROVISIONS DESIGNED TO SAFEGUARD WORKERS IN THE MEDICAL, INDUSTRIAL COMMERCIAL FIELDS - ANYONE IN POSSESSION OF RADIATION GENERATING EQUIPMENT OR OF A NATURAL OR ARTIFICIAL RADIATION SOURCE MUST DECLARE SAME. RECORDS MUST BE KEPT. TECHNICAL PROVISIONS ARE LAID DOWN REGARDING THE EXTENT OF MONITORED AREAS, AND RADIATION DOSIMETRY. A REGISTER OF DATES, LENGTH, AND CAUSE OF ABSENCES FROM WORK AND OF RESULTS OF HEMATOLOGICAL AND RADIOLOGICAL TESTS TO BE MAINTAINED.

*REGULATION, GENERAL + *RADIATION SAFETY AND CONTROL + *RADIATION EXPOSURE, RECORD KEEPING + DOSIMETRY, GENERAL

15-30739 ALSO IN CATEGORY 1
CORRETTIER L
LEGAL PROBLEMS IN RELATION TO LESIONS CAUSED BY IONIZING RADIATIONS
8 PAGES, ENERGIE NUCLEAIRE (MADRID), VOLUME 11, PAGES 551-8 (NOVEMBER-DECEMBER 1968)

THE EXAMINATION OF THE VARIOUS LEGAL PROBLEMS ARISING FROM RADIOLESIONS IN PERSONS PROFESSIONALLY EXPOSED CAN BE DIVIDED INTO TWO DISTINCT AREAS - THE LEGAL OBLIGATIONS TO PROVIDE SAFETY AND PROTECTION PRECAUTIONS AGAINST IONIZING RADIATION, AND REPARATION TO THE PERSON INJURED BY EXPOSURE. THE FIRST ASPECT IS ONLY BRIEFLY CONSIDERED. THE SECOND ASPECT IS CONSIDERED IN SOME DETAIL ON THE BASIS OF A FRENCH DECISION IN A CASE OF ILLNESS ATTRIBUTED TO IONIZING RADIATION. THE DECISION WAS BASED ON AN EVALUATION OF THE PROFESSIONAL CHARACTER OF THE ILLNESS AND OF THE RADIATIONS RECEIVED.

*LAW + *FRANCE + *LIABILITY + *RADIATION SAFETY AND CONTROL

15-30889 ALSO IN CATEGORY 17
CITATION FOR EXPOSURE CONTROL
CAMBRIDGE NUCLEAR CORPORATION
5 PAGES, LETTER TO COMPLIANCE, NOVEMBER 1, 1960

DETAILED ANALYSIS SHOWS THAT INDIVIDUALS WORK VARIED LITTLE EXCEPT FOR LAST 2 WEEKS WHEN HE WAS PROCESSING HG-197. (CITATION NOV. 25, 1960) - A SEPT./OCT. INSPECTION REVEALED THAT INDIVIDUAL WHO RECEIVED DOSE REPORTED AUG. 5 ALSO RECEIVED 1.8 AND 2.5 REMS 1ST AND 3RD QUARTERS OF 1968. ANOTHER RECEIVED 2 AND 1.4. EXPOSURES SHOULD HAVE BEEN LIMITED TO 1.25. (2-6) - SURVEYS, MONITORING EQUIPMENT, AND RECORDS WERE INADEQUATE. *** IT APPEARS THAT RADIATION PROGRAM HAS DECLINED IN EFFECTIVENESS SINCE LAST INSPECTION. HEALTH PHYSICIST WHO LEFT IN APRIL HAS NOT BEEN REPLACED. BIOASSAY PROGRAM SHOULD BE RE-EVALUATED BECAUSE PRINCIPLE RADIONUCLIDE WAS NOT ALWAYS IDENTIFIED. WHEN IDENTIFIED, SOURCE WAS NOT ALWAYS EVALUATED.

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

RADIATION SAFETY AND CONTROL + RADIATION EXPOSURE, RECORD KEEPING + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, EXPOSURE + MERCURY + BYPRODUCT MATERIAL + SURVEY, RADIATION, GENERAL + COMPLIANCE

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30927 ALSO IN CATEGORY 17
IMPROVEMENTS IN RADIATION SAFETY EFFECTIVENESS
IIT RESEARCH INSTITUTE
5 PAGES, LETTER TO L.D. LOW, COMPLIANCE, DEC. 18, 1968

(RESPONSE TO DEC. 4 CITATION FOR SEPT. INCIDENT.) HOT CELL WILL BE LOCKED UNTIL PROCEDURES ARE CHANGED AND INSTRUMENTATION REVISED. WHEN THESE CHANGES ARE COMPLETED, A LICENSE AMENDMENT WILL BE SUBMITTED. *** ATTACHED MEMORANDA RELATE TO RADIATION-SAFETY ORGANIZATION CHART AND LIST OF ITEMS TO BE CONSIDERED - (1) FORMAL TRAINING AND CERTIFICATION PROCEDURES FOR OPERATORS, (2) LOGGING MONITOR, (4) REVIEW OF ACCESS CONTROL TO HOT CELL, (5) SURVEY METER LOCATED NEAR HOT CELL DOOR, (6) NEW RADIATION MONITOR WITH BETTER POSITION IN HOT CELL, FAIL SAFE ALARM, AND INTERLOCK WITH HOT CELL DOOR.

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

BYPRODUCT MATERIAL + INCIDENT, EXPOSURE + MODIFICATION, SYSTEM OR EQUIPMENT + *RADIATION SAFETY AND CONTROL + CERTIFICATION + HOT CELL + ADMINISTRATIVE CONTROL + COMPLIANCE + MONITOR, AREA

15-30928 ALSO IN CATEGORY 17
FINAL REPORT ON SEPT. 12, 1968, RADIATION OVEREXPOSURE
IIT RESEARCH INSTITUTE
2 PAGES, LETTER TO DIV. OF LICENSING AND REGULATION, OCTOBER 10, 1968

A CHEMIST ENTERED A HOT CELL (IN WHICH A 1020-CURIE SOURCE WAS EXPOSED) TO REMOVE GAMMA IRRADIATED SAMPLES. THE THIRD SOURCE WAS LEFT IN THE TUBE, AFTER DIFFICULTY PLACING TWO IN STORAGE, AND THE TUBE WAS PLACED ON TOP OF LEAD BRICKS. WHEN HE OPENED THE DOOR TO ENTER, THE RADIATION ALARM DID NOT SOUND, THOUGH LATER THE NEEDLE WAS FOUND AGAINST THE ALARM SETTING. A HEALTH PHYSICIST NOTED A HAND/FOOT MONITOR ALARMING AND LOCATED HIGH RADIATION COMING FROM HOT CELL, WHERE THE SOURCE WAS DISCOVERED. REENACTMENT INDICATED 2.09 REMS. BETTER RADIATION ALARM WILL BE PROCURED, AND SURVEY METER WILL BE PLACED AT DOOR FOR USE ON ENTERING CELL.

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

FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + HOT CELL + BYPRODUCT MATERIAL + *INCIDENT, EXPOSURE + COBALT + FAILURE, EQUIPMENT + SOURCE, RADIATION + MONITOR, AREA

15-30929 ALSO IN CATEGORY 17
CITATION FOLLOWING OVEREXPOSURE OF SEPT. 12
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO IIT RESEARCH INSTITUTE, DEC. 4, 1968

A SEPT. 1968 INSPECTION RESULTED IN A NONCOMPLIANCE CITATION FOR (1) ALLOWING AN INDIVIDUAL TO WORK IN A HOT CELL WITHOUT INSTRUCTION IN RADIATION SAFETY, (2) NOT CHECKING RADIATION LEVEL ON ENTERING THE HOT CELL NO CALIBRATION THE MONITOR, AND NOT KEEPING CELL CONTROL PANEL KEY SECURED AGAINST UNAUTHORIZED USAGE, (3) USING BYPRODUCT MATERIAL NOT UNDER AUTHORIZED SUPERVISION. SURVEY METERS ARE NOT ROUTINELY USED BY PERSONNEL. THERE APPEARS TO BE A LACK OF EFFECTIVE MANAGEMENT CONTROL OF LICENSED MATERIAL, AND EMPLOYEES ARE NOT GUIDED IN THEIR RADIATION PROTECTION PROCEDURES.

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

HEALTH PHYSICS TRAINING + SURVEY, RADIATION, GENERAL + COBALT + SOURCE, RADIATION + *INCIDENT, EXPOSURE + *FAILURE, OPERATOR ERROR + HOT CELL + IRRADIATION FACILITY + BYPRODUCT MATERIAL + FAILURE, ADMINISTRATIVE CONTROL + GAMMA + RADIATION SAFETY AND CONTROL + *COMPLIANCE

15-30960 ALSO IN CATEGORY 9
RUSHING DE ET AL
COMMON LABORATORY INSTRUMENTS FOR MEASUREMENT OF RADIOACTIVITY
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE PUBL. NO. 999-RH-32 +. APRIL 1967, 104P.

THIS SECOND REPORT, ISSUED UNDER THE AUSPICES OF THE INTERLABORATORY TECHNICAL ADVISORY COMMITTEE, WAS PREPARED BY THE SUBCOMMITTEE ON PHYSICS AND INSTRUMENTATION. IT CLARIFIES REQUIREMENTS AND CHARACTERISTICS OF INSTRUMENTATION USED TO MEASURE LEVELS OF IONIZING RADIATION EXPERIENCED BY MAN IN HIS ENVIRONMENT, AND ASSISTS RESPONSIBLE RADIOLOGICAL HEALTH AGENCIES IN SELECTING OPTIMUM SURVEILLANCE AND COUNTING SYSTEMS.

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

INSTRUMENT, PROTECTIVE + INSTRUMENT, SURVEILLANCE + *MONITOR, PERSONNEL + PARTICLE, RADIOACTIVE + COUNTER + CHAMBER, ION + *MONITOR, ENVIRONMENTAL + *INSTRUMENT, NUCLEAR + INSTRUMENT CALIBRATION + SPECTROMETRY, GAMMA

15-30968
RECHEN HJL + MIKKELSEN RL + BRISCOE OG + STEINER JF
CESIUM-137 CONCENTRATIONS IN ALASKANS DURING THE SPRING OF 1967
NATIONAL CENTER FOR RADIOLOGICAL HEALTH
RAD. HEALTH DATA AND REPORTS, VOL. 9, NO. 12, PP. 705-717, DECEMBER 1968

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30968 *CONTINUED*

DURING APRIL AND MAY 1967, CESIUM-137 CONCENTRATIONS WERE MEASURED BY THE NATIONAL CENTER FOR RADIOLOGICAL HEALTH, PUBLIC HEALTH SERVICE, IN 1,334 RESIDENTS OF 13 ALASKAN VILLAGES AND CITIES WHERE CARIBOU AND REINDEER ARE MAJOR SOURCES OF MEAT. THE RADIATION DOSE INDEX DEFINED IN THIS REPORT, FOR THE HIGHEST INDIVIDUAL VALUE MEASURED IN 1967, WAS 0.17 RAD/ANNUM.

INGESTION + *BIOLOGICAL CONCENTRATION, MAN + *BIOLOGICAL CONCENTRATION, FOOD + FEDERAL RADIATION COUNCIL + *SURVEILLANCE PROGRAM + *DOSE MEASUREMENT, INTERNAL + CESIUM + RADIOLOGICAL ASSISTANCE + ALASKA + *BIOLOGICAL CONCENTRATION, ANIMAL

15-30969

DATA

NATIONAL CENTER FOR RADIOLOGICAL HEALTH

RAD. HEALTH DATA AND REPORTS, VOL. 9, NO. 12, DECEMBER 1968

SURVEILLANCE PROGRAMS OF ENVIRONMENTAL RADIOACTIVITY ARE CARRIED OUT ON A CONTINUING BASIS. MUCH DATA IS COLLECTED AND REPORTED. THE FOLLOWING CATEGORIES OF DATA ARE GIVEN - SECTION I - MILK AND FISH, SECTION II - WATER, SECTION III - AIR AND DEPOSITION, SECTION IV - OTHER DATA SUCH AS THOSE OBTAINED FROM HUMAN BONE SAMPLING, BOVINE THYROID, SAMPLING, ALASKAN SURVEILLANCE, AND ENVIRONMENTAL MONITORING AROUND NUCLEAR FACILITIES.

*PRECIPITATION + IODINE + *PADUCAH PLANT + BARIUM + *STRONTIUM + *SURVEILLANCE PROGRAM + GROSS ALPHA + PLUTONIUM + *MONITOR, AIR + *BIOLOGICAL CONCENTRATION, MILK + USAEC + *DEPOSITION + GROSS BETA + CESIUM + *BIOLOGICAL CONCENTRATION, ANIMAL + *SURFACE WATER, NUCLIDE OCCURRENCE + *BIOLOGICAL CONCENTRATION, FOOD

15-30974

PLACAK OR

FINAL OFF-SITE REPORT OF THE PROJECT SEDAN EVENT, JULY 6, 1962. PLOWSHARE PROGRAM.

U. S. PUBLIC HEALTH SERVICE

PNE-200-F +. DEC. 12, 1962, 85P.

THE PROJECT SEDAN EVENT WAS CONDUCTED AS A PART OF THE PLOWSHARE PROGRAM AT 1000 HOURS ON JULY 6, 1962, IN AREA 10 OF THE NEVADA TEST SITE BY THE LAWRENCE RADIATION LABORATORY. THE RESULTS OF MONITORING AND ENVIRONMENTAL SAMPLING EFFORTS CONDUCTED BY THE U. S. PUBLIC HEALTH SERVICE OFF-SITE RADIOLOGICAL SAFETY ORGANIZATION ARE PRESENTED IN THE REPORT.

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

SURFACE WATER, NUCLIDE OCCURRENCE + RADIOLOGICAL ASSISTANCE + BIOLOGICAL CONCENTRATION, VEGETATION + *POPULATION EXPOSURE + AIR + LRL + *MONITOR, ENVIRONMENTAL + *SAMPLING + *PLOWSHARE PROGRAM + *MONITOR, PERSONNEL + METEOROLOGICAL SUPPORT + FALLOUT + *INSTRUMENT, RADIATION MONITORING

15-30977

ALSO IN CATEGORY 14

BELL MC + COLE CV

VULNERABILITY OF FOOD CROP AND LIVESTOCK PRODUCTION TO FALLOUT RADIATION

UT-AEC AGRICULTURAL RESEARCH LAB., OAK RIDGE, TENN.

TID-24459 +. SEPT. 7, 1967, 34P.

REVIEWS THE EFFECTS OF RADIATION ON FOOD CROPS AND LIVESTOCK TO PROPERLY EVALUATE THE VULNERABILITY OF FOOD PRODUCTION TO FALLOUT RADIATION. FOOD SUPPLIES AND FOOD PRODUCTION HAVE ALWAYS PLAYED IMPORTANT ROLES IN RECOVERY FROM MAJOR DISASTERS. MUCH MORE INFORMATION IS NEEDED ON THE RADIATION SENSITIVITY AT DIFFERENT STAGES OF GROWTH FOR THE PRINCIPAL FOOD CROPS TO GAMMA AND BETA RADIATION. DIRECT RETENTION OF FALLOUT DATA ARE NEEDED FOR PLANTS AND ANIMALS, ALONG WITH GASTROINTESTINAL SENSITIVITY DATA FOR GRAZING LIVESTOCK. CATTLE ARE ONE OF OUR MAIN FOOD RESERVES (VALUED AT \$16 BILLION), AND DATA ARE NEEDED ON INTERACTION OF RADIATION INSULTS TO THESE LIVESTOCK WHICH HAVE LITTLE PROTECTION FROM FALLOUT.

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

*BIOLOGICAL CONCENTRATION, FOOD + RADIOBIOLOGY + *BIOLOGICAL CONCENTRATION, ANIMAL + *FALLOUT + *RADIATION DAMAGE + BETA EMITTER + RADIATION SAFETY AND CONTROL + GAMMA EMITTER

15-30978

ALSO IN CATEGORY 17

FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE NRX-A4/EST TEST SERIES

SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY

SWRHL-30R +. SEPTEMBER 19, 1966

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE FOR THE NRX-A4/EST PROJECT ROVER REACTOR TEST SERIES WHICH TOOK PLACE AT NRDS TEST CELL A. OF THE SIX EXPERIMENTAL PLANS IN THE TEST SERIES, FOUR RESULTED IN DETECTABLE QUANTITIES OF RADIOACTIVITY IN THE OFF-SITE AREA. THE SURVEILLANCE INDICATED THAT THE RADIATION PROTECTION GUIDES ESTABLISHED BY THE AEC (BASED ON FEDERAL RADIATION COUNCIL GUIDELINES), CHAPTER 0524, FOR THE OFF-SITE POPULATION WERE NOT EXCEEDED. THE PEAK OFF-SITE POTENTIAL THYROID EXPOSURE WAS ABOUT 36 MILLIRADS AT LONE PINE, CALIF.

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

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-30978 *CONTINUED*

FEDERAL RADIATION COUNCIL + *POPULATION EXPOSURE + *BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, MAN + *SURVEILLANCE PROGRAM + FALLOUT + *BIOLOGICAL CONCENTRATION, VEGETATION + *USAEC + RADIOLOGICAL ASSISTANCE + *NUCLEAR DETONATION + WATER, GENERAL + DOSIMETRY, GENERAL + TESTING + RADIATION PROTECTION, ORGANIZATION + AIR + SAMPLING + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *MONITOR, ENVIRONMENTAL + MONITOR, GROUND SURFACE

15-30980 ALSO IN CATEGORY 17
FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE PHOEBUS 1-A EXPERIMENT
SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY
SWRHL-19R +. JANUARY 17, 1966, 24P.

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE IN SUPPORT OF THE PHOEBUS 1-A EXPERIMENT OF JUNE 25, 1965. THIS SUPPORT CONSISTED OF TRACKING THE EFFLUENT, MONITORING RADIATION DOSAGE TO THE OFF-SITE POPULATION AND COLLECTING ENVIRONMENTAL SAMPLES IN DOWNWIND AREAS. ALTHOUGH OFF-SITE CONTAMINATION OCCURRED AS A RESULT OF THE PHOEBUS TEST, THE DATA COLLECTED INDICATE THAT RADIOACTIVITY LEVELS DID NOT EXCEED THE SAFETY CRITERIA ESTABLISHED BY THE AEC FOR THE OFF-SITE POPULATION.

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

DOSE + WATER, GENERAL + *BIOLOGICAL CONCENTRATION, MILK + *SURVEILLANCE PROGRAM + EFFLUENT + AIR + METEOROLOGY + *MONITOR, ENVIRONMENTAL + *POPULATION EXPOSURE + *SAMPLING + RADIATION SAFETY AND CONTROL + *BIOLOGICAL CONCENTRATION, VEGETATION + FALLOUT + CONTAMINATION

15-30981 ALSO IN CATEGORY 17
FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE NRX-A3 EXPERIMENT
SOUTHWESTERN RADIOLOGICAL HEALTH LAB., PUBLIC HEALTH SERVICE, LAS VEGAS, NEV.
SWRHL-18-R +. OCT. 8, 1965, 31P.

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE IN SUPPORT OF THE NRX-A3 EXPERIMENTS OF APRIL 23, MAY 20, AND MAY 28, 1965. THIS SUPPORT CONSISTED OF TRACKING THE EFFLUENT, MONITORING RADIATION DOSAGE TO THE OFF-SITE POPULATION AND COLLECTING ENVIRONMENTAL SAMPLES IN DOWNWIND AREAS. ALTHOUGH OFF-SITE CONTAMINATION OCCURRED AS A RESULT OF THE NRX-A3 TESTS, THE DATA COLLECTED INDICATE THAT RADIOACTIVITY LEVELS DID NOT EXCEED THE SAFETY CRITERIA ESTABLISHED BY THE AEC FOR THE OFF-SITE POPULATION.

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

*POPULATION EXPOSURE + *EFFLUENT + RADIATION PROTECTION, ORGANIZATION + CONTAMINATION + *TESTING + NUCLEAR DETONATION + *SURVEILLANCE PROGRAM + RADIOLOGICAL ASSISTANCE + *DOSE + USAEC + *MONITOR, ENVIRONMENTAL + SAMPLING

15-31316
RADIOLOGICAL HEALTH DATA AND REPORTS
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
5 FIGURES, 7 TABLES, RADIOLOGICAL HEALTH DATA AND REPORTS 10(1), 45 PAGES, (DECEMBER 1968)

THIS COLLECTION OF REPORTS INCLUDES DATA ON ROUTINE SAMPLING OF MILK AND FOOD, WATER, AIR, DEPOSITION, PLUS OTHER MISCELLANEOUS DATA ON ENVIRONMENTAL LEVELS OF RADIOACTIVITY AT AEC INSTALLATIONS AT PORTSMOUTH, OHIO, AND AT SAVANNAH RIVER.

*IODINE + *BIOLOGICAL CONCENTRATION, MAN + SAMPLING + *SURFACE WATER, NUCLIDE OCCURRENCE + PARTICLE, RADIOACTIVE + *DOSE MEASUREMENT, INTERNAL + *SURVEILLANCE PROGRAM + *PLUTONIUM + AIRBORNE RELEASE + *AIR + *PRECIPITATION + DEPOSITION + NUCLEAR DETONATION + DIETARY HABIT + MONITOR, ENVIRONMENTAL

15-31389 ALSO IN CATEGORY 1
MOORE TM + McDONALD DJ
RADIATION SAFETY RECOMMENDATIONS FOR X-RAY DIFFRACTION AND SPECTROGRAPHIC EQUIPMENT
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
MORP 68-14 +. OCTOBER 1968, 19 REFERENCES, 18P.

DETAILS THE RADIATION PROTECTION RECOMMENDATIONS FOR X-RAY DIFFRACTION AND SPECTROGRAPHIC EQUIPMENT, INCLUDING GUIDELINES FOR ADMINISTRATIVE RESPONSIBILITIES, OPERATING PROCEDURES, PERSONNEL MONITORING, AREA MONITORING, AND SAFETY ENGINEERING. THE REPORT IS DIRECTED TO OPERATORS, ADMINISTRATORS, GOVERNMENTAL HEALTH AGENCIES, AND MANUFACTURERS.

OPERATION + INSTRUMENT, GENERAL + *X-RAY + *GUIDE + *ADMINISTRATIVE CONTROL + MONITOR, PERSONNEL + RADIATION PROTECTION, ORGANIZATION + RADIOLOGICAL ASSISTANCE + *RADIATION SAFETY AND CONTROL + MONITOR, AREA

15-31409 ALSO IN CATEGORY 13
KNOLL KC
EFFECT OF DETERGENTS ON ABSORPTION OF RADIONUCLIDES BY SOIL
BATTELLE NORTHWEST, WASH.
BNWL-859 +. 3 PAGES, 1 TABLE, JANUARY 1969

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-31409 *CONTINUED*

THE UPTAKE OF CS-137 AND SR-85 BY SOIL FROM DECONTAMINATING SOLUTIONS CONTAINING DETERGENTS WAS STUDIED. SEVEN DETERGENTS WERE USED IN THE STUDY, EACH AT TWO LEVELS OF CONCENTRATION. IN GENERAL, THE ADSORPTION OF CS-137 BY SOIL WAS IMPAIRED IN THE PRESENCE OF DETERGENTS. ADSORPTION OF SR-85 BY SOIL FROM SOLUTIONS CONTAINING DETERGENTS WAS EQUAL TO OR BETTER THAN THE ADSORPTION BY SOIL IN THE ABSENCE OF DETERGENTS. ANY CHANGES WHICH OCCURRED WERE MORE PRONOUNCED AT HIGHER CONCENTRATIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151 \$3.00
COPY, \$9.65 MICROFICHE

EXPERIMENT, GENERAL + *FUEL REPROCESSING + *WASTE DISPOSAL, TERRESTRIAL + CESIUM + *SOIL, RADIONUCLIDE
MOVEMENT THROUGH + *ADSORPTION + STRONTIUM

15-31411 ALSO IN CATEGORIES 12 AND 13
VALENTINE AM + MEYER DD + ROMERO WF
AIR MONITORING AND ITS EVOLUTAIION AT THE LASL PLUTONIUM FACILITY
LOS ALAMOS SCIENTIFIC LAB., CALIF.
LA-4076 +. 11 PAGES, 11 FIGURES, 5 REFERENCES, JANUARY 24, 1969

DISCUSSES A PROGRAM TO MONITOR AIRBORNE CONTAMINATION IN THE WORKING ENVIRONMENT OF A PLUTONIUM FACILITY. ONLY THOSE ASPECTS MOST CLOSELY ASSOCIATED WITH OPERATIONAL MONITORING ARE INCLUDED, AND, AS A RESULT, SEVERAL SIDE TOPICS IN THE REALM OF AIR MONITORING ARE NOT MENTIONED. TECHNIQUES, EQUIPMENT, RECORDS, AND POLICY ARE DISCUSSED, IN ADDITION TO AIR CONCENTRATION TRENDS, EQUIPMENT EVOLUTION, COST, MANPOWER REQUIREMENTS, AND INHERENT SHORTCOMINGS.

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

*PLUTONIUM + *REACTOR, GENERAL + *FABRICATION + *FUEL REPROCESSING + *FUEL ELEMENT + *RADIOISOTOPE + *MONITOR,
AIR + *FUEL CONVERSION

15-32306 ALSO IN CATEGORY 17
CHANGE 3 - CLARIFICATION OF TECHNICAL SPECIFICATIONS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO H.B. MITCHELL, AFRI, FEBRUARY 3, 1969, DOCKET 50-170

CLARIFIED LANGUAGE, E.G., ADJACENT FUEL POSITIONS (FROM ADJACENT POSITIONS), REMAINING CONTROL RODS (FROM OPERABLE RODS), 14 FT ABOVE CORE TOP (FROM 18 IN. BELOW TOP OF REACTOR TANK). MAJOR CHANGES APPEAR TO BE (1) OPERATING MECHANISM OF THE POSITIVE VENT SEAL SHALL BE VERIFIED AND INSPECTED MONTHLY, (2) IF AN ENVIRONMENTAL MONITORING STATION DOSIMETER READS 400 MR ABOVE BACKGROUND, AR-41 GENERATING OPERATIONS SHALL BE LIMITED TO 2 MW-HR/MONTH. IF ABOVE 500 MR, SUCH OPERATIONS SHALL CEASE.

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

TRIGA (RR) + REACTOR POWER + TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + SURVEILLANCE PROGRAM + CONTAINMENT
ISOLATION + ARGON + *MONITOR, ENVIRONMENTAL

15-32578
ZIMBRICK JD + VOILLEQUE PG
CONTROLLED ENVIRONMENTAL RADIOIODINE TESTS AT THE NATIONAL REACTOR TESTING STATION - 1967 CERT PROGRESS REPORT
IDAHO OPERATIONS OFFICE, AEC
ID0-12065 +. 78 PAGES, 36 FIGURES, 12 TABLES, 38 REFERENCES, PROGRESS REPORT NO. 4, JANUARY 1969

DESCRIBES EXPERIMENTAL AND THEORETICAL RESEARCH UNDERTAKEN DURING 1967 AS PART OF THE CONTROLLED ENVIRONMENTAL RADIOIODINE TEST (CERT) PROGRAM. INCLUDES A BRIEF DESCRIPTION OF THE HISTORICAL DEVELOPMENT OF THE PROGRAM AND A SUMMARY OF THE PRINCIPAL RESULTS PRIOR TO 1967. DEVELOPS A MATHEMATICAL MODEL OF BOVINE METABOLISM OF RADIOIODINE, BASED ON THE MODEL PROPOSED BY CARNER. COMPARISON OF THE PREDICTIONS OF THE MODEL WITH CERT DATA INDICATE THAT THE MODEL IS ADEQUATE FOR THE PURPOSE OF PREDICTING THE QUANTITY OF RADIOIODINE FOUND IN MILK. CERT EXPERIMENTAL DATA ON DEPOSITION ARE COMPARED WITH THE PREDICTIONS OF SHAPPARDS FLUX GRADIENT MODEL AND WITH CHAMBERLAIN'S RESISTANCE ANALOGUE OF DEPOSITION. THE CHAMBERLAIN MODEL APPEARS ADEQUATE FOR CARBON PLATE DEPOSITION. BOTH MODELS ARE INADEQUATE FOR DESCRIBING DEPOSITION ON GRASS.

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

R AND D PROGRAM + *CERT + *MODEL TESTING + BIOLOGICAL CONCENTRATION, MILK + *DOSE CALCULATION, INTERNAL +
EXPERIMENT, GENERAL + BIOLOGICAL CONCENTRATION, MAN + INHALATION + MATHEMATICAL TREATMENT + INGESTION +
*IODINE + BIOLOGICAL CONCENTRATION, VEGETATION + *DEPOSITION

15-32898
LANGMEAD WA + ADAMS N + HOLLIDAY B + TYLER G + BROWN J
PERSONNEL DOSE ASSESSMENTS FOLLOWING ACCIDENTAL NON-UNIFORM IRRADIATION OF THE BODY
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, HARWELL
AHSIRPIR-85 +. 49 PAGES, 16 FIGURES, 20 TABLES, 7 REFERENCES, SEPTEMBER 1968

CATEGORY 15
ENVIRONMENTAL SURVEYS, MONITORING AND RADIATION EXPOSURE OF MAN

15-32898 *CONTINUED*

DESCRIBES THE RECONSTRUCTION OF AN INCIDENT WHICH INVOLVED THE ACCIDENTAL EXPOSURE TO EXTERNAL RADIATION OF TWO MEN ON THE FLOOR OF THE EXPERIMENTAL FAST REACTOR AT O.E.R.E. THE RECONSTRUCTION, CARRIED OUT IN ORDER TO DETERMINE THE RADIATION DOSES RECEIVED BY THE TWO MEN, NECESSITATED THE FILMING OF STAGES IN THE INCIDENT OPERATION USING A DUMMY SOURCE, THE MEASUREMENT OF THE DOSE-RATE DISTRIBUTION AROUND AN IRRADIATED FUEL ELEMENT AND ITS SIMULATION USING CS-137 POINT SOURCES, THE MEASUREMENT OF THE DOSE-RATE DISTRIBUTION AROUND A MAN-PHANTOM CONTAINING CS-137C12 SOLUTION AND THE MEASUREMENT OF DEPTH DOSES IN A WATER PHANTOM IRRADIATED BY A FUEL ELEMENT.

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

*INCIDENT, EXPOSURE + *CESIUM + RADIATION IN PERSPECTIVE + *BIOLOGICAL CONCENTRATION, MAN + MAXIMUM PERMISSIBLE DOSE (MPD) + *PHANTOM, HUMAN BODY + MEASUREMENT, GENERAL + FUEL ELEMENT + ICRP + *DOSE + SOURCE, RADIATION + *RADIATION DAMAGE + ERROR ANALYSIS

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-29142 ALSO IN CATEGORIES 2 AND 17
CITATION CORRESPONDENCE
UNITED STATES RADIUM CORPORATION
LETTER TO COMPLIANCE, OCTOBER 8, 1968

REGARDING THE CITATIONS SEPT. 19, WE ARE SURPRISED AT 2 AND 4 (SURFACE CONTAMINATION) AS THESE WERE ISOLATED SPOTS BEING CLEANED UP. (1) - DURING 7 OPERATING CYCLES, OPERATOR WAS EXPOSED ONCE (TO 2X LIMIT FOR 48 MIN). THIS CHECKS WITH URINE SAMPLING. (2,4) - MEN HAVE BEEN ASSIGNED TO REMOVE FIXED RADIUM CONTAMINATION. A NEW CONTROL PROGRAM IS EFFECTIVE. DAILY WIPE SAMPLES AND HP RESPONSIBLE UNTIL CLEANED UP. (3) - THE AREA HAS BEEN OUT OF PRODUCTION SINCE LATE 1966 AND HAS NOW BEEN LOCKED. (A) TRITIUM RELEASE MAXIMUMS IN 1968 HAVE BEEN WITHIN SITE BOUNDARIES, (B) THE STACK SUMMATION METHOD WAS USED TO TREAT THE SEVERAL STACKS AS AN AREA SOURCE, USING LEAST FAVORABLE METEOROLOGY.

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

CONTAMINATION + BYPRODUCT MATERIAL + *SOURCE, MULTIPLE + TRITIUM + RADIUM + *SOURCE, CONTINUOUS + FAILURE, ADMINISTRATIVE CONTROL + RADIOACTIVITY RELEASE + COMPLIANCE

16-29293 ALSO IN CATEGORY 7
PITTERLE TA + PAGE, EM + YAMAMOTO M
ANALYSIS OF SODIUM REACTIVITY MEASUREMENTS VOLUME II. SODIUM VOID CALCULATIONS
ATOMIC POWER DEVELOPMENT ASSOCIATED, INC., DETROIT, MICH.
APDA-216(VOL.2) +. 104 PAGES, 12 FIGURES, 24 TABLES, 13 REFERENCES, JUNE 1968

THIS REPORT IS THE SECOND OF A TWO-VOLUME REPORT ON AN ANALYSIS OF SODIUM REACTIVITY MEASUREMENTS IN FAST REACTOR CRITICAL ASSEMBLIES. VOLUME I DESCRIBES THE CROSS SECTION EVALUATION AND DATA TESTING CONDUCTED IN SUPPORT OF THE SODIUM VOID ANALYSES DESCRIBED IN THIS VOLUME. VOLUME II DESCRIBES THE METHODS OF CALCULATION AND THE CALCULATED RESULTS FOR AN ANALYSIS OF SODIUM VOID MEASUREMENTS PERFORMED IN ZPR-III ASSEMBLIES 48 AND 48B AND ZPR-VI ASSEMBLIES 2 AND 3. THE DETAILED VOID MEASUREMENTS IN THE ASSEMBLIES HAVE BEEN CALCULATED USING THE MENDF/B CROSS SECTION DATA DESCRIBED IN VOLUME I, AND ADDITIONAL CALCULATIONS HAVE BEEN WITH ENDF/B DATA.

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

THEORETICAL INVESTIGATION + ZPR 3 (CAF) + ZPR 6 (CAF) + *VOID COEFFICIENT + CRITICALITY SAFETY + CRITICAL ASSEMBLY FACILITY + *SODIUM

16-29619
JACOBSON AR
NATURAL SOURCES OF AIR POLLUTION
COLUMBIA UNIV., NEW YORK
34 PAGES, PP. 175-208 OF AIR POLLUTION, VOL. 2., ACADEMIC PRESS, 1962

LEVELS OF NATURAL RADIOACTIVITY IN THE AIR ARE CONSIDERED, AMONG OTHER SOURCES OF AIR POLLUTION, IN THIS SURVEY. BACKGROUND RADIATION INTENSITY UNDER VARIOUS CONDITIONS IS ESTIMATED. CONCENTRATION OF THE RADIOACTIVE GASES IN THE AIR DEPENDS ON LOCATION AND UPON ATMOSPHERIC AND OTHER CONDITIONS. CONTRIBUTION OF COSMIC RAYS TO NATURAL RADIATION EXPOSURE OF MAN IS EXAMINED. THESE PARTICLES ARE IMPORTANT IN AIR POLLUTION AS CONDENSATION NUCLEI AND IN PROMOTING ATMOSPHERIC CHEMICAL REACTIONS THAT PRODUCE STILL MORE NUCLEI.

*COSMIC RADIATION + *RADON + ATMOSPHERIC CHEMISTRY + *SURVEY, GENERAL + *ATMOSPHERIC POLLUTION + *THORON + RADIATION IN PERSPECTIVE

16-29620
BLANC D + FONTAN J
RADIOACTIVITY OF THE AIR IN THE SERVICE OF METEOROLOGY AND PHYSICS OF THE ATMOSPHERE
FACULTE DES SCIENCES, TOULOUSE
15 PAGES, MEM. ACAD. SCI. TOULOUSE, 128 PAGES 41-55 (1966) (IN FRENCH)

MEASUREMENTS OF NATURAL AND ARTIFICIAL RADIOACTIVITY OF THE AIR WHICH HAVE LED TO ADVANCES IN METEOROLOGY AND BETTER UNDERSTANDING OF PHYSICS OF THE ATMOSPHERE ARE REVIEWED. STUDIES OF ATMOSPHERIC DIFFUSION AT LOW ALTITUDES BASED ON MEASUREMENTS OF RN AND TN ARE DESCRIBED, AND EFFECTS OF METEOROLOGIC FACTORS ON THE RESULTS ARE CONSIDERED. MEASUREMENTS OF AIR RADIOACTIVITY OVER TOULOUSE AND OVER THE NORTH ATLANTIC COULD BE CORRELATED WITH MOVEMENTS OF AIR MASSES. EXCHANGE OF NATURAL AND ARTIFICIAL RADIOELEMENTS BETWEEN THE TROPOSPHERE AND STRATOSPHERE IS ALSO DEALT WITH.

*RADON + *ATMOSPHERIC DIFFUSION + *THORON + METEOROLOGY + *FALLOUT + NUCLEAR DETONATION + ATMOSPHERIC CIRCULATION, GLOBAL

16-30224 ALSO IN CATEGORIES 9 AND 17
USE OF METEOROLOGY INSTRUMENTATION FOR ON SITE EMERGENCY
UNIVERSITY OF VIRGINIA
1 PAGE, LETTER TO DRL, DEC. 20, 1968, DOCKET 50-62

FOLLOWING OUR OCT. 21/NOV. 21 LETTERS PROPOSING TO REMOVE OUR WEATHER STATION, WE UNDERSTAND THERE

CATEGORY 16
METEOROLOGICAL CONSIDERATIONS

16-30224 *CONTINUED*

IS SOME DRL CONCERN REGARDING THE NEED TO KNOW WIND DIRECTION DURING EMERGENCY EVACUATION. WHILE WE BELIEVE THE POSSIBILITY OF SUCH EVACUATION IS REMOTE, WE WILL RETAIN A WIND VANE AND ANEMOMETER, WITH INDICATION ON THE FIRST FLOOR REACTOR BUILDING.

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

TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + REACTOR, POWER + *EMERGENCY PROCEDURE + *INSTRUMENT, METEOROLOGICAL

16-30475 ALSO IN CATEGORIES 7 AND 14
BEGEMANN F + FRIEDMAN I

TRITIUM AND DEUTERIUM IN ATMOSPHERIC METHANE
MAX-PLANCK INSTITUT FUER CHEMIE, MAINZ

5 PAGES, J. GEOPHYS. RES., 73, PAGES 1149-53 (FEB. 15, 1968)

TEN SAMPLES OF ATMOSPHERIC METHANE COLLECTED AT OBERHAUSEN GERMANY, AND GARY, INDIANA, BETWEEN 1960 AND 1963 WERE ANALYZED FOR THEIR TRITIUM AND DEUTERIUM CONTENT. RESULTS SHOW THE TRITIUM CONCENTRATION IN THE NORTHERN HEMISPHERE TO HAVE BEEN ESSENTIALLY CONSTANT SINCE 1958, THE TIME THE FIRST SAMPLES WERE ANALYZED. EXISTING THEORIES TO EXPLAIN THE ORIGIN OF TRITIATED METHANE ARE DISCUSSED AND REJECTED AS HIGHLY IMPROBABLE. THE DATA CAN BEST BE EXPLAINED BY ASSUMING THAT LEAKAGE OF TRITIATED METHANE INTO THE ATMOSPHERE FROM SOURCES IN NUCLEAR INDUSTRY LOCATED IN THE NORTHERN HEMISPHERE OCCURRED FOR A PERIOD OF YEARS PRIOR TO 1958, AND THEN THE LEAK WAS ESSENTIALLY CLOSED.

*DEUTERIUM + *AIRBORNE RELEASE + *TRITIUM + GERMANY + *ATMOSPHERIC DIFFUSION, CLIMATOLOGY + ATMOSPHERIC POLLUTION

16-30650 ALSO IN CATEGORIES 2 AND 18
METEOROLOGICAL - RADIOLOGICAL EVALUATION OF SITE
JERSEY CENTRAL POWER AND LIGHT COMPANY

50 PAGES, FIGURES, TABLES, AMENDMENT 13 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 7, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

METEOROLOGICAL DATA FOR FEBRUARY 1966-FEBRUARY 1967 FROM INSTRUMENTED 400-FT TOWER AT SITE IS SUMMARIZED AND ANALYZED. LONG TERM DATA FOR ATLANTIC CITY COMPARED WITH RECENT DATA TO SHOW THAT IT IS REPRESENTATIVE. METHOD OF CALCULATING STACK RELEASE LIMIT IS GIVEN. GAMMA DOSE CALCULATION IS CLOSE TO OBSERVED. INTEGRATED AIR CONCENTRATION CALCULATION GIVES ORDER OF MAGNITUDE VERIFICATION DUE TO LACK OF SENSITIVE MEASUREMENTS IN FIELD. STACK RELEASE LIMIT CALCULATION INCLUDED WHOLE BODY DOSE FROM NOBLE GASES AND INTERNAL DOSE FROM IODINE. CONCLUDES THAT NOBLE GASES DOMINATE AND CONTROL EMISSION LEVEL. MAXIMUM AIR DOSE OF 500 MREM/YEAR AT SITE BOUNDARY EQUALS CONTINUOUS STACK RELEASE RATE OF 0.6 CURIE/SEC. EMISSION OF 2.0 CURIES/SEC OVER ANY TWO DAYS DURING A SEVEN DAY PERIOD WOULD NOT CAUSE DOSE TO EXCEED 100 MILLIREMS IN A WEEK, BASED ON MAXIMUM DOSE RATE FOR WORST METEOROLOGICAL CONDITION SUCH THAT DOSE FOR ONE HOUR DOES NOT EXCEED 2 MILLIREMS. ENVIRONMENTAL MONITORING PROGRAM TO BE CONDUCTED. IF STACK EMISSION EVER REACHES LEVEL THAT IS MEASURABLE IN ENVIRONMENT, MEASUREMENTS WILL PROVIDE A BASIS FOR ADJUSTING PROPOSED STACK LIMIT LONG BEFORE THE EFFECT IN THE ENVIRONMENT IS OF ANY SAFETY CONCERN.

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

MEASUREMENT, GENERAL + *CONTROL, METEOROLOGICAL + *STACK + DOSE + *RADIOACTIVITY RELEASE + SITING, REACTOR + AIRBORNE RELEASE + COMPARISON, THEORY AND EXPERIENCE + *SITE CLIMATOLOGY + CONTAINMENT, GENERAL + REACTOR, BWR + *RELEASE RATE + SETPOINT + *TECHNICAL SPECIFICATIONS + PRECIPITATION + FISSION PRODUCT, VOLATILE + WIND PROFILE + WEATHER, SEVERE + *METEOROLOGY + ACCIDENT ANALYSIS + OYSTER CREEK 1 (BWR) + WIND STATISTICS + MONITOR, STACK + SOURCE, CONTINUOUS + HAZARDS ANALYSIS + OFF SITE + MONITOR, ENVIRONMENTAL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-28676 ALSO IN CATEGORY 15
DATA FROM RADIATION PROTECTION PROGRAMS
DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, CANADA
NP-16971 +. 24 PAGES, 8 TABLES, 5 REFERENCES, JUNE 1967

THE RADIATION PROTECTION DIVISION CONDUCTS A NATION-WIDE PROGRAM OF FALLOUT MONITORING, INCLUDING ANALYSES OF AIR PARTICULATES, PRECIPITATION, MILK, WATER, WHEAT, SOIL AND HUMAN BONE. THIS REPORT CONTAINS THE RESULTS OF ANALYSES CARRIED OUT ON SAMPLES COLLECTED IN MAY, 1967. IT INCLUDES DATA ON AIR, PRECIPITATION AND MILK. THE RESULTS OF THE ANALYSIS OF SAMPLES OF HARD RED SPRING WHEAT FROM THE 1966 CROP YEAR ARE ALSO INCLUDED IN THIS REPORT. THE SAMPLES WERE OBTAINED FROM THE NINE WHEAT SAMPLING DISTRICTS (FIG. 2) AS FOR PREVIOUS YEARS.

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

BIOLOGICAL CONCENTRATION, MILK + *SURVEILLANCE PROGRAM + PRECIPITATION + REACTOR POWER + BIOLOGICAL CONCENTRATION, GENERAL + CANADA + *SURVEY, RADIATION, ENVIRONMENTAL + ANALYTICAL TECHNIQUE, GENERAL + *RADIATION PROTECTION, ORGANIZATION + PARTICULATE + BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE + FALLOUT

17-28939
CASHWELL RJ + DAY BL + EVANS DP + HEUNNIGER LC + LUCOFF DM
REACTOR OPERATOR TRAINING MANUAL
UNIV. OF WISCONSIN, MADISON, WISCONSIN
214 PAGES, FIGURES, TABLES, SEPTEMBER 1968, DOCKET 50-156

INCLUDES BOTH THEORETICAL BACKGROUND MATERIAL AND PRESTARTUP CHECK LISTS AND PROCEDURES FOR SYSTEMS IN A 1 MW TYPE TRIGA. LAST TENTH OF BOOK IS A SERIES OF EXAMINATION QUESTIONS. ***NOT PARTICULARLY WELL ORGANIZED, INTENDED FOR USE IN A LOCAL TRAINING EFFORT. INCLUDES MANY LENGTHY PROCEDURES AND CHECKLISTS WITHOUT EXPLANATIONS.

REACTOR, RESEARCH + TRIGA (RR) + PROCEDURES AND MANUALS + *TRAINING + *CERTIFICATION + *STAFFING

17-28972 ALSO IN CATEGORIES 9 AND 14
ETO T
OPERATION RECORDS AND EXPERIENCES FOR JPDR
JAPAN ATOMIC ENERGY RESEARCH INST.
8 PAGES, KARYOKU HATSUDEN, 18, PAGE 524-31, (JUNE 1967), (IN JAPANESE)

CRITICAL IN AUGUST WITH POWER GENERATION IN OCT. 1963. THE SEAL WHERE A CONTROL ROD PENETRATED WAS DAMAGED, AND ITS REPAIR REQUIRED SIX MONTHS. UPON RE-START OF OPERATION, ALL PLANT CHARACTERISTICS WERE EXAMINED IN AUGUST 1965. DURING THE SUBSEQUENT TWO YEARS OF OPERATION NO MAJOR TROUBLES OCCURRED. IN THIS PERIOD VARIOUS TESTS WERE PERFORMED ON THE PLANT. IN 1966 IT PASSED THE LAW-STIPULATED, REGULAR PLANT-INSPECTION. THE PLANT CHARACTERISTICS IN NORMAL OPERATION AND THE REGULAR INSPECTION ARE DESCRIBED, PLUS THE TREATMENT OF LIQUID AND GASEOUS WASTES AND THE RADIATION CONTROL.

SEAL + REACTOR, POWER + *WASTE DISPOSAL, GENERAL + FAILURE, SCRAM MECHANISM + *OPERATING EXPERIENCE SUMMARY + JAPAN

17-28973 ALSO IN CATEGORIES 2 AND 18
IWAKOSHI Y + NOMOTO T
OPERATION EXPERIENCES OF THE TOKAI POWER STATION, AND THE PLANNING FOR THE TSURUGA POWER STATION
JAPAN ATOMIC POWER CO., TOKYO
9 PAGES, KARYOKU HATSUDEN, 18, PAGE 532-40, (JUNE 1967), (IN JAPANESE)

ADVANCED CALDER HALL-TYPE REACTOR OF 166 MW(E). BECAUSE OF THE EARTHQUAKES IN JAPAN, ITS DESIGN WAS SOMEWHAT CHANGED FROM THE ORIGINAL ONE, AND THEREFORE THE OPERATING EXPERIENCES HAVE BEEN UNIQUE. INCLUDES PLANT OPERATION, VIBRATION OF THE HEAT-EXCHANGER TUBES, AND LOW-PRESSURE THROTTLE VALVES FOR THE MAIN TURBINE. THE TSURUGA POWER STATION WILL BE A 322 MW(E) BOILING-WATER REACTOR (GE-BWR), BEING COMPLETED IN DECEMBER 1969. THE SAFETY DESIGN AND THE ANTI-EARTHQUAKE DESIGN ARE DESCRIBED.

STEAM GENERATOR + *FAILURE, TUBING + OPERATING EXPERIENCE SUMMARY + VIBRATION + REACTOR, GCR + VALVE + *EARTHQUAKE ENGINEERING + JAPAN + REACTOR, BWR

17-29027 ALSO IN CATEGORY 14
DRY RADIOACTIVE WASTE UNLOADING INCIDENT
US ATOMIC ENERGY COMMISSION
HEALTH AND SAFETY INFORMATION ISSUE NO. 269 +. 1 PAGE, SEPT. 27, 1968

WHEN A CASK LOAD OF CANNED WASTE WAS DUMPED INTO AN UNDERGROUND CAISSON, RADIOACTIVE DUST ESCAPED, CONTAMINATING THE CASK, ITS TRUCK, THE PERSONNEL, AND THE IMMEDIATE GROUND AREA. THE PERSONNEL, CASK, AND TRUCK WERE DECONTAMINATED, AND THE CONTAMINATED EARTH WAS BURIED IN PLACE. THE ACCIDENT WAS COSTLY, AND WAYS TO PREVENT RECURRENCE WERE INVESTIGATED.

*WASTE TRANSPORTATION + *CASK OPERATING EXPERIENCE + *WASTE HANDLING + WASTE DISPOSAL, TERRESTRIAL + *RADIATION SAFETY AND CONTROL + *RADIOACTIVITY RELEASE + CONTAMINATION + METEOROLOGY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29040 ALSO IN CATEGORY 9
BATCH ML + KLINKMAN AE
EVALUATION OF NOISE ANALYSIS FOR THE ENRICO FERMI REACTOR
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-NTS-13 +. 90 PAGES, FIGURES, TABLES, REFERENCES, JAN. 1968

THE ANALYSIS OF RESULTS COVERED THE FOLLOWING ASPECTS - (1) SEARCH FOR INDICATIONS OF INSTABILITY, (2) EXAMINATION OF POWER SPECTRAL DISTRIBUTION OF VARIOUS SIGNALS, (3) MEASUREMENT OF THE AMPLITUDE OF THE TRANSFER FUNCTION BETWEEN VARIOUS PARAMETERS, (4) MEASUREMENT OF THE TIME LAG BETWEEN THE VARIOUS PARAMETERS, AND (5) MEASUREMENT OF THE RELATIVE AMOUNT OF COHERENT SIGNAL BETWEEN INPUT AND OUTPUT PARAMETERS. THE STUDY INDICATES THAT THROUGH NOISE ANALYSIS MEANINGFUL RESULTS CAN BE OBTAINED IN EACH OF THESE ASPECTS AND POINTS UP CHANGES IN RECORDING TECHNIQUES AND SELECTION OF PARAMETERS WHICH COULD LEAD TO IMPROVED ACCURACY, RELIABILITY, AND UNDERSTANDING OF FUTURE WORK.

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

REACTOR, FAST + TRANSFER FUNCTION + REACTOR, BREEDER + FERMI (LMFBR) + REACTOR, LMC + INSTABILITY + *NOISE ANALYSIS + *NOISE CROSS CORRELATION

17-29142 ALSO IN CATEGORIES 2 AND 16
CITATION CORRESPONDENCE
UNITED STATES RADIUM CORPORATION
LETTER TO COMPLIANCE, OCTOBER 8, 1968

REGARDING THE CITATIONS SEPT. 19, WE ARE SURPRISED AT 2 AND 4 (SURFACE CONTAMINATION) AS THESE WERE ISOLATED SPOTS BEING CLEANED UP. (1) - DURING 7 OPERATING CYCLES, OPERATOR WAS EXPOSED ONCE (TO 2X LIMIT FOR 48 MIN). THIS CHECKS WITH URINE SAMPLING. (2,4) - MEN HAVE BEEN ASSIGNED TO REMOVE FIXED RADIUM CONTAMINATION. A NEW CONTROL PROGRAM IS EFFECTIVE. DAILY WIPE SAMPLES AND HP RESPONSIBLE UNTIL CLEANED UP. (3) - THE AREA HAS BEEN OUT OF PRODUCTION SINCE LATE 1966 AND HAS NOW BEEN LOCKED. (A) TRITIUM RELEASE MAXIMUMS IN 1968 HAVE BEEN WITHIN SITE BOUNDARIES, (B) THE STACK SUMMATION METHOD WAS USED TO TREAT THE SEVERAL STACKS AS AN AREA SOURCE, USING LEAST FAVORABLE METEOROLOGY.

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

CONTAMINATION + BYPRODUCT MATERIAL + *SOURCE, MULTIPLE + TRITIUM + RADIUM + *SOURCE, CONTINUOUS + FAILURE, ADMINISTRATIVE CONTROL + RADIOACTIVITY RELEASE + COMPLIANCE

17-29288 ALSO IN CATEGORIES 14 AND 15
REPORT OF AN ACCIDENTAL SPILL OF RADIO PHOSPHORUS
AMERICAN MEDICAL ASSOCIATION, INST. OF BIOMEDICAL RESEARCH
15 PAGES, TABLES, REFERENCES, LETTER TO D L AND R, OCTOBER 3, 1968

ON SEPT. 5, 1968, MOUSE EMBRYO CELLS LOADED WITH 5 MILLICURIES OF P-32 WERE BEING HOMOGENIZED AT 16,000 RPM. THE HOMOGENIZER CAME APART, SPRAYING TWO MEN AND THE ENTIRE ROOM. ROOM WAS PROFESSIONALLY DECONTAMINATED. ***ALTHO THIS WAS THE FIRST DISASSEMBLY KNOWN, FUTURE OPERATIONS WILL BE IN A HOOD. ALL SAFETY PROCEDURES WERE REEXAMINED AND TIGHTENED. THE PROCEDURES MANUAL WILL BE AMPLIFIED AND CLARIFIED.

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

*CONTAMINATION + BYPRODUCT MATERIAL + FAILURE, EQUIPMENT + SAFETY REVIEW + PHOSPHORUS + TRACER, RADIOACTIVE

17-29296 ALSO IN CATEGORIES 7 AND 9
HBWR QUARTERLY PROGRESS REPORT, APRIL-JUNE 1968
INSTITUTT FOR ATOMENERGI, HALDEN, NORWAY
HPR-102 +. 224 PAGES, 80 FIGURES, 47 TABLES, 15 REFERENCES, AUG. 1968

(PAGES 14-30) - AFTER INDICATION THAT IFA-4, 40, AND 125 HAD FAILED, THEY WERE TESTED IN A VACUUM COFFIN ARRANGEMENT. ACTIVITY HELD UP IN OFFGAS FILTER INDICATED ONE HAD NOT FAILED. (PAGES 31-39) - CONDENSED STEAM SHOWS IODINE AT 6-10% THAT IN MODERATOR. PRELIMINARY TESTS ON ADDITION OF VARIOUS CHEMICAL FORMS SHOWS HIGH CH3I CARRYOVER POSSIBLE DURING CONTINUOUS PRODUCTION OF ORGANIC IODIDES. (PAGES 44-66) - DIRECT DIGITAL CONTROL OF REACTOR POWER FOR 2 HOURS, CAUSED DIFFERENCES IN POWER SPECTRAL DENSITY AT LOW FREQUENCY. (PAGES 121-132) - BURNOUT TESTS WITH 2 ELEMENTS SUMMARIZED.

AVAILABILITY - USAEC DEPOSITORY LIBRARIES FOR THE U.S. AND OVER SEAS

*PARTITION COEFFICIENT + FUEL ELEMENT + R AND D PROGRAM + PERFORMANCE LIMIT + CONTROLLER + IRRADIATION TESTING + REACTOR POWER + STEAM + OPERATING EXPERIENCE + BURNOUT HEAT FLUX + *ORGANIC IODIDE + HBWR (BWR) + REACTOR, BWR + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

17-29297 ALSO IN CATEGORY 5
GAJAC G + REYNES L
EXPERIENCE GAINED FROM THE FINAL CONSTRUCTION PHASE AND THE APPROACH OF POWER OF RAPSODIE
CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29297 *CONTINUED*

22 PAGES, 11 FIGURES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

ANALYZES TWO SODIUM LEAKS (OCTOBER 1966). (1) TOO RAPID PREHEATING OF PIPING WHICH HAD TWO COLD SPOTS CAUSED IT TO BURST. AMONG CAUSES ARE FILLING LINE WITH SODIUM TOO SOON (PREHEATING COULD NOT BE ALLOCATED). LEAK INDICATORS DID NOT WORK. DOUBLE WALLS NOW FILLED ALL OVER SYSTEM. (2) UNTIMELY OPENING OF AN ARGON VALVE PRESSURIZED THE SODIUM, DRIVING IT OUT THROUGH CONTROL-ROD-DRIVE PLUGS NOT BOLTED (COMMUNICATION FAILURE). VALVE MADE SLOWER ACTING, SAFETY VALVES MADE LARGER, EQUALIZING OF DRIVES AND COVER GAS PRESSURES DONE. UNCORRECTED, THIS INCIDENT WOULD HAVE BEEN REPEATED YEARLY. ***RAPSDIE INCIDENTS ARE ALL RECORDED AND STUDIED.

AVAILABILITY - G. GAJAC OR L. REYNES, COMMISSARIAT A L'ENERGIE ATOMIQUE - CEN/CADARACHE - DRP

REACTOR, SAFETY RESEARCH + FRANCE + REACTOR, LMC + *INCIDENT, EQUIPMENT + INFORMATION RETRIEVAL + FAILURE, OPERATOR ERROR + REPORT, OPERATIONS ANALYSIS + MAIN COOLING SYSTEM + FAILURE, DESIGN ERROR + PRESSURE TRANSIENT + *FAILURE, PIPE + MODIFICATION, SYSTEM OR EQUIPMENT + LEAK + THERMAL MECHANICAL EFFECT

17-29314 ALSO IN CATEGORY 5

BRIDGES TL + BURR TK

ATR PRIMARY COOLANT SYSTEM CHECK VALVE PROBLEM ANALYSIS AND CORRECTION

IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO

IN-1186 +. 71 PAGES, 30 FIGURES, 2 TABLES, 9 REFERENCES, MAY 1968

DURING THE FINAL STAGE OF EQUIPMENT AND SYSTEM TESTING AND PRIOR TO INITIAL OPERATION OF THE ADVANCED TEST REACTOR, SEVERAL DEFICIENCIES WERE DISCOVERED IN THE PRIMARY COOLANT SYSTEM CHECK VALVES. EACH OF THESE DEFICIENCIES, UNCOVERED AT DIFFERENT TIMES, AFFECTED THE SAFETY AND RELIABILITY OF REACTOR OPERATION AND, CONSEQUENTLY, REQUIRED CORRECTION BEFORE STARTUP OF THE REACTOR. SEVERAL ENGINEERING AND OPERATIONS GROUPS WERE INVOLVED IN CONTRIBUTING TO A SATISFACTORY SOLUTION IN THE SHORTEST TIME.

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

MAINTENANCE AND REPAIR + ATR (TR) + REACTOR, AEC OWNED + FAILURE, EQUIPMENT + REACTOR, TEST + REACTOR STARTUP EXPERIENCE + FAILURE, GENERAL + FAILURE, DESIGN ERROR + VALVE

17-29316 ALSO IN CATEGORY 5

KILLIAN HD

ADVANCED TEST REACTOR HEAT EXCHANGER VIBRATION TEST

IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO

CI-1033 +. 58 PAGES, 5 FIGURES, TABLES, 4 REFERENCES, MARCH 1967

DURING PREOPERATIONAL TESTING, TUBE FAILURES WERE DETECTED IN THE ATR PRIMARY WATER HEAT EXCHANGERS. INVESTIGATION REVEALED THAT TUBES WITHIN THE HEAT EXCHANGERS. INVESTIGATION REVEALED THAT TUBES WITHIN THE HEAT EXCHANGERS HAD RUPTURED DUE TO THE WEARING OF TUBES AGAINST EACH OTHER. THE WEARING OF THE TUBES WAS CAUSED BY EXCESSIVE AMPLITUDE DUE TO INDUCED VIBRATION. THE HEAT EXCHANGERS WERE REMOVED, REDESIGNED, REBUILT, AND REINSTALLED IN THE ATR PRIMARY SYSTEM.

VIBRATION + FAILURE, DESIGN ERROR + HEAT EXCHANGER + REACTOR, AEC OWNED + ATR (TR) + FLOW THEORY AND EXPERIMENTS + VIBRATION ANALYSIS + FAILURE, TUBING + REACTOR, TEST

17-29541

AM-241 KAVIATION INCIDENT REPORT

ALLISON DIVISION OF GENERAL MOTORS

11 PAGES, LETTER TO DML, OCTOBER 25, 1968

ON 27 SEPT., 1968, A 5-MILLICURIE AM-241 SOURCE (MICROSPHERES INSIDE A 2-IN. LENGTH OF HYPODERMIC TUBING) BROKE WHILE THE BENT TUBE WAS BEING STRAIGHTENED. AUTORADIOGRAPHS OF THE SOURCE INDICATED THAT 0.75-1 MILLICURIE HAD BEEN LOST. AFTER PRELIMINARY DECONTAMINATION, THE ROOM WAS LOCKED (SPECIAL LOCK) FOR THE WEEKEND. TWO UNAUTHORIZED PEOPLE ENTERED BY OBTAINING THE KEY FROM A SECRETARY. A THIRD LOCK WAS OBTAINED, WITH ABSOLUTE CONTROL MAINTAINED OVER KEY DISTRIBUTION.

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

SPECIAL NUCLEAR MATERIAL + AMERICIUM + ALPHA EMITTER + FAILURE, OPERATOR ERROR + SOURCE, RADIATION + *CONTAMINATION

17-29548 ALSO IN CATEGORY 7

MCCARTHY WJ + JENS WH

REVIEW OF THE FERMI REACTOR FUEL DAMAGE INCIDENT AND A PRELIMINARY ASSESSMENT OF ITS SIGNIFICANCE TO THE DESIGN AND OPERATION OF SODIUM COOLED FAST REACTORS

POWER REACTOR DEVELOPMENT CO., MONROE, MICH.

22 PAGES, BULL. INFORM. SCI. TECH. (PARIS), NO. 124, PAGES 39-50 (MARCH 1968) (IN FRENCH)

THE STATUS OF THE INVESTIGATION OF THE EXTENT AND CAUSE OF THE OCTOBER 5, 1966, FUEL DAMAGE AT THE ENRICO FERMI SODIUM COOLED FAST BREEDER REACTOR IS GIVEN AS OF SEPTEMBER 13, 1967. A FOREIGN OBJECT HAS BEEN FOUND IN THE CORE INLET PLENUM WHICH IS BELIEVED TO HAVE BEEN THE CAUSE OF THE DAMAGE. THE RESULTS OF EXAMINATIONS OF SIX DAMAGED FUEL SUBASSEMBLIES ARE GIVEN AND SOME

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29548 *CONTINUED*

PRELIMINARY OBSERVATIONS ARE MADE CONCERNING POSSIBLE IMPROVEMENTS WHICH MAY BE MADE IN THE DESIGN OF SODIUM COOLED FAST REACTORS TO AID IN THE PREVENTION, DETECTION AND RECOVERY FROM SIMILAR INCIDENTS.

*FAILURE, FUEL ELEMENT + *FERMI (LMFBR) + REACTOR, BREEDER + *DAMAGE + FUEL ELEMENT + COMPARISON, FACILITIES + REACTOR, FAST + REACTOR, FAST + REACTOR, LMCR

17-29576

DENIELOU G

RECENT EXPERIMENTS IN THE OPERATION OF RAPSODIE
7 PAGES, ENERG. NUCL (PARIS) 10, PAGES 22-8 (JAN.-FEB. 1968)

GIVES A POWER HISTORY OF RAPSODIE. RESULTS OF MEASUREMENTS OF DYNAMIC CHARACTERISTICS, SUCH AS ROD OSCILLATION, SODIUM TEMPERATURE AT DEPARTURE FROM A FUEL ASSEMBLY, SODIUM TEMPERATURE AT REACTOR ENTRANCE, REACTIVITY, AND INTEGRAL POWER, ARE SHOWN GRAPHICALLY.

FRANCE + *OPERATING EXPERIENCE SUMMARY + REACTOR, FAST + REACTOR, TEST

17-29578

AUSTMAN HL

COMMISSIONING AND EARLY OPERATION OF DOUGLAS POINT
DOUGLAS POINT OPERATIONS, ONTARIO

CONF-670522-9 + 67-CNA-414 +. 17 PAGES OF INTERNATIONAL CONFERENCE AND EXHIBITION ON A WORLD REVIEW OF NUCLEAR REACTORS AND RADIOISOTOPES, MONTREAL, QUEBEC, CANADA, MAY 28-31, 1967, TORONTO, CANADIAN NUCLEAR ASSOCIATION, 1967

BRIEF HISTORY OF COMMISSIONING IS PRESENTED, FOLLOWED BY A MORE DETAILED DESCRIPTION OF SOME PROBLEMS. OUTLINE OF STATION OPERATING ORGANIZATION ALSO GIVEN.

*REACTOR STARTUP TESTING + CANDU (HWR) + *OPERATING EXPERIENCE SUMMARY + REACTOR, HWR + REACTOR, PRESSURE TUBE + CANADA

17-29582

PHILLIPS JL

MINIMISING THE HAZARDS ASSOCIATED WITH THE USE OF THE DOUNREAY FAST REACTOR AS AN IRRADIATION FACILITY
DOUNREAY EXPERIMENTAL REACTOR ESTABLISHMENT, SCOTLAND
12 PAGES, BULL. INFORM. SCI. TECH. (PARIS), NO. 124, PAGES 51-62 (MAR. 1968) (IN FRENCH)

THE DOUNREAY FAST REACTOR, A POWER DEMONSTRATION UNIT, HAS ACQUIRED AN IMPORTANT ROLE AS AN IRRADIATION REACTOR. OPERATION AS A POWER UNIT HAS LED ONLY TO MINOR DIFFICULTIES, WHICH WERE SUCCESSFULLY OVERCOME. THE USE OF THE REACTOR AS AN IRRADIATION FACILITY MADE CONTINUOUS CONTROL NECESSARY. THE PROBABILITY OF FAILURE DUE TO EXPERIMENTS CANNOT BE ENTIRELY ASSESSED. PROCEDURES HAVE BEEN EVOLVED TO MINIMIZE IT. 450 IRRADIATION EXPERIMENTS HAVE BEEN CONDUCTED.

REACTOR, FAST + *FUEL ELEMENT + *SAFETY REVIEW + REACTOR, TEST + *IRRADIATION TESTING + DOUNREAY (TR)

17-29583

SPARHUBER R

COMMISSIONING AND INITIAL OPERATION OF THE MZFR
5 PAGES, ATOMWIRT., ATOMTECH., 13, PAGES 130-4 (MARCH 1968) (IN GERMAN)

AFTER SURVEYING THE COURSE OF COMMISSIONING, THE SPECIAL INVESTIGATIONS WHICH WERE CARRIED OUT ON THE MZFR AND THE OPERATING BEHAVIOR OF THE INSTALLATION ARE DESCRIBED. PARTICULAR ATTENTION IS PAID TO THE EXPERIMENTS TO PROVE THE OPERATIONAL SAFETY OF THE INSTALLATION, OTHER PHYSICAL INVESTIGATIONS, TRIALS WITH THE MAIN PUMPS FOR THE COOLING MEDIUM, INVESTIGATIONS OF THE EMERGENCY COOLING SYSTEM AND THE PARTICULARLY COMPREHENSIVE PROGRAM TO DETERMINE THE DYNAMIC CHARACTERISTICS OF THE INSTALLATION.

GERMANY + REACTOR, BWR + *OPERATING EXPERIENCE SUMMARY + REACTOR, HWR + *REACTOR STARTUP TESTING

17-29584

JAERSCHKY R

COMMISSIONING OF THE KWL
KERNENERGIEANLAGEN, FRANKFURT AM MAIN
2 PAGES, ATOMWIRT., ATOMTECH., 13, PAGES 142-3 (MARCH 1968)

THE COMMISSIONING PROCEDURES FOLLOWED FOR THE LINGEN NUCLEAR POWER PLANT ARE DESCRIBED. THE THREE PHASES FOLLOWED WERE - PREOPERATIONAL TESTING DURING THE FINAL CONSTRUCTION STAGES, ZERO POWER EXPERIMENTS AND FUEL LOADING, AND ONE MONTH OF TEST OPERATION AT POWER.

REACTOR, BWR + GERMANY + *REACTOR STARTUP TESTING

17-29585

ALSO IN CATEGORY 14

WOLFF U

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29585 *CONTINUED*
RADIOACTIVITY AND WATER CHEMISTRY IN THE BOILING-WATER REACTOR
AEG-TELEFUNKEN, FRANKFURT AM MAIN
3 PAGES, AT. STROM, 14, PAGES 49-51 (FEB.-MAR. 1968)

THE METHODS USED FOR CONTROLLING RADIOACTIVE SUBSTANCES ARE DISCUSSED. IT IS SHOWN THAT EVEN IF FUEL DAMAGE OCCURS TO AN EXTENT WHICH HAS NOT EVEN BEEN APPROACHED IN ABOUT 40 REACTOR OPERATING YEARS, AND IF UNRESTRICTED OPERATION OF THE POWER STATION IS CONTINUED, RADIOACTIVE ISOTOPES EMITTED FROM THE POWER STATION ARE AT THE MOST IN THE MAXIMUM PERMISSIBLE CONCENTRATIONS. RELEASE OF RADIOACTIVE SUBSTANCES IN WATER CAN BE PREVENTED. BWRs OF THIS DESIGN ARE INDEPENDENT OF POSITION FROM SAFETY STANDPOINT.

PARTITION COEFFICIENT + OFF GAS + *COOLANT CHEMISTRY + STACK + GERMANY + REACTOR, BWR + FAILURE, FUEL ELEMENT + *SOURCE, CONTINUOUS

17-29675 ALSO IN CATEGORY 14
BJELDANES MN
FAILURE OF PVC LINE RELEASES LIQUID WASTE
NORTHERN STATES POWER CO.
1 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19, (NOVEMBER 25, 1968), DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER, SERV.

(LETTER OCT. 8) DURING RELOCATION OF PATHFINDER LIQUID WASTE DISCHARGE LINE, A COUPLING IN THE POLYVINYL CHLORIDE LINE WAS FOUND SEPARATED. THREE 55 GAL BARRELS OF SOIL CONTAINING 0.92 MILLICURIE OF ZN-65 WILL BE PROCESSED AS DRY WASTE.

REACTOR, BWR + REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, TERRESTRIAL + PLASTICS + PATHFINDER (ISR) + *RADIOACTIVITY RELEASE + FAILURE, PIPE

17-29676 ALSO IN CATEGORY 9
COE RN
PLUGGING OF BORIC ACID INJECTION AT SAN ONOFRE
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19 AND 20, (NOVEMBER 25, 1968), DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

(LETTER NOV. 5) PLUGGING WAS DISCOVERED ON OCT. 14 WHEN BLEND WATER MAKEUP TO THE VOLUME CONTROL TANK WAS AUTOMATICALLY CALLED FOR. A BORON FLOW DEVIATION ALARM WAS RECEIVED, AND THE OPERATOR FOUND BOTH TRANSFER PUMPS WOULD OPERATE BUT WITH NO FLOW. BY STARTING AND STOPPING THE PUMPS SEVERAL TIMES, THE TRANSFER PUMPS FLOW WAS ESTABLISHED IN 5 MIN., AND INJECTION PUMP FLOW IN ANOTHER 5. THE REFUELING STORAGE TANK BORON WAS STILL AVAILABLE, SO TECH. SPEC. REDUNDANCY NOT VIOLATED. TRACE HEATING WAS NORMAL. RECIRCULATION OF TANK CONTENTS FOR 10 MINUTES 3 TIMES A DAY WILL NOW BE REQUIRED, CONTINUOUS RECIRCULATION WILL BE EVALUATED.

SAN ONOFRE (PWR) + RECONCENTRATION + SHUTDOWN SYSTEM, SECONDARY + FAILURE, SEQUENTIAL + OPERATOR ACTION + *FAILURE, SIMULTANEOUS + REACTOR, PWR + POISON, SOLUBLE + BORON

17-29702
BESSMER DJ
LEAKING RADIOGRAPHY SOURCE
LETTER TO DIRECTOR, DIV. OF MATERIALS LICENSING, USAEC, WASHINGTON, JULY 22, 1968

ON JULY 18, 1968, A 118-CURIE IR-192 RADIOGRAPHY SOURCE WAS RECEIVED. LEAK TEST SHOWED 0.0130 MICROCURIE IR-192 REMOVABLE CONTAMINATION. SOURCE WILL BE RETURNED.

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

*SOURCE, RADIATION + *LEAK + RADIOGRAPHY + IRIIDIUM

17-29769 ALSO IN CATEGORY 9
COSTNER RA + TABOR WH
OPERATING MANUAL FOR THE POOL CRITICAL ASSEMBLY (PCA)
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2340 +. 135 PAGES, AUGUST 23, 1968

THE PHILOSOPHY OF OPERATION FOR THE POOL CRITICAL ASSEMBLY WAS EVOLVED FROM A NUMBER OF YEARS OF EXPERIENCE. THE CONTROL SYSTEM IS DESIGNED TO BE FAIL SAFE. THE OPERATOR IS CONSIDERED AN INTEGRAL PART OF THE CONTROL SYSTEM. EFFORTS ARE MADE TO ENSURE THAT THE REACTOR SAFETY SYSTEM IS CAPABLE OF RESPONDING AS INTENDED TO ABNORMAL CONDITIONS, AND UNDER NO CIRCUMSTANCES IS ROUTINE OPERATION PERMITTED WITH ANY PORTION OF THE SAFETY SYSTEM DISABLED. THE MATERIAL IN THIS DOCUMENT IS APPLICABLE EQUALLY TO ROUTINE AND NONROUTINE CONDITIONS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, SPRINGFIELD, VA. 22151, \$3.00 C6PY, \$0.65 MICROFICHE

REACTOR, RESEARCH + *PROCEDURES AND MANUALS + ORNL + OPERATION + INSTRUMENT CALIBRATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29794

BUSSE TH + WOOD DR + BEYER NS
NONDESTRUCTIVE INSPECTION OF EBR-II FUEL-JACKET TUBING USING ELECTROMAGNETIC TECHNIQUES
ARGONNE NATIONAL LABORATORY, SPECIAL MATERIALS AND SERVICES DIV.
ANL-7334 +. 29 PAGES, 12 FIGURES, 4 REFERENCES, MAY 1967

EDDY-CURRENT TECHNIQUES WERE USED TO EXAMINE 136,000 FT OF TUBING. DESCRIBES EQUIPMENT AND TECHNIQUE. OBJECTIVE WAS TO ELIMINATE TUBING WHICH MIGHT PROVE DETRIMENTAL IF USED AS JACKETING FOR FUEL ELEMENTS. 2 AND 1/2 YEARS REQUIRED FOR INSPECTION. FAILURES WERE MINOR. REJECTION RATE RAN AS HIGH AS 28.8%. ALL TUBING HAD BEEN PREVIOUSLY 100% EDDY-CURRENT INSPECTED BY MANUFACTURER. TESTING DEMONSTRATED NEED FOR SECOND INSPECTION AND IMPROVED PRIMARY INSPECTIONS.

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

REACTOR, LMC R + FUEL ELEMENT + *PROCEDURES AND MANUALS + EBR 1 AND 2 (RE) + *TUBING + REACTOR, AEC OWNED +
*EXAMINATION + *TEST, NONDESTRUCTIVE + REACTOR, FAST + REACTOR, TEST + CLADDING + ELECTRICAL CONDUCTION +
*QUALITY ASSURANCE

17-29795

CARTWRIGHT H
THE DESIGN, COMMISSIONING AND OPERATION OF THE S.G.H.W.R.
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, RISLEY (ENGLAND)
TRG-REPORT-1686 + CONF-680625-1 +. 5 PAGES, 1 TABLE, 1968

BRIEF DISCUSSION OF PRESSURE-TUBE REACTOR. LIGHT WATER IS USED AS COOLANT AND HEAVY WATER AS MODERATOR. DURING INITIAL STARTUP TO POWER, THE INNER LINER OF A SUPERHEAT CHANNEL BEGAN LEAKING. THE CHANNEL TUBE WAS REMOVED. A FEW HOURS AFTER REACHING FULL POWER, A HEAVY-WATER LEAK OCCURRED FROM A COOLER, WHICH HAD BEEN INCORRECTLY ASSEMBLED. SYSTEMATIC ELIMINATION OF FAULTS AND GROWING OPERATOR EXPERIENCE RAISED REACTOR AVAILABILITY TO 98%.

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

*REACTOR STARTUP EXPERIENCE + *REACTOR DESCRIPTION + REACTOR, HWR + REVIEW + REACTOR, PRESSURE TUBE + REACTOR,
INTERNAL SUPERHEAT

17-29796

FORD JD
MTR PROGRESS REPORT, CYCLE NO. 277, MAY 5, 1968-MAY 22, 1968
IDAHO NUCLEAR CORP., IDAHO FALLS
IN-1202 +. 22 PAGES, JUNE 21, 1968

ONE OF A SERIES. TOPICS - PLANT OPERATION, SUMMARY, AND IRRADIATION PROGRAM.

REACTOR, AEC OWNED + MTR (TR) + REACTOR, TEST + REPORT, OPERATIONS

17-29810

MOBERG AJ
LOSS OR THEFT OF RADIOACTIVE SOURCE, 0.0325 CURIES OF COBALT 60 DISCOVERED JULY 9, 1968
NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY, NEWPORT NEWS, VIRGINIA
H-4089 +. JULY 22, 1968

ON JULY 9, 1968, IT WAS DISCOVERED THAT A 32.5-MILLICURIE CO-60 SOURCE (EMITTING 450 MR/HR AT 1 FOOT) WAS MISSING. ENSUING INVESTIGATION REPORTED. THE SCREEN PLUG WAS DELIBERATELY OR ACCIDENTALLY REMOVED FROM THE EXPOSURE DEVICE, PERMITTING SOURCE TO BECOME LOST. OVER 250 MAN-HOURS SPENT UNSUCCESSFULLY SEARCHING FOR SOURCE. COMPANY ACKNOWLEDGED LAXITY ON PART OF PERSONNEL TO SURVEY CONTAINERS OF LOW-STRENGTH SOURCES. SEVERAL ENCLOSURES OF NEWSPAPER NOTICES, INVESTIGATIVE REPORTS, AND PICTURES OF CONTAINERS AND EXPOSURE DEVICE.

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

*INCIDENT, NONREACTOR + INCIDENT, HUMAN ERROR + *SOURCE, RADIATION, LOST + *RADIOGRAPHY + COBALT + FAILURE,
ADMINISTRATIVE CONTROL + RADIATION SAFETY AND CONTROL + COMPLIANCE

17-29920

ALSO IN CATEGORY 9
ERRATIC WATER LEVEL INDICATION DUE TO LEAK
SAXTON NUCLEAR EXPERIMENTAL CORPORATION
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(50), PAGE 31, (DEC. 9, 1968), DOCKET 50-146, TYPE--PWR, MFG--WEST., AE-
-GILBERT ASSOC.

ON OCT. 4, SAXTON WAS PLACED IN THE HOT SHUTDOWN CONDITION. AT 700 PM ERRATIC INDICATION WAS OBSERVED ON STEAM GENERATOR WATER LEVEL AND ON PRIMARY COOLANT FLOW. AT 1100 PM PRESSURIZER LEVEL AND PRESSURE INDICATION BECAME ERRATIC. A GLAND NUT ON A D/P CELL HAD LEAKED WATER THAT PENETRATED INTO OTHER D/P CELL TRANSMITTERS. NO GASKETS HAD BEEN INSTALLED IN THEIR VAPORTIGHT HOUSINGS.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29920 *CONTINUED*
REACTOR, PWR + FAILURE, INSTALLATION ERROR + LEAK + PRESSURIZER + MAIN COOLING SYSTEM + SAXTON (PWR) + STEAM GENERATOR + INSTRUMENT, PRESSURE + *INSTRUMENT, LIQUID LEVEL DETECTION + *INSTRUMENT, ABNORMAL INDICATION

17-29926
HENRY KJ + EDWARDS AG
A REVIEW OF THE OPERATION OF THE DOUNREAY FAST REACTOR
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY, SCOTLAND
17 PAGES, FAST BREEDER REACTOR, PP. 153-69, 1967

REVIEWS SEVERAL YEARS OPERATION OF DFR AS A FAST FLUX IRRADIATION FACILITY. PERFORMANCE OF THE METAL FUEL UP TO 3.4% BURNUP WAS EXCELLENT. REACTOR IMPROVEMENTS INCLUDED CHANGES TO THE INNER BREEDER TO INCREASE REACTIVITY AND ENHANCE LOCAL FISSILE MATERIAL RATINGS. UNEXPECTED URANIUM SWELLING IN THE OUTER BREEDER LED TO MODIFICATIONS. CONTROL ROD ARRANGEMENTS WERE IMPROVED. NEW INSTRUMENTATION IS DESCRIBED. THERE WAS A STEADY IMPROVEMENT IN COOLANT PURITY, AND NB-CLADDING CORROSION WAS NO LONGER A PROBLEM. DISADVANTAGES OF THE USE OF VENTED FUEL WERE OUT-WEIGHED BY THE IMPROVEMENT OF THE THERMAL BOND BETWEEN FUEL AND CAN. MEASUREMENT AND CALCULATION OF NEUTRON FLUX, GAMMA FLUX, AND TEMPERATURE ARE DESCRIBED. THE THREE BASIC TYPES OF IRRADIATION EXPERIMENT APPROPRIATE TO DFR ARE OUTLINED. FUTURE IMPROVEMENTS AND USE OF THE FACILITY ARE BRIEFLY CONSIDERED.

NIOBIUM + COOLANT CHEMISTRY + *OPERATING EXPERIENCE SUMMARY + CORROSION + REACTOR, BREEDER + FUEL ELEMENT + REACTOR, TEST + REACTOR, FAST + MODIFICATION, SYSTEM OR EQUIPMENT + IRRADIATION TESTING + *FUEL BURNUP + *DOUNREAY (TR) + FABRICATION + UNITED KINGDOM + CLADDING

17-29939
POWER REACTOR DEVELOPMENT COMPANY ENRICO FERMI ATOMIC POWER PLANT - REPORT FOR JULY 1968 - DOCKET 50-16
POWER REACTOR DEVELOPMENT COMPANY
EF-59, JULY 1968, 7P, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

ONE OF A SERIES OF PROGRESS REPORTS. COVERS OPERATIONS, HEALTH PHYSICS, MAINTENANCE AND MODIFICATION, NONNUCLEAR TEST PROGRAM, AND FACILITY CHANGE.

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

MODIFICATION, SYSTEM OR EQUIPMENT + OPERATING EXPERIENCE + FERMI (LMFBR) + MAINTENANCE AND REPAIR + REACTOR, BREEDER + REACTOR, FAST + REACTOR, LMC + *OPERATING EXPERIENCE SUMMARY

17-29978 ALSO IN CATEGORY 9
RANDALL JD + ROUX DP
SIMPLE EFFECTIVE MODIFICATIONS FOR MINIMIZING COMPENSATION PROBLEMS IN POOL REACTORS
TEXAS A AND M UNIVERSITY
3 PAGES, 2 FIGURES, 1 REFERENCE, NUCLEAR SAFETY, 9(6), PP. 522-24 (NOV.-DEC. 1968)

(TEXAS A AND M) - VERTICAL AIR FILLED COLLIMATORS REACHING DOWN TO THE TOP OF THE REFLECTOR ACT AS BEAM HOLES TO ENHANCE THE N/GAMMA RATIO BY PREFERENTIAL SCATTERING OF NEUTRONS UP THE TUBE TO A STANDARD CIC. TUBE PLUS 1/2 IN. OF LEAD GIVES A FACTOR OF 50 REDUCTION IN CURRENT FROM GAMMA ACTION TO GIVE 5 DECADES OF RANGE FOLLOWING SCRAM. *** (ORNL) - DELIBERATE DESENSITIZATION OF MULTI-SECTION PCP CHAMBERS (BEING DESIGNED) TOGETHER WITH DESIGN TO MAXIMIZE N/GAMMA SENSITIVITY RATIO, ALLOWED THEIR LOCATION WITHIN 20 IN. OF BSR CORE AT 2 MW. THIS GIVES AT LEAST 6 DECADES OF RANGE.

REACTOR, POOL TYPE + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, RESEARCH + BEAM HOLE + SHIELDING + CHAMBER, ION + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, INTERMEDIATE RANGE

17-29979 ALSO IN CATEGORY 15
SEMINARS ON MEDICAL PLANNING AND CARE IN RADIATION ACCIDENTS
OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE
NUCLEAR SAFETY 9(6), P. 521, NOV.-DEC. 1968

(SEMINARS) TWO HAVE BEEN HELD- NEXT WILL BE EAST COAST IN SPRING 1969. SESSIONS ARE FOR PHYSICIANS WITH NO PRIOR EXPERIENCE, INTENDED FOR AEC LICENSEE AND HOSPITAL PERSONNEL. COVERS DIAGNOSIS AND CARE OF ACUTE RADIATION ILLNESS, TRANSFER AND ADMISSION TO HOSPITALS. *** (SHORT COURSES) ROUTINELY GIVEN BY NCRH. INCLUDE REACTOR SAFETY, RADIOLOGICAL HEALTH, MANAGEMENT OF RADIATION ACCIDENTS.

RADIOLOGICAL ASSISTANCE + TRAINING + RADIATION INJURY TREATMENT + CERTIFICATION + STAFFING

17-29980 ALSO IN CATEGORIES 1 AND 18
PROPOSED WATER-REACTOR SAFETY SCHOOL
1 PAGE, 1 REFERENCE, NUCLEAR SAFETY 9(6), P. 522, NOV.-DEC. 1968

A JULY 1, 1968, QUESTIONNAIRE WAS SENT TO 100 UTILITIES AND UNIVERSITIES ASKING FOR EXPRESSIONS OF INTEREST IN A SERIES OF 3 MONTH SAFETY COURSES TO BE GIVEN AT NATIONAL REACTOR TESTING STATION FOR THOSE PARTICIPATING IN NUCLEAR POWER. *** COURSES WOULD INCLUDE NATURE OF REACTOR ACCIDENTS (24 HR), REACTOR SAFEGUARDS (24 HR), ACCIDENT ANALYSIS (48 HR), SAFEGUARDS TECHNOLOGY (48 HR), AND CLASS PROJECTS (66 HR).

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29980 *CONTINUED*
REACTOR, PWR + *SAFETY ANALYSIS + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *TRAINING + *CERTIFICATION +
*STAFFING + REACTOR, POWER

17-29983 ALSO IN CATEGORIES 5 AND 6
QUARTERLY TECHNICAL REPORT, SPERT PROJECT, OCTOBER, NOVEMBER, DECEMBER 1967
PHILLIPS PETROLEUM COMPANY, ATOMIC ENERGY DIVISION
100-17279 +. 24 PAGES, TABLES, FIGURES, REFERENCES, OCTOBER 1968

(SPERT III) - FLUX WIRE CALIBRATIONS OF NEUTRON DETECTORS WERE INCREASED 10%, BASED ON HEAT POWER CALIBRATION. EFFECTS OF ROD POSITION AND DECREASED MODERATOR ABSORPTION WERE EVALUATED. ***THE THIRD TRANSIENT FROM 20 MW CAUSED ONE CONTROL ROD DROP TIME 80% LONGER, RELEASED I-131, AND INCREASED REACTIVITY 0.18. INVESTIGATION CONTINUES. (SPERT IV CDC) 5 TRANSIENTS WITH WATERLOGGED PELLET TYPE FUEL INDICATED A FAILURE THRESHOLD OF 250 CAL/GM, WHICH PRODUCED AN INTERNAL PRESSURE OF 1300 PSI, SPLITTING THE CLAD AND EXPELLING 75% OF THE FUEL. POWDER FUEL RODS FAILED AT 40 CAL/GM PRODUCING INTERNAL PRESSURES OF 10,000 PSI. SIGNIFICANT DIFFERENCES THUS EXIST IN THRESHOLD AND CONSEQUENCE OF FAILURE OF POWDER VS PELLET FUEL.

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

REACTOR POWER + *FUEL, PELLET TYPE + SPERT 4 (S-RR) + *FUEL, POWDER TYPE + REACTOR TRANSIENT + TEST, PROOF +
*PERFORMANCE LIMIT + REACTOR, SAFETY RESEARCH + SPERT 3 (S-RR) + *FAILURE, FUEL ELEMENT WATERLOGGING +
INSTRUMENT CALIBRATION + INSTRUMENT, POWER RANGE

17-29995 ALSO IN CATEGORY 9
FAILURE OF LOG COUNT RATE CHANNELS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-15 +. 2 PAGES, DECEMBER 23, 1968

DURING INITIAL STARTUP, NEITHER STARTUP RANGE CHANNEL SHOWED ANY MULTIPLICATION AS EXPECTED AFTER THE CORE WAS HALF LOADED, THOUGH IN CORE DETECTORS DID. NO SOURCE CHECK HAD BEEN MADE AFTER FINAL POSITIONING OF CHAMBERS. *** DETECTORS WERE HELD IN PLACE BY BRAIDED WIRE, WHICH HAD STRETCHED ENOUGH UNDER THE WEIGHT OF THE CHAMBER TO PULL OUT A SIGNAL CABLE CONNECTION. SHORTENING THE BRAIDED CABLE 2 IN. ELIMINATED THE PROBLEM.

REACTOR STARTUP EXPERIENCE + SOURCE, NEUTRON + REACTOR, AEC OWNED + FAILURE, DESIGN ERROR + REACTOR, TEST +
FAILURE, OPERATOR ERROR + INSTRUMENT CALIBRATION + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, STARTUP RANGE

17-29996 ALSO IN CATEGORY 9
ERROR IN SHIM CYLINDER INDEXING
U.S. ATOMIC ENERGY COMMISSION
ROE-68-14 +. 2 PAGES, DECEMBER 20, 1968

DURING STARTUP OF THE SECOND CORE, CRITICALITY REQUIRED ROTATION OF HAFNIUM/BERYLLIUM REFLECTOR DRUMS 40 DEG BEYOND PREDICTED. INVESTIGATION REVEALED THAT 8 DRUMS HAD ZERO POSITIONS TO DEG FROM INTENDED. *** POWER DISTRIBUTION IMPROVEMENT REQUIRED SHIFTING THE ZERO POSITIONS OF THESE 8 DRUMS BY 35 DEG BY A MODIFICATION TO A DRIVE PART USED TO INDEX THE DRUMS. TWO OF THESE TYPES OF DRIVE PARTS WERE INTERCHANGED IN THE TABULATION OF PARTS. ONCE ASSEMBLED, THEY COULD NOT BE CHECKED.

*REACTIVITY EFFECT, ANOMALOUS + REACTOR, AEC OWNED + FAILURE, INSTALLATION ERROR + REACTOR, TEST + *CONTROL ROD DRIVE + REACTOR STARTUP EXPERIENCE + *MODIFICATION, SYSTEM OR EQUIPMENT + INCIDENT, HUMAN ERROR +
INSTRUMENT, POSITION

17-29997 ALSO IN CATEGORY 9
A SUMMARY OF EVENTS INVOLVING THE TRANSIENT RODS OF TRIGA RESEARCH REACTORS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-17 +. 3 PAGES, DECEMBER 26, 1968

RECENT DIFFICULTIES AT DIFFERENT FACILITIES INCLUDE - (1) WORN RUBBER SEATS IN THE SOLENOID LEAKED PRESSURE TO THE REVERSE SIDE OF THE RELEASE DIAPHRAGM, PREVENTING IT FROM RELEASING WHEN DEENERGIZED. (2) EXCESSIVE RUBBING OF THE NEEDLE ASSEMBLY INCREASED SOLENOID VALVE SCRAM TIME. (3) RELAY FAILURE ALLOWED TRANSIENT ROD MOVEMENT DESPITE SHIM ROD ALREADY MOVED. (4) TRANSIENT ROD DID NOT DROP ON SCRAM, DID DROP WHEN PRESSURE MANUALLY VENTED BUT WITHDREW WHEN PRESSURE REAPPLIED. SCRAMMED WHEN SOLENOID POWER REMOVED. NO CAUSE FOUND. (5) RUST ON THE INSIDE TOP OF THE CARRIAGE WAS PICKING UP THE ROD WHEN CARRIAGE WAS WITHDRAWN, EVEN THOUGH AIR PRESSURE WAS OFF.

*FAILURE, SCRAM MECHANISM + REACTOR, PULSED + TRIGA (RR) + RESPONSE TIME + OPERATING EXPERIENCE SUMMARY +
*OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + *CONTROL ROD DRIVE + MAINTENANCE AND REPAIR + CORROSION +
LEAK + INSTRUMENT, RELAY

17-29998
LUBE OIL BLOCKAGE BY TAPE FRAGMENT
U. S. ATOMIC ENERGY COMMISSION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-29998 *CONTINUED*
ROE-68-12 +. 2 PAGES, DECEMBER 18, 1968

A SMALL PIECE OF TEFLON TAPE (USED AS A SEALANT ON THREADED PIPE JOINTS) PARTIALLY BLOCKED OIL FLOW TO A PRIMARY COOLANT PUMP BEARING, CAUSING BEARING TEMPERATURE TO RISE ABOVE NORMAL ON STARTUP. DURING MAINTENANCE, A FRAGMENT OF TAPE WAS PROBABLY NOT REMOVED FROM A FITTING. THIS TAPE HAS BEEN USED EXTENSIVELY FOR 3 YEARS WITHOUT INCIDENT. MAINTENANCE PROCEDURES SHOULD INCLUDE PRECAUTION TO PREVENT SMALL PIECES BREAKING OFF.

FAILURE, MAINTENANCE ERROR + REACTOR, GENERAL + *FLOW BLOCKAGE + REACTOR, AEC OWNED + *BEARING + *LUBRICATION + PUMP

17-29999 ALSO IN CATEGORY 9
LOSS OF WATER IN THE STEAM DRUM OF AN EXPERIMENTAL POWER REACTOR
U. S. ATOMIC ENERGY COMMISSION
ROE-68-13 +. 2 PAGES, DECEMBER 19, 1968

PRIMARY SYSTEM TEMPERATURE STARTED RISING WHILE THE REACTOR WAS AT 50% POWER AND WAS ASCRIBED TO FAILURE OF A SECONDARY PUMP. DURING THE SHUTDOWN, STEAM DRUM WATER LEVEL WAS NOT OBSERVED IN THE SIGHT GLASS. POOR CONTRAST AND LOCATION OF TV MONITOR IN CONTROL ROOM MADE THAT INEFFECTIVE. HIGH WATER LEVEL ALARM ON CONDENSATE STORAGE HAD BEEN REMOVED THE WEEK BEFORE. *** A FIBER GEAR IN THE WATER LEVEL RECORDER-CONTROLLER HAD WORN SO TEETH DID NOT ENGAGE. THIS GAVE INADEQUATE FEED-WATER AND PREVENTED A RECORD OF FALLING LEVEL AND ALARM. *** SEPARATION OF CONTROL FROM ALARM/RECORDING FUNCTIONS WOULD HAVE PREVENTED THIS.

REACTOR SAFETY SYSTEM + INCIDENT, EQUIPMENT + CONTROLLER + REACTOR, POWER + REACTOR, AEC OWNED + TEMPERATURE TRANSIENT + *INDEPENDENCE + *FAILURE, COMPONENT + STEAM GENERATOR + INSTRUMENT, CONTROL + INSTRUMENT, RECORDER + *INSTRUMENT, LIQUID LEVEL DETECTION

17-30001 ALSO IN CATEGORY 15
HAND EXPOSURE FROM COBALT 60 SOURCE
U. S. ATOMIC ENERGY COMMISSION
SERIOUS ACCIDENTS NO. 297 +. 3 PAGES, DECEMBER 12, 1968

A 10 CURIE CO-60 SOURCE AND A 300 CURIE SOURCE WERE RECEIVED TOGETHER AND STORED FOR 3 WEEKS. AFTER THEIR REMOVAL, A ROUTINE SURVEY FOUND THE SHIPPING CONTAINER CONTAMINATED. THE 10 CURIE SOURCE WAS FOUND CONTAMINATED. DURING DECONTAMINATION, A SCREW TOP WAS FOUND LOOSE AND CONTENTS DUMPED OUT BY HAND (DESPITE INSTRUCTION TO USE TOOLS), ASSUMING CONTENTS WAS A CAPSULE. PELLETS FOUND INSTEAD, AND REPLACED BY HAND, USING TWEEZERS. FILM BADGES LATER SHOWED (A) 655 (+-45%) REM LEFT HAND AND 54 REM RIGHT HAND, (B) 23 REM LEFT HAND AND 10 REM RIGHT HAND. SELF READING DOSIMETERS WERE NOT WORN. PARTIAL BODY SHIELDING WAS USED.

*DECONTAMINATION + *SOURCE, RADIATION + PERSONNEL PROTECTIVE DEVICE + INCIDENT, EXPOSURE + INCIDENT, NONREACTOR + COBALT

17-30039 ALSO IN CATEGORIES 13 AND 15
KOCH RC
FINAL DECONTAMINATION PLANS FOR UP LAB
LETTER TO REVISION V COMPLIANCE, USAEC, BERKELEY, CALIF., SEPTEMBER 6, 1968, FROM R. C. KOCH

COMPLETE PROCEDURES FOR FINAL DECONTAMINATION AND DISMANTLING PU PROCESSING LAB AT 801 N. LAKE STREET, BURBANK, CALIFORNIA (HOT CELL, STORAGE POOL, MACHINE SHOP, CHEM LAB). POOL CONTAMINATED WITH SOLUBLE CS-137 AND CU-60, OTHER SURFACES WITH PU-238 TO 5 X 10⁶ TH DPM/100 SQ CM. NEUTRON FIELDS RANGE 10-280 MREM/HR.

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

COMPLIANCE + DECOMMISSIONING + SOURCE, RADIATION + SOURCE MATERIAL + SOURCE, NEUTRON + *DECONTAMINATION + PLUTONIUM + COBALT + HOT CELL + RADIOISOTOPE + CESIUM + FABRICATION FACILITY

17-30082 ALSO IN CATEGORY 9
WILLIAMS HL
ASSIGNING A VALUE TO HUMAN RELIABILITY
MARTIN MARIETTA CORPORATION, AEROSPACE GROUP, ORLANDO, FLA
RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS 8(12), R68-14137, P.206, JULY 4, 1968

DISCUSSION OF SOME OF THE IMPORTANT FACTORS RELATING TO THE PREDICTING OF HUMAN RELIABILITY. SERIES AND PARALLEL BLOCK DIAGRAMS ARE DISCUSSED ON THE BASIS OF SUCH DATA AS THE EXACT NATURE OF THE TASK FACING THE HUMAN OPERATOR, OPERATING STEPS, AND CRITERIA FOR CORRECT PERFORMANCE. THE INHERENT DIFFERENCE BETWEEN DEPENDENT AND INDEPENDENT EVENTS WITH RESPECT TO RELIABILITY PREDICTION IS CONSIDERED, METHODS FOR SETTING UP PROBABILITY EQUATIONS ARE OUTLINED, AND A BASIC REVIEW OF THE LAWS OF CHANCE IS PRESENTED.

*FORECAST + *OPERATOR ACTION + RELIABILITY ANALYSIS + PROBABILITY

17-30104 ALSO IN CATEGORY 15
SURVEY OF ENVIRONMENTAL RADIOACTIVITY IN THE VICINITY OF INDIAN POINT STATION FEBRUARY 1, 1968 THROUGH JULY

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30104 *CONTINUED*
31, 1968

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
AUGUST 21, 1968, 10 PAGES, 8 TABLES, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

GIVES RESULTS OF MEASUREMENTS OBTAINED DURING 2/1/68 THRU 7/1/68 BASED ON A CONTINUOUS MONITORING PROGRAM FROM MID-1958 UNTIL AFTER THE PLANT BECAME OPERATIONAL IN 1962. DIFFERENT PHASES OF THE PROGRAM COVERED STACK DISCHARGES, LIQUID EFFLUENTS, SAMPLE COLLECTION, COUNTING, SPECTRAL ANALYSIS OF VEGETATION, ALGAE, SOIL AND RIVER BOTTOM SEDIMENTS, AND THE MEASUREMENT OF CONCENTRATION OF RADIOACTIVE PARTICLES IN THE AIR.

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

INDIAN POINT 1 (PWR) + REACTOR, PWR + FALLOUT + BIOLOGICAL CONCENTRATION, ALGAE + RIVER, GENERAL + AIR + BIOLOGICAL CONCENTRATION, VEGETATION + FILTER + GROSS BETA + PARTICULATE + GAMMA EMITTER + SURFACE WATER, NUCLIDE OCCURRENCE + MONITOR, STACK + MONITOR, ENVIRONMENTAL + MONITOR, BACKGROUND + MONITOR, TELEMETRY

17-30107 ALSO IN CATEGORY 18
BRITISH NUCLEAR POWER PLANT
UNITED KINGDOM ATOMIC ENERGY AUTHORITY, LONDON (ENGLAND)
NP-17599 +. 1968, 44P.

FIVE ARTICLES WHICH GIVE GENERAL PERSPECTIVE ON THE UK PROGRAMS - (1) PROGRESS IN THE EXPLOITATION OF THE GAS COOLED REACTOR, 6 PG., (2) PERFORMANCE OF THE C.E.G.B. NUCLEAR POWER STATIONS, 19 PG., (3) DESIGN, COMMISSIONING AND OPERATION OF THE STEAM GENERATING HEAVY WATER REACTOR, 4 PGS., (4) THE PLACE OF THE FAST REACTOR IN COMMERCIAL POWER DEVELOPMENT, 11 PG., (5) NUCLEAR FUEL SUPPLIES AND SERVICES OF THE UKAEA, 3 PG.

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

REACTOR, GCR + OPERATING EXPERIENCE SUMMARY + REACTOR, FAST + UNITED KINGDOM + REACTOR, SGHWR + *ECONOMICS + REACTOR, BREEDER + *FUEL MANAGEMENT

17-30111 ALSO IN CATEGORIES 1 AND 18
GUIDE TO CONTENT OF TECHNICAL SPECIFICATIONS FOR NUCLEAR REACTORS
50 PAGES, NOVEMBER 1968

(ASSOCIATED WITH 10 CFR 50 REVISIONS PUBLISHED IN FEDERAL REGISTER DECEMBER 17, 1968, PG. 18610). DISCUSSES BOTH TECHNICAL AND ADMINISTRATIVE MATTERS (FOCAL POINTS FOR ANALYSES SHOULD BE THE PHYSICAL BARRIERS PROVIDING THE DEFENSE IN DEPTH, ANALYSES SHOULD BE BASED ON CURRENT KNOWLEDGE AND UNDERSTANDING OF SAFETY NEEDS AND TECHNIQUES). EACH MAJOR SECTION (SAFETY LIMITS AND SETTINGS, LIMITING CONDITIONS FOR OPERATION, SURVEILLANCE REQUIREMENTS, DESIGN FEATURES, AND ADMINISTRATIVE CONTROLS) IS DISCUSSED SEPARATELY TO INDICATE ATTITUDE IN CONTENT.

AVAILABILITY - USAEC DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

REACTOR, RESEARCH + *GUIDE + *TECHNICAL SPECIFICATIONS + REACTOR, POWER

17-30112 ALSO IN CATEGORIES 1 AND 18
TECHNICAL SPECIFICATIONS FOR FACILITY LICENSES, SAFETY ANALYSIS REPORTS
33 FEDERAL REGISTER 18610, DECEMBER 17, 1968

(EFFECTIVE JAN. 17, 1969.) REVISED TO EMPHASIZE TECHNICAL MATTERS RELATED TO (1) PREVENTION OF ACCIDENTS, (2) MITIGATION OF CONSEQUENCES TO IDENTIFY SUBJECTS OF TECHNICAL SPECIFICATIONS AT CONSTRUCTION PERMIT STAGE. REQUIRES BOTH A PSAR AND AN FSAR AND DEFINES THEIR RELATION TO TECHNICAL SPECIFICATIONS AND SUPPORTING ANALYSES. TS CHANGES FOLLOWING INITIAL OPERATION ARE CALARIFIED, AND ACRS REVIEW MADE PERMISSIVE.

*TECHNICAL SPECIFICATIONS + REPORT, SAR + REPORT, PSAR + SAFETY REVIEW + ACRS + *REGULATION, AEC + SAFETY ANALYSIS

17-30163 ALSO IN CATEGORY 18
NUCLEAR EDUCATION AND TRAINING PROGRAMS OF POTENTIAL INTEREST TO UTILITIES
U. S. ATOMIC ENERGY COMMISSION
47 PAGES, DEC. 1968

A COMPILATION OF VARIOUS KINDS OF PROGRAMS, RANGING FROM STANDARD UNIVERSITY COURSES AND SEMINARS OFFERED AN ADEQUATE DEMAND TO STANDARD REACTOR FAMILIARIZATION COURSES OFFERED BY REACTOR VENDORS. IN GENERAL, COURSE DESCRIBED ENOUGH TO TELL WHO WOULD BENEFIT. *** SECTIONS ARE - (II) 5 REACTOR VENDORS, 7 PG. (III) 7 CONSULTANTS, 4 PG. (IV) 5 OTHER UTILITIES, 2 PG. (V) 7 FEDERAL AGENCIES, 4 PG. (VI) 22 UNIVERSITIES WITH SPECIAL REACTOR PROGRAMS, 8 PG. (VII) 19 UNIVERSITIES WITH POWER SYSTEMS ENGINEERING PROGRAMS, 2 PG. (VIII) 19 UNIVERSITIES OFFERING SHORT COURSES, 9 PG. (IX) 103 UNIVERSITIES PARTICIPATING IN AEC FELLOWSHIP PROGRAM. (X) 40 COMMUNITY COLLEGES WITH APPROPRIATE COURSES OF STUDY.

AVAILABILITY - U.S. ATOMIC ENERGY COMMISSION, DIVISION OF NUCLEAR EDUCATION AND TRAINING

REACTOR, BWR + REACTOR, POWER + REACTOR, PWR + HEALTH PHYSICS TRAINING + *TRAINING + *CERTIFICATION + *STAFFING

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30167 ALSO IN CATEGORY 11
ARCHER JC
BUILDING BREATHING SPACE INTO A REACTOR CONTAINMENT VESSEL
BURNS AND ROE, INC.
2 PAGES, POWER, 11, PAGES 116-117 (NOVEMBER 1967)

(PROBLEM) PROVIDE FOR THERMAL EXPANSION OF CONTAINMENT YET NOT LEAVE A GAP LARGE ENOUGH FOR A MISSILE TO PENETRATE BEFORE PUSHING AGAINST CONCRETE. (SOLUTION) COVER THE COMPLETED STEEL VESSEL WITH 2.75-IN. OF ASBESTOS FIBER, MAGNESITE CEMENT MATERIAL THAT IS INELASTICLY COMPRESSIBLE, COVER WITH PLASTIC, INSTALL THE CONCRETE FORMS AND POUR CONCRETE, HEAT VESSEL TO 180 F, AND PRESSURIZE TO 40 PSIG AFTER CONCRETE DRIES. THIS LEFT AN AIR GAP OF 1-3 INCHES.

CONTAINMENT, PRESSURE SUPPRESSION + CONCRETE + REACTOR, BWR + THERMAL MECHANICAL EFFECT + MISSILE GENERATION AND PROTECTION + *CONTAINMENT CONSTRUCTION + OYSTER CREEK 1 (BWR)

17-30171 ALSO IN CATEGORY 1
GIAMBUSSO A
AEC ASSESSES UTILITY NUCLEAR STAFF NEEDS, TRAINING CAPACITY
ATOMIC INDUSTRIAL FORUM, INC., NEW YORK
3 PAGES, NUCLEAR INDUSTRY, VOL 15(11,12), PP. 15-17 (DEC. 1968)

SUMMARY OF ANS-AIF 68 MEETING PAPER BY GIAMBUSSO. DRAFT AEC GUIDELINES ON STAFF QUALIFICATIONS WILL BE READY IN EARLY 69. ESTIMATES GIVEN OF NEEDED OPERATORS AND ENGINEERS THRU 1976. SIMULATOR TRAINING OF OPERATORS IS USEFUL, BUT EXTENT TO BE SUBSTITUTED FOR ACTUAL EXPERIENCE NOT DETERMINED. ONLY 5 NUCLEAR ENGINEERS GRADUATED BY MIT IN 1968, WERE HIRED BY UTILITIES, AND THEN BY UTILITIES ALREADY HAVING REACTORS.

REACTOR, BWR + REACTOR, PWR + SIMULATION + *TRAINING + *CERTIFICATION + *STAFFING

17-30172 ALSO IN CATEGORY 1
PUBLIC RELATIONS NEED UNQUESTIONED BUT METHODS DEBATABLE
ATOMIC INDUSTRIAL FORUM, INC., NEW YORK
4 PAGES, NUCLEAR INDUSTRY, VOL. 15(11,12), PP.50-53 (DEC. 1968)

REVIEW OF ANS-AIF NOV. 68 PANEL REMARKS. SWISS EXPERIENCE IS THAT MASSIVE PROGRAMS ARE NOT NEEDED, PERHAPS BECAUSE OF SWISS RESPECT FOR AUTHORITY. CONWAY RECOMMENDED EVERY EFFORT TO INFORM THAT SMALL PORTION OF THE U.S. PUBLIC WHO WISH TO BE INFORMED. UK EXPERIENCE IS THAT CONCERN WITH RADIATION BEGAN GENERAL CONCERN WITH ENVIRONMENT. TAYLOR HOPED REACTORS WILL NOT BE SOLD PUBLIC LIKE SOAP. LEO (FRANCE) RECOMMENDED INFORMATION CENTERS SHOW REACTORS AT SAME TIME AS DISCUSSION (SO PEOPLE WON'T FORGET) AND NOT USE ALARMING TERMINOLOGY.

*RADIATION, PUBLIC EDUCATION + REACTOR, POWER + OPERATING EXPERIENCE SUMMARY

17-30192
SELECTED FERMI MAINTENANCE EXPERIENCE
POWER REACTOR DEVELOPMENT COMPANY
PRDC-EF-62 +. 9 PAGES, OCTOBER 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

TWO ZIRCONIUM SEGMENTS WERE REMOVED FROM THE CORE BY ARC MELTING. NO. 1 STEAM GENERATOR WAS DISMANTLED TO FIND LEAKS. TWO TUBES WERE LEAKING AT THE INTERNAL BORE WELD AREA IN THE WATER MANIFOLD TUBE SHEET. THE THIRD TUBE LEAK WAS LOCATED 10 FT BELOW TOP OF THE TUBE SHEET BY PRESSURIZING THE SHELL TO 38 PSIG WITH NITROGEN WHICH PASSED THROUGH A VALVE AT ULTRASONIC VELOCITY. THE FREQUENCY CHANGED AS THE VARYING WATER LEVEL PASSED OVER THE LEAK.

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

REACTOR, BREEDER + WELDING + FERMI (LMFBR) + STEAM GENERATOR + FAILURE, TUBING + REACTOR, FAST + REACTOR, LMFBR + REPORT, OPERATIONS + REACTOR, LMCR + *TEST, LEAK LOCATION + *REMOTE MANIPULATING AND VIEWING

17-30193 ALSO IN CATEGORY 18
SUMMARY SAFEGUARDS REPORT FOR THE GENERAL ELECTRIC NUCLEAR TEST REACTOR
GENERAL ELECTRIC, PLEASANTON, CALIF.
APCD-4444A +. 100 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1, 1968, DOCKET 50-73

SUPPORTS REQUEST FOR POWER INCREASE FROM 30 TO 1000 KW, DESCRIBES CURRENT FACILITY, AND PROVIDES INFORMATION FROM A RECENT SAFETY EVALUATION. DESCRIBES IRRADIATION FACILITIES AND TYPICAL PROGRAMS. DESIGN BASIS ACCIDENT (A 20 MW-SEC TRANSIENT, ALL FUEL MELTS AND 10% UNDERGOES A METAL WATER REACTION, 50% FP RETAINED BY CELL) GIVES A 108 REM THYROID DOSE AT VNC BOUNDARY, WHOLE BODY DOSE 0.86 REM.

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

REACTOR, FLUX TRAP + POWER UPGRATING + *REPORT, SAR + REACTOR, RESEARCH + REACTOR, GRAPHITE MODERATED + GE NTR (RR)

17-30194

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30194 *CONTINUED*

AMENDMENT 15 - POWER UPGRATING FROM 30 TO 100 KW

GENERAL ELECTRIC COMPANY, PLEASANTON, CALIF.

33 PAGES, TABLES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 21, 1968, DOCKET 50-73.

PROVIDES LICENSE APPLICATION MATERIAL, PERSONNEL BIOGRAPHIES, AND PROPOSED TECH. SPECS. TO UPRATE NTR FROM 30 TO 100 KW. REFERENCES APED 4444-A (SUMMARY SAFEGUARDS REPORT) FOR DETAILED INFORMATION. ***TECH. SPECS. LIMITS REACTIVITY TO \$1.00, VOID AND/OR WATER TEMP. INCREASE REACTIVITY INCREASE TO \$0.30, EXPERIMENT REACTIVITY WORTH TO \$4.00.

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

REACTOR, GRAPHITE MODERATED + REACTOR, RESEARCH + POWER UPGRATING + *TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + GE NTR (RR)

17-30195

PATHFINDER OPERATING EXPERIENCE REPORT 5 - MAY 19 TO NOV. 19, 1968

NORTHERN STATES POWER COMPANY

NSP-6802 +. 53 PAGES, FIGURES, TABLES, NOVEMBER 19, 1968, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

ALL SUPERHEATER FUEL WAS REMOVED, LOWER PORTIONS HAD A BROWNISH YELLOW CORROSION FILM. 49 PIECES OF THE STEAM SEPARATOR VANES WERE RECOVERED, ONLY ONE MAJOR AREA STILL MISSING. REPORT DESCRIBED PROGRESS IN FACILITY CLEANUP AND CONVERSION TO GAS-FIRED BOILER OPERATION.

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

REACTOR, INTERNAL SUPERHEAT + PATHFINDER (ISR) + REPORT, OPERATIONS SUMMARY + REACTOR, BWR + DECOMMISSIONING

17-30196

ALSO IN CATEGORY 15

UNUSUAL OCCURRENCE REPORT 21, ARC AIR CUTTING ON CONTAMINATED STAINLESS STEEL PLATE

NORTHERN STATES POWER COMPANY

NSP-6802(APP. II) +. 10 PAGES, NOVEMBER 19, 1968, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

ON JULY 3, ARC CUTTING OF A HOLE IN THE DEMISTER STORAGE STAND RELEASED ENOUGH SURFACE CONTAMINATION IN 15 MIN FOR THE WELDER TO INHALE 51 THE CO-60 AND 11 THE ZN-65 BODY BURDEN. WHILE A RADIATION WORK PERMIT WAS POSTED AT THE AIRLOCK DOOR, RADIATION LEVELS OF 100 MR/HR FROM THE STAND WERE NOTED BEFORE COMMENCING WORK. LATER, SMEARS SHOWED ABOUT 500,000 DPM/SMEAR. THE WELDERS NOSE SMEARED 3,600 DPM/SMEAR. ***WORK ORDERS, REVIEWED BY ASST. PLANT SUPT., ARE NOW REQUIRED FOR ALL MAINTENANCE WORK OUTSIDE THE SHOP. ***WHOLE BODY COUNTS USED TO BACK CALCULATE AIRBORNE CONCENTRATION AS 32 MPC. LETTER TO PLANT PERSONNEL REVIEWS WELL THE AIRBORNE RADIOACTIVITY PROBLEMS FACED IN MAINTENANCE.

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

INHALATION + FAILURE, ADMINISTRATIVE CONTROL + COBALT + INCIDENT, HUMAN ERROR + *WELDING + PATHFINDER (ISR) + *CONTAMINATION + REACTOR, INTERNAL SUPERHEAT + ZINC + COUNTER, WHOLE BODY + RADIATION SAFETY AND CONTROL + REACTOR, BWR + AIRBORNE RELEASE + DECOMMISSIONING

17-30197

ALSO IN CATEGORY 6

OSCILLATOR EXPERIMENT TO MEASURE MURR TRANSFER FUNCTION

UNIVERSITY OF MISSOURI

31 PAGES, 7 FIGURES, 1 TABLE, 2 REFERENCES, DECEMBER 13, 1968, DOCKET 50-186

DEPENDING ON INTERPRETATION OF TS 10.5D, THIS DOES NOT NEED APPROVAL BUT IS SUBMITTED AS AN UNREVIEWED SAFETY QUESTION. ***UNIQUE DESIGN USES MECHANICAL DRIVE (FROM 0.17 TO 5 CPS) AND WATER JET (5 TO 100 CPS). NYLON BEARINGS WERE TESTED TO 7.75 X 10¹⁷ THERMAL. EJECTION OF CADMIUM FROM THE FLUX TRAP WOULD ADD 0.0032 REACTIVITY.

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

TECHNICAL SPECIFICATIONS + REACTOR, FLUX TRAP + *OSCILLATOR, REACTIVITY + TRANSFER FUNCTION + UMRR (RR)

17-30198

ALSO IN CATEGORY 7

PEACH BOTTOM MONTHLY OPERATIONS REPORT 32 OCTOBER 1968

PHILADELPHIA ELECTRIC COMPANY

12 PAGES, REPORT NO. 32, OCTOBER 1968, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

ON OCT. 4, CONTAINMENT WAS ENTERED AND KNOWN STEAM LEAK FOUND NOT INCREASED. ON FOUR OCCASIONS, MAIN LOOP ACTIVITY ROSE ABRUPTLY BRINGING TO 11 THE NUMBER OF FAILED UNPURGED FUEL ELEMENTS (WITH TOTAL MAIN COOLANT ACTIVITY 27 CURIES). ON OCT. 23, REACTOR WAS BROUGHT OFF LINE AND CONTAINMENT DEINERTED FOR THE 300 FULL POWER DAYS INSPECTION AND REMOVAL OF FAILED ELEMENTS.

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

VALVE + REPORT, OPERATIONS + LEAK + PEACH BOTTOM 1 (HTGR) + ACTIVITY BUILDUP + COATED PARTICLE + MAIN COOLING SYSTEM + FAILURE, FUEL ELEMENT + REACTOR, HTGR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30199 ALSO IN CATEGORY 5
BAWTR OPERATIONS APRIL-SEPT 1968
BABCOCK AND WILCOX
BAW-349 +. 7 PAGES, 3 TABLES, 8 REFERENCES, NOVEMBER 1968, DOCKET 50-200

FACILITY USAGE AND CHANGES NOTED. ***[1] APRIL 4. BRIDGE RADIATION MONITOR READING INCREASED ABOVE 200 MR/HR, ABOUT DOUBLE NORMAL. ROD MANIPULATION INDICATED A ROD FOLLOWER ELEMENT FAILURE. ELEMENT HAD OPERATED ONLY 32 MED, SHOWED NO ABNORMALITY. [2] APRIL 26. A SMALL PLASTIC VALVE, MAINTAINING A HE-N GAS MIXTURE IN AN EXPERIMENT, WAS BURNED BY A HEATER WIRE IN ANOTHER EXPERIMENT. REDUCED REACTOR POWER WAS CAUSING HIGHER THAN NORMAL HEATER POWER AND HOTTER WIRES. [3] SEPT. 3. THE HEADER (COUPLING REACTOR TO COOLANT PIPES) FAILED TO DROP ON PUMP SHUTOFF, DUE TO BROKEN GUIDE RODS AND MISALIGNMENT. FLOW COASTDOWN ANALYSIS SHOWED ADEQUATE CIRCULATION WITH HEADER FIXED IN UP AND CHECK VALVE REMOVED, SO TECH. SPEC. CHANGE WAS INITIATED.

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

ACCIDENT ANALYSIS + FAILURE, COMPONENT + VALVE + FAILURE, FUEL ELEMENT + *ACCIDENT, LOSS OF FLOW + IRRADIATION FACILITY + TECHNICAL SPECIFICATIONS + *HEAT TRANSFER, NATURAL CONVECTION + REACTOR, TEST + REPORT, OPERATIONS SUMMARY

17-30200 ALSO IN CATEGORY 9
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-12 +. 14 PAGES, AUGUST 8, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INITIAL CRITICALITY ACHIEVED BY BORON DILUTION 0104 AM JULY 24, 67, AND PHYSICS TEST CONTINUED. ON JULY 31, CONTROL VALVE LEAKAGE LIMITED TURBINE ROLL TO 200 RPM. DURING FUEL LOADING, BORON IN WATER DECREASED FROM 2837 TO 2682 PPM BECAUSE OF DILUTION BY CLEAN WATER TO THE SEALS OF THE PURIFICATION PUMP (MODIFIED TO USE PUMP DISCHARGE WATER). TENTATIVE VALUES OF VARIOUS PHYSICS PARAMETERS LISTED.

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

PUMP + MODIFICATION, SYSTEM OR EQUIPMENT + SEAL + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + *DILUTION + *REACTOR STARTUP TESTING + COOLANT PURIFICATION SYSTEM + REPORT, OPERATIONS + REACTOR, PWR + *SHUTDOWN SYSTEM, SECONDARY

17-30201
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-13 +. 14 PAGES, SEPTEMBER 18, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ON AUG. 7, GENERATOR WAS PLACED ON THE 345 KV GRID THE FIRST TIME AND 50 MWE PRODUCED. FOLLOWING VARIOUS INTERRUPTIONS, 125 MWE WAS BRIEFLY REACHED AUG. 23. A TRIP WAS CAUSED BY LIGHTNING STRIKING 345 KV BETWEEN TRANSFORMER AND SWITCHYARD. CONTINUED FAILURE LEAD TO REPLACEMENT OF THE PRESSURIZER SPRAY VALVE HYDRAULIC OPERATORS WITH PNEUMATICS. ALL THREE PRESSURIZER SAFETY VALVES LEAKED SIMULTANEOUSLY DUE TO STEAM EROSION BADLY CUTTING SEATS AND DISKS. FLANGES ADDED TO THE INLET OF THE VALVES NOW ALLOW REMOVAL FOR TESTING AND MAINTENANCE.

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

MODIFICATION, SYSTEM OR EQUIPMENT + PRESSURE RELIEF + LEAK + REACTOR, PWR + FAILURE, EQUIPMENT + ACCIDENT, LOAD REJECTION + PRESSURIZER + MAIN COOLING SYSTEM + HADDAM NECK (PWR) + REPORT, OPERATIONS + VALVE + *REACTOR STARTUP EXPERIENCE + EROSION + FAILURE, SIMULTANEOUS

17-30202
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-14 +. 8 PAGES, OCTOBER 25, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

LOW POWER PHYSICS TEST REPORT WAS ISSUED. ***REACTOR SYSTEM WAS COOLED 90 F IN 5 MINUTES, WHEN ALL 10 STEAM DUMP VALVES OPENED DURING STARTUP WHEN LOW VACUUM TRIP UNBLOCKED EVEN THOUGH T AV WAS 525F. A LOCKED IN TEST SIGNAL OF 570 F WAS LATER FOUND. PRESSURIZER RELIEF AND SPRAY VALVE LEAKAGE CONTINUED.

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

ACCIDENT, COLD COOLANT + FAILURE, MAINTENANCE ERROR + LEAK + REPORT, OPERATIONS + *REACTOR STARTUP EXPERIENCE + ACCIDENT, STEAM LINE RUPTURE + HADDAM NECK (PWR) + REACTOR STARTUP TESTING + REACTOR, PWR + SCRAM, SPURIOUS + VALVE

17-30203 ALSO IN CATEGORY 10
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-15 +. 14 PAGES, NOVEMBER 17, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

REACTOR PRESSURE HAS BEEN LOWERED FROM 2150 PSIC TO 2000 PSIG FOR CORE 1 TO MINIMIZE PRESSURIZER SAFETY VALVE LEAKAGE. LOSS OF VITAL POWER CAUSED 3 SCRAMS (BLOWN FUSE, GROUNDED DURING

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30203 *CONTINUED*
MAINTENANCE).

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

HADDAM NECK (PWR) + LOW + *PRESSURE, INTERNAL + REACTOR, PWR + *SCRAM, REAL + *SETPOINT + EMERGENCY POWER, ELECTRIC + MAIN COOLING SYSTEM + REPORT, OPERATIONS

17-30204 ALSO IN CATEGORIES 5 AND 10

SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-16 +. 16 PAGES, DECEMBER 19, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

TESTS (LOAD REJECTION AT 250 MWE, LOSS OF FLOW AT 278 MWE, DROPPED ROD AT 400 MWE) RUN INCLUDED NATURAL CIRCULATION FLOW INDICATION FOLLOWING TRIP FROM 50% POWER. IN-CORE FLUX MAPS WERE TAKEN, AND MINIMUM DNBR WAS 4.0. FLUX MAPS TAKEN WITH A ROD IN AND A ROD OUT. THREE TRIPS OCCURRED FROM VITAL BUS GROUNDING (FUSE REPLACEMENT, LIGHT BULB REPLACEMENT, AND SYSTEM CHECKOUT).
***VITAL BUS IS NOW SPLIT INTO 4 BUSES, EACH WITH AN INVERTER. EACH BUS CAN ALSO BE FED FROM ANOTHER INVERTER.

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

ACCIDENT, LOSS OF FLOW + REPORT, OPERATIONS + HADDAM NECK (PWR) + *MODIFICATION, SYSTEM OR EQUIPMENT + *ELECTRIC POWER, VITAL + ACCIDENT, LOAD REJECTION + REACTOR, PWR + *REACTOR STARTUP EXPERIENCE + SCRAM, REAL + ACCIDENT, CONTROL ROD DROPIN + *TEST, PROOF + INSTRUMENT, IN CORE + HEAT TRANSFER, NATURAL CONVECTION

17-30205

SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-17 +. 14 PAGES, JANUARY 15, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

WHEN THE 1A TURBINE REHEATER DRAIN TANK LEVEL CONTROL WAS PLACED IN AUTOMATIC, WATER HAMMER CRUSHED THE LEVEL ALARM FLOAT AND DAMAGED THE NORMAL FLOAT ARM. ***POWER WAS RAISED TO 490 MWE. HEAT BALANCE SHOWED 8.8 MW THERMAL ADDED TO PRIMARY LOOP BY THINGS OTHER THAN FISSION, SO A 3 MWE INCREASE IN GENERATOR LOAD WAS ALLOWED. MINIMUM DNBR RANGED FROM 3.07 (AT ZERO POWER) TO 3.80 (AT 82% POWER). RADIATION LEVELS AT 485 MWE SHOWN.

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

DNB + POWER DISTRIBUTION + SHIELDING + *FAILURE, COMPONENT + HADDAM NECK (PWR) + REACTOR POWER + REACTOR, PWR + MEASUREMENT, GENERAL + HYDRAULIC EFFECT + REPORT, OPERATIONS + TURBINE + INSTRUMENT, IN CORE + *INSTRUMENT, LIQUID LEVEL DETECTION

17-30206

ALSO IN CATEGORY 9
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-28 +. 7 PAGES, NOVEMBER 19, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ROD 30 SLIPPED FROM 307 STEPS TO 265 STEPS DURING 492 MWE OPERATIONS, ACTUATING A NEUTRON FLUX RATE OF CHANGE RUNBACK TO 445 MWE. BURNUP REMAINED AT 120 PPM BORON PER MWD/MTU, AND CORE REACHED 42% OF LIFE. ***OPERATION OF EVAPORATOR AND CONCENTRATOR IS UNSATISFACTORY.

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

HADDAM NECK (PWR) + WASTE TREATMENT, LIQUID + *ACCIDENT, CONTROL ROD DROPIN + FUEL BURNUP + EVAPORATION + REPORT, OPERATIONS + FAILURE, EQUIPMENT + REACTOR, PWR + INSTRUMENT, RATE OF CHANGE + *INSTRUMENT, ABNORMAL INDICATION

17-30207

ALSO IN CATEGORIES 5 AND 9
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATING REPORT NO. 68-11, DEC. 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SEVERAL LOAD REDUCTIONS WERE MADE FOR TESTS ON TURBINE CONTROL VALVE. HIGHEST WORTH ROD WAS INSERTED FOR 48 HR TO MEASURE ITS CHANGE IN WORTH (ABOUT 0.3 R PERCENT) AND CHANGE IN HOT CHANNEL FACTOR (FW CHANGED FROM 1.11 TO 1.85). FLUX TILT WAS ORIGINALLY 14 PERCENT, INCREASING TO A MAXIMUM OF 23 PERCENT AND REACHING EQUILIBRIUM AT 12 PERCENT. TILT REVERSED WHEN ROD WITHDRAWN. *** 4 RODS WERE RUN IN ONE AT A TIME, VERIFYING THAT AT LEAST 2 POWER RANGE CHANNELS WOULD DETECT THIS. INDIVIDUAL STEPS WERE INDISTINGUISHABLE FROM THE DOPPLER INSERTIONS ON THE REACTIVITY COMPUTER, ONE OF THE FOUR LEAST REACTIVE RODS GAVE A 37 MWE DECREASE AND AN 11 PERCENT FLUX TILT, OBVIOUS TO THE MOST CASUAL OBSERVER.

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

HADDAM NECK (PWR) + REACTOR, PWR + HOT CHANNEL FACTOR + *ACCIDENT, CONTROL ROD DROPIN + FLUX TILT + REPORT, OPERATIONS + INSTRUMENT, OPERATING REACTIVITY + *MEASUREMENT, REACTIVITY + *INSTRUMENT, ABNORMAL INDICATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30208 ALSO IN CATEGORY 9
SELECTED HADDAM NECK OPERATING EXPERIENCE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATING REPORT NO. 68-11, DECEMBER 20, 1968, DOCKET 50-213, TYPE--
PWR, MFG--WEST., AE--STONE + WEBSTER

NOS. 1 AND 4 STEAM GENERATORS CANNOT BE OPERATED AT DESIGN LEVEL WITHOUT CARRYOVER. ***THE REACTOR SCRAMMED 18 NOV. FOR NO KNOWN CAUSE, THE TURBINE INDICATING A REACTOR TRIP AND THE REACTOR INDICATING A TURBINE TRIP. ON RESTART, TURBINE LOADING BECAME ERRATIC (EXCEEDING 100 MWE IN SECONDS) DUE TO METAL FILINGS BINDING THE FEEDBACK SLEEVE OF THE PILOT VALVE. NO REASON HAS BEEN FOUND FOR THE SCRAM. ***INJECTION OF 18 GPH STEAM INTO CONTAINMENT REDUCED TRITIUM CONCENTRATION BY A FACTOR OF 6.1 AND 25 GPH REDUCED BY 8. TRITIUM LEVEL ROSE IMMEDIATELY ON STOPPING STEAM, EITHER DUE TO POOR MIXING OR INSUFFICIENT TIME (45 HR) FOR NEW EQUILIBRIUM LEVEL TO BE REACHED.

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

FLOW BLOCKAGE + HADDAM NECK (PWR) + *SCRAM, SPURIOUS + STEAM + PARTITION COEFFICIENT + REPORT, OPERATIONS + ACCIDENT, COLD COOLANT + *AIRBORNE RELEASE + VALVE + TURBINE + STEAM GENERATOR + REACTOR, PWR + FAILURE, COMPONENT + CONTAINMENT, HIGH PRESSURE + *TRITIUM + INSTRUMENT, LIQUID LEVEL DETECTION + INSTRUMENT, ABNORMAL INDICATION

17-30211 ALSO IN CATEGORY 18
PROPOSED TECHNICAL SPECIFICATIONS FOR MILLSTONE 1
CONNECTICUT LIGHT AND POWER COMPANY
74 PAGES, FIGURES, TABLES, MILLSTONE AMENDMENT 10, DEC. 6, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--
EBASCO

FORMAT SPECIFICATIONS FOR 2011 MWTH BWR USING JET PUMPS. LIMITS POWER TO 400 MWTH WHEN REACTOR PRESSURE LESS THAN 600 PSIA. BORON BURNOUT IN TEMPORARY CONTROL CURTAINS MAY CAUSE INITIAL REACTIVITY INCREASE. ALLOWABLE OUTAGE TIMES FOR ENGINEERED SAFETY FEATURE MAINTENANCE SPECIFIED. COOLANT LEAKAGE LIMITED TO 15 GPM, AND IODINE CONTENT LIMITED TO 20 MICROCURIE/CC. ISOLATION CONDENSER MAY BE INOPERABLE 30 DAYS PROVIDED FWCI OPERABLE.

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

LEAK + REACTOR POWER + LOW + MILLSTONE POINT (BWR) + REACTOR, BWR + ENGINEERED SAFETY FEATURE + *TECHNICAL SPECIFICATIONS + MAINTENANCE AND REPAIR + PRESSURE, INTERNAL + MAIN COOLING SYSTEM + ACTIVITY BUILDUP + FISSION PRODUCT, IODINE + POISON, BURNABLE + RELIABILITY ANALYSIS

17-30212 ALSO IN CATEGORY 18
PROPOSED MONTICELLO 1 TECHNICAL SPECIFICATION
NORTHERN STATES POWER COMPANY
36 PAGES, FIGURES, TABLES, AMENDMENT 11, DEC. 9, 1968, DOCKET 59-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

NEW STYLE SPECIFICATIONS FOR 1670 MWTH BWR, SIMILAR TO MILLSTONE POINT. SHOULD THE CONTINUOUS MONITOR FOR STACK GAS GROSS ACTIVITY BE INOPERABLE REACTOR SHALL BE ISOLATED.

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

MONTICELLO (BWR) + *TECHNICAL SPECIFICATIONS + FAILURE, EQUIPMENT + MONITOR, STACK + REACTOR, BWR

17-30213 ALSO IN CATEGORY 11
SELECTED ELK RIVER OPERATING EXPERIENCE
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-65 +. 19 PAGES, AUGUST 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ALUMINUM REFERENCE CHAMBERS WERE FOUND TO LEAK DURING CONTAINMENT PRESSURE TESTS AND WERE REPLACED BY COPPER CHAMBER BECAUSE THAT DUCTILE MATERIAL COULD WITHSTAND MORE PHYSICAL ABUSE. NO FURTHER WORK WAS DONE ON PRIMARY SYSTEM LEAK DETECTION WHILE WAITING FOR DECISION.

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

ELK RIVER (BWR) + REPORT, OPERATIONS + *CONTAINMENT REFERENCE MEASURING SYSTEM + TEST, LEAK RATE + REACTOR, BWR

17-30215
CITATION FOR EXCEEDING REACTIVITY LIMIT
U.S. ATOMIC ENERGY COMMISSION
1. PAGE, LETTER TO S.R. ASTINALL, UNION CARBIDE CORP., DEC. 27, 1968, DOCKET 50-54

ON OCTOBER 22 INSPECTION REVEALED THAT ON MAY 16, 1968, AN EXPERIMENTAL SAMPLE WORTH 0.25 PERCENT DK/K WAS INSERTED, DESPITE THE LIMIT OF 0.15 PERCENT. *** THE SENIOR INSPECTOR ALSO DISCUSSED WITH YOU HIS CONCERN ABOUT THE EFFECTIVENESS OF THE VCC LABORATORY MANAGEMENT SYSTEM FOR AUDITING FACILITY OPERATIONS. *** SUBMIT A WRITTEN STATEMENT OF CORRECTIVE STEPS, AND PLEASE COMMENT ON YOUR AUDIT SYSTEM.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30215 *CONTINUED*
SAFETY REVIEW + COMPLIANCE + *REACTIVITY, EXCESS + FAILURE, ADMINISTRATIVE CONTROL + *IRRADIATION TESTING + REACTOR, RESEARCH

17-30216 ALSO IN CATEGORY 9
CONTROL ROD SWELLING
UNION CARBIDE CORPORATION
1 PAGE, LETTER TO DRL, DEC. 19, 1968, DOCKET 50-54

ROUTINE QUARTERLY INSPECTION OF CONTROL RODS ON DEC. 13 SHOWED SERIAL NUMBER 1 ROD HAD SWELLED MORE THAN 0.055 IN. BUT LESS THAN 0.075. THIS ROD HAS HAD ABOUT 1300 MWD SERVICE. *** CLOSE INSPECTION SHOWED A SINGLE PIT MARK IN A WELD, WHICH PROBABLY ADMITTED WATER WHICH DECOMPOSED. THE OTHER RODS IN THE ORIGINAL COMPLEMENT WILL BE INSPECTED FOR SIMILAR CORROSION.

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

*CONTROL ROD + EXAMINATION + CARBIDE + WELDS + REACTOR, RESEARCH + BORON + DAMAGE + CONTROL ROD BURNUP + CORROSION + *EXPANSION + LEAK

17-30217
AMENDMENT 11 - DISMANTLING OF THERMAL CRITICAL ASSEMBLY FACILITY
U.S. ATOMIC ENERGY COMMISSION
10 PAGES, LETTER TO B.D. WILSON, G.E., FEBRUARY 29, 1968, DOCKET 50-24

AUTHORIZES GE TO STORE DISMANTLED PARTS IN THE CELL OF THE CRITICAL EXPERIMENT FACILITY BUILDING, EXTENDS LICENSE TO MAR. 29, 1970.

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

*DECOMMISSIONING + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS

17-30218
PROPOSED CHANGE 14 - INERT ATMOSPHERE
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO M.C. BECKMAN, PRDC, DEC. 16, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

WAIVER OF ATMOSPHERIC PURITY (DURING REPLACEMENT OF BOOT SEAL IN PRIMARY SHIELD TANK) IS NOT JUSTIFIED BECAUSE OF GRAPHITE DAMAGE DURING OUTGASSING. *** REFERS TO NATIONAL CARBON CO. CURVE OF BORON LOSS VS TEMPERATURE AND MOISTURE. REFERS TO NUCLEAR METALLURGY (1963 VOL. IX) FOR OTHER INFORMATION. *** SUGGESTS ALTERNATE PLANS BE SUBMITTED.

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

FERMI (LMFBR) + MAINTENANCE AND REPAIR + SEAL + REACTOR, LMC + *REFLECTOR + REACTOR, LMFBR + TECHNICAL SPECIFICATIONS + SHIELDING + REACTOR, BREEDER + REACTOR, FAST + PRESSURE VESSEL + *BORON + *GRAPHITE + DAMAGE

17-30219
PSU REACTOR CHANGES, 1967
PENNSYLVANIA STATE UNIVERSITY
4 PAGES, 2 FIGURES, LETTER TO DRL, FEBRUARY 29, 1968, DOCKET 50-5

AN AUXILIARY GAMMA DETECTOR (ALARMS AT 50 MR/HR) WAS INSTALLED ON THE BRIDGE TO ALLOW 1 MW OPERATION WITHOUT THE DIFFUSER, THE BRIDGE BEING ROPE OFF AND PROTECTED WITH A PHOTOCELL ALARM CIRCUIT (10 CFR 20.C.21). TRANSIENT ROD AIR SUPPLY HOSE SHORTENED TO DECREASE ROD EJECTION TIME.

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

REPORT, OPERATIONS SUMMARY + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PULSED + *CONTROL ROD DRIVE + TRIGA (RR) + REACTOR, RESEARCH + *MONITOR, AREA

17-30220 ALSO IN CATEGORY 5
DESIGN AND OPERATING CHARACTERISTICS - INDIAN POINT I, CORE B CYCLE 3
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
11 PAGES, 2 FIGURES, 2 TABLES, 6 REFERENCES, LETTER TO P.A. MORRIS, DRL, DEC. 4, 1968, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

ONE THIRD OF THE FUEL WILL BE REMOVED IN FEB. 1969 AND NEW FUEL ADDED TO THE PERIPHERY. SUFFICIENT INITIAL TESTING SIMILAR TO THAT FOR CYCLE 2 WILL DEMONSTRATE COMPLIANCE WITH TECHNICAL SPECIFICATIONS. SOME ONCE BURNED FUEL WILL BE PLACED IN CORE CENTER TO IMPROVE POWER PEAKING. CYCLE 3 BURNUP IS PREDICTED AT 9700 MWD/MTU; TOTAL PEAKING FACTOR 3.55, TOTAL CONTROL ROD WORTH 111, AND FULL POWER EQUIL. XENON BORON AT 1200 PPM.

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

FUEL BURNUP + REACTOR, PWR + INDIAN POINT 1 (PWR) + POWER DISTRIBUTION + *REFUELING

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30221
PATHFINDER CHANGE 18 - USE OF TURBINE WITH FOSSIL FUEL
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO L.O. MAYER, NS POWER, DEC. 17, 1968, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

ALLOWS SEPARATION OF TURBINE STEAM AND FEEDWATER PIPING FROM REACTOR, AND DECONTAMINATION AS PROPOSED IN LETTER OF NOV. 1, 1968.

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

*PIPING + *DECONTAMINATION + PATHFINDER (ISR) + DECOMMISSIONING + TURBINE + REACTOR, INTERNAL SUPERHEAT + TECHNICAL SPECIFICATIONS

17-30222
REPORT TO DRL ON VPI REACTOR ALTERATIONS
VIRGINIA POLYTECHNIC INSTITUTE
29 PAGES, 3 FIGURES, SEPTEMBER 1968, DOCKET 50-124

ALTERATIONS WERE APPROVED IN JUNE 1966 AND COMPLETED NOV. 21, 1966, TO ALLOW UPGRATING FROM 10 TO 100 KW OF THIS BASIC UTR-10, BUILT 1959. *** SHIELDING OF COOLANT LINES WAS NECESSARY, AND STANDARD SHIELDING INCREASED. EXHAUST FAN FOR REACTOR ROOM PLUS VENTS FOR THE GRAPHITE MODERATOR MINIMIZE AR-41 IN THE ROOM AND MOISTURE IN THE CORE TANKS. A 1 CURIE PU-BE SOURCE HAS BEEN USED SINCE 1959. AT 1 WATT THE SOURCE IS WITHDRAWN, BUT ITS ABSORPTION PROPERTIES NEGATES ANY EFFECT ON INSTRUMENTS. AFTER A FEW HOURS AT 100 KW, IT WAS NOTED DISCONNECTED. NO SWELLING OCCURRED. A SHIELDED WINDOW WAS ADDED TO VERIFY SOURCE WITHDRAWAL. FOLLOWING MODERATOR DUMP, FUEL CLAD TEMPERATURE RISES ONLY 2.5 F.

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

ARGON + SCRAM, REAL + VENTILATION SYSTEM + *POWER UPGRATING + REACTOR, RESEARCH + SOURCE, NEUTRON + TEMPERATURE TRANSIENT + *REPORT, OPERATIONS ANALYSIS + MEASUREMENT, GENERAL + SHIELDING + FUEL ELEMENT

17-30223 ALSO IN CATEGORIES 6 AND 9
STARTUP ON SPONTANEOUS FISSION
CORNELL UNIVERSITY
2 PAGES, LETTER TO H.L. PRICE, DRL, FEBRUARY 15, 1968, DOCKET 50-97

NORMALLY WE USE A ONE CURIE PU-BE SOURCE, GIVING 1.9×10^{16} TH N/SEC. USING THE 2.11 ENRICHED FUEL, WE HAVE A SPONTANEOUS FISSION YIELD BETWEEN 15,620 AND 7510 N/SEC, MORE THAN 21 THAT OF THE SOURCE. THE IMPORTANCE OF A NEUTRON PRODUCED IN THE CORE IS MUCH GREATER THAN FROM THE SOURCE. EXPERIENCE SHOWS THE SAFETY INSTRUMENTS QUITE RESPONSIVE TO THE SPONTANEOUS FISSIONS, WHICH IS THEREFORE ADEQUATE AS A STARTUP SOURCE. FOR FUTURE EXPERIMENTS, THE SOURCE WILL PROVIDE AN UNDESIRABLE BACKGROUND EVEN WHEN STORED.

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

TECHNICAL SPECIFICATIONS + *REACTOR STARTUP, LOW SOURCE + CRITICALITY EXPERIMENT

17-30224 ALSO IN CATEGORIES 9 AND 16
USE OF METEOROLOGY INSTRUMENTATION FOR ON SITE EMERGENCY
UNIVERSITY OF VIRGINIA
1 PAGE, LETTER TO DRL, DEC. 20, 1968, DOCKET 50-62

FOLLOWING OUR OCT. 21/NOV. 21 LETTERS PROPOSING TO REMOVE OUR WEATHER STATION, WE UNDERSTAND THERE IS SOME DRL CONCERN REGARDING THE NEED TO KNOW WIND DIRECTION DURING EMERGENCY EVACUATION. WHILE WE BELIEVE THE POSSIBILITY OF SUCH EVACUATION IS REMOTE, WE WILL RETAIN A WIND VANE AND ANEMOMETER, WITH INDICATION ON THE FIRST FLOOR REACTOR BUILDING.

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

TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + REACTOR, POWER + *EMERGENCY PROCEDURE + *INSTRUMENT, METEOROLOGICAL

17-30225
REQUEST AUTHORITY TO RESUME 1 MW OPERATION
UNIVERSITY OF VIRGINIA
2 PAGES, LETTER TO P.A. MORRIS, DRL, DEC. 14, 1968, DOCKET 50-62

17 FUEL ELEMENTS WERE SHIPPED FOR REPROCESSING, AND 8 STORED IN HOT CELL WHILE REACTOR POOL DRAINED FOR REPAIRS. CONCRETE IMMEDIATELY ADJACENT TO THE POOL GATES HAD CRACKS, WHICH PENETRATED THE EPOXY, AND THERE WERE GAPS BETWEEN GATE FRAME AND CONCRETE AS WELL AS HONEY COMBED AREAS AROUND GATE FRAME. THE ENTIRE POOL HAD BEEN PRESSURE GROUTED IN 1959, INEFFECTIVE HERE. GUNITE WITH WIRE MESH REPLACED THE CONCRETE CHIPPED OUT, WITH FARBOIL EPOXY FOR COATING. A 24 HOUR LEAK CHECK WITH PLASTIC SHEET OVER THE POOL SHOWED 15 GAL LOST. REQUEST PERMISSION TO RESUME OPERATING.

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

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30225 *CONTINUED*
REACTOR, POOL TYPE + LEAK + *FAILURE, INSTALLATION ERROR + *MAINTENANCE AND REPAIR + *FUEL STORAGE + CONCRETE
+ REACTOR, RESEARCH

17-30226
AMENDMENT 3 - UPRATING OF TRIGA TO 250 KW
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER TO S.J. GAGE, TEXAS UNIVERSITY, FEBRUARY 20, 1968, DOCKET 50-192

ALLOWS OPERATION UP TO 250 KW.

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

REACTOR, RESEARCH + *POWER UPRATING + TRIGA (RR) + TECHNICAL SPECIFICATIONS

17-30227 ALSO IN CATEGORY 9
NBS REACTOR OPERATIONS REPORT 2 JULY-SEPT. 1968
U.S. DEPT. OF COMMERCE
21 PAGES, 4 TABLES, NOVEMBER 19, 1968, DOCKET 50-184

SUMMARIZES LOW POWER PHYSICS TESTS ON FULL CORE. SHADOWING REDUCES SHIM ROD WORTH BY 30% (SHIM 1 MEASURES \$8.9, YET CONTROLS \$12.6 WHEN OTHER RODS OUT). BEAM PORTS GAIN REACTIVITY (UP TO \$0.24) WHEN FLOODED WITH D2O, LOSE REACTIVITY (UP TO \$0.11) WHEN FLOODED WITH H2O. ***REPORT LISTS MAINTENANCE, MODIFICATIONS, SURVEILLANCE TESTS AND PLANT CHANGES (NONE).

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

REACTOR, HWR + REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + NBS + CONTROL ROD INTERACTION + REACTIVITY EFFECT + BEAM HOLE + *REACTOR STARTUP TESTING

17-30228 ALSO IN CATEGORY 5
AMENDMENT 1 - HIGH POWER DENSITY ELEMENTS
U.S. ATOMIC ENERGY COMMISSION
9 PAGES, 2 TABLES, LETTER TO R.L. HAUETER, CONSUMERS POWER CO., MARCH 12, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

REVISIONS TO TECHNICAL SPECIFICATIONS FOR 6 FUEL BUNDLES WHICH MAY OPERATE WITH VARYING DEGREES OF CENTERLINE MELTING (3 PELLET TYPE, 3 POWDER TYPE) ALL AT 500,000 BTU/HR-SQ FT, 3 AT 26.8 AND 2 AT 2.18 KW/FT. 3E TO HAVE A PHYSICIST PRESENT FOR INITIAL STARTUP FOLLOWING EACH RELOADING. FUEL TO BE EXAMINED EACH REFUELING FOR DIMENSIONAL CHANGES.

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

*CENTERLINE MELTING + BIG ROCK POINT (BWR) + *PERFORMANCE LIMIT + *FUEL ELEMENT + TECHNICAL SPECIFICATIONS + EXAMINATION + REACTOR, BWR + ADMINISTRATIVE CONTROL

17-30229 ALSO IN CATEGORIES 5 AND 18
AMENDMENT 1 - OPERATION WITH CENTERLINE MELTING FUEL
U.S. ATOMIC ENERGY COMMISSION
20 PAGES, NOTICE TO FEDERAL REGISTER, JANUARY 30, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

3 POWDER AND 3 PELLET TYPE ELEMENTS WILL BE IRRADIATED AT 25.4 KW/FT TO 21,000 MWD/MTR IN AN EXTENSION OF THE AEC HIGH PERFORMANCE UO2 PROGRAM. SOME RODS CONTAIN TUNGSTEN WAFERS TO MINIMIZE AXIAL MOTION OF MOLTEN FUEL. POWER WILL BE LIMITED TO 0.5 MWTH/MIN ABOVE 170 MWTH TO ALLOW TIME FOR FUEL MIGRATION AND SINTERING. ACCIDENT ANALYSES REVIEWED. ACRS RECOMMENDS REMOVED RODS NOT BE RETURNED UNTIL SOME ARE DESTRUCTIVELY EXAMINED, IN-SERVICE PIPING INSPECTION BE EXPEDITED AS WELL AS OTHER PROTECTIVE MEASURES.

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

*CENTERLINE MELTING + *IRRADIATION TESTING + FUEL, POWDER TYPE + FUEL ELEMENT + REACTOR, BWR + FUEL SEGREGATION + SAFETY EVALUATION + PERFORMANCE LIMIT + TECHNICAL SPECIFICATIONS + ACRS + FUEL, PELLET TYPE + BIG ROCK POINT (BWR)

17-30231
CHANGE 1 - USE OF PIN TYPE FUEL
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO L.W. WHEELER, ATOMICS INTERNATIONAL, NOVEMBER 27, 1968, DOCKET 50-147

ALLOWS USE OF PIN TYPE FUEL IN THE CENTRAL (12X6X6) IN TEST HOLE, ASSEMBLED OF MATERIAL (UO2, UC, U METAL, U-AL) SIMILAR TO THE PLATE TYPE MATERIAL NOW USED. REACTOR IS EPITHERMAL CRITICAL EXPERIMENT LABORATORY.

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REACTOR, FLUX TRAP + CRITICAL ASSEMBLY FACILITY + FUEL ELEMENT + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30232

MINOR WATER SPILL AT SAXTON
SAXTON NUCLEAR EXPERIMENTAL CENTER
2 PAGES, LETTER TO P.A. MORRIS, DRL, DEC. 10, 1968, DOCKET 50-146, TYPE--BWR, MFG--WEST., AE--GILBERT ASSOC.

ON NOV. 26, 1968, ABOUT 40 GAL OF WATER WAS SPILLED ON THE FLOOR OF THE SAFETY INJECTION SYSTEM PUMPHOUSE WHILE BEING TRANSFERRED FROM THE STORAGE WELL TO THE REFUELING WATER STORAGE TANK. ONE GAL SEEPED OVER THE DOOR SILL INTO THE YARD, RELEASING 10 MICROCURIES OF ACTIVITY. EARTH WAS DUG UP AND DRUMMED. ***OPERATING PERSONNEL FAILED TO RECONNECT A PRESSURE GAGE LINE TO ITS SHUTOFF VALVE, WHICH HAD BEEN REMOVED TO VENT A LINE BEING DRAINED.

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

FAILURE, OPERATOR ERROR + REACTOR, PWR + LEAK + *CONTAMINATION + SAXTON (PWR) + MAIN COOLING SYSTEM

17-30234

ANNUAL REPORT OF FACILITY CHANGES
WORCESTER POLYTECHNIC INSTITUTE
1 PAGE, LETTER TO DRL, NOVEMBER 26, 1968, DOCKET 50-134

REACTOR OPERATED AT 10 KW FIRST TIME JAN. 31, 68. REPORTED TO AEC FEB. 5, 68. AR-41 DISCHARGE IS LESS THAN 4 MICROCURIES/MIN, COMPARED WITH 20 POSTULATED IN JULY 17, 68, SAFETY ANALYSIS. EXCEPT FOR ITEM IN LETTER OF OCT. 3, 68, NO SIGNIFICANT CHANGES MADE.

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

*POWER UPGRATING + REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + OFF GAS + *SOURCE, CONTINUOUS + *ARGON

17-30235

ALSO IN CATEGORY 5
PROPOSED CHANGE 24 - NEW CRITICAL HEAT FLUX CORRELATION
PACIFIC GAS AND ELECTRIC COMPANY
5 PAGES, LETTER TO DRL, DEC. 23, 1968, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

REQUESTS REVISED TECH. SPECS. TO SUBSTITUTE THE SEPT. 1966 (APED-5286) 9-ROD CRITICAL HEAT FLUX CORRELATION FOR THE 1962 (APED-3892) BURNOUT LIMIT CURVES. AUTHORIZATION IS REQUESTED AS SOON AS POSSIBLE SO THAT CURRENT RESTRICTIONS ON OPERATION MAY BE REMOVED.

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

SAFETY MARGIN + REACTOR, BWR + HUMBOLDT BAY (BWR) + REACTOR POWER + *HEAT TRANSFER CORRELATION + TECHNICAL SPECIFICATIONS

17-30237

DRL AUTHORIZES DISMANTLING OF PIQUA REACTOR
U.S. ATOMIC ENERGY COMMISSION
5 PAGES, LETTER TO K.V. SEYFRIT, PIQUA, DEC. 16, 1968, DOCKET 115-2, TYPE--OCR, MFG--A.I., AE--A.I.

PNPF RETIREMENT PLAN AND SAFETY ANALYSIS REPORT SUBMITTED SEPT. 3, 1968, ARE ACCEPTED. ENTOMBMENT OF 60,000 CURIES OF FE-55 AND CO-60 IN ACTIVATED REACTOR STRUCTURE WILL REQUIRE ANTICORROSION MEASURES (NEW CONCRETE FLOOR ABOVE BIOLOGICAL SHIELDING, WATERPROOFING, PROVISION OF A BUILDING SUMP PUMP AND WATER LEVEL ALARM. ALL RESTRICTIONS ON ENTERING THE COMPLEX COULD BE REMOVED IN 120 YEARS.

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

REACTOR, ORGANIC COOLED + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + PIQUA (OCR) + *DECOMMISSIONING

17-30238

HALLAM NUCLEAR POWER FACILITY MONTHLY RETIREMENT REPORT NO. 26 SEPT. 1968
CONSUMERS PUBLIC POWER DISTRICT
30 PAGES, FIGURES, TABLES, SEPT. 1968, DOCKET 115-3, TYPE--LMR, MFG--A.I., AE--BECHTEL

ONE OF A SERIES OF MONTHLY REPORTS. SINCE REACTOR IS BEING DISMANTLED, MORE-APPROPRIATE INFORMATION DEALS WITH MAINTENANCE, CORE-ELEMENT TRANSFERS, RADIATION SAFETY AND CONTROL. EACH DAYS WORK BRIEFLY SUMMARIZED.

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

DECOMMISSIONING + REACTOR, LMCR + REACTOR, GRAPHITE MODERATED + HALLAM (LMR) + *REPORT, OPERATIONS

17-30239

IRRADIATION OF SOLAR CELLS COOLED BY LN-2
GULF GENERAL ATOMIC
4 PAGES, LETTER TO D.J. SKOVHOLT, DRL, DEC. 3, 1968, DOCKET 50-253

REQUESTS WAIVER OF TECH. SPEC. REQUIREMENT THAT CRYOGENIC MATERIALS BE NO CLOSER TO REACTOR THAN 1

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30239 *CONTINUED*

METER, IN ORDER TO PULSE AND STEADY STATE IRRADIATE SOLAR CELLS MAINTAINED AT LIQUID N₂ TEMPERATURE. CELLS ARE 3 IN. FROM CORE INSIDE A LEAD SHIELD AND ALSO EXPOSED TO LIGHT BEAMS. THE REACTIVITY EFFECT OF THE ASSEMBLY IS \$1.20. PROTECTIVE SHIELDS KEEP ANY RELEASED LIQUID N₂ FROM CONTACTING THE REACTOR.

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

NITROGEN + TECHNICAL SPECIFICATIONS + REACTIVITY EFFECT + *IRRADIATION FACILITY + REACTOR, RESEARCH + *CRYOGENICS + REACTOR, PULSED + TRIGA (RR)

17-30240 ALSO IN CATEGORY 9

AMENDMENT TO AGN-201 LICENSE

THE UNIV. OF NEW MEXICO

25 PAGES, FIGURES, TABLES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 11, 1968, DOCKET 50-252

REQUESTS PERMISSION TO - (1) RELOCATE AGN-201 TO NEW ENGINEERING CENTER BUILDING 90 YARDS AWAY (NOT REQUIRING A NEW SITE EVALUATION). (2) INCREASE POWER FROM 0.1 TO 5 WATTS (AS AT OTHER SIMILAR FACILITIES). (3) UPDATE I AND C SYSTEM (AS DONE AT ANL AGN-201, REPLACING SENSITROL SCRAM RELAYS WITH ELECTRONIC TRIPS, REVISING STARTUP CHANNEL TO COVER ENTIRE RANGE). (4) MAKING CHANGES TO PERMIT PULSING WITH A 14 MEV (D,T) SOURCE (AS WAS ALLOWED IN 1963-64 WHEN THE REACTOR WAS OPERATED AT THE BERKELEY CAMPUS). ***REPORT DESCRIBES MODIFICATIONS AND THEIR EFFECTS ON PERSONNEL SAFETY.

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

REACTOR, PULSED + *MODIFICATION, SYSTEM OR EQUIPMENT + *REACTOR SAFETY SYSTEM + *POWER UPGRATING + SOURCE, NEUTRON + TECHNICAL SPECIFICATIONS + AGN (TNG) + ACCELERATOR + INSTRUMENT, STARTUP RANGE

17-30241 ALSO IN CATEGORY 7

PROPOSED CHANGE 20 - DELETION OF SILVER PLATED COPPER FILTERS

FIRST ATOMIC SHIP TRANSPORT INC.

4 PAGES, 1 FIGURE, LETTER TO P.A. MORRIS, DRL, DEC. 10, 1968, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

REQUESTS DELETION OF AG-PLATED CU-RIBBONS FROM EITHER END OF CHARCOAL FILTERS IN THE VENTILATION SYSTEM. EXISTING FILTERS HAVE BEEN USED 2 YEARS AND ARE CAPABLE OF IODINE REMOVAL EFFICIENCY GREATER THAN TECH SPEC REQUIREMENTS. USE OF METAL TRAYS AND A PREFILTER WILL DECREASE INTERNAL LEAKAGE. ***DEPOSITED ORGANIC MATERIAL WAS FOUND TO COME FROM DIESEL EXHAUST AND CONTROL ROD HYDRAULIC OIL VOLATILIZED ABOVE 250 F. ***HACL COLD IODINE TESTS WERE DROPPED WHEN THEIR FINANCIAL SUPPORT WAS WITHDRAWN.

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

SILVER + VENTILATION SYSTEM + *FILTER + CONTAINMENT, HIGH PRESSURE + *CHARCOAL + REACTOR, PWR + NS SAVANNAH (PWR) + TECHNICAL SPECIFICATIONS + COPPER + REACTOR, MARITIME + *ORGANIC IODIDE + TEST, FILTER

17-30242

TRIGA III TECHNICAL SPECIFICATIONS FOR IRRADIATION OF DIRECT CONVERSION DEVICES

GULF GENERAL ATOMIC

3 PAGES, LETTER TO D.J. SKOVHOLT, DRL, DEC. 3, 1968, DOCKET 50-227

IDENTICAL TO THAT APPROVED EARLIER FOR TRIGA MARK F, BASED ON GA-7568, DIRECT CONVERSION DEVICE AND SAFETY ANALYSIS REPORT. ***LIMITS ARE 3 DEVICES IRRADIATED AT ONCE, 100 GRAMS U-235 PER DEVICE, 10,000 HOURS IRRADIATION, SCRAMS ON CONTAINMENT TUBE TEMPERATURE ABOVE 1000 C OR COOLANT FLOW DROPS OR REACTOR ROOM ABOVE 50,000 CPM.

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

*IRRADIATION TESTING + REACTOR, RESEARCH + *DIRECT ENERGY CONVERSION DEVICES + TRIGA (RR) + *TECHNICAL SPECIFICATIONS

17-30243 ALSO IN CATEGORIES 10 AND 12

CITATION FOR UNSATISFACTORY DIESEL PERFORMANCE

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO S.R. KNAPP, CONN. YANKEE AT. POWER CO., DEC. 20, 1968 DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INSPECTION NOV. 14 AND DEC. 3, 1968, REVEALED THAT FAILURE OF AN ENGINEERED SAFEGUARD WAS NOT REPORTED TO THE AEC, AS REQUIRED BY THE LICENSE. DIESELS FAILED FOLLOWING AUTOMATIC STARTING AND LOADING DURING THE APRIL 27, 68, LOSS OF SITE POWER. IN ADDITION THE DIESELS OPERATED UNSATISFACTORILY ON 3 OCCASIONS. TESTS PERFORMED SINCE DO NOT SIMULATE THE APRIL 68 CONDITIONS, AND THE REACTOR WAS RESTARTED APRIL 27 FOLLOWING THE DIESEL FAILURES WITHOUT THE DIESELS BEING TESTED AND WITHOUT ADEQUATE REVIEW OF THE SIGNIFICANCE OF THE DIESEL FAILURE. PLEASE PROVIDE US WITH A REPORT OF THE FAILURE OF THE DIESEL POWER SYSTEM ON APRIL 27.

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

FAILURE, ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + HADDAM NECK (PWR) + TEST, SYSTEM OPERABILITY +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30243 *CONTINUED*
ACCIDENT, LOSS OF POWER + SURVEILLANCE PROGRAM + REACTOR, PWR + *INCIDENT, EQUIPMENT + *EMERGENCY POWER,
ELECTRIC + GENERATOR, ENGINE

17-30244 ALSO IN CATEGORY 11
MAIN STEAM ISOLATION VALVE PACKING
CONNECTICUT YANKEE ATOMIC POWER COMPANY
1 PAGE, LETTER TO DRL, DEC. 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROPOSED CHANGE 9 (NOV. 12, 1968) REQUESTED TEST INTERVAL FOR MAIN STEAM VALVE BE INCREASED FROM WEEKLY TO MONTHLY, WITH TUNED CLOSURE BEING DONE DURING REFUELING. ***THE VALVE PACKING IS GRAPHITE IMPREGNATED AND CONTAINS A SACRIFICIAL METAL BECAUSE OF GRAPHITE CORROSIVE AGENT. TO ELIMINATE NEED FOR PERIODIC REPACKING, ON A RECENT MAINTENANCE SHUTDOWN WE REPLACED THE PACKING WITH A NEW DESIGN THAT HAS THE SAME ANTICORROSION CAPABILITIES YET DOES NOT NEED A SACRIFICIAL RING. ***WE REQUEST YOU DELAY ACTION ON THIS CHANGE UNTIL WE NOTIFY YOU THIS PACKING HAS AN ACCEPTABLE SERVICE HISTORY.

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

FAILURE, COMPONENT + HADDAM NECK (PWR) + *TEST INTERVAL + *CONTAINMENT PENETRATION, PIPE + REACTOR, PWR + *SEAL + TECHNICAL SPECIFICATIONS + *VALVE + CONTAINMENT ISOLATION

17-30245 ALSO IN CATEGORY 5
LOSS OF FLOW ACCIDENT AT 1825 MWTH
CONNECTICUT YANKEE ATOMIC POWER COMPANY
9 PAGES, 6 FIGURES, AMENDMENT 19 TO HADDAM NECK LICENSE APPLICATION, DEC. 3, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED SAR PAGES (SECTION 10.3.2) WHICH NOW INCLUDE LOSS OF FLOW AT 1825 MWTH BY LOSS OF ALL 4 PUMPS. W-3 DNB RATIO DROPS TO 1.3 AT 4 SEC, BUT NO CLAD DAMAGE RESULTS.

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

*ACCIDENT, LOSS OF FLOW + REPORT, SAR + *DNB + POWER UPRATING + HADDAM NECK (PWR) + REACTOR, PWR

17-30246 ALSO IN CATEGORIES 13 AND 15
CHANGE 9 - USE OF KR-85 CHECK SOURCES
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO NFS AND NY S-A SDA, DEC. 31, 1968, DOCKET 50-201

APPROVED USE OF KR-85 TO PERMIT GREATER FLEXIBILITY IN CALIBRATION AND FUNCTIONAL CHECKS OF THE GAS SECTION OF THE STACK MONITOR. KR-85 TO BE USED IS 0.02% OF THE AMOUNT THAT MAY BE RELEASED DAILY UNDER NFS TECHNICAL SPECIFICATIONS. ALLOWS POSSESSION OF 3 CURIES KR-85.

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

NFS + KRYPTON + TECHNICAL SPECIFICATIONS + FUEL REPROCESSING + RADIOACTIVITY RELEASE + *MONITOR, STACK + *MONITOR, GAS + BYPRODUCT MATERIAL + *INSTRUMENT CALIBRATION

17-30247 ALSO IN CATEGORY 1
SPENT FUEL STORAGE AT B AND W REACTOR
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO W.M. BREAZELE, B AND W CO., DEC. 19, 1968, DOCKET 50-200

ALLOWS STORAGE OF SPENT FUEL OUTSIDE REACTOR CONTAINMENT UNDER PROVISIONS OF SNM-778, REMOVING TECHNICAL SPECIFICATION LIMITATION OF 40 ELEMENTS, THUS ALLOWING STORAGE UP TO 140 ELEMENTS.

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

SPECIAL NUCLEAR MATERIAL + REACTOR, TEST + REACTOR, RESEARCH + *FUEL STORAGE + *CONTAINMENT, GENERAL + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-30248 ALSO IN CATEGORY 9
PROPOSED TECH SPEC CHANGE - TEMPERATURE ALARM SETPOINT
RHODE ISLAND NUCLEAR SCIENCE CENTER
1 PAGE, LETTER TO DRL, DEC. 10, 1968, DOCKET 50-193

SINCE THE COOLANT TEMPERATURE RISE ACROSS THE CORE AT 2 MW IS 8 F, THE ALARM SETPOINTS OF 110 F (INLET) AND 123 F (OUTLET) ARE INCONSISTENT. RAISING THE INLET ALARM SETPOINT TO 115 F HAS NO EFFECT ON SAFETY.

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

*SETPPOINT + REACTOR, RESEARCH + MAIN COOLING SYSTEM + TECHNICAL SPECIFICATIONS + *INSTRUMENT, TEMPERATURE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30249 ALSO IN CATEGORIES 5 AND 12
REPORT ON HADDAM NECK POWER UPGRATING
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
2 PAGES, LETTER TO G.T. SEABORG, AEC, DECEMBER 12, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ACRS APPROVES UPGRATING FROM 1473 TO 1825 MWTH. IN A YEAR WHEN THE NEXT CORE IS INSTALLED, NEW DIESELS AND IMPROVED EMERGENCY CORE COOLING WILL HAVE BEEN INSTALLED. AT THIS TIME, THE LOSS OF COOLANT ACCIDENTS SHOULD BE REANALYZED (BECAUSE OF CHANGED POWER DISTRIBUTION) AND REVIEWED BY REGULATORY STAFF.

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

EMERGENCY COOLING CONSIDERATIONS + TECHNICAL SPECIFICATIONS + HADDAM NECK (PWR) + REACTOR, PWR + POWER UPGRATING + SAFETY REVIEW + ACCIDENT, LOSS OF COOLANT + ACRS + MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE

17-30250 ALSO IN CATEGORIES 1 AND 15
AEC AMENDS REPORTING REQUIREMENTS FOR RADIATION EXPOSURE INFORMATION
U.S. ATOMIC ENERGY COMMISSION
AEC PRESS RELEASE L-285 +. 1 PAGE, DECEMBER 18, 1968

10 CFR 20 AMENDMENTS WERE PUBLISHED IN THE FEDERAL REGISTER (DEC. 19, 1968) TO REQUIRE ANNUAL REPORTS TO THE AEC (FROM INDUSTRIAL OPERATIONS) OF INDIVIDUAL DOSES FOR CENTRALIZED RECORD KEEPING.

REACTOR, RESEARCH + REACTOR, POWER + REGULATION, AEC + *RADIATION EXPOSURE, RECORD KEEPING + BYPRODUCT MATERIAL

17-30251
REQUEST TO EXTEND SAXTON OPERATING LICENSE TO 1972
SAXTON NUCLEAR EXPERIMENTAL CORP.
1 PAGE, LETTER TO D.J. SKOVHOLT, DRL, NOVEMBER 27, 1968, DOCKET 50-136

PROVIDES CURRENT CORPORATE FINANCIAL DATA ON GENERAL PUBLIC UTILITIES, STATES SNEC CONTRACT WILL BE EXTENDED TO MAY 1974, AND ASKS THAT LICENSE EXPIRATION DATE BE EXTENDED TO DEC. 31, 1972. ***10 CFR 50 ASKS FOR ESTIMATE OF SHUTDOWN COSTS. PLANS HAVE NOT BEEN MADE, BUT ASSUMING THEY ARE SIMILAR TO THOSE FOR CVTR, SHOULD NOT EXCEED \$250,000 WITH AN ANNUAL MAINTENANCE COST OF \$5000.

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

REACTOR, PWR + REACTOR, HWR + CVTR (PWR) + SAXTON (PWR) + REACTOR, PRESSURE TUBE + ECONOMICS + TECHNICAL SPECIFICATIONS + DECOMMISSIONING + LICENSE STATUS

17-30258 ALSO IN CATEGORIES 5 AND 10
ANALYSIS OF A LARGE LOSS OF COOLANT ACCIDENT IN THE CONNECTICUT YANKEE REACTOR
CONNECTICUT YANKEE ATOMIC POWER COMPANY
20 PAGES, 11 FIGURES, 17 REFERENCES, LETTER TO DRL (SUPPLEMENT 2 TO PROPOSED CHANGE 7), NOVEMBER 22, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

(1) CHANGES MADE IN TABLE TO SHOW ACTUAL CONDITIONS AT 1473 MWTH, AS WELL AS REQUESTED 1825. (2) ADDED PARAGRAPH TO TS BASIS 3.10 (TO FIX 24 HOURS AS A LIMIT FOR OPERATION FOLLOWING A DROPPED OR STUCK ROD). (3) ACTUAL ANALYSIS PRESENTED FOR DOUBLE ENDED SEVERANCE, 3 SQ FT AND 0.5 SQ FT BREAKS TO SHOW MAX. CLAD TEMPERATURES 25-0, 2070, AND 2460 F. MODEL DESCRIBED INCLUDES BLOWDOWN (FLASH-R), POWER TRANSIENT DURING BLOWDOWN (CHIC-KIN), AND CORE COOLING (LOCTA-R2). RESULTS ARE GRAPHS OF FLUID VOLUME, REACTOR POWER, FILM COEFFICIENT, AND CLAD HOT SPOT TEMPERATURE FOLLOWING BREAK.

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

FUEL ELEMENT + *POWER UPGRATING + *ACCIDENT, LOSS OF COOLANT + HADDAM NECK (PWR) + MATHEMATICAL STUDY + TEMPERATURE TRANSIENT + ACCIDENT ANALYSIS + COMPUTER PROGRAM + REACTOR, PWR + TECHNICAL SPECIFICATIONS

17-30260
NS SAVANNAH PRIMARY SYSTEM LEAK
FIRST ATOMIC SHIP TRANSPORT, INC.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15(2), PAGE 14, JAN. 13, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

(LETTER DEC. 31.) ON NOV. 25 ENROUTE BILBAO TO CARTAGENA, SPAIN, AN UNEXPLAINED RISE IN THE CONTAINMENT DRAIN TANK LEVEL INDICATED A 5 GPH PRIMARY SYSTEM LEAK. ISOLATION WAS UNSUCCESSFUL. ON DEC. 4, INDICATION INCREASED TO 9 GPH, AND REACTOR SHUTDOWN AT ARRIVAL IN PIRAEUS, GREECE. HINGE PIN PLUG ON VALVE DK-39V CONTAINED AN OLD HAIRLINE CRACK. A NEW PLUG WAS INSTALLED, AND A HYDRO AT 250 F/1735 PSIG SHOWED NO LEAKAGE.

*LEAK + *SHUTDOWN COOLING SYSTEM + MAIN COOLING SYSTEM + NS SAVANNAH (PWR) + MAINTENANCE AND REPAIR + REACTOR, PWR + INCIDENT, EQUIPMENT + REACTOR, MARITIME

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30261 ALSO IN CATEGORY 18
GE-BWR TOPICAL REPORTS
GENERAL ELECTRIC COMPANY
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15(2), PAGE 14, JAN. 13, 1969

FILED AT PDR. INCLUDES (APED-5460) DESIGN AND PERFORMANCE OF GE-BWR JET PUMPS. (APED-5654) CONSIDERATIONS PERTAINING TO CONTAINMENT INERTING. (APED-5696) TORNADO PROTECTION OF SPENT FUEL STORAGE POOL. (APED-5703) DESIGN AND ANALYSIS OF CONTROL ROD DRIVE REACTOR VESSEL PENETRATIONS. (APED-5706) IN CORE NEUTRON MONITORING SYSTEM FOR GE-BWRS.

*SYSTEM DESCRIPTION + CONTAINMENT PENETRATION, PIPE + PRESSURE VESSEL + CONTAINMENT ATMOSPHERE, INERT + REACTOR, BWR + DESTRUCTIVE WIND + CONTROL ROD DRIVE + PUMP, JET + *DESIGN STUDY + FUEL STORAGE + INSTRUMENT, IN CORE

17-30262 ALSO IN CATEGORY 9
STUCK TRIGA TRANSIENT ROD PISTON
WASHINGTON STATE UNIVERSITY, PULLMAN, WASH.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15(2), PAGE 15, JAN. 13, 1969, DOCKET 50-27

(LETTER, DEC. 23.) ON DEC. 18, DURING PREPARATION FOR A TEST OF PULSE ROD DYNAMICS USING HIGH SPEED PHOTOGRAPHY, THE PULSE ROD PISTON STUCK AND WOULD NOT DROP WHEN AIR WAS RELEASED. DIRT WAS WIPED FROM THE CYLINDER, LEAVING A VARNISH RING AT THE TOP FOR THE O-RING TO HANG UP ON. THE RING WAS REMOVED WITH ETHANOL AND SYSTEM OPERATED PROPERLY.

PNEUMATIC SYSTEM + REACTOR, RESEARCH + LUBRICATION + REACTOR, PULSED + TRIGA (RR) + CONTROL ROD DRIVE + *FAILURE, SCRAM MECHANISM

17-30263
BAROCK CJ + BISHOP WN
PERFORMANCE OF THO2-UO2 FUEL IN INDIAN POINT REACTOR
BABCOCK AND WILCOX CO., LYNCHBURG, VA.
1 PAGE, 1 TABLE, ANS TRANS. 11(2), PAGE 494, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

CORE A WAS DISCHARGED IN 1965, AFTER 442 EFP DAYS AND 34,000 MWD/MT PEAK BURNUP. 13 FUEL RODS WERE DESTRUCTIVELY EXAMINED IN THE HOT CELL. UNIFORM BLACK OXIDE FILM, NO DETERIORATION OF KANIGAN BRAZE JOINTS. PELLETS WERE FREE TO MOVE, NO RIDGING OF CLAD AT PELLET INTERFACE. SOME CRACKING AND MOVEMENT OF VOIDS TO GRAIN BOUNDARIES AT CENTERS NOTED. CONSIDERABLE POROSITY ON INSIDE OF CLAD, LIMITED TO ABOUT 0.002 IN. DEPTH.

AVAILABILITY - C. J. BAROCK OR W. N. BISHOP, BABCOCK AND WILCOX, P. O. BOX 1260, LYNCHBURG, VA.

REACTOR, PWR + STEEL, STAINLESS + FUEL SEGREGATION + *IRRADIATION TESTING + FUEL, PELLET TYPE + INDIAN POINT 1 (PWR) + THORIUM + SURFACE FILM DEPOSIT + *FUEL ELEMENT + RADIATION DAMAGE + FUEL BURNUP + FAILURE, CLADDING + EXAMINATION

17-30264
HAUBENREICH PN + ENGEL JR
RECENT EXPERIENCE WITH THE MOLTEN-SALT REACTOR EXPERIMENT
OAK RIDGE NATIONAL LABORATORY, TENN.
1 PAGE, ANS TRANS. 11(2), PAGE 619, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

REVIEWS CRITICALITY (1965) TO SHUTDOWN FOR REFUELING WITH U-233 (1968). NO ANOMALOUS CHANGES IN FUEL SALT. XENON AND KRYPTON WERE STRIPPED, REDUCING XENON POISONING TO 1/5TH. NOBLE METALS UNEXPECTEDLY WENT OUT IN OFF GAS. ON LINE REACTIVITY BALANCE REMAINED WITHIN 0.2% OK/K OF CALCULATED. 82% AVAILABILITY IN 1967. TINY OIL LEAK PRODUCED HYDROCARBONS WHICH CLOGGED REACTOR OFF GAS FILTER.

AVAILABILITY - P. N. HAUBENREICH OR J. R. ENGEL, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

OFF GAS + XENON + REACTIVITY EFFECT, ANOMALOUS + LEAK + REACTIVITY EFFECT + *FILTER, DAMAGED + REACTOR, MOLTEN SALT + MSRE (RE) + OPERATING EXPERIENCE SUMMARY

17-30265 ALSO IN CATEGORY 15
KELLER FR
EFFECTS OF FUEL AND EXPERIMENT FAILURES UPON TEST REACTOR OPERATIONS
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
1 PAGE, 1 FIGURE, ANS TRANS. 11(2), PAGE 625, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

MTR AND ETR (28 REACTOR-YEARS) EXPERIENCE SHOWS FUELED CAPSULE BREAKS CAN HAVE AS SERIOUS EFFECTS ON EFFLUENT ACTIVITY AS FUEL ELEMENT FAILURES (EG MTR/ETR EFFLUENT ACTIVITY 60-66 SHOWN). ONLY MTR CAPSULE FAILURE OF FEB. 23, 1963 CORRELATED TO HIGH DISCHARGE. *** USEFUL TECHNIQUES DESCRIBED. (1) DECONTAMINATION PROCEDURES (SPECIAL FOAM DECONTAMINANT DEVELOPED). (2) CUSTOM SHIELDING FOR HOT SPOTS. (3) HIGHLY DEVELOPED TRAINING AIDS. (4) CRAFTSMAN CROSS TRAINING TO SPREAD EXPOSURE. (5) DETAILED PLANNING OF SHUTDOWN WORK. (6) DAILY LOGGING OF PERSONNEL RADIATION EXPOSURE.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30265 *CONTINUED*

AVAILABILITY - F. R. KELLER, IDAHO NUCLEAR CORPORATION, P. O. BOX 1845, IDAHO FALLS, IDAHO

REACTOR, TEST + DECONTAMINATION + ETR (TR) + *IN PILE LOOP + SHIELDING + RADIATION SAFETY AND CONTROL + MAINTENANCE AND REPAIR + REACTOR, AEC OWNED + REACTOR, RESEARCH + *FAILURE, FUEL ELEMENT + *OPERATING EXPERIENCE SUMMARY + MTR (TR) + TRAINING + WASTE DISPOSAL, LIQUID

17-30266

MARTIN WR

APPLICATION OF TODAY'S MATERIALS STUDIES TO TOMORROW'S OPERATION OF RESEARCH REACTORS

OAK RIDGE NATIONAL LABORATORY, TENN.

2 PAGES, 4 REFERENCES, ANS TRANS. 11(2), PAGES 626-27, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

DIRECTED TO FUEL ELEMENTS AND STRUCTURAL MATERIAL RADIATION DAMAGE. (1) CHOICE OF U308 GRADE CAN INCREASE VOID VOLUME, WHICH ACCOMMODATES SWELLING. (2) USE OF B4C-AL FOIL GIVES BETTER CONTROL OF BURNABLE POISON ADDITIONS. (3) NEUTRON EMBRITTLES ALUMINUM EXPOSED ABOVE 6×10^{21} N/CM SQ.

AVAILABILITY - W. R. MARTIN, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.

REACTOR, RESEARCH + R AND D PROGRAM + REACTOR, TEST + ALUMINUM + *CORE COMPONENTS + EMBRITTLEMENT + *FUEL ELEMENT + POISON, BURNABLE + *RADIATION DAMAGE

17-30267

ROSSILLON M + JACQUEMAIN M

SILOE--ITS OPERATION, HISTORY, AND PROBLEMS

CENTRE D ETUDES NUCLEAIRES, GRENOBLE, FRANCE

1 PAGE, ANS TRANS. 11(2), PAGE 628, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

STARTUP SEPT. 63 AT 15 MW, SOON TO 30. 40 MW OPERATION REQUIRED ADDITION OF FLYWHEEL TO MAIN COOLANT PUMPS. MAX/AV NEUTRON FLUX REDUCED FROM 2.8 TO 2.1 BY REDUCING CONTROL ROD WATER CHANNEL. 23 PLATE FUEL ELEMENT WITH 280G U-235 (WAS 18 WITH 196G) AND COOLANT SPEED 4 M/SEC (WAS 3.2) GIVES SAME MAX HEAT FLUX AT 30 AS AT 15 MW. PIECES OF PLASTIC CAUSED A FLOW BLOCKAGE IN NOV. 1967, WITH 6 PLATES MELTED.

AVAILABILITY - M. ROSSILLON OR M. JACQUEMAIN, CENTRE D ETUDES NUCLEAIRES, B. P. 269, GRENOBLE 38, FRANCE

FUEL ELEMENT + REACTOR, TEST + CONTROL ROD + REACTOR, RESEARCH + FLOW BLOCKAGE + *OPERATING EXPERIENCE SUMMARY + FAILURE, FUEL ELEMENT + BURNOUT HEAT FLUX + MODIFICATION, SYSTEM OR EQUIPMENT + FRANCE + POWER UPGRATING + HOT SPOT FACTOR ANALYSIS

17-30268

BARKLEY HB

SIGNIFICANT EXPERIENCES OF THE NASA PLUM BROOK REACTOR FACILITY

NASA, LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO

2 PAGES, ANS TRANS. 11(2), PAGES 628-9, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

(FACILITY) ZONE LOADED CORE GIVES 60 AT. PERCENT BURNUP. ROD POSITION AND POWER DISTRIBUTION COMPUTER CALCULATED HOURLY. REFINED HEAT TRANSFER ANALYSIS OVERCOMES (XENON) POWER DISTRIBUTION EFFECTS. N-17 FISSION PRODUCT MONITOR. (EXPERIMENTS) EXPERIMENT STANDARDS GUIDE. (PROBLEMS) REPLACEMENT OF SWOLLEN BERYLLIUM REFLECTOR. TOTAL LOSS OF FLOW INCIDENT WITHOUT DAMAGE. CONTAINMENT ELECTRICAL PENETRATION REDESIGN WITH HERMETIC SEALS. REACTOR GRID WEAR. WATER EFFLUENT MONITORING MADE RELIABLE.

AVAILABILITY - H. B. BARKLEY, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO 44870

PERFORMANCE LIMIT + SAFETY REVIEW + REACTOR, TEST + PLUM BROOK (TR) + FUEL BURNUP + POWER DISTRIBUTION + REACTOR, RESEARCH + REACTOR POWER + IN PILE LOOP + *OPERATING EXPERIENCE SUMMARY + ACCIDENT, LOSS OF FLOW + INSTRUMENT, OPERATING REACTIVITY

17-30269

SUTTON CR + BALAI N

PRE-LAYUP INSPECTION OF EBWR REACTOR VESSEL

ARGONNE NATIONAL LABORATORY, TENN.

2 PAGES, 1 TABLE, 3 REFERENCES, ANS TRANS. 11(2), PAGES 648-49, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

AFTER DISCOVERING CRACKS IN SS CLAD BEFORE THE PLUTONIUM RECYCLE IRRADIATIONS, A SURVEILLANCE PROGRAM (RESULTS DESCRIBED) WAS BEGUN. ***CONCLUSIONS - NO SIGNIFICANT METAL LOSS BY CORROSION. NO ADDITIONAL MAJOR CRACKING. NO BASE SA-212B METAL CRACKING. NO SIGNIFICANT DETERIORATION OF EXPOSED SA-212B BASE METAL.

AVAILABILITY - C. R. SUTTON OR N. BALAI, ARGONNE NATIONAL LABORATORY

FAILURE, CLADDING + CORROSION + *EXAMINATION + EBWR (BWR) + REACTOR, AEC OWNED + *PRESSURE VESSEL + FAULT + REACTOR, BWR + DECOMMISSIONING

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30270

FECYCH W

EXPERIENCES WITH BERYLLIUM SWELLING AND REPLACEMENT IN THE PLUM BROOK REACTOR
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER, SANDUSKY, OHIO
2 PAGES, 1 REFERENCE, AEC TRANS. 11(2), PAGES 649-50, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY,
WASHINGTON, D. C., 20545 NOV. 10-15, 1968

94 DAYS REQUIRED TO REPLACE MASSIVE BERYLLIUM REFLECTOR PRECES. BERYLLIUM SIDE PLATE CRACKED
AFTER 37,256 MWD EXPOSURE. 5 INACCESSIBLE BOLTS WERE SEVERED WITH ELECTRICAL DISCHARGE
MACHINING. TWO PERSONS RECEIVED 2 REMS, OTHERS LESS THAN 1.25. ***DESIGNERS MUST ALLOW FOR
CHANGES IN PHYSICAL DIMENSIONS AND MECHANICAL PROPERTIES SUBJECT TO HIGH FLUX.

AVAILABILITY - W. FECYCH, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SANDUSKY, OHIO

*MAINTENANCE AND REPAIR + REMOTE MANIPULATING AND VIEWING + PLUM BROOK (TR) + OPERATING EXPERIENCE SUMMARY +
*BERYLLIUM + FAILURE, DESIGN ERROR + REACTOR, TEST + REFLECTOR + REACTOR, RESEARCH + *RADIATION DAMAGE

17-30278

MADSEN EF

SODIUM SAMPLING IN THE ENRICO FERMI ATOMIC POWER PLANT
ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-306 +. 99 PAGES, REFERENCES, MARCH 1968

THE SAMPLER DESIGNS USED OVER THE YEARS IN THE PRIMARY SODIUM SYSTEM ARE DESCRIBED IN DETAIL.
THESE INCLUDE THE EARLIER THIEF TYPE AS WELL AS THE PRESENT PERMANENT FLOW-THROUGH STATION. THE
CLEANING PROCEDURES, SAMPLING PROCEDURES, AND ANALYTICAL RESULTS ARE PRESENTED AS THE BASIS FOR
EVALUATING THE ADEQUACY OF THE DESIGNS.

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

FERMI (LMFBR) + MAIN COOLING SYSTEM + COOLANT QUALITY + *SAMPLING + REACTOR, LMFBR + *SODIUM + *OPERATING
EXPERIENCE SUMMARY

17-30279

ALSO IN CATEGORY 15

CORRESPONDENCE ON TRITIUM PAINTING

THEODORE R. SCHWALM, INC.

2 PAGES, LETTER TO COMPLIANCE, OCTOBER 3, 1968

IN ANSWER TO CITATION OF SEPT. 24, 1968 - (1) GLOVE-BOX DUCT TO MAIN EXHAUST IS CLOSED, AND
CONTINUED AIR SAMPLES SHOW WITHIN LIMITS. (2) THESE TESTS HAVE BEEN PERFORMED FOR YEARS BY THE
MATERIAL SUPPLIER, SATISFACTORY TO PREVIOUS AEC INSPECTORS. (3) AIR SAMPLES JUNE-AUGUST 68 OF
PAINTING ROOM WERE SATISFACTORY. *** (REPLY NOV 12.) (1) YOU SHOULD ENSURE THAT THIS DOES NOT
INCREASE AIRBORNE ACTIVITY FROM TRITIUM STORED THERE. (2) CERTIFICATION BY SUPPLIER OF PAINT
(VIBRATION AND IMMERSION) REQUIRED. (3) SAMPLES FROM OUTSIDE FACILITY ARE INADEQUATE. STACK
DISCHARGES ARE ABOVE MPC, SHOULD CONTINUE TO BE USED WITH DILUTION CALCULATIONS.

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

GLOVE BOX + VENTILATION SYSTEM + DILUTION + BYPRODUCT MATERIAL + *STACK + *MONITORING PROGRAM, ENVIRONMENTAL +
TRITIUM + COMPLIANCE + SURFACE, PAINTED + AIRBORNE RELEASE

17-30280

REFUELING OF WISCONSIN U TRIGA

UNIVERSITY OF WISCONSIN

50 PAGES, 27 FIGURES, 1 TABLE, LETTER TO DRL, APRIL 10, 1968, DOCKET 50-156

AUGMENTS ANNUAL REPORT OF JAN. 4, 1968, WITH REVISED HAZARDS SUMMARY REPORT PAGES BASED ON
EXPERIENCE WITH THE NEW TRIGA CORE. HIGHER THAN PREDICTED WORTH OF THE CENTRAL FUEL BUNDLE IN A
GRAPHITE REFLECTED CORE HAS LED TO ADMINISTRATIVE CONTROLS (NO FUEL HANDLING IN THE POOL WHEN THE
REACTOR IS CRITICAL, IRRADIATION BASKET PLACED IN ANY VACANT CORE POSITION TO PREVENT UNWANTED
FUEL ADDITION). ***ALSO TRANSMITS NUCLEAR ENGINEERING DEPARTMENT MEMO 4 (REPORT ON REFUELING THE
UNIVERSITY OF WISCONSIN NUCLEAR REACTOR) MARCH 1968.

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

REPORT, OPERATIONS ANALYSIS + REACTIVITY EFFECT + FUEL HANDLING + POWER UPGRATING + TRIGA (RR) + ADMINISTRATIVE
CONTROL + REFUELING + COMPARISON, THEORY AND EXPERIENCE + *REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH

17-30281

ALSO IN CATEGORY 9

LACBWR REACTOR VESSEL WATER LEVEL INDICATION ANOMALY

ALLIS-CHALMERS

2 PAGES, LETTER TO P.A. MORRIS, DRL, JUNE 20, 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REQUESTS SYSTEM BE LEFT AS IS FOR TESTING. TWENTY-TWO INCHES (OF THE 28 OF SWELLING INITIALLY
FOUND DIFFERENCE BETWEEN VOIDED WATER LEVEL IN VESSEL AND UNVOIDED WATER IN STANDPIPE) ARE DUE TO
LOWER THAN ANTICIPATED STANDPIPE TEMPERATURES. REACTOR HAS BEEN OPERATING 3 INCHES ABOVE THE
HIGH WATER LEVEL SCRAM POINT (BASED ON UNVOIDED LEVEL). THE VOIDED LEVEL IS WITHIN TECHNICAL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30281 *CONTINUED*
SPECIFICATIONS.

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

LACROSSE (BWR) + PRESSURE VESSEL + INCIDENT, EQUIPMENT + FAILURE, DESIGN ERROR + REACTOR, BWR + *TEMPERATURE GRADIENT + *INSTRUMENT, LIQUID LEVEL DETECTION + *INSTRUMENT, ABNORMAL INDICATION

17-30282

SELECTED LACBWR OPERATING EXPERIENCE
ALLIS-CHALMERS

ACNP-68516 +. 11 PAGES, NOVEMBER 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REACTOR OPERATED TO 40 MWTH. MOVEMENTS OF FEEDWATER HEADER OBTAINED DURING HEATUP. ***REACTOR CAVITY FOUND LEAKING UP TO 40 DROPS/MIN. FUEL STORAGE POOL WAS KNOWN TO HAVE A LEAK AT EL. 680, SO WATER LEVEL WAS LOWERED TO 676. LEAK HAD DROPPED TO 2 DROPS/MIN 5 DAYS LATER. SEVERAL WELD LEAKS WERE FOUND IN THE METAL LINER. ***TRAVEL TIME OF SHUTDOWN CONDENSER VALVES WAS DECREASED FROM 45 SEC TO 5 BY VENTING CYLINDER TO ATMOSPHERE. 10 SEC DELAY WAS ADDED TO SCRAM FROM LOW RECIRC. PUMP SEAL DELTA-P SIGNAL BECAUSE OF MOMENTARY DROPS WHEN CHANGING PUMPS AND FILTERS.

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

MAIN COOLING SYSTEM + SCRAM, SPURIOUS + WELDS + *LEAK + PIPING + VALVE + STEEL LINER + LACROSSE (BWR) + REPORT, OPERATIONS + REACTOR, BWR + RESPONSE TIME + SHUTDOWN COOLING SYSTEM + FAILURE, EQUIPMENT + FUEL STORAGE + *THERMAL MECHANICAL EFFECT

17-30283

BONUS DECOMMISSIONING TECHNICAL SPECIFICATIONS
PUERTO RICO WATER RESOURCES AUTHORITY

6 PAGES, LETTER TO P.A. MORRIS, DRL, SEPTEMBER 12, 1968, DOCKET 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

REQUESTS FURTHER CHANGES (OTHER THAN THOSE IN SEPT. 4 LETTER), INCLUDING CHANGE TO POSSESSION ONLY STATUS, TO FREE US FROM RENDERING REPORTS AND OTHER ACTIVITIES. ***CHANGES INCLUDE NO SHIFT WORK, WITH A GUARD DURING OFF HOURS. AREA RADIATION MONITORS TO REMOTELY ALARM AT GUARD STATION. SHORT EMERGENCY PLAN FOR GUARD INCLUDED, LIMITED TO HIS CALLING SUPERVISION AND FIRE DEPARTMENT.

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

TECHNICAL SPECIFICATIONS + *EMERGENCY PROCEDURE + *MONITOR, AREA + *REPORT, OPERATIONS + REACTOR, PWR + DECOMMISSIONING + BONUS (ISR)

17-30284

ALSO IN CATEGORY 9
CHANGE 7 - MODIFICATION OF 15 ROD DRIVES

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER TO PRWRA, JUNE 4, 1968, DOCKET 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND

ALLOWS CHANGE AFTER SATISFACTORY OPERATION SINCE JUNE 67 OF 2 DRIVES WITH ADDED (1) TORQUE SPRING TO OVERCOME FRICTION ON INITIAL INSERTION, (2) CENTRIFUGAL BRAKE TO LIMIT VELOCITY AND HENCE ENERGY ON DECELERATION, (3) OIL RESERVOIR TO COMPENSATE FOR LEAKAGE. *** TEST PROGRAM REVIEWED IN SAFETY EVALUATION.

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

REACTOR, BWR + *CONTROL ROD DRIVE + TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + SHOCK ABSORBER + ACCUMULATOR + TEST, SYSTEM OPERABILITY + *MODIFICATION, SYSTEM OR EQUIPMENT + BONUS (ISR)

17-30285

NEW DOOR FOR PIQUA CONTAINMENT
ATOMICS INTERNATIONAL

2 PAGES, LETTER TO P.A. MORRIS, DRL, SEPTEMBER 18, 1968, DOCKET 115-2, TYPE--OCR, MFG--A.I., AE--A.I.

ENCLOSED DRAWING OF A NEW SLIDING DOOR FOR TRUCK ACCESS, ALSO HAS HINGED PERSONNEL DOOR. REPLACES OLD SEALED HATCH.

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

*CONTAINMENT EQUIPMENT HATCH + DECOMMISSIONING + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, ORGANIC COOLED + REACTOR, POWER + PIQUA (OCR)

17-30287

REQUEST TO USE CRYOGENIC FACILITY
GULF GENERAL ATOMIC

3 PAGES, LETTER TO D.J. SKOVHOLT, DRL, SEPTEMBER 19, 1968, DOCKET 50-253

FOR SINGLE PULSE IRRADIATION OF COMPONENTS IN A PINT DEWAR WITH ALCOHOL/DRY ICE AT -70 F. SPLASH

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30287 *CONTINUED*

SHIELD REACTIVITY EFFECT IS \$0.60, ALCOHOL ESTIMATED AT \$0.40. PULSES WILL RANGE FROM \$0.40 TO \$0.85, WITH FAST NEUTRON DOSES OF 1000 RADS AND GAMMA DOSES OF 100 RADS. (SAME INFORMATION TRANSMITTED BY TWX SEPT. 17, 68.)

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

TECHNICAL SPECIFICATIONS + TRIGA (RR) + *CRYOGENICS + REACTOR, PULSED + REACTOR, RESEARCH + *IRRADIATION FACILITY

17-30288 ALSO IN CATEGORY 9

CHANGE 3 - FUEL ELEMENTS

U.S. ATOMIC ENERGY COMMISSION

3 PAGES, LETTER TO E. CREUTZ, G-GA INC., SEPTEMBER 18, 1968, DOCKET 50-240

AUTHORIZES USE OF CARBON (AS A DILUENT) AND OTHER POISONS FOR HTGR MOCKUP FACILITY PROVIDED POISONS ARE SOLID WITH MELTING POINT ABOVE 600 C, SECURED TO PREVENT INADVERTENT MOVEMENT WHEN WORTH EXCEEDS \$3.00. *** PROOF TEST THAT A TEMPERATURE RISE OF 200 C WILL EXPEL FUEL COMPACTS MAY BE MADE YEARLY INSTEAD OF QUARTERLY BECAUSE TWO YEARS TESTING HAVE SHOWN RELIABILITY OF EXPULSION MECHANISM.

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

RELIABILITY, SYSTEM + REACTOR, HTGR + *TEST INTERVAL + TEST, PROOF + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS + *REACTOR FUSE + *POISON, FIXED

17-30289

AMENDMENT 1 - GRAPHITE IN THERMAL COLUMN

U.S. ATOMIC ENERGY COMMISSION

7 PAGES, LETTER TO J.R. LAMARSH, NYU, SEPTEMBER 18, 1968, DOCKET 50-216

ALLOWS USE OF GRAPHITE IN PLACE OF LEAD-WATER NOW IN THERMAL COLUMN OF AGN-201M, TO GAIN 0.05 PERCENT DK/K NECESSARY TO OPERATE WITH INCREASED AMBIENT TEMP. ***SHIELDING MEASUREMENTS AT 5 WATTS INDICATED 260 MREM/HR AT REACTOR TOP WITH LEAD-WATER, AND 1.694 REM/HR WITH GRAPHITE. AT PRESENT 0.1 WATT DOSE RATE WOULD BE 34 MREM/HR, REQUIRING PERSONNEL ACCESS CONTROL.

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

SHIELDING + REACTOR, TRAINING + *GRAPHITE + AGN (TNG) + TECHNICAL SPECIFICATIONS + RADIATION SAFETY AND CONTROL + *BEAM HOLE + *REACTIVITY EFFECT + SAFETY EVALUATION + ADMINISTRATIVE CONTROL

17-30290

ALSO IN CATEGORIES 11 AND 12

PROPOSED CHANGE 5 - ISOLATION VALVE CLOSURE TIME

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER TO S.R. KNAPP, CYAP CO., MAY 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS WEEKLY TEST ON LINE FOR MOVEMENT OF STEAM LINE ISOLATION VALVE FOR 1.5 INCHES. TEN SEC CLOSURE TIME SHALL BE VERIFIED EACH SCRAM IF NOT DONE WITHIN LAST 3 MONTHS. MAX. INTERVAL IS 6 MONTHS. ***SAFETY EVALUATION REVIEWS VARIOUS ANALYSES ON LIMITING SECONDARY COOLANT INVENTORY, RELEASE, PRIMARY SYSTEM COOLDOWN REACTIVITY EFFECTS, AND SHUTDOWN MARGIN. SAFETY OF REACTOR WOULD NOT BE COMPROMISED BY FAILURE OF DEVICE TO LIMIT VALVE OPERATOR TRAVEL.

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

*RESPONSE TIME + REACTOR, PWR + CONTAINMENT PENETRATION, PIPE + TEST, SYSTEM OPERABILITY + *CONTAINMENT ISOLATION + TECHNICAL SPECIFICATIONS + SAFETY EVALUATION + SLOW + ACCIDENT, STEAM LINE RUPTURE + VALVE + HADDAM-NECK (PWR)

17-30291

ALSO IN CATEGORY 15

EXEMPTION FROM 10 CFR 20.203 (C)(2)

CONNECTICUT YANKEE ATOMIC POWER COMPANY

3 PAGES, LETTER TO DL AND R, MARCH 1, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

SUPPLEMENTARY INFORMATION TO JAN. 3, 1968, REQUEST TO SUBSTITUTE ADMINISTRATIVE CONTROL OF ENTRY TO HIGH RADIATION AREAS IN LIEU OF VISIBLE OR AUDIBLE ALARMS. (1) REVIEW OF PAST ACCIDENTS SHOWS MANY TIMES FAULTY ALARM DEVICES WERE AT FAULT DUE TO PERSONNEL OVERDEPENDENCE ON THEM. AWARENESS OF ACTUAL LEVELS IS THE KEY FACTOR. (2) AREAS WILL BE POSTED, MEASURED CURRENT LEVELS NOTED. KEYS TO HIGH RADIATION AREAS KEPT BY SUPERVISORS AND AO. RWP SYSTEM IS USED AND REQUIRES CONTINUOUS MONITORING IN HIGH RADIATION AREAS.

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

HADDAM NECK (PWR) + REACTOR, PWR + FAILURE, EQUIPMENT + INCIDENT COMPILATION + MONITOR, AREA + REGULATION, AEC + TECHNICAL SPECIFICATIONS + INFORMATION RETRIEVAL + RADIATION SAFETY AND CONTROL + *HIGH RADIATION + *ADMINISTRATIVE CONTROL

17-30292

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30292 *CONTINUED*
PROPOSED COLUMBIA U TRIGA OPERATING LICENSE
U.S. ATOMIC ENERGY COMMISSION
25 PAGES, LETTER TO W.H. LANE, COLUMBIA UNIV., MARCH 18, 1968, DOCKET 50-208

NOTICE OF PROPOSED ISSUANCE OF OPERATING LICENSE FOR COLUMBIA U 250 KW TRIGA II RESEARCH REACTOR
ON CAMPUS IN UPPER MANHATTAN (NEW YORK CITY). ***VENTILATION STACK CLIMBS SIDE OF 18 STORY
BUILDING ADJACENT, DISCHARGES 249 FT ABOVE GROUND.

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

SAFETY EVALUATION + *TECHNICAL SPECIFICATIONS + *STACK + TRIGA (RR) + SITING, URBAN + REACTOR, RESEARCH + *HIGH

17-30294
AMENDMENT 1 - 2 MW OPERATION OF RHODE ISLAND REACTOR
U.S. ATOMIC ENERGY COMMISSION
8 PAGES, LETTER TO A.F. DIMEGLIO, RHODE ISLAND NSC, SEPT. 10, 1968, DOCKET 50-193

PROVIDES TECH. SPEC. REVISIONS (CHANGE 4) FOR 2 MW FORCED CONVECTION OPERATION OF RHODE ISLAND
NUCLEAR SCIENCE CENTER REACTOR. CORE IS 28 ELEMENT, GRAPHITE REFLECTED.

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

REACTOR, RESEARCH + REACTOR POOL TYPE + TECHNICAL SPECIFICATIONS + *POWER UPGRATING

17-30295 ALSO IN CATEGORY 5
CHANGE 4 - INCREASED FUEL BURNUP LIMIT
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, LETTER TO A.H. EMMONS, U. OF MISSOURI, AUGUST 12, 1968, DOCKET 50-186

REQUESTED 100, ALLOWED AVERAGE BURNUP TO 70 MW-DAYS/ELEMENT. REQUIRED TO INSPECT ALL 8 ELEMENTS
AFTER 50 MW-DAYS, THEN ONE ELEMENT EACH 10 MWD. NOT TO BE OPERATED WHEN DIMENSIONAL CHANGES
EXCEED 10 MILS. COOLANT SAMPLES TO BE TAKEN WEEKLY, IODINE LIMITED TO 5X10⁻³ MICROCURIE/MIL.
***SAFETY EVALUATION NOTES FUEL PLATE SWELLING BEGINS AFTER 36 ATOM PERCENT BURNUP-IN 19-35 WT
PERCENT METALLIC FUEL, AND 70 MWD WOULD GIVE PEAK BURNUP OF ABOUT THIS.

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

SURVEILLANCE PROGRAM + *FUEL, METALLIC TYPE + IRRADIATION TESTING + TECHNICAL SPECIFICATIONS + *FUEL BURNUP +
*PERFORMANCE LIMIT + REACTOR, RESEARCH + FAILURE, FUEL ELEMENT + REACTOR COOLANT + UMRR (RR)

17-30297
AMENDMENT 13 - TRIGA-F UPGRATING
U.S. ATOMIC ENERGY COMMISSION
18 PAGES, LETTER TO H.B. MITCHELL, AFRRRI, AUGUST 29, 1968, DOCKET 50-170

ALLOWS UPGRATING TO 1 MW STEADY STATE, WITH PULSES UP TO \$3.28. WHEN A STARTUP IS MADE WITH A
LINEAR CHANNEL INDICATION OF LESS THAN 0.1 WATT, SOURCE MUST BE OF SUCH STRENGTH THAT 1 FIRST ROD
WITHDRAWN IS INDICATED. EXPERIMENTS LIMITED TO \$3.00. EXPOSURE ROOM 1 USE IS LIMITED TO 2 MW/HR
PER MONTH WHEN MONITORING DOSIMETERS REACH 400 MR AND EASES WHEN THEY REACH 500 MR.

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

*BEAM HOLE + TRIGA (RR) + *POWER UPGRATING + REACTOR, RESEARCH + IRRADIATION FACILITY + RADIATION SAFETY AND
CONTROL + *REACTOR STARTUP, LOW SOURCE + SAFETY EVALUATION + *TECHNICAL SPECIFICATIONS

17-30298
AFRRRI TRIGA TECHNICAL SPECIFICATIONS CHANGES
ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE
15 PAGES, LETTER TO DRL, NOVEMBER 12, 1968, DOCKET 50-170

8 PROPOSED CHANGES CLARIFY MEANING OF AUG. 29, 1968, ISSUE, USUALLY WITH A WORD OR TWO ADDED. (1)
EXPERIMENTS TO BE PLACED IN FUEL POSITIONS. (2) REMAINING RODS TO PROVIDE SHUTDOWN MARGIN, ONE
ROD OUT. (3) OPERATING MECHANISM OF VENTILATION DAMPER TO BE INSPECTED MONTHLY. (4) ALL AR-41
PRODUCTION LIMITED, RATHER THAN EXPOSURE ROOM ALONE. (5) MAXIMUM INSTRUMENTATION SETPOINTS
SPECIFIED. (6) INTERLOCKS EFFECTIVE AGAINST STANDARD CONTROL RODS. (7) STAFF OF PHYSICISTS IN
CHARGE NO LONGER ENUMERATED. (8) SEMIANNUAL FUEL MEASUREMENT INTERVAL NOT TO EXCEED 8 MONTHS.

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

TRIGA (RR) + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + SETPOINT + *MODIFICATION, SYSTEM OR EQUIPMENT +
TEST INTERVAL + CONTAINMENT ISOLATION + FUEL ELEMENT BOWING + TEST, PROOF

17-30299
PROPOSED AFRRRI TRIGA POWER UPGRATING
U.S. ATOMIC ENERGY COMMISSION
20 PAGES, TABLES, LETTER TO H.B. MITCHELL, AFRRRI, AUGUST 2, 1968, DOCKET 50-170

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30299 *CONTINUED*
COMPLETE TECHNICAL SPECIFICATIONS FOR UPGRATING TO 1 MW FROM 100 KW, AS SENT TO FEDERAL REGISTER.

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

SAFETY EVALUATION + TRIGA (RR) + REACTOR, RESEARCH + *TECHNICAL SPECIFICATIONS + *POWER UPGRATING

17-30300

TRIGA-F TECHNICAL SPECIFICATIONS
U.S. ATOMIC ENERGY COMMISSION

31 PAGES, TABLES, LETTER TO C.W. SHERWIN, G-GA INC., SEPTEMBER 27, 1968, DOCKET 50-163

FOR 1.5 MW STEADY STATE AND \$5.50 PULSES. COMPLEX SCHEDULE OF FUEL ELEMENT INSPECTION BASED ON GROUPS OF PULSES. SHUTDOWN MARGIN ALLOWED AS LITTLE AS \$0.10 WITH ONE ROD OUT DURING DIRECT CONVERSION EXPERIMENTS. AREA RADIATION MONITORING MAY BE REPLACED FOR REPAIR BY PORTABLE SELF ALARMING ION CHAMBERS. FOR TESTING OF 110(POWER CHANNEL, POWER MAY REACH 1.75 MW. ***PULSING PARAMETER LIMITS SET FOR FUEL WITH 12(URANIUM (95(ENRICHED). SAFETY EVALUATION PERTAINS TO THAT ASPECT.

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

REACTOR, PULSED + *FUEL ELEMENT + REACTOR POWER + TRIGA (RR) + *TECHNICAL SPECIFICATIONS + MONITOR, AREA + SETPOINT + *SHUTDOWN MARGIN + *TEST, PROOF + LOW + REACTOR, RESEARCH + *PERFORMANCE LIMIT

17-30301 ALSO IN CATEGORY 5

AMENDMENT 7 - HIGH POWER TESTING
U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER TO H.V. BROWN, UCLA, APRIL 23, 1968, DOCKET 50-142

ALLOWS OPERATION UP TO 500 KW SUBJECT TO NOT LETTING BULK COOLANT TEMPERATURE AT OUTLET OF HOTTEST FUEL ELEMENT EXCEED 210 F, NOR LETTING A SINGLE HIGH POWER RUN EXCEED 15 MIN IN ANY 3 DAY PERIOD.
***DONE TO ALLOW HEAT TRANSFER AND SHIELD PERFORMANCE DATA TAKING.

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

TEMPERATURE TRANSIENT + *SHIELDING + *MEASUREMENT, GENERAL + POWER UPGRATING + *FUEL ELEMENT + ARGONAUT (TNG) + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS

17-30302 ALSO IN CATEGORY 18

ADVANCED TRIGA CONSTRUCTION AT U OF ILLINOIS

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, CONSTRUCTION PERMIT NO. CPPR-105, AUGUST 9, 1968, DOCKET 50-151

ALLOWS CONSTRUCTION OF ADVANCED TRIGA TO REPLACE TRIGA II NOW IN USE AT U OF ILLINOIS.

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

CONSTRUCTION PERMIT PROCESS + REACTOR, RESEARCH + TRIGA (RR)

17-30304

AMENDMENT 3 - SAXTON POWER UPGRATING

U.S. ATOMIC ENERGY COMMISSION

13 PAGES, LETTER TO R.E. WEIDIG, SNEC, MARCH 21, 1968, DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

AUTHORIZES OPERATION OF CORE II AT 35 MWTH FOR UP TO 3500 MW-DAYS. ***CHANGE 25 TO TECHNICAL SPECIFICATION INCLUDES LIMITS ON TEST FUEL ASSEMBLIES AS WELL AS CHANGED REACTOR OPERATING PARAMETERS AND SETPOINTS.

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

REACTOR, PWR + FUEL ELEMENT + IRRADIATION TESTING + TECHNICAL SPECIFICATIONS + SAXTON (PWR) + *POWER UPGRATING

17-30305

AMENDMENT 6 - MIXED PUO2-UO2 FUEL RODS

U.S. ATOMIC ENERGY COMMISSION

12 PAGES, LETTER TO J. KARP, UNITED NUCLEAR CORP., SEPTEMBER 11, 1968, DOCKET 50-101

(ALSO TECHNICAL SPECIFICATION CHANGE 1.) PROVIDES FOR USE OF UO2 AND PUO2-UO2 FUEL RODS IN PLATR CORE FOR MEASURING LATTICE PARAMETERS IN CONFIGURATIONS OF INTEREST IN PLUTONIUM RECYCLE IN THERMAL POWER REACTORS.

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

CRITICAL ASSEMBLY FACILITY + *URANIUM DIOXIDE + SAFETY EVALUATION + *FUEL ELEMENT + *PLUTONIUM DIOXIDE + TECHNICAL SPECIFICATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30306

CHANGE 2 - USE OF BOTH COOLANT LOOPS
U.S. ATOMIC ENERGY COMMISSION

3 PAGES, LETTER TO J.G. BENNET, WATERTOWN ARSENAL, SEPTEMBER 24, 1968, DOCKET 50-47

ALLOWS USE OF NEW SECOND COOLANT LOOP DURING 2 MW OPERATION. DRL ANALYSIS INDICATES STARTING SECOND LOOP AT POWER WOULD ADD NO MORE THAN 0.06(DK/K.

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

ACCIDENT, COLD COOLANT + *MAIN COOLING SYSTEM + REACTOR, RESEARCH + MODIFICATION, SYSTEM OR EQUIPMENT + SAFETY EVALUATION + TECHNICAL SPECIFICATIONS

17-30307

SELECTED YANKEE OPERATING EXPERIENCE
YANKEE ATOMIC ELECTRIC COMPANY

7 PAGES, YANKEE OPERATIONS REPORT NO. 95, (NOVEMBER 68), JANUARY 1, 1969, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PLANT WAS DOWN NOV. 8-15 TO REPLACE NO. 4 MAIN COOLANT PUMP THERMAL BARRIER AND SHOES, INSTALLATION OF A COIL STACK FOR NO. 5 ROD AND 6 AIR FLOW DUCTS IN THE COIL STACK AREA. SEVERAL BROKEN BOLTS WERE FOUND INSIDE NO. 1 FEEDWATER MANWAY. ON NOV. 16, NO. 1 FEEDWATER HEATER MANWAY DEVELOPED A DIAPHRAGM LEAK. MAXIMUM DOSE FOR THE MONTH WAS 1.094 REMS (YANKEE) AND 0.824 REM (NEP SERVICE CO. PERSONNEL).

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

*CONTROL ROD DRIVE + REPORT, OPERATIONS + *AUXILIARY COOLING SYSTEM + FAILURE, EQUIPMENT + SEAL + *LEAK + FASTENER + REACTOR, PWR + PUMP + PERSONNEL EXPOSURE, RADIATION + *HEAT EXCHANGER + YANKEE (PWR) + MAINTENANCE AND REPAIR

17-30308

ALSO IN CATEGORY 11

CHANGE 79 - PH RANGE FROM 4.5 TO 10.5

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER TO L.E. MINNICK, YAEC, MAY 2, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

ALLOWS PH OF COOLANT TO BE BETWEEN 4.5 AND 10.5, A CHANGE FROM 5.0-10.5 NECESSITATED BY CORE VI NEEDING 1700 PPM BORON MAX., INSTEAD OF PREVIOUS 1300 MAX. DRL CONCERNS OF INCREASED CORROSION RATE AND HYDROGEN EMBRITTLEMENT DISCUSSED. ***APRIL 68 IMPRESSIONS OF ERODED REACTOR VESSEL CLAD INDICATE CORROSION HAS NOT EXCEEDED 0.008 IN. PUBLISHED RATE REMAINS WITHIN BOUNDS UNTIL PH DECREASES TO 4.0. STEEL SPECIMENS EXPOSED AT SIMULATED YANKEE CONDITIONS SHOWED NO SIGNIFICANT HYDROGEN ABSORPTION.

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

STEEL + TECHNICAL SPECIFICATIONS + *EMBRITTLEMENT + PRESSURE VESSEL + REACTOR, PWR + *COOLANT CHEMISTRY + YANKEE (PWR) + TEST, PRESSURE VESSEL + STRUCTURAL INTEGRITY + SAFETY EVALUATION + PH REACTIVITY EFFECT + HYDROGEN + *CORROSION + OUT OF PILE LOOPS AND EXPERIMENTS

17-30309

ALSO IN CATEGORY 5

PROPOSED CHANGE TO ALLOW DIFFERENT FUEL ELEMENTS
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

3 PAGES, LETTER TO P.A. MORRIS, DRL, OCTOBER 1, 1968, DOCKET 50-20

MITR FUEL WILL BE USED UP IN 1969, AND MTR TYPE FUEL (0.015 CLAD INSTEAD OF 0.20, 171 GRAMS PER ELEMENT INSTEAD OF 160) IS AVAILABLE. SUMMARIZED HEAT TRANSFER STUDIES INDICATE HOT SPOT WALL TEMPERATURE LIMIT OF 100 C MAY BE MET BY REPLACING THE CONSTANT (500) IN THE POWER PER ELEMENT LIMIT FORMULA WITH THE CONSTANT 453, I.E., REDUCE POWER/ELEMENT BY 9.4%. WORST CASE IS MTR CORE WITH 1 MITR ELEMENT.

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

REACTOR POWER + *MODIFICATION, SYSTEM OR EQUIPMENT + PERFORMANCE LIMIT + *FUEL ELEMENT + REACTOR, RESEARCH + REACTOR, HWR + MITR (RR) + TECHNICAL SPECIFICATIONS + CLADDING

17-30310

ALSO IN CATEGORY 9

SLUGGISH TRIGA TRANSIENT-ROD DROP
THE PENNSYLVANIA STATE UNIVERSITY

2 PAGES, LETTER TO P.A. MORRIS, DRL, JULY 29, 1968, DOCKET 50-5

ON JAN. 5, 68, DURING ROUTINE PRESTARTUP TESTS, THE OPERATOR NOTED THAT THE TRANSIENT ROD AIR VALVE WAS TAKING 2-3 SEC TO RELEASE, RATHER THAN THE LESS THAN 1 SEC NORMAL. ON ONE OCCASION, IT FAILED TO RELEASE. THE DISMANTLED VALVE SHOWED EVIDENCE OF GUIDE RUBBING AND WAS REPLACED.

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

*VALVE + TRIGA (RR) + REACTOR, RESEARCH + FAILURE, COMPONENT + *FAILURE, SCRAM MECHANISM

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30311 ALSO IN CATEGORIES 12 AND 18
VALVE CLOSURE DELAY IN STEAM LINE RUPTURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
4 PAGES, AMENDMENT 18 TO LICENSE APPLICATION, FEBRUARY 1, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--
STONE + WEBSTER

PROVIDES REVISED SAR PAGES FOR OFF SITE DOSE EVALUATION BASED ON A 10 SEC DELAY OF VALVE CLOSURE AND 300 (STEAM FLOW. ***A MAXIMUM I-131 CONTENT OF 9.7 CURIES COULD BE CONTAINED IN THE STEAM GENERATORS, AND IF ALL THIS WERE RELEASED, THE THYROID DOSE AT THE BOUNDARY WOULD BE 3 REMS. CALCULATED ACTUAL RELEASE WOULD GIVE 0.06 R. MAXIMUM REACTIVITY GAIN IS 1.01 (, 100 SEC AFTER THE BREAK. MINIMUM DNBR IS 1.65 AT 9.1 SEC AFTER BREAK.

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

*RESPONSE TIME + OFF SITE + HADDAM NECK (PWR) + REPORT, SAR + *CONTAINMENT ISOLATION + REACTOR, PWR + DOSE +
*SAFETY ANALYSIS + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS

17-30453 ALSO IN CATEGORY 1
THUNE HP
HOW TO INVESTIGATE ACCIDENTS
SAFETY DIVISION, POST OFFICE DEPARTMENT, WASHINGTON, D. C.
INDUSTRIAL SUPERVISOR FOR JAN. 1969, VOL. XXXVII(1), PG 8,9

(APPROACH USEFUL TO ALL FROM LESSONS LEARNED IN INDUSTRIAL SAFETY ASSOCIATED WITH U.S. POST OFFICE.) NINE-STEP PROCEDURE FOR USE OF INVESTIGATING SUPERVISOR. (1) LOOK FOR UNSAFE CONDITIONS AS WELL AS UNSAFE ACTS. (2) GO TO THE SCENE PROMPTLY BEFORE CLUES ARE LOST. (3) LISTEN FOR CLUES FROM BYSTANDER CONVERSATION. (4) STUDY THE EVIDENCE TO FIND UNDERLYING CAUSES. (5) ENCOURAGE WORKERS TO VOLUNTEER IDEAS FOR PREVENTION. (6) CONFER WITH TECHNICAL EXPERTS WHO SUPPLIED THE MACHINERY. (7) WRITE UP THE COMPLETE REPORT. (8) FOLLOW UP IN REDESIGN AND TRAINING. (9) PUBLICIZE CORRECTIVE ACTIONS SO WORKERS KNOW MANAGEMENT CARES.

INCIDENT, NONNUCLEAR + REACTOR, BWR + *ACCIDENT ANALYSIS + INDUSTRIAL SAFETY + REACTOR, PWR + INFORMATION RETRIEVAL + *OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + *TRAINING

17-30455
FACULTY TRAINING IN NUCLEAR SCIENCE ANNOUNCED
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
AEC PRESS RELEASE M-9 +. JAN. 16, 1969

34 AEC-NSF SPONSORED FACULTY TRAINING SUMMER INSTITUTES DURING 1969 WILL ACCOMMODATE 800 SCIENCE TEACHERS. 11 INSTITUTES (6 WEEKS) FOR COLLEGE TEACHERS, 19 INSTITUTES (6 WEEKS) FOR SECONDARY TEACHERS, 4 SHORT COURSES (2 WEEKS) FOR COLLEGE TEACHERS. CHOICES ARE RADIATION BIOLOGY, NUCLEAR PRINCIPLES, AND RADIOISOTOPES. *** TWO ACADEMIC-YEAR INSTITUTES (10.5 MONTHS) WILL BE HELD AT CORNELL (RADIATION BIOLOGY) AND OREGON STATE (NUCLEAR SCIENCE).

*RADIOISOTOPE + *TRAINING + *RADIOBIOLOGY

17-30529 ALSO IN CATEGORY 6
STUDIES OF THE CENTRAL REGION OF A TRIGA CORE
UNIVERSITY OF ILLINOIS
INRL-22 +. 12 PAGES, TABLES, JANUARY 10, 1968 (50-151)

81 ELEMENTS IN CORE (WITH CENTRAL 7 REMOVED) COULD NOT BE MADE CRITICAL. FLUX AND REACTIVITY WAS THEN MEASURED WITH A 6 ELEMENT TRAP. FUEL ADDED TO ONE SIDE OF CORE SHIFTED NORTH FROM SHIM TO REG. ROD. 100 KW OPERATION SHOWED INSTRUMENT CALIBRATION UNDISTURBED. *** SINGLE ELEMENT REMOVED GAINED \$0.19, WHILE VOID INSERTED IN SAME POSITION GAINED \$0.51 (WHILE NEXT 5 ELEMENTS MISSING). VOID MEASUREMENTS ARE NOT ADDITIVE AND ARE LOWER THAN CALCULATED. GRAPHITE DUMMY EFFECT IS MORE THAN ONE VOID ELEMENT. SIX ELEMENT HOLE IS LARGER THAN NECESSARY FOR MOST EFFECTIVE FLUX TRAP.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

IRRADIATION FACILITY + REPORT, OPERATIONS ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + REACTIVITY EFFECT, VOID + FUEL ELEMENT + REACTOR, PULSED + TRIGA (RR) + MEASUREMENT, SUBCRITICALITY + CONTROL ROD INTERACTION + MEASUREMENT, REACTIVITY + *REACTOR, FLUX TRAP + REACTOR, RESEARCH

17-30530 ALSO IN CATEGORY 14
LEAKAGE OF FISSION PRODUCT GASES FROM A TRIGA FUEL ELEMENT
UNIVERSITY OF ILLINOIS
INRL-21 +. 4 PAGES, OCTOBER 24, 1966 (50-151)

11 HOURS AFTER THE SPARE INSTRUMENTED FUEL ELEMENT WAS PLACED IN E-RING AND 250 KW BEGAN, INCREASED AIR PARTICULATE ACTIVITY WAS NOTED. HIGH READINGS AT TANK TOP CAME FROM THERMOCOUPLE WIRES (500 MR/HR CONTACT). AIR FILTER DECAYED WITH 20 MIN HALF-LIFE. EXHAUST STACK DETECTOR DID NOT SHOW A NOTICEABLE INCREASE ABOVE AR-41. AIR DATA INDICATED REACTOR ROOM R8-88 WAS 5 X 10(MINUS 9TH) MICRO/CC FOR 10 HOURS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30530 *CONTINUED*
REACTOR, PULSED + TRIGA (RR) + MONITOR, STACK + *FAILURE, CLADDING + FISSION GAS RELEASE + MONITOR, GAS +
REPORT, OPERATIONS ANALYSIS + FUEL ELEMENT + REACTOR, RESEARCH + INSTRUMENT, IN CORE + INSTRUMENT, TEMPERATURE

17-30531
REPLACEMENT OF CENTRAL THIMBLE ACCESS TUBE
UNIVERSITY OF ILLINOIS
INRL-20 +. 7 PAGES, 3 FIGURES, SEPTEMBER 1, 1965 (50-151)

NEW TUBE IS WATERTIGHT WITH SHIELDING BEND HALFWAY UP. LOWER 30 IN. IS OPEN TO WATER AND SEPARATED FROM REST OF VOIDED TUBE. WHEN WHOLE TUBE IS LIFTED 30 IN. AND LOCKED IN POSITION, SAMPLES CANNOT BE INADVERTANTLY DROPPED INTO TUBE NOR IS A CORE HOLE LEFT VACANT TO ALLOW ARTICLES TO FALL IN, CAUSING A REACTIVITY EFFECT. 4 *** REPORTS WORTH OF AL-H₂O (MINUS 11 CENTS), VOID (MINUS 61.5 CENTS), POLYSTYRENE CONTAINER (PLUS 6 CENTS). *** ORIGINAL TUBE HAD REQUIRED 2 HOURS TO REMOVE. SAMPLES HUNG ON ALUMINUM CHAIN REQUIRED WEIGHTS TO SINK, CAUSING ACTIVATION PROBLEMS. CHAIN BEING REPEATEDLY CUT OFF CAUSED POSITION REPEATABILITY PROBLEMS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*MODIFICATION, SYSTEM OR EQUIPMENT + REPORT, OPERATIONS + SHIELDING + OPERATING EXPERIENCE SUMMARY + REACTOR, RESEARCH + TRIGA (RR) + SHUTDOWN MARGIN + REACTIVITY EFFECT + *IRRADIATION FACILITY

17-30532 ALSO IN CATEGORY 9
REPAIR OF ROTARY SPECIMEN ASSEMBLY
UNIVERSITY OF ILLINOIS
INRL-19A +. 3 PAGES, DECEMBER 7, 1965 (50-151)

(SECOND BREAK). PREVIOUS APPROVED PROCEDURES USED. ASSEMBLY WAS RAISED 6 FT ABOVE CORE AND LEFT, THEN SCHEDULED OPERATION MADE. *** FISSION COUNTING RATE WAS 53 PER CENT THAT BEFORE REMOVAL, REACTIVITY GAIN WAS \$0.045. POWER WAS LIMITED BY REACTIVITY CHANGE AND BY FUEL TEMP. INCREASE. LINEAR/PER CENT POWER INDICATIONS WERE 53/70 KW AND 137/180 KW AT WHAT WAS NOMINALLY 100/250 KW, WHICH HEATUP RATES INDICATED 88/230 KW. ***REPAIR WAS POSSIBLE (WITHOUT REMOVAL FROM WATER) OF BROKEN PIN IN CONNECTOR. LOW POWER VALVES WERE DUE TO GRADUAL CHANGES, CHAMBER POSITIONS HAVE BEEN CORRECTED.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*MAINTENANCE AND REPAIR + SAFETY REVIEW + REPORT, OPERATIONS ANALYSIS + TRIGA (RR) + REACTOR, RESEARCH + IRRADIATION FACILITY + REACTOR POWER + REACTIVITY EFFECT + INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, POWER RANGE

17-30533
REPAIR OF ROTARY SPECIMEN ASSEMBLY
UNIVERSITY OF ILLINOIS
INRL-19 +. 7 PAGES, DECEMBER 23, 1964 (50-151)

AS BEFORE, WHEN ROTATING MECHANISM WOULD NOT MOVE IN NOV., PENETRATING OIL WAS RUN DOWN SHAFT OF LAZY SUSAN WHILE IT WAS TORQUED. IT BROKE AT A COUPLING. AFTER SAFETY COMMITTEE REVIEW, WATER WAS LOWERED TO 7 FT ABOVE CORE AND CONNECTIONS REMOVED. AS THE ASSEMBLY ROSE, FISSION COUNTING RATE RATE DECREASED FROM 450 TO 250 CPM AS WATER FILLED THE VOID. ASSEMBLY WAS 1 R/HR. REACTIVITY CHANGE WAS \$0.05. *** HIGHEST DOSE (60 MREM, W.B.) WAS TO MECHANIC WORKING ON REMOVED ASSEMBLY. REPLACED ASSEMBLY LEAKED, NO PRESSURE TEST HAD BEEN MADE. WATER FLOODING OF LAZY SUSAN DECREASED LINEAR AND PER CENT POWER INDICATIONS BY 15 PER CENT.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REACTOR, RESEARCH + *MAINTENANCE AND REPAIR + *IRRADIATION FACILITY + REACTIVITY EFFECT, ANOMALOUS + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR, PULSED + SAFETY REVIEW + LEAK

17-30534
INCREASE OF PULSING CAPABILITIES TO \$3.00
UNIVERSITY OF ILLINOIS
INRL-17 +. 4 PAGES, 1 TABLE, DECEMBER 6, 1963 (50-151)

GRAPH OF PEAK POWER, PERIOD, AND TEMP. FOR GRADUAL INCREASE IN PULSING CAPABILITY FROM \$1.50 TO \$3.00. (10.8 TO 26.1 MW SEC). 250 KW STEADY STATE OPERATION HAD REQUIRED (1) 2 ADDITIONAL FUEL ELEMENTS, (2) FUEL MOVEMENT TO INCREASE PULSE ROD REACTIVITY. AS STEPS INCREASED, MAX. FUEL TEMPERATURE EXTRAPOLATIONS APPROACHED 500 C LIMIT, SO TIMING RELAY WAS ADJUSTED TO DROP PULSE ROD AT 1.5 SEC AFTER PULSE, INSTEAD OF 3 SEC. HIGHER PULSE ROD POSITION DURING SHIM/REG. CALIBRATION DECREASED THEIR WORTH SLIGHTLY (BY 3 PER CENT). WHEN PEAK POWER AND PERIOD WERE OBTAINED FROM SAME LINEAR POWER TRACE, A 5-10 PER CENT PERIOD ERROR OCCURS BECAUSE OF FUEL TEMP. INCREASE BEFORE TRACE BEGINS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

PERFORMANCE LIMIT + REACTOR, RESEARCH + CONTROL ROD CALIBRATION + *TEMPERATURE TRANSIENT + REPORT, OPERATIONS ANALYSIS + FUEL ELEMENT + REACTOR, PULSED + *TRIGA (RR) + POWER UPGRATING + *REACTOR STARTUP EXPERIENCE + INSTRUMENT CALIBRATION + INSTRUMENT, PULSE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30535
REACTOR POWER INCREASE TO 250 KW
UNIVERSITY OF ILLINOIS
INRL-16 +. 7 PAGES, FIGURES, TABLES, NOVEMBER 26, 1963 (50-151)

(SEQUEL TO INRL-15, PULSE ROD REPLACEMENT). NEW ROD WORTH 1.91 PER CENT (0.3 PER CENT INCREASE), NO OTHER CHANGES MADE. SHUTDOWN MARGIN INCREASED TO 0.33 PER CENT TO 4.36 PER CENT. POWER WAS INCREASED IN 25 KW STEPS FOR FUEL TEMPERATURE AND REACTIVITY DATA.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB, URBANA, ILLINOIS 61801

SHUTDOWN MARGIN + *POWER UPGRATING + TEMPERATURE REACTIVITY EFFECT + MEASUREMENT, SUBCRITICALITY + TRIGA (RR) + REACTOR, PULSED + REACTOR, RESEARCH + FUEL ELEMENT + CONTROL ROD WORTH + REPORT, OPERATIONS ANALYSIS

17-30536
RELATIONSHIP BETWEEN REACTIVITY AND POWER
UNIVERSITY OF ILLINOIS
INRL-18 +. 4 PAGES, 1 FIGURE, NOVEMBER 18, 1964 (50-151)

LOGBOOK REG. ROD POSITIONS AT 10 W AND 100 KW FOR JULY 61 TO SEPT. 64 WERE USED TO OBTAIN VARIATION IN THE POWER REACTIVITY EFFECT (TO SUPPLEMENT THE REACTOR POWER CALIBRATION). GRAPH SHOWS INITIAL \$0.64 EFFECT HAS GRADUALLY INCREASED TO \$0.82. (1) SHOWS INCREASES DURING PERIODS OF MANY PULSES, PROBABLY BY CLAD SEPARATION FROM HEAT. (2) POWER CHANNEL INDICATION IS DIRECTLY PROPORTIONAL TO PULSE ROD POSITION AND MORE THAN COMPENSATES FOR EFFECT ON REG. ROD WORTH.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*POWER COEFFICIENT + SURVEILLANCE PROGRAM + *FUEL BURNUP + REACTOR, PULSED + HEAT CONDUCTANCE, FUEL TO CLAD + REACTOR POWER + TRIGA (RR) + REACTOR, RESEARCH + REPORT, OPERATIONS ANALYSIS

17-30537
REPLACEMENT OF CONTROL ROD
UNIVERSITY OF ILLINOIS
INRL-15 +. 3 PAGES, 1 TABLE, SEPTEMBER 17, 1963 (50-151)

PREVIOUS PULSE ROD HAD BEEN LIMITED TO 1.7 PER CENT REACTIVITY OPERATION, NEW ROD WITH 25 PER CENT LARGER SURFACE AREA REQUIRED FOR 2.2 PER CENT PULSES. (REACTOR COMMITTEE) LISTED RECOMMENDATIONS INCLUDED MAKING CORE SUBCRITICAL WITH ALL RODS REMOVED FOR REPLACEMENT. (DATA OBTAINED). COUNT RATES FOR 1/M PLOT GIVEN. CHANGE TOOK 3 HR. LOWER SUBCRITICAL COUNTING RATES INDICATED NEW ROD HAD MORE NEGATIVITY.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REACTOR, PULSED + REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + *CONTROL ROD + *MODIFICATION, SYSTEM OR EQUIPMENT + MEASUREMENT, SUBCRITICALITY + SAFETY REVIEW + TRIGA (RR)

17-30538 ALSO IN CATEGORY 9
ROD DROP ANALYSIS
UNIVERSITY OF ILLINOIS
INRL-14 +. 10 PAGES, FIGURES, TABLES, MAY 24, 1963 (50-151)

RESPONSE TIMES OF VARIOUS PORTIONS OF CIRCUITRY AND MECHANICS FOLLOWING SCRAM WERE MEASURED ACCURATELY FOR MAGNET RELEASED RODS. (TOTAL)-0.463 SEC. (DASH POT DECELERATION)-0.068 SEC. (MAGNET RELEASE)-0.041 SEC. INITIAL MAGNET CURRENT WAS VARIED FROM 169 MA (0.406 SEC) TO 68 (0.397 SEC). ACCELERATION COMPUTED (18 FT/SEC SQ) AND NEGATIVE REACTIVITY VS TIME GRAPHED. INITIAL INDICATION OF NEGATIVE CONTROL IS WITHIN 0.020 SEC, AND MAXIMUM EXCESS REACTIVITY IS CANCELLED IN 0.235 SEC.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*CONTROL ROD SCRAM MECHANISM + MEASUREMENT, GENERAL + SHUTDOWN MARGIN + REPORT, OPERATIONS ANALYSIS + MEASUREMENT, SUBCRITICALITY + TRIGA (RR) + *RESPONSE TIME + REACTOR, RESEARCH + REACTOR, PULSED

17-30539 ALSO IN CATEGORIES 5 AND 6
MEASUREMENTS OF DOSE RATES --- TRANSIENT
UNIVERSITY OF ILLINOIS
INRL-13 +. 5 PAGES, 1 FIGURE, APRIL 16, 1963 (50-151)

MEASUREMENTS DOSE WITH THE PULSE ROD LEFT IN UP POSITION FOLLOWING SCRAM 3 PULSES APRIL 10/11. (POWER) PEAK 250 MW, 380 KW MINIMUM AT 20 SEC, AND 366 KW EQUILIBRIUM WITHIN 2 MIN. (DOSE RATE ON GRATING) OFF 100 MREM/HR SCALE FOR PULSE, MIN OF 18 MR/HR AT 10 SEC THEN EQUILIBRIUM AT 1 SEC OF 86 (CIRC. WATER OFF) OR 36 (CIRC. WATER ON). ***EXPECTED POWER WAS 290 KW, INDICATING POWER COEFFICIENT NONLINEAR ABOVE 100 KW. AT 1 MW, 310 AND 126 MR/HR WOULD BE EXPECTED WITH CIRC. WATER OFF/ON. LESSER PULSES WILL BE USED TO OBTAIN A COMPLETE PICTURE.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

TEMPERATURE TRANSIENT + *SHIELDING + EXTRAPOLATION FACTOR + REPORT, OPERATIONS ANALYSIS + POWER UPGRATING +

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30539 *CONTINUED*
POWER COEFFICIENT + REACTOR TRANSIENT + *FUEL ELEMENT + *TEST, PROOF + REACTOR, RESEARCH + *REACTOR POWER +
REACTOR, PULSED + FAILURE, SCRAM MECHANISM

17-30540
FUEL LENGTHS AND DIAMETER - FINAL REPORT - TRIGA MARK II REACTOR
UNIVERSITY OF ILLINOIS
INRL-12-J +. 5 PAGES, 1 FIGURE, 3 TABLES, SEPTEMBER 13, 1968, (50-151)

FINAL CHECK MADE JULY 68 REVIEWS HISTORY THROUGH 1375 PULSES. WHILE 15 ELEMENTS IN THE E-RING FOR ALL PULSES SHOWED RANDOM GROWTH OF 42 TO 165 MILS, GROWTH CORRELATED WITH CORE LOCATION (8 RING 3X AVERAGE, 8X F-RING). AVERAGE GROWTH 123 MILS, BUT 5 WERE 40-60 AND 2 WERE 200-210. RADIAL GROWTH WAS MUCH LESS. *** INITIAL ESTIMATES OF LENGTH 0.1 MIL FOR A \$2 PULSE, 0.2 (\$2.50, 0.5 (3.0)) HELD TRUE FOR 930 PULSES, THEN LEVELED OFF TO 1/4 THE PREDICTED VALUE. 250 KW OPERATION HAD LITTLE EFFECT ON GROWTH.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

*OPERATING EXPERIENCE SUMMARY + POWER UPRATING + REACTOR, PULSED + URANIUM HYDRIDE + TRIGA (RR) + REACTOR, RESEARCH + *EXPANSION + *FUEL ELEMENT + REPORT, OPERATIONS ANALYSIS

17-30541
FUEL ELEMENT LENGTHS AND DIAMETERS
UNIVERSITY OF ILLINOIS
INRL-12 +. 20 PAGES, FIGURES, TABLES, JUNE 20, 1962 (50-151)

REPORTS 12 THROUGH 12-J REPORT THESE MEASUREMENTS AS SPORADICALLY MADE TO COMPLY WITH TECHNICAL SPECIFICATIONS. BEGAN MAY 23, 1962, AFTER 48 PULSES AND 17.4 MW-HRS. (12-B) 97 MW-HRS, SIGNIFICANT LENGTH INCREASE NOTED, 182 MILS, NEXT TO PULSE ROD. DEFINITE CORRESPONDENCE TO RADIAL POSITION/FLUX. (12-C) 136 MW-HRS. GROWTH RATE WITH \$3 PULSES IS 5X THAT OF \$2. FUEL MOVEMENT MINIMIZED GROWTH IN PEAK ELEMENTS. (12-F) 310 MW-HRS. AVERAGE INCREASE LENGTH 3.1 MILS, 1/3 PREDICTED.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REPORT, OPERATIONS ANALYSIS + *EXPANSION + REACTOR, RESEARCH + *FUEL ELEMENT + *MEASUREMENT, GENERAL + TRIGA (RR) + URANIUM HYDRIDE + REACTOR, PULSED

17-30542
SUMMARY ON PULSES 32-41
UNIVERSITY OF ILLINOIS
INRL-11 +. 1 PAGE, MARCH 1, 1962 (50-151)

PEAK POWER AND FUEL TEMP. FOR 2 (\$1.80), 5 (\$1.92) AND 2 (\$2.00) PULSES. PEAK POWERS WERE 144, 178, AND 202. TEMPS. WERE 380, 306, AND 306. FOR \$2 PULSES, GRAPHITE PLUG WAS REMOVED FROM W BEAM PORT FOR A CADMIUM CONTAINER, GIVING AN \$0.08 DIFFERENCE BETWEEN REACTIVITY ESTIMATED BY PULSE ROD AND R-S POSITIONS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILL. 61801

REACTOR, PULSED + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR TRANSIENT + REACTOR, RESEARCH + *TEMPERATURE TRANSIENT + REACTOR POWER + *FUEL ELEMENT

17-30543 ALSO IN CATEGORY 9
PULSE ROD REACTIVITY
UNIVERSITY OF ILLINOIS
INRL-10 +. 3 PAGES, FEBRUARY 21, 1962 (50-151)

REPORT TO AEC OF DIFFICULTIES (ESSENTIALLY SAME AS INRL-9). TWICE PEAK POWER SCRAMS FOLLOWED \$2.00 PULSES. THE FIRST (ON THE 13TH \$2 PULSE) WAS APPARENTLY DUE TO MOVEMENT TO MAXIMUM OUT POSITION BY LOOSE COUPLING PINS. AFTER THE SECOND, PRECISE RECALIBRATION OF THE REG ROD SHOWED INCREASED VALUE DUE TO OTHER ROD POSITIONS, GIVING THE TRUE PULSE ROD WORTH AS \$2.30 INSTEAD OF \$2.05. MOST OF THIS WAS DUE TO INCREASED AIR PRESSURE (LONGER STROKE) AND ROTATED POSITION. *** REPRODUCIBLE RESULTS HAVE BEEN OBTAINED SINCE RECALIBRATION.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + REACTOR, PULSED + CONTROL ROD DRIVE + TRIGA (RR) + *CONTROL ROD CALIBRATION + FAILURE, EQUIPMENT + *SCRAM, SPURIOUS + INSTRUMENT, POWER RANGE

17-30544 ALSO IN CATEGORY 9
ADJUSTMENT OF CONTROL ROD REACTIVITY WORTHS
UNIVERSITY OF ILLINOIS
INRL-9 +. 5 PAGES, 3 FIGURES, FEBRUARY 14, 1962 (50-151)

JULY 61 PULSE ROD MEASURED \$2.11, AUG. 30, \$2.05. HOWEVER, ON NOV. 15, A PEAK POWER SCRAM CAME FROM A \$2 PULSE, AND DEC. CALIBRATION SHOWED \$2.05. AFTER A DEC. 8 PEAK POWER SCRAM, PULSES WERE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30544 *CONTINUED*

LIMITED TO \$1.75. *** REG. ROD WAS CALIBRATED AS \$2.13-.16 (DEPENDING ON SHIM POSITION, AND THIS WAS USED TO ESTIMATE SHIM WORTH AS \$4.35, AND PULSE ROD AS \$2.30. (INCREASE ATTRIBUTED TO REG. ROD CHANGED VALUE, INCREASED AIR PRESSURE WITHDRAWN MORE, AND ROTATION TOWARDS CORE). *** ONE SCRAM COULD HAVE BEEN CAUSED BY LOOSE PINS, ANOTHER BY REPLACEMENT OF GRAPHITE WITH CADMIUM IN A BEAM HOLE (\$0.30), CHANGING FLUX DISTRIBUTION.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

TRIGA (RR) + CONTROL ROD INTERACTION + REACTOR, RESEARCH + SCRAM, SPURIOUS + *CONTROL ROD WORTH + REPORT, OPERATIONS ANALYSIS + REACTIVITY EFFECT, ANOMALOUS + REACTOR, PULSED + BEAM HOLE

17-30545

RADIATION MEASUREMENTS MADE WHILE USING VARIOUS CONFIGURATIONS OF BEAM PORT PLUGS
UNIVERSITY OF ILLINOIS

INRL-8 +. 3 PAGES, 1 FIGURE, 1 TABLE, 1962 (50-151)

MEASUREMENTS MADE 1 FT FROM REACTOR FACE AT 100 KW, OF FAST AND SLOW NEUTRONS AND GAMMAS. VARIOUS COMBINATIONS OF WOOD AND STEEL PLUGS USED. ORIGINAL PLUGS - 4 FT OF WOOD. SLOW NEUTRONS NOT AFFECTED. STEEL REDUCES GAMMA FROM 13 MR/HR TO 2, BUT FAST NEUTRON DOSE INCREASED FROM 4 TO AS MUCH AS 22.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

MEASUREMENT, GENERAL + TRIGA (RR) + REACTOR, RESEARCH + GAMMA + FAST NEUTRON + *SHIELDING + REPORT, OPERATIONS ANALYSIS

17-30546

CORE LOADING OF PULSE TYPE FUEL ELEMENTS

UNIVERSITY OF ILLINOIS

INRL-7 +. 2 PAGES, SEPTEMBER 6, 1961 (50-151)

PULSE FUEL WAS LOADED JULY 5/6, 1961. 1/M CURVES GAVE LOW INITIAL PREDICTIONS AS CENTRAL ELEMENTS LOADED FIRST, WHILE LOADING ELEMENTS 56-58 GAVE 59 AS CRITICAL. IT WAS. SHIM WORTH WAS 3.2 PER CENT, AND REG. ROD WORTH 1.6 PER CENT.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REACTOR, PULSED + MEASUREMENT, SUBCRITICALITY + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + *REFUELING + CONTROL ROD WORTH + REACTOR, RESEARCH

17-30547

REACTOR POWER DECREASE ON SHUTDOWN

UNIVERSITY OF ILLINOIS

INRL-6 +. 2 PAGES, JUNE 5, 1961 (50-151)

MEASUREMENTS ON MICRO-MICRO AMMETER FOLLOWING A SCRAM AND A ROD RUN-IN FROM 100 KW FOR 4 HR, WITH AND WITHOUT COMPENSATING VOLTAGE. SCRAM AND RUN-IN REACH 0.1 KW AT 142/144 SEC. GAMMA DOSE RATES IN LAZY SUSAN ALSO TAKEN AS (AT 1 HR) 13,000 R/HR PER WATT INDICATED AND (AT 24 HR) 16,000 R/HR PER WATT.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REACTOR, RESEARCH + *REACTOR POWER + IRRADIATION FACILITY + SCRAM, REAL + GAMMA + *MEASUREMENT, GENERAL + REPORT, OPERATIONS ANALYSIS + TRIGA (RR)

17-30548

DEMINERALIZER ACTIVITY

UNIVERSITY OF ILLINOIS

INRL-5 +. 1961 (50-151)

MEASUREMENTS WERE MADE ON THE ACTIVITY OF THE DEMINERALIZER AND THE WATER. THE MAJOR ACTIVITY WAS FROM AN ALIN,ALPHA/NA REACTION WITH SMALL AMOUNTS OF MG-27. THE RATIO OF NA-24 TO A-41 IN THE WATER WAS ABOUT 9-1. IT WAS PREDICTED THAT CONTINUED OPERATION AT 100 KW WOULD GIVE A MAXIMUM DOSE RATE OF ABOUT 80 MR/HR AT THE SURFACE OF THE DEMINERALIZER. CURVES WERE DRAWN ON THE BUILDUP OF ACTIVITY DURING REACTOR OPERATION, THE CONTINUED BUILDUP AFTER SHUTDOWN (WATER CIRCULATED CONTINUOUSLY), AND THE DECAY WITH THE DEMINERALIZER ISOLATED.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

REPORT, OPERATIONS ANALYSIS + *COOLANT PURIFICATION SYSTEM + ARGON + *ACTIVITY BUILDUP + ION EXCHANGE + SODIUM + TRIGA (RR) + REACTOR, RESEARCH

17-30549

ALSO IN CATEGORY 9

EFFECTS OF CONTROL ROD POSITION ON POWER LEVEL INDICATION

UNIVERSITY OF ILLINOIS

INRL-4 +. 3 PAGES, 1 FIGURE, MAY 2, 1961 (50-151)

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30549 *CONTINUED*

ON A FEW OCCASIONS WITH THE SHIM ROD AT 650, A POWER SCRAM WOULD OCCUR DURING NORMAL OVERRIDE AFTER 100 KW WAS REACHED. SHIM ROD WAS INSERTED AT 100 KW, AND SERVO MOVED REG ROD FROM 769 TO 331 WHILE POWER WENT FROM 96 TO 110 KW. *** LINEAR CHAMBER (NEAR REG ROD) AND PER CENT POWER (NEAR SHIM ROD) WERE BEING SHADOWED. LINEAR AND LOG-N SIGNAL LEADS WERE REVERSED, AND A SIMILAR TEST SHOWED POWER SHIFT WAS FROM 98 TO 102 KW. *** CARE SHOULD BE TAKEN IN POSITIONING CHAMBERS WITH RESPECT TO RODS, AND OPERATOR SHOULD CONTROL ERRORS DURING RESEARCH MEASUREMENTS.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

MEASUREMENT, GENERAL + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + OPERATOR ACTION + CONTROL ROD INTERACTION + REACTOR POWER + INSTRUMENT, POSITION + *INSTRUMENT, ABNORMAL INDICATION

17-30550 ALSO IN CATEGORY 9

POWER CALIBRATION OF TRIGA-II

UNIVERSITY OF ILLINOIS

INRL-3 +. 4 PAGES, 1 FIGURE, 1961 (50-151)

SIX CALROD HEATERS (GIVING 9.6 MW) WERE PLACED IN D-RING CORE POSITIONS TO OBTAIN A HEATUP RATE OF POOL WATER, KEEPING WATER WITHIN 2 C OF SHIELD-CONCRETE TEMP. NEUTRON INSTRUMENTS WERE POSITIONED ACCORDING TO GA INSTRUCTION, AND THE CALROD CALIBRATION WAS 0.958 THE NEUTRON INDICATION. CHAMBERS WERE REPOSITIONED TO AGREE WITH CALRODS. *** CALRODS GAVE A RISE OF 0.506 C/HR PER KW IN THE 4490 GAL TANK.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

MEASUREMENT, TEMPERATURE + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS + REACTOR, RESEARCH + *REACTOR POWER + INSTRUMENT CALIBRATION + INSTRUMENT, TEMPERATURE

17-30551

REACTOR BUILDING EXHAUST SYSTEM

UNIVERSITY OF ILLINOIS

INRL-2 +. 2 PAGES, 1 FIGURE, 1961 (50-151)

THE 1200 RPM BLOWER CREATES A STATIC PRESSURE OF 2 IN. OF WATER AND EXHAUSTS AT 2400 CFM (AN AIR CHANGE EVERY 50 MIN). STACK DISCHARGE VELOCITY IS 35 MPH.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS 61801

STACK + *VENTILATION SYSTEM + TRIGA (RR) + REPORT, OPERATIONS ANALYSIS

17-30552

OPEN HOUSE REPORT

UNIVERSITY OF ILLINOIS

INRL-1 +. 2 PAGES, MARCH 13, 1961 (50-151)

REACTOR OPERATED AT 30 KW ON FRI. AND SAT. (MAR. 10 AND 11) FOR 19 HR WHILE 2000 PEOPLE VISITED. DEMINERALIZER ACTIVITY BUILT UP TO 35 MR/HR, SO ROPES WERE USED TO RESTRICT ACCESS. EDGE OF REACTOR TANK WAS AT 2.5 MR/HR, GUIDES THERE RECEIVED 0 TO 3 MR FOR THEIR 2 HR ON DUTY. MAXIMUM NO. OF PEOPLE IN BUILDING WAS 100, AVERAGE 25-50. ONE HANDOUT BROCHURE AND WAS DROPPED IN TANK, REMOVED WITHOUT INCIDENT.

AVAILABILITY - UNIVERSITY OF ILLINOIS, NUCLEAR ENGINEERING LAB., URBANA, ILLINOIS

REPORT, OPERATIONS ANALYSIS + RADIATION, PUBLIC EDUCATION + REACTOR, RESEARCH + TRIGA (RR)

17-30568

LA CROSSE BOILING WATER REACTOR OPERATING MANUAL. VOLUME XI, INDUSTRIAL SAFETY

ALLIS-CHALMERS MFG.

ACNP-68505-K +. 78 PAGES, FIGURES, AUGUST 1968

COVERS ORGANIZATION (5 PGS), PLANT DESIGN AND LAYOUT (2 PGS), OPERATIONS AND MAINTENANCE (6 PGS), EQUIPMENT AND FACILITIES (4 PGS), CHEMICAL HAZARDS (5 PGS), FIRE PROTECTION (3 PGS), LOCK AND TAG (6 PGS), FIRE FIGHTING (9 PGS).

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

PROCEDURES AND MANUALS + EMERGENCY PROCEDURE + LACROSSE (BWR) + FIRE + PERSONNEL PROTECTIVE DEVICE + REACTOR, BWR + CHEMICAL REACTION + *INDUSTRIAL SAFETY

17-30569 ALSO IN CATEGORY 14

LA CROSSE BOILING WATER REACTOR AND OPERATING MANUAL. VOLUME VII. WASTE COLLECTION AND TREATMENT

ALLIS-CHALMERS MFG.

ACNP-68505-G +. 95 PAGES, 8 FIGURES, APRIL 1968

DESCRIBES SYSTEMS AND OPERATING PROCEDURES IN GENERAL DETAILS WITHOUT GIVING PRECISE MOTION-BY-

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30569 *CONTINUED*

MOTION PROCEDURES OR CHECK LISTS. COVERS WASTE COLLECTION, TREATMENT, TRANSFER, AND DISPOSAL OPERATIONS FOR WASTE GAS AND LIQUID.

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

REACTOR, BWR + *WASTE HANDLING + WASTE TREATMENT, EQUIPMENT + LACROSSE (BWR) + PROCEDURES AND MANUALS

17-30570

LA CROSSE BOILING WATER REACTOR OPERATING MANUAL. VOLUME III. TURBINE GENERATOR SYSTEMS
ALLIS-CHALMERS MFG.
ACNP-68505-C +. 278 PAGES, AUGUST 1968

3600 RPM SINGLE FLOW-TANDEM COMPOUND 60 MWE. GIVES GENERAL DESCRIPTION OF SUBSYSTEMS AND THEIR OPERATION (E.G., TESTING TURBINE BYPASS VALVE). CHOOSE A CONVENIENT TIME, PUT SELECTOR ON MANUAL, TURN HANDLE, OBSERVE, RETURN TO AUTOMATIC OPERATION).

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

TURBINE + AUXILIARY COOLING SYSTEM + TEST, SYSTEM OPERABILITY + REACTOR, BWR + SYSTEM DESCRIPTION + BYPASS + PROCEDURES AND MANUALS + LACROSSE (BWR)

17-30571

ANDERSON RH + FORD JA + LINDSEY PS
DESIGN, FABRICATION, AND PRELIMINARY OPERATION OF THE STEAM GENERATORS FOR THE ENRICO FERMI ATOMIC POWER PLANT

ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH.
APDA-307 +. 301 PAGES, AUGUST 1968

CHRONOLOGICAL HISTORY FROM PURCHASE (1958) THROUGH PRELIMINARY OPERATION (1965). DESCRIPTIVE STUDIES AND EXPERIMENTAL PROGRAM LEADING TO DESIGN CONCEPT (37 PG), DESIGN AND FABRICATION (38 PG), PREOPERATIONAL TESTING AND USE (64 PG). *** COMPACT ONCE-THROUGH DESIGN HAS BEEN GOOD. TUBE FAILURE SHOWED METAL-WATER REACTION COULD BE WITHSTOOD AND DID NOT PROPAGATE. FLOW-INDUCED VIBRATION CAUSED FAILURE DUE TO POOR RESTRAINT AND BAFFLING. TUBE-TO-TUBE-SHEET JOINT-LEAKAGE CAUSE HAS NOT BEEN FOUND. ACCESSIBILITY HAS SAVED MONEY, BUT INTERNAL INSPECTION IS NOT EASY. MANY DEFECTS WERE FOUND IN PREOPERATIONAL TESTING, WHILE FIXING WAS EASY.

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

FAILURE, TUBING + TEST, PREOPERATIONAL + *OPERATING EXPERIENCE SUMMARY + STEAM GENERATOR + METAL WATER REACTION + DESIGN STUDY + VIBRATION + EXAMINATION + FERMI (LMFBR) + REACTOR, LMFBR + SYSTEM DESCRIPTION

17-30573

ALSO IN CATEGORY 9

MOINEREAU P
USE OF NUMERICAL COMPUTERS FOR MONITORING AND OPERATING NUCLEAR REACTORS
COMPAGNIE INTERNATIONALE POUR L'INFORMATIQUE, PARIS
5 PAGES, ATOMPRAXIS, 14, PAGES 165-9 (APR.-MAY 1968)

ANALYZES THE FUNCTIONS THAT ARE USUALLY COMPUTER-PROCESSED IN A REACTOR. THE ORGANIZATION OF THE CORRESPONDING DATA-PROCESSING SYSTEM IS DESCRIBED. THE MOST IMPORTANT CONCLUSIONS OF THE CURRENT EXPERIMENTS ARE OUTLINED.

REACTOR, POWER + COMPUTER CONTROL + *DATA PROCESSING

17-30586

ALSO IN CATEGORY 9

MARTIN RD
CONTROL-ROD MATERIAL PROBLEMS OF RESEARCH REACTORS
UNIVERSITY OF MICHIGAN
10 PAGES, 41 REFERENCES, NUCLEAR SAFETY 10(1), PAGES 63-72 (JAN.-FEB. 1969)

CONTROL-ROD MATERIAL PROBLEMS IN RESEARCH REACTORS HAVE NOT CAUSED ANY SERIOUS REACTOR ACCIDENTS. HOWEVER, REPETITION OF POOR DESIGNS (B4C-POWDER-FILLED POOL-REACTOR CONTROL RODS) AND INSUFFICIENT MECHANICAL TESTING OF FULL-SIZED CONTROL RODS (DEFORMATION OF MTR AND ORR ALUMINUM-CLAD CADMIUM) HAVE RESULTED IN SOME PROBLEMS THAT COULD HAVE BEEN AVOIDED. THE POWER-REACTOR OPERATING EXPERIENCE WITH CRACKED BORON-STAINLESS STEEL CONTROL RODS MAY BE PERTINENT TO RESEARCH REACTORS OPERATING IN THE MEGAWATT REGIONS. AS RESEARCH-REACTOR OPERATING EXPERIENCE WITH VARIOUS CONTROL-ROD MATERIALS INCREASES, AN IMPROVED MEANS OF REGULARLY DISSEMINATING OPERATIONAL-PROBLEM INFORMATION IS NEEDED.

REVIEW + CADMIUM + DESIGN STUDY + *CONTROL ROD + CORROSION + *OPERATING EXPERIENCE + FAILURE, CLADDING + *MATERIAL + BORON + REACTOR, RESEARCH + EXPANSION

17-30598

ALSO IN CATEGORIES 5 AND 10

SELECTED HADDAM NECK OPERATING EXPERIENCE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30598 *CONTINUED*

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-21 +. 10 PAGES, FIGURES, TABLES, OPERATION REPORT NO. 68-4, MAY 14, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

TURBINE FLANGE REPAIRS COMPLETED 13TH, AND IN-CORE MEASUREMENTS (AT 30 POWER) OF REDISTRIBUTION OF FLUX IN DROPPED AND EJECTED ROD SITUATIONS COMPLETED THE 19TH. (27TH) ON RESTORING A 115 KV OUTSIDE LINE, A SWITCHING PROCEDURE WAS USED WHICH DEGUARDED A TRANSFER TRIP RELAY, CAUSING SITE FEEDER BREAKERS TO OPEN, INTERRUPTING STATION SERVICE POWER AT 490 MWE. STATION WAS ON EMERGENCY POWER FOR 25 MIN BEFORE NORMAL POWER RESTORED. ***FUNCTIONAL CHECKS OF CONTAINMENT FAN DAMPER HAVE BEEN TROUBLE FREE. ELECTRIC OPERATORS ARE BEING CHANGED TO AIR OPERATORS.

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

*MODIFICATION, SYSTEM OR EQUIPMENT + GENERATOR, ENGINE + ACCIDENT, CONTROL ROD DROPIN + POWER DISTRIBUTION + TURBINE + ACCIDENT, LOAD REJECTION + ACCIDENT, CONTROL ROD EJECTION + MEASUREMENT, GENERAL + FAILURE, EQUIPMENT + REPORT, OPERATIONS + MAINTENANCE AND REPAIR + HADDAM NECK (PWR) + ACCIDENT, LOSS OF POWER + REACTOR, PWR + *CONTAINMENT AIR COOLING + *FAILURE, OPERATOR ERROR + EMERGENCY POWER, ELECTRIC

17-30600 ALSO IN CATEGORY 5

ADDITIONAL ANALYSIS OF THE PROOF TEST FACILITY DESIGN ACCIDENT FOR A CORE CONTAINING ALL PU02-U02 FUEL RODS UNITED NUCLEAR CORPORATION

6 PAGES, LETTER TO D.J. SKOVHOLT, DRL, SUPPLEMENT A OF AMENDMENT 1, 1967, DOCKET 50-290

ANALYSIS OF \$0.03/SEC ADDED BY WATER FILL USING UNC-A-32 CODE SHOWS PEAK POWER OF 0.72 KW REACHED AT 30 SEC, AND TOTAL ENERGY RELEASE OF 9 KW-SEC. THIS WOULD HEAT WATER LESS THAN 1 F.

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

PLUTONIUM DIOXIDE + *SAFETY ANALYSIS + URANIUM DIOXIDE + CRITICAL ASSEMBLY FACILITY + *ACCIDENT, CONTROL ROD WITHDRAWAL

17-30606 ALSO IN CATEGORY 5

PULSTAR TECHNICAL SPECIFICATION REVISIONS ON HIGH ENERGY DENSITY PULSES WESTERN NEW YORK NUCLEAR RESEARCH CENTER

18 PAGES, FIGURES, TABLES, LETTER TO D.J. SKOVHOLT, DRL, NOVEMBER 14, 1968, DOCKET 50-57

WITHDRAWS ALL PREVIOUS REQUESTS (FROM 1966 ON) REGARDING PULSING. REQUESTS COMPLETE REPLACEMENT OF OLD SECTION P (PULSE OPERATION) WITH NEW (ENCLOSED), WHICH RESTRICTS PULSING TO FORCED CONVECTION AND WHICH ABANDONS FURTHER PULSE TESTING TO HIGHER POWER DENSITIES (THAN THAT GIVEN IN A SPECIFIC FORMULA) WITHOUT AEC APPROVAL. TRANSIENT ROD LIMITED TO 0.025 DK/K. MAXIMUM ALLOWABLE ENERGY DENSITIES RANGE FROM 735 TO 498 WATT-SEC/GM (DEPENDING ON HOT SPOT FACTOR AND CORRELATION BETWEEN ENERGY DENSITY AND FILM BOILING LIMITS).

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

*PERFORMANCE LIMIT + TECHNICAL SPECIFICATIONS + REACTOR, PULSED + POWER DISTRIBUTION + PULSTAR (RRI) + FUEL ELEMENT + REACTOR, RESEARCH + *EXCURSION, LARGE + *FILM BOILING

17-30607

OPERATIONS SUMMARY - JULY-OCTOBER 1968

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

7 PAGES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 8, 1968, DOCKET 50-30

NO CHANGES MADE IN FACILITY OR PROCEDURES. 15 IRRADIATION EXPERIMENTS DESCRIBED.

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

REPORT, OPERATIONS SUMMARY + REACTOR, TEST + PLUM BROOK (TR)

17-30608 ALSO IN CATEGORY 10

YANKEE DIESEL FAILURE ON TEST

YANKEE ATOMIC ELECTRIC CO., BOSTON, MASS.

7 PAGES, FIGURES, TABLES, YANKEE OPERATION REPORT 94, (OCT. 1968), NOVEMBER 15, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AFTER A ROUTINE TEST OF THE EMERGENCY DIESEL SEPT. 24, ENGINE RESTART GAVE CRANKING BUT NOT OPERATION. AFTER RESET OF PROTECTIVE RELAYS, ENGINE STARTED ON NORMAL PROCEDURE. *** TRIPPING THE ENGINE FROM LOCAL PANEL CAUSED DIFFICULTY. ALARM PANEL SWITCH MUST BE ON BEFORE THE DIESEL CAN BE STARTED, AND DIESEL MUST START BEFORE A TIME DELAY RELAY SOUNDS ALARM (OVERCRANK) AND CLOSES SOLENOID FUEL VALVE. WHEN THIS RELAY OPERATES, ALARM CAN BE CANCELLED BUT RELAY MUST BE RESET BEFORE RESTARTING. APPARENTLY ENGINE RESTART WAS ATTEMPTED BEFORE RELAY WAS RESET.

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

TEST, SYSTEM OPERABILITY + EMERGENCY POWER, ELECTRIC + YANKEE (PWR) + *GENERATOR, ENGINE + REPORT, OPERATIONS + REACTOR, PWR + CONTROL SYSTEM + *FAILURE, OPERATOR ERROR

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30731 ALSO IN CATEGORY 1
GUPPY WH + MASCHE GC
NUCLEAR PLANT TRAINING
COMMONWEALTH EDISON CO., CHICAGO
4 PAGES, POWER ENG., 72(7), PAGES 38-41 (JULY 1968)

GIVES A GENERAL DESCRIPTION OF THE BWR TRAINING CENTER, LOCATED AT DRESDEN. THE TRAINING PROGRAM, THE CONSOLE AND FACILITY, AND OPERATOR REQUIREMENTS ARE DESCRIBED. THE PROGRAMMED SIMULATOR MALFUNCTIONS ARE LISTED.

*REACTOR, POWER + *SIMULATION + *TRAINING

17-30889 ALSO IN CATEGORY 15
CITATION FOR EXPOSURE CONTROL
CAMBRIDGE NUCLEAR CORPORATION
5 PAGES, LETTER TO COMPLIANCE, NOVEMBER 1, 1968

DETAILED ANALYSIS SHOWS THAT INDIVIDUALS WORK VARIED LITTLE EXCEPT FOR LAST 2 WEEKS WHEN HE WAS PROCESSING HG-197. (CITATION NOV. 25, 1968) - A SEPT./OCT. INSPECTION REVEALED THAT INDIVIDUAL WHO RECEIVED DOSE REPORTED AUG. 5 ALSO RECEIVED 1.8 AND 2.5 REMS 1ST AND 3RD QUARTERS OF 1968. ANOTHER RECEIVED 2 AND 1.4. EXPOSURES SHOULD HAVE BEEN LIMITED TO 1.25. (2-6) - SURVEYS, MONITORING EQUIPMENT, AND RECORDS WERE INADEQUATE. *** IT APPEARS THAT RADIATION PROGRAM HAS DECLINED IN EFFECTIVENESS SINCE LAST INSPECTION. HEALTH PHYSICIST WHO LEFT IN APRIL HAS NOT BEEN REPLACED. BIOASSAY PROGRAM SHOULD BE RE-EVALUATED BECAUSE PRINCIPLE RADIONUCLIDE WAS NOT ALWAYS IDENTIFIED. WHEN IDENTIFIED, SOURCE WAS NOT ALWAYS EVALUATED.

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

RADIATION SAFETY AND CONTROL + RADIATION EXPOSURE, RECORD KEEPING + FAILURE, ADMINISTRATIVE CONTROL + INCIDENT, EXPOSURE + MERCURY + BYPRODUCT MATERIAL + SURVEY, RADIATION, GENERAL + COMPLIANCE

17-30893 ALSO IN CATEGORY 9
PLANS TO IMPROVE OPERATION
UNIVERSITY OF MARYLAND
2 PAGES, LETTER TO L.D. LOW, COMPLIANCE, NOVEMBER 23, 1968, DOCKET 50-166.

(REPLY TO LETTER OF OCT. 24.) (A) REMOVAL OF INDIVIDUAL CONTROL RODS FOR MAINTENANCE FOLLOWED PROCEDURE IN OUR 1961 LETTER TO AEC. SAFETY COMMITTEE OBSERVED MAINTENANCE. SHUTDOWN MARGIN WILL BE DETERMINED PERIODICALLY. (B) NEW CONSOLE IN SPRING OF 1969 WILL ALLOW CHECK OF PERIOD AND HIGH-FLUX SCRAM SETTINGS. (C) EXCESS REACTIVITY WILL BE MEASURED NEXT SEMESTER. (D) EARLY IN 1968, REACTOR-LEVEL INSTRUMENTATION WAS CHECKED BY SOURCE MULTIPLICATION. NEXT SEMESTER WE WILL FLUX-MAP AND POWER-CALIBRATE THE REACTOR.

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

SHUTDOWN MARGIN + SETPOINT + MAINTENANCE AND REPAIR + REACTOR, RESEARCH + TEST, SYSTEM OPERABILITY + REACTOR POWER + REACTOR, POOL TYPE + MODIFICATION, SYSTEM OR EQUIPMENT + INSTRUMENT, PROTECTIVE + COMPLIANCE + INSTRUMENT CALIBRATION

17-30894
OVEREXPOSURE WHILE NOT WEARING LEAD APRON
MORGAN, MORGAN, UTNE AND BROGHAMMER (CLINIC)
2 PAGES, LETTER TO DIVISION OF LICENSING AND REGULATION, DEC. 5, 1968

DR. X WAS UNABLE TO WEAR HIS LEAD APRON WHILE FLUOROSCOPING PATIENTS (COULD NOT TOLERATE THE WEIGHT ON A HERNIATED DISK). RECEIVED 3.672 REMS FIRST QUARTER OF 1968.

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

*FAILURE, OPERATOR ERROR + PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY

17-30895 ALSO IN CATEGORY 3
LOSS OF RADIOCHEMICALS ON SANTA ANA FREEWAY
ABBOTT LABORATORIES
2 PAGES, LETTER TO AEC COMPLIANCE, CHICAGO, ILLINOIS, FEBRUARY 19, 1968

ON FEB. 10, 1968, THE HOOD OF A VOLKSWAGEN BLEW OPEN ON THE SANTA ANA, CAL., FREEWAY, AND 5 PACKAGES OF RADIOPHARMACEUTICALS FELL OUT. THE RED ARROW MESSENGER SERVICE DRIVER FOUND 3, BUT ONLY PIECES OF THE OTHER TWO (2 MILLICURIES OF CR-51, 900 MICROCURIES OF I-131, AND 500 OF I-125). TWO OF THE 3 PACKAGES HAD BEEN RUN OVER, BUT THE RADIOPHARMACEUTICAL WAS STILL SEALED IN THE CONTAINER.

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

BYPRODUCT MATERIAL + *DAMAGE + TRANSPORTATION AND HANDLING + IODINE + *SHIPPING CONTAINER + STATE PROGRAM + *SOURCE, RADIATION, LOST + COMPLIANCE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30896
NA-24 SPILL OCT. 24, 1968
CORNELL UNIVERSITY
21 PAGES, LETTER TO COMPLIANCE, NOVEMBER 22, 1968, DOCKET 50-157

POWDERED STONE PLACED IN POLYETHYLENE AND THEN IN POLYSTYRENE FOR 8 HR AT 100 KW WAS BLOWN OUT WHEN PLASTIC WAS BROKEN DURING SAMPLE REMOVAL (IN PLASTIC BAG). CONTAMINANT WAS NA-24, 500 MREM/HR 3 IN. FROM FLOOR. FAST FLUX ESTIMATES WERE 50(LOW. H2 EVOLUTION GAVE AN 8.4-ATM PRESSURE IN CAPSULE. ***PROCEDURES NOW REQUIRE OPENING UNVENTED SAMPLES IN FUME HOODS, LIMITING POLYSTYRENE CAPSULE IRRADIATION TO 200 KWHR TO PREVENT EMBRITTLEMENT, AND USE OF A POLYETHENE GAS EVOLUTION RATE OF 0.14 ML/GM-MEGARAD.

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

RADIATION DAMAGE + *CONTAMINATION + REACTOR, RESEARCH + TRIGA (RR) + *INCIDENT, EQUIPMENT + SAFETY REVIEW + PLASTICS + *IRRADIATION FACILITY + PRESSURE, INTERNAL

17-30897
LEAKY AM-241 SOURCES RECEIVED AT GM ALLISON
GENERAL MOTORS CORP.
2 PAGES, LETTER TO AEC-DML, MARCH 8, 1968

ONE OF TWO NEW SOURCES REMOVED FROM SHIPPING CONTAINER FEB. 26, 1968, HAD 10,000 CPM REMOVABLE ACTIVITY. SOURCES WILL BE RETURNED TO HASTINGS RADIOCHEMICAL. WORK AREA WAS CONTAMINATED TO 2,000 CPM. REPLY FROM DIV. OF COMPLIANCE, MARCH 25, 1968, CALLS ATTENTION TO LICENSE CONDITION 148, WHICH SPECIFIES THAT RECORDS OF LEAK TESTS BE KEPT IN UNITS OF MICROCURIES RATHER THAN IN UNITS OF COUNTS/MIN.

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

*LEAK + FAILURE, FABRICATION ERROR + *SOURCE, RADIATION + CONTAMINATION + BYPRODUCT MATERIAL + AMERICIUM + COMPLIANCE

17-30926 ALSO IN CATEGORIES 1 AND 13
CORRECTIVE ACTION ON FUEL PROCESSING
KERR-MCGEE CORPORATION
1 PAGE, LETTER TO L.D. LOW, COMPLIANCE NOV. 25, 1968

(REPLY TO CITATION OF NOV. 6.) FREE-STANDING 11-LITER BOTTLES OF FUEL SOLUTION NOW STORED IN SAFE CONFIGURATION. ***GLOVE BOXES HAVE 20-MIL-THICK GLOVES FOR UAL POWDER PRODUCTION, WITH FEW PUNCTURES AND NO TEARS. EIGHT AIR-SAMPLING LOCATIONS (INSTEAD OF 5) ARE SAMPLED EACH DAY. PRODUCTION IS STOPPED FOR CLEANING IF AIRBORNE CONCENTRATION EXCEEDS PERMISSIBLE.

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

FUEL ELEMENT + SURVEY, RADIATION, GENERAL + CRITICALITY SAFETY + GLOVE BOX + FUEL REPROCESSING + FABRICATION + FAILURE, ADMINISTRATIVE CONTROL + AIRBORNE RELEASE + COMPLIANCE

17-30927 ALSO IN CATEGORY 15
IMPROVEMENTS IN RADIATION SAFETY EFFECTIVENESS
IIT RESEARCH INSTITUTE
5 PAGES, LETTER TO L.D. LOW, COMPLIANCE, DEC. 18, 1968

(RESPONSE TO DEC. 4 CITATION FOR SEPT. INCIDENT.) HOT CELL WILL BE LOCKED UNTIL PROCEDURES ARE CHANGED AND INSTRUMENTATION REVISED. WHEN THESE CHANGES ARE COMPLETED, A LICENSE AMENDMENT WILL BE SUBMITTED. *** ATTACHED MEMORANDA RELATE TO RADIATION-SAFETY ORGANIZATION CHART AND LIST OF ITEMS TO BE CONSIDERED - (1) FORMAL TRAINING AND CERTIFICATION PROCEDURES FOR OPERATORS, (2) LOGGING MONITOR, (4) REVIEW OF ACCESS CONTROL TO HOT CELL, (5) SURVEY METER LOCATED NEAR HOT CELL DOOR, (6) NEW RADIATION MONITOR WITH BETTER POSITION IN HOT CELL, FAIL SAFE ALARM, AND INTERLOCK WITH HOT CELL DOOR.

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

BYPRODUCT MATERIAL + INCIDENT, EXPOSURE + MODIFICATION, SYSTEM OR EQUIPMENT + *RADIATION SAFETY AND CONTROL + CERTIFICATION + HOT CELL + ADMINISTRATIVE CONTROL + COMPLIANCE + MONITOR, AREA

17-30928 ALSO IN CATEGORY 15
FINAL REPORT ON SEPT. 12, 1968, RADIATION OVEREXPOSURE
IIT RESEARCH INSTITUTE
2 PAGES, LETTER TO DIV. OF LICENSING AND REGULATION, OCTOBER 10, 1968

A CHEMIST ENTERED A HOT CELL (IN WHICH A 1020-CURIE SOURCE WAS EXPOSED) TO REMOVE GAMMA IRRADIATED SAMPLES. THE THIRD SOURCE WAS LEFT IN THE TUBE, AFTER DIFFICULTY PLACING TWO IN STORAGE, AND THE TUBE WAS PLACED ON TOP OF LEAD BRICKS. WHEN HE OPENED THE DOOR TO ENTER, THE RADIATION ALARM DID NOT SOUND, THOUGH LATER THE NEEDLE WAS FOUND AGAINST THE ALARM SETTING. A HEALTH PHYSICIST NOTED A HAND/FOOT MONITOR ALARMING AND LOCATED HIGH RADIATION COMING FROM HOT CELL, WHERE THE SOURCE WAS DISCOVERED. REENACTMENT INDICATED 2.09 REMS. BETTER RADIATION ALARM WILL BE PROCURED, AND SURVEY METER WILL BE PLACED AT DOOR FOR USE ON ENTERING CELL.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30928 *CONTINUED*

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

FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + HOT CELL + BYPRODUCT MATERIAL + *INCIDENT, EXPOSURE + COBALT + FAILURE, EQUIPMENT + SOURCE, RADIATION + MONITOR, AREA

17-30929 ALSO IN CATEGORY 15
CITATION FOLLOWING OVEREXPOSURE OF SEPT. 12
U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO IIT RESEARCH INSTITUTE, DEC. 4, 1968

A SEPT. 1968 INSPECTION RESULTED IN A NONCOMPLIANCE CITATION FOR (1) ALLOWING AN INDIVIDUAL TO WORK IN A HOT CELL WITHOUT INSTRUCTION IN RADIATION SAFETY, (2) NOT CHECKING RADIATION LEVEL ON ENTERING THE HOT CELL NO CALIBRATION THE MONITOR, AND NOT KEEPING CELL CONTROL PANEL KEY SECURED AGAINST UNAUTHORIZED USAGE, (3) USING BYPRODUCT MATERIAL NOT UNDER AUTHORIZED SUPERVISION. SURVEY METERS ARE NOT ROUTINELY USED BY PERSONNEL. THERE APPEARS TO BE A LACK OF EFFECTIVE MANAGEMENT CONTROL OF LICENSED MATERIAL, AND EMPLOYEES ARE NOT GUIDED IN THEIR RADIATION PROTECTION PROCEDURES.

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

HEALTH PHYSICS TRAINING + SURVEY, RADIATION, GENERAL + COBALT + SOURCE, RADIATION + *INCIDENT, EXPOSURE + *FAILURE, OPERATOR ERROR + HOT CELL + IRRADIATION FACILITY + BYPRODUCT MATERIAL + FAILURE, ADMINISTRATIVE CONTROL + GAMMA + RADIATION SAFETY AND CONTROL + *COMPLIANCE

17-30962 ALSO IN CATEGORIES 5 AND 11

KOBAYAKAWA T

HEAVY WATER LEAKAGE AND ITS COUNTER-MEASURES IN JRR-2

JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO

GENSHIRYOKU KOGYO, 12 (7), P27-32 +. JULY 1966 (IN JAPANESE)

A LEAKAGE OF HEAVY WATER INTO THE THERMAL-SHIELD WATER FROM THE JRR-2 REACTOR CORE OCCURRED. DISASSEMBLY OF THE UPPER PART OF THE REACTOR DISCLOSED THAT THE LEAKAGE HAD OCCURRED AT THE PACKING OF THE CIRCUMFERENCE OF THE SUPPORT RING FOR THE HEAVY-WATER CORE. LEAKAGE PREVENTION WAS ACHIEVED BY FILLING A PART OF THE SUPPORT RING WITH AN EPOXY BINDING AGENT. SINCE THE WORK HAD TO BE PERFORMED VERY CLOSE TO THE REACTOR CORE, ADEQUATE PROVISION WAS MADE FOR THE REQUIRED TOOLS AND PERSONNEL. THE HEAVY WATER LEAKAGE AND ITS COUNTERMEASURES ARE DESCRIBED.

OPERATING EXPERIENCE + MAINTENANCE AND REPAIR + JAPAN + THERMAL SHIELD + *HEAVY WATER + *LEAK

17-30967 ALSO IN CATEGORIES 5 AND 11

DUNCAN RN

STAINLESS STEEL FAILURE INVESTIGATION PROGRAM FINAL SUMMARY REPORT

GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA

GEAP-5530 +. FEBRUARY 1968, 74P., 41 REFERENCES, 31 FIGURES

HIGHLY STRESSED 304-SS AND OTHER AUSTENITIC ALLOYS FAILED FROM STRESS-ASSISTED INTERGRANULAR CORROSION EVEN WHEN THERE WERE NO CARBIDE PRECIPITATES IN THE GRAIN BOUNDARY. CORROSION TESTING IN LOOPS WITH GRAIN BOUNDARY MICROHARDNESS AND POLARIZATION REVEALED THAT FAILURE IS STRONGLY INFLUENCED BY C, SI, AND K IMPURITIES, RATHER THAN BY VARIATION IN CR/NI CONTENT. ANALYTICAL MODEL DEVELOPED. 304-SS CLAD CRACKS WERE FOUND WHERE LOCAL SURFACE STRAINS EXCEEDED 0.006 IN./IN. INVESTIGATION BEGAN AFTER BWR FUEL-CLAD FAILURES. YANKEE 348-SS CLAD IS ABOUT HALF AS SUSCEPTIBLE BECAUSE OF FINER GRAIN SIZE THAN 304. HYDROGEN EMBRITTLEMENT NEITHER CONFIRMED NOR DENIED. DEPOSITED CRUD ON FUEL ELEMENTS CONTAINED 10 PPM CHLORIDE, EVEN WHEN COOLANT KEPT BELOW 0.1 PPM IN CHLORIDE CONTENT.

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

FAILURE, FUEL ELEMENT + *STEEL, STAINLESS + *SURFACE FILM DEPOSIT + RECONCENTRATION + HYDROGEN + STRESS + PERFORMANCE LIMIT + REACTOR, PWR + OUT OF PILE LOOPS AND EXPERIMENTS + ANALYTICAL MODEL + EMBRITTLEMENT + R AND D PROGRAM + *FAILURE, CLADDING + REPORT, OPERATIONS ANALYSIS + REACTOR, POWER + COOLANT CHEMISTRY + BODY CENTERED CUBIC CRYSTAL + *STRESS CORROSION + REACTOR, BWR + CHLORIDE

17-30971

HOAG JB

NUCLEAR REACTOR EXPERIMENTS

ARGONNE NATIONAL LABORATORY

1958, 480P., FIGURES, TABLES, NEW YORK, D. VAN NOSTRAND CO., INC.

BUILT AROUND LAB EXPERIMENTS OFFERED IN THE ANL INTERNATIONAL SCHOOL OF NUCLEAR SCIENCE AND ENGINEERING. SECTIONS INCLUDE - (II) NUCLEAR RADIATION DETECTION, 45 PG., (III, IV) MODERATOR AND SUBCRITICAL ASSEMBLIES, 57 PG., (V) CROSSSECTIONS, 36 PG., (VI, VII) EXPERIMENTS WITH REACTORS, 74 PG., (VIII) REACTOR HEAT REMOVAL, 52 PG., (IX) FUEL PREPARATION, 33 PG., (X) CORROSION AND RADIATION EFFECTS, 29 PG., (XI) HOT LAB, 15 PG., (XII) SEPARATIONS PROCESSES, 58 PG.

REACTOR, RESEARCH + ANL + RADIATION EFFECT + MEASUREMENT, SUBCRITICALITY + *TRAINING + CORROSION + REACTOR, TRAINING + HEAT TRANSFER + *REACTOR PHYSICS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-30972 ALSO IN CATEGORY 6
PROCEEDINGS OF THE UNIVERSITY SUBCRITICAL ASSEMBLIES CONFERENCE HELD AT GATLINBURG, TENNESSEE AUGUST 28-30, 1961
OAK RIDGE NATIONAL LABORATORY + AMERICAN NUCLEAR SOCIETY EDUCATION COMMITTEE
TID-7619 +. JANUARY 1961, 277P.

A SERIES OF DESCRIPTIONS, INCLUDING 8 DIFFERENT UNIVERSITIES PROGRAMS, REACTOR SIMULATORS, PULSED NEUTRONS, OSCILLATORY TECHNIQUES, AND HEALTH PHYSICS. PROBABLY A UNIQUE STATE-OF-THE-ART COMPILATION.

AVAILABILITY - OFFICE OF TECHNICAL SERVICES, DEPARTMENT OF COMMERCE, WASHINGTON 25, D. C., \$3.50

*MEASUREMENT, SUBCRITICALITY + REACTOR PHYSICS + REACTOR, TRAINING + OSCILLATOR, REACTIVITY + PULSED NEUTRON TECHNIQUE

17-30578 ALSO IN CATEGORY 15
FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE NRX-A4/EST TEST SERIES
SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY
SWRHL-30R +. SEPTEMBER 19, 1966

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE FOR THE NRX-A4/EST PROJECT ROVER REACTOR TEST SERIES WHICH TOOK PLACE AT NRDS TEST CELL A. OF THE SIX EXPERIMENTAL PLANS IN THE TEST SERIES, FOUR RESULTED IN DETECTABLE QUANTITIES OF RADIOACTIVITY IN THE OFF-SITE AREA. THE SURVEILLANCE INDICATED THAT THE RADIATION PROTECTION GUIDES ESTABLISHED BY THE AEC (BASED ON FEDERAL RADIATION COUNCIL GUIDELINES), CHAPTER 0524, FOR THE OFF-SITE POPULATION WERE NOT EXCEEDED. THE PEAK OFF-SITE POTENTIAL THYROID EXPOSURE WAS ABOUT 36 MILLIRADS AT LONE PINE, CALIF.

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

FEDERAL RADIATION COUNCIL + *POPULATION EXPOSURE + *BIOLOGICAL CONCENTRATION, MILK + *BIOLOGICAL CONCENTRATION, MAN + *SURVEILLANCE PROGRAM + FALLOUT + *BIOLOGICAL CONCENTRATION, VEGETATION + *USAEC + RADIOLOGICAL ASSISTANCE + *NUCLEAR DETONATION + WATER, GENERAL + DOSIMETRY, GENERAL + TESTING + RADIATION PROTECTION, ORGANIZATION + AIR + SAMPLING + *MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *MONITOR, ENVIRONMENTAL + MONITOR, GROUND SURFACE

17-30980 ALSO IN CATEGORY 15
FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE PHOEBUS 1-A EXPERIMENT
SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY
SWRHL-19R +. JANUARY 17, 1966, 24P.

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE IN SUPPORT OF THE PHOEBUS 1-A EXPERIMENT OF JUNE 25, 1965. THIS SUPPORT CONSISTED OF TRACKING THE EFFLUENT, MONITORING RADIATION DOSAGE TO THE OFF-SITE POPULATION AND COLLECTING ENVIRONMENTAL SAMPLES IN DOWNWIND AREAS. ALTHOUGH OFF-SITE CONTAMINATION OCCURRED AS A RESULT OF THE PHOEBUS TEST, THE DATA COLLECTED INDICATE THAT RADIOACTIVITY LEVELS DID NOT EXCEED THE SAFETY CRITERIA ESTABLISHED BY THE AEC FOR THE OFF-SITE POPULATION.

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

DOSE + WATER, GENERAL + *BIOLOGICAL CONCENTRATION, MILK + *SURVEILLANCE PROGRAM + EFFLUENT + AIR + METEOROLOGY + *MONITOR, ENVIRONMENTAL + *POPULATION EXPOSURE + *SAMPLING + RADIATION SAFETY AND CONTROL + *BIOLOGICAL CONCENTRATION, VEGETATION + FALLOUT + CONTAMINATION

17-30981 ALSO IN CATEGORY 15
FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE NRX-A3 EXPERIMENT
SOUTHWESTERN RADIOLOGICAL HEALTH LAB., PUBLIC HEALTH SERVICE, LAS VEGAS, NEV.
SWRHL-18-R +. OCT. 8, 1965, 31P.

THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY PROVIDED OFF-SITE RADIATION SURVEILLANCE IN SUPPORT OF THE NRX-A3 EXPERIMENTS OF APRIL 23, MAY 20, AND MAY 28, 1965. THIS SUPPORT CONSISTED OF TRACKING THE EFFLUENT, MONITORING RADIATION DOSAGE TO THE OFF-SITE POPULATION AND COLLECTING ENVIRONMENTAL SAMPLES IN DOWNWIND AREAS. ALTHOUGH OFF-SITE CONTAMINATION OCCURRED AS A RESULT OF THE NRX-A3 TESTS, THE DATA COLLECTED INDICATE THAT RADIOACTIVITY LEVELS DID NOT EXCEED THE SAFETY CRITERIA ESTABLISHED BY THE AEC FOR THE OFF-SITE POPULATION.

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

*POPULATION EXPOSURE + *EFFLUENT + RADIATION PROTECTION, ORGANIZATION + CONTAMINATION + *TESTING + NUCLEAR DETONATION + *SURVEILLANCE PROGRAM + RADIOLOGICAL ASSISTANCE + *DOSE + USAEC + *MONITOR, ENVIRONMENTAL + SAMPLING

17-31246 ALSO IN CATEGORIES 5 AND 11
PICKETT AE
INVESTIGATION OF INTERGRANULAR CRACKING OF NONSENSITIZED AUSTENITIC STAINLESS STEELS IN CIRCULATING AUTOCLAVES

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-31246 *CONTINUED*

GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
GEAP-5495 +. JUNE 1967, 35 PAGES, 17 REFERENCES, 18 FIGURES

TESTS IN A 650 F FECL₂ DILUTE SOLUTION OF SUSCEPTIBILITY TO INTERGRANULAR STRESS CRACKING OF NONSENSITIZED 304-SS FUEL CLADDING SHOWED ATTACK MECHANISM CHANGED ABOVE 550 F. NO INFLUENCE OF OXYGEN OR RADIATION EXPOSURE TO 10,000 MOW/TU. YANKEE 348-SS IS HALF AS SUSCEPTIBLE. HIGH NICKEL CONTENT INCREASES TIME TO FAILURE, WHILE HIGH SILICON HAS NO EFFECT. LOW PH, CHLORIDE IONS, AND HIGH STRESS PROMOTED CRACKING. ***REPORT DESCRIBES AUTOCLAVE STUDIES OF AISI AND EUROPEAN AUSTENITIC STEELS FOLLOWING CRACKING OF EARLY BWR STEEL CLADDING. SOLUTION WAS FOUND A GOOD ACCELERATED TEST.

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

*R AND D PROGRAM + COOLANT CHEMISTRY + *STRESS CORROSION + OUT OF PILE LOOPS AND EXPERIMENTS + FUEL ELEMENT + *STEEL, STAINLESS + *FAILURE, CLADDING + CHLORIDE + REACTOR, PWR + REACTOR, BWR

17-31247 ALSO IN CATEGORIES 5 AND 11

ARMJO JS
EFFECTS OF IMPURITY ADDITIONS ON THE INTERGRANULAR CORROSION OF HIGH PURITY FE-CR-NI AUSTENITIC ALLOYS
GENERAL ELECTRIC COMPANY, PLEASANTON, CALIFORNIA
GEAP-5047 +. OCTOBER 1966, 16 PAGES, 9 FIGURES, 26 REFERENCES

DETERMINED THE EFFECTS OF ALLOYING ADDITIONS ON THE INTERGRANULAR CORROSION OF NONSENSITIZED AUSTENITIC ALLOYS IN BOILING NITRIC ACID-DICHROMATE SOLUTIONS. CONTROLLED ADDITIONS OF C, N, O, MN, S, SI, AND P TO A HIGH-PURITY 141 CR, 141 NI, BAL FE ALLOY AND SUBSEQUENT CORROSION TESTS IN BOILING 5N HNO₃-0.46N HEXAVALENT CR SOLUTIONS SHOW THAT ONLY SI AND P PROMOTE INTERGRANULAR CORROSION SUSCEPTIBILITY OF NONSENSITIZED ALLOYS. ELIMINATION OF SI AND P FROM AUSTENITIC ALLOYS OF OTHERWISE COMMERCIAL PURITY ELIMINATES SUSCEPTIBILITY TO INTERGRANULAR ATTACK.

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

OUT OF PILE LOOPS AND EXPERIMENTS + FAULT + *FAILURE, CLADDING + R AND D PROGRAM + STRESS CORROSION + *STEEL, STAINLESS + REACTOR, BWR + IMPURITY

17-31248 ALSO IN CATEGORY 5

HOWARD CL + DUNCAN RN
HIGH POWER DENSITY DEVELOPMENT PROJECT, TWENTY-THIRD AND TWENTY-FOURTH QUARTERLY PROGRESS REPORTS, DEC. 1965-MAY 1966
GENERAL ELECTRIC COMPANY, SAN JOSE, CALIFORNIA
GEAP-5126 +. JUNE 1966, 20 PAGES, 4 REFERENCES, 8 FIGURES

PRIMARILY AN ACCOUNT OF UNDERWATER INSPECTION OF 8 DEVELOPMENTAL FUEL BUNDLES VISUALLY INSPECTED DURING BIG ROCK POINT APRIL 66 SHUTDOWN. TWO 304-L BUNDLES APPEARED FAILED BY INTERGRANULAR STRESS CORROSION AND WERE REMOVED. POWDER FUEL APPEARS BETTER THAN PELLET FUEL. INCONEL AND ZIRCALOY BUNDLES DID NOT APPEAR FAILED. PROFILOMETER MEASUREMENTS (NOTED IN DETAIL) SHOWED AXIAL AND CIRCUMFERENTIAL DIAMETRAL INCREASES OF UP TO 0.013 IN., ATTRIBUTED TO NONUNIFORM DEPOSITS OF ADHERENT CRUD. PATTERN DETERMINED BY HYDRAULIC VARIATION ATTRIBUTED TO FUEL-ROD SPACERS.

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

ZIRCALOY + R AND D PROGRAM + STEEL, STAINLESS + REACTOR, BWR + INCOLOY + *STRESS CORROSION + *FAILURE, CLADDING + SURFACE FILM DEPOSIT + *EXAMINATION + *FUEL ELEMENT + EXPANSION + BIG ROCK POINT (BWR) + FAULT

17-31249 ALSO IN CATEGORY 9
POWER OPERATION WITH FULLY INSERTED CONTROL ROD
UNITED STATES ATOMIC ENERGY COMMISSION
ROE 69-5 +. FEBRUARY 5, 1969

CHECK OF A CONTROL-ROD LVDT POSITION INDICATOR REVEALED A SHORT, SO OPERATIONS CONTINUED 19 DAYS UNTIL IN-CORE FLUX DATA REVEALED SKEWED POWER DISTRIBUTION. POLARITY ON THE MOVABLE GRIPPER COIL HAD BEEN REVERSED AFTER THE CABLE-TRAY FIRE AND REPAIR, ALLOWING ROD TO DRIFT INTO THE CORE. IN-CORE THERMOCOUPLE MAPS WERE NOT ADEQUATELY ANALYZED. TWICE DAILY OUT-OF-CORE ION-CHAMBER READINGS WERE PLOTTED ON A SCALE SO SMALL THE 101 FLUX TILT DID NOT SHOW UP. PAST LVDT TROUBLES LEAD TO BELIEF THAT ROD POSITION WAS OK.

POWER DISTRIBUTION + FLUX TILT + FAILURE, SCRAM MECHANISM + *FAILURE, ADMINISTRATIVE CONTROL + *FAILURE, COMPONENT + *INSTRUMENT, POSITION + CONTROL ROD + INSTRUMENT, IN CORE + *ACCIDENT, CONTROL ROD DROPIN

17-31253
SELECTED SAN ONOFRE OPERATING EXPERIENCE
SOUTHERN CALIFORNIA EDISON CO., CALIF.
NYJ-3270-6 +. 5 PAGES, OPERATIONS REPORT NO. 6, OCTOBER 9, 1967

I-131/133 RATIO WAS 0.213 AT 80 MWE, INDICATING NO LEAKY FUEL. LEAKY PRESSURIZER SAFETY VALVE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-31253 *CONTINUED*

LIMITED OPERATION TO 1850 PSI. MISMATCH OF PRIMARY/SECONDARY POWER WAS NOT RESOLVED.

PRESSURIZER + FISSION PRODUCT, IODINE + MAIN COOLING SYSTEM + REACTOR POWER + SAN ONOFRE (PWR) + LEAK + REACTOR, PWR + REPORT, OPERATIONS + VALVE

17-31254

SELECTED SAN ONOFRE OPERATING EXPERIENCE
SOUTHERN CALIFORNIA EDISON CO., CALIF.

NYO-3270-7 +. 6 PAGES, OPERATIONS REPORT NO. 7, NOVEMBER 20, 1967 DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

THREE TIMES A FALSE TRIP SIGNAL OCCURED WHILE ONE CHANNEL WAS IN TEST, CAUSING A 2/3 SCRAM. EXCESSIVE VIBRATION OF MAIN CIRCULATION PUMPS WAS DUE TO MUSSELS IN SEAWATER INTAKE LINES. FALSE INDICATION OF A CONTROL ROD IN THE CORE WAS COMING FROM A BAD CONNECTOR. REACTOR-HEAD VENTILATION DUCT COLLAPSED.

REACTOR, PWR + HEAT SINK + VENTILATION SYSTEM + ACCIDENT, CONTROL ROD DROPIN + FAILURE, SCRAM MECHANISM + REPORT, OPERATIONS + SAN ONOFRE (PWR) + TURBINE + VIBRATION + PUMP + SCRAM, SPURIOUS

17-31328

FORD JD

MTR PROGRESS REPORT, CYCLE NO. 285, NOVEMBER 5-25, 1968

IDAHO NUCLEAR CORP., IDAHO FALLS.

IN-1265 +. 22 PAGES, DECEMBER 23, 1968

VERTICAL PROFILE MEASUREMENTS OF THE WEST LATTICE FACE INDICATE A 0.020-IN. CHANGE IN HT-1 SKIRT PLATE AT THE L-31 POSITION. THREE FUEL-ELEMENT PRESSURE-DIFFERENTIAL SCRAMS WERE ATTRIBUTED TO INSTRUMENT DIFFICULTIES BECAUSE SIGNALS REPRESENTED SPIKES RATHER THAN TRUE FLOW DECREASES. STACK-ACTIVITY-MONITORING SYSTEM DELAY-TANK FAILURES WERE STOPPING FLOW. TANK WAS PERMANENTLY BYPASSED.

REACTOR, AEC OWNED + FISSION GAS RELEASE + RESPONSE TIME + STACK + BERYLLIUM + FUEL ELEMENT + *EXPANSION + REPORT, OPERATIONS + FLOW BLOCKAGE + *SCRAM, SPURIOUS + PRESSURE DROP + REACTOR, TEST + CORE COMPONENTS + MTR (TR)

17-31329

FORD JD

MTR PROGRESS REPORT CYCLE NO. 284, OCTOBER 7, 1968-NOVEMBER 5, 1968

IDAHO NUCLEAR CORP., IDAHO FALLS

IN-1259 +. 33 PAGES, DECEMBER 3, 1968

EIGHTEEN SAMPLES OF HYDRAZINE-VERSENE WERE GIVEN 1-MWD EXPOSURES IN THE HYDRAULIC TUBE. THREE SHIM RODS WOULD NOT WITHDRAW BECAUSE ANODIZING OF THE ARMATURE SPRUNG CUP PREVENTED ELECTRICAL CONTINUITY. PROFILOMETER MEASUREMENTS INDICATED NO DIMENSIONAL CHANGE OF BERYLLIUM IN CORE POSITIONS L-11, -21, -31.

EXPANSION + REACTOR, AEC OWNED + *FAILURE, SCRAM MECHANISM + MTR (TR) + BERYLLIUM + COOLANT CHEMISIKY + REPORT, OPERATIONS + REACTOR, TEST + IRRADIATION FACILITY

17-31435

ALSO IN CATEGORY 9

KANTOR ME + MENZEL HF + SCHLICHT RW

PEACH BOTTOM INITIAL POWER PLANT PERFORMANCE (RESULTS OF POSTCONSTRUCTION R AND D TEST PROCEDURES DE-1, GE-1, GO-2, DP-1, AND GP-10)

GULF GENERAL ATOMIC, INC., CALIF.

GAMD-7903 +. 78 PAGES, FIGURES, TABLES, MARCH 29, 1968

(HISTORY FROM JAN. 1967 INITIAL POWER TO JULY FULL POWER.) PRIMARILY A DESCRIPTION OF HEAT-BALANCE VERIFICATION (HOUSE LOAD FOUND TO BE 4.7 INSTEAD OF 6.0 MWE), STEAM GENERATOR (HOT SPOTS DUE TO INADEQUATE INTERNAL BAFFLING) AND MAIN CIRCULATOR PERFORMANCE. ERRATIC RESISTANCE-TEMPERATURE DETECTORS WERE REPLACED BY CR-AL THERMOCOUPLES. CALIBRATION ERRORS IN DP HELIUM FLOW TRANSMITTERS AT FIRST LOOKED LIKE NUCLEAR-POWER-CHANNEL CALIBRATION SHIFTS.

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

*REACTOR STARTUP EXPERIENCE + REACTOR POWER + R AND D PROGRAM + INSTRUMENT, TEMPERATURE + REACTOR, GCR + INSTRUMENT, FLOW + REACTOR, HTGR + INSTRUMENT, ABNORMAL INDICATION + REACTOR, GRAPHITE MODERATED + PEACH BOTTOM 1 (HTGR) + INSTRUMENT, POWER RANGE

17-31442

ALSO IN CATEGORY 5

ROLIN J + MCCLINTOCK DR

THE EFFECT OF HIGH POWER DENSITY OF UO2 ROD TYPE ELEMENTS - THE SAXTON SPECIAL 2 X 2 ASSEMBLY

WESTINGHOUSE ELECTRIC CORPORATION, ATOMIC POWER DIV. PENNSYLVANIA

WCAP-3269-64 +. 34 PAGES, 14 FIGURES, 7 TABLES, 5 REFERENCES, AUGUST 6, 1968

FOUR SS-CLAD UO2 FUEL ELEMENTS WERE IRRADIATED 1963-66 IN SAXTON TO A PEAK POWER DENSITY OF 23

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-31442 *CONTINUED*

KW/FT AND A PEAK BURNUP OF 12,000 MWD/MTR. UO₂ FUELS WERE 97 PERCENT AND 78 PERCENT INITIAL THEORETICAL DENSITY. REPORT DESCRIBES POSTIRRADIATION DESTRUCTIVE EXAMINATION OF THE FUEL ELEMENTS INCLUDING FISSION GAS ANALYSIS, CESIUM-137 NUCLIDE BURNUP ANALYSIS, AND MICROSTRUCTURAL EXAMINATION OF THE FUEL. FUEL PERFORMANCE WAS ENTIRELY SATISFACTORY. CENTERLINE MELTING DID NOT OCCUR, THOUGH CENTRAL VOIDS OCCURRED WITH GRAIN GROWTH.

REACTOR, PWR + SAXTON (PWR) + CENTERLINE MELTING + *PERFORMANCE LIMIT + IRRADIATION TESTING + FUEL ELEMENT + *FUEL BURNUP + *REACTOR POWER + EXAMINATION

17-32089 ALSO IN CATEGORY 9

SINGLE COMPONENT FAILURE COULD DISABLE ALL AUTOMATIC SCRAMS

CORNELL UNIVERSITY

5 PAGES, 2 FIGURES, LETTER TO DIRECTOR, DRL, FEBRUARY 20, 1969, DOCKET 50-157

FAILURE OF ANY ONE OF SEVEN COMPONENTS (T310, R331, CR311, C317 AND S305B, S306B, S307B) COULD DISABLE ALL AUTOMATIC SCRAMS BECAUSE A SCRAM RELAY IS ENERGIZED TO OPEN A CONTACT IN THE SCRAM BUS. SCRAM RELAY POWER SUPPLY MUST BE KEPT HIGH ENOUGH TO ACTUATE RELAY. MODIFICATION IS TO ADD A RELAY WHICH REMOVES MAGNET CURRENT WHEN SCRAM RELAY VOLTAGE IS LESS THAN 125V THE VOLTAGE NECESSARY TO OPERATE THE RELAY. INCLUDES PUSH BUTTONS TO TEST AND RESET THIS CIRCUIT. SCRAM CIRCUIT BEFORE AND AFTER FEB. 18, 1969, MODIFICATION INCLUDED.

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

*REACTOR SAFETY SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + TRIGA (RR) + *INDEPENDENCE + REACTOR, RESEARCH + INSTRUMENT, RELAY + INSTRUMENT, CONTROL + TECHNICAL SPECIFICATIONS + FAILURE, COMPONENT + *SINGLE FAILURE CRITERION + *FAILURE, DESIGN ERROR

17-32258

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS REPORTS ON THREE POWER REACTOR PROJECTS

U.S. ATOMIC ENERGY COMMISSION

L-52 +. 2 PAGES, AEC PRESS RELEASE, MARCH 25, 1968

SUMMARIZES REPORTS FROM ADVISORY COMMITTEE ON REACTOR SAFEGUARDS FOR THREE REACTOR PROJECTS - NORTHERN STATES POWER CO. (PRAIRIE ISLAND), CONSUMERS PUBLIC POWER DISTRICT (PLANT NEAR BROWNVILLE, NEB.), AND PG AND E CO. (HUMBOLDT BAY).

SAFETY REVIEW + REACTOR, POWER + *ACRS + COOPER (BWR) + HUMBOLDT BAY (BWR) + PRAIRIE ISLAND 1 (PWR) + PRAIRIE ISLAND 2 (PWR)

17-32264 ALSO IN CATEGORY 7

RICHMAN RB + POLLOCK CW

CORROSION AND WEAR SURVEILLANCE IN THE PLUTONIUM RECYCLE TEST REACTOR THROUGH DECEMBER 1967

BATTELLE-NORTHWEST, RICHLAND, WASHINGTON

BNWL-726 +. 25 PAGES, 5 REFERENCES, JULY 1968

CONTINUING SURVEILLANCE OF CORROSION AND WEAR AT THE PRTR INVOLVES VISUAL, X-RAY, AND ULTRASONIC INSPECTIONS OF SELECTED PARTS OF EVERY FLUID SYSTEM, PLUS MEASUREMENTS FROM ELECTRICAL RESISTANCE PROBES AND COUPON SAMPLES IN SOME OF THE SYSTEMS. ALL PRTR SYSTEMS ARE IN GOOD CONDITION EXCEPT FOR CERTAIN PORTIONS OF THE SECONDARY SYSTEM, WHERE REPAIRS OF CONVENTIONAL EQUIPMENT HAVE BEEN REQUIRED MAINLY BECAUSE OF MECHANICAL DAMAGE.

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

*CORROSION + REACTOR, TEST + PRTR (TR) + *SURVEILLANCE PROGRAM + COOLANT CHEMISTRY + REACTOR, AEC OWNED + REACTOR, PRESSURE TUBE + FUEL ELEMENT + CLADDING + FAILURE, FUEL ELEMENT + REACTOR, HWR + X-RAY + DEUTERIUM

17-32293

TORREY PINES TRIGA 1968 OPERATIONS

GULF GENERAL ATOMIC

2 PAGES, LETTER TO D. J. SKOVHOLT, DRL, MARCH 7, 1969, DOCKET 50-227

CHANGES - (1) JOB TITLES FOR THOSE PRESENT DURING OPERATION NOW BECOMES SRO ON CALL. (2) CHECKLISTS MODIFIED. (3) M-G SET ADDED TO SMOOTH LINE TRANSIENTS.

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

REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + TRIGA (RR) + *ADMINISTRATIVE CONTROL

17-32294

PROVISIONAL OPERATING LICENSE FOR SEFOR

U.S. ATOMIC ENERGY COMMISSION

40 PAGES, PROVISIONAL OPERATING LICENSE FOR SEFOR, MARCH 4, 1969, DOCKET 50-231

ALLOWS 1-MW OPERATION WITHOUT USING REACTIVITY EXCURSION DEVICE FOR INITIAL TESTING PENDING FULL-POWER EVALUATION. TECHNICAL SPECIFICATION DOES NOT INCLUDE BASES FOR EACH SPECIFICATION.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32294 *CONTINUED*

***WASTE GAS EFFLUENT LIMITS USE CURIE SUMMATION IN GROUPS RATHER THAN SPECIFYING AN ISOTOPE. DAILY RECORD OF FLOW, TEMPERATURE, POWER, AND REACTIVITY SHALL BE ANALYZED MONTHLY FOR UNEXPLAINED TRENDS. SHORT-TERM CHANGES REQUIRE 50% POWER REDUCTION AND MANAGEMENT NOTIFICATION. ELABORATE CONTAINMENT-LEAKAGE LIMITS GIVE ALLOWABLE LEAK RATES FOR PENETRATIONS, SPECIFY DEWPOINT AND FREON CONTENT, ATMOSPHERE HEATUP RATE.

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

CONTAINMENT ATMOSPHERE, INERT + REACTOR, PULSED + REACTOR, FAST + WASTE DISPOSAL, GAS + CONTAINMENT PENETRATION, ELECTRICAL + *TECHNICAL SPECIFICATIONS + OPERATOR ACTION + SEFOR (RE) + LEAK RATE + REACTOR, LMCR + REACTIVITY EFFECT, ANOMALOUS

17-32295

1968 REPORT, THERMIONIC CRITICAL FACILITY
GULF GENERAL ATOMIC

3 PAGES, LETTER TO D.J. SKOVHOLT, DRL, FEBRUARY 27, 1969, DOCKET 50-234

(1) THE FAT-MAN CAGE (PROTECTION AGAINST INADVERTANT CRITICALITY) IS BOLTED RATHER THAN PADLOCKED. (2) BED-CLOSURE SPEEDS ARE FASTER INITIALLY AND SLOWER FOR FINAL ASSEMBLY. (4) SOURCE STRENGTH DOUBLED. (5) KEY INTERLOCK IS FOR AREA GATES RATHER THAN FOR ASSEMBLY-ROOM DOOR FOR GREATER CONTROL. (8) PERIMETER FENCE MOVED TO ALLOW BEAM PATH AVAILABILITY, 2 MR/HR AT 45 WATTS IN PUMP STATION. SEISMIC SCRAM MADE MORE SENSITIVE. TRAFFIC HAS INCREASED TO 41,000 VEHICLES/DAY, 9000 PASSING ON S OR W SIDE OF SITE.

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

CRITICAL ASSEMBLY FACILITY + MODIFICATION, SYSTEM OR EQUIPMENT + *REPORT, OPERATIONS SUMMARY + CRITICALITY SAFETY

17-32296

ALSO IN CATEGORIES 9 AND 10

NS SAVANNAH ROD DRIVES OUT DUE TO ONE PHASE OPEN IN MOTORS
FIRST ATOMIC SHIP TRANSPORT INC.

2 PAGES, LETTER TO P.A. MORRIS, DRL, FEBRUARY 24, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

ON JAN. 20, CONTROL RODS WERE EXERCISED WHILE SHIP WAS TIED UP AT DOCK. ROD A-2 WOULD NOT DRIVE, SO MAIN CIRCUIT BREAKER WAS CLEANED. THEN ROD WOULD DRIVE OUT FOR BOTH IN AND OUT SIGNALS. FAULTY BREAKER WAS CAUSING ONE PHASE TO BE OPEN. ***INVESTIGATION OF THE 2-PHASE 3-WIRE SYSTEM SHOWED THAT 13 OF THE 21 RODS WOULD DRIVE OUT ON AN IN SIGNAL WHEN ONE PHASE WAS OPEN, WITH THE STARTING PHASE SHIFT SUPPLIED BY BLOWER MOTOR IN PARALLEL. THE OTHER EIGHT WERE ONES MOST FREQUENTLY MOVED AND HAD ENOUGH FRICTION TO PREVENT SUCH OPERATION. ***TESTS SHOW THAT A PERMANENT INDEPENDENT POWER SOURCE FOR BLOWERS HAS ELIMINATED THE PROBLEM.

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

FAILURE, DESIGN ERROR + *ACCIDENT, CONTROL ROD WITHDRAWAL + ELECTRIC POWER, UNINTERRUPTED + NS SAVANNAH (PWR) + *FAILURE, COMPONENT + REACTOR, PWR + PHASE CHANGE + *CONTROL ROD DRIVE

17-32297

REVISED TECHNICAL SPECIFICATIONS, ELIMINATION OF NUCLEAR ADVISER
FIRST ATOMIC SHIP TRANSPORT, INC.

3 PAGES, LETTER TO P.A. MORRIS, DRL, MARCH 10, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

REQUESTS REPLACEMENT IN ENTIRELY WITH NEW FORMAT SPECIFICATIONS. NO CHANGE IN PORT CRITERIA REQUESTED. ***APPENDIX A TO LETTER JUSTIFIES ELIMINATION OF SHIPBOARD NUCLEAR ADVISOR ON BASIS OF CREW TRAINING AND EXPERIENCE (85% LICENSED OPERATORS ARE COLLEGE GRADUATES). ADVISER ACTION NOT REQUIRED BY PROCEDURES.

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

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

17-32298

PROPOSED CHANGE, TEMPORARY STORAGE OF FLAMMABLE MATERIAL
GULF GENERAL ATOMIC

2 PAGES, LETTER TO D.J. SKOVHOLT, DRL, FEBRUARY 28, 1969, DOCKET 50-240

REQUESTS TEMPORARY STORAGE OF HIGHLY FLAMMABLE MATERIAL IN APPROVED CONTAINERS AS REQUESTED FOR APPROVED EXPERIMENTAL OPERATIONS.

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

CRITICAL ASSEMBLY FACILITY + *FIRE + TECHNICAL SPECIFICATIONS + REACTOR, HTGR

17-32299

ALSO IN CATEGORY 9

HTGR CRITICAL FACILITY CHANGES, 1968
GULF GENERAL ATOMIC

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32299 *CONTINUED*
2 PAGES, LETTER TO D.J. SKOVHOLT, ORL, MARCH 5, 1969, DOCKET 50-240

(1) EARTHQUAKE-SENSOR SENSITIVITY INCREASED BY REDUCING CONTACT AREA AND WEIGHT ON CONTACTS. (2) ION CHAMBERS ARE POWERED FROM BATTERIES, CHANGED QUARTERLY, TO GIVE STABLE, NOISE-FREE POWER. (3) SAFETY-ROD MOUNTING MADE MORE ADJUSTABLE TO AVOID DRILLING NEW BOLT HOLES TO IMPROVE ALIGNMENT. (4) COUNTING CHANNEL POWER SUPPLY CHANGED FROM HAMNER NV-15 TO NV-19. ***AC VOLTAGE REGULATOR ADDED. DETECTORS USED FOR MONITORING LINAC FLIGHT PATH NOW CALIBRATED IN A GAMMA IRRADIATION FACILITY AND RESPONSE VERIFIED BY PORTABLE GAMMA SOURCE FOLLOWING REINSTALLATION. PORTABLE SOURCE WAS USED FOR CALIBRATION.

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

*NOISE + SCRAM, SPURIOUS + *INSTRUMENT CALIBRATION + ELECTRIC POWER, UNINTERRUPTED + INSTRUMENT, EARTHQUAKE + CRITICAL ASSEMBLY FACILITY + *ACCELERATOR + REACTOR, HTGR + MONITOR, AREA + REPORT, OPERATIONS SUMMARY + *INSTRUMENT, NUCLEAR

17-32300
PROPOSED CHANGE TEMPORARY STORAGE OF FLAMMARLE MATERIAL
GULF GENERAL ATOMIC
2 PAGES, LETTER TO D.J. SKOVHOLT, FEBRUARY 28, 1969, DOCKET 50-253

REQUESTS TEMPORARY STORAGE OF HIGHLY FLAMMABLE MATERIAL IN CONTAINERS APPROVED BY CRITICALITY SAFEGUARDS COMMITTEE AS REQUIRED FOR APPROVED EXPERIMENTAL OPERATIONS.

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

*FIRE + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS + REACTOR, PULSED

17-32301
LICENSE R-113, USGS TRIGA-1 AT DENVER
U.S. ATOMIC ENERGY COMMISSION
15 PAGES, 2 TABLES, LETTER TO T.G. MCLAUGHLIN, USGS, FEBRUARY 24, 1969, DOCKET 50-274

ALLOWS 1-MW OPERATION, PULSES NOT TO EXCEED 2500 MW (SS-CLAD FUEL.)

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

*TECHNICAL SPECIFICATIONS + TRIGA (RR) + REACTOR, RESEARCH

17-32302
CHANGE 1 - PU02 POSSESSION AND USE
U.S. ATOMIC ENERGY COMMISSION
10 PAGES, LETTER TO J. KARP, UNC, FEBRUARY 5, 1969, DOCKET 50-290

ALLOWS POSSESSION OF 24 KG PU02 AND USE OF PU02-U02 FUEL. FACILITY PROCEDURES AND FEATURES DO NOT NEED MODIFICATION, BUT ALPHA MONITORING AND SURVEILLANCE IS NEEDED. VOID COEFFICIENT IN TEST ELEMENT SHALL BE NEGATIVE TO 212 F, AND MODERATOR COEFFICIENT SHALL NOT EXCEED PLUS 1.5 X 10⁻⁴TH DK/K PER DEG F, VERIFIED BY RELIABLE CALCULATIONS OR EXPERIMENTS.

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

URANIUM DIOXIDE + CRITICAL ASSEMBLY FACILITY + TECHNICAL SPECIFICATIONS + *PLUTONIUM DIOXIDE + SAFETY EVALUATION

17-32303 ALSO IN CATEGORY 12
CONTAMINATION FOUND IN WASHED PIPE INTERIORS
CONSUMERS POWER COMPANY
10 PAGES, HALLAM MONTHLY RETIREMENT REPORT NO. 28, NOVEMBER 1968, DOCKET 115-3, TYPE--LMR, MFG--A.E., AE--BECHTEL

DEMOLITION BEGAN. A NOV. 1 COMPLIANCE SURVEY FOUND 1 MRAD/HR AT CONTACT INSIDE WASHED SCRAP PRIMARY PIPING THAT HAD BEEN SURVEYED AT THE ENDS OF THE CUT SEGMENTS. RADIATION LEVELS WERE TO BE MEASURED INSIDE THE PIPE, SO A SURVEY METER WAS MADE TO FIT ON A LONG POLE. PRIMARY 14.-IN. PIPING WAS FOUND TO READ 0.1 TO 1.8 MRAD/HR, HIGHEST AT WELDS NEAR TEES OR ELBOWS, ALSO AT SODIUM OXIDE DEPOSITS AT PIPE REDUCTIONS. PRIMARY PIPE WILL BE SEGREGATED AND REMONITORED BEFORE DISPOSAL.

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

REACTOR, LMR + *CONTAMINATION + DECOMMISSIONING + REACTOR, POWER + DECONTAMINATION + *PIPING + SODIUM + COMPLIANCE + HALLAM (LMR)

17-32304
HALLAM MONTHLY RETIREMENT REPORT 40
CONSUMERS POWER COMPANY
7 PAGES, OPERATION REPORT NO. 40, FEBRUARY 25, 1969, DOCKET 115-3 TYPE--LMR, MFG--A.E., AE--BECHTEL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32304 *CONTINUED*
BUILDING DEMOLITION CONTINUED WITHOUT ACCIDENT.

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

*DECOMMISSIONING + REACTOR, LMCR + REPORT, OPERATIONS + HALLAM (LMR)

17-32305
PROPOSED CHANGES TO ADMINISTRATION
UNIVERSITY OF MARYLAND
5 PAGES, 1 FIGURE, LETTER TO P.A. MORRIS, DRL, JANUARY 20, 1969, DOCKET 50-166

SECTION C OF HAZARDOUS SUMMARY REPORT (INCORPORATED AS TECHNICAL SPECIFICATIONS) SHOULD BE REVISED.
(1) REACTOR DIRECTOR SHOULD HAVE 4 YEARS OF OPERATING EXPERIENCE, 1 YEAR IN RADIATION MONITORING, BE A LICENSED SRO. (2) SRO WILL BE PRESENT ON CORE ASSEMBLY OR STARTUP FOLLOWING UNPLANNED SHUTDOWN, BE READILY AVAILABLE (I.E., ON 10-MIN REQUEST), BE ON CALL (I.E., WITHIN 10 MIN) DURING OPERATION. SAFETY COMMITTEE DUTIES LISTED. VISITING COMMITTEE SHALL VISIT ONCE A YEAR.

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

REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + SAFETY REVIEW + STAFFING + *ADMINISTRATIVE CONTROL

17-32306 ALSO IN CATEGORY 15
CHANGE 3 - CLARIFICATION OF TECHNICAL SPECIFICATIONS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO H.B. MITCHELL, AFRR, FEBRUARY 3, 1969, DOCKET 50-170

CLARIFIED LANGUAGE, E.G., ADJACENT FUEL POSITIONS (FROM ADJACENT POSITIONS), REMAINING CONTROL RODS (FROM OPERABLE RODS), 14 FT ABOVE CORE TOP (FROM 18 IN. BELOW TOP OF REACTOR TANK). MAJOR CHANGES APPEAR TO BE (1) OPERATING MECHANISM OF THE POSITIVE VENT SEAL SHALL BE VERIFIED AND INSPECTED MONTHLY, (2) IF AN ENVIRONMENTAL MONITORING STATION DOSIMETER READS 400 MR ABOVE BACKGROUND, AR-41 GENERATING OPERATIONS SHALL BE LIMITED TO 2 MW-HR/MONTH. IF ABOVE 500 MR, SUCH OPERATIONS SHALL CEASE.

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

TRIGA (RR) + REACTOR POWER + TECHNICAL SPECIFICATIONS + REACTOR, RESEARCH + SURVEILLANCE PROGRAM + CONTAINMENT ISOLATION + ARGON + *MONITOR, ENVIRONMENTAL

17-32307 ALSO IN CATEGORY 9
NBSR OPERATIONS REPORT 3, OCT.-DEC. 1968
NATIONAL BUREAU OF STANDARDS
16 PAGES, OPERATIONS REPORT NO. 3, FEBRUARY 26, 1969, DOCKET 50-184

POWER REMAINED BELOW 5 KW. PREPARATIONS MADE FOR POWER INCREASE. BASE-LINE NEUTRON AND GAMMA FLUX AND SPECTRA MEASURED IN EXPERIMENTAL FACILITIES. ***BF3 DETECTORS REPLACED WITH B-10 TYPE. SENSITIVITY WAS 10 X THAT REQUIRED. PREAMPLIFIER REMOVED. THERMAL-COLUMN LEAK DETECTION CHANGED FROM ULTRASONIC TO SPARK-PLUG TYPE. ***ALARM SETPOINTS LISTED FOR NORMAL OPERATION. INFRARED FUEL-TEMPERATURE-MEASURING INSTRUMENT WAS CALIBRATED.

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

INSTRUMENT, LIQUID LEVEL DETECTION + REPORT, OPERATIONS SUMMARY + FLUX DISTRIBUTION + BEAM HOLE + IRRADIATION FACILITY + REACTOR, HWR + INSTRUMENT, TEMPERATURE + *MODIFICATION, SYSTEM OR EQUIPMENT + INSTRUMENT, STARTUP RANGE + FUEL ELEMENT + REACTOR, RESEARCH + REACTOR STARTUP TESTING + INSTRUMENT, ALARM + NBS

17-32308 ALSO IN CATEGORY 5
FUEL DAMAGED IN HANDLING
UNIVERSITY OF MISSOURI
2 PAGES, LETTER TO D.J. SKOVHOLT, AEC-DRL, SEPTEMBER 30, 1968, DOCKET 50-186

SMALL INDENTATIONS ON THE OUTER FUEL PLATE, 4 IN. APART IN THE UPPER THIRD OF THE PLATE, WERE FOUND ON TWO 650-GRAM U-235 ELEMENTS. ONE WAS FOUND ON AUG. 10 WHEN ALL ELEMENTS WERE INSPECTED AFTER 50 MWD OF OPERATIONS, AND A SPARE REPLACED IT. THE OTHER WAS FOUND SEPT. 23 WHEN ON ELEMENT WAS PICKED AT RANDOM AFTER 60 MWD. NO OTHER ELEMENTS WERE FOUND DAMAGED. ***DURING HANDLING, THE ELEMENT IS PASSED FROM ONE OPERATOR TO ANOTHER. SIMILAR MARKS WERE FOUND ON A DUMMY ELEMENT. NO EVIDENCE OF BLISTERING OR FISSION PRODUCT RELEASE. ***GREATER FLUX-PEAKING EFFECTS (FOUR 350- AND FOUR 650-GRAM ELEMENTS) WERE INCLUDED IN CORE CALCULATIONS.

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

REACTOR, RESEARCH + FUEL HANDLING MACHINE + UMRR (RR) + *DAMAGE + *FUEL HANDLING + *FUEL ELEMENT

17-32309 ALSO IN CATEGORY 13
OVEREXPOSURE DUE TO COMMUNICATION BREAKDOWN
NUCLEAR FUEL SERVICES
2 PAGES, LETTER TO L.D. LOW, COMPLIANCE, JANUARY 14, 1969, DOCKET 50-201

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32309 *CONTINUED*

ON DECEMBER 20, 1968, A MAINTENANCE MAN ENTERED THE GENERAL CRANE ROOM TO REPAIR CRANE. HAND-EXPOSURE RATE WAS 200 TO 700 MRADS/HOUR, WITH THE STATED PRECAUTION OF DO NOT WORK ON CRANE MOTORS AND REEL (THESE AREAS HAD MUCH HIGHER RADIATION READINGS). PRIOR TO HIS ENTRY, HE HAD 16.934 REMS (EXTREMITY) IN THE CURRENT QUARTER AND HAD RECEIVED AN ADDITIONAL 4.800 REMS TO HIS EXTREMITIES (TOTAL 21.734 REMS). ***A MISUNDERSTANDING BETWEEN HEALTH AND SAFETY AND THE MAINTENANCE MAN AS TO INTENDED WORK CAUSED THE INDIVIDUAL TO HANDLE UNMONITORED SURFACES. MAINTENANCE SUPERVISION HAS BEEN ASKED TO RESTRESS IMPORTANCE OF ADEQUATE COMMUNICATION OF WORK DESCRIPTION TO HEALTH AND SAFETY.

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

NFS + RADIATION SAFETY AND CONTROL + MAINTENANCE AND REPAIR + *FAILURE, ADMINISTRATIVE CONTROL + FUEL REPROCESSING + *PERSONNEL EXPOSURE, RADIATION + FUEL HANDLING MACHINE

17-32310

ALSO IN CATEGORIES 12 AND 14
REQUEST FOR EXTENSION OF EXPIRATION DATE OF PROVISIONAL OPERATING LICENSE
U.S. ATOMIC ENERGY COMMISSION
7 PAGES, EXTENSION OF LICENSE REQUEST, MARCH 17, 1969, DOCKET 50-201

(LICENSE CSF-1.) EXTENSION TO OCT. 19, 1970, ON THE GROUNDS THAT ACTUAL OPERATING EXPERIENCE IS NEEDED WITH (1) HIGH-BURNUP FUELS AND FUELS CONTAINING MEASURABLE RADIOIODINE HAVE NOT BEEN PROCESSED. 22,000 MWD/T AV BURNUP FUEL WILL SOON BE PROCESSED. (2) LIQUID WASTE CAN BE CONFINED AT 10 TO 15I MPC. AEC REQUEST FOR STUDIES ON LOWERING DISCHARGE LEVELS MAY REQUIRE SUBSTANTIAL FACILITY CHANGES. ***DECOMMISSIONING COSTS ESTIMATED TO BE AT \$100,000 PER WEEK FOR 4-6 WEEKS.

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

R AND D PROGRAM + FUEL REPROCESSING + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + TECHNICAL SPECIFICATIONS + OPERATING EXPERIENCE SUMMARY + NFS + FISSION PRODUCT, IODINE + MODIFICATION, SYSTEM OR EQUIPMENT

17-32311

ALSO IN CATEGORY 9
SAN ONOFRE TEMPERATURE ANOMALIES CURED
SOUTHERN CALIFORNIA EDISON COMPANY
1 PAGE, LETTER TO D.J. SKOVHOLT, AEC-DRL, JANUARY 15, 1969, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

SAN ONOFRE REACHED 450 MWE (1300 MWTH) ON DEC. 27, 1968, QUITE SMOOTHLY WITH ALL PARAMETERS WITHIN EXPECTED LIMITS. CORE DELTA T WAS 44.1 F, WELL BELOW 46.8 F DESIGN VALUE, INDICATING THAT OUR CONCLUSIONS IN THE DEC. 10, 1968, REPORT WERE CORRECT - CORE FLOW EXCEEDS DESIGN VALUE. IN-CORE MEASUREMENTS INDICATE POWER DISTRIBUTION IS AS EXPECTED.

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

INSTRUMENT, TEMPERATURE + *REACTOR POWER + SAN ONOFRE (PWR) + TEMPERATURE GRADIENT + POWER DISTRIBUTION + REACTOR, PWR + *INSTRUMENT, ABNORMAL INDICATION

17-32312

AMENDMENT 2 - POWER UPGRATING TO 1825 MW THERMAL
U.S. ATOMIC ENERGY COMMISSION
8 PAGES, 3 FIGURES, LETTER TO D.C. SWITZER, CONNECTICUT YANKEE, MARCH 11, 1969, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES (CHANGE 7) TECH.-SPEC. CHANGES ON (1) ALLOWABLE POWER VS COOLANT PRESSURE AND INLET TEMPERATURE, (2) TURBINE STEAM RELIEF CAPACITY INCREASED FROM 7 X 10(6TH) TO 9.5 X 10(6TH) LB/HR, (3) CONTROL GROUP INSERTION LIMITS, AND ALLOWANCE FOR 1 ROD TO REMAIN INSERTED IN CORE FOR A FULL POWER MONTH OF OPERATION.

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

POWER DISTRIBUTION + REACTOR POWER + REACTOR, PWR + *POWER UPGRATING + CONTROL ROD PROGRAM + ACCIDENT, CONTROL ROD DROPIN + TECHNICAL SPECIFICATIONS + PRESSURE RELIEF + HADDAM NECK (PWR) + TURBINE

17-32313

NYU AGN-201M 1968 CHANGES
NEW YORK UNIVERSITY
2 PAGES, LETTER TO DRL, MARCH 5, 1969, DOCKET 50-216

REACTOR INITIAL CRITICALITY JUNE 1968, OPERATED INFREQUENTLY. BASIC CALIBRATIONS COMPLETED, REACTIVITY EFFECTS OF SAMPLES BEING STUDIED. BIOLOGICAL SHIELD BLOCKS MINIMIZE RADIATION. (1) GRAPHITE THERMAL COLUMN EXCESS REACTIVITY IS BELOW 0.20(LIMIT. (2) CABLES RUN DIRECTLY FROM DETECTORS TO CONSOLE READOUT TO AVOID NOISE PICKUP. (3) BF3 CHAMBER REPLACED BY EQUIVALENT. (4) STANDARD ABSORBER FOILS APPROVED FOR GLORY-HOLE INSERTION.

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

AGN (ING) + REACTOR, RESEARCH + REPORT, OPERATIONS SUMMARY + *BEAM HOLE + INSTRUMENT, NUCLEAR + REACTOR, TRAINING + REACTIVITY EFFECT + *NOISE

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32314 ALSO IN CATEGORY 9
PERIOD BYPASS NEEDED TO USE TRIGA MODE SWITCH
TEXAS A AND M UNIVERSITY
2 PAGES, LETTER TO D.J. SKOVHOLT, JANUARY 21, 1969, DOCKET 50-128

REQUESTS DELETION OF PERIOD FROM REQUIRED SAFETY CIRCUITS, OTHER TRIGAS DO NOT HAVE A PERIOD SCRAM. SINCE JAN. 62 INITIAL OPERATION, A PERIOD BYPASS KEYLOCK HAS BEEN USED DURING LOG-N CALIBRATION DURING OPERATION. ONLY SROS HAVE ACCESS TO KEY LOCKED IN MANAGERS OFFICE. TRIGA CONVERSION SAR DID NOT DISCUSS BYPASS, POINTED OUT BY COMPLIANCE. BYPASS IS CURRENTLY USED TO PREVENT SPURIOUS SCRAMS WHENEVER MODE SWITCH (BETWEEN PULSE AND STEADY STATE) IS USED. BECAUSE OF TRIGA FUEL, SCRAM IS ONLY AN OPERATIONAL ASSISTANCE DURING STARTUP.

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

SAFETY PRINCIPLES AND PHILOSOPHY + REACTOR, RESEARCH + REACTOR, PULSED + REACTOR SAFETY SYSTEM + TRIGA (RR) + ADMINISTRATIVE CONTROL + *SCRAM, SPURIOUS + *INSTRUMENT, PERIOD + TECHNICAL SPECIFICATIONS

17-32315
POSSESSION-ONLY LICENSE FOR PATHFINDER
NORTHERN STATES POWER COMPANY
10 PAGES, 1 FIGURE, LETTER TO P.A. MORRIS, DRL, MARCH 6, 1969, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

PROPOSED AMENDMENT 48 REVISES TECHNICAL SPECIFICATIONS TO REDUCE LICENSE DPR-11 TO A POSSESSION BUT NOT USAGE OF SPECIAL NUCLEAR MATERIAL AT SITE. ***STEAM AND FEEDWATER LINES HAVE BEEN CAPPED, FUEL STORED IN STORAGE POOL.

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

REACTOR, BWR + SPECIAL NUCLEAR MATERIAL + REACTOR, INTERNAL SUPERHEAT + PATHFINDER (ISR) + TECHNICAL SPECIFICATIONS + *DECOMMISSIONING

17-32316
CLAD FAILURE IN FISSION PLATE
OHIO STATE UNIVERSITY
3 PAGES, LETTER TO P.A. MORRIS, DRL, FEBRUARY 5, 1969, DOCKET 50-150

WATER-TIGHT AL-CLAD FISSION PLATE WITH 4.4 KG U-235 WAS DISASSEMBLED TO CHECK ADJACENT ELECTRICAL HEATERS AND THERMOCOUPLES. SMEARS REVEALED POOL AND OUTER PLATE SURFACES UNCONTAMINATED. THE CLAD IS TWO CIRCULAR ALUMINUM 28-IN.-DIA DISKS, WITH A PICTURE FRAME (ANNULUS) AS THICK AS THE URANIUM. BOND IS BY A RESIN WHICH HAS FAILED IN SEVERAL PLACES. PLATE HAS BEEN HEAT-SEALED AND STORED UNTIL CORRECTIVE ACTION TAKEN. ***REACTOR WILL BE OPERATED WITHOUT PLATE AS WE DO NOT FEEL THIS IS AN UNREVIEWED SAFETY QUESTION.

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

CONTAMINATION + FAILURE, EQUIPMENT + REACTOR, RESEARCH + BEAM HOLE + URANIUM-235 + TECHNICAL SPECIFICATIONS

17-32317 ALSO IN CATEGORY 18
CHANGES IN U OF ILLINOIS ADVANCED TRIGA
UNIVERSITY OF ILLINOIS
7 PAGES, 1 FIGURE, LETTER TO D.J. SKOVHOLT, DRL, FEBRUARY 21, 1969, DOCKET 50-151

ADDITIONS. (A) RADIATION ALARMS WILL RING IN CAMPUS POLICE STATION WHEN NO ONE AT REACTOR. (B) AIRTIGHT PIPING TUNNEL HAS A PRESSURE RELIEF IN CASE OF PIPE RUPTURE (TO ENSURE INTEGRITY SO WATER REMAINS 26 IN. ABOVE TOP CORE GRID PLATE). ***CLARIFICATIONS. (A) STARTUP CHAMBER AUTOMATICALLY MOVED BY LOG-N READING. (B) PRIMARY COOLANT DP CELL OPERATES FLOW INDICATOR AND FLOW SWITCH FOR SCRAM. ***CHANGES. (A) FILTERS AND FLOW METER ADDED TO PRIMARY MAKEUP PIPE, WATER SOFTENER DELETED. (B) FLOW CALIBRATION WILL BE BY ORIFICE PLATE RATHER THAN BY VOLUME.

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

INSTRUMENT, STARTUP RANGE + PRESSURE RELIEF + COOLANT PURIFICATION SYSTEM + *POWER UPRATING + INSTRUMENT, FLOW + *MODIFICATION, SYSTEM OR EQUIPMENT + TRIGA (RR) + REACTOR, RESEARCH + INSTRUMENT CALIBRATION + ACCIDENT, LOSS OF COOLANT + MONITOR, AREA

17-32318
CHANGE 16 - RELOAD E-G FUEL APPROVED
U.S. ATOMIC ENERGY COMMISSION
10 PAGES, LETTER TO G.J. WATKE, CONSUMERS POWER COMPANY, FEBRUARY 27, 1969, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

ALLOWS USE OF E-TYPE BUNDLES WHICH HAVE 4 GADOLINIA-CONTAINING RODS. SAFETY EVALUATION NOTES THAT REACTIVITY DECREASES SLOWLY UNTIL GADOLINIA IS BURNED OUT, THEN DECREASES NORMALLY (MORE THAN COMPENSATES FOR INCREASED ENRICHMENT, GIVES SLIGHTLY LARGER SHUTDOWN MARGIN). INCREASING VARIETY OF FUEL-ROD COMPOSITIONS REQUIRES STRICT ACCOUNTABILITY TO PRECLUDE LOADING AN IMPROPERLY ASSEMBLED BUNDLE.

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32318 *CONTINUED*

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

*FUEL ELEMENT + BIG ROCK POINT (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR + ADMINISTRATIVE CONTROL + FUEL BURNUP + SAFETY EVALUATION + SHUTDOWN MARGIN + *POISON, BURNABLE + TECHNICAL SPECIFICATIONS + GADOLINIUM

17-32330

AMENDMENT 8 - TECHNICAL SPECIFICATIONS FOR TEXAS A AND M AGN-201

U.S. ATOMIC ENERGY COMMISSION

20 PAGES, AMENDMENT 8, FEBRUARY 26, 1969, DOCKET 50-59

PROVIDES 6-PAGE TECHNICAL SPECIFICATIONS FOR 0.1-WATT REACTOR, UPDATING PREVIOUS AMENDMENTS, RESTATING REPORTING REQUIREMENTS, EXPANDING RECORD KEEPING. ALLOWS A REVISED CRITICALITY EXPERIMENT. PULSING REQUEST WITHDRAWN.

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

*TECHNICAL SPECIFICATIONS + REACTOR, PULSED + SAFETY EVALUATION + REACTOR, TRAINING + AGN (TNG)

17-32331

PROPOSED AMENDMENT 7 - POWER UPGRATING OF AGN 201 TO 5 WATTS FROM 0.1 WATT

UNIVERSITY OF UTAH

23 PAGES, 7 FIGURES, AMENDMENT NO. 7, MARCH 1969, DOCKET 50-72

(INCORPORATES HAZARD SUMMARY REPORT FOR 5-W OPERATION OF DOCKET 50-32.) OPERATION WILL DECREASE REACTIVITY BY 0.071%, ALLOWING 0.28% WITHOUT ADDING POLYETHYLENE TO GLORY HOLE. 24-IN. CONCRETE ADDITIONAL SHIELDING TO BE PROVIDED. RADIATION DAMAGE WOULD LIMIT CORE LIFE TO 120 YEARS AT 5 W CONTINUOUS. MAXIMUM ACTIVATION WOULD BE 25 MILLICURIES. USN-PGS FOUND AR-41 ACTIVATION NO PROBLEM. MCA (2% REACTIVITY EXCURSION) FOUND TO GIVE 10-MW PEAK, LEVELING OFF TO 100 KW, AND GIVING A 1.1-REM DOSE TO PERSON STANDING OUTSIDE SHIELD.

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

PLASTICS + ARGON + TECHNICAL SPECIFICATIONS + RADIATION DAMAGE + AGN (TNG) + ACCIDENT, MAXIMUM CREDIBLE (MCA) + DOSE + SHIELDING + REACTOR, TRAINING + *POWER UPGRATING

17-32332

NONCOMPLIANCE CITATION FOR TOO LITTLE ROD WORTH

U.S. ATOMIC ENERGY COMMISSION

1 PAGE, LETTER TO J.A. PERKINS, CORNELL UNIVERSITY, MARCH 11, 1969, DOCKET 50-97

A JAN. 15 INSPECTION FOUND (1) INDIVIDUAL WORTH OF TWO CONTROL RODS LESS THAN \$1.00. (2) TOTAL WORTH OF ALL RODS LESS THAN \$3.00. ***REEVALUATION HAS ESTABLISHED WORTHS ARE IN COMPLIANCE, BUT WE REMAIN CONCERNED ABOUT YOUR SYSTEM FOR AUDITING OF FACILITY OPERATIONS.

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

*FAILURE, ADMINISTRATIVE CONTROL + *CONTROL ROD WORTH + CRITICAL ASSEMBLY FACILITY + *SAFETY REVIEW + COMPLIANCE

17-32333

SCUBA USAGE IN FILLING POOL WALL CRACKS

BABCOCK AND WILCOX

2 PAGES, LETTER TO AEC-DRL, 1967 ANNUAL REPORT OF CHANGES, FEBRUARY 26, 1968, DOCKET 50-99

(A) IN TWO MONTHS, POOL-WATER MAKEUP INCREASED FROM 10 TO 100 GAL/DAY. SEEPAGE FROM A HAIRLINE CRACK WAS ELIMINATED WHEN A SCUBA DIVER APPLIED SILICONE SEALANT TO POOL WALL. LATER A SCUBA DIVER INSTALLED A GUIDE TUBE BELOW GRID PLATE. EXPOSURES WERE LESS THAN 100 MREM. (B) SELF-POWERED RADIATION DETECTORS WERE IRRADIATED IN CORE AT 100-800 F. REACTOR WAS USED AS A NEUTRON SOURCE FOR INSTRUMENT AND THERMOCOUPLE DEVELOPMENT.

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

REACTOR, POOL TYPE + REACTOR, TEST + *LEAK + REMOTE MANIPULATING AND VIEWING + SEAL + COATING, SURFACE + REACTOR, RESEARCH + REPORT, OPERATIONS SUMMARY + FUEL STORAGE + *MAINTENANCE AND REPAIR + FAULT

17-32334

ALSO IN CATEGORY 9

1968 ANNUAL OPERATIONS REPORT

VIRGINIA POLYTECHNIC INSTITUTE

6 PAGES, LETTER TO AEC-DRL, JANUARY 31, 1969, DOCKET 50-124

FIRST INSPECTION (JAN. 1968) SINCE SUSTAINED 100-KW OPERATION SHOWED AIR DUCT BETWEEN CORE AND STACK HAD COMPLETELY ELIMINATED MOISTURE CONDENSATION. MASONITE SHEETS ADDED IN 1960 AS A MOISTURE BARRIER WERE EMBRITTLED AND THEREFORE REMOVED. FIIFI WAS GOOD. ***ON JAN. 15, ONE SHIM ROD FAILED TO INSERT DUE TO SLIGHT MISALIGNMENT. ON JAN. 15, REACTOR WAS OPERATED AT ABOUT 130 KW, AND HEAT BALANCE CONSIDERED INCORRECT BECAUSE ALL NEUTRON DETECTORS AGREED. FOIL ACTIVATION

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32334 *CONTINUED*

SHOWED HEAT BALANCE CORRECT. (CONCLUSION) CALIBRATION SHIFTED BECAUSE INSULATING POLYETHYLENE MOISTURE COVERS WERE REMOVED FROM ALL DETECTORS, AND PROTECTIVE CAN WAS GROUNDED.

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

REPORT, OPERATIONS SUMMARY + *INSTRUMENT, ABNORMAL INDICATION + REACTOR POWER + REACTOR, RESEARCH + HUMIDITY + SAFETY PRINCIPLES AND PHILOSOPHY + FAILURE, SCRAM MECHANISM + INSTRUMENT CALIBRATION + *INSTRUMENT, POWER RANGE + FAILURE, ADMINISTRATIVE CONTROL + REFLECTOR

17-32335

NONCOMPLIANCE CITATION, VPI RESEARCH REACTOR

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO W.W. BRANDT, VPI, FEBRUARY 20, 1968, DOCKET 50-124

AFTER A JAN. 23-24, 1969, INSPECTION, CITATION FOR (1) NOT MEASURING SCRAM TIMES AND REG.-ROD WITHDRAWAL RATES, NOT CALIBRATING NUCLEAR INSTRUMENTS QUARTERLY, NOR INSPECTING CONTROL ROD ANNUALLY. (2) NOT INFORMING AEC WHEN ROD WITHDRAWAL RATES EXCEEDED 6 IN./MIN ON TESTS NOV. AND DEC. 1968. ***COMPLIANCE - ATLANTA SAYS THAT YOU HAVE SUSPENDED OPERATION UNTIL LICENSE COMPLIANCE CAN BE ACHIEVED. LET US KNOW WHEN, SO ATLANTA CAN INSPECT ON THE PROPOSED STARTUP.

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

*CONTROL ROD SCRAM MECHANISM + *RESPONSE TIME + REACTOR, TEST + SURVEILLANCE PROGRAM + INSTRUMENT CALIBRATION + REACTOR, RESEARCH + TECHNICAL SPECIFICATIONS + EXAMINATION + *COMPLIANCE

17-32336

PINHOLE LEAK IN TRIGA CONTROL ROD

TEXAS A AND M UNIVERSITY

2 PAGES, LETTER TO D.J. SKOVHOLT, ORL, SEPTEMBER 26, 1968, DOCKET 50-128

ON SEPT. 19, 60 MW-HR AFTER TRIGA CONVERSION MADE, CONTROL RODS WERE INSPECTED DURING GRAPHITE-REFLECTOR INSTALLATION. AS REQ. ROD WAS BROUGHT TO SURFACE, BUBBLES AND WHITE POWDER WERE OBSERVED. ON WET ROD REMOVED FROM POOL, SMALL BUBBLES WERE SEEN FORMING ON WELDED END PLUG, FINAL SEAL AFTER B4C LOADING. ***WEAR, MECHANICAL DAMAGE, CORROSION WERE NOT LIKELY. A SMALL HOLE MAY HAVE BEEN INITIALLY PRESENT OR BARELY SEALED. WE MAY INITIALLY INSPECT RODS MORE FREQUENTLY THAN CALLED FOR IN TECHNICAL SPECIFICATIONS.

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

*LEAK + *CONTROL ROD + CONTROL ROD BURNUP + *DAMAGE + REACTOR, RESEARCH + BORON + *CORROSION + CARBIDE + EXAMINATION + TRIGA (RR)

17-32463

AMENDMENT 1 - PARTIAL DISASSEMBLY AND STORAGE

U.S. ATOMIC ENERGY COMMISSION

10 PAGES, LETTER TO E.J. MANGANIELLO, NASA, FEBRUARY 17, 1969, DOCKET 50-197

ALLOWS DISSASSEMBLING OF SOLUTION-TYPE ZPR-II, STORING OF URANYL FLUORIDE FUEL, AND REMOVING OF REACTOR TANK.

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

SAFETY EVALUATION + TECHNICAL SPECIFICATIONS + CRITICAL ASSEMBLY FACILITY + *DECOMMISSIONING

17-32465

ALSO IN CATEGORY 9

MEASUREMENTS AT 1 MW SHOW SAFETY CHAMBER VARIES FROM 84 TO 106

UNIVERSITY OF CALIFORNIA, BERKELEY

2 PAGES, LETTER TO ORL, MARCH 17, 1969, DOCKET 50-224

9 MEASUREMENTS WITH DIFFERENT CONTROL-ROD POSITIONS WERE TAKEN OF SAFETY CHANNEL READING WHEN LINEAR CHANNEL READING WAS KEPT AT 1 MW. POOL HEATUP AT 7.3 C/HR (SECONDARY OFF) SHOWED REACTOR WAS AT 1 TO 0.9 MW. READINGS RANGED FROM 84 TO 106. TO COMPLY WITH LICENSE, OPERATOR WOULD HAVE TO ADJUST SAFETY SETPOINT HOURLY, NOT A GOOD SAFETY PRACTICE. ***PRESENT CHAMBER (6 IN. BELOW BOTTOM GRID) COULD BE RELOCATED BUT MIGHT NOT WORK. A SECOND CHAMBER (COMPENSATED ION CHAMBER INSTEAD OF GAMMA CHAMBER) WOULD NOT HAVE A WIDE ENOUGH RANGE FOR PULSE RECORDING. ***REQUEST ISSUANCE OF CHANGE REQUESTED APRIL, 1968.

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

INSTRUMENT CALIBRATION + REACTOR POWER + *INSTRUMENT, ABNORMAL INDICATION + TRIGA (RR) + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + CONTROL ROD PROGRAM + TECHNICAL SPECIFICATIONS + *INSTRUMENT, POWER RANGE

17-32627

ALSO IN CATEGORIES 5 AND 9

REPORT ON THE FUEL MELTING INCIDENT IN THE ENRICO FERMI ATOMIC POWER PLANT

POWER REACTOR DEVELOPMENT COMPANY

50 PAGES, FIGURES, TABLES, REFERENCES, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32627 *CONTINUED*
COMMONWEALTH ASSOC.

DESCRIBES THE OCT. 5 HAPPENINGS (FLOW BLOCKAGE DUE TO ZIRCONIUM PLATE CAUSED PARTIAL MELTDOWN, RELEASING FISSION GAS AND LOSING EXCESS REACTIVITY), RESULTS OF INVESTIGATIONS (ZIRCONIUM FROM CONICAL FLOW GUIDE, FUEL FAILURE DID NOT PROPAGATE, FLOW REDUCTIONS CAME ONLY FROM ZIRCONIUM SEGMENT), PLANT MODIFICATION (ON-LINE COMPUTER WILL ALARM ON DEVIATION FROM CALCULATED VALUE OF REACTIVITY BALANCE, FISSION PRODUCTS, OR SUBASSEMBLY DELTA T AND WILL LATER CAUSE SCRAM). STARTUP TEST PROGRAM OUTLINED. APPENDICES GIVE DETAILS ON FUEL EXAMINATION. *** OCT. 5 OPERATION WAS TO CHECK EARLIER HIGH DELTA T IN ELEMENTS WHICH MELTED.

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

*FUEL MELTDOWN + REACTOR, LMCR + REMOTE MANIPULATING AND VIEWING + REACTOR, BREEDER + INCIDENT, GENERAL + REPORT, OPERATIONS ANALYSIS + INSTRUMENT, TEMPERATURE + EXAMINATION + INSTRUMENT, OPERATING REACTIVITY + INCIDENT, RECOVERY FROM + *FLOW BLOCKAGE + COMPUTER CONTROL + INSTRUMENT, ABNORMAL INDICATION + FUEL ELEMENT + REACTOR, LMFBR + REACTOR, FAST + FERMI (LMFBR)

17-32628 ALSO IN CATEGORY 9

FERMI MELTDOWN INDICATIONS

POWER-REACTOR DEVELOPMENT COMPANY

32 PAGES, FIGURES, TABLES, PP. 5-37 OF REPORT ON FUEL MELTING INCIDENT, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH

AUGUST OPERATION SHOWED HIGH OUTLET TEMPERATURES FROM SEVERAL FUEL ELEMENTS. ELEMENTS WERE MOVED TO SEE IF THE CAUSE WAS POOR FLOW DISTRIBUTION (THE OCT. 5 OPERATION WAS TO TEST THIS). HOT REACTIVITY AT 1 MW WAS OK. DELAYS DURING THE DAY LEAD TO RECORDING THERMOCOUPLE DATA DURING POWER USE, RATHER THAN INCREASING POWER IN STEPS AND MONITORING TEMPERATURES. AT 20 MWTH IN AUTOMATIC CONTROL THE DN/DT SIGNAL BECAME ERRATIC. AS THIS HAD BEEN EXPERIENCED BEFORE AT THIS POWER LEVEL AND AS THE NOISE DISAPPEARED IN MANUAL CONTROL, REACTOR POWER AGAIN RAISED IN AUTOMATIC TIL ALL RODS BEING 9 IN. WITHDRAWN INSTEAD OF 6 IN. CAUSED THE SRO TO HALT POWER INCREASE, THEN HIGH ELEMENT OUTLET TEMPERATURES (3X NORMAL) AND RADIATION ALARMS RESULTED IN MANUAL SHUTDOWN. ANALYSIS SHOWED A LOSS OF \$0.005/MW FROM 6 TO 18 MW, THEN LOSS OF \$0.013/MW ABOVE THIS, WITH A NET LOSS OF \$0.26 (11.5 FUEL LOSS AND 6.9 FUEL BOWING). THE FISSION PRODUCT DETECTOR (CHARGED WIRE IN REACTOR VESSEL OFFGAS) WAS BEING CALIBRATED DURING POWER INCREASES, AND REQUIRED 3 OR 7 MIN SOAK TIMES. THE LAST MEASUREMENT WAS OFF SCALE.

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

FUEL MELTDOWN + REACTOR, LMCR + REACTOR, BREEDER + OPERATING EXPERIENCE + NOISE + REACTOR, LMFBR + REACTOR, FAST + FERMI (LMFBR) + *PERIOD METER + REACTIVITY EFFECT, ANOMALOUS + REPORT, OPERATIONS ANALYSIS + *FLOW BLOCKAGE + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, DETECTION FAILED FUEL ELEMENT

17-32629 ALSO IN CATEGORIES 5 AND 11

EXAMINATION OF MELTED FERMI FUEL

POWER REACTOR DEVELOPMENT COMPANY

55 PAGES, FIGURES, TABLES, APPENDIXES B AND C OF REPORT ON THE FUEL MELTING INCIDENT, DECEMBER 15, 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

AN UNMELTED ELEMENT SHOWED ABOUT 200 PPM HYDROGEN IN CLAD (WELL BELOW 5000 SPALLING LEVEL), HIGH VALUES FROM A PARTICULAR MELT INGOT. OTHERWISE NORMAL. ANOTHER ELEMENT THERMOCOUPLE READING HIGHER THAN A MELTED ELEMENT, WAS ONLY BADLY BOWED. *** MOLTEN FUEL ADHERED TO STEEL CLAD BUT DID NOT PENETRATE. HYDROGEN CONTENT REACHED 4000 PPM WITHOUT CRACKING. ONLY XE-KR FOUND IN COVER GAS. CS, SR, I, BA-LA FOUND IN SODIUM COOLANT. WHILE THERE WAS A COMMON HOLE IN THE WRAPPER CANS BETWEEN MELTED ELEMENT, NO EVIDENCE OF INTERCHANGE OF FUEL. FLOW TESTS AND HEAT TRANSFER ANALYSIS SHOWED ABOUT 3(NOMINAL FLOW IN TWO MELTED ELEMENTS, 30 AND 7(FLOW IN DAMAGED ADJACENT ELEMENTS.

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

SODIUM + FISSION PRODUCT RETENTION + REACTOR, BREEDER + FERMI (LMFBR) + REPORT, OPERATIONS ANALYSIS + *HEAT TRANSFER ANALYSIS + STRUCTURAL INTEGRITY + REACTOR, FAST + FAILURE, FUEL ELEMENT + *EXAMINATION + REACTOR, LMCR + EMBRITTLEMENT + *FUEL MELTDOWN + HYDRIDE + FLOW BLOCKAGE + ZIRCALOY + REACTOR, LMFBR

17-32633

OVEREXPOSURE OF RADIOGRAPHER

CRANE COMPANY

1 PAGE, TELEGRAM TO R.W. KIRKMAN, REGION 1 COMPLIANCE, JANUARY 8, 1969

RADIOGRAPHER RECEIVED A CALCULATED 25-R EXPOSURE ON JAN. 8 OVER A 1.5-HR PERIOD. EMPLOYEE FAILED TO USE FILM BADGE, SURVEY METERS, OR POCKET DOSIMETERS PROVIDED. SOURCE WAS 43 CURIES OF IR-192. EMPLOYEE IN HOSPITAL FOR BLOOD COUNT.

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

PERSONNEL EXPOSURE, RADIATION + FAILURE, OPERATOR ERROR + RADIOGRAPHY + *INCIDENT, EXPOSURE

17-32634

1 CURIE CS-137 LOST IN WELL

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32634 *CONTINUED*

DRESSER ATLAS

3 PAGES, LETTER TO J. WARD, DENVER COMPLIANCE, JANUARY 21, 1969

SOURCE LOST DEC. 10, 1968, AT 1050 FT NEAR WASHAKIE COUNTY, WYOMING. ON DEC. 15, SOURCE WAS LOCATED AT 9258 FT, AND WELL WAS PLUGGED WITH 600 SACKS OF CEMENT. ATTACHED DIAGRAM SHOWS WELL PRODUCTION IS FROM 10,940-10,972 FT.

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

BYPRODUCT MATERIAL + *SOURCE, RADIATION, LOST + RADIOGRAPHY

17-32636

SELECTED PIQUA OPERATING EXPERIENCE

ATOMICS INTERNATIONAL

NAA-SR-MEMO-12524 +. 30 PAGES, 6 TABLES, OCTOBER 1967, DOCKET 115-2, TYPE--OCR, MFG--A.I., AE--A.I.

VESSEL WAS FLUSHED AND INSPECTED. AFTER VESSEL LID REMOVED, RADIATION WAS 10 MR/HR ON OPERATING FLOOR AND 150 MR/HR AT UPPER GUIDE GRID SURFACE. NO CARBONACEOUS MATERIAL SEEN. SIX OF 12 RECOVERY PROGRAM TEST PROCEDURES REVIEWED.

REPORT, OPERATIONS ANALYSIS + PIQUA (OCR) + FLOW BLOCKAGE + EXAMINATION + PRESSURE VESSEL + REACTOR, ORGANIC COOLED

17-32637

NONCOMPLIANCE CITATION FOR GETR POOL WATER LOSS

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO L.S. MOODY, GE-VALLECITOS, OCTOBER 13, 1967, DOCKET 50-70, TYPE--TR, MFG--G.E., AE--G.E.

INVESTIGATION OF AUG. 31, 1967, AFTER A LOSS OF 14,000 GAL FROM REACTOR POOL, RESULTED IN TWO ITEMS OF NONCOMPLIANCE. (1) POWER TO EMERGENCY WATER RECIRCULATION PUMPS WAS REMOVED FOR 7 HR ON AUG. 29, 1967, WHILE A FUELED CONTROL-ROD FOLLOWER WAS IN THE CORE. (2) ITEM 1 WAS NOT REPORTED TO AEC. *** YOUR SEPT. 19 LETTER REQUIRES ADDITIONAL INFORMATION - (1) DETAILED DESCRIPTION OF SAFETY REVIEW PROCEDURES ON CHANGES IN TESTS AND EXPERIMENTS, (2) HAZARDS EVALUATION OF POOL WATER LOSS, STEPS TAKEN TO PREVENT RECURRENCE.

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

REACTOR, TEST + REACTOR, RESEARCH + ACCIDENT, LOSS OF COOLANT + REACTOR, POOL TYPE + *FAILURE, ADMINISTRATIVE CONTROL + *LEAK + EMERGENCY POWER, ELECTRIC + *FUEL STORAGE + SAFETY REVIEW + GETR (TR) + COMPLIANCE

17-32638

REPAIRS TO THE FLANGE WELD ON THE CORE SPRAY AT LACBWR

ALLIS-CHALMERS

2 PAGES, LETTER TO P.A. MORRIS, DRL, USAEC, OCTOBER 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

A PIN-HOLE LEAK AT THE UPPER WELD WAS ATTRIBUTED TO A POCKET OF SLAG 1 IN. LONG X 3/32 IN. WIDE AND ONE HALF THE THICKNESS OF THE WELD. RADIOGRAPHY WAS NOT FEASIBLE AND IT WAS NECESSARY TO REMOVE ENTIRE WELD. TO PRESERVE ALIGNMENT GRINDING AND REWELDING WAS PERFORMED IN 1-IN. INCREMENTS. INERT-GAS WELDING WITH DYE-PENETRANT INSPECTION AFTER EACH PASS ENSURED A GOOD WELD. THE OTHER METALLIC ARC WELDS WERE DYE-PENETRANT INSPECTED, AND TWO SMALL REPAIRS WERE MADE. NO EXPLORATORY GRINDING WAS DONE ON INERT-GAS-WELDED AREAS.

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

EXAMINATION + *WELDS + LACROSSE (BWR) + MAINTENANCE AND REPAIR + *FAILURE, EQUIPMENT + *CORE SPRAY + WELDING + REACTOR, BWR + QUALITY ASSURANCE

17-32640

1969 CHANGES TO ACCELERATOR PULSED FACILITY

GULF GENERAL ATOMIC

2 PAGES, LETTER TO D.J. SKOVHOLT, DRL, FEBRUARY 24, 1969, DOCKET 50-253

(1) SOLID-STATE NUCLEAR TRIP AMPLIFIER REPLACED KEITHLEY METER RELAY TRIPS WITH ELECTRONIC TRIPS IN 6 NUCLEAR INSTRUMENT CHANNELS. (2) METAL COVER ENCLOSURES PIT SHIELD DRIVE AND SUPPORTS NUCLEAR SOURCE SHIELD. (3) SEISMIC SCRAM CIRCUITS MADE MORE SENSITIVE.

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

TRIGA (RR) + REPORT, OPERATIONS SUMMARY + REACTOR, RESEARCH + ACCELERATOR + *INSTRUMENT, NUCLEAR + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PULSED

17-32643

ZPR-II REACTOR TANK SIZE CHANGE

NASA, LEWIS RESEARCH CENTER

3 PAGES, LETTER TO P.A. MORRIS, DRL, NOVEMBER 21, 1968, DOCKET 50-197

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32643 *CONTINUED*

REQUESTS PERMISSION TO DISMANTLE ZPR-II TANK AND INSTALL A 10-IN.-DIA REACTOR TANK CENTERED IN A LARGE REFLECTOR TANK. SEVEN STEPS ENUMERATED TO DECOUPLE FUEL PUMPS AND STORAGE TANK FROM 30-IN.-DIA REACTOR TANK, DECONTAMINATE AND DISPOSE OF REACTOR TANK. WILL REQUIRE 3 MONTHS.

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

CRITICAL ASSEMBLY FACILITY + *DECOMMISSIONING + PRESSURE VESSEL + TECHNICAL SPECIFICATIONS + REACTOR, HOMOGENEOUS + MODIFICATION, SYSTEM OR EQUIPMENT

17-32644 ALSO IN CATEGORY 11

PROPOSED CHANGE 9 - STEAM ISOLATION VALVE TEST INTERVALS

CONNECTICUT YANKEE ATOMIC POWER COMPANY

3 PAGES, LETTER TO DRL, NOVEMBER 12, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

CHANGE FROM WEEKLY TO MONTHLY TEST OF 1.5-IN. MOTION, WITH 10-SEC CLOSURE TIME TO BE VERIFIED DURING REFUELING. *** EARLY IN 1968, MATERIAL INCOMPATIBILITY BETWEEN PACKING AND VALVE STEM RESULTED IN CORROSION AND BINDING. NEW MATERIAL HAS BEEN PROVED BY WEEKLY STROKING. VALVES ARE IN AN EXPOSED ELEVATED SPOT, WORKERS ARE EXPOSED TO ELEMENTS 4 HR PER WEEK, AND WINTER IS COMING. *** 30 SATISFACTORY STROKING TESTS SHOWED NO ABNORMALITIES. TEN FULL CLOSURES OF LESS THAN 2.5 SEC HAVE RESULTED.

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

REACTOR, PWR + FAILURE, DESIGN ERROR + *CONTAINMENT ISOLATION + TECHNICAL SPECIFICATIONS + TEST, ON LINE + HADDAM NECK (PWR) + *VALVE + *RESPONSE TIME + CORROSION + *TEST INTERVAL

17-32645 ALSO IN CATEGORY 7

CHANGE 31 - FILTERS FOR EMERGENCY DUCT

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO W.F. HALL, WNYRC, FEBRUARY 18, 1969, DOCKET 50-57

CORRECTS FILTER-ASSEMBLY DESCRIPTIONS TO AS-BUILT CONDITION. ONE ACTIVATED CHARCOAL FILTER BRACKETED BY ABSOLUTE FILTERS SHALL PROVIDE OVERALL ATTENUATION FACTORS OF 0.0001 FOR 0.3-MICRON PARTICLES AND 0.004 FOR VOLATILIZED IODINE. *** IN-PLACE TESTING SCHEDULE NOT IN T.S. YOUR STAFF DOUBTS NEED FOR PERIODIC TESTS AND HAS AGREED TO SUBMIT IN 6 MONTHS A REANALYSIS OF THIS FILTER SYSTEM ON CONSEQUENCES OF DESIGN-BASIS ACCIDENT.

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

*FILTER, ABSOLUTE + REACTOR, RESEARCH + *CHARCOAL + TECHNICAL SPECIFICATIONS + FILTER EFFICIENCY + ACCIDENT, CONSEQUENCES + PULSTAR (RR) + *FILTER + ACCIDENT, DESIGN BASE

17-32646 ALSO IN CATEGORIES 5 AND 11

REPORT ON PRIMARY SYSTEM LEAKAGE DETECTION

PACIFIC GAS AND ELECTRIC COMPANY

10 PAGES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 3, LETTER OF MARCH 8, 1968). INACCESSIBLE PORTIONS DURING OPERATION VESSEL AND PIPING INSIDE DRYWELL, NO PUMPS OR VALVES THERE. LEAK DETECTION IS BASED ON A 50-GAL INCREASE IN 380-GAL DRYWELL LOWER HEAD SHIELDING WATER CAUSING ALARM. (BACKUP IS THE WET/DRY BULB TEMPERATURE TAKEN DAILY FROM CONTAINMENT LEAKAGE, SHOWN SENSITIVE TO 0.1 GPM BY JAN. 1966 LEAK). LEAK RATES GREATER THAN 4.7 GPM WILL FLOOD HEAD AREA AND CAUSE SHUTDOWN. LEAK RATES OUTSIDE DRYWELL DEPEND ON INSPECTION AND COUNTERS TO RECORD NUMBERS OF TIMES SUMP PUMPS START/STOP. 7000-GAL RECEIVER TANK CAN INDICATE 0.1 GPM IN LEAKAGE.

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

SURVEILLANCE PROGRAM + CONTAINMENT LEAK MONITOR + OPERATOR ACTION + REACTOR, BWR + LEAK RATE + HUMBOLDT BAY (BWR) + *MAIN COOLING SYSTEM + *TEST, LEAK LOCATION

17-32647 ALSO IN CATEGORIES 11 AND 12

REPORT ON PRIMARY SYSTEM AND EMERGENCY CORE COOLING SYSTEM INSPECTION AND TESTING PROGRAM

PACIFIC GAS AND ELECTRIC COMPANY

20 PAGES, 4 FIGURES, LETTER TO DRL, JANUARY 27, 1969, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

(STATUS OF ITEM 4 - MARCH 8, 1968, LETTER.) PERIODIC HYDRO TEST AND VISUAL INSPECTION RELIED ON, VESSEL INSPECTION PROGRAM DESCRIBED. (1) OTHER REACTOR VESSEL INTERNAL PROBLEMS ARE FOLLOWED, MECHANICAL FASTENERS ARE INSPECTED. (2) THERMAL CYCLING PROBLEMS LOOKED FOR, A PREOPERATIONAL REVIEW ELIMINATED POTENTIAL CRACKING OF A MIXING TEE IN CONTROL-ROD-DRIVE WATER. (3) WE USED INCONEL CONTROL-ROD-DRIVE STUB TUBES, NO SPECIAL INSPECTION NEEDED. (4) HEAT-AFFECTED ZONES IN SS PRIMARY PIPING WERE CHECKED BY NDT IN OCT. 68, NO EVIDENCE OF PROBLEMS. *** ROUTINE TESTS OF CORE SPRAY SYSTEM DESCRIBED.

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

*MAIN COOLING SYSTEM + NOZZLE + INCONEL + *TEST, SYSTEM OPERABILITY + HUMBOLDT BAY (BWR) + REACTOR, BWR + TEST, NONDESTRUCTIVE + FASTENER + PRESSURE VESSEL + WELDING + FAILURE, EQUIPMENT + *EXAMINATION + CONTROL ROD DRIVE + *CORE SPRAY + EMERGENCY COOLING CONSIDERATIONS

CATEGORY 17
OPERATIONAL SAFETY AND EXPERIENCE

17-32859 ALSO IN CATEGORIES 7 AND 12
CUNNINGHAM GW + EVANS EA + HANSON JE
TRENDS IN IRRADIATED FUELS AND MATERIALS EXAMINATION
BATTELLE-NORTHWEST, RICHLAND, WASHINGTON
BNWL-SA-2274 + CONF-699305-1 +. 9 PAGES, JANUARY 6, 1969, FROM REMOTE HANDLING AND EXAMINATION IN THE FAST
REACTOR FIELD MEETING, IDAHO FALLS, IDAHO

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
CONTINUALLY 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. THE LARGE NUMBERS OF SPECIMENS TO BE EXAMINED WILL MOST ASSUREDLY
REQUIRE THE APPLICATION OF AUTOMATION AND ELECTRONIC DATA PROCESSING TO MINIMIZE COSTS AND TIME.

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

FUEL, PELLET TYPE + *FUEL ELEMENT + *EXAMINATION + *REACTOR; GENERAL + *IRRADIATION TESTING

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-05231 ALSO IN CATEGORY 1
SAFETY - A WAY OF LIFE WITH THE ATOM
U.S. ATOMIC ENERGY COMMISSION
11 PAGES, PRESS RELEASE FS-8-65, MARCH 7, 1965

TO FURTHER IMPROVE PUBLIC AWARENESS OF THE EXTENT TO WHICH SAFETY IS PRACTICED IN THE NUCLEAR FIELD, THE AEC HAS RELEASED RESULTS OF A COMPREHENSIVE ANALYSIS OF SAFETY IN THE GOVERNMENT PROGRAM DURING 22 YEARS OF OPERATION (1943 THROUGH 1964). SEVERITY AND FREQUENCY OF ACCIDENTS DISCUSSED AS YARDSTICKS FOR DETERMINING RELATIVE SAFETY. STATISTICS SHOW THAT FROM THE VERY FIRST PHASE OF THE WORK TO THE PRESENT STAGE THE RESULTS IN PROTECTING HEALTH AND GENERAL SAFETY HAVE BEEN MAGNIFICENT. THE ATOM CAN BE SUCCESSFULLY EXPLOITED WITHOUT UNDUE HAZARD TO PUBLIC OR EMPLOYEES.

*RADIATION IN PERSPECTIVE + *ACCIDENT ANALYSIS + RADIATION, PUBLIC EDUCATION

18-26643 ALSO IN CATEGORIES 5 AND 12
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. V
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-5 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 5, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS A SECTION ON PLANT SAFETY ANALYSIS AND APPENDIX A - PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS. ANALYSES GIVEN FOR ABNORMAL OPERATIONAL TRANSIENTS CAUSED BY SINGLE EQUIPMENT FAILURES OR OPERATOR ERRORS AND ACCIDENTS. TABLES GIVEN SUMMARIZING CONSEQUENCES OF FAILURES AND ACCIDENTS. DESIGN BASIS ACCIDENTS INCLUDE CONTROL ROD DROP, LOSS OF COOLANT, REFUELING, AND MAIN STEAM LINE BREAK. MAIN STEAM LINE BREAK GIVES THE LARGEST OFF SITE DOSE - 11 REMS TO THYROID. APPENDIX DEFINES THE APPLICATION OF INDUSTRIAL CODES AND SPECIFICATIONS TO THE DESIGN, FABRICATION, INSPECTION, AND TESTING OF PIPING AND EQUIPMENT WHICH ARE WITHIN THE PRESSURE BOUNDARY.

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

PIPING + MAIN COOLING SYSTEM + ACCIDENT ANALYSIS + DUANE ARNOLD ENERGY CENTER (BWR) + ACCIDENT, LOSS OF COOLANT + DOSE + QUALITY ASSURANCE + HAZARDS ANALYSIS + OFF SITE + CODES AND STANDARDS + REACTOR, BWR + FAILURE, EQUIPMENT + ACCIDENT, STEAM LINE RUPTURE + REACTOR TRANSIENT + ACCIDENT, REFUELING + REPORT, PSAR + ENGINEERED SAFETY FEATURE + *SAFETY ANALYSIS + FAILURE, OPERATOR ERROR + ACCIDENT, CONTROL ROD DROP IN + *ACCIDENT, DESIGN BASE

18-27050 ALSO IN CATEGORIES 11 AND 12
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. II
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-2 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. 2, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS ON REACTOR COOLANT SYSTEMS, CONTAINMENT, AND CORE STANDBY COOLING SYSTEMS. DESCRIBES VESSEL AND FITTINGS TO VESSEL FOR APPURTENANCES, PRESSURE RELIEF SYSTEM FOR NUCLEAR SYSTEM, VENTURI FLOW RESTRICTIONS FOR LOSS-OF-COOLANT ACCIDENT, ISOLATION VALVES, PRESSURE-SUPPRESSION CONTAINMENT AND CORE STANDBY COOLING SYSTEM WHICH PROVIDES CONTINUITY OF CORE COOLING OVER COMPLETE RANGE OF LINE-BREAK SIZES AND CONSISTS OF HIGH-PRESSURE COOLANT INJECTION-PRESSURE RELIEF VALVES TO DEPRESSURIZE REACTOR-CORE SPRAY AND LOW-PRESS. COOLANT INJECTION WHICH IS AN OPERATING MODE OF THE RESIDUAL HEAT REMOVAL SYSTEM.

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

ENGINEERED SAFETY FEATURE + EMERGENCY COOLING CONSIDERATIONS + EMERGENCY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + *CORE SPRAY + CONTAINMENT, PRESSURE RELIEF + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *MAIN COOLING SYSTEM + REACTOR DESCRIPTION + DUANE ARNOLD ENERGY CENTER (BWR) + COOLING, SHUTDOWN

18-27051
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. VI
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-6 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 6, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS FOLLOWING APPENDICES OUTLINE OF PROPOSED TECHNICAL SPECIFICATIONS, NSSS STRESS LOADING CRITERIA, QUALITY CONTROL SYSTEM FOR NSSS, STACK RELEASE LIMIT CALCULATIONS, METEOROLOGICAL AND GEOLOGICAL FIELD EXPLORATIONS AND LAB TESTS, AND A STUDY REPORT ON THE MAXIMUM PROBABLE FLOOD.

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

SURVEY, GENERAL + MAIN COOLING SYSTEM + *REACTOR DESCRIPTION + *STACK + DUANE ARNOLD ENERGY CENTER (BWR) + *MATHEMATICS + *TECHNICAL SPECIFICATIONS + FISSION PRODUCT, AIRBORNE + *QUALITY ASSURANCE + GAS + *SOURCE, CONTINUOUS + PIPING + AIRBORNE RELEASE + REACTOR, BWR + *METEOROLOGY + REPORT, PSAR + *GEOLOGICAL CONSIDERATION, GENERAL

18-27084 ALSO IN CATEGORIES 11 AND 14
AEC QUESTIONS AND REVISIONS TO PSAR
INDIANA AND MICHIGAN ELECTRIC CO.
60 PAGES, FIGURES, TABLES, REFERENCES, AMEND. 6 TO COOK 1 AND 2 LICENSE APPLICATION, SEPT. 13, 1968, DOCKET 50-315/316

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-27084 *CONTINUED*

CONTAINS RESPONSES TO 14 AEC QUESTIONS SUBMITTED BY LTR. SEPT. 10, 1968, PLUS REVISION PAGES TO PSAR. QUESTIONS CONCERN IODINE, FISSION-PRODUCT RELEASE, AND ICE-CONDENSER CONTAINMENT.

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

COOK 1 (PWR) + COOK 2 (PWR) + FISSION PRODUCT RELEASE, GENERAL + REACTOR, PWR + *AEC QUESTION + *CONTAINMENT, ICE CONDENSER + *CONTAINMENT DESIGN + FISSION PRODUCT, IODINE + REPORT, PSAR

18-27090 ALSO IN CATEGORY 12

AEC DESIGN CRITERIA, QUESTIONS, R AND D, AND SAFETY FEATURES
PUBLIC SERVICE ELECTRIC AND GAS COMPANY

175 PAGES, FIGURES, TABLES, REFERENCES, AMEND. 5 TO SALEM 1 AND 2 LICENSE APPLICATION, MAR. 14, 1968, DOCKET 50-272/311, TYPE--PWR, MFG--WEST., AE--PUBLIC SERVICE OF N.J.

AMEND. 5 ADDS VOL. 5 TO PSAR CONTAINING NEW INFORMATION ON (1) COMPARISON OF PLANT DESIGN WITH 70 AEC DESIGN CRITERIA, (2) ANSWERS TO 14 AEC QUESTIONS, (3) DISCUSSION OF R AND D PROGRAM SCHEDULE, AND (4) COMPARISON OF SAFETY FEATURES WITH DIABLO CANYON. MISCELLANEOUS REVISED PAGES TO PSAR ARE INCLUDED IN AMEND.

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

REACTOR, PWR + *AEC DESIGN CRITERIA + REPORT, PSAR + *ENGINEERED SAFETY FEATURE + AEC QUESTION + R AND D PROGRAM + COMPARISON, REACTOR CHARACTERISTICS + DIABLO CANYON 1 (PWR) + SALEM 1 (PWR) + SALEM 2 (PWR)

18-27303 ALSO IN CATEGORIES 5 AND 11

BLOWDOWN FORCES AND CONTAINMENT DESIGN ANALYSIS
ROCHESTER GAS AND ELECTRIC CO.

15 PAGES, FIGURES, TABLES, AMENDMENT 13 TO GINNA LICENSE APPLICATION (SUPP. 7 TO FSAR), DEC. 13, 1960, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

CONTAINS ADDITIONAL AND REVISION PAGES FOR FSAR CONCERNING THE ANALYSES OF BLOWDOWN FORCES AND THE CONTAINMENT STRUCTURAL DESIGN.

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

STRESS ANALYSIS + STRUCTURAL ANALYSIS, DYNAMIC + GINNA (PWR) + CONTAINMENT DESIGN + REACTOR, PWR + *BLOWDOWN + ACCIDENT, LOSS OF COOLANT + *ACCIDENT ANALYSIS + CONTAINMENT STRUCTURE + REPORT, SAR

18-27323 ALSO IN CATEGORIES 5 AND 15

SAFETY ANALYSIS AND SYSTEMS DESCRIPTION
DUQUESNE LIGHT COMPANY

200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 3, JANUARY 13, 1969, DOCKET 50-334

CONTAINS SECTIONS ON AUXILIARY AND EMERGENCY SYSTEMS, STEAM AND POWER CONVERSION SYSTEMS, WASTE DISPOSAL AND RADIATION PROTECTION, CONDUCT OF OPERATIONS, INITIAL TESTS, THE SAFETY ANALYSIS, AND APPENDICES ON RADIATION SOURCES FROM CORE AND FUEL ROD GAP - QUALITY ASSURANCE - AND SEISMIC DESIGN. WORST ACCIDENT (DESIGN BASIS ACCIDENT) IS A DOUBLE-ENDED REPTURE OF HOT-LEG COOLANT PIPE (27.5 IN. ID), TOTAL LOSS OF NORMAL OUTSIDE POWER, TOTAL LOSS OF COOLANT, AND RELEASE OF FISSION PRODUCT INVENTORY TO CONTAINMENT. THE 2-HR THYROID DOSE AT BOUNDARY IS 461 OF 10CFR100 LIMIT FOR CONTAINMENT LEAKAGE TIME OF 40 MIN, AND 381 FOR EXPECTED LEAKAGE TIME OF 23.5 MIN.

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

AEC DESIGN CRITERIA + REPORT, PSAR + REACTOR STARTUP TESTING + EMERGENCY COOLING CONSIDERATIONS + *ACCIDENT, LOSS OF COOLANT + CONTAINMENT DESIGN + AUXILIARY COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + *ACCIDENT ANALYSIS + DESIGN CRITERIA + QUALITY ASSURANCE + ACCIDENT, CONSEQUENCES + EARTHQUAKE ENGINEERING + SYSTEM DESCRIPTION + OFF SITE + *SAFETY ANALYSIS + FISSION PRODUCT RELEASE, GENERAL + EMERGENCY POWER, ELECTRIC + REACTOR, PWR + REACTOR DESCRIPTION + DOSE + *HAZARDS ANALYSIS + ACCIDENT, DESIGN BASE

18-27447 ALSO IN CATEGORY 2

DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. I
IOWA ELECTRIC LIGHT AND POWER COMPANY

50331-1 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. 1, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS TITLED INTRODUCTION AND SUMMARY, SITE AND ENVIRONS, AND REACTOR. OPERATIONAL IN 1973, LOCATED 8 MILES FROM CEDAR RAPIDS, IOWA. SIMILAR TO VERMONT YANKEE, BROWNS FERRY. POWER OF 1593 MWT AND 550 MWE. FUEL IS UO2 PELLETS IN ZR-2 TUBES. ASSEMBLY IS 49 RODS EACH, 368 ASSEMBLIES IN CORE. DESIGN PRESS. AND TEMP. - 1268 PSIG AND 562 F. CONTROL RODS ARE B4C PACKED GRANULES IN SS TUBES. PRIMARY CONTAINMENT IS PRESSURE SUPPRESSION, DESIGNED FOR 56 PSIG. SECONDARY IS CONCRETE-AND-STEEL BUILDING. SITE CHARACTERISTICS DISCUSSED, AND DETAILS GIVEN OF NUCLEAR STEAM SUPPLY SYSTEM DESIGN.

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

*REACTOR DESCRIPTION + PRESSURE VESSEL + REPORT, PSAR + SITING, REACTOR + CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + SYSTEM DESCRIPTION + CORE COMPONENTS + DUANE ARNOLD ENERGY CENTER (BWR)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-27493 ALSO IN CATEGORIES 9 AND 12
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. III
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-3 +. 150 PAGES, FIGURES, TABLES, PSAR VOL. III, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTION ON CONTROL AND INSTRUMENTATION. DESCRIBES THE SAFETY-RELATED INSTRUMENTATION SYSTEMS FOR THE REACTOR PROTECTION SYSTEMS, CONTAINMENT AND VESSEL ISOLATION CONTROL, CORE STANDBY COOLING, NEUTRON MONITORING, AND MAIN STEAM-LINE MONITORING SYSTEM. OPERATIONAL SYSTEM DISCUSSED INCLUDE REFUELING INTERLOCKS, REACTOR MANUAL CONTROL, REACTOR VESSEL INSTRUMENTATION, RECIRCULATION FLOW CONTROL, AND 8 OTHERS.

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

REACTOR, BWR + DUANE ARNOLD ENERGY CENTER (BWR) + REACTOR SAFETY SYSTEM + *SYSTEM DESCRIPTION + REPORT, PSAR + INSTRUMENT, RADIATION MONITORING + INSTRUMENT, PROTECTIVE + *INSTRUMENT, GENERAL + *INSTRUMENT, CONTROL

18-27532 ALSO IN CATEGORIES 10 AND 14
DUANE ARNOLD ENERGY CENTER PRELIMINARY SAFETY ANALYSIS REPORT VOL. IV
IOWA ELECTRIC LIGHT AND POWER COMPANY
50331-4 +. 100 PAGES, FIGURES, TABLES, PSAR VOL. 4, NOVEMBER 20, 1968, DOCKET 50-331

CONTAINS SECTIONS DESCRIBING THE ELECTRICAL POWER SYSTEMS, RADIOACTIVE WASTE SYSTEMS, AUXILIARY SYSTEMS, POWER CONVERSION SYSTEMS, STATION STRUCTURES AND SHIELDING, AND CONDUCT OF OPERATIONS.

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

REPORT, PSAR + ELECTRIC POWER, ALTERNATE + *ELECTRIC POWER, GENERAL + ELECTRIC POWER, NORMAL + ELECTRIC POWER, AUXILIARY + *EMERGENCY POWER, ELECTRIC + STRUCTURAL INTEGRITY + ELECTRIC POWER, SHUTDOWN + DUANE ARNOLD ENERGY CENTER (BWR) + SHIELDING + BUILDING + AUXILIARY COOLING SYSTEM + REACTOR, BWR + *SYSTEM DESCRIPTION

18-28973 ALSO IN CATEGORIES 2 AND 17
IWAKOSHI Y + NOMOTO T
OPERATION EXPERIENCES OF THE TOKAI POWER STATION, AND THE PLANNING FOR THE TSURUGA POWER STATION
JAPAN ATOMIC POWER CO., TOKYO
9 PAGES, KARYOKU HATSUDEN, 18, PAGE 532-40, (JUNE 1967), (IN JAPANESE)

ADVANCED CALDER HALL-TYPE REACTOR OF 166 MW(E). BECAUSE OF THE EARTHQUAKES IN JAPAN, ITS DESIGN WAS SOMEWHAT CHANGED FROM THE ORIGINAL ONE, AND THEREFORE THE OPERATING EXPERIENCES HAVE BEEN UNIQUE. INCLUDES PLANT OPERATION, VIBRATION OF THE HEAT-EXCHANGER TUBES, AND LOW-PRESSURE THROTTLE VALVES FOR THE MAIN TURBINE. THE TSURUGA POWER STATION WILL BE A 322 MW(E) BOILING-WATER REACTOR (GE-BWR), BEING COMPLETED IN DECEMBER 1969. THE SAFETY DESIGN AND THE ANTI-EARTHQUAKE DESIGN ARE DESCRIBED.

STEAM GENERATOR + *FAILURE, TUBING + OPERATING EXPERIENCE SUMMARY + VIBRATION + REACTOR, GCR + VALVE + *EARTHQUAKE ENGINEERING + JAPAN + REACTOR, BWR

18-28988 ALSO IN CATEGORY 6
CONTROL OF XENON INSTABILITIES IN LARGE PWRs SEMI-ANNUAL PROGRESS REPORT FOR THE PERIOD ENDING MARCH 31, 1968
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
WCAP-3680-6 + EURAEC-2008 +. 15 PAGES, 3 FIGURES, APRIL 1968

PROGRESS REPORT FOR PERIOD OCT. 1967 TO MAR. 31, 1968. VARIOUS COMPUTATIONS WERE MADE AND COMPUTER PROGRAMS PREPARED. NO FINAL RESULTS.

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

*R AND D PROGRAM + REACTOR, PWR + *XENON OSCILLATION

18-29301 ALSO IN CATEGORY 6
SAFETY PROBLEMS RELATED TO THE ASSEMBLING OF MOCK-UPS IN MASURCA
22 PAGES, 16 FIGURES, FROM INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

PONCTUAL ADIABATIC MODEL WITH SIX GROUPS OF DELAYED NEUTRONS, PROGRAMMED FOR 7094 COMPUTER WITH BRITAN LINEARIZATION METHOD TO ALLOW SAME PRECISION WITH PROMPT AND DELAYED CRITICALITY. STARTUP ACCIDENT WITH DELAYED SCRAM GIVES MAXIMUM ALLOWABLE \$0.2/SEC, AND \$5/SEC WITH INHERENT SAFETY. STUDY OF LOADING ERRORS LEADS TO GRAPPLE SPEED LIMIT OF 1 M/MIN. DOSE RATES IN CELL FOR 500 W OPERATION CALCULATED.

REACTOR, LMFBR + ACCIDENT, CONTROL ROD WITHDRAWAL + *SAFETY ANALYSIS + CRITICAL ASSEMBLY FACILITY

18-29566 ALSO IN CATEGORY 10
INTERNATIONAL CONFERENCE AND EXHIBITION ON A WORLD REVIEW OF NUCLEAR REACTORS AND RADIOISOTOPES, MONTREAL, QUEBEC, CANADA, MAY 28-31, 1967
CNNF-670522 +. 556 PAGES, TORONTO, CANADIAN NUCLEAR ASSOCIATION, 1967

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-29566 *CONTINUED*

INCLUDED ARE 28 PAPERS ON VARIOUS TECHNICAL, ECONOMIC, AND LEGAL ASPECTS OF WORLDWIDE DEVELOPMENT OF POWER REACTORS AND RADIOISOTOPES. SEPARATE ABSTRACTS WERE PREPARED FOR 12 OF THE PAPERS, AND ABSTRACTS OF 7 PAPERS APPEAR IN PREVIOUS ISSUES OF NSA. THEY MAY BE LOCATED UNDER CONF-670522 IN THE REPORT NUMBER INDEXES.

REACTOR, POWER + ECONOMICS + REACTOR DESCRIPTION + LAW + RADIOISOTOPE

18-29567

ALSO IN CATEGORIES 5 AND 6

ENGEL H

SAFETY ASPECTS OF THE DYNAMIC BEHAVIOUR OF THE BOILING-WATER REACTOR

AEG-TELEFUNKEN, FRANKFURT AM MAIN

6 PAGES, ATOM UND STROM, VOLUME 14, PAGES 37-42 (FEBRUARY-MARCH 1968)

THE DYNAMIC REACTOR BEHAVIOR OF THE BOILING-WATER REACTOR IS INHERENTLY SAFE. FAULTS AND ACCIDENTS ARE CONCEIVABLE WHICH ARE LIMITED TO SUCH AN EXTENT BY THE PROTECTIVE SYSTEM THAT THE OPERATING CAPACITY OF THE POWER STATION IS NOT ADVERSELY AFFECTED. EVEN IF THERE IS A FAILURE OF SEVERAL INDEPENDENT SAFETY SYSTEMS AND SAFETY ARRANGEMENTS, THE ONLY RESULT CAN BE DAMAGE TO CORE, BUT NO UNCONTROLLED SPREAD OF ACTIVITY INTO SURROUNDINGS OF POWER STATION CAN TAKE PLACE.

GERMANY + REACTOR, BWR + *REACTOR STABILITY + REACTOR DYNAMICS

18-29570

ALSO IN CATEGORY 1

KORNBICHLER H

SAFETY TECHNIQUES IN NUCLEAR POWER STATIONS WITH BOILING WATER REACTORS

FACHGEBIET KERNEAKTOREN, FRANKFURT AM MAIN

4 PAGES, ATOMWIRT., ATOMTECH., 13, PAGES 50-53 (JANUARY 1968) (IN GERMAN)

SAFETY STANDARDS BY WHICH THE WUERGASSEN POWER REACTOR IS BEING DESIGNED ARE GIVEN. THESE ARE PREPARED AS GENERAL STANDARDS FOR BOILING WATER REACTORS. BASIC CONSIDERATIONS USED IN POSTULATING THE MAXIMUM CREDIBLE ACCIDENT ARE TABULATED.

*DESIGN CRITERIA + REACTOR, BWR + *SAFETY PRINCIPLES AND PHILOSOPHY + ACCIDENT, MAXIMUM CREDIBLE (MCA)

18-29573

ALSO IN CATEGORY 1

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 + ECONOMICS + REACTOR, POWER

18-29574

ALSO IN CATEGORY 11

JOVANIC M + MOJOVIC L

A 500 MW BHW TYPE NUCLEAR POWER PLANT

9 PAGES, NUKL. ENERG. 5(4), PAGES 7-15 (1967)

A 500 MW(E) REACTOR USES NATURAL U AND HEAVY WATER BOILING IN THE FUEL CHANNELS. THE REACTOR IS IN A PRESTRESSED CONCRETE VESSEL WHICH TOGETHER WITH A SYSTEM OF PRESSURE DAMPING MAKES A UNIFIED STRUCTURE. THE CIRCULATION OF THE COOLANT IN THE CORE IS NATURAL. TWO TURBO-GENERATORS ARE USED IN THE DIRECT STEAM CYCLE. THE FUEL DISCHARGE IS CONTINUOUS AND ON LINE. THE PLANT HAS BEEN DESIGNED FOR BASE LOADS AND IS CAPABLE OF AUTOMATICALLY ADJUSTING TO LOAD VARIATIONS IN A 75 TO 100% RANGE. THROUGH SPECIAL DESIGN THE OUTPUT OF THE REACTOR CAN BE UNDER 75%, AND COME DOWN EVEN TO ZERO, ENABLING THE PLANT TO RESUME OPERATION IN THE GRID AFTER A SHORT COMPLETE UNLOADING.

REACTOR, POWER + REFUELING, ON LINE + PRESSURE VESSEL + *DESIGN STUDY + REACTOR, HWR + CONCRETE, PRESTRESSED + REACTOR, BWR

18-29579

MUEHLHAUSE CO

NATIONAL BUREAU OF STANDARDS REACTOR (NBSR) - DESIGN AND USE

CONF-660312 +. .9 PAGES, MEDED., NO. 22, PAGES 123-31 (1968), FROM NEDERLANDS ATOMFORUM CONFERENCE, UTRECHT

THE NBSR SYSTEM OF AN OPEN LATTICE OF SPLIT FUEL ASSEMBLIES, MODERATED AND COOLED BY HEAVY WATER, IS DESCRIBED. THE SPECIAL IN-CORE NEUTRON MODERATOR IS DISCUSSED, AND THE PRINCIPLES OF DESIGN AND FABRICATION OF SPECIAL CONVERTOR ELEMENTS ARE OUTLINED. ENGINEERING FEATURES RELATING TO FINE CONTROL, PROCESS WATER FLOW, AND FUEL HANDLING ARE BRIEFLY DISCUSSED.

REACTOR, HWR + *REACTOR DESCRIPTION + REACTOR, TEST

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-29580 ALSO IN CATEGORY 2
KORNBICHLER H
NUCLEAR POWER STATIONS WITH BOILING WATER REACTORS - CONSTRUCTION AND SAFETY ASPECTS
FACHGEBIETES KERNREAKTOREN, FRANKFURT AM MAIN
6 PAGES, ATOM UND STROM, VOLUME 14, PAGES 21-6 (FEBRUARY-MARCH 1968)

THE SAFETY ASPECTS OF CONSTRUCTION AND OPERATION OF BOILING WATER POWER REACTORS ARE PRESENTED. SCHEMATIC DIAGRAMS OF SYSTEMS ARE PRESENTED. POWER PLANT SAFETY PROVIDES SITING NEAR THICKLY POPULATED AREAS.

OPERATING EXPERIENCE SUMMARY + *REACTOR DESCRIPTION + SITING, URBAN + CONTAINMENT CONSTRUCTION + GERMANY + REACTOR, BWR

18-29581
ULRICH W
SAFETY ASPECTS IN THE CONSTRUCTION, MANUFACTURE, AND TESTING OF IMPORTANT COMPONENTS IN THE BOILING-WATER REACTOR
AEG-TELEFUNKEN, FRANKFURT AM MAIN
8 PAGES, AT. STROM 14, PAGES 42-9 (FEB.-MAR. 1968)

SAFETY ANALYSIS AND TESTING DURING CONSTRUCTION OF A BOILING REACTOR ARE DESCRIBED. STRESS TESTING OF COMPONENTS IS ALSO DESCRIBED.

GERMANY + *SAFETY ANALYSIS + REACTOR, BWR + *TEST, PREOPERATIONAL

18-29595 ALSO IN CATEGORY 2
SITE AND REACTOR DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 1, JANUARY 13, 1969 DOCKET 50-334

CONTAINS INTRODUCTION AND SUMMARY DESCRIPTION OF ENTIRE PLANT (WITH DISCUSSION OF DESIGN APPLICABLE TO 70 PROPOSED AEC DESIGN CRITERIA), SITE DESCRIPTION (WITH APPENDICES ON COMPUTER POINTOUT OF ANY DILUTION FACTORS FOR A GROUND LEVEL SOURCE - GEOLOGY, SEISMICITY ANALYSIS, AND SOIL CONDITIONS), AND A DESCRIPTION OF THE NSSS SYSTEM. 2774 MWT/882 MWE PWR DESIGNED FOR 2485 PSIA AND 650 F. LOCATED 25 MILES FROM PITTSBURGH, PENN., OPERATIONAL JUNE 1, 1973. SIMILAR TO SURRY 1 AND 2, 3 COOLANT LOOPS. UO2 FUEL PELLETS IN ZR-4 TUBES, 193 ASSYS WITH 204 RODS/ASSY. ROD-CLUSTER CONTROL BY B4C IN 304 SS CLAD (BOTH FULL AND PART LENGTH), BORIC ACID CHEM. SHIM. STEEL-LINED CONCRETE CONTAINMENT DESIGNED FOR 45 PSIG AND 380 F BUT OPERATED AT SUBATMOSPHERIC. CORE REFLOODING SYSTEM AND CONTAINMENT SPRAY.

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

*SYSTEM DESCRIPTION + CORE COMPONENTS + *REPORT, PSAR + *REACTOR DESCRIPTION + FUEL ELEMENT + SEISMOLOGY + *SITING, REACTOR + PRESSURE VESSEL + BEAVER VALLEY 1 (PWR) + AEC DESIGN CRITERIA + REACTOR, PWR + DESIGN CRITERIA + SOIL PROPERTY, IN SITU + GEOLOGICAL CONSIDERATION, GENERAL

18-29604 ALSO IN CATEGORY 11
LEO MB
EXPERIENCE IN THE CONSTRUCTION OF NUCLEAR POWER PLANTS
ELECTRICITE DE FRANCE, PARIS
8 PAGES, ASSN. TECH. ENERG. NUCL. NO. 62, PAGES 15-22 (NOV.-DEC. 1966)

SHOWS CONNECTION BETWEEN DESIGN, PLANNING, AND CONSTRUCTION OF A NUCLEAR POWER PLANT. THE CHARACTERISTICS OF NUCLEAR POWER PLANTS STUDIED ARE ORGANIZATION OF THE CONSTRUCTION, DIMENSIONS AND WEIGHTS OF THE MATERIAL, NUCLEAR CLEANLINESS HANDLING DEVICES, AND THE ASSEMBLY FRAME. SPECIFIC EXAMPLES ARE GIVEN FROM THE SAINT-LAURENT REACTOR.

FRANCE + REACTOR, POWER + *CONTAINMENT CONSTRUCTION

18-29980 ALSO IN CATEGORIES 1 AND 17
PROPOSED WATER-REACTOR SAFETY SCHOOL
1 PAGE, 1 REFERENCE, NUCLEAR SAFETY 9(6), P. 522, NOV.-DEC. 1968

A JULY 1, 1968, QUESTIONNAIRE WAS SENT TO 100 UTILITIES AND UNIVERSITIES ASKING FOR EXPRESSIONS OF INTEREST IN A SERIES OF 3 MONTH SAFETY COURSES TO BE GIVEN AT NATIONAL REACTOR TESTING STATION FOR THOSE PARTICIPATING IN NUCLEAR POWER. *** COURSES WOULD INCLUDE NATURE OF REACTOR ACCIDENTS (24 HR), REACTOR SAFEGUARDS (24 HR), ACCIDENT ANALYSIS (48 HR), SAFEGUARDS TECHNOLOGY (48 HR), AND CLASS PROJECTS (66 HR).

REACTOR, PWR + *SAFETY ANALYSIS + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *TRAINING + *CERTIFICATION + *STAFFING + REACTOR, POWER

18-30021 ALSO IN CATEGORIES 2 AND 11
MONTICELLO FINAL SAR VOL. IV
NORTHERN STATES POWER COMPANY
50263-4+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30021 *CONTINUED*

CONTAINS 3 APPENDICES - SEISMIC DESIGN CRITERIA, PLANT QUALITY-ASSURANCE PROGRAM, AND PLANT COMPARATIVE EVALUATION WITH THE PROPOSED AEC 70 DESIGN CRITERIA. EARTHQUAKE ANALYSIS INCLUDED FOR REACTOR BUILDING, DRYWELL, AND PRESSURE VESSEL.

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

*AEC DESIGN CRITERIA + MONTICELLO (BWR) + *EARTHQUAKE ENGINEERING + *DESIGN CRITERIA + BUILDING + REACTOR, BWR + QUALITY ASSURANCE + CONTAINMENT, PRESSURE SUPPRESSION + PRESSURE VESSEL + STRUCTURAL INTEGRITY + SITE CRITERIA, EARTHQUAKE + REPORT, SAR

18-30022 ALSO IN CATEGORY 2

MONTICELLO FINAL SAR VOL. I

NORTHERN STATES POWER COMPANY

50263-1+. 150 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS SECTIONS TITLED INTRODUCTION AND SUMMARY, PLANT SITE AND ENVIRONS, REACTOR CORE, AND REACTOR COOLANT SYSTEM. EVALUATION BASED ON OPERATION AT 1670 MWT AND 545.4 MWE (PSAR EVALUATED AT 1469 MWT). VESSEL IS FIELD-FABRICATED. UTILIZES ONE RCICS AND ONE HPCIS COOLANT-INJECTION SYSTEM. VARIABLE COOLING TOWER TO BE USED. USES ONE RESIDUAL-HEAT-REMOVAL SYSTEM FOR CONTAINMENT SPRAY AND SHUTDOWN COOLING. ONE STANDBY DIESEL/GENERATOR SYSTEM. DISCUSSES THERMAL, HYDRAULIC, AND NUCLEAR CHARACTERISTICS OF REACTOR. CONTROL-ROD DRIVES AND CORE COMPONENTS ARE DESCRIBED.

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

MONTICELLO (BWR) + *SYSTEM DESCRIPTION + PRESSURE VESSEL + *REACTOR DESCRIPTION + *HEAT TRANSFER ANALYSIS + ENGINEERED SAFETY FEATURE + FUEL BURNUP + *FUEL ELEMENT + *HYDRAULIC ANALYSIS + SITING, REACTOR + REPORT, SAR + REACTOR, BWR + *MAIN COOLING SYSTEM + GENERATOR, ENGINE + *SITING, GENERAL

18-30023 ALSO IN CATEGORIES 9 AND 12

MONTICELLO FINAL SAR VOL. II

NORTHERN STATES POWER COMPANY

50263-2+. 100 PAGES, FIGURES, TABLES, OCTOBER 17, 1968, DOCKET 50-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

CONTAINS SECTIONS TITLED PLANT CONTAINMENT SYSTEMS, ENGINEERED SAFEGUARDS, PLANT INSTRUMENTATION AND CONTROL SYSTEMS, AND PLANT ELECTRICAL SYSTEMS. CONTAINMENT IS BY A PRESSURE-SUPPRESSION SYSTEM. SAFEGUARDS INCLUDE CORE SPRAY, RESIDUAL HEAT REMOVAL, HIGH-PRESSURE INJECTION, AN AUTOMATIC PRESSURE-RELIEF SYSTEM, FLOW RESTRICTION, CONTROL-ROD-VELOCITY LIMITERS AND DRIVE-HOUSING SUPPORTS, AND A STANDBY LIQUID CONTROL SYSTEM. INSTRUMENTATION SYSTEMS ARE DETAILED.

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

MONTICELLO (BWR) + *SYSTEM DESCRIPTION + EMERGENCY POWER, ELECTRIC + ELECTRIC POWER, GENERAL + REPORT, SAR + ELECTRIC POWER, SHUTDOWN + *ENGINEERED SAFETY FEATURE + *CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, BWR + *INSTRUMENT, CONTROL

18-30107 ALSO IN CATEGORY 17

BRITISH NUCLEAR POWER PLANT

UNITED KINGDOM ATOMIC ENERGY AUTHORITY, LONDON (ENGLAND)

NP-17599 +. 1968, 44P.

FIVE ARTICLES WHICH GIVE GENERAL PERSPECTIVE ON THE UK PROGRAMS - (1) PROGRESS IN THE EXPLOITATION OF THE GAS COOLED REACTOR, 6 PG., (2) PERFORMANCE OF THE C.E.G.B. NUCLEAR POWER STATIONS, 19 PG., (3) DESIGN, COMMISSIONING AND OPERATION OF THE STEAM GENERATING HEAVY WATER REACTOR, 4 PGS., (4) THE PLACE OF THE FAST REACTOR IN COMMERCIAL POWER DEVELOPMENT, 11 PG., (5) NUCLEAR FUEL SUPPLIES AND SERVICES OF THE UKAEA, 3 PG.

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

REACTOR, GCR + OPERATING EXPERIENCE SUMMARY + REACTOR, FAST + UNITED KINGDOM + REACTOR, SGHWR + *ECONOMICS + REACTOR, BREEDER + *FUEL MANAGEMENT

18-30111 ALSO IN CATEGORIES 1 AND 17

GUIDE TO CONTENT OF TECHNICAL SPECIFICATIONS FOR NUCLEAR REACTORS

50 PAGES, NOVEMBER 1968

(ASSOCIATED WITH 10 CFR 50 REVISIONS PUBLISHED IN FEDERAL REGISTER DECEMBER 17, 1968, PG. 18610). DISCUSSES BOTH TECHNICAL AND ADMINISTRATIVE MATTERS (FOCAL POINTS FOR ANALYSES SHOULD BE THE PHYSICAL BARRIERS PROVIDING THE DEFENSE IN DEPTH, ANALYSES SHOULD BE BASED ON CURRENT KNOWLEDGE AND UNDERSTANDING OF SAFETY NEEDS AND TECHNIQUES). EACH MAJOR SECTION (SAFETY LIMITS AND SETTINGS, LIMITING CONDITIONS FOR OPERATION, SURVEILLANCE REQUIREMENTS, DESIGN FEATURES, AND ADMINISTRATIVE CONTROLS) IS DISCUSSED SEPARATELY TO INDICATE ATTITUDE IN CONTENT.

AVAILABILITY - USAEC DIVISION OF REACTOR LICENSING, WASHINGTON, D. C.

REACTOR, RESEARCH + *GUIDE + *TECHNICAL SPECIFICATIONS + REACTOR, POWER

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30112 ALSO IN CATEGORIES 1 AND 17
TECHNICAL SPECIFICATIONS FOR FACILITY LICENSES, SAFETY ANALYSIS REPORTS
33 FEDERAL REGISTER 18610, DECEMBER 17, 1968

(EFFECTIVE JAN. 17, 1969.) REVISED TO EMPHASIZE TECHNICAL MATTERS RELATED TO (1) PREVENTION OF ACCIDENTS, (2) MITIGATION OF CONSEQUENCES TO IDENTIFY SUBJECTS OF TECHNICAL SPECIFICATIONS AT CONSTRUCTION PERMIT STAGE. REQUIRES BOTH A PSAR AND AN FSAR AND DEFINES THEIR RELATION TO TECHNICAL SPECIFICATIONS AND SUPPORTING ANALYSES. TS CHANGES FOLLOWING INITIAL OPERATION ARE CLARIFIED, AND ACRS REVIEW MADE PERMISSIVE.

*TECHNICAL SPECIFICATIONS + REPORT, SAR + REPORT, PSAR + SAFETY REVIEW + ACRS + *REGULATION, AEC + SAFETY ANALYSIS

18-30132 ALSO IN CATEGORIES 11 AND 12
PLANT SYSTEM DESCRIPTION
DUQUESNE LIGHT COMPANY
200 PAGES, FIGURES, TABLES, BEAVER VALLEY 1 PSAR VOL. 2, JANUARY 13, 1969, DOCKET 50-334

DESCRIBES AND GIVES DESIGN CRITERIA FOR COOLANT SYSTEM WITH APPENDIX ON NEUTRON FLUX AND NDT FOR VESSEL SAMPLES, CONTAINMENT, SAFEGUARDS, INSTRUMENTATION, AND ELECTRICAL SYSTEMS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE STRUCTURE, OPERATED SUBATMOSPHERICALLY AND DESIGNED FOR 45 PSIG AND 280 F FOR DBA. SAFEGUARDS INCLUDE SAFETY INJECTION, CONTAINMENT SPRAY, AND CONTAINMENT VACUUM SYSTEM.

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

*SYSTEM DESCRIPTION + REACTOR SAFETY SYSTEM + NDT DATA + *REACTOR DESCRIPTION + AEC DESIGN CRITERIA + NEUTRON + REACTOR, PWR + DESIGN CRITERIA + PRESSURE, SUBATMOSPHERIC + REPORT, PSAR + CONTAINMENT DESIGN + MAIN COOLING SYSTEM + BEAVER VALLEY 1 (PWR) + PRESSURE VESSEL + RADIATION DAMAGE + ENGINEERED SAFETY FEATURE + INSTRUMENT, CONTROL

18-30163 ALSO IN CATEGORY 17
NUCLEAR EDUCATION AND TRAINING PROGRAMS OF POTENTIAL INTEREST TO UTILITIES
U. S. ATOMIC ENERGY COMMISSION
47 PAGES, DEC. 1968

A COMPILATION OF VARIOUS KINDS OF PROGRAMS, RANGING FROM STANDARD UNIVERSITY COURSES AND SEMINARS OFFERED AN ADEQUATE DEMAND TO STANDARD REACTOR FAMILIARIZATION COURSES OFFERED BY REACTOR VENDORS. IN GENERAL, COURSE DESCRIBED ENOUGH TO TELL WHO WOULD BENEFIT. *** SECTIONS ARE - (III) 5 REACTOR VENDORS, 7 PG. (III) 7 CONSULTANTS, 4 PG. (IV) 5 OTHER UTILITIES, 2 PG. (V) 7 FEDERAL AGENCIES, 4 PG. (VI) 22 UNIVERSITIES WITH SPECIAL REACTOR PROGRAMS, 8 PG. (VII) 19 UNIVERSITIES WITH POWER SYSTEMS ENGINEERING PROGRAMS, 2 PG. (VIII) 19 UNIVERSITIES OFFERING SHORT COURSES, 9 PG. (IX) 103 UNIVERSITIES PARTICIPATING IN AEC FELLOWSHIP PROGRAM. (X) 40 COMMUNITY COLLEGES WITH APPROPRIATE COURSES OF STUDY.

AVAILABILITY - U.S. ATOMIC ENERGY COMMISSION, DIVISION OF NUCLEAR EDUCATION AND TRAINING

REACTOR, BWR + REACTOR, POWER + REACTOR, PWR + HEALTH PHYSICS TRAINING + *TRAINING + *CERTIFICATION + *STAFFING

18-30165 ALSO IN CATEGORY 5
KULJIAN HA
NUCLEAR POWER PLANT DESIGN
236 PAGES, 1968, A.S. BARNES AND COMPANY, NEW YORK

APPARENTLY INTENDED FOR FAMILIARIZATION OF UTILITY AND A-E STAFF WITH STANDARD REACTOR FEATURES SO THEY MAY BETTER DESIGN THE NONNUCLEAR PORTIONS OF THE PLANT. *** (CHAP. II) - 114 PAGES DESCRIBING 8 MAJOR REACTOR TYPES PLUS A FOSSIL FUELED BOILER, ALL IN 150 MWE SIZE, GIVING TYPICAL OPERATING VALUES AND BRIEF HEAT TRANSFER CALCULATIONS. (CHAPS. III AND IV) - 54 PG., BASIC CALCULATIONS AND PRELIMINARY LAYOUT FOR THE CONVENTIONAL PORTIONS OF THE PLANT. BASIC CALCULATIONS, FORMULAE, AND TABLES TO MAKE DESIGN EASIER. (CHAP. V) - 41 PG., DIMENSIONS OF MAJOR MACHINERY FOR PREPARATION OF PRELIMINARY DRAWINGS.

*REACTOR DESCRIPTION + MAIN COOLING SYSTEM + REACTOR, BWR + DESIGN STUDY + REACTOR, PWR + REACTOR, POWER + TRAINING + CERTIFICATION + STAFFING

18-30193 ALSO IN CATEGORY 17
SUMMARY SAFEGUARDS REPORT FOR THE GENERAL ELECTRIC NUCLEAR TEST REACTOR
GENERAL ELECTRIC, PLEASANTON, CALIF.
APED-4444A +. 100 PAGES, FIGURES, TABLES, REFERENCES, OCTOBER 1, 1968, DOCKET 50-73

SUPPORTS REQUEST FOR POWER INCREASE FROM 30 TO 1000 KW, DESCRIBES CURRENT FACILITY, AND PROVIDES INFORMATION FROM A RECENT SAFETY EVALUATION. DESCRIBES IRRADIATION FACILITIES AND TYPICAL PROGRAMS. DESIGN BASIS ACCIDENT (A 20 MW-SEC TRANSIENT, ALL FUEL MELTS AND 10% UNDERGOES A METAL WATER REACTION, 50% FP RETAINED BY CELL) GIVES A 108 REM THYROID DOSE AT VNC BOUNDARY, WHOLE BODY DOSE 0.86 REM.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30193 *CONTINUED*
REACTOR, FLUX TRAP + POWER UPRATING + *REPORT, SAR + REACTOR, RESEARCH + REACTOR, GRAPHITE MODERATED + GE NTR (RR)

18-30209
SEFOR AMENDMENT 25
GENERAL ELECTRIC COMPANY
36 PAGES, FIGURES, 19 REFERENCES, AMENDMENT 25 TO SEFOR PSAR, DEC. 10, 1968, DOCKET 50-231

CONSISTS OF SUPPLEMENT 21 (RESPONSE TO INFORMAL ORL QUESTIONS OF OCT. 18, 1968) AND ERRATA 4 (REVISED PAGES FOR FSAR AND SUPPLEMENTS).

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

AEC QUESTION + SEFOR (RE) + REPORT, SAR + REACTOR, FAST + REACTOR, LMFBR + REACTOR, PULSED

18-30211 ALSO IN CATEGORY 17
PROPOSED TECHNICAL SPECIFICATIONS FOR MILLSTONE 1
CONNECTICUT LIGHT AND POWER COMPANY
74 PAGES, FIGURES, TABLES, MILLSTONE AMENDMENT 10, DEC. 6, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

FORMAT SPECIFICATIONS FOR 2011 MWTH BWR USING JET PUMPS. LIMITS POWER TO 400 MWTH WHEN REACTOR PRESSURE LESS THAN 600 PSIA. BORON BURNOUT IN TEMPORARY CONTROL CURTAINS MAY CAUSE INITIAL REACTIVITY INCREASE. ALLOWABLE OUTAGE TIMES FOR ENGINEERED SAFETY FEATURE MAINTENANCE SPECIFIED. COOLANT LEAKAGE LIMITED TO 15 GPM, AND IODINE CONTENT LIMITED TO 20 MICROCURIE/CC. ISOLATION CONDENSER MAY BE INOPERABLE 30 DAYS PROVIDED FWCI OPERABLE.

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

LEAK + REACTOR POWER + LOW + MILLSTONE POINT (BWR) + REACTOR, BWR + ENGINEERED SAFETY FEATURE + *TECHNICAL SPECIFICATIONS + MAINTENANCE AND REPAIR + PRESSURE, INTERNAL + MAIN COOLING SYSTEM + ACTIVITY BUILDUP + FISSION PRODUCT, IODINE + POISON, BURNABLE + RELIABILITY ANALYSIS

18-30212 ALSO IN CATEGORY 17
PROPOSED MONTICELLO 1 TECHNICAL SPECIFICATION
NORTHERN STATES POWER COMPANY
36 PAGES, FIGURES, TABLES, AMENDMENT 11, DEC. 9, 1968, DOCKET 59-263, TYPE--BWR, MFG--G.E., AE--BECHTEL

NEW STYLE SPECIFICATIONS FOR 1670 MWTH BWR, SIMILAR TO MILLSTONE POINT. SHOULD THE CONTINUOUS MONITOR FOR STACK GAS GROSS ACTIVITY BE INOPERABLE REACTOR SHALL BE ISOLATED.

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

MONTICELLO (BWR) + *TECHNICAL SPECIFICATIONS + FAILURE, EQUIPMENT + MONITOR, STACK + REACTOR, BWR

18-30229 ALSO IN CATEGORIES 5 AND 17
AMENDMENT 1 - OPERATION WITH CENTERLINE MELTING FUEL
U.S. ATOMIC ENERGY COMMISSION
20 PAGES, NOTICE TO FEDERAL REGISTER, JANUARY 30, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

3 POWDER AND 3 PELLET TYPE ELEMENTS WILL BE IRRADIATED AT 25.4 KW/FT TO 21,000 MWD/MTR IN AN EXTENSION OF THE AEC HIGH PERFORMANCE UO2 PROGRAM. SOME RODS CONTAIN TUNGSTEN WAFERS TO MINIMIZE AXIAL MOTION OF MOLTEN FUEL. POWER WILL BE LIMITED TO 0.5 MWTH/MIN ABOVE 170 MWTH TO ALLOW TIME FOR FUEL MIGRATION AND SINTERING. ACCIDENT ANALYSES REVIEWED. ACRS RECOMMENDS REMOVED RODS NOT BE RETURNED UNTIL SOME ARE DESTRUCTIVELY EXAMINED, IN-SERVICE PIPING INSPECTION BE EXPEDITED AS WELL AS OTHER PROTECTIVE MEASURES.

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

*CENTERLINE MELTING + *IRRADIATION TESTING + FUEL, POWDER TYPE + FUEL ELEMENT + REACTOR, BWR + FUEL SEGREGATION + SAFETY EVALUATION + PERFORMANCE LIMIT + TECHNICAL SPECIFICATIONS + ACRS + FUEL, PELLET TYPE + BIG ROCK POINT (BWR)

18-30236
SAR ERRATUM
NORTH CAROLINA STATE UNIVERSITY
17 PAGES, AMENDMENT 1 TO NC STATE PULSTAR SAR, FEB. 28, 1968, DOCKET 50-297

CONSISTS OF 14 REPLACEMENT PAGES, 2 PAGES OF ERRATA, AND A 1 PAGE CALCULATION OF THE UO2 AVERAGE TEMPERATURE RISE AS 193 F (30.7 SURFACE FILM, 5.7 CLAD, 102.6 CLAD-FUEL GAP, AND 54.3 EDGE-CENTERLINE).

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

REACTOR, PULSED + PULSTAR (RR) + *FUEL ELEMENT + REPORT, SAR + *TEMPERATURE GRADIENT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30258 ALSO IN CATEGORIES 5 AND 17
ANALYSIS OF A LARGE LOSS OF COOLANT ACCIDENT IN THE CONNECTICUT YANKEE REACTOR
CONNECTICUT YANKEE ATOMIC POWER COMPANY
20 PAGES, 11 FIGURES, 17 REFERENCES, LETTER TO DRL (SUPPLEMENT 2 TO PROPOSED CHANGE 7), NOVEMBER 22, 1968,
DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

(1) CHANGES MADE IN TABLE TO SHOW ACTUAL CONDITIONS AT 1473 MWTH, AS WELL AS REQUESTED 1825. (2) ADDED PARAGRAPH TO TS BASIS 3.10 (TO FIX 24 HOURS AS A LIMIT FOR OPERATION FOLLOWING A DROPPED OR STUCK ROD). (3) ACTUAL ANALYSIS PRESENTED FOR DOUBLE ENDED SEVERANCE, 3 SQ FT AND 0.5 SQ FT BREAKS TO SHOW MAX. CLAD TEMPERATURES 25-0, 2070, AND 2460 F. MODEL DESCRIBED INCLUDES BLOWDOWN (FLASH-R), POWER TRANSIENT DURING BLOWDOWN (CHIC-KIN), AND CORE COOLING (LOCTA-R2). RESULTS ARE GRAPHS OF FLUID VOLUME, REACTOR POWER, FILM COEFFICIENT, AND CLAD HOT SPOT TEMPERATURE FOLLOWING BREAK.

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

FUEL ELEMENT + *POWER UPGRATING + *ACCIDENT, LOSS OF COOLANT + HADDAM NECK (PWR) + MATHEMATICAL STUDY + TEMPERATURE TRANSIENT + ACCIDENT ANALYSIS + COMPUTER PROGRAM + REACTOR, PWR + TECHNICAL SPECIFICATIONS

18-30261 ALSO IN CATEGORY 17
GE-BWR TOPICAL REPORTS
GENERAL ELECTRIC COMPANY
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15(2), PAGE 14, JAN. 13, 1969

FILED AT PDR. INCLUDES (APED-5460) DESIGN AND PERFORMANCE OF GE-BWR JET PUMPS. (APED-5654) CONSIDERATIONS PERTAINING TO CONTAINMENT INERTING. (APED-5696) TORNADO PROTECTION OF SPENT FUEL STORAGE POOL. (APED-5703) DESIGN AND ANALYSIS OF CONTROL ROD DRIVE REACTOR VESSEL PENETRATIONS. (APED-5706) IN CORE NEUTRON MONITORING SYSTEM FOR GE-BWRS.

*SYSTEM DESCRIPTION + CONTAINMENT PENETRATION, PIPE + PRESSURE VESSEL + CONTAINMENT ATMOSPHERE, INERT + REACTOR, BWR + DESTRUCTIVE WIND + CONTROL ROD DRIVE + PUMP, JET + *DESIGN STUDY + FUEL STORAGE + INSTRUMENT, IN CORE

18-30275 ALSO IN CATEGORY 1
FEDERAL COMMITTEE ON NUCLEAR SAFETY AND PEACEFUL DEVELOPMENT
7 PAGES, BILL INTRODUCED TO H. OF REP. CREATING FEDERAL COMMITTEE, FEB. 27, 1968

FORMED BY 2 REPRESENTATIVES, 2 SENATORS, 4 CABINET MEMBERS, AND 7 MEMBERS OF THE GENERAL PUBLIC SPECIALLY QUALIFIED. (DUTIES) DETERMINE IF CURRENT CIVILIAN NUCLEAR PROGRAM IS RESPONSIVE TO PUBLIC NEED (COMPETITION NOT SUBSIDIZED, HEALTH HAZARDS, PRIORITIES, ACCELERATION OF USE OF NUCLEAR DETONATIONS). ***BILL REFERRED TO JCAE.

REACTOR, POWER + ECONOMICS + *CONGRESSIONAL ACTIVITY + SAFETY REVIEW + PLOWSHARE PROGRAM

18-30276 ALSO IN CATEGORIES 1 AND 2
PUBLISHED BRIEF 21,334, SIEGEL VS USAEC AND FLORIDA POWER AND LIGHT COMPANY
PAUL SIEGEL, ATTORNEY
55 PAGES, BRIEF ON LAW SUIT, MARCH 1, 1968

CONTAINS ARGUMENTS AND AUTHORITIES ON QUESTIONS. (1) MUST AEC TAKE INTO ACCOUNT ATTACKS AND SABOTAGE BY ENEMY, (2) DID AEC ORDER TO ASLB TO NOT CONSIDER ENEMY ATTACK DENY PETITIONER THE PUBLIC HEARING PROVIDED BY LAW, (3) WAS AEC-ASLB FINDING FOR CONSTRUCTION PERMIT SUPPORTED BY SUBSTANTIAL EVIDENCE.

CIRCUIT COURT OF APPEALS, WASHINGTON, D.C.

*NUCLEAR ATTACK + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + ASLB + REACTOR, PWR + LAW + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR)

18-30277 ALSO IN CATEGORIES 1 AND 2
SIEGEL P
BRIEF OF INTERVENOR PAUL SIEGEL IN SUPPORT OF TURKEY POINT EXCEPTIONS
U.S. ATOMIC ENERGY COMMISSION
21 PAGES, 1967, DOCKET 50-250 AND 251, TYPE--PWR, MFG--WEST., AE--BECHTEL

BRIEF SEEKS REVIEW OF ASLB APRIL 26, 1967, ORDER ALLOWING TURKEY POINT CONSTRUCTION PERMIT. GROUNDS ARE THAT AEC SHOULD NOT EXCLUDE FROM CONSIDERATION THE SUBJECT OF INTENTIONAL EFFORTS BY AN ENEMY OF THE U.S. TO HARM THE REACTORS. ***INCLUDES OPENING REMARKS TO ASLB, LETTER TO AEC OF 10 MARCH 1967.

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

CIVIL DEFENSE + *NUCLEAR ATTACK + FALLOUT + LAW + ASLB + REACTOR, PWR + CONSTRUCTION PERMIT PROCESS + TURKEY POINT 3 (PWR) + TURKEY POINT 4 (PWR)

18-30286

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30286 *CONTINUED*
PROVISIONAL CONSTRUCTION PERMIT FOR DIABLO CANYON
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, PERMIT NO. CPPR-39, APRIL 23, 1968, DOCKET 50-275, TYPE--PWR, MFG--WEST., AE--PG+E

ALLOWS CONSTRUCTION OF 3250 MWTB PWR.

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

*CONSTRUCTION PERMIT PROCESS + REACTOR, PWR + DIABLO CANYON 1 (PWR) + LICENSE STATUS + LICENSE STATUS

18-30296 ALSO IN CATEGORY 11
ADDITIONAL SAFETY FEATURES NEEDED
NORTH CAROLINA STATE UNIVERSITY
9 PAGES, DRL SAFETY EVALUATION OF NC STATE U, NCSU PULSTAR, SEPT: 6, 1968 DOCKET 50-297

CONTROL SYSTEM FOR CONTAINMENT AND VENTILATION NEED MINOR CHANGES TO MEET SINGLE FAILURE CRITERION. ADDED FEATURES NEEDED TO IDENTIFY POTENTIAL LEAKAGE FROM THE PRIMARY COOLANT LOOP MAIN PIPING AND COOLANT TANK WHICH ARE BURIED UNDERGROUND. ADDITIONAL ANALYTICAL EFFORT NEEDED TO JUSTIFY ABSENCE OF A HIGH TEMP. SCRAM FOR PROTECTIVE SYSTEM. ANALYSIS BY DRL SHOWS THAT EVEN IF ALL THE FUEL PINS CLADDING RUPTURED, RESULTING DOSES WOULD BE AT LEAST A FACTOR OF 2 LESS THAN 10CFR100 GUIDELINES. ARGON-41 RELEASE COULD APPROACH LIMITS, SO LIMITING CONDITIONS ON USE OF BEAM TUBES WILL BE DEVELOPED.

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

FISSION PRODUCT RELEASE, GENERAL + LEAK + CONTAINMENT, LOW PRESSURE + VENTILATION SYSTEM + REACTOR SAFETY SYSTEM + REACTOR, RESEARCH + PIPING + MODIFICATION, SYSTEM OR EQUIPMENT + MAIN COOLING SYSTEM + *SAFETY EVALUATION + PULSTAR (RR) + ARGON + BEAM HOLE + INSTRUMENT, CONTROL + INSTRUMENT, SURVEILLANCE

18-30302 ALSO IN CATEGORY 17
ADVANCED TRIGA CONSTRUCTION AT U OF ILLINOIS
U.S. ATOMIC ENERGY COMMISSION
4 PAGES, CONSTRUCTION PERMIT NO. CPPR-105, AUGUST 9, 1968, DOCKET 50-151

ALLOWS CONSTRUCTION OF ADVANCED TRIGA TO REPLACE TRIGA II NOW IN USE AT U OF ILLINOIS.

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

CONSTRUCTION PERMIT PROCESS + REACTOR, RESEARCH + TRIGA (RR)

18-30311 ALSO IN CATEGORIES 12 AND 17
VALVE CLOSURE DELAY IN STEAM LINE RUPTURE
CONNECTICUT YANKEE ATOMIC POWER COMPANY
4 PAGES, AMENDMENT 18 TO LICENSE APPLICATION, FEBRUARY 1, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

PROVIDES REVISED SAR PAGES FOR OFF SITE DOSE EVALUATION BASED ON A 10 SEC DELAY OF VALVE CLOSURE AND 300 (STEAM FLOW. ***A MAXIMUM I-131 CONTENT OF 9.7 CURIES COULD BE CONTAINED IN THE STEAM GENERATORS, AND IF ALL THIS WERE RELEASED, THE THYROID DOSE AT THE BOUNDARY WOULD BE 3 REMS. CALCULATED ACTUAL RELEASE WOULD GIVE 0.06 R. MAXIMUM REACTIVITY GAIN IS 1.01 (, 100 SEC AFTER THE BREAK. MINIMUM DNBR IS 1.65 AT 9.1 SEC AFTER BREAK.

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

*RESPONSE TIME + OFF SITE + HADDAM NECK (PWR) + REPORT, SAR + *CONTAINMENT ISOLATION + REACTOR, PWR + DOSE + *SAFETY ANALYSIS + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS

18-30323 ALSO IN CATEGORY 11
CONTAINMENT BUILDING TENDONS
METROPOLITAN EDISON COMPANY
15 PAGES, FIGURES, TABLES, AMENDMENT 11 TO 3 MILE ISLAND CONST. PERMIT APPLICATION, JULY 1, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

PROVIDES INFORMATION ON THE USE OF 170-WIRE POST-TENSIONING TENDONS IN THE REACTOR CONTAINMENT BUILDING INSTEAD OF THE 90-WIRE TENDONS. AMENDMENT ALSO TRANSMITS REPLACEMENT SHEETS FOR PSAR (AN ATTACHMENT TO AEC QUESTION 7.11, AND A BINDER - VOL. 5 - FOR SUPPLEMENTS 3, 4, AND 5 CONTAINED IN VOL. 4). ATTACHMENT 1 TO QUESTION 7.11 IS TITLED - REPORT ON DESIGN AND TESTING OF END-ANCHORAGES FOR THE 170-WIRE BBRV SYSTEM.

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

REACTOR, PWR + SUPPORT STRUCTURE + CONTAINMENT DESIGN + REPORT, PSAR + *STEEL + STRUCTURAL INTEGRITY + TESTING + *CONCRETE, PRESTRESSED + CONTAINMENT STRUCTURE + *MODIFICATION, SYSTEM OR EQUIPMENT + AEC QUESTION + CONTAINMENT CONSTRUCTION + THREE MILE ISLAND 1 (PWR)

18-30344

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30344 *CONTINUED*

SAFETY ANALYSIS STUDY NUCLEAR PROPULSION SYSTEM FOR LARGE HIGH-SPEED MERCHANT SHIPS
WESTINGHOUSE ELECTRIC CORPORATION
75 PAGES, FIGURES, TABLES, OCTOBER 1968

DESCRIBES THE PROPULSION SYSTEM FOR A 75,000-HORSEPOWER NUCLEAR SHIP. SAFETY ASPECTS OF THE PLANT ARE EMPHASIZED. THE LATTER SECTIONS SUMMARIZE THE SAFETY ANALYSIS.

CONTAINMENT, HIGH PRESSURE + REACTOR, POWER + *REACTOR, PWR + *SAFETY EVALUATION + *REACTOR, MARITIME + ACCIDENT, LOSS OF COOLANT + ENGINEERED SAFETY FEATURE

18-30350 ALSO IN CATEGORIES 5 AND 11
SUPPLEMENT 4 TO GINNA FSAR - REVISIONS TO PSAR
ROCHESTER GAS AND ELECTRIC CO.

50244-7 +. 100 PAGES, FIGURES, TABLES, AMENDMENT 10 TO GINNA LICENSE APPLICATION, OCT. 10, 1968, DOCKET 50-244, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

SIGNIFICANT INFORMATION - REVISIONS TO SEISMIC CLASSIFICATION OF STRUCTURES, PRESSURE-VESSEL CONSTRUCTION CRITERIA, CONTROL-ROD-DRIVE DESIGN, CONTAINMENT-TENDON SURVEILLANCE, MISSILE PROTECTION, CORE INJECTION SYSTEM, ENVIRONMENTAL PROTECTION, DECAY-HEAT GENERATION IN CHARCOAL FILTERS, COMMUNICATION SYSTEM, EMERGENCY POWER, DECONTAMINATION, SAFETY- FEATURE EVALUATION, RELEASE OF RADIOACTIVE LIQUIDS, CORE THERMAL ANALYSIS, SITE-BOUNDARY DOSES. NEW INFO ON LAKE DILUTION MIXING OF WASTES, NUCLEAR-DESIGN EVALUATION, PREOPERATIONAL TESTING.

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

WASTE MANAGEMENT + TEST, PREOPERATIONAL + CHARCOAL + DECAY HEAT + CONTAINMENT STRUCTURE + OFF SITE + DECONTAMINATION + SAFETY EVALUATION + THERMAL ANALYSIS + WASTE DISPOSAL, LIQUID + CONTROL ROD DRIVE + PRESSURE VESSEL + REACTOR, PWR + CONCRETE + MISSILE GENERATION AND PROTECTION + STEEL + RADIOACTIVITY RELEASE + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + SURVEILLANCE PROGRAM + GINNA (PWR) + FILTER + SUPPORT STRUCTURE + HAZARDS ANALYSIS + COMMUNICATION SYSTEM + DOSE + DESIGN CRITERIA + ENGINEERED SAFETY FEATURE + REPORT, PSAR

18-30398 ALSO IN CATEGORY 11

NEIDIG RE
SUPPLEMENT TO AMENDMENT 11 - CONTAINMENT BUILDING TENDONS
METROPOLITAN EDISON COMPANY

2 PAGES, LETTER TO P. A. MORRIS, USAEC, DRL, JULY 10, 1968, DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

REQUESTS AMENDMENT TO CONSTRUCTION PERMIT CPPR-40 TO PROVIDE FOR USE OF 170-WIRE BBRV POST-TENSIONING TENDONS IN THE CONTAINMENT BUILDING TO REPLACE 90-WIRE TENDONS.

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

STRUCTURAL INTEGRITY + CONTAINMENT DESIGN + *SUPPORT STRUCTURE + *CONCRETE, PRESTRESSED + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PWR + *STEEL + CONTAINMENT CONSTRUCTION + CONTAINMENT STRUCTURE + THREE MILE ISLAND 1 (PWR)

18-30406 ALSO IN CATEGORIES 5 AND 11

AEC QUESTIONS ON CALVERT CLIFFS 1 AND 2
U.S. ATOMIC ENERGY COMMISSION

25 PAGES, LETTER FROM AEC DRL TO BALTIMORE GAS AND ELECTRIC CO., SEPT. 16, 1968, DOCKETS 50-317-318

CONTAINS 132 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE DATA, CONTAINMENT STRUCTURE, EMERGENCY CORE COOLING, THERMAL-SHOCK EFFECT ON REACTOR COMPONENTS, AND FAILED FUEL DETECTION. (QUESTIONS ONLY - NO ANSWERS)

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

THERMAL MECHANICAL EFFECT + CORE COMPONENTS + EMERGENCY COOLING CONSIDERATIONS + REACTOR, PWR + DESIGN CRITERIA + CONTAINMENT STRUCTURE + CONSTRUCTION PERMIT PROCESS + *AEC QUESTION + CALVERT CLIFFS 2 (PWR) + CALVERT CLIFFS 1 (PWR) + INSTRUMENT, DETECTION FAILED FUEL ELEMENT

18-30407

AEC QUESTIONS ON OYSTER CREEK 2 REACTOR
U.S. ATOMIC ENERGY COMMISSION

7 PAGES, LETTER FROM AEC DRL TO JERSEY CENTRAL POWER AND LIGHT CO., OCT. 10, 1968, DOCKET 50-320

CONTAINS QUESTIONS TO BE ANSWERED TO ASSIST IN REVIEW OF LICENSE APPLICATION. EIGHT QUESTIONS ON EMERGENCY CORE-COOLING SYSTEM, 2 ON RADIOLYTIC HYDROGEN GENERATION, 1 ON EMERGENCY DIESEL, 2 ON CONTAINMENT, 2 ON FUEL HANDLING, 1 ON ISOLATION VALVES, 1 ON XENON OSCILLATIONS, 1 ON PRESS. VESSEL, 1 ON TECH. SPECS., 2 ON PRESSURE-VESSEL DESIGN, 4 ON R AND D, 6 ON WASTE DISPOSAL, AND 2 ON IODINE-REDUCTION CAPABILITY. (QUESTIONS ONLY - NO ANSWERS.)

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

EMERGENCY COOLING CONSIDERATIONS + PRESSURE VESSEL + CONSTRUCTION PERMIT PROCESS + VALVE + FISSION PRODUCT, IODINE + WASTE DISPOSAL, GENERAL + REACTOR, PWR + XENON OSCILLATION + THREE MILE ISLAND 2 (PWR) + HYDROGEN +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30407 *CONTINUED*

FUEL HANDLING + *AEC QUESTION + GENERATOR, ENGINE + RADIOLYTIC GAS + CONTAINMENT INTEGRITY + CONTAINMENT ISOLATION

18-30408 ALSO IN CATEGORY 2

AEC QUESTIONS ON OYSTER CREEK 2

U.S. ATOMIC ENERGY COMMISSION

3 PAGES, LETTER FROM AEC DRL TO JERSEY CENTRAL P AND L CO., JUNE 25, 1968, DOCKET 50-320

CONTAINS 7 QUESTIONS ON THE SITE HYDROLOGY TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT.

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

HYDROLOGICAL CONSIDERATION, GENERAL + CONSTRUCTION PERMIT PROCESS + SYSTEM DESCRIPTION + WEATHER, SEVERE + AEC QUESTION + THREE MILE ISLAND 2 (PWR) + SITING, REACTOR + REACTOR, PWR

18-30409 ALSO IN CATEGORY 1

SHOREHAM CONSTRUCTION DEFERRED TWO YEARS

LONG ISLAND LIGHTING CO.

2 PAGES, LETTER FROM LONG IS. LIGHTING CO. TO AEC DRL, DEC. 3, 1968, DOCKET 50-322

NEED FOR ADDITIONAL GENERATING CAPACITY IN 1972 (SHOREHAM WAS SCHEDULED FOR MAY 1973.) REQUIRES THAT A 380-MWE OIL-FIRED UNIT BE ADDED. REVISED PLANS CALL FOR AN 800-MWE BWR (ORIGINALLY 540) FOR OPERATION IN MAY 1975.

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

REACTOR, BWR + *REACTOR POWER + *MODIFICATION, SYSTEM OR EQUIPMENT + SHOREHAM (BWR) + *LICENSE STATUS

18-30410 ALSO IN CATEGORIES 11 AND 12

AEC QUESTIONS ON COOK 1 AND 2

U.S. ATOMIC ENERGY COMMISSION

11 PAGES, LETTER FROM AEC DRL TO INDIANA AND MICHIGAN ELECTRIC CO., AUGUST 26, 1968, DOCKET 50-315/316

CONTAINS 86 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE, INSTRUMENTATION, SAFETY FEATURES, CONTAINMENT, ACCIDENT ANALYSIS, AND OPERATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

COOK 1 (PWR) + CONTAINMENT DESIGN + ACCIDENT ANALYSIS + SITING, REACTOR + CONSTRUCTION PERMIT PROCESS + COOK 2 (PWR) + REACTOR, PWR + SYSTEM DESCRIPTION + *AEC QUESTION + ENGINEERED SAFETY FEATURE + INSTRUMENT, GENERAL

18-30411 ALSO IN CATEGORY 11

AEC QUESTIONS ON COOK 1 AND 2 REACTOR

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO INDIANA AND MICHIGAN ELECTRIC CO., SEPT. 10, 1968, DOCKET 50-315/316

CONTAINS 14 QUESTIONS REGARDING THE ICE-CONDENSER CONTAINMENT DESIGN WHICH ARE TO BE ANSWERED IN ORDER FOR DRL TO COMPLETE THE REVIEW OF APPLICATION FOR CONSTRUCTION PERMIT. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + COOK 2 (PWR) + *CONTAINMENT, ICE CONDENSER + COOK 1 (PWR) + *AEC QUESTION + *CONTAINMENT DESIGN + LICENSE STATUS

18-30412 ALSO IN CATEGORY 11

AEC QUESTIONS ON RANCHO SECO

U.S. ATOMIC ENERGY COMMISSION

18 PAGES, LETTER FROM AEC DRL TO SACRAMENTO MUNICIPAL UTILITIES DIST., APRIL 10, 1968, DOCKET 50-312, TYPE--PWR, MFG--B+W, AE--BECHTEL

CONTAINS 120 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN CONTAINMENT AND STRUCTURE DESIGN, STRESS LOADS ON CONTAINMENT, MATERIALS, CORROSION PROTECTION QUALITY ASSURANCE, TESTING, AND SURVEILLANCE SPECIFICATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + *AEC QUESTION + TESTING + MATERIAL + CONTAINMENT STRUCTURE + REACTOR, PWR + SURVEILLANCE PROGRAM + RANCHO SECO (PWR) + CONTAINMENT VESSEL LOADING + QUALITY ASSURANCE + SYSTEM DESCRIPTION + STRUCTURAL INTEGRITY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30413 ALSO IN CATEGORIES 6 AND 9

AEC QUESTIONS ON RANCHO SECO
U.S. ATOMIC ENERGY COMMISSION

11 PAGES, LETTER FROM AEC DRL TO SACRAMENTO MUNICIPAL UTIL. DIST., MARCH 21, 1968, DOCKET 50-312, TYPE--PWR, MFG--B+W, AE--BECHTEL

CONTAINS 81 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, REACTOR DESCRIPTION, SPATIAL KINETICS, AND INSTRUMENTATION AND CONTROL. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR SAFETY SYSTEM + *AEC QUESTION + REACTOR KINETICS + DESIGN CRITERIA + RANCHO SECO (PWR) + REACTOR, PWR + REACTOR DESCRIPTION + CONSTRUCTION PERMIT PROCESS + INSTRUMENT, CONTROL

18-30414 ALSO IN CATEGORIES 2 AND 9

AEC QUESTIONS ON MAINE YANKEE
U.S. ATOMIC ENERGY COMMISSION

19 PAGES, LETTER FROM AEC DRL TO MAINE YANKEE ATOMIC POWER CO., MARCH 20, 1968, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

CONTAINS 101 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN SITE METEOROLOGY, SHARED COMPONENTS, THERMAL SHOCK ON REACTOR COOLANT SYSTEM, JUSTIFICATION OF HEAT FLUXES, NDT OF COOLANT PIPING AND STRESS LIMITS OF CORE INTERNALS, AND INSTRUMENTATION AND CONTROLS DETAILS. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + STRESS ANALYSIS + NDT DATA + MAIN COOLING SYSTEM + MAINE YANKEE (PWR) + REACTOR SAFETY SYSTEM + SITE CLIMATOLOGY + SHARED COMPONENTS + *AEC QUESTION + HEAT TRANSFER ANALYSIS + CONSTRUCTION PERMIT PROCESS + PIPING + INSTRUMENT, CONTROL

18-30415 ALSO IN CATEGORIES 2 AND 11

AEC QUESTION ON KEWAUNEE
U.S. ATOMIC ENERGY COMMISSION

14 PAGES, LETTER FROM AEC DRL TO WISCONSIN PUBLIC SERVICE CORP., MARCH 8, 1968, DOCKET 50-305, TYPE--PWR, MFG--WEST., AE--PIONEER SERV.

CONTAINS 98 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SITE, REACTOR, THERMAL SHOCK TO PIPING AND CORE COMPONENTS, PRESSURE-VESSEL CRITERIA, SEISMIC DESIGN, CONTAINMENT DESIGN, ENGINEERED SAFEGUARDS, INSTRUMENTATION, ELECTRICAL SYSTEMS, AND THE SAFETY ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + DESIGN CRITERIA + KEWAUNEE (PWR) + REACTOR DESCRIPTION + SAFETY ANALYSIS + PIPING + CORE COMPONENTS + ENGINEERED SAFETY FEATURE + MAIN COOLING SYSTEM + CONSTRUCTION PERMIT PROCESS + ELECTRIC POWER, GENERAL + PRESSURE VESSEL + *AEC QUESTION + THERMAL MECHANICAL EFFECT + SITING, REACTOR

18-30416 ALSO IN CATEGORIES 2 AND 5

AEC QUESTIONS ON CRYSTAL RIVER 3 AND 4
U.S. ATOMIC ENERGY COMMISSION

3 PAGES, LETTER FROM AEC DRL TO FLORIDA POWER CORP., JAN. 19, 1968, DOCKETS 50-302/303, TYPE--PWR, MFG--B+W, AE--SGT + LUNDY

CONTAINS 56 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN DESIGN CRITERIA OF FACILITY, SITE DESCRIPTION, REACTOR DESCRIPTION, CONTAINMENT DESIGN, EMERGENCY CORE COOLING, INSTRUMENTATION AND CONTROL, ELECTRICAL SYSTEM, EMERGENCY-FEEDWATER-PUMP REDUNDANCY, MONITORING OF RADIOACTIVE WASTE, AND ANALYSIS OF LOSS OF FLOW ACCIDENT. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, PWR + ACCIDENT, LOSS OF FLOW + SYSTEM DESCRIPTION + CONSTRUCTION PERMIT PROCESS + EMERGENCY COOLING CONSIDERATIONS + CONTAINMENT DESIGN + REACTOR DESCRIPTION + ACCIDENT ANALYSIS + DESIGN CRITERIA + REACTOR SAFETY SYSTEM + EQUIPMENT, GENERAL + WASTE MANAGEMENT + *AEC QUESTION + SITING, REACTOR + INSTRUMENT, CONTROL + REDUNDANCE + CRYSTAL RIVER 3 (PWR) + CRYSTAL RIVER 4 (PWR)

18-30417 ALSO IN CATEGORIES 2 AND 11

AEC QUESTIONS ON BROWNS FERRY 3

U.S. ATOMIC ENERGY COMMISSION

10 PAGES, LETTER FROM AEC DRL TO TVA, JAN. 26, 1968, DOCKET 50-296, TYPE--BWR, MFG--G.E., AE--TVA

CONTAINS 59 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN EFFECTS OF TORNADOES AND EARTHQUAKES ON SECONDARY CONTAINMENT, SAFETY FEATURES FOR MISSILE PROTECTION, EMERGENCY ELECTRICAL SYSTEM, SHARED COMPONENTS, AND DESIGN CRITERIA. (QUESTIONS ONLY - NO ANSWERS.)

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30417 *CONTINUED*

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

EARTHQUAKE ENGINEERING + ENGINEERED SAFETY FEATURE + REACTOR, BWR + *AEC QUESTION + CONSTRUCTION PERMIT PROCESS + CONTAINMENT DESIGN + BROWNS FERRY 3 (BWR) + EMERGENCY POWER, ELECTRIC + DESTRUCTIVE WIND + DESIGN CRITERIA + MISSILE GENERATION AND PROTECTION

18-30418 ALSO IN CATEGORIES 5 AND 9

AEC QUESTIONS ON ZION 1 AND 2

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JAN. 15, 1968, DOCKETS 50-295/304, TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

CONTAINS 38 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN INSTRUMENTATION AND CONTROL, VENTILATION SYSTEM FOR CONTAINMENT, DESIGN BASIS FOR CONTROL-ROOM SHIELDING, AND LOSS-OF-COOLANT-ACCIDENT ANALYSIS. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS + CONTROL PANEL/ROOM + ACCIDENT, LOSS OF COOLANT + REACTOR SAFETY SYSTEM + REACTOR, PWR + SHIELDING + *AEC QUESTION + VENTILATION SYSTEM + DESIGN CRITERIA + INSTRUMENT, CONTROL + ZION 1 (PWR) + ZION 2 (PWR)

18-30419 ALSO IN CATEGORY 9

REVIEW OF THREE MILE ISLAND CONTROL ROD DRIVE DESIGN

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO METROPOLITAN EDISON CO., JAN. 7, 1969 DOCKET 50-289, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

METROPOLITAN EDISON HAD REFERENCED THE PROPOSED NEW DESIGN TO INFORMATION CONTAINED IN OYSTER CREEK NO. 2 APPLICATION AMEND. 4 (DOCKET 50-320), BUT DRL SITES 5 POINTS OF DIFFERENCE AND REQUESTS RESPONSE.

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

COMPARISON, REACTOR CHARACTERISTICS + *CONTROL ROD DRIVE + REACTOR, PWR + THREE MILE ISLAND 1 (PWR) + *DESIGN CRITERIA + THREE MILE ISLAND 2 (PWR)

18-30420 ALSO IN CATEGORIES 2 AND 11

AEC QUESTION ON FT. ST. VRAIN

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER FROM AEC DRL TO PUBLIC SERVICE CO. OF COLORADO, MARCH 14, 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

CONTAINS 9 QUESTIONS TO BE ANSWERED TO SUPPORT LICENSE APPLICATION AND A LIST OF 14 ITEMS TO BE DISCUSSED AT ACRS MEETING. QUESTIONS CONCERN PCRV THERMAL BARRIER, R AND D ON SAFETY ITEMS, COATINGS ON FUEL PARTICLES, DESIGN CRITERIA, AND CONSEQUENCES OF EARTHQUAKE. DISCUSSION ITEMS CONCERN PCRV, ACCIDENTS, CIRCULATORS, AND CONSTRUCTION. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE + ACRS + CONSTRUCTION PERMIT PROCESS + THERMAL SHIELD + REACTOR, HTGR + FUEL, PELLET TYPE + COATING + ACCIDENT, CONSEQUENCES + *AEC QUESTION + ENGINEERED SAFETY FEATURE + FT. ST. VRAIN (HTGR) + CONCRETE, PRESTRESSED + PRESSURE VESSEL + R AND D PROGRAM + COATED PARTICLE

18-30421 ALSO IN CATEGORY 11

AEC QUESTIONS ON FORT ST. VRAIN

U.S. ATOMIC ENERGY COMMISSION

1 PAGE, LETTER FROM AEC DRL TO PUBLIC SERVICE CO. OF COLORADO, FEB. 2, 1968, DOCKET 50-267, TYPE--HTGR, MFG--G.A., AE--G.A.

REQUESTS ADDITIONAL INFORMATION TO ASSIST REVIEW OF LICENSE APPLICATION. (1) DISCUSS THE PROPOSED 70 AEC GENERAL DESIGN CRITERIA, (2) PROVIDE REASONS WHY ADDITIONAL TESTING OF PCRV IS NOT NEEDED, AND (3) ANALYZE CONSEQUENCES OF CONTAINMENT LINER COOLING SYSTEM TUBES FAILING AND WATER ENTERING PCRV CAVITY. (QUESTIONS ONLY - NO ANSWERS.)

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

CONSTRUCTION PERMIT PROCESS + PRESSURE VESSEL + FAILURE, PIPE + FT. ST. VRAIN (HTGR) + AEC DESIGN CRITERIA + *AEC QUESTION + CONTAINMENT LINER + ACCIDENT ANALYSIS + TESTING + AUXILIARY COOLING SYSTEM + REACTOR, HTGR + CONCRETE, PRESTRESSED

18-30422 ALSO IN CATEGORY 2

AEC QUESTIONS ON MILLSTONE POINT

U.S. ATOMIC ENERGY COMMISSION

12 PAGES, LETTER FROM AEC DRL TO MILLSTONE POINT CO., DEC. 11, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30422 *CONTINUED*

CONTAINS 58 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN CHANGES IN DESIGN SINCE ISSUANCE OF CONST. PERMIT, IMPLEMENTATION OF DESIGN INTENT, SEISMIC CONSIDERATIONS, AND DESIGN FEATURES OF PLANT. (QUESTIONS ONLY - NO ANSWERS.)

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

*AEC QUESTION + SYSTEM DESCRIPTION + REACTOR DESCRIPTION + REACTOR, BWR + CONTAINMENT DESIGN + MILLSTONE POINT (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + LICENSE STATUS

18-30423 ALSO IN CATEGORY 11

AEC QUESTION ON MILLSTONE POINT

U.S. ATOMIC ENERGY COMMISSION

5 PAGES, LETTER FROM AEC DRL TO MILLSTONE POINT CO., JULY 17, 1968, DOCKET 50-245, TYPE--BWR, MFG--G.E., AE--EBASCO

CONTAINS 22 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN QUALITY CONTROL, OPERATIONS, AND CONTAINMENT VESSEL WELDING AND CRACKS. (QUESTIONS ONLY - NO ANSWERS.)

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

AEC QUESTION + QUALITY ASSURANCE + MILLSTONE POINT (BWR) + REACTOR, BWR + WELDING + FAILURE, FABRICATION ERROR + CONTAINMENT CONSTRUCTION + LICENSE STATUS

18-30424

AEC QUESTIONS ON DRESDEN 2 AND 3 DESIGN

U.S. ATOMIC ENERGY COMMISSION

9 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., OCT. 16, 1968, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

CONTAINS QUESTIONS REQUIRING RESPONSE TO COMPLETE THE LICENSE APPLICATION AND SUPPORT ISSUANCE OF OPERATING LICENSE. SIX GENERAL QUESTIONS, 1 ON DESIGN CHANGES, 11 ON IMPLEMENTATION OF DESIGN INTENT, 5 ON NEW REVIEW ITEMS, AND 8 ON PROCEDURES, OPERATIONS, AND LIMITS. (QUESTIONS ONLY - NO ANSWERS.)

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

DRESDEN 3 (BWR) + CONSTRUCTION PERMIT PROCESS + REACTOR, BWR + *AEC QUESTION + DRESDEN 2 (BWR) + MODIFICATION, SYSTEM OR EQUIPMENT + TECHNICAL SPECIFICATIONS + DESIGN CRITERIA + PROCEDURES AND MANUALS

18-30425 ALSO IN CATEGORIES 5 AND 12

AEC QUESTIONS ON DRESDEN 2 AND 3

U.S. ATOMIC ENERGY COMMISSION

14 PAGES, LETTER FROM AEC DRL TO COMMONWEALTH EDISON CO., JUNE 27, 1968, DOCKETS 50-237/249, TYPE--BWR, MFG--G.E., AE--SGT + LUNDY

CONTAINS A LIST OF 91 QUESTIONS TO BE ANSWERED IN SUPPORT OF LICENSE APPLICATION. QUESTIONS CONCERN QUALITY CONTROL, CODES AND STANDARDS, ENGINEERED SAFETY FEATURES, THERMAL MARGINS IN CORE DESIGN, AND CONSEQUENCES OF EQUIPMENT MALFUNCTIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ENGINEERED SAFETY FEATURE + DRESDEN 2 (BWR) + ACCIDENT, CONSEQUENCES + DRESDEN 3 (BWR) + FUEL ELEMENT + DESIGN CRITERIA + *AEC QUESTION + REACTOR, BWR + SAFETY MARGIN + FAILURE, EQUIPMENT + THERMAL CONSIDERATION + CODES AND STANDARDS + QUALITY ASSURANCE

18-30426 ALSO IN CATEGORIES 2 AND 5

AEC QUESTIONS ON NINE MILE POINT

U.S. ATOMIC ENERGY COMMISSION

11 PAGES, LETTER FROM AEC DRL TO NIAGARA MOHAWK POWER CORP., JUNE 6, 1968, DOCKET 50-220, TYPE--BWR, MFG--G.E., AE--NIAGARA MOHAWK

CONTAINS 21 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATION FOR CONSTRUCTION PERMIT. QUESTIONS CONCERN SEISMIC DESIGN, TRANSIENT ANALYSIS, AND ACCIDENT DESIGN CONSIDERATIONS. (QUESTIONS ONLY - NO ANSWERS.)

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

ACCIDENT ANALYSIS + MATHEMATICAL STUDY + *AEC QUESTION + NINE MILE POINT (BWR) + REACTOR, BWR + EARTHQUAKE ENGINEERING + CONTAINMENT DESIGN + REACTOR TRANSIENT + CONSTRUCTION PERMIT PROCESS + ACCIDENT ANALYSIS

18-30427

AEC QUESTIONS ON OYSTER CREEK 1

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER FROM AEC DRL TO JERSEY CENTRAL P AND L CO., FEB. 16, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30427 *CONTINUED*

REQUESTS INFORMATION BE SUBMITTED ON SAFETY-ASSOCIATED SYSTEMS AND STRUCTURES, ORGANIZATION RESPONSIBILITY FOR ESTABLISHING FUNCTIONAL REQUIREMENTS EQUIPMENT SPECS OR DRAWINGS, DESCRIPTION OF QUALITY-CONTROL PROGRAM AND ORGANIZATION, AND AN ORGANIZATIONAL CHART. (QUESTIONS ONLY - NO ANSWERS.)

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

REACTOR, BWR + OYSTER CREEK 1 (BWR) + *QUALITY ASSURANCE + *AEC QUESTION + LICENSE STATUS + TRAINING + CERTIFICATION + STAFFING

18-30428 ALSO IN CATEGORIES 14 AND 15
COMMENTS ON RADIOLOGICAL SAFETY AT OYSTER CREEK 1
JERSEY CENTRAL LIGHT AND POWER COMPANY

4 PAGES, AMENDMENT 26 TO OYSTER CREEK 1 LICENSE APPLICATION, NOVEMBER 28, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

COMMENTS ON FISH-AND-WILDLIFE-SERVICE LETTERS TO AEC - (1) PLANT IS 50 MILES FROM PHILADELPHIA, NET ELECTRICAL POWER WILL BE 60 MW. TRACER STUDIES PERFORMED ONLY IN AUG. AND SEPT. 1963, ONLY 2 DILUTION PUMPS NEEDED TO MAINTAIN LIMIT OF 95 F AT BUOY IN BARNEGOT BAY. (2) COOPERATION WITH N.J. DEPT. OF HEALTH WILL CONTINUE. (3) PROGRAM OF SAMPLING CLAMS, WATER, AND SEDIMENT WILL CONTINUE EVERY 4 WKS DURING FIRST YEAR OF POWER OPERATION. (4) NO JUSTIFICATION FOR A REPORT EVERY 3 MONTHS, PROPOSE 6 MONTHS. (5) IF SAMPLING PROGRAM REQUIRES, PLANT RADWASTE DESIGN AND OPERATION WILL BE REVIEWED. (6) RADIOACTIVITY CONCENTRATION FOR FISH BASED ON FISH MOBILITY, DILUTION, AND DISCHARGE CONCENTRATION.

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

*WASTE DISPOSAL, LIQUID + OFF SITE + FISSION PRODUCT RELEASE, GENERAL + OYSTER CREEK 1 (BWR) + REACTOR, BWR + OCEAN AND SEA + *WASTE MANAGEMENT + ENVIRONMENTAL CONDITION + *RADIATION SAFETY AND CONTROL + *SURVEY, RADIATION, ENVIRONMENTAL

18-30429 ALSO IN CATEGORIES 2 AND 11
AEC QUESTIONS ON OYSTER CREEK 1

U.S. ATOMIC ENERGY COMMISSION
5 PAGES, LETTER TO JERSEY CENTRAL P AND L CO., FROM AEC DRL, OCT. 16, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS 30 QUESTIONS TO BE ANSWERED IN SUPPORT OF APPLICATIONS FOR OPERATING LICENSE. QUESTIONS CONCERN SEISMIC DESIGN, INSTRUMENTATION, CONTAINMENT, AND EMERGENCY PLANNING. (QUESTIONS ONLY - NO ANSWERS.)

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

EARTHQUAKE ENGINEERING + OYSTER CREEK 1 (BWR) + REACTOR, BWR + CONTAINMENT DESIGN + DESIGN CRITERIA + *AEC QUESTION + EMERGENCY PROCEDURE + LICENSE STATUS + INSTRUMENT, CONTROL

18-30447 ALSO IN CATEGORIES 5 AND 15
STANFORD LE + HAMRICK TP + BINFORD FT

DESCRIPTION AND SAFETY ANALYSIS OF SIGNIFICANT CHANGE OF THE BULK SHIELDING REACTOR FOR 2-MW OPERATION
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-2231 +. 107 PAGES, FIGURES, TABLES, MAY 15, 1968

MODIFICATIONS TO MAIN COOLING SYSTEM TO INSTALL FORCED COOLING ARE TO BE COMPLETED BY OCT. 1966, PERMITTING POWER UPGRATING FROM 1 TO 2 MW MODIFICATIONS AND REACTOR ARE DESCRIBED IN DETAIL. THE MCA ASSUMES MELTING OF 50% OF FUEL AFTER 28 MONTHS OF CONTINUOUS OPERATION (LOSS OF COOLANT TESTS HAVE BEEN PERFORMED WITH NO DAMAGE TO ELEMENTS). DOSE FROM MCA, 1 KM DOWNWIND FROM STACK IS THE MAXIMUM AND IS 194 MREM INTERNAL AND 2.5 RODS EXTERNAL.

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

*REACTOR DESCRIPTION + ACCIDENT ANALYSIS + MAIN COOLING SYSTEM + DOSE + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, AEC OWNED + REPORT, SAR + *SAFETY ANALYSIS + *POWER UPGRATING + REACTOR, RESEARCH + ACCIDENT, MAXIMUM CREDIBLE (MCA) + *BSR (RR) + OFF SITE

18-30450 ALSO IN CATEGORY 11
AUTHORIZATION TO CALVERT CLIFFS 1 AND 2 TO PLACE CONCRETE AND TENDONS BEFORE PERMIT ISSUED

U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER FROM AEC DRL TO BALTIMORE GAS AND ELECTRIC CO., JAN. 10, 1969, DOCKETS 50-317-318

EXEMPTION GRANTED SO SCHEDULE FOR COMMERCIAL OPERATION CAN BE MET, BUT IT IS EMPHASIZED THAT THE GRANTING OF EXEMPTION HAS NO EFFECT ON GRANTING OR DENIAL OF CONSTRUCTION PERMITS AND DOES NOT CONSTITUTE APPROVAL OF CONTAINMENT STRUCTURE.

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

*REGULATION, AEC + CALVERT CLIFFS 1 (PWR) + CONSTRUCTION PERMIT PROCESS + CONTAINMENT STRUCTURE + *FOUNDATION ENGINEERING + *CONTAINMENT CONSTRUCTION + CALVERT CLIFFS 2 (PWR) + *CONCRETE + REACTOR, PWR + CONCRETE,

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30450 *CONTINUED*
PRESTRESSED

18-30498
ROZENHOLC M
PHENIX
COMMISSARIAT A L ENERGIE ATOMIQUE, PARIS
11 PAGES, ENERG. NUCL. (PARIS) 10, PAGES 65-75 (MAR.-APR. 1968) (IN FRENCH)

DESCRIBES PRINCIPAL FEATURES OF THE FAST BREEDER SODIUM-COOLED PHENIX REACTOR. THE OVERALL PLANT LAYOUT IS ILLUSTRATED, AND DESIGN CHARACTERISTICS OF THE FUEL ELEMENTS, CORE, CONTROL ELEMENTS, FUEL LOADING MACHINE, STEAM GENERATOR, POWER PLANT EQUIPMENT, AND CONTROL SYSTEM ARE DISCUSSED.

*SYSTEM DESCRIPTION + FUEL HANDLING MACHINE + FUEL ELEMENT + *REACTOR DESCRIPTION + REACTOR, POWER + CONTROL ROD + *REACTOR, LMFBR + FRANCE + STEAM GENERATOR + CORE COMPONENTS + INSTRUMENT, CONTROL + EQUIPMENT, GENERAL

18-30499
MONTES PONCE DE LEON J + MARTIN NUNO C + FAJARDO CANTILLO M
THE JEN-2 REACTOR DESCRIPTION
9 PAGES, ENERG. NUCL. (MADRID) 12, PAGES 4-12 (JAN.-FEB. 1968)

COMPLETE QUALITATIVE AND QUANTITATIVE DESCRIPTIONS OF THE JEN-2 SPANISH RESEARCH REACTOR ARE GIVEN. CUT-AWAYS SHOW THE POOL OF THE JEN-1 A LONGITUDINAL CROSS SECTION OF THE CONTROL ROD AND DRIVE IS SHOWN. DESIGN PARAMETERS TABULATED, SAFETY FEATURES LISTED. SCHEMATICS AND BLOCK DIAGRAMS OF THE ALARM AND EMERGENCY CIRCUITS SHOWN. THESE SYSTEMS ARE DESCRIBED.

*SPAIN + CONTROL ROD DRIVE + EMERGENCY SYSTEM + STORAGE CONTAINER + REACTOR, RESEARCH + *SYSTEM DESCRIPTION + *REACTOR DESCRIPTION + ENGINEERED SAFETY FEATURE + REACTOR, POOL TYPE + FUEL ELEMENT + CONTROL ROD + INSTRUMENT, CONTROL

18-30567
SAFETY ANALYSIS SUMMARY OF B AND W CNSG MARITIME REACTOR
BABCOCK AND WILCOX COMPANY, LYNCHBURG, VA.
BAW-1321 +. 75 PAGES, FIGURES, TABLES, FEBRUARY 1968

SUMMARIZES THE PRELIMINARY SAFETY ANALYSIS SUBMITTED TO AEC. DESCRIBES AND ANALYZES THE SAFETY FEATURES OF THE 100,000-HORSEPOWER PWR PROPOSED BY BABCOCK AND WILCOX CO. FOR INSTALLATION IN NUCLEAR-POWERED MERCHANT SHIPS.

ENGINEERED SAFETY FEATURE + *REACTOR, PWR + *REACTOR, MARITIME + CONTAINMENT, PRESSURE SUPPRESSION + REACTOR, POWER + *SAFETY EVALUATION

18-30574
HAEFELE W
FEDERAL GERMAN FAST BREEDER PROGRAMME
KERNFORSCHUNGSZENTRUM, KARLSRUHE, GERMANY
EURFNR-403 + STI/PUB-165 (VOL. 1) + CONF-671043 +. 1968

STARTED IN 1960 AT KARLSRUHE, CONCENTRATED ON PHYSICS, SAFETY, AND PRINCIPAL ENGINEERING STUDIES. FOUR MAJOR EXPERIMENTAL STEPS WERE SUAK, STARK, SNEAK, AND SEFOR. ABOUT 1970 TWO PROTOTYPES OF 300 MW(E), (ONE LIQUID SODIUM AND ONE STEAM COOLANT) WILL BE BUILT TO DEMONSTRATE THE BREEDING AND ELECTRICITY POTENTIAL ON A SIGNIFICANT SCALE. THEREAFTER, TWO DEMONSTRATION PLANTS OF 1000 MW(E) WILL MEET THE ULTIMATE OBJECTIVE - 1000 MW(E) FAST OXIDE BREEDER REACTORS AVAILABLE ON A COMMERCIAL AND COMPETITIVE BASIS BY THE END OF THE 1970S.

REACTOR, BREEDER + *R AND D PROGRAM + STEAM + GERMANY + REACTOR, LMFBR

18-30575 ALSO IN CATEGORY 6
RANDLE S J
THEORETICAL ANALYSIS OF HYPOTHETICAL DESTRUCTIVE ACCIDENTS IN A PULSED FAST REACTOR
JOINT RESEARCH CENTRE, ISPRA, ITALY
STI/PUB-165 (VOL. 2) + CONF-671043 (VOL. 2) +. 1968

THE WORST HYPOTHETICAL ACCIDENT IS A FRACTURE OF THE RELATIVELY HEAVY ROTATING PULSATION DEVICE AND THE CREATION OF A HIGH SPEED FRAGMENT WHICH COMPRESSES THE CORE INTO A PROMPT CRITICAL ASSEMBLY. THE KINETICS AND DYNAMICS OF THIS COLLISION PROCESS ARE DESCRIBED WITH A SERIES OF MODELS TO ESTIMATE REACTIVITY INPUT. THE EFFECT IS A MODIFIED BETHE-TAIT MODEL. THE EQUATION OF STATE AND CONVERSION OF THE ENERGY INTO WORK ARE DISCUSSED, AND CALCULATIONS (USING COMPUTER PROGRAM EQUSTA) ARE DESCRIBED, ACCOMPANIED BY A DETAILED MATHEMATICAL EXPOSITION. A NUMERICAL METHOD AND THE RESULTS APPLIED TO A SORA-TYPE SYSTEM, USING COMPUTER PROGRAM SOREX 1 TO GIVE AN UPPER LIMIT TO THE AVAILABLE MECHANICAL WORK IN A LARGE RANGE OF HYPOTHETICAL ACCIDENTS. FURTHER INFORMATION ON THE EQUATION OF STATE OF FUEL MATERIALS IS NEEDED.

REACTOR, FAST BURST + ACCIDENT, REACTIVITY + EQUATION OF STATE + MATHEMATICAL TREATMENT + ACCIDENT, MAXIMUM CREDIBLE (MCA) + ANALYTICAL MODEL + BETHE TAIT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30576

ISHIKAWA H + AN S + MISHIMA Y
FAST REACTOR RESEARCH AND DEVELOPMENT PROGRAMME IN JAPAN
JAPAN ATOMIC ENERGY RESEARCH INSTITUTE, TOKYO
STI/PUB-165(VOL.1) + CONF-671043-(VOL.1) +. 12 PAGES, PAGES 15-26 OF FAST REACTOR PHYSICS. VOL. I., VIENNA,
INTERNATIONAL ATOMIC ENERGY AGENCY, 1968, FROM SYMPOSIUM ON FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS,
KARLSRUHE, GERMANY

ARTICLE STRESSES FAST REACTOR PHYSICS AND RELATED SAFETY PROBLEMS. THE 100-MW(TH) EXPERIMENTAL REACTOR AND PROTOTYPE REACTOR ARE TO BE SODIUM-COOLED. THE FORMER IS TO BE CRITICAL IN 1972, SOME R AND D ACTIVITIES HAVE ALREADY COMMENCED. THE PROTOTYPE IS TO BE DEVELOPED BY THE EARLY 1980S. A PROTOTYPE ADVANCED CONVERTER PROJECT IS NOW UNDER WAY IN JAPAN, AND A NEW ORGANIZATION WAS ESTABLISHED IN OCTOBER 1967 TO DEVELOP BOTH THE FAST REACTOR AND THE ADVANCED CONVERTER. THE JAERI FAST CRITICAL ASSEMBLY IS TO OBTAIN INFORMATION ON REACTIVITY EFFECTS, TO CHECK DESIGNS OF THE EXPERIMENTAL AND THE PROTOTYPE REACTOR. IN MANY ESTABLISHMENTS THEORETICAL RESEARCH IS INCREASING ON THE FOLLOWING TOPICS - NUCLEAR DATA NEUTRON ENERGY SPECTRUM, REACTIVITY COEFFICIENTS, DESIGN STUDY, ANALYSIS OF KINETICS AND ACCIDENTS. THE STUDY OF FAST REACTOR SAFETY MAINLY CONFINED TO THE THEORETICAL APPROACH. THE EXPERIMENTAL RESEARCH PROGRAM IS ALSO BEING PREPARED ON SUCH SUBJECTS AS CONTAINMENT SYSTEM DESIGN STUDIES, SODIUM TECHNOLOGY AND FUEL DEVELOPMENT.

*R AND D PROGRAM + JAPAN + REACTOR, LMFBR

18-30609

ALSO IN CATEGORIES 11 AND 12
SEFOR FSAR VOL. I - REACTOR DESCRIPTION
GENERAL ELECTRIC CO.

293 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT VOL. 1, JULY 21, 1967,
DOCKET 50-231

CONTAINS SECTIONS ON SUMMARY DESCRIPTION, SITE, REACTOR, COOLANT SYSTEM, SHIELDING, CONTAINMENT, SAFEGUARDS WASTE CONTROL, AND INSTRUMENTATION. A 20-MWT SODIUM-COOLED FAST-BREEDER PU02-U23802 FUELED EXPERIMENTAL REACTOR TO GAIN EXPERIENCE WITH SUCH REACTORS AND PARTICULARLY THE DOPPLER COEFF. AND ITS EFFECT ON REACTOR RESPONSE. CONTROLLED BY 10 MOVABLE NICKEL REFLECTORS AND 18 FIXED B4C RODS. CONTAINMENT BY STEEL-LINED REINFORCED-CONCRETE BARRIER SURROUNDED BY WELDED A-212B STEEL VESSEL. SODIUM INLET TEMP., 700 F, OUTLET TEMP., 820 F AT 5000 GPM. DELTA P IN MAIN LOOP, 31-PSI. PUMP DISCHARGE, 55 PSIG. SAFEGUARDS INCLUDE CONTAINMENT INERTING SAFETY VESSEL OF STEEL AROUND REACTOR VESSEL, 4 COOLANT SYSTEMS, AND CORE DISPERSION ASSEMBLY TO PREVENT CRITICAL MASS IF CORE AND VESSEL DISASSEMBLE.

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

CONTAINMENT ATMOSPHERE, INERT + CONTAINMENT DESIGN + ENGINEERED SAFETY FEATURE + REACTOR STABILITY + DOPPLER EFFECT + REPORT, SAR + ARGON + REACTOR, LMFBR + *DOPPLER COEFFICIENT + WASTE MANAGEMENT + PLUTONIUM DIOXIDE + *REACTOR DESCRIPTION + CORE COMPONENTS + *SEFOR (RE) + CONTAINMENT, MULTIPLE + SYSTEM DESCRIPTION + REACTOR, LMCR + MAIN COOLING SYSTEM + NITROGEN + R AND D PROGRAM + EXPERIMENT, GENERAL + SHIELDING + FUEL ELEMENT + SODIUM + SITING, REACTOR + PRESSURE VESSEL + INSTRUMENT, CONTROL

18-30610

ALSO IN CATEGORIES 2 AND 11
SUPPLEMENT 3 TO PSAR - ADDITIONAL INFORMATION TO AEC QUESTIONS IN SUPPLEMENT 1
NIAGARA MOHAWK POWER CORPORATION

24 PAGES, AMENDMENT 3 TO EASTON LICENSE APPLICATION (SUPPL. 3 TO PSAR), APRIL 16, 1968, DOCKET 50-300, TYPE--BWR, MFG--G.E., AE--STONE + WEBSTER

BRIEF INFORMATION CONCERNING MAXIMUM PROBABLE FLOOD, RESPONSE OF UPSTREAM DAMS, EARTHQUAKE ACCELERATION RESPONSE SPECTRA, AEC DESIGN CRITERION 35 ON BRITTLE FRACTURE OF REACTOR COOLANT PRESS. BOUNDARY, VESSEL STUB TUBES, RESIDUAL HEAT REMOVAL SYSTEM, TRITIUM, TORNADO EMERGENCY POWER, SAFETY SYSTEM, CLEANUP SYSTEM, AND SEISMIC ANALYSIS.

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

DESTRUCTIVE WIND + COOLING, SHUTDOWN + REPORT, PSAR + ACCELERATION + EARTHQUAKE + PRESSURE VESSEL + PIPING + EARTHQUAKE ENGINEERING + EMERGENCY POWER, ELECTRIC + FLOOD + TRITIUM + RESPONSE SPECTRUM + *AEC QUESTION + EASTON (BWR) + AEC DESIGN CRITERIA + BRITTLE FRACTURE + REACTOR, BWR + CONTROL ROD DRIVE + WELDING + REACTOR SAFETY SYSTEM + AUXILIARY COOLING SYSTEM

18-30626

ALSO IN CATEGORY 14
RADIOACTIVE LIQUID RELEASE AND REVISIONS TO PSAR
COMMONWEALTH EDISON COMPANY

15 PAGES, FIGURES, TABLES, AMENDMENT 8 TO ZION 1 AND 2 LICENSE APPLICATION, MAY 3, 1968, DOCKETS 50-295/304,
TYPE--PWR, MFG--WEST., AE--SGT + LUNDY

NEW INFORMATION ON ACCIDENTAL RELEASE OF RADIOACTIVE LIQUIDS DISCUSSES DESIGN OF SYSTEMS AND COMPONENTS TO HANDLE SUCH LIQUIDS. REVISED PAGES CONTAIN INFORMATION CONFIRMING MATTERS DISCUSSED AT MEETING WITH ACRS ON APRIL 17, 1968, CONCERNING R AND D PROGRAM, EMERGENCY COOLING SYSTEM, ROD-BURST PROGRAM, CONTAINMENT SPRAY, AND AUXILIARY ELECTRICAL.

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

SYSTEM CAPACITY + *WASTE MANAGEMENT + REACTOR, PWR + ZION 2 (PWR) + CONTAINMENT DESIGN + REPORT, PSAR + FAILURE, FUEL ELEMENT + CONTAINMENT STRUCTURE + GENERATOR, ENGINE + ZION 1 (PWR) + *WASTE DISPOSAL, LIQUID +

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30626 *CONTINUED*
WASTE TREATMENT, LIQUID + AEC QUESTION

18-30631 ALSO IN CATEGORIES 5 AND 12
EFFECT OF N FROM ACCUMULATIONS ON CORE COOLING DURING LOCA
INDIANA AND MICHIGAN ELECTRIC COMPANY
50315-12 +. 25 PAGES, FIGURES, TABLES, AMENDMENT 8 TO COOK 1 AND 2 LICENSE APPLICATION, OCTOBER 23, 1968,
DOCKETS 50-315/316

THE EFFECTS ON CORE COOLING OF NITROGEN GAS FROM THE EXHAUSTED ACCUMULATORS IS ASSESSED AND INCLUDES A SUMMARY OF ECCS DESIGN EXPECTATIONS, CALCULATIONS THAT DEMONSTRATE THAT THE LOCA DESIGN CRITERIA ARE SATISFIED, EVEN UNDER A HYPOTHETICAL SITUATION WHEN THE ACCUMULATOR NITROGEN FORCES THE WATER FROM THE SYSTEM, AND RESULTS THAT INDICATE THAT THE PROBLEM IS NOT SIGNIFICANT. FINALLY, IT IS SHOWN THAT THE TOTAL CALCULATED METAL-WATER REACTION REMAINS WITHIN EARLIER EXPECTATIONS OF 0.11 EVEN FOR A HYPOTHETICAL WORST PERFORMANCE OF THE ACCUMULATOR NITROGEN.

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

ACCIDENT, CONSEQUENCES + *NITROGEN + ACCIDENT, LOSS OF COOLANT + *HAZARD, RELATIVE + METAL WATER REACTION +
SAFETY ANALYSIS + *EMERGENCY COOLING CONSIDERATIONS + HAZARDS ANALYSIS + *FLOW BLOCKAGE + *HEAT TRANSFER

18-30633 ALSO IN CATEGORIES 5 AND 15
SEFOR FSAR VOL. II - SAFETY ANALYSIS
GENERAL ELECTRIC COMPANY
150 PAGES, FIGURES, TABLES, SEFOR FACILITY DESCRIPTION AND SAFETY ANALYSIS REPORT, VOL. 2, JULY 21, 1967,
DOCKET 50-231

CONTAINS SECTIONS ON AUXILIARY SYSTEMS, EXPERIMENTAL PROGRAM AND EQUIPMENT, CONDUCT OF OPERATIONS, ELECTRIC POWER SUPPLY, AND THE SAFETY ANALYSIS. APPENDICES INCLUDE AN ANALOG MODEL OF SEFOR, RESULTS OF MOCKUP TESTS IN ZPR-3, BLAST SHIELDING AND DESIGN, AND RADIOLOGICAL EFFECTS CALCULATIONS. SAFETY ANALYSIS CONSIDERS THE SAFETY FEATURES FOR OPERATION, POSITIVE REACTIVITY INSERTIONS, AND LOSS OF COOLANT FLOW. THE MHA IS A SUDDEN INCREASE IN POWER DENSITY FOLLOWED BY LOSS OF COOLANT FLOW LEADING TO RAPID FUEL MELTING AND COMPACTION OF CORE INTO A SUPERCRITICAL MASS, WHEREAS THE CONTAINMENT DESIGN CRITERIA IS SUCH THAT IT MEETS A SET OF CONDITIONS MORE SEVERE THAN THOSE PREDICTED FOR THE MHA. THE CALCULATIONAL BASIS FOR RADIOLOGICAL EFFECTS ASSUMES CONDITIONS MORE THAN THOSE FOR THE MHA AND CONTAINMENT CAPABILITY LESS EFFECTIVE THAN THOSE OF THE DESIGN CRITERIA.

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

SIMULATION + SHIELDING + *REACTOR DESCRIPTION + DOPPLER EFFECT + *ANALYTICAL MODEL + SYSTEM CAPABILITY +
ELECTRIC POWER, NORMAL + COMPUTER, ANALOG + ACCIDENT, LOSS OF FLOW + DOSE + TEST, PHYSICS + REPORT, SAR +
ANALOG SIMULATION + OFF SITE + *SEFOR (RE) + ACCIDENT, HYPOTHETICAL + EXPERIMENT, GENERAL + REACTOR, LMCR +
ENGINEERED SAFETY FEATURE + DOPPLER COEFFICIENT + *ACCIDENT ANALYSIS + *SAFETY ANALYSIS + REACTOR, LMFBR +
*HAZARDS ANALYSIS + *SYSTEM DESCRIPTION + ACCIDENT, MAXIMUM CREDIBLE (MCA) + CONTAINMENT DESIGN + MOCKUP + *R
AND D PROGRAM

18-30634 ALSO IN CATEGORIES 1 AND 15
AEC QUESTION - QUAD CITIES 1 AND 2 AND MEDICAL EMERGENCY PLANS
U.S. ATOMIC ENERGY COMMISSION, DIV. REACTOR LICENSING
1 PAGE, LETTER FROM DRL TO COMMONWEALTH EDISON CO., JANUARY 21, 1969, DOCKETS 50-254/265, TYPE--BWR, MFG--
G.E., AE--SGT + LUNDY

REQUESTS MEDICAL PLANS FOR A RADIATION EMERGENCY AND THE EMERGENCY PLAN FOR THE SITE (QUESTION
ONLY - NO ANSWER).

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

RADIATION INJURY TREATMENT + *RADIATION SAFETY AND CONTROL + AEC QUESTION + ADMINISTRATIVE CONTROL + RADIATION
PROTECTION, ORGANIZATION + REACTOR, BWR + RADIOLOGICAL ASSISTANCE + *EMERGENCY PROCEDURE + SAFETY PRINCIPLES
AND PHILOSOPHY + QUAD CITIES 1 (BWR) + QUAD CITIES 2 (BWR)

18-30635
NOTICE OF PROPOSED LICENSE ISSUANCE FOR TRIGA MARK I
U.S. ATOMIC ENERGY COMMISSION
15 PAGES, LETTER FROM DRL TO U.S. GEOLOGICAL SURVEY, DEPT. OF I., JANUARY 13, 1969, DOCKET 50-274

CONTAINS NOTICE AND COPIES OF TECH. SPECS. AND SAFETY EVALUATION.

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

REACTOR, RESEARCH + GEOLOGICAL CONSIDERATION, GENERAL + COLORADO + *APPLICATION FOR AEC LICENSE + TRIGA (RR) +
*SAFETY EVALUATION + LICENSE STATUS + *TECHNICAL SPECIFICATIONS + OPERATING LICENSE PROCESS

18-30636 ALSO IN CATEGORY 2
GEOLOGICAL CONSIDERATIONS
MAINE YANKEE ATOMIC POWER COMPANY

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30636 *CONTINUED*

50309-3+. 50 PAGES, AMENDMENT 4 TO MAINE YANKEE LICENSE APPLICATION, NOVEMBER 15, 1967, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

RESULTS OF STUDIES GIVING DESCRIPTION OF BEDROCK FORMATIONS AND EXTENT OF SCHISTOSITY. BEDROCK JOINTED AT 1 TO 5 FT INTERVALS WITH GRANITE AND PEGMATITES. NO MAJOR FAULTS. OVERBURDEN IS NONSTRATIFIED CLAY - SILT SEDIMENT. SITE IS FAVORABLE GEOLOGICALLY.

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

FAULT + *GEOLOGICAL CONSIDERATION, STRATIGRAPHY + SOIL PROPERTY + *GEOLOGICAL CONSIDERATION, GEOPHYSICAL + *SITING, REACTOR + SITE CRITERIA, EARTHQUAKE + MAINE YANKEE (PWR) + *GEOLOGICAL CONSIDERATION, GENERAL + REACTOR, PWR

18-30637 ALSO IN CATEGORIES 2 AND 11

SEISMICITY ANALYSIS

WESTON GEOPHYSICAL RESEARCH, INC. WESTON, MASS.

50309-2 +. 77 PAGES, FIGURES, TABLES, REFERENCES, AMENDMENT 3 TO MAINE YANKEE LICENSE APPLICATION, SEPT. 26, 1967, DOCKET 50-309, TYPE--PWR, MFG--C.E., AE--STONE + WEBSTER

EVALUATES PAST EARTHQUAKES WHICH HAVE BEEN RECORDED HISTORICALLY AND INSTRUMENTALLY, TO ESTABLISH THE MAXIMUM EARTHQUAKE EXPECTED AT SITE. FACTORS ARE DEPTH OF FOCUS OF EARTHQUAKE, ENERGY RELEASED, TYPE OF EARTH MATERIAL THROUGH WHICH THE SEISMIC WAVES ARE TRANSMITTED, AND GEOLOGICAL ENVIRONMENT. NEAREST EARTHQUAKE WAS IN BRUNSWICK AREA, JANUARY 20, 1881. PLACING EARTHQUAKE AT BRUNSWICK AND ATTENUATING IT TO SITE, RESULTS IN INTENSITY 6 OR A MAXIMUM GROUND ACCELERATION OF .07 TO .075 G. ESTIMATE OF MAXIMUM CREDIBLE EARTHQUAKE BY DOUBLING THE DESIGN ACCELERATION APPEARS TO BE VALID FOR THIS SITE. TSUNAMIS SHOULD HAVE NO MEASURABLE EFFECT ON THIS SITE.

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

EARTHQUAKE PREDICTION + REACTOR, PWR + EARTHQUAKE RECORDS + *SITE CRITERIA, EARTHQUAKE + EARTHQUAKE + EARTHQUAKE EPICENTER + MAINE YANKEE (PWR) + DESIGN CRITERIA + SITING, REACTOR + ANALYTICAL MODEL + *COMPARISON, THEORY AND EXPERIENCE

18-30638

SUPPLEMENT 8 TO PSAR - GUIDE TO PSAR

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

15 PAGES, AMENDMENT 8 TO INDIAN POINT 3 LICENSE APPLICATION, (SUPPL. 8 TO PSAR), DEC. 5, 1968, DOCKET 50-286, TYPE--PWR, MFG--WEST., AE--UNITD ENGR.

CONSISTS OF A GUIDE TO PSAR IN FORM OF PAGES TO BE ADDED AT BEGINNING OF EACH SECTION OF PSAR. NO NEW INFORMATION. EACH SECTION IS LISTED, AND LOCATION OF NEW OR ADDITIONAL INFORMATION IS GIVEN.

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

INDIAN POINT 3 (PWR) + REPORT, PSAR + REACTOR, PWR

18-30639 ALSO IN CATEGORY 1

FINANCIAL QUALIFICATIONS OF CONSOLIDATED EDISON

CONSOLIDATED EDISON COMPANY OF NEW YORK

5 PAGES, AMENDMENT 9 TO INDIAN POINT 3 LICENSE APPLICATION (EXHIBIT A-1), DECEMBER 10, 1968 DOCKET 50-386, TYPE--PWR, MFG--WEST., AE--UNITD ENGR.

SUPPLEMENTARY FINANCIAL INFORMATION - ESTIMATED COST OF CONSTRUCTION IS \$196,928,000.

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

ECONOMIC STUDY + INDIAN POINT 3 (PWR) + *ECONOMICS + REACTOR, PWR

18-30640 ALSO IN CATEGORIES 5 AND 11

INTEGRITY ANALYSIS OF REACTOR VESSEL INTERNALS

JERSEY CENTRAL POWER AND LIGHT COMPANY

13 PAGES, 5 FIGURES, AMENDMENT 12 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

GIVES STRUCTURAL DESIGN CRITERIA, DESCRIPTION OF STRUCTURAL COMPONENTS, AND AN ANALYSIS OF EACH FOR RECIRCULATION-LINE AND STEAM-LINE BREAK. CONCLUDES THAT IN THE REAL WORLD THE PROBABILITY OF A SMALL BREAK IS MUCH GREATER THAN THE MAX. DESIGN BREAK AND THAT THE CORE STRUCTURAL ANALYSIS HAS CONSERVATISM PILED UPON CONSERVATISM, AND STILL THE STRUCTURE CAN BE SHOWN BY RATIONAL ANALYSIS TO WITHSTAND THE ACCIDENT CONDITIONS AND ACCIDENT LOADING. COMPONENTS ANALYZED - LOWER SHROUD AND SUPPORT CORE, UPPER SHROUD, CORE SUPPORT PLATE, GUIDE TUBES, AND FUEL CHANNELS.

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

SYSTEM CAPABILITY + REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + *STRUCTURAL ANALYSIS, DYNAMIC + RELIABILITY ANALYSIS + PRESSURE VESSEL + *STRUCTURAL INTEGRITY + *CORE COMPONENTS + OYSTER CREEK 1 (BWR) + ACCIDENT, STEAM LINE RUPTURE + SAFETY ANALYSIS + FUEL ELEMENT + STRESS ANALYSIS + DESIGN CRITERIA + SYSTEM OPERABILITY IN ACCIDENT + SUPPORT STRUCTURE + ACCIDENT ANALYSIS + RELIABILITY, COMPONENT

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30641 ALSO IN CATEGORIES 11 AND 12
CORE SPRAY FINAL DESIGN - PERFORMANCE EVALUATION
JERSEY CENTRAL POWER AND LIGHT COMPANY
7 PAGES, 4 FIGURES, AMENDMENT 30 TO OYSTER CREEK 1 LICENSE APPLICATION, DECEMBER 4, 1967, DOCKET 50-219, TYPE--
BWR, MFG--G.E., AE--BURNS + ROE

TO IMPROVE FLOW DISTRIBUTION OF CORE SPRAY SYSTEMS, A LOW VELOCITY SPRAY DISTRIBUTOR WAS ADDED TO CORE SPRAY TEST SECTION MOCKUP AND TEST RESULTS PROVED VERY FAVORABLE. THIS ARRANGEMENT ADOPTED AS FINAL DESIGN AND REPLACES THAT REPORTED IN AMEND. 10. SINCE THIS AFFECTS ONLY SPRAY DISTRIBUTION AND NOT OTHER PARAMETERS, PERFORMANCE EVALUATION PRESENTED IN AMENDMENT 10 REMAINS UNCHANGED.

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

*FLOW DISTRIBUTION + OYSTER CREEK 1 (BWR) + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, BWR + ENGINEERED SAFETY FEATURE + CORE SPRAY

18-30642 ALSO IN CATEGORIES 9 AND 11
REACTOR VESSEL REPAIR - FINAL REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
25 PAGES, FIGURES, TABLES, AMENDMENT 35 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 21, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DURING FIELD HYDROSTATIC TEST OF PRESSURE VESSEL A SMALL LEAK EMANATED FROM A AREA NEAR A CONTROL ROD DRIVE HOUSING. THE PRIMARY SYSTEM INCLUDING VESSEL WAS CHEMICALLY CLEANED AND PERSONNEL SENT INTO VESSEL TO INVESTIGATE THE SOURCE OF LEAK. DYE PENETRANT EXAMINATION REVEALED LEAK WAS RESULT OF WELDING FLAWS AND INCOMPLETE FUSION IN WELD MADE TO JOIN CONTROL ROD DRIVE HOUSING TO STUB TUBE. THIS REPORT CONTAINS RESULTS OF INVESTIGATIONS PERFORMED, SUMMARY OF BASIC DATA OBTAINED, CONCLUSIONS REACHED AND DESCRIPTION OF REPAIR PROGRAM ADOPTED TO RETURN VESSEL TO DESIGN CONDITION.

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

*CONTROL ROD DRIVE + FAULT + *SUPPORT STRUCTURE + *PRESSURE VESSEL + OYSTER CREEK 1 (BWR) + FAILURE, GENERAL + CONTAINMENT INTEGRITY + CONTAINMENT PENETRATION, GENERAL + REVIEW + *MAINTENANCE AND REPAIR + MAIN COOLING SYSTEM + FAILURE, FABRICATION ERROR + REACTOR, BWR + *WELDING + WELDS + FLAW + FAILURE, INSTALLATION ERROR

18-30643 ALSO IN CATEGORIES 2 AND 11
PRESSURE VESSEL DESIGN REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY
100 PAGES, FIGURES, TABLES, AMENDMENT 16 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 15, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DETAILED REPORT. GIVES DESIGN REQUIREMENTS, THOROUGH REPORT OF TENSILE TESTS OF THE SA302B STEEL SPECIMENS. GIVES REPRODUCTION OF THE VESSEL PURCHASE SPECIFICATION, 24 SEPARATE INSPECTION REPORTS FOR VESSEL AND COMPONENTS, EQUATIONS AND ANALYSIS OF THE ALLOWABLE STRESS LOADS WHICH MAY BE APPLIED TO PIPING, AND A REPORT INCLUDING ALL ASPECTS OF THE SEISMIC ANALYSIS OF THE VESSEL, INCLUDING RING SUPPORTS AND JET LOADS.

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

EARTHQUAKE ENGINEERING + COMPONENTS, MISCELLANEOUS + *CORE COMPONENTS + PIPING + *PRESSURE VESSEL + INFORMATION RETRIEVAL + STRESS ANALYSIS + *DESIGN CRITERIA + HYDRODYNAMIC ANALYSIS + EXAMINATION + MAIN COOLING SYSTEM + *DESIGN STUDY + OYSTER CREEK 1 (BWR) + SYSTEM DESCRIPTION + REACTOR, BWR + CODES AND STANDARDS + ADMINISTRATIVE CONTROL + CONTAINMENT VESSEL LOADING

18-30644 ALSO IN CATEGORIES 1 AND 11
VESSEL REPAIR - ADDITIONAL INFORMATION
JERSEY CENTRAL POWER AND LIGHT CO.
50 PAGES, FIGURES, TABLES, AMENDMENT 37 TO OYSTER CREEK 1 LICENSE APPLICATION, MAY 1, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

SEE ALSO AMEND. 35 (FINAL REPORT) AND AMEND. 36 (REPAIR PROCEDURES). CONCLUSIONS OF THIS AMEND. ARE - SAFETY EVALUATIONS COMPONENTS OR WELDS SHOW STUB TUBE FLAWS WOULD PROPAGATE TO OTHER VESSEL COMPONENTS. A COMPREHENSIVE TEST AND ANALYTICAL PROGRAM HAS BEEN UNDERTAKEN TO DETERMINE CAUSES OF DEFECTS. TO DATE A SPECIFIC FAILURE CAUSE HAS NOT BEEN IDENTIFIED. STRESS CALCULATIONS HAVE BEEN MADE TO EVALUATE ACCEPTABILITY OF PROPOSED REPAIRS FOR 40-YEAR LIFETIME OF PLANT. CONCLUSIVE CALCULATIONAL RESULTS SHOW DESIGN FULLY MEETS FATIGUE-LIFE CRITERIA AND ALLOWABLE STRESSES. REPAIR, IN-SERVICE INSPECTION, AND SELECTION OF MATERIALS WITH RESPECT TO BRITTLE FRACTURE PROTECTION -- ALL CONTRIBUTE TO ACCEPTABILITY OF VESSEL FOR LIFETIME OF PLANT.

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

*PRESSURE VESSEL + CONTAINMENT INTEGRITY + FLAW + WELDING + *MAINTENANCE AND REPAIR + CONTROL ROD DRIVE + WELDS + FAILURE, FABRICATION ERROR + OYSTER CREEK 1 (BWR) + BRITTLE FRACTURE + SAFETY ANALYSIS + CODES AND STANDARDS + REACTOR, BWR + FAULT + FAILURE, INSTALLATION ERROR + TESTING + SUPPORT STRUCTURE

18-30645 ALSO IN CATEGORIES 9 AND 11

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30645 *CONTINUED*

PRESSURE VESSEL REPAIR PROCEDURES

JERSEY CENTRAL POWER AND LIGHT CO.

30 PAGES, AMENDMENT 36 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 27, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CONTAINS DETAILED PROCEDURES FOR REPAIRING THE FAULTY WELDS JOINING CONTROL-ROD-DRIVE HOUSING TO STUB TUBES (SEE AMEND. 35 FOR COMPLETE REPORT).

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

REACTOR, BWR + FAILURE, INSTALLATION ERROR + FAULT + *SUPPORT STRUCTURE + FAILURE, FABRICATION ERROR + OYSTER CREEK 1 (BWR) + *WELDS + CONTAINMENT INTEGRITY + *PROCEDURES AND MANUALS + FLAW + *PRESSURE VESSEL + *MAINTENANCE AND REPAIR + WELDING + *CONTROL ROD DRIVE

18-30646 ALSO IN CATEGORIES 1 AND 11

PLANT QUALITY ASSURANCE REPORT

JERSEY CENTRAL POWER AND LIGHT COMPANY

20 PAGES, FIGURES, TABLES, AMENDMENT 27 TO OYSTER CREEK 1 LICENSE APPLICATION, DEC. 4, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

DESCRIBES PROGRAM, SYSTEMS REQUIRING SPECIAL EMPHASIS, ORGANIZATION AND RESPONSIBILITIES, AND RECORD-KEEPING.

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

ADMINISTRATIVE CONTROL + *QUALITY ASSURANCE + CONTAINMENT CONSTRUCTION + INFORMATION RETRIEVAL + SAFETY PRINCIPLES AND PHILOSOPHY + ENGINEERED SAFETY FEATURE + CODES AND STANDARDS + CONTAINMENT DESIGN + REACTOR, BWR + OYSTER CREEK 1 (BWR)

18-30647 ALSO IN CATEGORIES 5 AND 6

CORE THERMAL AND HYDRAULIC UNCERTAINTY ANALYSIS

JERSEY CENTRAL POWER AND LIGHT COMPANY

8 PAGES, 5 TABLES, AMENDMENT 9 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PRESENTS STATISTICAL ANALYSIS TO EVALUATE NUMBER OF FUEL RODS PER YEAR EXPECTED TO EXPERIENCE A CRITICAL HEAT FLUX EVENT. ASSUMPTION IS THAT VALUES OF QUANTITIES CONTRIBUTING TO MCHFR ARE DISTRIBUTED NORMALLY ABOUT THEIR NOMINAL VALUES AND ARE MUTUALLY INDEPENDENT VARIABLES. EVALUATION BASED ON OPERATION AT RATED POWER WITH TYPICAL POWER DISTRIBUTION BASED ON THE DESIGN PEAKING FACTORS. RESULTS GIVE PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS AS 4.3 TIMES 10(MINUS 4) FOR GIVEN POWER DISTRIBUTION. IF ONE ASSUMES 1000 INDEPENDENT POWER DISTRIBUTIONS PER YEAR OF OPERATION (ONE POWER CHANGE PER SHIFT), THEN PROBABLE NUMBER OF RODS EXPERIENCING CRITICAL HEAT FLUX EVENTS PER YEAR IS 0.43.

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

REACTOR, BWR + OYSTER CREEK 1 (BWR) + FAILURE, INCIPIENT + HEAT TRANSFER ANALYSIS + PROBABILITY + THEORETICAL INVESTIGATION + ANALYTICAL TECHNIQUE, GENERAL + *HYDRAULIC ANALYSIS + HEAT TRANSFER, BOILING + FAILURE, FUEL ELEMENT + *THERMAL ANALYSIS + TEMPERATURE TRANSIENT + *STATISTICAL ANALYSIS + FUEL BURNUP + *HEAT FLUX, CRITICAL

18-30648 ALSO IN CATEGORIES 5 AND 12

EMERGENCY CORE COOLING EFFECTIVENESS

JERSEY CENTRAL POWER AND LIGHT COMPANY

50 PAGES, FIGURES, TABLES, AMENDMENT 10 TO OYSTER CREEK 1 LICENSE APPLICATION, AUGUST 30, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

PERFORMANCE OF THE CORE SPRAY SYSTEM FOLLOWING POSTULATED LOSS OF COOLANT ACCIDENT IS DESCRIBED AS A FUNCTION OF BREAK SIZE INCLUDING CORE SPRAY DATA COLLECTED ON PROTOTYPE FUEL BUNDLE ASSEMBLIES OVER POWER RANGE OF INTEREST. CONCLUDES THAT CORE SPRAY IS AN EFFECTIVE MEANS OF TERMINATING THE CORE HEATUP TRANSIENT OVER THE COMPLETE SPECTRUM OF LOSS OF COOLANT ACCIDENTS UP TO THE COMPLETE RUPTURE OF THE MAIN RECIRCULATION LINE. PEAK CLAD TEMPS. ACROSS THE BREAK SPECTRUM FOR 1860 MWT OPERATION VARY FROM 1800 F FOR THE 6.22 FT2 DESIGN BREAK TO LESS THAN 1000 F FOR BREAKS BELOW .004 FT2. (OF FUEL RODS PERFORATED BASED ON END EOL BURNUP DISTRIBUTION ARE 20(FOR DESIGN BREAK AND NONE FOR BREAKS UNDER .025 FT2. SYSTEM BY ITSELF CAN EASILY PROTECT CORE FROM MELTING OVER THE BREAK SPECTRUM FROM 0.2 FT2 TO THE 6.22 FT2 DESIGN BREAK.

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

FUEL BURNUP + *CORE SPRAY + *EMERGENCY COOLING CONSIDERATIONS + FUEL MELTDOWN + *ACCIDENT, LOSS OF COOLANT + REACTOR, BWR + OYSTER CREEK 1 (BWR) + *SYSTEM CAPABILITY + FAILURE, PIPE + SYSTEM DESCRIPTION + TEMPERATURE TRANSIENT + CORE MELTDOWN + ENGINEERED SAFETY FEATURE + EMERGENCY SYSTEM

18-30649 ALSO IN CATEGORIES 11 AND 12

STEAM ISOLATION VALVE - ANALYSIS OF OPERABILITY

JERSEY CENTRAL POWER AND LIGHT COMPANY

60 PAGES, FIGURES, TABLES, AMENDMENT 33 TO OYSTER CREEK 1 LICENSE APPLICATION, JANUARY 5, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30649 *CONTINUED*

CONCERNS OPERABILITY OF MAIN STEAM LINE ISOLATION VALVES IN EVENT A MAIN STEAM LINE RUPTURES EXTERNAL TO THE DRYWELL. DOCUMENTS WORK COMPLETED, IN PROGRESS, AND PLANNED, INCLUDING ANALYSIS OF BLOWDOWN ACCIDENT, ANALYSIS OF VALVE CAPABILITY, ANALYSIS OF INTERNAL COMPONENT LOADING UNDER ACCIDENT CONDITIONS, RESULTS OF VALVE TESTS CONDUCTED TO DATE, AND PLANS FOR FURTHER TESTING AT SITE AND OFF SITE. A FINAL REPORT WILL INCLUDE RESULTS OF FULL SCALE MAIN STEAM ISOLATION VALVE TESTS.

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

COMPARISON, THEORY AND EXPERIENCE + REACTOR, BWR + ACCIDENT, STEAM LINE RUPTURE + RELIABILITY, COMPONENT + OYSTER CREEK 1 (BWR) + ON SITE WORK + SAFETY ANALYSIS + PRESSURE VESSEL + *RELIABILITY ANALYSIS + TESTING + OFF SITE + *VALVE + SYSTEM CAPABILITY + TEST, SYSTEM OPERABILITY + TEST, BENCH + BLOWDOWN + CORE COMPONENTS + *SYSTEM OPERABILITY IN ACCIDENT + *CONTAINMENT ISOLATION + ACCIDENT ANALYSIS + CONTAINMENT VESSEL LOADING

18-30650 ALSO IN CATEGORIES 2 AND 16
METEOROLOGICAL - RADIOLOGICAL EVALUATION OF SITE
JERSEY CENTRAL POWER AND LIGHT COMPANY

50 PAGES, FIGURES, TABLES, AMENDMENT 13 TO OYSTER CREEK 1 LICENSE APPLICATION, SEPTEMBER 7, 1967, DOCKET 50-219, TYPE--BWR, MFG--G.E., AE--BURNS + ROE

METEOROLOGICAL DATA FOR FEBRUARY 1966-FEBRUARY 1967 FROM INSTRUMENTED 400-FT TOWER AT SITE IS SUMMARIZED AND ANALYZED. LONG TERM DATA FOR ATLANTIC CITY COMPARED WITH RECENT DATA TO SHOW THAT IT IS REPRESENTATIVE. METHOD OF CALCULATING STACK RELEASE LIMIT IS GIVEN. GAMMA DOSE CALCULATION IS CLOSE TO OBSERVED. INTEGRATED AIR CONCENTRATION CALCULATION GIVES ORDER OF MAGNITUDE VERIFICATION DUE TO LACK OF SENSITIVE MEASUREMENTS IN FIELD. STACK RELEASE LIMIT CALCULATION INCLUDED WHOLE BODY DOSE FROM NOBLE GASES AND INTERNAL DOSE FROM IODINE. CONCLUDES THAT NOBLE GASES DOMINATE AND CONTROL EMISSION LEVEL. MAXIMUM AIR DOSE OF 500 MREM/YEAR AT SITE BOUNDARY EQUALS CONTINUOUS STACK RELEASE RATE OF 0.6 CURIE/SEC. EMISSION OF 2.0 CURIES/SEC OVER ANY TWO DAYS DURING A SEVEN DAY PERIOD WOULD NOT CAUSE DOSE TO EXCEED 100 MILLIREMS IN A WEEK, BASED ON MAXIMUM DOSE RATE FOR WORST METEOROLOGICAL CONDITION SUCH THAT DOSE FOR ONE HOUR DOES NOT EXCEED 2 MILLIREMS. ENVIRONMENTAL MONITORING PROGRAM TO BE CONDUCTED. IF STACK EMISSION EVER REACHES LEVEL THAT IS MEASURABLE IN ENVIRONMENT, MEASUREMENTS WILL PROVIDE A BASIS FOR ADJUSTING PROPOSED STACK LIMIT LONG BEFORE THE EFFECT IN THE ENVIRONMENT IS OF ANY SAFETY CONCERN.

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

MEASUREMENT, GENERAL + *CONTROL, METEOROLOGICAL + *STACK + DOSE + *RADIOACTIVITY RELEASE + SITING, REACTOR + AIRBORNE RELEASE + COMPARISON, THEORY AND EXPERIENCE + *SITE CLIMATOLOGY + CONTAINMENT, GENERAL + REACTOR, BWR + *RELEASE RATE + SETPOINT + *TECHNICAL SPECIFICATIONS + PRECIPITATION + FISSION PRODUCT, VOLATILE + WIND PROFILE + WEATHER, SEVERE + *METEOROLOGY + ACCIDENT ANALYSIS + OYSTER CREEK 1 (BWR) + WIND STATISTICS + MONITOR, STACK + SOURCE, CONTINUOUS + HAZARDS ANALYSIS + OFF SITE + MONITOR, ENVIRONMENTAL

18-30651 ALSO IN CATEGORIES 7 AND 11
SUPPLEMENT 9 TO PSAR - CHARCOAL FILTER

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
6 PAGES, AMENDMENT 10 TO INDIAN POINT 3 LICENSE APPLICATION (SUPPL. 9 TO PSAR), DEC. 27, 1968, DOCKET 50-286, TYPE--PWR, MFG--WEST., AE--UNITED ENGR.

CONTAINS DESCRIPTION OF R AND D PROGRAM FOR CHARCOAL-FILTER PERFORMANCE IN REMOVING METHYL IODIDE FROM CONTAINMENT ATMOSPHERE, PLUS REPLACEMENT PAGES FOR SUPPL. 7.

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

CONTAINMENT FILTERING SYSTEM + FISSION PRODUCT RETENTION + REACTOR, PWR + *R AND D PROGRAM + CHARCOAL + *FILTER + FISSION PRODUCT, IODINE + INDIAN POINT 3 (PWR) + *ORGANIC IODIDE + REPORT, PSAR

18-30652 ALSO IN CATEGORIES 2 AND 14

AEC QUESTIONS ON SHOREHAM
DIVISION OF REACTOR LICENSING

28 PAGES, LETTER FROM DRL TO LONG ISLAND LIGHT CO., JANUARY 21, 1969, DOCKET 50-322

CONTAINS LIST OF 127 QUESTIONS (NO ANSWERS) ENCOMPASSING SUBJECTS OF PSAR, DESIGN INNOVATIONS FOR MIXING AND PROCESSING OF POST ACCIDENT EFFLUENTS, AND INFLUENCE OF AIRPORT PROXIMITY. ALSO CONFIRMS SHOREHAM CONSTRUCTION DELAY AND INCREASE IN DESIGN POWER.

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

AEC QUESTION + SHOREHAM (BWR) + WASTE TREATMENT, GENERAL + SITING, REACTOR + WASTE MANAGEMENT + REACTOR, BWR

18-30653
BOLSA ISLAND LICENSE APPLICATION WITHDRAWAL

AEC DIVISION OF REACTOR LICENSING

2 PAGES, LETTER FROM DRL TO DEPT. OF W AND P, CITY OF LOS ANGELES, JAN. 2, 1969, DOCKET 50-307

AEC APPROVES WITHDRAWAL OF LICENSE APPLICATION.

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

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-30653 *CONTINUED*
REACTOR, DESALINATION + APPLICATION FOR AEC LICENSE + *DECOMMISSIONING + *BOLSA ISLAND

18-31448 ALSO IN CATEGORY 5
KIRSCHLER LH + HILTZ RH + RODGERS SJ
THE EFFECT OF HIGH TEMPERATURE SODIUM ON THE MECHANICAL PROPERTIES OF CANDIDATE ALLOYS FOR THE LMFBR PROGRAM
MSA RESEARCH CORPORATION, PA.
MSAR-68-135 +. 100 PAGES, 37 FIGURES, 13 TABLES, SEPTEMBER 1968

THREE LOOPS (ONE OPERATING, ONE EVALUATING A CARBON METER), FOUR RETORTS (ALL USED IN SCREENING TESTS). 500-HR HIGH-TEMPERATURE OPERATION OF 304 AND 316 SS COMPLETED, CREEP RUPTURE TESTING BEGUN. PRELIMINARY DATA INDICATE 50% REDUCTION IN 1400 F RUPTURE LIFE, COMPARED WITH 1200 F. A CHANGE IN OXIDATION MECHANISM SUGGESTED.

REACTOR, LMFBR + REACTOR, LMCR + COOLANT CHEMISTRY + *CREEP BEHAVIOR + *STEEL, STAINLESS + R AND D PROGRAM + SODIUM + *INSTRUMENT, COOLANT QUALITY + OUT OF PILE LOOPS AND EXPERIMENTS + PIPING + PROPERTY, PHYSICAL + ALLOY + METAL

18-32317 ALSO IN CATEGORY 17
CHANGES IN U OF ILLINOIS ADVANCED TRIGA
UNIVERSITY OF ILLINOIS
7 PAGES, 1 FIGURE, LETTER TO D.J. SKOVHOLT, DRL, FEBRUARY 21, 1969, DOCKET 50-151

ADDITIONS. (A) RADIATION ALARMS WILL RING IN CAMPUS POLICE STATION WHEN NO ONE AT REACTOR. (B) AIRTIGHT PIPING TUNNEL HAS A PRESSURE RELIEF IN CASE OF PIPE RUPTURE (TO ENSURE INTEGRITY SO WATER REMAINS 26 IN. ABOVE TOP CORE GRID PLATE). ***CLARIFICATIONS. (A) STARTUP CHAMBER AUTOMATICALLY MOVED BY LOG-N READING. (B) PRIMARY COOLANT DP CELL OPERATES FLOW INDICATOR AND FLOW SWITCH FOR SCRAM. ***CHANGES: (A) FILTERS AND FLOW METER ADDED TO PRIMARY MAKEUP PIPE, WATER SOFTENER DELETED. (B) FLOW CALIBRATION WILL BE BY ORIFICE PLATE RATHER THAN BY VOLUME.

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

INSTRUMENT, STARTUP RANGE + PRESSURE RELIEF + COOLANT PURIFICATION SYSTEM + *POWER UPGRATING + INSTRUMENT, FLOW + *MODIFICATION, SYSTEM OR EQUIPMENT + TRIGA (RR) + REACTOR, RESEARCH + INSTRUMENT CALIBRATION + ACCIDENT, LOSS OF COOLANT + MONITOR, AREA

18-32542 ALSO IN CATEGORY 5
WOODFIELD FW
FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, OCTOBER 1967
BATTELLE NORTHWEST
BNWL-615 +. 38 PAGES, 3 REFERENCES, NOVEMBER 10, 1967

FUEL FAILURE ACTIVITY IN THE EX-REACTOR PORTION WILL EXCEED CRUD ACTIVITY BY FACTOR OF 10 (DETAILS IN BNWL-5851). LIQUID NA SAMPLING TOPICAL REPORT IS BNWL-491. ***TA RESISTANCE HEATER WAS OPERATED AT 10(6TH) BTU/HR-FT² IN 300 F WATER. ***CONCEPTUAL STUDIES ON NOZZLE SEAL CLEARANCE PROGRESS. ***FUEL CLAD IRRADIATION SAMPLES HAVE BEEN SENT TO EBR-**. ***CONSTRUCTION COMPLETED ON POSTIRRADIATION CREEP-RUPTURE TEST DEVICE. ***UNIRRADIATED SERPENTINE DOES NOT LOSE WATER OR HYDROGEN ON CONTACT WITH 930 F SODIUM, ALTHOUGH IT COULD NOT BE KEPT IN CONTACT FOR LONG.

AVAILABILITY - F.W. WOODFIELD, BATTELLE-NORTHWEST, RICHLAND, WASH.

R AND D PROGRAM + CREEP + REACTOR, FAST + *CRUD + *ACTIVITY BUILDUP + *SAMPLING + *COOLANT QUALITY + TEST, PROOF + REACTOR, LMFBR + THERMAL INSULATION + REACTOR, TEST + FFTF (TR) + *FAILURE, FUEL ELEMENT + REACTOR, LMCR

18-32543 ALSO IN CATEGORY 5
WOODFIELD FW
FAST FLUX TEST FACILITY DEVELOPMENT MONTHLY PROGRESS REPORT, MAY 1968
BATTELLE NORTHWEST
BNWL-803 +. 46 PAGES, 11 FIGURES, 2 TABLES, JUNE 10, 1968

SODIUM-METHANE REACTION RATE IS PRIMARILY DEPENDENT ON GAS VOLUME. ***CR-51 WAS FOUND DOWNSTREAM OF THE IRRADIATED 304-SS PIECE IN THE TEST LOOP. ACTIVITY DROPOFF COINCIDED WITH STEP CHANGE IN VELOCITY. ***EBR-II 304-SS ROD THIMBLE VOLUME INCREASED AS MUCH AS 1.17% FOLLOWING 4.8 X 10²²ND NVT AT 792 F. ***CYCLIC STRAIN ALLOWED BY ASME CODE NOT CONSERVATIVE FOR IRRADIATED 304-SS AT 1200 F BECAUSE THE MANSION-HALFORD RELATIONSHIP INDICATES SHORTER FATIGUE LIFE FOR CONDITIONS CAUSING FAILURE IN 30,000 OR MORE CYCLES.

AVAILABILITY - F.W. WOODFIELD, BATTELLE-NORTHWEST, RICHLAND, WASH.

REACTOR, TEST + *EXPANSION + CRUD + *STEEL, STAINLESS + REACTOR, LMFBR + FAST NEUTRON + REACTOR, LMCR + *RADIATION DAMAGE + IRRADIATION TESTING + R AND D PROGRAM + FFTF (TR) + CODES AND STANDARDS + REACTOR, FAST + FAILURE, FATIGUE

18-32631
REPORT ON INDIAN POINT 3 CONSTRUCTION PERMIT APPLICATION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32631 *CONTINUED*

2 PAGES, LETTER - ACRS TO AEC, JANUARY 15, 1969, DOCKET 50-286, TYPE--PWR, MFG--WEST., AE--UNITD ENGR.

RECOMMENDS CONSTRUCTION BUT INDICATES CONCERN FOR EFFECTS OF THERMAL SHOCK ON REACTOR VESSEL CAUSED THE ECCS OPERATION, CONTAINMENT CAVITY FLOODING FEASIBILITY, EFFECT OF VESSEL SPLIT MECHANICAL FORCES ON VESSEL CAVITY WALL, HYDROGEN BUILDUP FROM LOCA, REFUELING ACCIDENT CONSEQUENCES, CROSS CONNECTION OF EMERGENCY POWER SOURCE AND LOADS AT THE MULTIPLE REACTOR SITE, MISSILE PROTECTION, AND QUALITY ASSURANCE.

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

INDIAN POINT 3 (PWR) + *ACRS + REACTOR, PWR + *CONSTRUCTION PERMIT PROCESS + APPLICATION FOR AEC LICENSE

18-32632

REPORT ON SEFOR OPERATING LICENSE APPLICATION

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

2 PAGES, LETTER - ACRS TO AEC, MARCH 13, 1969, DOCKET 50-239

ACRS RECOMMENDS OPERATION UP TO 20 MWT BUT INDICATES CONCERN FOR PROVISIONS TO PROTECT CORE INTEGRITY AGAINST PRIMARY LEAKS, INADEQUACY OF SIPHON BREAKER, GUIDELINES FOR ACTIONS IN EVENT OF ANOMALOUS REACTIVITY ON COOLANT TEMPS, COOLANT MONITORING TECHNIQUES AND FREQUENCY, BASES AND ACCEPTABILITY OF CONTINUED OPERATION IN PRESENCE OF KNOWN LOSS OF FUEL CLAD INTEGRITY.

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

REACTOR, LMCR + SEFOR (RE) + REACTOR, LMFBR + *APPLICATION FOR AEC LICENSE + *OPERATING LICENSE PROCESS + REACTOR, FAST + REACTOR, PULSED + *ACRS

18-32639

REQUEST FOR ADDITIONAL INFORMATION

U.S. ATOMIC ENERGY COMMISSION

4 PAGES, LETTER - DRL TO FLORIDA POWER CO., MARCH 13, 1969, DOCKET 50-302, TYPE--PWR, MFG--B+W, AE--GILBERT ASSOC.

CONTAINS LIST OF 10 AEC QUESTION ON R AND D PROGRAM, SEISMIC AND BLOWDOWN FORCES, THERMAL SHOCK, HURRICANE EFFECTS, FAN COOLERS, QUALITY ASSURANCE, AND CONTAINMENT REDESIGN.

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

*AEC QUESTION + CRYSTAL RIVER 3 (PWR) + REACTOR, PWR

18-32648

REPORT ON CALVERT CLIFFS 1 AND 2 CONSTRUCTION PERMIT APPLICATION

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

4 PAGES, LETTER - ACRS TO AEC, MARCH 13, 1969, DOCKETS 50-317/318, TYPE--PWR, MFG--COMB., AE--BECHTEL

TWO PWRS TO BE CONSTRUCTED - SIMILAR TO MAINE YANKEE - EACH AT 2440 MWT WITH STRETCH TO 2700. ACRS CONCERNED WITH: PROTECTION OF PLANT AGAINST EARTHQUAKES, HURRICANES, WAVE RUNUP, AND TORNADOES, TORNADO PROTECTION FOR FUEL STORAGE POOL CONTINUING. LOCATION OF COOLING WATER INTAKE AND OUTFALL - JUSTIFICATION OF USE OF PARAMETERS LESS RESTRICTIVE THAN TID-14844 - METAL-WATER REACTION - POTENTIAL MISSILE SOURCE FROM MAIN COOLANT PUMP FLYWHEEL - QUALITY ASSURANCE - AND INSERVICE INSPECTION REQUIREMENTS. RECOMMENDS CONSTRUCTION.

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

*CONSTRUCTION PERMIT PROCESS + CALVERT CLIFFS 1 (PWR) + REACTOR, PWR + *ACRS + *APPLICATION FOR AEC LICENSE + CALVERT CLIFFS 2 (PWR)

18-32655

ALSO IN CATEGORIES 12 AND 13

HAGINOYA T

PRESENT STATUS OF RESEARCH AND DEVELOPMENT ON SAFEGUARDS TECHNIQUES

5 PAGES, NIPPON GENSHIYOKU GAKKAISHI, 10, PAGES 502-506 (SEPT. 1968) (IN JAPANESE)

THE DEVELOPMENT OF SAFEGUARDS TECHNIQUES INCREASES IN IMPORTANCE WITH THE WIDENING PRACTICAL APPLICATION OF NUCLEAR POWER GENERATION. THE MOST EFFECTIVE MANNER OF APPLYING SAFEGUARDS MEASURES IS TO COVER THE ENTIRE FUEL CYCLE, WITH INSPECTIONS CONDUCTED ON THE KEYPOINTS OF THE FUEL CYCLE. THE SUCCESS OF SUCH A PROCEDURE DEPENDS ON IMPROVEMENTS IN AVAILABLE SAFEGUARDS TECHNIQUE. DEVELOPMENTS IN THE DOMAIN MUST BE PURSUED ALONG TWO LINES - INSTRUMENTATION AND SYSTEMS. IN EVERY CASE, THE STRATEGIC POINT IS THE REPROCESSING PLANT AND NOT THE NUCLEAR REACTOR ITSELF.

SAFETY PRINCIPLES AND PHILOSOPHY + *R AND D PROGRAM + *FUEL REPROCESSING + *ENGINEERED SAFETY FEATURE + FUEL HANDLING

18-32656

ALSO IN CATEGORY 6

BILLURIS G + PFLASTERER R + WOLFE B

THE SEFOR EXPERIMENTAL PROGRAM AND ITS INFLUENCE ON REACTOR DESIGN

CATEGORY 18
SAFETY ANALYSIS AND DESIGN REPORTS

18-32656 *CONTINUED*

GENERAL ELECTRIC CO., SUNNYVALE, CALIF.

CONF-670916 +. 10 PAGES, PP. VI8.1-9 OF PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DESCRIBES THE PROPOSED SEFOR EXPERIMENTAL PROGRAM, THE APPROACH TO ANALYSIS OF THE EXPERIMENTAL DATA; AND THE VARIOUS FEATURES INCORPORATED INTO SEFOR TO OBTAIN HIGH QUALITY EXPERIMENTAL RESULTS, AND THE APPROACH PLANNED TO ENSURE REACTOR SAFETY DURING THE TRANSIENT TESTS.

*R AND D PROGRAM + REACTOR, PULSED + *SEFOR (RE) + REACTOR, LMFBR + REACTOR DESCRIPTION + REACTOR, FAST + REACTOR, LMCR + REACTOR DYNAMICS + *TESTING

18-32659 ALSO IN CATEGORY 6

LEIPUNSKII AI + KAZATCHKOVSKII OD + ZIZIN MN + NIKOLSKII RV

SAFETY PROBLEMS IN THE DESIGN OF LARGE PLUTONIUM-FUELED FAST REACTORS

COMMITTEE OF ATOMIC ENERGY MOSCOW

CONF-670916 +. 9 PAGES, PP. IIA4.1-8 OF PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, AIX-EN-PROVENCE, SEPTEMBER 19-22, 1967

DESCRIBES A THEORETICAL ANALYSIS OF THE NA AND DOPPLER COEFFICIENTS FOR PU-FUELED FAST POWER REACTORS. THE RELATIVE SAFETY OF THESE REACTORS IS EVALUATED. EFFECTS OF NA REMOVAL AND K-EFF ARE SHOWN AS A FUNCTION OF TEMPERATURE.

*THEORETICAL INVESTIGATION + *TEMPERATURE REACTIVITY EFFECT + *DOPPLER COEFFICIENT + REVIEW + SODIUM + PLUTONIUM + USSR + REACTOR, FAST + REACTIVITY COEFFICIENT + SAFETY PRINCIPLES AND PHILOSOPHY

CATEGORY 19
BIBLIOGRAPHIES

19-30566 ALSO IN CATEGORY 5
ACHENER PY + MACKIEWICZ DY + CAMP DC
THERMOPHYSICAL AND HEAT TRANSFER PROPERTIES OF ALKALI METALS
AEROJET-GENERAL CORPORATION
AGN-8195-VOL. II. *. 387 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

SELECTED DATA FROM EXISTING LITERATURE GIVEN (NOT A TEXT BOOK). EMPIRICAL AND THEORETICAL SOLUTIONS ARE RECOMMENDED IF THEY HAVE BEEN REASONABLY VERIFIED. SOME RESULTS DEVELOPED BY ANALYTICAL METHODS ARE INCLUDED. CONTAINS EXTENSIVE LIST OF REFERENCES AND CONVERSION FACTORS. TITLES OF SECTIONS ARE - FORCED-CONVECTION HEAT TRANSFER WITH LAMINAR FLOW, WITH TURBULENT FLOW, TO FLUID OUTSIDE OF TUBES, PLUS BOILING HEAT TRANSFER, CONDENSING HEAT TRANSFER, AND CONVERSION FACTORS.

AVAILABILITY - P.Y. ACHENER, AEROJET-GENERAL CORPORATION, NUCLEAR DIVISION, SAN RAMON, CALIFORNIA

METAL + HEAT TRANSFER, CONDENSATION + HEAT TRANSFER ANALYSIS + *BIBLIOGRAPHY + *THERMAL PROPERTY + HEAT TRANSFER, CONVECTION + *HEAT TRANSFER + ANALYTICAL TECHNIQUE, GENERAL + *PROCEDURES AND MANUALS + FLOW, TURBULENT + EQUATION, GENERAL + CONVECTIVE BOILING + *METAL, ALKALI + MATHEMATICAL TREATMENT + HEAT TRANSFER, BOILING + FLOW, LAMINAR + BOILING + REVIEW

19-32254 ALSO IN CATEGORY 7
IVINS RO
STUDIES OF METAL-WATER AND METAL-STEAM REACTION AND FAST REACTOR SAFETY
ARGONNE NATIONAL LABORATORY, UPTON, NEW YORK
9 PAGES, LIST OF UNCLASSIFIED PUBLICATIONS, JANUARY 1969

JANUARY 1969 LIST OF UNCLASSIFIED PUBLICATIONS.

AVAILABILITY - R. D. IVINS, ARGONNE NATIONAL LABORATORY, 9700 SOUTH CASS AVENUE, ARGONNE, ILLINOIS

SAFETY PROGRAM + *METAL WATER REACTION + REACTOR, FAST + REACTOR SAFETY SYSTEM + REACTOR, WATER + METAL + *STEAM + BIBLIOGRAPHY

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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.

ACCELERATION				6-30575	18-30575		
2-30610	11-30610	18-30610		ACCIDENT, REFUELING			
ACCELERATOR				5-26643	12-26643	18-26643	
9-30240	9-32299	13-31349	17-30240	ACCIDENT, STEAM LINE RUPTURE			
17-32299	17-32640			5-26643	5-30640	11-30290	11-30640
ACCIDENT ANALYSIS				11-30649	12-26643	12-30290	12-30311
1-05231	1-30276	1-30453	1-30796	12-30649	17-30202	17-30290	17-30311
2-30276	2-30416	2-30426	2-30426	18-26643	18-30311	18-30640	18-30649
2-30650	4-29622	4-30796	5-26643	ACCUMULATOR			
5-27303	5-27323	5-29310	5-30199	9-30284	9-30591	17-30284	
5-30258	5-30416	5-30418	5-30426	ACRS			
5-30426	5-30447	5-30633	5-30640	1-30112	2-30420	5-30229	5-30249
5-30796	6-29414	9-30418	11-27303	11-30420	12-30249	17-30112	17-30229
11-29622	11-30410	11-30421	11-30640	17-30249	17-32258	18-30112	18-30229
11-30649	12-26643	12-29310	12-30410	18-30420	18-32631	18-32632	18-32648
12-30649	15-27323	15-30447	15-30633	ACTIVATION ENERGY			
16-30650	17-30199	17-30258	17-30453	5-30707	7-29944	8-30707	11-29944
18-05231	18-26643	18-27303	18-27323	ACTIVITY BUILDUP			
18-30258	18-30276	18-30410	18-30416	5-32542	7-30198	17-30198	17-30211
18-30418	18-30421	18-30426	18-30426	17-30548	18-30211	18-32542	
18-30447	18-30633	18-30640	18-30649	ADMINISTRATIVE CONTROL			
18-30650				1-30634	1-30646	1-31389	2-30643
ACCIDENT MODEL				5-30228	9-32314	11-30643	11-30646
7-29940				15-30291	15-30634	15-30927	15-31389
ACCIDENT, COLD COOLANT				17-30228	17-30280	17-30289	17-30291
9-30208	17-30202	17-30208	17-30306	17-30927	17-32293	17-32305	17-32314
ACCIDENT, CONSEQUENCES				17-32318	18-30634	18-30643	18-30646
2-30420	3-31424	4-29622	5-27323	ADSORPTION			
5-30425	5-30631	7-32645	11-29622	7-30393	7-30467	7-30468	7-30680
11-30420	12-30425	12-30631	15-27323	7-30684	7-32249	13-31409	14-29633
17-32645	18-27323	18-30420	18-30425	14-30402	14-30983	15-31409	
18-30631				AEC DESIGN CRITERIA			
ACCIDENT, CONTROL ROD DROPIN				2-29595	2-30021	2-30610	5-27323
5-26643	5-30204	5-30207	5-30598	11-30021	11-30132	11-30421	11-30610
9-30206	9-30207	9-31249	10-30204	12-27090	12-30132	15-27323	18-27090
10-30598	12-26643	17-30204	17-30206	18-27323	18-29595	18-30021	18-30132
17-30207	17-30598	17-31249	17-31254	18-30421	18-30610		
17-32312	18-26643			AEC QUESTION			
ACCIDENT, CONTROL ROD EJECTION				1-30634	2-30408	2-30414	2-30415
5-30598	10-30598	17-30598		2-30416	2-30417	2-30420	2-30422
ACCIDENT, CONTROL ROD WITHDRAWAL				2-30426	2-30429	2-30610	2-30652
5-30600	6-29301	9-32296	10-32296	5-30406	5-30416	5-30418	5-30425
17-30600	17-32296	18-29301		5-30426	6-30413	9-30413	9-30414
ACCIDENT, CRITICALITY				9-30418	11-27084	11-30323	11-30406
12-30128	15-30128			11-30410	11-30411	11-30412	11-30415
ACCIDENT, DESIGN BASE				11-30417	11-30420	11-30421	11-30423
5-26643	5-27323	7-32645	12-26643	11-30429	11-30610	12-27090	12-30410
15-27323	17-32645	18-26643	18-27323	12-30425	14-27084	14-30626	14-30652
ACCIDENT, GENERAL				15-30634	18-27084	18-27090	18-30209
1-05462	4-29622	7-29008	11-29622	18-30323	18-30406	18-30407	18-30408
12-29008	13-29008	14-31244	15-30401	18-30410	18-30411	18-30412	18-30413
ACCIDENT, HYPOTHETICAL				18-30414	18-30415	18-30416	18-30417
4-29622	5-30633	11-29622	12-30128	18-30418	18-30420	18-30421	18-30422
15-30128	15-30633	18-30633		18-30423	18-30424	18-30425	18-30426
ACCIDENT, LOAD REJECTION				18-30427	18-30429	18-30610	10-30626
5-30204	5-30598	10-30204	10-30598	18-30634	18-30652	18-32639	
17-30201	17-30204	17-30598		AEROSOL			
ACCIDENT, LOSS OF COOLANT				7-29400	7-29407	7-29940	7-29946
5-26643	5-27303	5-27323	5-29310	7-30372	7-30377	7-30382	7-30469
5-30071	5-30249	5-30258	5-30418	7-30470	7-30684	7-30686	7-30686
5-30631	5-30640	5-30648	5-30707	7-32259	7-32260	7-32261	7-32262
7-29008	8-30707	9-30418	11-27050	12-29526	13-29526	14-29526	
11-27303	11-30640	12-26643	12-27050	AEROSOL PRODUCTION			
12-29008	12-29310	12-30249	12-30631	7-29407	7-29946	7-31343	7-32259
12-30648	13-29008	15-27323	17-30249	7-32261			
17-30258	17-32317	17-32637	18-26643	AEROSOL PROPERTIES			
18-27050	18-27303	18-27323	18-30258	7-29407	7-29940	7-29946	7-32259
18-30344	18-30418	18-30631	18-30640	7-32260	7-32262		
18-30648	18-32317			AEROSOL, RADIOACTIVE			
ACCIDENT, LOSS OF FLOW				7-29407			
2-30416	5-30199	5-30204	5-30245	AEROSPACE SAFETY			
5-30416	5-30633	10-30204	15-30633	4-29393	4-29622	4-30072	5-30072
17-30199	17-30204	17-30245	17-30268	11-29622			
18-30416	18-30633			AGGLOMERATE			
ACCIDENT, LOSS OF POWER				7-30470	7-32260	7-32261	7-32262
5-30598	10-30243	10-30598	12-30243	AGN (TNG)			
17-30243	17-30598			9-30240	17-30240	17-30289	17-32313
ACCIDENT, MAXIMUM CREDIBLE (MCA)				17-32330	17-32331		
1-29570	5-30447	5-30633	6-30575	AIR			
15-30447	15-30633	17-32331	18-29570	5-30707	8-30707	15-30104	15-30400
18-30447	18-30575	18-30633		15-30974	15-30978	15-30980	15-31316
ACCIDENT, REACTIVITY				17-30104	17-30978	17-30980	

AIRBORNE RELEASE

1-30926	2-30650	7-29295	7-29940
7-29946	7-30377	7-30475	7-30684
7-31343	7-32256	9-30208	13-30926
14-30462	14-30463	14-30465	14-30475
14-32256	15-30196	15-30279	15-30462
15-30463	15-30465	15-31316	16-30475
16-30650	17-30196	17-30208	17-30279
17-30926	18-27051	18-30650	

ALASKA

15-30968

ALLOY

5-31448	7-29398	7-29591	7-29598
7-29910	9-31412	12-29009	12-29910
12-31412	13-29009	13-29910	13-31412
18-31448			

ALPHA EMITTER

7-30380	7-31343	13-30456	14-29262
14-30461	15-29260	15-29262	15-30456
15-30461	17-29541		

ALPHA FACILITIES

7-31343

ALUMINUM

4-29882	7-29394	7-29398	7-29882
7-30470	17-30266		

AMERICIUM

7-29937 17-29541 17-30897

ANALOG SIMULATION

5-30633 15-30633 18-30633

ANALYTICAL MODEL

2-30637	4-30079	5-29657	5-30633
5-30967	6-29922	6-29923	6-30575
7-29292	7-29405	7-29749	7-29922
7-29923	7-30384	7-31344	7-32253
7-32263	8-29749	9-30079	9-30081
9-30741	9-31240	9-31344	11-30637
11-30967	14-28912	15-30633	17-30967
18-30575	18-30633	18-30637	

ANALYTICAL TECHNIQUE, AIR

7-30680 7-32256 14-32256

ANALYTICAL TECHNIQUE, CALIBRATION

7-29286	7-29395	7-29400	7-29407
7-29410	7-29942	7-30106	7-30372
7-30376	7-30381	7-32250	7-32259
7-32260	7-32262	15-30394	

ANALYTICAL TECHNIQUE, FOOD

14-29028

ANALYTICAL TECHNIQUE, GAS

7-30701

ANALYTICAL TECHNIQUE, GENERAL

5-30566	5-30647	6-30647	9-30093
13-30127	14-30127	15-28676	17-28676
18-30647	19-30566		

ANALYTICAL TECHNIQUE, LIQUID

7-30461

ANALYTICAL TECHNIQUE, WATER

7-30381

ANL

17-30971

ANNULUS

14-30122

APPLICATION FOR AEC LICENSE

18-30635	18-30653	18-32631	18-32632
18-32648			

AQUATIC ORGANISMS

1-30133 14-30135 15-30133 15-30135

ARGON

7-29594	7-30683	9-30683	11-30296
11-30609	12-30609	15-32306	17-30222
17-30234	17-30548	17-32306	17-32331
18-30296	18-30609		

ARGONAUT (TNG)

5-30301 17-30301

ASLB

1-30276	1-30277	2-30276	2-30277
18-30276	18-30277		

ATMOSPHERIC CHEMISTRY

7-30682 14-30682 16-29619

ATMOSPHERIC CIRCULATION, GLOBAL

16-29620

ATMOSPHERIC DIFFUSION

7-29295 14-30108 16-29620

ATMOSPHERIC DIFFUSION, CLIMATOLOGY

7-30475 14-30475 16-30475

ATMOSPHERIC POLLUTION

1-03627	1-05193	1-27062	2-27062
7-30475	7-30682	11-27062	14-30475
14-30682	16-29619	16-30475	

ATR (TR)

5-29314	5-29316	5-29553	17-29314
17-29316			

AUXILIARY COOLING SYSTEM

2-30610	5-27323	10-27532	11-30421
11-30610	14-27532	15-27323	17-30307
17-30570	18-27323	18-27532	18-30421
18-30610			

BALING

14-30973 14-32575

BARIUM

7-29409 15-30969

BATTELLE NORTHWEST

1-29893	13-29892	13-29893	14-29892
15-29893			

BEAM HOLE

9-29978	9-30227	9-30544	9-32307
11-30296	17-29578	17-30227	17-30289
17-30297	17-30544	17-32307	17-32313
17-32316	18-30296		

BEARING

17-29998

BEAVER VALLEY 1 (PWR)

2-29595	5-27323	11-30132	12-30132
15-27323	18-27323	18-29595	18-30132

BELGIUM

13-32862

BERYLLIUM

4-29882	7-29882	7-29909	7-30375
7-30380	13-29909	14-28911	14-30463
15-28911	15-30463	17-30270	17-31328
17-31329			

BETA EMITTER

5-30077	5-30078	7-30380	9-29656
13-30456	14-30461	14-30464	14-30977
15-30456	15-30461	15-30464	15-30977

BETHE TAIT

6-30575 18-30575

BIBLIOGRAPHY

1-30139	3-30101	5-30566	7-30686
7-32254	13-29542	15-29259	15-29651
19-30566	19-32254		

BIG ROCK POINT (BWR)

5-30228	5-30229	5-31248	17-30228
17-30229	17-31248	17-32318	18-30229

BIOLOGICAL CONCENTRATION, AGRICULTURAL PRODUCE

14-30363	15-28676	15-30117	15-30130
15-30363	17-28676		

BIOLOGICAL CONCENTRATION, ALGAE

15-30104 15-30130 17-30104

BIOLOGICAL CONCENTRATION, ANIMAL

14-30977	14-30984	15-30968	15-30969
15-30977			

BIOLOGICAL CONCENTRATION, AQUATIC ORGANISMS

14-28958	15-30109	15-30130	
14-29028	14-30977	14-30984	14-31244
15-30960	15-30960	15-30977	

BIOLOGICAL CONCENTRATION, GENERAL

14-29257	15-28676	15-29257	17-28676
1-05193	13-29279	13-29542	13-30693
14-29028	14-29234	14-29262	14-30363
14-31244	15-29234	15-29262	15-29279
15-30117	15-30362	15-30363	15-30693
15-30968	15-30978	15-31316	15-32578
15-32898	17-30978		

BIOLOGICAL CONCENTRATION, MILK

14-29234	14-30363	15-28676	15-29234
15-30109	15-30117	15-30130	15-30363
15-30969	15-30978	15-30980	15-32578
17-28676	17-30978	17-30980	

BIOLOGICAL CONCENTRATION, VEGETATION

13-30127	14-30127	15-30104	15-30130
15-30974	15-30978	15-30980	15-32578
17-30104	17-30978	17-30980	

BIOMEDICAL

4-29393 15-30401

BIOTA

1-30133 15-30133

BLOWDOWN

5-27303	5-30071	11-27303	11-30649
12-30649	18-27303	18-30649	

BODY CENTERED CUBIC CRYSTAL

5-30967 11-30967 17-30967

BOILING

5-30566 19-30566

BOLSA ISLAND

18-30653

BONUS (ISR)

9-30284 17-30283 17-30284

BORON

6-30392	7-30392	7-31344	9-29676
9-29887	9-30216	9-30586	9-31344

17-29676	17-30216	17-30218	17-30586	15-30968	15-30969	15-31409	15-32898
17-32336				17-30039			
BOUNDARY LAYER				CHAMBER, GAMMA			
4-29384	5-29384			15-30365			
BRITTLE FRACTURE				CHAMBER, ION			
1-30644	2-30610	11-30610	11-30644	9-29978	9-30960	14-30315	15-30126
18-30610	18-30644			15-30696	15-30960	17-29978	
BROMINE				CHARCOAL			
7-30474	13-30474	13-30663	14-30474	5-30350	7-30241	7-30467	7-30468
BROWNS FERRY 3 (BWR)				7-30651	7-30680	7-30684	7-30686
2-30417	11-30417	18-30417		7-32645	11-30350	11-30651	17-30241
BSR (RR)				17-32645	18-30350	18-30651	
5-30447	15-30447	18-30447		CHARCOAL ADSORBER			
BUBBLE				7-30684	7-30686		
7-29287				CHEMICAL KINETICS			
BUBBLE NUCLEATION				1-30578	1-30579	5-30002	5-30707
4-30072	5-30072	5-30077	7-29287	7-29410	7-29749	7-30002	7-30389
9-30089				7-30578	7-30579	7-30682	7-30688
BUCKLING				7-32263	8-29749	8-30707	11-30578
7-29544				11-30579	14-30682		
BUILDING				CHEMICAL PROPERTY			
2-30021	10-27532	11-30021	14-27532	7-30688			
18-27532	18-30021			CHEMICAL REACTION			
BURNOUT HEAT FLUX				5-30002	5-30707	7-29410	7-29749
5-29383	5-30078	5-30964	7-29296	7-30002	7-30682	7-30688	7-32263
9-29296	17-29296	17-30267		8-29749	8-30707	14-29632	14-30120
BYPASS				14-30682	17-30568		
9-30588	10-30588	17-30570		CHEMISORPTION			
BYPRODUCT MATERIAL				7-30468			
1-30250	2-29142	3-30895	13-30246	CHLORIDE			
14-29288	15-29288	15-30246	15-30250	5-30967	5-31246	11-30967	11-31246
15-30279	15-30889	15-30927	15-30928	17-30967	17-31246		
15-30929	16-29142	17-29142	17-29288	CHLORINE			
17-30246	17-30250	17-30279	17-30889	7-32753	13-32753		
17-30895	17-30897	17-30927	17-30928	CHROMATOGRAPHY			
17-30929	17-32634			1-30129	7-29410	7-30384	14-30129
CADMIUM				15-30129			
6-30392	7-30392	9-30586	15-30696	CHROMIUM			
17-30586				7-28504	7-29591	14-30892	
CALCINATION				CIVIL DEFENSE			
12-29526	13-29526	13-31347	14-29526	1-30277	2-30277	18-30277	
14-30118	14-30314	14-30315	14-31347	CLADDING			
CALCIUM				5-30309	7-28987	7-29394	7-29398
14-28958	14-29633	14-30697	14-30983	7-29544	7-29910	7-30113	7-32264
15-30109				7-32855	11-28987	12-29910	12-30113
CALVERT CLIFFS 1 (PWR)				12-32855	13-29910	13-32862	17-29794
5-30406	11-30406	11-30450	18-30406	17-29926	17-30309	17-32264	
18-30450	18-32648			COATED PARTICLE			
CALVERT CLIFFS 2 (PWR)				2-30420	6-29308	7-29285	7-29308
5-30406	11-30406	11-30450	18-30406	7-29409	7-29597	7-30198	7-30686
18-30450	18-32648			7-30758	11-30420	12-30758	17-30198
CANADA				18-30420			
1-30141	1-30143	7-29398	7-29400	COATING			
7-29596	7-29597	9-30745	14-30108	2-30420	11-30420	18-30420	
15-28676	17-28676	17-29578		COATING, SURFACE			
CANDU (HWR)				4-29882	7-29882	17-32333	
17-29578				COBALT			
CARBIDE				7-29410	12-29950	13-29950	13-30039
7-29285	7-29598	7-29944	7-30375	13-32899	14-30695	14-30892	14-30983
9-30216	11-29944	17-30216	17-32336	15-30001	15-30039	15-30196	15-30928
CARBON				15-30929	17-29810	17-30001	17-30039
7-29284	7-29285	7-29409	7-29597	17-30196	17-30928	17-30929	
7-29749	7-30389	7-30393	7-30680	CODES AND STANDARDS			
7-30684	8-29749	14-30464	15-30464	1-30139	1-30644	1-30646	2-30643
CARBON DIOXIDE				3-30791	5-26643	5-30425	5-32543
7-29749	7-30390	8-29749		11-30643	11-30644	11-30646	12-26643
CASK OPERATING EXPERIENCE				12-30425	15-29924	18-26643	18-30425
14-29027	17-29027			18-30643	18-30644	18-30646	18-32543
CATALYST				COLORADO			
13-31958	14-31958			18-30635			
CENTERLINE MELTING				COMMUNICATION SYSTEM			
5-30228	5-30229	5-31442	17-30228	5-30350	11-30350	18-30350	
17-30229	17-31442	18-30229		COMPACTION			
CERAMICS				14-32575			
7-29008	7-29547	7-30375	7-30384	COMPARISON, FACILITIES			
12-29008	13-29008			7-29548	17-29548		
CERIUM				COMPARISON, REACTOR CHARACTERISTICS			
7-29937	7-30473	7-32753	13-32753	1-30446	9-30419	12-27090	18-27090
14-30473				18-30419			
CERT				COMPARISON, THEORY AND EXPERIENCE			
15-32578				1-11410	2-30637	2-30650	5-29389
CERTIFICATION				5-30070	5-30071	5-30074	5-30076
1-29980	1-30171	5-30165	15-29979	6-30529	7-29749	7-29938	8-29749
15-30927	17-28939	17-29979	17-29980	9-29938	9-30585	11-30637	11-30649
17-30163	17-30171	17-30927	18-29980	12-29950	12-30649	13-29950	16-30650
18-30163	18-30165	18-30427		17-30280	17-30529	18-30637	18-30649
CESIUM				18-30650			
7-29591	7-29937	7-30473	7-32253	COMPLIANCE			
13-30039	13-31408	13-31409	14-28958	1-30926	2-29142	3-30895	9-30893
14-29234	14-30473	14-30695	14-30892	12-32303	13-30039	13-30926	15-30039
14-30983	14-30984	15-29234	15-30039	15-30279	15-30889	15-30927	15-30929

16-29142	17-29142	17-29810	17-30039	CONTAINMENT ISOLATION			
17-30215	17-30279	17-30889	17-30893	11-30244	11-30290	11-30649	11-32644
17-30895	17-30897	17-30926	17-30927	12-30290	12-30311	12-30649	15-32306
17-30929	17-32303	17-32332	17-32335	17-30244	17-30290	17-30298	17-30311
17-32637				17-32306	17-32644	18-30311	18-30407
COMPONENTS, MISCELLANEOUS				18-30649			
2-30643	11-30643	18-30643		CONTAINMENT LEAK MONITOR			
COMPUTER CONTROL				5-32646	11-32646	17-32646	
5-32627	9-30088	9-30573	9-32627	CONTAINMENT LINER			
17-30573	17-32627			11-30421	18-30421		
COMPUTER PROGRAM				CONTAINMENT PENETRATION, ELECTRICAL			
4-29622	5-29311	5-29657	5-30258	9-29269	10-29269	17-32294	
6-29311	6-29412	6-29922	6-30114	CONTAINMENT PENETRATION, GENERAL			
6-30454	6-32654	7-29295	7-29547	4-29267	9-29267	9-30642	11-30642
7-29922	7-29937	9-29768	9-29881	18-30642			
9-30088	9-30454	9-30581	9-30581	CONTAINMENT PENETRATION, PIPE			
9-30741	11-29539	11-29622	11-29881	7-29596	11-30244	11-30290	12-30290
12-29539	12-30128	12-32654	14-30135	17-30244	17-30261	17-30250	18-30261
15-30128	15-30135	17-30258	18-30258	CONTAINMENT REFERENCE MEASURING SYSTEM			
COMPUTER, ANALOG				11-30213	17-30213		
5-30633	9-30743	15-30633	18-30633	CONTAINMENT RESEARCH AND DEVELOPMENT			
COMPUTER, DIGITAL				7-32650	11-32650	12-32650	
5-32685	6-30953	6-32685	9-29768	CONTAINMENT SPRAY			
9-29889	9-30083			1-30578	1-30579	7-30578	7-30579
CONCENTRATION, MAXIMUM				7-32249	7-32650	11-30578	11-30579
15-30400				11-32650	12-32650		
CONCRETE				CONTAINMENT STRUCTURE			
5-30350	11-30167	11-30350	11-30450	5-27303	5-30350	5-30406	11-27303
11-31351	14-29632	14-30119	14-30697	11-30323	11-30350	11-30398	11-30406
17-30167	17-30225	18-30350	18-30450	11-30412	11-30450	13-30024	14-30626
CONCRETE, PRESTRESSED				18-27303	18-30323	18-30350	18-30398
2-30420	11-29574	11-30323	11-30398	18-30406	18-30412	18-30450	18-30626
11-30420	11-30421	11-30450	11-31351	CONTAINMENT VESSEL LOADING			
18-29574	18-30323	18-30398	18-30420	2-30643	11-30412	11-30643	11-30649
18-30421	18-30450			12-30649	18-30412	18-30643	18-30649
CONDENSATION				CONTAINMENT, GENERAL			
1-30129	14-29261	14-29633	14-30108	1-30247	1-30578	1-30579	2-30650
14-30118	14-30129	15-30129		7-30578	7-30579	11-30316	11-30578
CONGRESSIONAL ACTIVITY				11-30579	12-29526	12-30316	13-29526
1-30133	1-30275	15-30133	18-30275	13-30316	14-29526	16-30650	17-30247
CONSTRUCTION PERMIT PROCESS				18-30650			
1-30276	1-30277	2-30276	2-30277	CONTAINMENT, HIGH PRESSURE			
2-30408	2-30414	2-30415	2-30416	7-30241	9-30208	17-30208	17-30241
2-30417	2-30420	2-30426	5-30406	18-30344			
5-30416	5-30418	5-30426	6-30413	CONTAINMENT, ICE CONDENSER			
9-30413	9-30414	9-30418	11-30406	11-27084	11-30411	14-27084	18-27084
11-30410	11-30412	11-30415	11-30417	18-30411			
11-30420	11-30421	11-30450	12-30410	CONTAINMENT, LOW PRESSURE			
17-30302	18-30276	18-30277	18-30286	11-30296	18-30296		
18-30302	18-30406	18-30407	18-30408	CONTAINMENT, MULTIPLE			
18-30410	18-30412	18-30413	18-30414	11-30609	12-30609	18-30609	
18-30415	18-30416	18-30417	18-30418	CONTAINMENT, PRESSURE RELIEF			
18-30420	18-30421	18-30424	18-30426	9-30744	11-27050	11-30744	12-27050
18-30460	18-32631	18-32648		13-30024	18-27050		
CONTAINER TIEDOWN				CONTAINMENT, PRESSURE SUPPRESSION			
3-30101				2-27447	2-30021	9-30023	9-30744
CONTAINMENT AIR COOLING				11-27050	11-30021	11-30167	11-30744
5-30598	10-30598	17-30598		12-27050	12-30023	17-30167	18-27050
CONTAINMENT ATMOSPHERE, INERT				18-27447	18-30021	18-30023	18-30567
11-30609	12-30609	17-30261	17-32294	CONTAMINATION			
18-30261	18-30609			2-29142	7-29598	7-30380	7-30386
CONTAINMENT CONSTRUCTION				12-32303	13-29031	13-29278	13-29279
1-30646	2-29580	11-29604	11-30167	13-29280	14-29027	14-29028	14-29288
11-30323	11-30398	11-30423	11-30490	14-30462	14-30463	15-29031	15-29278
11-30646	17-30167	18-29580	10-29604	15-29279	15-29288	15-30196	15-30366
18-30323	18-30398	18-30423	18-30450	15-30401	15-30404	15-30462	15-30463
18-30646				15-30980	15-30981	16-29142	17-29027
CONTAINMENT DESIGN				17-29142	17-29288	17-29541	17-30196
1-30646	2-30416	2-30417	2-30422	17-30232	17-30896	17-30897	17-30980
2-30426	2-30429	5-27303	5-27323	17-30981	17-32303	17-32316	
5-30416	5-30426	5-30633	9-30589	CONTROL PANEL/ROOM			
11-27084	11-27303	11-30132	11-30323	5-30418	9-30418	18-30418	
11-30398	11-30410	11-30411	11-30417	CONTROL ROD			
11-30429	11-30589	11-30609	11-30646	7-31344	9-29890	9-30084	9-30216
11-31351	12-30132	12-30410	12-30609	9-30477	9-30479	9-30586	9-31243
13-30024	14-27084	14-30626	15-27323	9-31249	9-31344	17-30216	17-30267
15-30633	18-27084	18-27303	18-27323	17-30537	17-30586	17-31249	17-32336
18-30132	18-30323	18-30398	18-30410	18-30498	18-30499		
18-30411	18-30416	18-30417	18-30422	CONTROL ROD BURNUP			
18-30426	18-30429	18-30609	18-30626	7-31344	9-30216	9-31344	17-30216
18-30633	18-30646			17-32336			
CONTAINMENT EQUIPMENT HATCH				CONTROL ROD CALIBRATION			
5-30086	11-30086	13-30086	17-30285	6-30452	9-29889	9-30543	17-30534
CONTAINMENT FILTERING SYSTEM				17-30543			
7-30651	11-30651	18-30651		CONTROL ROD DRIVE			
CONTAINMENT INSTRUMENTATION				1-30644	2-30610	5-30350	9-29263
9-31241				9-29265	9-29996	9-29997	9-30093
CONTAINMENT INTEGRITY				9-30262	9-30284	9-30419	9-30543
1-30644	9-30642	9-30645	11-30642	9-30642	9-30645	9-30747	9-32296
11-30644	11-30645	18-30407	18-30642	10-32296	11-30350	11-30610	11-30642
18-30644	18-30645			11-30644	11-30645	11-32647	12-32647

17-29996	17-29997	17-30219	17-30261	15-30196	17-30196		
17-30262	17-30284	17-30307	17-30543	CREEP			
17-32296	17-32647	18-30261	18-30350	5-32542	7-29544	7-29944	11-29944
18-30419	18-30499	18-30610	18-30642	11-30890	18-32542		
18-30644	18-30645			CREEP BEHAVIOR			
CONTROL ROD FABRICATION				5-31448	14-30131	18-31448	
7-31344	9-31344			CREEP PROPERTY			
CONTROL ROD INTERACTION				7-29944	7-31407	11-29944	11-30890
6-30529	9-30227	9-30476	9-30544	CRITICAL ASSEMBLY FACILITY			
9-30549	17-30227	17-30529	17-30544	5-30600	6-29301	6-29922	7-29291
17-30549				7-29293	7-29922	9-29889	9-29890
CONTROL ROD PROGRAM				9-30288	9-32299	16-29293	17-30217
9-30746	9-32465	17-32312	17-32465	17-30231	17-30288	17-30305	17-30600
CONTROL ROD SCRAM MECHANISM				17-32295	17-32298	17-32299	17-32300
9-30538	9-30591	9-30593	17-30538	17-32302	17-32332	17-32463	17-32643
17-32335				18-29301			
CONTROL ROD WORTH				CRITICALITY EXPERIMENT			
6-30452	6-30480	9-30480	9-30544	6-29414	6-29419	6-30223	6-30452
17-30535	17-30544	17-30546	17-32332	9-30223	17-30223		
CONTROL ROD, SHIM SAFETY				CRITICALITY SAFETY			
9-30745	9-30746			1-30926	6-29922	7-29291	7-29293
CONTROL SYSTEM				7-29922	13-30926	16-29293	17-30926
6-30094	6-30391	6-30392	7-30392	17-32295			
9-30094	9-30737	10-30608	17-30608	CROSS SECTION			
CONTROL, METEOROLOGICAL				6-29923	6-30090	7-29290	7-29291
2-30650	16-30650	18-30650		7-29923	7-30106	9-30090	
CONTROLLER				CRUD			
7-29296	9-29296	9-29999	17-29296	5-32542	5-32543	7-29759	7-30113
17-29999				12-30113	18-32542	18-32543	
CONVECTIVE BOILING				CRYOGENICS			
4-30072	5-29383	5-30072	5-30566	4-29267	4-30158	5-30076	9-29267
19-30566				9-30158	17-30239	17-30287	
COOK 1 (PWR)				CRYSTAL RIVER 3 (PWR)			
11-27084	11-30410	11-30411	12-30410	2-30416	5-30416	18-30416	18-32639
14-27084	18-27084	18-30410	18-30411	CRYSTAL RIVER 4 (PWR)			
COOK 2 (PWR)				2-30416	5-30416	18-30416	
11-27084	11-30410	11-30411	12-30410	CSE			
14-27084	18-27084	18-30410	18-30411	1-30578	1-30579	7-30578	7-30579
COOLANT CHEMISTRY				11-30578	11-30579		
5-30967	5-31246	5-31448	7-29398	CURIUM			
7-29399	7-30378	7-30390	7-32264	7-29937			
11-30308	11-30967	11-31246	14-29585	CVTR (PWR)			
17-29585	17-29926	17-30308	17-30967	17-30251			
17-31246	17-31329	17-32264	18-31448	CYLINDER			
COOLANT COEFFICIENT				4-29622	11-29622		
6-29419				CZECHOSLOVAKIA			
COOLANT PURIFICATION SYSTEM				6-29413	13-30403	14-30403	
9-30091	9-30200	17-30200	17-30548	DAMAGE			
17-32317	18-32317			3-30895	5-32308	6-29414	7-29548
COOLANT QUALITY				9-30216	17-29548	17-30216	17-30218
5-32542	7-29547	11-32270	12-32270	17-30895	17-32308	17-32336	
17-30278	18-32542			DAMPING			
COOLING, GENERAL				9-31243			
5-29553	14-29261			DANGER COEFFICIENT			
COOLING, SHUTDOWN				6-29415	6-29419		
2-30610	11-27050	11-30610	12-27050	DATA PROCESSING			
18-27050	18-30610			6-30090	6-32654	9-30080	9-30090
COOPER (BWR)				9-30573	12-32654	17-30573	
17-32258				DECAY HEAT			
COPPER				5-30350	11-30350	14-30314	18-30350
7-30241	17-30241			DECOMMISSIONING			
CORE COMPONENTS				12-32303	13-30039	15-30039	15-30196
2-27447	2-29595	2-30415	2-30643	17-30037	17-30195	17-30196	17-30217
5-30406	5-30640	9-29890	11-30406	17-30221	17-30237	17-30238	17-30251
11-30415	11-30609	11-30640	11-30643	17-30269	17-30283	17-30285	17-32303
11-30649	12-30609	12-30649	17-30266	17-32304	17-32315	17-32463	17-32643
17-31328	18-27447	18-29595	18-30406	18-30653			
18-30415	18-30498	18-30609	18-30640	DECONTAMINATION			
18-30643	18-30649			5-30350	7-29403	9-30748	11-30350
CORE MELTDOWN				11-30740	11-30748	12-30740	12-32303
5-30648	12-30648	18-30648		13-29031	13-29280	13-30039	13-30970
CORE SPRAY				14-29632	14-29633	14-30402	14-30465
5-30648	11-27050	11-30641	11-32647	14-30970	14-30983	14-32573	15-29031
12-27050	12-30641	12-30648	12-32647	15-30001	15-30039	15-30265	15-30401
17-32638	17-32647	18-27050	18-30641	15-30465	17-30001	17-30039	17-30221
18-30648				17-30265	17-32303	18-30350	
CORROSION				DECONTAMINATION FACTOR			
7-29591	7-30113	7-30390	7-32264	7-29403			
7-32650	9-29997	9-30216	9-30586	DEFORMATION			
9-31412	11-30308	11-32644	11-32650	7-29546	14-30131		
12-30113	12-30664	12-31412	12-32650	DELAYED NEUTRON			
13-30664	13-31412	17-29926	17-29997	6-30454	9-30454		
17-30216	17-30269	17-30308	17-30586	DENMARK			
17-30971	17-32264	17-32336	17-32644	14-30984			
COSMIC RADIATION				DEPOSITION			
4-29393	14-30108	16-29619		1-30129	5-30073	5-30075	7-29292
COUNTER				7-29940	14-29243	14-30108	14-30129
9-29629	9-29656	9-30585	9-30960	14-30984	15-29243	15-30117	15-30124
13-29007	15-29629	15-30362	15-30394	15-30129	15-30969	15-31316	15-32578
15-30960				DESALINATION			
COUNTER, WHOLE BODY				14-29261			

DESCRIBING FUNCTION

9-30084

DESIGN CRITERIA

1-29570	2-29595	2-30021	2-30415
2-30416	2-30417	2-30429	2-30637
2-30643	5-27323	5-30350	5-30406
5-30416	5-30418	5-30425	5-30640
6-30413	7-29306	7-29403	7-29596
7-30374	7-30375	7-30378	9-29871
9-30413	9-30418	9-30419	9-30587
11-28490	11-30021	11-30132	11-30350
11-30406	11-30415	11-30417	11-30429
11-30637	11-30640	11-30643	12-30132
12-30425	13-30024	13-31348	14-30131
14-31348	15-27323	18-27323	18-29570
18-29595	18-30021	18-30132	18-30350
18-30406	18-30413	18-30415	18-30416
18-30417	18-30418	18-30419	18-30424
18-30425	18-30429	18-30637	18-30640
18-30643			

DESIGN STUDY

1-30446	2-30643	3-30098	3-30786
4-30158	5-30165	6-30094	6-32654
9-29268	9-29317	9-30088	9-30094
9-30158	9-30584	9-30586	9-31242
9-31243	9-31412	11-29574	11-30643
11-31351	12-31412	12-32654	13-30313
13-30663	13-31352	13-31412	17-30261
17-30571	17-30586	18-29574	18-30165
18-30261	18-30643		

DESORPTION

14-30892

DESTRUCTIVE TRANSIENT

6-29414

DESTRUCTIVE WIND

2-30417	2-30610	11-30417	11-30610
17-30261	18-30261	18-30417	18-30610

DEUTERIUM

7-30381	7-30475	7-32264	14-30108
14-30475	16-30475	17-32264	

DEVELOPING COUNTRIES

1-30142

DIABLO CANYON 1 (PWR)

12-27090	18-27090	18-30286	
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DIETARY HABIT

14-29028	14-30984	15-31316	
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DIFFUSION

1-30129	4-29882	7-29394	7-29882
7-30379	7-30384	7-30701	7-30750
9-30091	12-30758	14-30129	15-30129

DILUTION

1-30129	9-30200	14-29633	14-30129
15-30129	15-30279	17-30200	17-30279

DIRECT ENERGY CONVERSION DEVICES

17-30242

DISPERSION

1-30129	14-30108	14-30129	15-30129
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DISSOLUTION

13-29550	13-32862		
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DNB

5-29387	5-30245	6-29387	17-30205
17-30245			

DOPPLER COEFFICIENT

5-30633	6-29419	6-32659	11-30609
12-30609	15-30633	18-30609	18-30633
18-32659			

DOPPLER EFFECT

5-30633	11-30609	12-29764	12-30609
15-30633	18-30609	18-30633	

DOSE

1-11409	2-30650	5-26643	5-27323
5-30350	5-30447	5-30633	7-29410
9-29801	11-29881	11-30150	12-26643
12-30128	12-30311	13-29031	14-29257
15-11409	15-27323	15-29031	15-29257
15-29924	15-30128	15-30447	15-30633
15-30696	15-30980	15-30981	15-32898
16-30650	17-30311	17-30980	17-30981
17-32331	18-26643	18-27323	18-30311
18-30350	18-30447	18-30633	18-30650

DOSE CALCULATION, EXTERNAL

14-29243	14-30135	15-29243	15-30135
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DOSE CALCULATION, INTERNAL

14-30135	15-30117	15-30135	15-32578
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DOSE MEASUREMENT, EXTERNAL

15-30126	15-30362		
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DOSE MEASUREMENT, INTERNAL

13-29279	15-29279	15-29925	15-30117
15-30126	15-30362	15-30968	15-31316

DOSIMETRY, GENERAL

1-30738	7-29410	7-30381	9-29883
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12-30128	14-30135	15-29883	15-29924
15-29925	15-30121	15-30126	15-30128
15-30135	15-30738	15-30978	17-30578

DOSIMETRY, PHOTOGRAPHIC

15-30696

DOSIMETRY, THERMOLUMINESCENCE

13-29031 15-29031 15-29259

DOUNREAY (TR)

17-29582 17-29926

DRAGON (HTGR)

6-30115 7-29306

DRESDEN 2 (BWR)

1-29893 5-30425 12-30425 13-29893

15-29893 18-30424 18-30425

DRESDEN 3 (BWR)

1-29893 5-30425 12-30425 13-29893

15-29893 18-30424 18-30425

DROPLET

5-29383 5-30075

DUANE ARNOLD ENERGY CENTER (BWR)

2-27447 5-26643 9-27493 10-27532

11-27050 12-26643 12-27050 12-27493

14-27532 18-26643 18-27050 18-27051

18-27447 18-27493 18-27532

DYNAMICS, NONLINEAR

5-29310 12-29310

EARTHQUAKE

2-30420 2-30610 2-30637 11-30420

11-30610 11-30637 14-30135 15-30135

18-30420 18-30610 18-30637

EARTHQUAKE ENGINEERING

2-28973 2-30021 2-30417 2-30426

2-30429 2-30610 2-30643 5-27323

5-30350 5-30426 11-30021 11-30350

11-30417 11-30429 11-30610 11-30643

15-27323 17-28973 18-27323 18-28973

18-30021 18-30350 18-30417 18-30426

18-30429 18-30610 18-30643

EARTHQUAKE EPICENTER

2-30637 11-30637 18-30637

EARTHQUAKE PREDICTION

2-30637 11-30637 18-30637

EARTHQUAKE RECORDS

2-30637 11-30637 18-30637

EASTON (BWR)

2-30610 11-30610 18-30610

EBR 1 AND 2 (RE)

9-30748 11-30748 17-29794

EBWR (BWR)

17-30269

ECOLOGICAL CONSIDERATION

1-27062 2-27062 11-27062 14-28958

14-29028 14-30108 14-30135 15-30130

15-30135

ECONOMIC STUDY

1-30143 1-30151 1-30639 18-30639

ECONOMICS

1-29573 1-30140 1-30142 1-30151

1-30275 1-30639 9-31242 10-29566

17-30107 17-30251 18-29566 18-29573

18-30107 18-30275 18-30639

EFFLUENT

14-29631 14-29632 14-30120 15-30109

15-30980 15-30981 17-30980 17-30981

ELASTICITY

7-29546

ELECTRIC POWER, ALTERNATE

10-27532 14-27532 18-27532

ELECTRIC POWER, AUXILIARY

10-27532 10-30092 10-30742 14-27532

18-27532

ELECTRIC POWER, GENERAL

2-30415 9-30023 10-27532 11-30415

12-30023 14-27532 10-27532 18-30023

18-30415

ELECTRIC POWER, NORMAL

5-30633 10-27532 10-30092 14-27532

15-30633 18-27532 18-30633

ELECTRIC POWER, SHUTDOWN

9-30023 10-27532 12-30023 14-27532

18-27532 18-30023

ELECTRIC POWER, UNINTERRUPTED

9-32296 9-32299 10-32296 17-32296

17-32299

ELECTRIC POWER, VITAL

5-30204 10-30204 17-30204

ELECTRICAL CONDUCTION

9-30583 17-29794

ELECTRON MICROSCOPY

7-32260 7-32261 7-32262

ELECTROSTATIC CHARGE

7-30682	7-30701	14-30682		14-30129	14-30973	15-30129	17-30206
ELECTROSTATIC PRECIPITATION				EXAMINATION			
7-30376				2-30643	5-30228	5-31248	5-31442
ELK RIVER (BWR)				5-32627	5-32629	7-32859	9-30216
11-30213	17-30213			9-32627	11-30643	11-32629	11-32647
EMBRIITLEMENT				12-32647	12-32859	17-29794	17-30216
5-30967	5-32629	11-30308	11-30967	17-30228	17-30263	17-30269	17-30571
11-31346	11-32629	17-30266	17-30308	17-31248	17-31442	17-32335	17-32336
17-30967	17-32629			17-32627	17-32629	17-32636	17-32638
EMERGENCY COOLING CONSIDERATIONS				17-32647	17-32859	18-30643	
2-30416	5-27323	5-30249	5-30406	EXCURSION, LARGE			
5-30416	5-30631	5-30648	11-27050	5-30606	5-32685	6-29414	6-32685
11-30406	11-32647	12-27050	12-30249	7-29546	17-30606		
12-30631	12-30648	12-32647	15-27323	EXPANSION			
17-30249	17-32647	18-27050	18-27323	5-31248	5-32543	7-29910	7-31344
18-30406	18-30407	18-30416	18-30631	9-30216	9-30586	9-31344	12-29009
18-30648				12-29910	13-29009	13-29910	17-30216
EMERGENCY POWER, ELECTRIC				17-30540	17-30541	17-30586	17-31248
2-30417	2-30610	5-27323	5-30350	17-31328	17-31329	18-32543	
5-30598	9-30023	10-27532	10-30203	EXPERIMENT, GENERAL			
10-30243	10-30598	10-30608	10-30742	5-30633	5-32861	7-29008	7-29909
11-30350	11-30417	11-30610	12-30023	7-29910	7-30113	7-30125	7-31407
12-30243	14-27532	15-27323	17-30203	7-32650	7-32855	9-31412	11-30125
17-30243	17-30598	17-30608	17-32637	11-30609	11-30890	11-31346	11-32650
18-27323	18-27532	18-30023	18-30350	12-29008	12-29526	12-29910	12-29950
18-30417	18-30610			12-30113	12-30609	12-31333	12-31412
EMERGENCY PROCEDURE				12-32650	12-32855	12-32861	13-29007
1-30634	2-30429	9-30224	11-30429	13-29008	13-29526	13-29909	13-29910
15-30634	16-30224	17-30224	17-30283	13-29950	13-30970	13-31333	13-31347
17-30568	18-30429	18-30634		13-31348	13-31408	13-31409	13-31412
EMERGENCY SYSTEM				13-32652	13-32861	13-32862	14-29526
5-30648	11-27050	12-27050	12-30648	14-30970	14-31347	14-31348	15-30633
18-27050	18-30499	18-30648		15-31409	15-32578	18-30609	18-30633
ENEA				EXPLOSION			
13-32630	14-32630			7-29940	7-32263	13-30024	
ENERGY LEVEL				EXTRAPOLATION FACTOR			
14-32573				5-30539	6-30539	17-30539	
ENERGY SOURCE				FABRICATION			
13-32899				1-30926	5-32861	7-29909	7-29910
ENGINEERED SAFETY FEATURE				7-31410	7-32753	9-29263	9-29269
1-29980	1-30646	2-30022	2-30415	9-29887	10-29269	12-29009	12-29910
2-30417	2-30420	5-26643	5-30350	12-31333	12-31410	12-31411	12-32861
5-30425	5-30633	5-30648	7-32650	13-29009	13-29278	13-29279	13-29280
9-30023	9-30093	11-27050	11-30132	13-29545	13-29909	13-29910	13-30456
11-30350	11-30410	11-30415	11-30417	13-30926	13-30975	13-31333	13-31352
11-30420	11-30609	11-30641	11-30646	13-31410	13-31411	13-32753	13-32861
11-32650	12-26643	12-27050	12-27090	13-32899	15-29278	15-29279	15-30456
12-29526	12-30023	12-30132	12-30410	15-31411	17-29926	17-30926	
12-30425	12-30609	12-30641	12-30648	FABRICATION FACILITY			
12-32650	12-32655	13-29526	13-32655	13-30039	15-30039	17-30039	
14-29526	15-30633	17-29980	17-30211	FAILURE, ADMINISTRATIVE CONTROL			
18-26643	18-27050	18-27090	18-29980	1-30926	2-29142	9-31249	9-32334
18-30022	18-30023	18-30132	18-30211	10-30243	12-30243	13-30926	13-32309
18-30344	18-30350	18-30410	18-30415	15-30196	15-30889	15-30929	16-29142
18-30417	18-30420	18-30425	18-30499	17-29142	17-29810	17-30196	17-30215
18-30567	18-30609	18-30633	18-30641	17-30243	17-30889	17-30926	17-30929
18-30646	18-30648	18-32655		17-31249	17-32309	17-32332	17-32334
ENRICHMENT FACILITY				17-32637			
13-30456	15-30456			FAILURE, CLADDING			
ENVIRONMENTAL CONDITION				5-30707	5-30967	5-31246	5-31247
1-27062	1-30129	1-30133	2-27062	5-31248	7-32855	8-30707	9-30586
3-30791	11-27062	13-30403	13-30693	11-30967	11-31246	11-31247	12-32855
14-29028	14-30129	14-30403	14-30428	14-30530	17-30263	17-30269	17-30530
15-29651	15-30129	15-30130	15-30133	17-30586	17-30967	17-31246	17-31247
15-30428	15-30693	18-30428		17-31248			
EQUATION OF STATE				FAILURE, COMPONENT			
6-30575	7-28504	18-30575		5-30199	9-29999	9-30208	9-30310
EQUATION, GENERAL				9-31249	9-32089	9-32296	10-32296
5-30566	19-30566			11-30244	17-29999	17-30199	17-30205
EQUIPMENT DESIGN				17-30208	17-30244	17-30310	17-31249
9-29266	9-29269	9-29656	9-30477	17-32089	17-32296		
9-30479	9-30585	9-30591	10-29269	FAILURE, DESIGN ERROR			
13-30456	15-30456			5-29297	5-29314	5-29316	9-29995
EQUIPMENT, GENERAL				9-30281	9-32089	9-32296	10-32296
2-30416	5-30416	11-31346	12-30662	11-32644	17-29297	17-29314	17-29316
13-30663	13-31347	13-31348	13-31352	17-29995	17-30270	17-30281	17-32089
14-31347	14-31348	14-32575	18-30416	17-32296	17-32644		
18-30498				FAILURE, EQUIPMENT			
EROSION				5-26643	5-29314	5-30425	5-30598
5-29324	17-30201			9-30200	9-30206	9-30543	10-30243
ERROR ANALYSIS				10-30598	11-32647	12-26643	12-30243
9-29880	9-30081	15-28910	15-32898	12-30425	12-32647	14-25288	15-29288
ETR (TRI)				15-30291	15-30928	17-29288	17-29314
9-29887	15-30265	17-30265		17-30200	17-30201	17-30206	17-30212
EURATOM				17-30243	17-30282	17-30291	17-30307
5-29657	7-32753	13-32753	13-32862	17-30543	17-30598	17-30928	17-32316
EUROPIUM				17-32638	17-32647	18-26643	18-30212
9-30084				18-30425			
EVAPORATION				FAILURE, FABRICATION ERROR			
1-30129	5-29383	9-30206	13-31408	1-30644	9-30642	9-30645	11-30423
14-29632	14-30108	14-30119	14-30123	11-30642	11-30644	11-30645	17-30897

18-30423	18-30642	18-30644	18-30645	11-30350	11-30651	14-30118	15-30104
FAILURE, FATIGUE				17-30104	17-30241	17-32645	18-30350
5-32543	11-28490	11-31346	18-32543	18-30651			
FAILURE, FUEL ELEMENT				FILTER CHARACTERISTICS			
5-29387	5-30070	5-30199	5-30295	7-30382			
5-30647	5-30967	5-32542	5-32629	FILTER DESIGN			
6-29387	6-30647	7-29548	7-30198	7-29403	9-30085		
7-30683	7-32264	9-30683	11-30967	FILTER EFFICIENCY			
11-32629	14-29585	14-30626	15-30265	7-30382	7-30680	7-30684	7-32257
17-29548	17-29585	17-30198	17-30199	7-32645	17-32645		
17-30265	17-30267	17-30295	17-30967	FILTER MAINTENANCE			
17-32264	17-32629	18-30626	18-30647	7-29403	7-30386		
18-32542				FILTER OPERATION			
FAILURE, FUEL ELEMENT WATERLOGGING				7-29403			
5-29983	6-29983	17-29983		FILTER SPRAY			
FAILURE, GENERAL				7-32249			
1-30137	5-29314	9-30080	9-30642	FILTER SYSTEM			
11-30642	11-31351	17-29314	18-30642	7-29403			
FAILURE, INCIPIENT				FILTER TEST REQUIREMENT			
1-30137	5-30647	6-30647	18-30647	7-29403	7-32257		
FAILURE, INSTALLATION ERROR				FILTER, ABSOLUTE			
1-30644	9-29920	9-29996	9-30642	7-32645	17-32645		
9-30645	11-30642	11-30644	11-30645	FILTER, BED			
17-29920	17-29996	17-30225	18-30642	7-30684			
18-30644	18-30645			FILTER, CASCADE IMPACTOR			
FAILURE, MAINTENANCE ERROR				7-29400	7-29407		
17-29998	17-30202			FILTER, DAMAGED			
FAILURE, OPERATOR ERROR				17-30264			
5-26643	5-29297	5-30598	9-29995	FILTER, FIBER			
10-30598	10-30608	12-26643	15-30928	7-30382			
15-30929	17-29297	17-29541	17-29995	FILTER, GAS MASK			
17-30232	17-30598	17-30608	17-30894	7-30684			
17-30928	17-30929	17-32633	18-26643	FILTER, HIGH EFFICIENCY			
FAILURE, PIPE				7-29403	7-30382	7-32257	
5-29297	5-30071	5-30648	11-30421	FILTER, LIQUID			
12-30648	14-29675	17-29297	17-29675	7-30467			
18-30421	18-30648			FILTRATION			
FAILURE, SCRAM MECHANISM				9-30091	14-29261	14-30119	
5-30539	6-30539	9-28972	9-29997	FINLAND			
9-30262	9-30310	9-31249	9-32334	14-30984			
14-28972	17-28972	17-29997	17-30262	FIRE			
17-30310	17-30539	17-31249	17-31254	3-31424	3-32596	7-29598	7-29940
17-31329	17-32334			7-29946	7-30373	7-30683	7-31343
FAILURE, SEQUENTIAL				7-32263	9-30683	17-30568	17-32298
9-29676	17-29676			17-32300			
FAILURE, SIMULTANEOUS				FISSION GAS RELEASE			
9-29676	17-29676	17-30201		7-29285	7-29759	14-30530	17-30530
FAILURE, TUBING				17-31328			
2-28973	5-29316	17-28973	17-29316	FISSION PRODUCT RELEASE, GENERAL			
17-30192	17-30571	18-28973		1-30578	1-30579	5-27323	7-29285
FALLOUT				7-29405	7-29598	7-29940	7-29946
1-30277	2-30277	7-30377	14-29028	7-30374	7-30379	7-30578	7-30579
14-29234	14-29243	14-29257	14-29262	7-30683	7-30688	7-30701	7-30758
14-30363	14-30977	14-30984	14-31244	7-32650	9-30478	9-30683	9-31412
15-28676	15-29234	15-29243	15-29257	11-27084	11-30296	11-30578	11-30579
15-29262	15-30104	15-30117	15-30130	11-32650	12-30758	12-31412	12-32650
15-30363	15-30366	15-30974	15-30977	13-31412	14-27084	14-29262	14-30428
15-30978	15-30980	16-29620	17-28676	15-27323	15-29262	15-30428	18-27084
17-30104	17-30978	17-30980	18-30277	18-27323	18-30296	18-30428	
FAST NEUTRON				FISSION PRODUCT RETENTION			
5-32543	15-30121	15-30696	17-30545	1-30578	1-30579	5-32629	7-29292
18-32543				7-29306	7-29405	7-29409	7-29910
FASTENER				7-30375	7-30384	7-30388	7-30578
11-32647	12-32647	17-30307	17-32647	7-30579	7-30651	7-30683	7-32249
FAULT				9-30683	11-30578	11-30579	11-30651
1-30644	2-30636	5-31247	5-31248	11-32629	12-29910	13-29910	17-32629
9-30093	9-30642	9-30645	11-30642	18-30651			
11-30644	11-30645	11-31247	17-30269	FISSION PRODUCT TRANSPORT			
17-31247	17-31248	17-32333	18-30636	1-30578	1-30579	7-29292	7-29295
18-30642	18-30644	18-30645		7-29399	7-29405	7-29594	7-29598
FEDERAL RADIATION COUNCIL				7-30376	7-30379	7-30473	7-30578
15-30968	15-30978	17-30978		7-30579	7-30686	7-32253	11-30316
FERMI (LMFBR)				11-30578	11-30579	12-30316	13-30316
5-32627	5-32629	6-31354	7-29547	14-30473			
7-29548	9-29040	9-32627	9-32628	FISSION PRODUCT, AIRBORNE			
11-32629	17-29040	17-29548	17-29939	1-30578	1-30579	7-30578	7-30579
17-30192	17-30218	17-30278	17-30571	7-32650	11-30578	11-30579	11-32650
17-32627	17-32628	17-32629		12-32650	18-27051		
FFTF (TR)				FISSION PRODUCT, IODINE			
5-32542	5-32543	9-29871	9-31241	7-29594	7-29940	7-29942	7-30377
10-30092	12-30662	12-30664	13-30664	7-30384	7-30388	7-30468	7-30651
18-32542	18-32543			7-30684	7-30686	7-30688	7-32650
FILM BOILING				11-27084	11-30651	11-32650	12-32310
5-29387	5-30606	5-30964	6-29387	12-32650	14-27084	14-32310	17-30211
17-30606				17-31253	17-32310	18-27084	18-30211
FILM, LIQUID				18-30407	18-30651		
5-29383	5-30073	5-30074	5-30075	FISSION PRODUCT, NONVOLATILE			
5-30966				7-32753	13-32753		
FILTER				FISSION PRODUCT, VOLATILE			
5-30350	7-29403	7-30241	7-30386	2-30650	7-29399	7-29405	7-30393
7-30468	7-30651	7-30684	7-32645	16-30650	18-30650		

FLAW				7-29546	7-29547	7-29548	7-29759
1-30644	9-30642	9-30645	11-30642	7-29909	7-29910	7-30113	7-30374
11-30644	11-30645	18-30642	18-30644	7-30375	7-30758	7-31410	7-32264
18-30645				7-32753	7-32859	9-29296	9-29887
FLOOD				9-29890	9-32307	9-32627	11-30609
2-30610	11-30610	18-30610		11-30640	11-31246	12-29009	12-29764
FLOW BLOCKAGE				12-29910	12-30113	12-30425	12-30609
5-30631	5-32627	5-32629	9-30208	12-30758	12-31333	12-31410	12-31411
9-32627	9-32628	11-32629	12-30631	12-32859	13-29009	13-29278	13-29279
17-29998	17-30208	17-30267	17-31328	13-29280	13-29545	13-29909	13-29910
17-32627	17-32628	17-32629	17-32636	13-30456	13-30926	13-30975	13-31333
18-30631				13-31352	13-31410	13-31411	13-32753
FLOW DISTRIBUTION				14-30530	15-29278	15-29279	15-30456
5-29387	5-30074	6-29387	11-30641	15-31411	15-32898	17-29296	17-29548
12-30641	18-30641			17-29582	17-29794	17-29926	17-30222
FLOW STABILITY				17-30228	17-30229	17-30231	17-30258
5-29311	5-29387	6-29311	6-29387	17-30263	17-30266	17-30267	17-30300
FLOW THEORY AND EXPERIMENTS				17-30301	17-30304	17-30305	17-30309
5-29311	5-29316	5-30071	5-30074	17-30529	17-30530	17-30534	17-30535
6-29311	14-30131	17-29316		17-30539	17-30540	17-30541	17-30542
FLOW, ANNULAR				17-30606	17-30926	17-31246	17-31248
5-29389	5-30075	9-30596		17-31328	17-31442	17-32264	17-32307
FLOW, AXIAL				17-32308	17-32318	17-32627	17-32859
4-29384	5-29384	5-29389	5-30070	18-29595	18-30022	18-30229	18-30236
5-30076				18-30258	18-30425	18-30498	18-30499
FLOW, CRITICAL				18-30609	18-30640		
5-30071				FUEL ELEMENT BOWING			
FLOW, LAMINAR				17-30298			
5-30074	5-30566	19-30566		FUEL ELEMENT CLUSTER			
FLOW, TUBE				5-32861	9-31243	12-32861	13-32861
4-29384	4-30072	5-29383	5-29384	FUEL HANDLING			
5-30072	5-30075	5-30076		5-32308	7-29596	9-29268	12-32655
FLOW, TURBULENT				13-32655	17-30280	17-32308	18-30407
4-29384	5-29384	5-30076	5-30566	18-32655			
19-30566				FUEL HANDLING MACHINE			
FLOW, TWO PHASE				5-32308	7-29596	13-32309	17-32308
5-29310	5-29311	5-29383	5-30071	17-32309	18-30498		
5-30073	5-30075	6-29311	12-29310	FUEL INTEGRITY			
FLUCTUATION				5-30002	6-29414	7-29285	7-29597
5-30070	6-31386			7-29598	7-30002	7-30389	
FLUIDIZED BED				FUEL MANAGEMENT			
13-32652				17-30107	18-30107		
FLUORIDE				FUEL MELTDOWN			
13-29007	13-30663	13-32652		5-30648	5-30707	5-32627	5-32629
FLUORINE				6-29414	7-29405	7-29547	7-29594
13-32652				8-30707	9-32627	9-32628	11-32629
FLUX DISTRIBUTION				12-30648	17-32627	17-32628	17-32629
6-29923	7-29923	7-30106	9-32307	18-30648			
15-28910	17-32307			FUEL REPROCESSING			
FLUX TILT				1-29893	1-30129	1-30926	7-29008
5-30207	9-30207	9-31249	17-30207	7-29286	7-30388	7-30474	9-31412
17-31249				11-30316	11-30890	12-29008	12-29526
FORECAST				12-29950	12-30316	12-30664	12-31411
9-29768	9-30081	9-30082	17-30082	12-31412	12-32310	12-32655	13-29007
FOUNDATION ENGINEERING				13-29008	13-29278	13-29279	13-29280
11-30450	18-30450			13-29526	13-29550	13-29892	13-29892
FRACTURE TOUGHNESS				13-29893	13-29950	13-30024	13-30246
11-31346				13-30313	13-30316	13-30403	13-30456
FRANCE				13-30474	13-30663	13-30664	13-30926
1-30149	1-30739	3-30103	3-30786	13-30970	13-30975	13-31347	13-31348
5-29297	6-30392	7-30392	9-29268	13-31352	13-31408	13-31409	13-31411
9-29317	9-31312	11-29604	13-29550	13-31412	13-31958	13-32309	13-32630
14-32573	15-29651	15-30739	17-29297	13-32652	13-32655	13-32862	14-29526
17-29576	17-30267	18-29604	18-30498	14-29002	14-29892	14-30118	14-30122
FREQUENCY SPECTRA				14-30129	14-30403	14-30474	14-30570
6-30115	9-30087			14-31347	14-31348	14-31958	14-32310
FT. ST. VRAIN (HTGR)				14-32630	15-29278	15-29279	15-29893
2-30420	7-31344	9-31344	11-30420	15-30129	15-30246	15-30456	15-31409
11-30421	18-30420	18-30421		15-31411	17-30246	17-30926	17-32309
FUEL BURNUP				17-32310	18-32655		
2-30022	5-30220	5-30295	5-30647	FUEL SEGREGATION			
5-30648	5-31442	6-29923	6-30647	5-30229	17-30229	17-30263	18-30229
7-29398	7-29923	9-30206	12-30648	FUEL STORAGE			
17-29926	17-30206	17-30220	17-30263	1-30247	12-30664	13-30664	17-30225
17-30268	17-30295	17-30536	17-31442	17-30247	17-30261	17-30262	17-32333
17-32318	18-30022	18-30647	18-30648	17-32637	18-30261		
FUEL COEFFICIENT				FUEL, METALLIC TYPE			
6-29415	6-29419			5-30295	17-30295		
FUEL CONVERSION				FUEL, PELLET TYPE			
7-29909	12-31411	13-29278	13-29279	2-30420	5-29983	5-30229	6-29983
13-29280	13-29909	13-30456	13-30970	7-29286	7-29909	7-31410	7-32859
13-30975	13-31352	13-31411	14-30970	11-30420	12-31410	12-32859	13-29909
15-29278	15-29279	15-30456	15-31411	13-30975	13-31410	17-29983	17-30229
FUEL ELEMENT				17-30263	17-32859	18-30229	18-30420
1-30926	2-29595	2-30022	3-31424	FUEL, POWDER TYPE			
5-29553	5-30070	5-30228	5-30229	5-29983	5-30229	6-29983	7-29286
5-30258	5-30301	5-30309	5-30425	13-30127	14-30127	17-29983	17-30229
5-30539	5-30606	5-30640	5-31246	18-30229			
5-31248	5-31442	5-32308	5-32627	GADOLINIUM			
6-29549	6-30529	6-30539	7-29296	6-30392	7-30392	17-32318	
7-29306	7-29394	7-29398	7-29544	GAMMA			

7-29295	7-29406	7-29410	7-29938	HAZARDS ANALYSIS			
9-29881	9-29938	11-29881	12-29950	2-30650	5-26643	5-27323	5-30350
12-30128	13-29950	13-30456	15-29406	5-30631	5-30633	11-30350	12-26643
15-30128	15-30456	15-30929	17-30545	12-30631	15-27323	15-30633	16-30650
17-30547	17-30929			18-26643	18-27323	18-30350	18-30631
GAMMA EMITTER				18-30633	18-30650		
6-29922	7-29922	14-30461	14-30977	HBWR (BWR)			
15-29924	15-29925	15-30104	15-30365	7-29296	9-29296	17-29296	
15-30461	15-30696	15-30977	17-30104	HEALTH PHYSICS TRAINING			
GAS				14-30135	15-29651	15-30135	15-30401
18-27051				15-30929	17-30163	17-30929	18-30163
GE NSP				HEAT CONDUCTANCE, FUEL TO CLAD			
5-30707	8-30707			17-30536			
GE NTR (RR)				HEAT EXCHANGER			
17-30193	17-30194	18-30193		5-29316	5-30964	17-29316	17-30307
GENERATOR, ENGINE				HEAT FLUX, CRITICAL			
2-30022	5-30249	5-30598	10-30243	5-30647	6-30647	18-30647	
10-30598	10-30608	12-30243	12-30249	HEAT FLUX, DRYOUT			
14-30626	17-30243	17-30249	17-30598	5-29383	5-30075		
17-30608	18-30022	18-30407	18-30626	HEAT GENERATION, INTERNAL			
GEOLOGICAL CONSIDERATION, GENERAL				5-29387	6-29387		
2-29595	2-30636	13-30403	14-30120	HEAT GENERATION, NONUNIFORM			
14-30122	14-30131	14-30403	18-27051	5-29383			
18-29595	18-30635	18-30636		HEAT PIPE			
GEOLOGICAL CONSIDERATION, GEOPHYSICAL				5-29888	5-31336	6-31336	9-29888
2-30636	18-30636			HEAT SINK			
GEOLOGICAL CONSIDERATION, STRATIGRAPHY				17-31254			
2-30636	18-30636			HEAT TRANSFER			
GERMANY				5-29387	5-30075	5-30566	5-30631
1-30732	2-29580	2-30750	5-29567	5-30964	6-29387	9-29880	12-30631
5-32861	6-29567	6-30452	7-30475	12-30662	13-29892	14-29892	17-30971
7-32250	9-30087	9-30741	12-32861	18-30631	19-30566		
13-32861	14-29585	14-29631	14-29632	HEAT TRANSFER ANALYSIS			
14-29633	14-30475	14-30973	16-30475	2-30022	2-30414	3-32596	4-29384
17-29583	17-29584	17-29585	18-29567	4-30072	5-29384	5-30072	5-30566
18-29580	18-29581	18-30574		5-30647	5-32629	6-30647	9-30414
GETR (TR)				11-32629	17-32629	18-30022	18-30414
17-32637				18-30647	19-30566		
GINNA (PWR)				HEAT TRANSFER COEFFICIENT			
5-27303	5-30350	11-27303	11-30350	5-29389	5-30076	5-30077	5-30963
18-27303	18-30350			HEAT TRANSFER CORRELATION			
GLASS				5-30076	5-30235	17-30235	
11-30316	12-29526	12-30316	13-29526	HEAT TRANSFER EXPERIMENT			
13-29892	13-30316	14-29526	14-29892	5-29389	5-30075	5-30077	5-30078
GLOVE BOX				5-32861	7-29287	12-32861	13-32861
1-30926	7-29596	7-30386	7-31343	HEAT TRANSFER, BOILING			
13-29545	13-30926	13-31352	15-30279	5-29311	5-29657	5-30078	5-30566
17-30279	17-30926			5-30647	5-30966	6-29311	6-30647
GOLD				7-29287	18-30647	19-30566	
5-30077	15-30124			HEAT TRANSFER, CONDENSATION			
GRAPHITE				5-30566	19-30966		
6-29308	7-29284	7-29306	7-29308	HEAT TRANSFER, CONDUCTION			
7-29394	7-29597	7-29944	7-30384	5-29387	6-29387		
7-30389	7-30390	7-30393	7-31343	HEAT TRANSFER, CONVECTION			
7-31344	9-31344	9-31412	11-29944	4-29384	5-29384	5-30566	5-30963
12-29764	12-31412	13-30975	13-31412	19-30566			
17-30218	17-30289			HEAT TRANSFER, GAS			
GROSS ALPHA				5-30076			
15-30130	15-30969			HEAT TRANSFER, NATURAL CONVECTION			
GROSS BETA				5-30199	5-30204	10-30204	17-30199
15-30104	15-30130	15-30969	17-30104	17-30204			
GROSS GAMMA				HEAT TRANSFER, TWO PHASE			
15-30130				5-29311	5-29387	5-29657	6-29311
GROUND WATER, GENERAL				6-29387			
1-30129	14-30129	15-30129		HEAVY WATER			
GROUND WATER, NUCLIDE OCCURRENCE				5-30962	6-30090	7-30381	9-30090
14-30108				11-30962	17-30962		
GUIDE				HELIUM			
1-30111	1-31389	15-31389	17-30111	9-30091	11-31346		
18-30111				HFIR (FTR)			
HADDAM NECK (PWR)				9-29891			
5-30204	5-30207	5-30245	5-30249	HIGH			
5-30258	5-30598	9-30200	9-30206	17-30292			
9-30207	9-30208	10-30203	10-30204	HIGH RADIATION			
10-30243	10-30598	11-30244	11-30290	4-29882	7-29406	7-29882	13-29030
11-32644	12-30243	12-30249	12-30290	14-30118	14-32573	15-29030	15-29406
12-30311	15-30291	17-30200	17-30201	15-29924	15-29925	15-30291	17-30291
17-30202	17-30203	17-30204	17-30205	HIGH TEMPERATURE			
17-30206	17-30207	17-30208	17-30243	4-29882	5-30076	7-29405	7-29882
17-30244	17-30245	17-30249	17-30258	14-30314			
17-30290	17-30291	17-30311	17-30598	HOT CELL			
17-32312	17-32644	18-30258	18-30311	5-30086	11-30086	13-30039	13-30086
HALLAM (LMR)				14-30315	15-30039	15-30927	15-30928
12-32303	17-30238	17-32303	17-32304	15-30929	17-30039	17-30927	17-30928
HANFORD SITE				17-30929			
9-30088	14-30118			HOT CHANNEL			
HAZARD, RELATIVE				5-29387	6-29387		
1-03475	1-11410	5-30086	5-30631	HOT CHANNEL FACTOR			
11-30086	12-30128	12-30631	13-30086	5-30207	9-30207	17-30207	
14-30461	14-31244	15-30109	15-30128	HOT SPOT FACTOR ANALYSIS			
15-30400	15-30461	18-30631		17-30267			

HUMBOLDT BAY (BWR)					5-29297	11-30643	11-30646	15-30291
5-30235	5-32646	11-32646	11-32647		17-29297	17-30291	17-30453	18-30643
12-32647	17-30235	17-32258	17-32646		18-30646			
17-32647					INGESTION			
HUMIDITY					15-30362	15-30968	15-32578	
7-30680	9-32334	17-32334			INHALATION			
HYDRAULIC ANALYSIS					15-30196	15-30362	15-30400	15-32578
2-30022	5-30647	6-30647	18-30022		17-30196			
18-30647					INSTABILITY			
HYDRAULIC EFFECT					5-30070	9-29040	17-29040	
5-30070	9-31243	17-30205			INSTRUMENT CALIBRATION			
HYDRAULIC EXPERIMENT					5-29983	6-29983	9-29629	9-29769
5-30073					9-29881	9-29883	9-29995	9-30550
HYDRIDE					9-30893	9-30960	9-32299	9-32334
5-32629	7-30390	11-32629	17-32629		9-32465	11-29881	13-30246	14-29243
HYDRODYNAMIC ANALYSIS					15-29243	15-29629	15-29883	15-29924
2-30643	5-30071	5-30074	11-30643		15-30121	15-30124	15-30246	15-30960
18-30643					17-29769	17-29983	17-29995	17-30246
HYDROGEN					17-30534	17-30550	17-30893	17-32299
5-30076	5-30967	7-30683	7-30688		17-32317	17-32334	17-32335	17-32465
9-30683	11-30308	11-30967	14-30108		18-32317			
17-30308	17-30967	18-30407			INSTRUMENT, ABNORMAL INDICATION			
HYDROLOGICAL CONSIDERATION, GENERAL					5-30207	5-32627	9-29920	9-29978
1-27062	1-30129	2-27062	2-30408		9-29995	9-30206	9-30207	9-30208
11-27062	13-30403	13-32630	14-30120		9-30281	9-30532	9-30549	9-31435
14-30129	14-30403	14-30892	14-31244		9-32311	9-32334	9-32465	9-32627
14-32630	15-30129	18-30408			9-32628	17-29920	17-29978	17-29995
IAEA					17-30206	17-30207	17-30208	17-30281
1-30151	13-32630	14-30119	14-30120		17-30532	17-30549	17-31435	17-32311
14-32630					17-32334	17-32465	17-32627	17-32628
ICRP					INSTRUMENT, AIR SAMPLING			
13-29031	15-29031	15-32898			13-29279	15-29279		
IDAHO FALLS					INSTRUMENT, ALARM			
1-30140					9-32307	17-32307		
IGNITION					INSTRUMENT, AMPLIFIER			
7-29946	7-30373	7-31343			9-30085			
IGNITION TEMPERATURE					INSTRUMENT, COINCIDENT			
7-31343					9-29891			
IMPACT PROPERTY					INSTRUMENT, COMPONENT			
1-30578	1-30579	7-30578	7-30579		4-29267	4-30158	9-29266	9-29267
11-30578	11-30579				9-29318	9-29323	9-29656	9-30083
IMPACT SHOCK					9-30158	9-30582	9-30583	9-31312
3-30103					INSTRUMENT, CONTROL			
IMPURITY					2-30414	2-30416	2-30429	5-30416
5-31247	11-31247	17-31247			5-30418	6-30413	9-27493	9-29999
IN CORE MEASUREMENT					9-30023	9-30413	9-30414	9-30418
6-29264	9-29264				9-30589	9-30737	9-30743	9-30745
IN PILE EXPERIMENT					9-32089	11-30132	11-30296	11-30429
1-30578	1-30579	7-30106	7-30578		11-30589	11-30609	12-27493	12-30023
7-30579	11-30578	11-30579			12-30132	12-30609	17-29999	17-32089
IN PILE LOOP					18-27493	18-30023	18-30132	18-30296
7-29594	12-30662	15-30265	17-30265		18-30413	18-30414	18-30416	18-30418
17-30268					18-30429	18-30498	18-30499	18-30609
INCIDENT COMPILATION					INSTRUMENT, COOLANT QUALITY			
15-30291	17-30291				5-31448	9-30089	9-30091	9-30737
INCIDENT, EQUIPMENT					9-31241	18-31448		
5-29297	9-29999	9-30281	10-30243		INSTRUMENT, DETECTION FAILED FUEL ELEMENT			
12-30243	17-29297	17-29999	17-30243		5-30406	7-29296	9-29296	9-29317
17-30260	17-30281	17-30896			9-30478	9-32628	11-30406	17-29296
INCIDENT, EXPOSURE					17-32628	18-30406		
15-30001	15-30889	15-30927	15-30928		INSTRUMENT, EARTHQUAKE			
15-30929	15-32898	17-30001	17-30889		9-32299	17-32299		
17-30927	17-30928	17-30929	17-32633		INSTRUMENT, FLOW			
INCIDENT, GENERAL					5-30073	6-29264	9-29264	9-30089
1-30138	5-32627	9-32627	17-32627		9-31435	17-31435	17-32317	18-32317
INCIDENT, HUMAN ERROR					INSTRUMENT, FUEL SCANNING			
9-29996	15-30196	17-29810	17-29996		9-31241			
17-30196					INSTRUMENT, GENERAL			
INCIDENT, NONNUCLEAR					1-31389	4-29267	7-32256	7-32259
1-30453	17-30453				9-27493	9-29267	9-31241	9-31312
INCIDENT, NONREACTOR					9-31412	11-30410	12-27493	12-30128
15-30001	17-29810	17-30001			12-30410	12-31412	13-29279	13-31412
INCIDENT, RECOVERY FROM					14-32256	15-29279	15-30128	15-31389
5-32627	9-32627	17-32627			18-27493	18-30410		
INCOLOY					INSTRUMENT, IN CORE			
5-31248	7-28987	11-28987	17-31248		5-30204	9-29871	9-30089	9-31249
INCONEL					10-30204	14-30530	17-30204	17-30205
11-32647	12-32647	17-32647			17-30261	17-30530	17-31249	18-30261
INDEPENDENCE					INSTRUMENT, INTERMEDIATE RANGE			
9-29999	9-32089	17-29999	17-32089		9-29978	17-29978		
INDIAN POINT 1 (PWR)					INSTRUMENT, LIQUID LEVEL DETECTION			
5-30220	15-30104	17-30104	17-30220		9-29920	9-29999	9-30208	9-30281
17-30263					9-32307	17-29920	17-29999	17-30205
INDIAN POINT 3 (PWR)					17-30208	17-30281	17-32307	
1-30639	7-30651	11-30651	18-30638		INSTRUMENT, METEOROLOGICAL			
18-30639	18-30651	18-32631			9-30224	16-30224	17-30224	
INDUSTRIAL SAFETY					INSTRUMENT, NUCLEAR			
1-05193	1-30453	13-30024	17-30453		7-30106	9-29318	9-29323	9-30085
17-30568					9-30585	9-30960	9-32299	15-30960
INFORMATION RETRIEVAL					17-32299	17-32313	17-32640	
1-30446	1-30453	1-30646	2-30643		INSTRUMENT, OPERATING REACTIVITY			

5-30207	5-32627	9-30207	9-32627	13-31333	13-31410	13-31412	14-29526
17-30207	17-30268	17-32627		17-29296	17-29582	17-29926	17-30215
INSTRUMENT, PERIOD				17-30229	17-30242	17-30263	17-30295
9-32314	17-32314			17-30304	17-31442	17-32859	18-30229
INSTRUMENT, POSITION				18-32543			
9-29996	9-30549	9-31249	17-29996	ISOTOPIC FRACTIONATION			
17-30549	17-31249			14-30108			
INSTRUMENT, POWER RANGE				ITALY			
5-29983	6-29983	9-30532	9-30543	6-30480	6-30953	7-32753	9-30480
9-31435	9-32334	9-32465	17-29983	13-32753	15-30366		
17-30532	17-30543	17-31435	17-32334	JAPAN			
17-32465				2-28973	5-30962	6-29264	9-28972
INSTRUMENT, PRESSURE				9-29263	9-29264	9-29265	9-30476
9-29920	9-30588	9-30591	9-30595	9-30477	9-30478	9-30479	9-30588
10-30588	17-29920			9-30591	9-30592	9-30593	9-30594
INSTRUMENT, PROCESS				9-30595	9-30596	9-30597	9-30746
9-30088	9-31241			9-30747	10-30588	11-30962	12-29950
INSTRUMENT, PROTECTIVE				13-29545	13-29950	13-30970	14-28972
9-27493	9-29871	9-30587	9-30893	14-30970	15-30361	15-30400	15-30404
9-30960	9-31312	12-27493	15-30960	17-28972	17-28973	17-30962	18-28973
17-30893	18-27493			18-30576			
INSTRUMENT, PULSE				KEWAUNEE (PWR)			
9-30085	17-30534			2-30415	11-30415	18-30415	
INSTRUMENT, RADIATION MONITORING				KRYPTON			
1-30129	7-30683	9-27493	9-29656	2-13846	7-29409	7-30683	7-30701
9-29881	9-29883	9-30159	9-30683	9-29629	9-30683	13-30246	15-29629
11-29881	12-27493	14-30129	15-29883	15-30246	17-30246		
15-29924	15-30121	15-30126	15-30129	LACROSSE (BWR)			
15-30159	15-30365	15-30974	18-27493	9-30281	14-30569	17-30281	17-30282
INSTRUMENT, RATE OF CHANGE				17-30568	17-30569	17-30570	17-32638
9-30206	17-30206			LANTHANUM			
INSTRUMENT, RECORDER				7-32753	13-32753		
9-29999	17-29999			LAW			
INSTRUMENT, RELAY				1-30148	1-30149	1-30276	1-30277
9-29997	9-30582	9-32089	17-29997	1-30732	1-30739	2-30276	2-30277
17-32089				10-29566	15-30739	18-29566	18-30276
INSTRUMENT, STARTUP RANGE				18-30277			
9-29995	9-30240	9-32307	17-29995	LEAD			
17-30240	17-32307	17-32317	18-32317	1-05193	12-29950	13-29030	13-29950
INSTRUMENT, SURVEILLANCE				15-29030			
9-30960	11-30296	14-29243	15-29243	LEAK			
15-30400	15-30960	18-30296		5-29297	5-30962	7-30198	9-29629
INSTRUMENT, SWITCH				9-29920	9-29997	9-30216	11-30296
9-30582				11-30405	11-30962	14-30118	14-30405
INSTRUMENT, TEMPERATURE				15-29629	17-29297	17-29702	17-29920
4-29267	5-32627	9-29267	9-29880	17-29997	17-30198	17-30201	17-30202
9-29881	9-30089	9-30248	9-30550	17-30211	17-30216	17-30225	17-30232
9-30737	9-30748	9-31241	9-31435	17-30260	17-30264	17-30282	17-30307
9-32307	9-32311	9-32627	11-29801	17-30533	17-30897	17-30962	17-31253
11-30748	14-30530	17-30248	17-30530	17-32333	17-32336	17-32637	18-30211
17-30550	17-31435	17-32307	17-32311	18-30296			
17-32627				LEAK RATE			
INSURANCE				5-32646	9-29629	11-32646	15-29629
1-05827	1-30130			17-32294	17-32646		
INTEGRITY				LIABILITY			
3-32596				1-30138	1-30149	1-30739	15-30739
INTERNATIONAL				LIAPUNOV'S FUNCTION			
1-30139				6-30572			
IODIDE				LICENSE STATUS			
14-29028				1-30409	1-30732	2-30422	2-30429
IODINE				11-30411	11-30423	11-30429	17-30251
2-13846	3-30895	7-29409	7-29594	18-30286	18-30286	18-30409	18-30411
7-29940	7-29942	7-30388	7-30468	18-30422	18-30423	18-30427	18-30429
7-30684	7-30688	7-32650	11-32650	18-30635			
12-32650	14-29028	14-29257	14-30363	LIQUID			
15-29257	15-30363	15-30400	15-30969	5-30074	9-30590	9-30597	
15-31316	15-32578	17-30895		LIQUID FUEL			
ION EXCHANGE				3-30786			
13-31408	14-29028	14-29261	14-29632	LIQUID SCRUBBER			
14-29633	14-30120	14-30123	14-30402	7-32249			
14-30695	14-30698	14-30973	17-30548	LITHIUM			
IRIDIUM				6-30392	7-30392		
17-29702				LOFT (S-RR)			
IRON				1-30578	1-30579	7-30578	7-30579
14-30697	14-30892	14-30983		11-30578	11-30579		
IRRADIATION FACILITY				LOW			
1-30140	4-29267	5-30199	6-30529	10-30203	17-30203	17-30211	17-30300
9-29267	9-30532	9-31241	9-32307	18-30211			
12-30666	13-30127	13-30666	14-30127	LRL			
15-30929	17-30199	17-30239	17-30287	15-30974			
17-30297	17-30529	17-30531	17-30532	LUBRICATION			
17-30533	17-30547	17-30896	17-30929	9-30262	17-29998	17-30262	
17-31329	17-32307			MAGNESIUM			
IRRADIATION TESTING				7-31343			
4-30158	5-30229	5-30295	5-31442	MAIN COOLING SYSTEM			
5-32543	7-29296	7-29759	7-29910	2-30022	2-30414	2-30415	2-30643
7-30113	7-31410	7-32859	9-29296	5-26643	5-29297	5-30165	5-30447
9-30158	9-30592	9-31412	11-30316	5-32646	7-30198	9-29920	9-30248
12-29526	12-29910	12-30113	12-30316	9-30414	9-30642	10-30203	11-27050
12-31333	12-31410	12-31412	12-32859	11-30132	11-30296	11-30415	11-30609
13-29526	13-29910	13-30316	13-30975	11-30642	11-30643	11-32646	11-32647

12-26643	12-27050	12-30132	12-30609	2-30422	11-30423	17-30211	18-30211
12-32647	15-30447	17-29297	17-29920	18-30422	18-30423		
17-30198	17-30201	17-30203	17-30211	MINING			
17-30232	17-30248	17-30260	17-30278	13-29278	13-29542	13-30403	13-30693
17-30282	17-30306	17-31253	17-32646	14-29262	14-30403	15-29262	15-29278
17-32647	18-26643	18-27050	18-27051	15-30693			
18-30022	18-30132	18-30165	18-30211	MISSILE GENERATION AND PROTECTION			
18-30296	18-30414	18-30415	18-30447	2-30417	5-30350	11-30167	11-30350
18-30609	18-30642	18-30643		11-30417	17-30167	18-30350	18-30417
MAINE YANKEE (PWR)				MITR (RR)			
2-30414	2-30636	2-30637	9-30414	5-30309	17-30309		
11-30637	18-30414	18-30636	18-30637	MOCKUP			
MAINTENANCE AND REPAIR				5-30633	15-30633	18-30633	
1-30644	5-29314	5-30598	5-30962	MODEL TESTING			
9-29997	9-30532	9-30642	9-30645	1-29893	13-29893	14-28912	14-30131
9-30893	10-30598	11-30642	11-30644	15-29893	15-32578		
11-30645	11-30962	13-32309	15-30265	MODERATOR			
17-29314	17-29939	17-29997	17-30211	6-29922	6-30090	7-29522	9-30090
17-30218	17-30225	17-30260	17-30265	9-30597	12-29764		
17-30270	17-30307	17-30532	17-30533	MODERATOR COEFFICIENT			
17-30598	17-30893	17-30962	17-32309	6-29415	6-29419		
17-32333	17-32638	18-30211	18-30642	MODIFICATION, SYSTEM OR EQUIPMENT			
18-30644	18-30645			1-30409	2-30422	5-29297	5-30204
MANGANESE				5-30249	5-30309	5-30447	5-30598
14-30892				9-29978	9-29996	9-30200	9-30240
MASS TRANSFER				9-30284	9-30893	9-32089	9-32307
5-29383	7-30377	7-30389		10-30204	10-30598	11-30296	11-30323
MATERIAL				11-30398	11-30641	12-30249	12-30641
5-30078	7-29591	9-30084	9-30586	12-32310	14-32310	15-30447	15-30927
9-31412	11-30412	12-31412	13-31412	17-29297	17-29926	17-29939	17-29578
17-30586	18-30412			17-29996	17-30200	17-30201	17-30204
MATHEMATICAL STUDY				17-30219	17-30240	17-30249	17-30267
2-30426	5-30258	5-30426	7-29292	17-30284	17-30285	17-30298	17-30306
15-28910	17-30258	18-30258	18-30426	17-30309	17-30531	17-30537	17-30598
MATHEMATICAL TREATMENT				17-30893	17-30927	17-32089	17-32295
4-30079	5-30566	6-29124	6-30572	17-32307	17-32310	17-32317	17-32318
6-30575	6-31386	9-29276	9-29323	17-32640	17-32643	18-30296	18-30323
9-30079	9-31240	12-29950	13-29950	18-30398	18-30409	18-30422	18-30424
15-30124	15-32578	18-30575	19-30566	18-30447	18-30641	18-32317	
MATHEMATICS				MOLTEN FUEL			
18-27051				11-30890			
MAXIMUM PERMISSIBLE CONCENTRATION (MPC)				MOLYBDENUM			
14-30363	15-30109	15-30361	15-30363	7-28504	11-30890	13-29550	
15-30978	17-30978			MONITOR, AIR			
MAXIMUM PERMISSIBLE DOSE (MPD)				7-29400	7-30469	12-31411	13-29279
14-30461	15-30461	15-32898		13-29545	13-31411	15-29279	15-30969
MEASUREMENT, GENERAL				15-31411			
2-30650	3-30101	5-29553	5-30301	MONITOR, AREA			
5-30598	6-29264	9-29264	9-30538	1-31389	9-32299	13-29278	15-29278
9-30549	10-30598	15-30126	15-32898	15-30291	15-30927	15-30928	15-31389
16-30650	17-30205	17-30222	17-30301	17-30219	17-30283	17-30291	17-30300
17-30538	17-30541	17-30545	17-30547	17-30927	17-30928	17-32299	17-32317
17-30549	17-30598	18-30650		18-32317			
MEASUREMENT, REACTIVITY				MONITOR, BACKGROUND			
5-30207	6-30454	6-30480	6-30529	15-30104	17-30104		
6-31353	6-31403	9-29890	9-30207	MONITOR, ENVIRONMENTAL			
9-30454	9-30480	12-30128	13-30127	2-30650	9-30159	9-30960	13-29278
14-30127	15-28910	15-29925	15-30124	13-29279	14-29243	15-29243	15-29278
15-30128	17-30207	17-30529		15-29279	15-30104	15-30109	15-30159
MEASUREMENT, STRAIN GAGE				15-30361	15-30400	15-30404	15-30960
4-30158	9-30158			15-30974	15-30978	15-30980	15-30981
MEASUREMENT, SUBCRITICALITY				15-31316	15-32306	16-30650	17-30104
6-30529	6-30972	9-30538	17-30529	17-30978	17-30980	17-30981	17-32306
17-30535	17-30537	17-30538	17-30546	18-30650			
17-30971	17-30972			MONITOR, GAS			
MEASUREMENT, TEMPERATURE				13-30246	14-30530	15-30246	17-30246
9-29880	9-30550	17-30550		17-30530			
MERCURY				MONITOR, GENERAL			
7-30388	15-30889	17-30889		9-31241	13-30456	15-29651	15-30456
METAL				MONITOR, GROUND SURFACE			
5-30566	5-31448	7-29591	7-29946	15-30978	17-30978		
7-30106	7-30373	7-31343	7-32254	MONITOR, LIQUID			
14-30402	18-31448	19-30566	19-32254	15-30404			
METAL WATER REACTION				MONITOR, PERSONNEL			
5-30631	5-30707	7-32254	8-30707	1-31389	7-30469	9-30960	13-29279
12-30631	17-30571	18-30631	19-32254	13-29545	15-29259	15-29260	15-29279
METAL, ALKALI				15-29651	15-30121	15-30361	15-30362
5-30566	7-29287	11-30740	12-30740	15-30400	15-30696	15-30960	15-30974
19-30566				15-31389			
METAL, LIQUID				MONITOR, SOLID			
4-29384	4-30072	5-29384	5-30072	15-30404			
7-28504	7-29287	7-29395	7-29591	MONITOR, STACK			
7-30378				2-30650	13-30246	14-30530	15-30104
METEOROLOGICAL SUPPORT				15-30246	15-30404	16-30650	17-30104
1-27062	2-27062	7-29295	11-27062	17-30212	17-30246	17-30530	18-30212
15-30974				18-30650			
METEOROLOGY				MONITOR, TELEMETRY			
2-30650	7-29400	14-29027	14-29028	13-30127	14-30127	15-30104	17-30104
14-30984	15-30980	16-29620	16-30650	MONITORING PROGRAM, ENVIRONMENTAL			
17-29027	17-30980	18-27051	18-30650	13-30127	14-30127	15-30130	15-30279
MILLSTONE POINT (BWR)				15-30400	17-30279		

MONITORING SYSTEM, RADIATION

7-30469 9-30478
 MONTE CARLO
 6-29922 6-30114 7-29922 9-29768
 9-30081 9-30581
 MONTICELLO (BWR)
 2-30021 2-30022 9-30023 11-30021
 12-30023 17-30212 18-30021 18-30022
 18-30023 18-30212
 MSRE (RE)
 9-31412 12-31412 13-31412 17-30264
 MTR (TR)
 15-30265 17-29796 17-30265 17-31328
 17-31329
 NBS
 9-30227 9-32307 15-29924 17-30227
 17-32307
 NOT DATA
 2-30414 9-30414 11-30132 12-30132
 18-30132 18-30414
 NEPTUNIUM
 7-29290
 NERVA PROGRAM
 4-29267 9-29267
 NETHERLANDS
 9-30744 11-30744
 NEUTRON
 7-29291 9-29323 9-29881 11-29881
 11-30132 12-30128 12-30132 13-29007
 15-29925 15-30128 15-30696 18-30132
 NFS
 12-32310 13-30246 13-32309 14-32310
 15-30246 17-30246 17-32309 17-32310
 NINE MILE POINT (BWR)
 2-30426 5-30426 18-30426
 NIOBIUM
 4-29882 7-28504 7-29882 7-29944
 7-30473 11-29944 14-30473 17-29926
 NITROGEN
 5-30631 7-30683 9-30683 11-30609
 12-30609 12-30631 17-30239 18-30609
 18-30631
 NOBLE GAS
 7-29409 7-29594 7-30379 7-30393
 7-30683 7-30701 9-30683
 NOISE
 9-32299 9-32628 17-32299 17-32313
 17-32628
 NOISE ANALYSIS
 6-31403 9-29040 9-29318 9-29323
 9-30087 17-29040
 NOISE CROSS CORRELATION
 6-31403 9-29040 17-29040
 NUKWAH
 1-30148 14-30984
 NOZZLE
 1-30578 1-30579 7-29944 7-30578
 7-30579 11-29944 11-30578 11-30579
 11-32647 12-32647 17-32647
 NRDL
 9-30159 15-30159
 NRTS
 1-29893 13-29893 15-29893
 NRU (TR)
 7-29394 7-29398
 NRX (TR)
 7-29400
 NS SAVANNAH (PWR)
 7-30241 9-32296 10-32296 17-30241
 17-30260 17-32296 17-32297
 NSPP
 7-32650 11-32650 12-32650
 NUCLEAR ATTACK
 1-30276 1-30277 2-30276 2-30277
 18-30276 18-30277
 NUCLEAR DETONATION
 14-29028 14-29234 14-29257 14-30108
 14-30984 14-31244 15-29234 15-29257
 15-30117 15-30978 15-30981 15-31316
 16-29620 17-30978 17-30981
 NUCLEAR INCIDENT DOSIMETER
 15-30401
 NUCLEAR ROCKET
 4-29267 4-30158 9-29267 9-30158
 OCEAN AND SEA
 1-30129 1-30133 13-30127 14-28911
 14-30108 14-30127 14-30129 14-30428
 14-30697 14-30892 15-28911 15-30129
 15-30133 15-30428 18-30428
 OFF GAS
 7-29400 13-30663 14-29585 17-29585

17-30234 17-30264
 OFF SITE
 2-30650 5-26643 5-27323 5-30350
 5-30447 5-30633 11-30350 11-30649
 12-26643 12-30311 12-30649 14-30428
 15-27323 15-30428 15-30447 15-30633
 16-30650 17-30311 18-26643 18-27323
 18-30311 18-30350 18-30428 18-30447
 18-30633 18-30649 18-30650
 ON SITE WORK
 11-30649 12-30649 18-30649
 OPERATING EXPERIENCE
 5-30962 7-29296 9-29296 9-29889
 9-30586 9-30587 9-32628 11-30962
 17-29296 17-29939 17-30586 17-30962
 17-32628
 OPERATING EXPERIENCE SUMMARY
 1-30172 1-30453 2-28973 2-29580
 9-28972 9-29997 9-29997 12-32310
 14-28972 14-32310 15-30265 17-28972
 17-28973 17-29576 17-29578 17-29583
 17-29926 17-29939 17-29997 17-29997
 17-30107 17-30172 17-30264 17-30265
 17-30267 17-30268 17-30270 17-30278
 17-30453 17-30531 17-30540 17-30571
 17-32310 18-28973 18-25580 18-30107
 OPERATING LICENSE PROCESS
 18-30635 18-32632
 OPERATION
 1-31389 9-29769 15-29651 15-31389
 17-29769
 OPERATOR ACTION
 5-32646 9-29676 9-30082 9-30549
 9-30584 11-32646 17-29676 17-30082
 17-30549 17-32294 17-32646
 ORGANIC IODIDE
 7-29296 7-29410 7-30241 7-30468
 7-30651 7-30684 7-30686 7-30688
 7-32249 9-29296 11-30651 17-29296
 17-30241 18-30651
 ORNL
 9-29769 13-30975 14-30122 17-29769
 OSCILLATION
 6-29413
 OSCILLATOR, REACTIVITY
 6-29419 6-30197 6-30454 6-30972
 6-31353 9-30454 17-30197 17-30572
 OUT OF PILE LOOPS AND EXPERIMENTS
 1-30578 1-30579 5-30967 5-31246
 5-31247 5-31448 7-29594 7-30570
 7-30579 11-30308 11-30578 11-30579
 11-30967 11-31246 11-31247 11-32270
 12-32270 17-30308 17-30967 17-31246
 17-31247 18-31448
 OXIDATION
 5-30002 5-30707 7-29591 7-29940
 7-29946 7-30002 7-30373 8-30707
 9-30748 11-30748 13-31958 14-31958
 OXIDE
 4-29882 7-29286 7-29395 7-29399
 7-29407 7-29591 7-29882 7-30375
 7-31343 14-30402
 OXYGEN
 5-30002 7-29395 7-29749 7-30002
 8-29749
 OYSTER CREEK 1 (BWR)
 1-30644 1-30646 2-30429 2-30643
 2-30650 5-30640 5-30647 5-30648
 6-30647 9-30642 9-30645 11-30167
 11-30429 11-30640 11-30641 11-30642
 11-30643 11-30644 11-30645 11-30646
 11-30649 12-30641 12-30648 12-30649
 14-30428 15-30428 16-30650 17-30167
 18-30427 18-30428 18-30429 18-30640
 18-30641 18-30642 18-30643 18-30644
 18-30645 18-30646 18-30647 18-30648
 18-30649 18-30650
 PADUCAH PLANT
 15-30969
 PARTICLE SIZE
 7-29407 7-29946 7-30470 7-32249
 7-32257 7-32259 7-32260 7-32261
 7-32262 14-30465 15-30465
 PARTICLE SIZE DISTRIBUTION
 7-29407 7-29946 7-32260 7-32262
 7-32263
 PARTICLE, RADIOACTIVE
 7-30758 7-32650 9-30960 11-32650
 12-30758 12-32650 15-30400 15-30960
 15-31316
 PARTICULATE

7-29400	15-28676	15-30104	17-28676	9-30288	9-30477	17-30288	
17-30104				POISON, SOLUBLE			
PARTITION COEFFICIENT				9-29676	9-30596	9-30745	9-30746
7-29296	9-29296	9-30208	14-29585	17-29676			
17-29296	17-29585	17-30208		PONTRYAGINS PRINCIPLE			
PATENT				9-29276			
7-29596	7-29597	7-30372	7-30375	POOL BOILING			
7-30376	7-30469	7-30469	9-30476	5-30077	5-30078		
9-30477	9-30478	9-30479	9-30588	POPULATION EXPOSURE			
9-30589	9-30590	9-30591	9-30592	1-11410	1-30129	14-28959	14-29028
9-30593	9-30594	9-30595	9-30596	14-29243	14-29257	14-30123	14-30129
9-30597	9-30745	9-30746	9-30747	14-30135	14-30363	14-30984	14-31244
10-30588	11-30589			15-29243	15-29257	15-30129	15-30135
PATHFINDER (ISR)				15-30363	15-30974	15-30978	15-30980
14-29675	15-30196	17-29675	17-30195	15-30981	17-30978	17-30980	17-30981
17-30196	17-30221	17-32315		POTASSIUM			
PBF (S-RR)				4-30072	5-30072	14-28958	
9-30093				POWER, COEFFICIENT			
PEACH BOTTOM 1 (HTGR)				5-30539	6-30115	6-30539	17-30536
7-30198	9-31435	17-30198	17-31435	17-30539			
PERFORMANCE LIMIT				POWER DISTRIBUTION			
5-29983	5-30228	5-30229	5-30295	5-30220	5-30598	5-30606	6-29549
5-30309	5-30606	5-30967	5-31442	9-31249	9-32311	10-30598	17-30205
6-29983	7-29296	9-29296	11-30967	17-30220	17-30268	17-30598	17-30606
17-29296	17-29983	17-30228	17-30229	17-31249	17-32311	17-32312	
17-30268	17-30295	17-30300	17-30309	POWER UPGRATING			
17-30534	17-30606	17-30967	17-31442	5-30245	5-30249	5-30258	5-30301
18-30229				5-30447	5-30539	6-30539	9-30240
PERIOD METER				12-30249	15-30447	17-30193	17-30194
9-32628	17-32628			17-30222	17-30226	17-30234	17-30240
PERSONNEL EXPOSURE, RADIATION				17-30245	17-30249	17-30258	17-30267
1-11409	13-32309	15-11409	15-30361	17-30280	17-30294	17-30297	17-30299
17-30307	17-30894	17-32309	17-32633	17-30301	17-30304	17-30534	17-30535
PERSONNEL PROTECTIVE DEVICE				17-30539	17-30540	17-32312	17-32317
13-29030	15-29030	15-30001	15-30928	17-32331	18-30193	18-30258	18-30447
17-30001	17-30568	17-30928		18-32317			
PH REACTIVITY EFFECT				PRAIRIE ISLAND 1 (PWR)			
11-30308	17-30308			17-32258			
PHANTOM, HUMAN BODY				PRAIRIE ISLAND 2 (PWR)			
15-32898				17-32258			
PHASE CHANGE				PRECIPITATION			
5-29383	5-30073	5-30075	5-30077	2-30650	14-29631	14-29632	14-29633
5-30078	7-29909	9-32296	10-32296	14-30108	14-30123	14-30697	14-30573
13-29909	17-32296			14-30983	14-30984	15-28676	15-30969
PHOSPHATE				15-31316	16-30650	17-28676	18-30650
14-29633	14-30402			PRESSURE DROP			
PHOSPHORUS				5-29389	5-32861	12-32861	13-32861
14-28959	14-29288	15-29288	17-29288	17-31328			
PIPING				PRESSURE RELIEF			
2-30414	2-30415	2-30610	2-30643	5-30086	9-30588	9-30595	10-30588
5-26643	5-31448	9-30414	9-30595	11-30086	13-30086	17-30201	17-32312
11-30296	11-30316	11-30415	11-30610	17-32317	18-32317		
11-30643	11-30740	12-26643	12-29526	PRESSURE TRANSIENT			
12-30316	12-30740	12-32303	13-29526	5-29297	5-29310	12-29310	17-29297
13-30316	14-29526	17-30221	17-30282	PRESSURE VESSEL			
17-32303	18-26643	18-27051	18-30296	1-30578	1-30579	1-30644	2-27447
18-30414	18-30415	18-30610	18-30643	2-29595	2-30021	2-30022	2-30415
18-31448				2-30420	2-30610	2-30643	5-30350
PIQUA (OCR)				5-30640	7-30578	7-30579	9-30281
17-30237	17-30285	17-32636		9-30642	9-30645	11-29574	11-30021
PLASTICS				11-30132	11-30308	11-30350	11-30415
14-29675	17-29675	17-30896	17-32331	11-30420	11-30421	11-30578	11-30579
PLOWSHARE PROGRAM				11-30609	11-30610	11-30640	11-30642
1-30275	15-30974	18-30275		11-30643	11-30644	11-30645	11-30649
PLUM BROOK (TR)				11-32647	12-30132	12-30609	12-30649
17-30268	17-30270	17-30607		12-32647	14-30314	17-30218	17-30261
PLUME BEHAVIOR, GENERAL				17-30269	17-30281	17-30308	17-32636
7-29295				17-32643	17-32647	18-27447	18-29574
PLUTONIUM				18-29595	18-30021	18-30022	18-30132
6-32659	7-28504	7-29008	7-29286	18-30261	18-30350	18-30407	18-30415
7-29290	7-29291	7-29598	7-29910	18-30420	18-30421	18-30609	18-30610
7-29937	7-29946	7-30373	7-31343	18-30640	18-30642	18-30643	18-30644
12-29008	12-29910	12-31411	13-29007	18-30645	18-30649		
13-29008	13-29545	13-29910	13-30039	PRESSURE, EXTERNAL			
13-31411	13-32652	14-30463	15-30039	4-29622	11-29622		
15-30404	15-30463	15-30969	15-31316	PRESSURE, INTERNAL			
15-31411	17-30039	18-32659		5-30086	10-30203	11-30086	13-30086
PLUTONIUM DIOXIDE				17-30203	17-30211	17-30896	18-30211
5-30600	7-29407	7-29909	7-29946	PRESSURE, SUBATMOSPHERIC			
7-31410	7-32250	11-30609	12-30609	11-30132	12-30132	18-30132	
12-31410	13-29007	13-29909	13-31410	PRESSURIZER			
13-32862	17-30305	17-30600	17-32302	9-29920	17-29920	17-30201	17-31253
18-30609				PROBABILITY			
PLUTONIUM OXIDE				1-30796	4-30079	4-30796	5-30647
7-29946	13-29545			5-30796	6-30647	9-30079	9-30082
PNEUMATIC SYSTEM				9-30087	9-30581	11-28490	17-30082
9-30262	17-30262			18-30647			
POISON, BURNABLE				PROCEDURES AND MANUALS			
9-29887	17-30211	17-30266	17-32318	1-30137	5-30566	9-29769	9-30645
18-30211				9-31312	11-30645	14-30569	17-28939
POISON, FIXED				17-29769	17-29794	17-30568	17-30569

17-30570	18-30424	18-30645	19-30566	1-30129	1-30634	1-30738	1-30739
PROMPT CRITICALITY				1-31389	7-29295	7-29399	7-29400
6-29419				7-29403	7-29406	7-30380	13-29542
PROMPT NEUTRON LIFETIME				13-30403	13-30693	13-32309	14-29027
6-29415	6-31353			14-30123	14-30129	14-30135	14-30403
PROPERTY, PHYSICAL				14-30428	14-30977	14-30984	14-31244
5-30707	5-31448	7-28504	7-28987	14-32573	15-29260	15-29406	15-29651
7-29284	7-29399	7-29591	7-31407	15-30109	15-30129	15-30135	15-30196
7-32855	8-30707	11-28490	11-28987	15-30265	15-30291	15-30366	15-30401
12-29009	12-32855	13-29009	18-31448	15-30404	15-30428	15-30634	15-30693
PRTR (TRI)				15-30738	15-30739	15-30889	15-30927
7-32264	17-32264			15-30929	15-30977	15-30980	15-31389
PUERTO RICO				17-29027	17-29810	17-30196	17-30265
6-31353				17-30289	17-30291	17-30297	17-30889
PULSED NEUTRON TECHNIQUE				17-30927	17-30929	17-30980	17-32309
6-30972	17-30972			18-30428	18-30634		
PULSTAR (RR)				RADIATION UNIT			
5-30606	7-32645	11-30296	17-30606	14-30466	15-30466		
17-32645	18-30236	18-30296		RADIATION, PUBLIC EDUCATION			
PUMP				1-03475	1-03627	1-05193	1-05231
9-30200	9-30748	11-30748	17-29998	1-05462	1-07194	1-11409	1-11410
17-30200	17-30307	17-31254		1-27062	1-30172	1-30271	2-13846
PUMP, JET				2-27062	7-29406	11-27062	15-11409
17-30261	18-30261			15-29406	17-30172	17-30552	18-05231
PYROCHEMICAL				RADIOACTIVITY RELEASE			
7-29008	12-29008	13-29008		1-30129	2-13846	2-29142	2-30650
PYROLYTIC				5-30350	11-30350	13-30246	14-29027
6-29308	7-29285	7-29308	7-29409	14-29675	14-30129	14-31244	15-30117
7-29597				15-30129	15-30246	16-29142	16-30650
PYROPHORIC REACTION				17-29027	17-29142	17-29675	17-30246
7-29946	7-30373	7-31343		18-30350	18-30650		
QUAD CITIES 1 (BWR)				RADIOBIOLOGY			
1-30634	15-30634	18-30634		14-30977	15-30401	15-30977	17-30455
QUAD CITIES 2 (BWR)				RADIOCHEMICAL ANALYSIS			
1-30634	15-30634	18-30634		7-29942	7-32256	14-30464	14-32256
QUALITY ASSURANCE				15-30464			
1-27062	1-30646	2-27062	2-30021	RADIOCHEMICAL PLANT SAFETY			
5-26643	5-27323	5-30425	9-29266	5-30086	11-30086	13-30086	
11-27062	11-30021	11-30412	11-30423	RADIOCHEMICAL PROCESSING			
11-30646	12-26643	12-30425	15-27323	7-29286	7-29394	7-30388	7-30467
17-29794	17-32638	18-26643	18-27051	7-30474	13-30474	13-32630	14-29631
18-27323	18-30021	18-30412	18-30423	14-30474	14-32630		
18-30425	18-30427	18-30646		RADIOGRAPHY			
R AND D PROGRAM				17-29702	17-29810	17-30894	17-32633
1-27062	1-29893	2-27062	2-30420	17-32634			
5-30633	5-30967	5-31246	5-31247	RADIOISOTOPE			
5-31248	5-31448	5-32542	5-32543	3-30100	7-29937	7-31344	9-31344
6-28988	6-32656	7-29296	7-30651	10-29566	12-31411	13-29278	13-29279
9-29296	9-31435	11-27062	11-30420	13-29280	13-30039	13-30456	13-30970
11-30609	11-30651	11-30967	11-31246	13-31349	13-31352	13-31411	13-31958
11-31247	12-27090	12-30609	12-32310	13-32630	13-32899	14-30698	14-30970
12-32655	13-29892	13-29893	13-32655	14-31958	14-32630	15-29278	15-29279
14-29892	14-30314	14-30315	14-32310	15-30039	15-30456	15-31411	17-30039
15-29893	15-30633	15-32578	17-29296	17-30455	18-29566		
17-30266	17-30967	17-31246	17-31247	RADIOLOGICAL ASSISTANCE			
17-31248	17-31435	17-32310	18-27090	1-30634	1-31389	14-30891	15-29979
18-28988	18-30420	18-30574	18-30576	15-30365	15-30401	15-30634	15-30968
18-30609	18-30633	18-30651	18-31448	15-30974	15-30978	15-30981	15-31389
18-32542	18-32543	18-32655	18-32656	17-29979	17-30978	17-30981	18-30634
RADIATION DAMAGE				RADIOLOGY			
1-11409	5-32543	7-28987	7-29410	14-30466	15-30466		
7-30125	7-31344	9-31344	11-28987	RADIOLYTIC GAS			
11-30125	11-30132	12-30132	14-30977	6-30392	7-30392	18-30407	
15-11409	15-29925	15-30401	15-30977	RADIONUCLIDE, INDUCED			
15-32898	17-30263	17-30266	17-30270	7-30125	7-32256	11-30125	14-32256
17-30896	17-32331	18-30132	18-32543	RADIUM			
RADIATION EFFECT				2-29142	14-30462	15-30109	15-30462
1-11409	5-30077	5-30078	7-29410	16-29142	17-29142		
7-30125	7-31344	9-31344	11-30125	RADON			
15-11409	17-30971			7-30680	13-29542	14-30462	15-30109
RADIATION EXPOSURE, RECORD KEEPING				15-30462	16-29619	16-29620	
1-30250	1-30738	15-30250	15-30738	RAINOUT			
15-30889	17-30250	17-30889		1-30129	14-30108	14-30129	15-30129
RADIATION IN PERSPECTIVE				RANCHO SECO (PWR)			
1-03475	1-03627	1-05193	1-05231	6-30413	9-30413	11-30412	18-30412
1-05462	1-07194	1-11409	1-11410	18-30413			
1-27062	1-30271	2-13846	2-27062	RARE EARTH			
7-29406	11-27062	15-11409	15-29406	7-29591			
15-32898	16-29619	18-05231		RATE			
RADIATION INJURY TREATMENT				7-30106			
1-30634	15-29979	15-30401	15-30634	REACTIVITY COEFFICIENT			
17-29979	18-30634			5-31336	6-29415	6-30452	6-31336
RADIATION MODEL				6-32659	18-32659		
7-29295	15-28910	15-30124		REACTIVITY EFFECT			
RADIATION PROTECTION, ORGANIZATION				5-29888	6-30480	9-29888	9-30227
1-30634	1-31389	7-29406	13-30127	9-30476	9-30480	9-30532	9-30590
13-30693	14-29257	14-30127	15-28676	9-30596	9-30745	17-30227	17-30239
15-29257	15-29406	15-29651	15-30634	17-30264	17-30280	17-30289	17-30531
15-30693	15-30978	15-30981	15-31389	17-30532	17-32313		
17-28676	17-30978	17-30981	18-30634	REACTIVITY EFFECT, ANOMALOUS			
RADIATION SAFETY AND CONTROL				9-29996	9-30544	9-32628	17-29996

17-30264	17-30533	17-30544	17-32294	2-30426	5-26643	5-29387	5-29983
17-32628				5-30426	5-30539	5-32685	6-29387
REACTIVITY EFFECT, EXPANSION				6-29414	6-29419	6-29983	6-30539
6-29308	6-29415	6-29419	7-29308	6-30953	6-31354	6-32685	12-26643
REACTIVITY EFFECT, VOID				17-29983	17-30539	17-30542	18-26643
6-30529	17-30529			18-30426			
REACTIVITY, EXCESS				REACTOR, AEC OWNED			
17-30215				5-29314	5-29316	5-29553	5-30447
REACTIVITY, NEGATIVE				5-32685	6-32685	7-32264	9-29887
9-30744	11-30744			9-29891	9-29995	9-29996	9-29999
REACTOR CONTROL				9-30093	9-30748	9-31412	11-30748
5-29888	5-31336	6-30094	6-30392	12-29764	12-31412	13-31412	15-30265
6-31336	6-31354	7-30392	9-29276	15-30447	17-29314	17-29316	17-29794
9-29888	9-30094	9-30476	9-30590	17-29796	17-29995	17-29996	17-29998
9-30596	9-30597	9-30737	9-30741	17-29999	17-30265	17-30269	17-31328
9-30743	9-30745	9-30746		17-31329	17-32264	18-30447	
REACTOR COOLANT				REACTOR, BREEDER			
5-30073	5-30076	5-30295	17-30295	5-32627	5-32629	5-32861	6-31354
REACTOR DESCRIPTION				7-29547	7-29548	7-29910	9-29040
1-29573	2-27447	2-29580	2-29595	9-32627	9-32628	10-30742	11-32629
2-30022	2-30415	2-30416	2-30422	12-29910	12-32861	13-29910	13-32861
5-27323	5-30165	5-30416	5-30447	17-29040	17-29548	17-29926	17-29939
5-30633	6-30413	6-32656	9-30413	17-30107	17-30192	17-30218	17-32627
10-29566	11-27050	11-30132	11-30415	17-32628	17-32629	18-30107	18-30574
11-30609	12-27050	12-30132	12-30609	REACTOR, BWR			
15-27323	15-30447	15-30633	17-29795	1-29570	1-29893	1-29980	1-30171
18-27050	18-27051	18-27323	18-27447	1-30409	1-30453	1-30634	1-30644
18-29566	18-29573	18-29579	18-29580	1-30646	2-27447	2-28973	2-29580
18-29595	18-30022	18-30132	18-30165	2-30021	2-30022	2-30417	2-30422
18-30413	18-30415	18-30416	18-30422	2-30426	2-30429	2-30610	2-30643
18-30447	18-30498	18-30499	18-30609	2-30650	2-30652	5-26643	5-29310
18-30633	18-32656			5-29311	5-29387	5-29567	5-29657
REACTOR DYNAMICS				5-30075	5-30077	5-30165	5-30228
5-29567	5-29657	6-29124	6-29412	5-30229	5-30235	5-30425	5-30426
6-29413	6-29419	6-29567	6-30094	5-30640	5-30647	5-30648	5-30967
6-30115	6-30953	6-31353	6-32656	5-31246	5-31247	5-31248	5-32646
9-30094	9-30743	18-29567	18-32656	6-29264	6-29311	6-29387	6-29567
REACTOR FUSE				6-30647	6-30736	7-29296	9-27493
9-30288	17-30288			9-29263	9-29264	9-29296	9-30023
REACTOR KINETICS				9-30281	9-30284	9-30642	9-30645
6-29124	6-29412	6-29413	6-30391	9-30736	10-27532	11-27050	11-29574
6-30392	6-30413	6-31353	6-31386	11-30021	11-30167	11-30213	11-30417
7-30392	9-30413	18-30413		11-30423	11-30429	11-30610	11-30640
REACTOR PHYSICS				11-30641	11-30642	11-30643	11-30644
6-29124	6-30114	6-30972	7-29938	11-30645	11-30646	11-30649	11-30967
9-29938	14-30466	15-30466	17-30971	11-31246	11-31247	11-32646	11-32647
17-30972				12-26643	12-27050	12-27493	12-29310
REACTOR POWER				12-30023	12-30425	12-30641	12-30648
1-30409	5-29983	5-30235	5-30309	12-30649	12-32647	13-29893	14-27532
5-30539	5-31442	6-29983	6-30539	14-29585	14-29675	14-30428	14-30569
7-29296	7-30125	9-29296	9-30532	14-30652	15-29893	15-30196	15-30428
9-30549	9-30550	9-30893	9-31435	15-30634	16-30650	17-28973	17-29296
9-32311	9-32334	9-32465	11-30125	17-29583	17-29584	17-29585	17-29675
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17-29983	17-30205	17-30211	17-30235	17-30195	17-30196	17-30211	17-30212
17-30268	17-30300	17-30309	17-30532	17-30213	17-30228	17-30229	17-30235
17-30536	17-30539	17-30542	17-30547	17-30261	17-30269	17-30281	17-30282
17-30549	17-30550	17-30893	17-31253	17-30284	17-30453	17-30568	17-30569
17-31435	17-31442	17-32306	17-32311	17-30570	17-30967	17-31246	17-31247
17-32312	17-32334	17-32465	18-30211	17-31248	17-32315	17-32318	17-32638
18-30409				17-32646	17-32647	18-26643	18-27050
REACTOR SAFETY SYSTEM				18-27051	18-27447	18-27493	18-27532
2-30414	2-30416	2-30610	5-30416	18-28973	18-29567	18-29570	18-29574
5-30418	6-30413	7-30683	7-32254	18-29580	18-29581	18-29980	18-30021
9-27493	9-29999	9-30240	9-30413	18-30022	18-30023	18-30163	18-30165
9-30414	9-30418	9-30587	9-30683	18-30211	18-30212	18-30229	18-30261
9-30744	9-31312	9-32089	9-32314	18-30409	18-30417	18-30422	18-30423
9-32465	11-30132	11-30296	11-30610	18-30424	18-30425	18-30426	18-30427
11-30744	12-27493	12-30132	14-30135	18-30428	18-30429	18-30610	18-30634
15-30135	17-29999	17-30240	17-32089	18-30640	18-30641	18-30642	18-30643
17-32314	17-32465	18-27493	18-30132	18-30644	18-30645	18-30646	18-30647
18-30296	18-30413	18-30414	18-30416	18-30648	18-30649	18-30650	18-30652
18-30418	18-30610	19-32254		REACTOR, DESALINATION			
REACTOR STABILITY				18-30653			
5-29567	5-31336	6-29413	6-29567	REACTOR, FAST			
6-30572	6-30736	6-31336	9-30736	5-32542	5-32543	5-32627	5-32629
11-30609	12-30609	18-29567	18-30609	5-32861	6-29415	6-29923	6-31354
REACTOR STARTUP EXPERIENCE				6-32654	6-32656	6-32659	7-28987
5-29314	5-30204	9-29995	9-29996	7-29008	7-29286	7-29287	7-29547
9-30737	9-31435	10-30204	17-29314	7-29547	7-29548	7-29548	7-29910
17-29795	17-29995	17-29996	17-30201	7-29923	7-30106	7-30378	7-31410
17-30202	17-30204	17-30534	17-31435	7-32250	7-32253	7-32254	9-29040
REACTOR STARTUP TESTING				9-29871	9-30087	9-30748	9-32627
5-27323	9-30200	9-30227	9-32307	9-32628	10-30092	10-30742	11-28987
15-27323	17-29578	17-29583	17-29584	11-30748	11-32629	12-29008	12-29910
17-30200	17-30202	17-30227	17-32307	12-30664	12-31410	12-32654	12-32661
18-27323				13-29008	13-29910	13-30664	13-31410
REACTOR STARTUP, LOW SOURCE				13-32652	13-32861	13-32862	17-29040
6-30223	6-31386	9-30223	17-30223	17-29948	17-29548	17-29576	17-29582
17-30297				17-29794	17-29926	17-29939	17-30107
REACTOR TRANSIENT				17-30192	17-30218	17-32294	17-32627

17-32628 17-32629 18-30107 18-30209
 18-32542 18-32543 18-32632 18-32656
 18-32659 19-32254
 REACTOR, FAST BURST
 6-30575 6-30953 18-30575
 REACTOR, FLUX TRAP
 6-30197 6-30529 9-29891 17-30193
 17-30194 17-30197 17-30231 17-30529
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 REACTOR, GCR
 2-28973 5-32685 6-30115 6-32685
 7-30389 7-30390 9-31435 12-29764
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 REACTOR, GENERAL
 1-11410 5-29553 6-29308 7-29008
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 7-32859 11-29539 11-30316 11-30890
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 12-29009 12-29526 12-29539 12-29950
 12-30316 12-30662 12-30664 12-30666
 12-30758 12-31333 12-31411 12-32270
 12-32859 13-29008 13-29009 13-29278
 13-29279 13-29280 13-29526 13-29950
 13-30316 13-30456 13-30664 13-30666
 13-30970 13-31333 13-31352 13-31411
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 REACTOR, GRAPHITE MODERATED
 6-30115 7-29306 9-31435 17-30193
 17-30194 17-30238 17-31435 18-30193
 REACTOR, HOMOGENEOUS
 6-31353 17-32643
 REACTOR, HTGR
 1-30578 1-30579 2-30420 5-32685
 6-30115 6-32685 7-29306 7-30198
 7-30578 7-30579 7-31344 9-30288
 9-31344 9-31435 9-32299 11-30420
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 REACTOR, HWR
 1-30143 1-30446 5-30309 6-30480
 7-29398 7-29400 7-32264 9-30227
 9-30480 9-32307 11-29574 12-29009
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 REACTOR, INTERNAL SUPERHEAT
 14-29675 15-30196 17-29675 17-29795
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 REACTOR, LARGE
 9-30745
 REACTOR, LMCR
 5-29297 5-30633 5-31448 5-32542
 5-32543 5-32627 5-32629 6-31354
 6-32656 7-29547 7-29548 9-29040
 9-29871 9-30743 9-30748 9-32627
 9-32628 10-30092 11-30609 11-30748
 11-32629 12-30609 12-30664 12-32303
 13-30664 15-30633 17-29040 17-29297
 17-29548 17-29794 17-29939 17-30192
 17-30218 17-30238 17-32294 17-32303
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 REACTOR, LMFBFR
 5-30633 5-31448 5-32542 5-32543
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 9-32627 9-32628 11-28987 11-30609
 11-32629 12-30609 15-30633 17-30192
 17-30218 17-30278 17-30571 17-32627
 17-32628 17-32629 18-29301 18-30209
 18-30498 18-30574 18-30576 18-30609
 18-30633 18-31448 18-32542 18-32543
 18-32632 18-32656
 REACTOR, MARITIME
 7-30241 17-30241 17-30260 17-32297
 18-30344 18-30567
 REACTOR, MOLTEEN SALT
 9-31412 12-31412 13-31412 17-30264
 REACTOR, ORGANIC COOLED
 7-29394 17-30237 17-30285 17-32636
 REACTOR, POOL TYPE
 9-29978 9-30594 9-30893 17-29978
 17-30225 17-30294 17-30893 17-32333
 17-32637 18-30499

REACTOR, POWER

1-03627 1-07194 1-27062 1-29573
 1-29893 1-29980 1-30111 1-30129
 1-30133 1-30141 1-30142 1-30143
 1-30151 1-30172 1-30250 1-30271
 1-30275 1-30731 2-27062 2-30750
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 7-29759 7-29937 7-32650 7-32855
 9-28972 9-29268 9-29999 9-30224
 9-30573 10-29566 11-27062 11-29574
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 17-32303 18-29566 18-29573 18-29574
 18-29604 18-29980 18-30111 18-30163
 18-30165 18-30275 18-30344 18-30498
 18-30567

REACTOR, PRESSURE TUBE

1-30446 7-29398 7-29400 7-31407
 7-32264 17-29578 17-29795 17-30251
 17-32264

REACTOR, PULSED

5-30539 5-30606 6-29414 6-30529
 6-30539 6-30953 6-32656 9-29997
 9-30093 9-30240 9-30262 9-30538
 9-30543 9-30544 9-32314 14-30530
 17-29997 17-30219 17-30239 17-30240
 17-30262 17-30287 17-30300 17-30529
 17-30530 17-30533 17-30534 17-30535
 17-30536 17-30537 17-30538 17-30539
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 17-30544 17-30546 17-30606 17-32294
 17-32300 17-32314 17-32330 17-32640
 18-30209 18-30236 18-32632 18-32656

REACTOR, PWR

1-29980 1-30171 1-30276 1-30277
 1-30453 1-30639 2-13846 2-29595
 2-30276 2-30277 2-30408 2-30414
 2-30415 2-30416 2-30636 2-30637
 5-27303 5-27323 5-29387 5-30165
 5-30204 5-30207 5-30220 5-30245
 5-30249 5-30258 5-30350 5-30406
 5-30416 5-30418 5-30598 5-30967
 5-31246 5-31442 6-28988 6-29387
 6-30413 7-30113 7-30241 7-30651
 9-29676 9-29920 9-30200 9-30206
 9-30207 9-30208 9-30413 9-30414
 9-30418 9-30419 9-32296 9-32311
 10-30203 10-30204 10-30243 10-30598
 10-30608 10-32296 11-27084 11-27303
 11-30132 11-30244 11-30290 11-30308
 11-30323 11-30350 11-30398 11-30406
 11-30410 11-30411 11-30412 11-30415
 11-30450 11-30637 11-30651 11-30967
 11-31246 11-32644 12-27090 12-30113
 12-30132 12-30243 12-30249 12-30290
 12-30311 12-30410 14-27084 14-30626
 15-27323 15-30104 15-30291 17-29676
 17-29920 17-29980 17-30104 17-30163
 17-30171 17-30200 17-30201 17-30202
 17-30203 17-30204 17-30205 17-30206
 17-30207 17-30208 17-30220 17-30232
 17-30241 17-30243 17-30244 17-30245
 17-30249 17-30251 17-30258 17-30260
 17-30263 17-30283 17-30290 17-30291
 17-30304 17-30307 17-30308 17-30311
 17-30453 17-30598 17-30608 17-30967
 17-31246 17-31253 17-31254 17-31442
 17-32296 17-32297 17-32311 17-32312
 17-32644 18-27084 18-27090 18-27303
 18-27323 18-28988 18-29595 18-29980
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 18-30276 18-30277 18-30286 18-30311
 18-30323 18-30344 18-30350 18-30398
 18-30406 18-30407 18-30408 18-30410
 18-30411 18-30412 18-30413 18-30414
 18-30415 18-30416 18-30418 18-30419
 18-30450 18-30567 18-30626 18-30636
 18-30637 18-30638 18-30639 18-30651
 18-32631 18-32639 18-32648

REACTOR, RESEARCH

1-30111 1-30247 1-30250 1-30453
 4-29267 5-30295 5-30301 5-30309
 5-30447 5-30539 5-30606 5-32308
 6-29549 6-30454 6-30529 6-30535
 7-32645 9-29265 9-29267 9-29769
 9-29891 9-29978 9-29997 9-30216

9-30224	9-30227	9-30248	9-30262	4-30079	5-30640	9-29768	9-30079
9-30310	9-30454	9-30532	9-30538	9-30080	9-30082	9-30093	9-30581
9-30543	9-30544	9-30549	9-30550	9-31240	9-31242	10-30092	11-30640
9-30586	9-30893	9-32089	9-32307	11-30649	12-30649	17-30082	17-30211
9-32314	9-32334	9-32465	11-30296	18-30211	18-30640	18-30649	
14-30530	15-30250	15-30265	15-30447	RELIABILITY, COMPONENT			
15-32306	16-30224	17-28939	17-29769	5-30640	9-29266	9-30581	9-30581
17-29978	17-29997	17-30111	17-30193	9-30582	9-30583	11-30640	11-30649
17-30194	17-30215	17-30216	17-30219	12-30649	18-30640	18-30649	
17-30222	17-30224	17-30225	17-30226	RELIABILITY, SYSTEM			
17-30227	17-30234	17-30239	17-30242	9-30081	9-30083	9-30288	9-30581
17-30247	17-30248	17-30250	17-30262	9-30584	9-31242	17-30288	
17-30265	17-30266	17-30267	17-30268	REMOTE MANIPULATING AND VIEWING			
17-30270	17-30280	17-30287	17-30292	4-30158	5-32627	9-30158	9-30592
17-30294	17-30295	17-30297	17-30298	9-30594	9-32627	13-29031	15-29031
17-30299	17-30300	17-30301	17-30302	17-30192	17-30270	17-32333	17-32627
17-30306	17-30309	17-30310	17-30453	REPORT, OPERATIONS			
17-30529	17-30530	17-30531	17-30532	5-30204	5-30207	5-30598	7-30198
17-30533	17-30534	17-30535	17-30536	9-30200	9-30206	9-30207	9-30208
17-30537	17-30538	17-30539	17-30540	10-30203	10-30204	10-30598	10-30608
17-30541	17-30542	17-30543	17-30544	11-30213	17-29796	17-30192	17-30198
17-30545	17-30546	17-30547	17-30548	17-30200	17-30201	17-30202	17-30203
17-30549	17-30550	17-30552	17-30586	17-30204	17-30205	17-30206	17-30207
17-30606	17-30893	17-30896	17-30971	17-30208	17-30213	17-30238	17-30282
17-32089	17-32293	17-32301	17-32305	17-30283	17-30307	17-30531	17-30598
17-32306	17-32307	17-32308	17-32313	17-30608	17-31253	17-31254	17-31328
17-32314	17-32316	17-32317	17-32333	17-31329	17-32304		
17-32334	17-32335	17-32336	17-32465	REPORT, OPERATIONS ANALYSIS			
17-32637	17-32640	17-32645	18-30111	5-29297	5-30539	5-30967	5-32627
18-30193	18-30296	18-30302	18-30447	5-32629	6-30529	6-30539	9-30532
18-30499	18-30635	18-32317		9-30538	9-30543	9-30544	9-30549
REACTOR, SAFETY RESEARCH				9-30550	9-32627	9-32628	11-30967
5-29297	5-29983	6-29414	6-29983	11-32629	14-30530	17-29297	17-30222
9-30093	17-29297	17-29983		17-30280	17-30529	17-30530	17-30532
REACTOR, SGHWR				17-30533	17-30534	17-30535	17-30536
17-30107	18-30107			17-30537	17-30538	17-30539	17-30540
REACTOR, SPACE				17-30541	17-30542	17-30543	17-30544
1-30796	4-30796	5-29888	5-30796	17-30545	17-30546	17-30547	17-30548
6-32654	9-29888	12-32654		17-30549	17-30550	17-30551	17-30552
REACTOR, TEST				17-30967	17-32627	17-32628	17-32629
1-30247	5-29314	5-29316	5-29553	17-32636			
5-30199	5-32542	5-32543	7-29398	REPORT, OPERATIONS SUMMARY			
7-29400	7-32264	9-29871	9-29887	5-30199	9-30227	9-32299	9-32307
9-29887	9-29995	9-29996	9-30744	9-32334	17-30195	17-30199	17-30219
9-30748	10-30092	11-30744	11-30748	17-30227	17-30234	17-30280	17-30607
12-30664	13-30664	15-30265	17-29314	17-32293	17-32295	17-32299	17-32307
17-29316	17-29576	17-29582	17-29794	17-32313	17-32333	17-32334	17-32640
17-29796	17-29926	17-29995	17-29996	REPORT, PSAR			
17-30199	17-30247	17-30265	17-30266	1-30112	2-27447	2-29595	2-30610
17-30267	17-30268	17-30270	17-30607	5-26643	5-27323	5-30350	7-30651
17-31328	17-31329	17-32264	17-32333	9-27493	10-27532	11-27050	11-27084
17-32335	17-32637	18-29579	18-32542	11-30132	11-30323	11-30350	11-30610
18-32543				11-30651	12-26643	12-27050	12-27090
REACTOR, THERMAL				12-27493	12-30132	14-27084	14-27532
7-29008	9-30087	12-29008	13-29008	14-30626	15-27323	17-30112	18-26643
13-32652				18-27050	18-27051	18-27084	18-27090
REACTOR, TRAINING				18-27323	18-27447	18-27493	18-27532
6-30972	17-30289	17-30971	17-30972	18-29595	18-30112	18-30132	18-30323
17-32313	17-32330	17-32331		18-30350	18-30610	18-30626	18-30638
REACTOR, WATER				18-30651			
1-30578	1-30579	7-30578	7-30579	REPORT, SAR			
7-31407	7-32254	11-30578	11-30579	1-30112	2-30021	2-30022	5-27303
19-32254				5-30245	5-30447	5-30633	9-30023
RECONCENTRATION				11-27303	11-30021	11-30609	12-30023
5-30967	9-29676	11-30967	17-29676	12-30311	12-30609	15-30447	15-30633
17-30967				17-30112	17-30193	17-30245	17-30311
REDUNDANCE				18-27303	18-30021	18-30022	18-30023
2-30416	5-30416	9-30083	18-30416	18-30112	18-30193	18-30209	18-30236
REFLECTOR				18-30311	18-30447	18-30609	18-30633
9-30590	9-32334	17-30218	17-30270	RESONANCE OVERLAP			
17-32334				7-29290			
REFUELING				RESPONSE SPECTRUM			
5-30220	17-30220	17-30280	17-30546	2-30610	11-30610	18-30610	
REFUELING, ON LINE				RESPONSE TIME			
1-30446	11-29574	18-29574		9-29997	9-30538	11-30290	11-32644
REGULATION, AEC				12-30290	12-30311	17-29997	17-30282
1-03475	1-30112	1-30138	1-30250	17-30290	17-30311	17-30538	17-31328
11-30450	15-30250	15-30291	17-30112	17-32335	17-32644	18-30311	
17-30250	17-30291	18-30112	18-30450	RESUSPENSION			
REGULATION, GENERAL				14-30463	15-30463		
1-30732	1-30738	3-30791	15-30738	REVIEW			
REGULATION, IAEA				1-30446	5-30070	5-30071	5-30566
3-30098				5-30964	6-32659	9-29317	9-30084
REGULATION, ICC				9-30581	9-30584	9-30586	9-30642
3-30791				9-31240	9-31242	11-30642	17-29795
REGULATION, STATE				17-30586	18-30642	18-32659	19-30566
1-27062	2-27062	11-27062		RIVER, GENERAL			
RELEASE RATE				1-27062	1-29893	2-27062	11-27062
2-30650	7-29946	14-32573	16-30650	13-29893	14-30892	15-29893	15-30104
18-30650				17-30104			
RELIABILITY ANALYSIS				RIVER, THAMES			

15-30109				18-30609	18-30633	18-32632	18-32656
ROCK MECHANICS				SEISMOLOGY			
14-30122				2-29595	14-30122	18-29595	
ROSSI ALPHA				SERVOMECHANISM			
9-30087				9-29889			
RUTHENIUM				SETPOINT			
7-30473	14-30402	14-30473		2-30650	9-30248	9-30893	10-30203
SAFETY ANALYSIS				16-30650	17-30203	17-30248	17-30298
1-29980	1-30112	1-30644	2-30415	17-30300	17-30893	18-30650	
3-32596	5-26643	5-27323	5-30447	SHARED COMPONENTS			
5-30600	5-30631	5-30633	5-30640	2-30414	9-30414	18-30414	
6-29301	6-31386	7-30387	11-30415	SHIELDING			
11-30640	11-30644	11-30649	12-26643	5-30301	5-30418	5-30539	5-30633
12-30311	12-30311	12-30631	12-30649	6-30539	9-29978	9-30418	9-30748
15-27323	15-30447	15-30633	17-29980	10-27532	11-30609	11-30748	12-29950
17-30112	17-30311	17-30311	17-30600	12-30609	13-29030	13-29950	13-31349
18-26643	18-27323	18-29301	18-29581	14-27532	14-30315	15-29030	15-30265
18-29980	18-30112	18-30311	18-30311	15-30633	17-29978	17-30205	17-30218
18-30415	18-30447	18-30631	18-30633	17-30222	17-30265	17-30289	17-30301
18-30640	18-30644	18-30649		17-30531	17-30539	17-30545	17-32331
SAFETY EVALUATION				18-27532	18-30418	18-30609	18-30633
1-30247	5-30229	5-30350	7-30387	SHIPPING CONTAINER			
9-30284	11-30290	11-30296	11-30308	3-30098	3-30100	3-30101	3-30103
11-30350	12-30290	17-30229	17-30237	3-30786	3-30895	3-31424	3-32596
17-30247	17-30284	17-30289	17-30290	7-29408	14-29408	17-30895	
17-30292	17-30297	17-30299	17-30305	SHOCK ABSORBER			
17-30306	17-30308	17-32302	17-32318	9-30284	9-31243	17-30284	
17-32330	17-32463	18-30229	18-30296	SHOREHAM (BWR)			
18-30344	18-30350	18-30567	18-30635	1-30409	2-30652	14-30652	18-30409
SAFETY MARGIN				18-30652			
5-30235	5-30425	12-30425	17-30235	SHUTDOWN COOLING SYSTEM			
18-30425				17-30260	17-30282		
SAFETY PRINCIPLES AND PHILOSOPHY				SHUTDOWN MARGIN			
1-29570	1-30634	1-30646	6-32659	6-31403	9-30538	9-30893	17-30300
7-29406	7-30387	9-30587	9-32314	17-30531	17-30535	17-30538	17-30893
9-32334	11-30646	12-32655	13-32655	17-32318			
15-29406	15-30634	17-32314	17-32334	SHUTDOWN SYSTEM, SECONDARY			
18-29570	18-30634	18-30646	18-32655	9-29676	9-30200	17-29676	17-30200
18-32659				SILICON			
SAFETY PROGRAM				7-29285	7-29597	7-30390	
7-29008	7-32254	12-29008	13-29008	SILVER			
19-32254				7-30241	17-30241		
SAFETY REVIEW				SIMULATION			
1-30112	1-30275	5-30249	9-30532	1-30171	1-30731	5-30633	9-30741
12-30249	14-29288	15-29288	17-29288	9-30743	15-30633	17-30171	17-30731
17-29582	17-30112	17-30215	17-30249	18-30633			
17-30268	17-30532	17-30533	17-30537	SINGLE FAILURE CRITERION			
17-30896	17-32258	17-32305	17-32332	9-32089	17-32089		
17-32637	18-30112	18-30275		SINTERING			
SALEM 1 (PWR)				7-30472	14-30472		
12-27090	18-27090			SITE CLIMATOLOGY			
SALEM 2 (PWR)				2-30414	2-30650	9-30414	16-30650
12-27090	18-27090			18-30414	18-30650		
SALT				SITE CRITERIA, EARTHQUAKE			
13-32630	14-32630			2-30021	2-30636	2-30637	11-30021
SAMPLING				11-30637	18-30021	18-30636	18-30637
5-32542	7-29400	7-29940	7-30372	SITING, CHEMICAL PROCESS PLANT			
7-30374	7-30376	7-30469	7-32256	13-30403	14-30403		
7-32261	9-30592	13-30127	14-29028	SITING, GENERAL			
14-30127	14-30464	14-30465	14-30892	1-27062	1-30133	2-27062	2-30022
14-32256	15-30130	15-30365	15-30400	11-27062	14-30120	14-30122	15-30133
15-30464	15-30465	15-30974	15-30978	18-30022			
15-30980	15-30981	15-31316	17-30278	SITING, OFF SHORE			
17-30978	17-30980	17-30981	18-32542	1-30133	15-30133		
SAN ONOFRE (PWR)				SITING, REACTOR			
9-29676	9-32311	17-29676	17-31253	1-27062	2-13846	2-27062	2-27447
17-31254	17-32311			2-29595	2-30022	2-30408	2-30415
SAVANNAH RIVER PLANT				2-30416	2-30636	2-30637	2-30650
11-30405	14-30405			2-30652	2-30750	5-30416	11-27062
SAXTON (PWR)				11-30410	11-30415	11-30609	11-30637
5-31442	7-30113	9-29920	12-30113	12-30410	12-30609	14-30652	16-30650
17-29920	17-30232	17-30251	17-30304	18-27447	18-29595	18-30022	18-30408
17-31442				18-30410	18-30415	18-30416	18-30609
SCRAM, REAL				18-30636	18-30637	18-30650	18-30652
5-30204	10-30203	10-30204	17-30203	SITING, URBAN			
17-30204	17-30222	17-30547		2-29580	2-30750	17-30292	18-29580
SCRAM, SPURIOUS				SITING, WASTE DISPOSAL			
9-30208	9-30543	9-30544	9-32299	13-32630	14-32630		
9-32314	17-30202	17-30208	17-30282	SLOW			
17-30543	17-30544	17-31254	17-31328	11-30290	12-30290	17-30290	
17-32299	17-32314			SNAP, GENERAL (SR)			
SEAL				1-30796	4-30796	5-30796	
3-30098	9-28972	9-29269	9-30200	SODIUM			
9-30748	10-29269	11-30244	11-30748	5-31448	5-32629	6-32659	7-29287
14-28972	17-28972	17-30200	17-30218	7-29293	7-29395	7-29407	7-29594
17-30244	17-30307	17-32333		7-29598	7-29940	7-30378	7-32253
SEDIMENT				7-32263	11-30609	11-32629	12-30609
14-29633	14-30892	14-31244		12-30662	12-32303	14-30983	16-29293
SEFOR (RE)				17-30278	17-30548	17-32303	17-32629
5-30633	6-29419	6-32656	11-30609	18-30609	18-31448	18-32659	
12-30609	15-30633	17-32294	18-30209	SOIL			

14-30119	14-30695	15-30365			STEAM QUALITY				
SOIL MECHANICS					5-30075				
13-32630	14-32630				STEEL				
SOIL PROPERTY					1-30578	1-30579	5-30350	7-30578	
2-30636	18-30636				7-30579	11-28490	11-30308	11-30323	
SOIL PROPERTY, IN SITU					11-30350	11-30398	11-30578	11-30579	
2-29595	18-29595				11-30740	12-29526	12-29950	12-30740	
SOIL, NUCL IDE OCCURRENCE					13-29526	13-29950	14-29526	17-30308	
15-30117	15-30365				18-30323	18-30350	18-30398		
SOIL, RADIONUCLIDE MOVEMENT THROUGH					STEEL LINER				
1-29893	13-29893	13-31409	13-32630		17-30282				
14-30118	14-30120	14-32630	15-29893		STEEL, STAINLESS				
15-31409					4-29882	5-30707	5-30967	5-31246	
SOL-GEL PROCESS					5-31247	5-31248	5-31448	5-32543	
7-29909	13-29909	13-30975			7-28987	7-29306	7-29407	7-29882	
SOLID STATE DEVICE					8-30707	11-28987	11-30967	11-31246	
9-30091	9-30582	9-30583			11-31247	11-31346	13-32862	17-30263	
SOLVENT EXTRACTION PROCESS					17-30967	17-31246	17-31247	17-31248	
13-29550	13-30024	13-30313	14-30118		18-31448	18-32543			
SORPTION					STORAGE CONTAINER				
14-29028	14-30120	14-30402	14-30698		11-30405	14-30405	14-30697	14-30973	
14-30892	15-29924	15-29925			14-32575	18-30499			
SOURCE MATERIAL					STRATOSPHERE				
13-30039	15-30039	17-30039			1-30129	7-30682	14-30108	14-30129	
SOURCE, CONTINUOUS					14-30682	15-30117	15-30129		
2-29142	2-30650	14-29585	16-29142		STRESS				
16-30650	17-29142	17-29585	17-30234		5-30967	7-29546	7-29944	7-31407	
18-27051	18-30650				11-29944	11-30967	14-30122	14-30131	
SOURCE, MULTIPLE					17-30967				
2-29142	16-29142	17-29142			STRESS ANALYSIS				
SOURCE, NEUTRON					2-30414	2-30643	5-27303	5-30640	
9-29995	9-30240	13-30039	15-30039		9-30414	11-27303	11-28490	11-29539	
17-29995	17-30039	17-30222	17-30240		11-30640	11-30643	12-29539	18-27303	
SOURCE, RADIATION					18-30414	18-30640	18-30643		
13-30039	15-30001	15-30039	15-30928		STRESS CORROSION				
15-30929	15-32898	17-29541	17-29702		5-30967	5-31246	5-31247	5-31248	
17-30001	17-30039	17-30897	17-30928		11-30405	11-30740	11-30967	11-31246	
17-30929					11-31247	12-30740	14-30405	17-30967	
SOURCE, RADIATION, LOST					17-31246	17-31247	17-31248		
3-30895	17-29810	17-30895	17-32634		STRESS RUPTURE				
SOUTH AFRICA					13-32899				
15-30130					7-29284	11-28490			
SPACE DEPENDENT DYNAMICS					STRONTIUM				
6-29124	6-29413	6-31386			7-29409	7-30473	7-30474	13-29031	
SPACECRAFT					13-30474	13-31409	14-28958	14-30473	
4-29393	6-29922	7-29922			14-30474	14-30695	14-30892	14-30583	
SPAIN					14-30984	15-29031	15-30109	15-30969	
18-30499					15-31409				
SPECIAL NUCLEAR MATERIAL					STRUCTURAL ANALYSIS, DYNAMIC				
1-30247	17-29541	17-30247	17-32315		5-27303	5-30640	11-27303	11-30640	
SPECTROMETRY, GAMMA					18-27303	18-30640			
7-29938	9-29938	9-30960	14-29243		STRUCTURAL INTEGRITY				
14-29262	15-29243	15-29262	15-30365		2-30021	3-31424	5-30640	5-32629	
15-30394	15-30960				7-29284	9-30479	10-27532	11-30021	
SPERT 3 (S-RR)					11-30308	11-30323	11-30398	11-30412	
5-29983	6-29983	17-29983			11-30640	11-32629	14-27532	17-30308	
SPERT 4 (S-RR)					17-32629	18-27532	18-30021	18-30323	
5-29983	6-29983	17-29983			18-30398	18-30412	18-30640		
SPHERE					SUBLIMATION				
7-30758	12-30758				7-29399				
SPRAY, GENERAL					SULFUR DIOXIDE				
7-32249	7-32263	7-32650	11-32650		1-27062	2-27062	11-27062		
12-32650	13-29892	14-29892			SUPPORT STRUCTURE				
STACK					1-30644	5-30350	5-30640	9-30642	
2-30650	14-29585	14-30118	15-30279		9-30645	11-29539	11-30323	11-30350	
16-30650	17-29585	17-30279	17-30292		11-30398	11-30640	11-30642	11-30644	
17-30551	17-31328	18-27051	18-30650		11-30645	12-29539	18-30323	18-30350	
STAFFING					18-30398	18-30640	18-30642	18-30644	
1-29980	1-30171	5-30165	15-29979		18-30645				
17-28939	17-29979	17-29980	17-30163		SURFACE CONTAMINATION				
17-30171	17-32297	17-32305	18-29980		1-30129	5-30078	7-29284	7-30380	
18-30163	18-30165	18-30427			7-30470	7-30686	13-29280	13-30970	
STATE PROGRAM					14-30129	14-30461	14-30462	14-30463	
3-30895	17-30895				14-30464	14-30465	14-30970	15-30117	
STATISTICAL ANALYSIS					15-30124	15-30129	15-30361	15-30362	
1-30796	4-30796	5-30647	5-30796		15-30461	15-30462	15-30463	15-30464	
6-30647	6-31386	9-30581	18-30647		15-30465				
STATISTICAL CORRELATION					SURFACE FILM DEPOSIT				
5-29387	6-29387	6-31403			5-30967	5-31248	7-29398	11-30967	
STEAM					17-30263	17-30967	17-31248		
5-29324	5-30002	5-30077	5-30707		SURFACE WATER, DISPOSAL MEDIA				
5-30966	7-29296	7-29407	7-30002		13-30127	14-30120	14-30127	14-31244	
7-30688	7-32254	7-32855	8-30707		SURFACE WATER, NUCLIDE OCCURRENCE				
9-29296	9-30208	9-30588	9-30595		14-28911	14-28958	14-30108	14-31244	
10-30588	12-32855	17-29296	17-30208		15-28911	15-30104	15-30969	15-30974	
18-30574	19-32254				15-31316	17-30104			
STEAM GENERATOR					SURFACE WATER, SEDIMENT				
1-30133	2-28973	5-29324	9-29920		13-30127	14-30127			
9-29999	9-30208	15-30133	17-28973		SURFACE, GENERAL				
17-29920	17-29999	17-30192	17-30208		4-29882	5-29389	7-29882		
17-30571	18-28973	18-30498							

SURFACE, PAINTED				12-32861	13-32861	17-30281	17-32311
15-30279	17-30279			18-30236			
SURVEILLANCE PROGRAM				TEMPERATURE REACTIVITY EFFECT			
5-30295	5-30350	5-32646	7-32264	5-31336	6-31336	6-32659	7-30125
10-30243	11-30350	11-30412	11-32646	11-30125	17-30535	18-32659	
12-30243	13-30127	14-30127	15-28676	TEMPERATURE TRANSIENT			
15-30365	15-30366	15-30968	15-30969	5-30258	5-30301	5-30539	5-30647
15-30978	15-30980	15-30981	15-31316	5-30648	6-29414	6-30539	6-30647
15-32306	17-28676	17-30243	17-30295	6-31354	9-29999	12-30648	17-29999
17-30536	17-30978	17-30980	17-30981	17-30222	17-30258	17-30301	17-30534
17-32264	17-32306	17-32335	17-32646	17-30539	17-30542	18-30258	18-30647
18-30350	18-30412			18-30648			
SURVEY, GENERAL				TENSILE PROPERTY			
1-30446	9-30581	15-29260	16-29619	5-30707	7-29284	8-30707	12-29009
18-27051				13-29009			
SURVEY, RADIATION, ENVIRONMENTAL				TEST INTERVAL			
14-30428	15-28676	15-30428	17-28676	9-30288	11-30244	11-32644	17-30244
18-30428				17-30288	17-30298	17-32644	
SURVEY, RADIATION, GENERAL				TEST, BENCH			
1-30926	13-30926	15-30124	15-30365	11-30649	12-30649	18-30649	
15-30889	15-30929	17-30889	17-30926	TEST, COMPONENT			
17-30929				3-30098			
SWEDEN				TEST, CONTROL ROD DRIVE			
14-30984				9-29263	9-29265	9-30593	
SYSTEM CAPABILITY				TEST, DESTRUCTIVE			
5-30633	5-30640	5-30648	11-30640	3-30098	3-30099	3-30100	11-30740
11-30649	12-30648	12-30649	15-30633	12-30740			
18-30633	18-30640	18-30648	18-30649	TEST, DOP FILTER			
SYSTEM CAPACITY				7-32257			
14-30626	18-30626			TEST, DROP			
SYSTEM DESCRIPTION				3-30099	3-30103	6-30480	9-30480
2-27447	2-29595	2-30022	2-30408	TEST, FILTER			
2-30416	2-30422	2-30643	5-27323	7-30241	17-30241		
5-29310	5-30416	5-30633	5-30648	TEST, FILTER SYSTEM			
6-30094	9-27493	9-29268	9-30023	9-30091			
9-30094	9-30159	9-30589	9-30591	TEST, INSTRUMENT RESPONSE			
10-27532	11-27050	11-30132	11-30410	4-29267	4-30158	9-29267	9-30158
11-30412	11-30589	11-30609	11-30643	TEST, LEAK LOCATION			
12-27050	12-27493	12-29310	12-30023	5-32646	11-30405	11-32646	14-30405
12-30132	12-30410	12-30609	12-30648	17-30192	17-32646		
14-27532	15-27323	15-30159	15-30633	TEST, LEAK RATE			
17-30261	17-30570	17-30571	18-27050	11-30213	17-30213		
18-27323	18-27447	18-27493	18-27532	TEST, NONDESTRUCTIVE			
18-29595	18-30022	18-30023	18-30132	11-32647	12-32647	17-29794	17-32647
18-30261	18-30408	18-30410	18-30412	TEST, ON LINE			
18-30416	18-30422	18-30498	18-30499	1-30137	9-29891	11-32644	17-32644
18-30609	18-30633	18-30643	18-30648	TEST, PHYSICS			
SYSTEM OPERABILITY IN ACCIDENT				5-30633	6-30090	9-29890	9-30090
5-30640	11-30640	11-30649	12-30649	15-30633	18-30633		
18-30640	18-30649			TEST, PLANT RESPONSE			
TANTALUM				6-31354			
7-28504	7-29591	11-30890		TEST, PREOPERATIONAL			
TECHNICAL SPECIFICATIONS				5-30350	11-30350	17-30571	18-29581
1-30111	1-30112	1-30247	2-30650	18-30350			
5-30199	5-30228	5-30229	5-30235	TEST, PRESSURE VESSEL			
5-30249	5-30258	5-30295	5-30301	11-30308	17-30308		
5-30309	5-30606	6-30197	6-30223	TEST, PROOF			
7-30241	7-32645	9-30223	9-30224	3-30786	5-29983	5-30204	5-30539
9-30240	9-30248	9-30284	9-30288	5-32542	6-29983	6-30539	9-30288
9-32089	9-32314	9-32465	11-30244	10-30204	17-29983	17-30204	17-30288
11-30290	11-30308	11-32644	12-30249	17-30298	17-30300	17-30539	18-32542
12-30290	12-32310	13-30246	14-32310	TEST, SYSTEM OPERABILITY			
15-30246	15-30291	15-32306	16-30224	1-30137	9-30284	9-30893	10-30243
16-30650	17-30111	17-30112	17-30194	10-30608	11-30290	11-30649	11-32647
17-30197	17-30199	17-30211	17-30212	12-30243	12-30290	12-30649	12-32647
17-30217	17-30218	17-30221	17-30223	17-30243	17-30284	17-30290	17-30570
17-30224	17-30226	17-30228	17-30229	17-30608	17-30893	17-32647	18-30649
17-30231	17-30235	17-30237	17-30239	TEST, WEAPONS (HP ASPECTS)			
17-30240	17-30241	17-30242	17-30244	15-30365			
17-30246	17-30247	17-30248	17-30249	TESTING			
17-30251	17-30258	17-30283	17-30284	1-30644	6-30736	6-32656	7-29398
17-30287	17-30288	17-30289	17-30290	7-29403	7-32855	9-29629	9-29768
17-30291	17-30292	17-30294	17-30295	9-30736	9-31412	11-30323	11-30412
17-30297	17-30298	17-30299	17-30300	11-30421	11-30644	11-30649	11-30740
17-30301	17-30304	17-30305	17-30306	11-30890	12-30649	12-30740	12-31412
17-30308	17-30309	17-30606	17-32089	12-32855	13-31412	13-32899	14-30108
17-32294	17-32297	17-32298	17-32300	14-30122	14-30131	14-30315	14-31244
17-32301	17-32302	17-32305	17-32306	15-28910	15-29629	15-30365	15-30978
17-32310	17-32312	17-32314	17-32315	15-30981	17-30978	17-30981	18-30323
17-32316	17-32318	17-32330	17-32331	18-30412	18-30421	18-30644	18-30649
17-32335	17-32463	17-32465	17-32643	18-32656			
17-32644	17-32645	18-27051	18-30111	THALLIUM			
18-30112	18-30211	18-30212	18-30229	7-28504			
18-30258	18-30424	18-30635	18-30650	THEORETICAL INVESTIGATION			
TELLURIUM				3-30103	5-29888	5-30647	5-32685
7-29399				6-29923	6-30094	6-30391	6-30647
TEMPERATURE COEFFICIENT				6-32659	6-32685	7-29292	7-29293
6-29415	6-29419	6-30115		7-29295	7-29544	7-29546	7-29749
TEMPERATURE GRADIENT				7-29923	7-30758	7-32253	8-29749
4-29384	4-30072	5-29384	5-30072	9-29276	9-29888	9-30080	9-30094
5-32861	7-29547	9-30281	9-32311	9-30741	9-31240	11-29539	11-32270

12-29539	12-29764	12-30758	12-32270	17-32336	17-32465	17-32640	18-30302
14-30135	15-30135	16-29293	18-30647	18-30635	18-32317		
18-32659				TRITIUM			
THERMAL ANALYSIS				1-30129	2-29142	2-30610	7-30475
5-29310	5-29389	5-29553	5-30350	7-30682	9-30208	11-30610	13-31408
5-30647	5-30963	6-30647	11-30350	14-30108	14-30129	14-30135	14-30464
12-29310	18-30350	18-30647		14-30475	14-30682	15-30129	15-30135
THERMAL CONSIDERATION				15-30279	15-30394	15-30464	16-29142
1-30129	1-30133	1-30141	5-30425	16-30475	17-29142	17-30208	17-30279
12-30425	14-30129	15-30129	15-30133	18-30610			
18-30425				TROPOSPHERE			
THERMAL EXPERIMENT				1-30129	14-30108	14-30129	15-30117
3-30099	3-30100	5-29383	5-30075	15-30129			
7-30373	7-30379			TUBING			
THERMAL INSULATION				5-29324	7-31407	17-29794	
5-32542	9-30589	11-30589	12-30662	TUNGSTEN			
18-32542				6-29922	7-28504	7-29922	
THERMAL MECHANICAL EFFECT				TURBINE			
2-30415	5-29297	5-30406	6-29414	5-30598	9-30208	10-30598	17-30205
11-30167	11-30406	11-30415	17-29297	17-30208	17-30221	17-30570	17-30598
17-30167	17-30282	18-30406	18-30415	17-31254	17-32312		
THERMAL NEUTRON				TURKEY POINT 3 (PWR)			
9-29318	15-30121	15-30696		1-30276	1-30277	2-30276	2-30277
THERMAL POLLUTION				18-30276	18-30277		
1-27062	1-29893	1-30133	1-30141	TURKEY POINT 4 (PWR)			
2-27062	11-27062	13-29893	15-29893	1-30276	1-30277	2-30276	2-30277
15-30133				18-30276	18-30277		
THERMAL PROPERTY				UHTREX (GCR)			
4-29882	5-30566	5-30963	7-28504	5-32685	6-32685	12-29764	
7-29405	7-29882	7-30379	7-31343	UMRR (RR)			
12-29009	13-29009	14-30131	19-30566	5-30295	5-32308	6-30197	17-30197
THERMAL SHIELD				17-30295	17-32308		
2-30420	3-30099	3-30100	5-30962	UNITED KINGDOM			
11-30420	11-30962	17-30962	18-30420	1-30148	3-30098	3-30099	3-30100
THERMODYNAMICS				6-30115	7-29306	9-30589	11-30589
7-28504				13-30024	14-28958	17-29926	17-30107
THORIUM				18-30107			
7-29591	7-29909	12-29009	12-29764	UNITED STATES			
12-31333	13-29009	13-29909	13-30313	9-30590	13-30693	15-30693	
13-30975	13-31333	17-30263		URANIUM			
THORON				7-29008	7-29286	7-29290	7-29291
16-29619	16-29620			7-29591	7-29594	7-29910	7-29937
THREE MILE ISLAND 1 (PWR)				7-30106	7-30467	7-32253	7-32753
9-30419	11-30323	11-30398	18-30323	12-29008	12-29764	12-29910	13-29008
18-30398	18-30419			13-29542	13-29550	13-29910	13-30313
THREE MILE ISLAND 2 (PWR)				13-30693	13-30975	13-32652	13-32753
2-30408	9-30419	18-30407	18-30408	14-29262	14-30463	15-29262	15-30463
18-30419				15-30693			
TITANIUM				URANIUM CARBIDE			
4-29882	7-29882	7-29910	12-29910	6-29308	7-29308	7-29394	7-29398
13-29910				7-29598	7-32253		
TRACER, GAS				URANIUM DIOXIDE			
1-29893	13-29893	15-29893		5-30600	5-30707	7-29407	7-29759
TRACER, RADIOACTIVE				7-30113	7-30379	7-31410	7-32250
7-30393	7-30474	13-30474	14-28911	7-32855	8-30707	12-30113	12-31410
14-28912	14-29288	14-30108	14-30474	12-32855	13-30975	13-31410	13-32862
15-28911	15-29288	17-29288		17-30305	17-30600	17-32302	
TRAINING				URANIUM HYDRIDE			
1-29980	1-30171	1-30453	1-30731	17-30540	17-30541		
5-30165	15-29979	15-30265	17-28939	URANIUM OXIDE			
17-29979	17-29980	17-30163	17-30171	5-30002	6-29308	7-29308	7-30002
17-30265	17-30453	17-30455	17-30731	7-30470			
17-30971	18-29980	18-30163	18-30165	URANIUM-235			
18-30427				17-32316			
TRANSFER FUNCTION				USAEC			
6-30197	6-30454	6-31353	9-29040	1-30133	13-30693	15-30133	15-30401
9-30454	17-29040	17-30197		15-30693	15-30969	15-30978	15-30981
TRANSPORT PROPERTY				17-30978	17-30981		
7-30389	14-29028			USSR			
TRANSPORTATION AND HANDLING				6-30572	6-30736	6-32659	7-29749
3-30101	3-30791	3-30895	3-32596	8-29749	9-30736	9-30737	14-30123
7-29408	13-29280	14-29408	17-30895	14-30698	18-32659		
TREAT (PRR)				VALVE			
6-29414				2-28973	5-29314	5-30199	7-30198
TRIGA (RR)				9-30208	9-30310	9-30588	9-30595
6-29549	6-30454	6-30529	9-29997	10-30588	11-30244	11-30290	11-30649
9-30262	9-30310	9-30454	9-30532	11-32644	12-30290	12-30649	17-28973
9-30538	9-30543	9-30544	9-30549	17-29314	17-30198	17-30199	17-30201
9-30550	9-32089	9-32314	9-32465	17-30202	17-30208	17-30244	17-30282
14-30530	15-32306	17-28939	17-29997	17-30290	17-30310	17-31253	17-32644
17-30219	17-30226	17-30239	17-30242	18-28973	18-30407	18-30649	
17-30262	17-30280	17-30287	17-30292	VANADIUM			
17-30297	17-30298	17-30299	17-30300	7-28504	7-29591	7-30125	11-30125
17-30302	17-30310	17-30529	17-30530	VAPOR, VAPOR PRESSURE			
17-30531	17-30532	17-30533	17-30534	7-29287	7-29399	7-29405	14-29632
17-30535	17-30536	17-30537	17-30538	14-30118			
17-30540	17-30541	17-30542	17-30543	VENTILATION SYSTEM			
17-30544	17-30545	17-30546	17-30547	5-30418	7-30241	9-30418	11-30296
17-30548	17-30549	17-30550	17-30551	13-29545	15-30279	17-30222	17-30241
17-30552	17-30896	17-32089	17-32293	17-30279	17-30551	17-31254	18-30296
17-32301	17-32306	17-32314	17-32317	18-30418			

VIBRATION			
2-28973	5-29316	5-30070	17-28973
17-29316	17-30571	17-31254	18-28973
VIBRATION ANALYSIS			
3-30101	5-29316		17-29316
VIBRATORY COMPACTION			
7-31410	12-31410		13-31410
VOID COEFFICIENT			
5-31336	6-29264	6-31336	7-29287
7-29293	9-29264		16-29293
VOLATILITY PROCESS			
7-29008	12-29008		13-29007
13-30663	13-32652		
WASTE DISPOSAL, BEDROCK			
14-28912	14-30120		
WASTE DISPOSAL, ECONOMICS			
13-30403	14-30122	14-30135	14-30403
14-30973	15-30135		
WASTE DISPOSAL, GAS			
1-29893	12-29526	12-32310	13-29526
13-29893	14-28912	14-29526	14-32310
15-29893	17-32294	17-32310	
WASTE DISPOSAL, GENERAL			
1-30133	7-29408	9-28972	11-30316
12-30316	13-29280	13-29892	13-30316
13-31348	13-32630	14-28972	14-29408
14-29633	14-29892	14-30123	14-30891
14-30973	14-31348	14-32630	15-30133
17-28972	18-30407		
WASTE DISPOSAL, HYDRAULIC FRACTURING			
7-29404	14-29404	14-30122	14-30135
15-30135			
WASTE DISPOSAL, LIQUID			
5-30350	11-30350	12-32310	13-30403
13-32630	14-30120	14-30122	14-30403
14-30428	14-30626	14-30697	14-30698
14-32310	14-32630	15-30109	15-30265
15-30428	17-30265	17-32310	18-30350
18-30428	18-30626		
WASTE DISPOSAL, OCEAN			
13-30127	14-30127		14-31244
WASTE DISPOSAL, RIVER			
14-31244			
WASTE DISPOSAL, SALT			
13-32630	14-30131	14-30135	14-32630
15-30135			
WASTE DISPOSAL, SOLID			
7-29408	12-29526	13-29526	13-30403
13-31348	13-32630	14-29408	14-29526
14-29631	14-29632	14-30118	14-30403
14-31348	14-32630	15-30109	
WASTE DISPOSAL, TERRESTRIAL			
7-29408	7-30472	7-30473	7-30474
13-30474	13-31409	13-32630	14-28912
14-29027	14-29408	14-29675	14-30135
14-30472	14-30473	14-30474	14-32630
15-30135	15-31409	17-29027	17-29675
WASTE HANDLING			
7-29404	7-29408	14-29027	14-29404
14-29408	14-30315	14-30569	14-30891
17-29027	17-30569		
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2-30416	2-30652	5-30350	5-30416
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