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VOL. II

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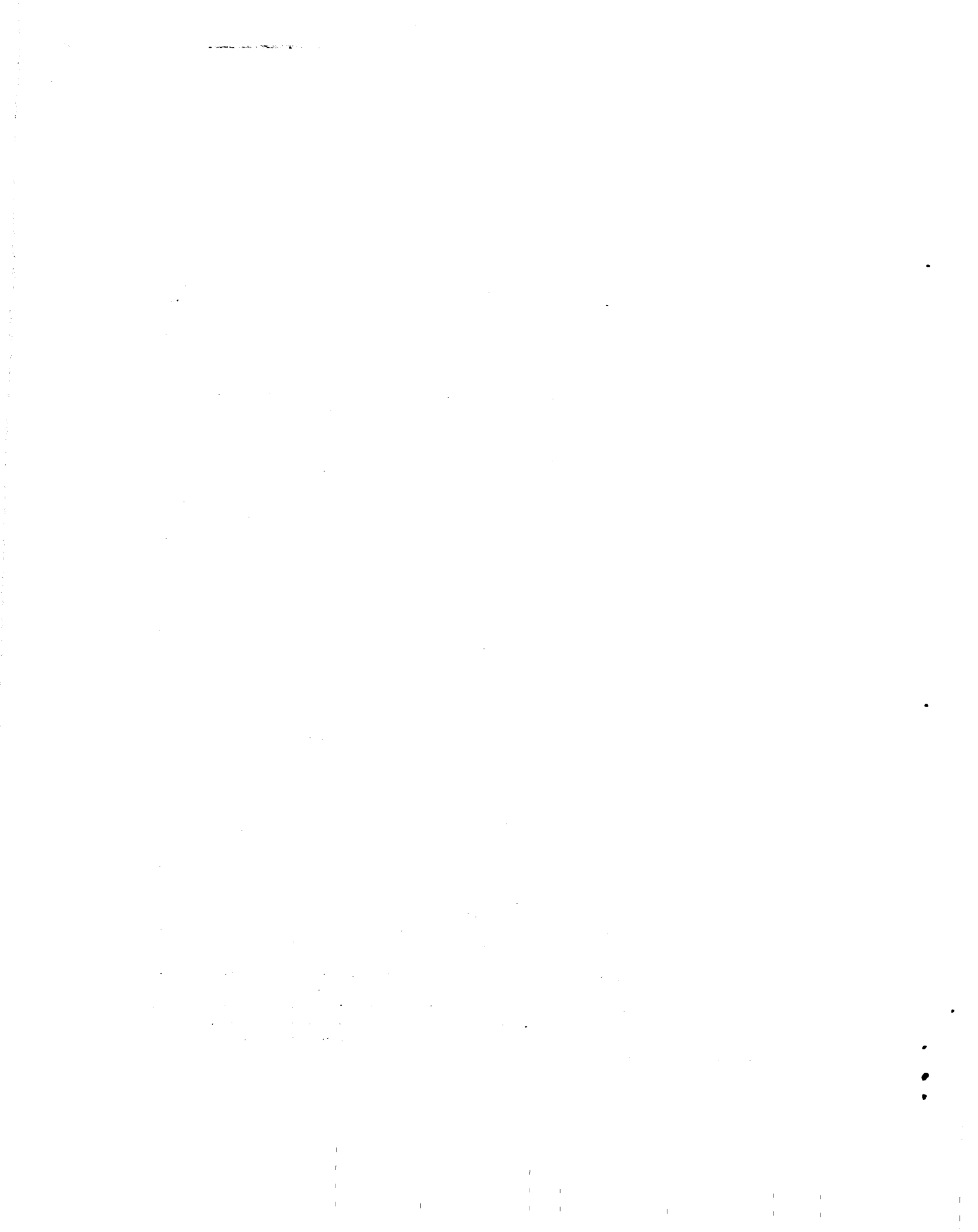
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NRC LIGHT-WATER REACTOR SAFETY
TECHNICAL EXCHANGE
VOL. II

Debbie S. Sharp and Wm. B. Cottrell
Engineering Technology Division

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FOREWORD

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1. General Safety Criteria
2. Siting of Nuclear Facilities
3. Transportation and Handling of Radioactive Materials
4. Aerospace Safety (inactive ~1970)
5. Heat Transfer and Thermal-Hydraulic
6. Reactor Transients, Kinetics, and Stability
7. Fission Product Release, Transport, and Removal
8. Sources of Energy Release under Accident Conditions
9. Nuclear Instrumentation, Control, and Safety Systems
10. Electrical Power Systems
11. Containment of Nuclear Facilities
12. Plant Safety Features - Reactor
13. Plant Safety Features - Nonreactor
14. Radionuclide Release, Disposal, Treatment, and Management (inactive September 1973)
15. Environmental Surveys, Monitoring, and Radiation Dose Measurements (inactive September 1973)
16. Meteorological Considerations
17. Operational Safety and Experience
18. Safety Analysis and Design Reports

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19. **Radiation Dose to Man from Radioactivity Release to the Environment (inactive September 1973)**
20. **Effects of Thermal Modifications on Ecological Systems (inactive September 1973)**
21. **Effects of Radionuclides and Ionizing Radiation on Ecological Systems (inactive September 1973)**

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NRC LIGHT-WATER REACTOR SAFETY
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ABSTRACT

Lists of documents exchanged in 1976 under agreement between the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research and the governments of France, Federal Republic of Germany, and Japan are presented. In 1976 the NRC received 25 reports from France, 74 from F. R. Germany, and 39 from Japan, and in return sent 119 U.S. reports to France, 154 to F. R. Germany, and 155 to Japan.

INTRODUCTION

This report lists those documents exchanged in 1976 under agreements between the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research and France, Federal Republic of Germany, and Japan. This is the second report in this series; the first had a similar title, but covered the period November 1974 through December 1975, and was published in May 1976 as TID-3362. The total number of reports received by the NRC during 1976 from France, F. R. Germany, and Japan, as well as the reports sent by NRC to each of these three countries during this period, are tabulated below. The number of proprietary documents received are listed in parentheses. Also tabulated are the documents exchanged in 1974-1975 as listed in TID-3362.

Reports received by NRC

	France	F. R. Germany	Japan
1976	25(6)	75(9)	38(5)
1974-1975	10	6	24

Reports sent by NRC

	France	F. R. Germany	Japan
1976	119	154	155
1974-1975	100	181	115

For convenience in processing, each of the foreign reports received under the exchange agreements is assigned a unique number identifying it as part of the exchange. The documents from France, F. R. Germany, and Japan are listed herein sequentially by this assigned number. However, additional bibliographic information, including the number assigned by the issuing installation, is also presented. The numbers assigned to proprietary documents are listed, but bibliographic data on these documents as well as the documents themselves, are privileged information. As was done in TID-3362, the U.S. reports are listed alphanumerically.

All reports, both foreign and domestic, with the exception of the proprietary documents, are available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Va., 22161, in either microfiche or hard copy. (In most cases, however, the hard copies of foreign reports will be reproduced from microfiche.)

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NRC LIGHT-WATER REACTOR SAFETY REPORTS
TRANSMITTED TO FOREIGN EXCHANGE
AGREEMENT COUNTRIES

The following is a cumulative listing of the U.S. reports transmitted by the NRC to France, Federal Republic of Germany, and Japan during 1976. All reports listed went to France, F. R. Germany, and Japan on the dates indicated, except reports identified with an * went to Japan only and those identified with a + went to Japan and F. R. Germany only.

- ANCR-1207. TRANSIENT THREE-DIMENSIONAL THERMAL-HYDRAULIC ANALYSIS OF NUCLEAR REACTOR FUEL ROD ARRAYS: GENERAL EQUATIONS AND NUMERICAL SCHEME. November 1975. Transmitted January 2, 1976.

+ ANCR-1235. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TEST S-02-5 (BLOWDOWN HEAT TRANSFER TEST). December 1975. Transmitted January 7, 1976.

ANCR-1236. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TESTS S-02-9 AND S-02-9A (BLOWDOWN HEAT TRANSFER TESTS). January 1976. Transmitted February 6, 1976.

+ ANCR-1263. A HANDBOOK OF MATERIALS PROPERTIES FOR USE IN THE ANALYSIS OF LIGHT WATER REACTOR FUEL ROD BEHAVIOR. February 1976. Transmitted March 29, 1976.

+ ANCR-1270. USNRC - OECD HALDEN PROJECT FUEL BEHAVIOR TEST PROGRAM- EXPERIMENT DATA REPORT FOR TEST ASSEMBLIES IFA-226 AND IFA-239. December 1975. Transmitted January 20, 1976.

ANCR-1272. CHARACTERISTICS, STABILITY, AND SHORT-WAVELENGTH PHENOMENA IN TWO-PHASE EQUATION SYSTEMS. February 1976. Transmitted March 11, 1976.

ANCR-1280. THE EFFECTS OF BURNUP ON FUEL FAILURE POWER BURST TESTS ON FUEL RODS WITH 13,000 AND 32,000 MWd/MTU BURNUP. January 1976. Transmitted February 26, 1976.

- ANCR-1282. NONDESTRUCTIVE EXAMINATION OF IRRADIATED FUEL RODS BY PULSED EDDY CURRENT TECHNIQUES. February 1976. Transmitted March 24, 1976.

+ ANCR-1296. QUARTERLY TECHNICAL REPORT ON WATER REACTOR SAFETY PROGRAMS SPONSORED BY THE NUCLEAR REGULATORY COMMISSION'S DIVISION OF REACTOR SAFETY RESEARCH, JULY-SEPTEMBER 1975. February 1976. Transmitted March 24, 1976.

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ANCR-NUREG-1206. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TESTS S-03-1 THROUGH S-03-4 (REFLOOD HEAT TRANSFER TESTS). May 1976. Transmitted May 7, 1976.

ANCR-NUREG-1238. EXPERIMENTAL DATA REPORT FOR SEMISCALE MOD-1 TEST S-02-8 (BLOWDOWN HEAT TRANSFER TEST). August 1976. Transmitted October 26, 1976.

† ANCR-NUREG-1268. LOFT DATA ACQUISITION AND VISUAL DISPLAY SYSTEM (DAVDS) PRESENTATION PROGRAM. March 1976. Transmitted April 12, 1976.

ANCR-NUREG-1277. TECHNICAL SUPPORT TO THE NUCLEAR REGULATORY COMMISSION FOR THE BOILING WATER REACTOR BLOWDOWN HEAT TRANSFER PROGRAM. September 1976. Transmitted November 3, 1976.

ANCR-NUREG-1285. CORE THERMAL RESPONSE DURING SEMISCALE MOD-1 BLOWDOWN HEAT TRANSFER TESTS. June 1976. Transmitted June 4, 1976.

ANCR-NUREG-1287. THERMAL-HYDRAULIC ANALYSIS OF THE SEMISCALE MOD-1 BLOWDOWN HEAT TRANSFER TEST SERIES. June 1976. Transmitted June 14, 1976.

ANCR-NUREG-1301. QUARTERLY TECHNICAL PROGRESS REPORT ON WATER REACTOR SAFETY PROGRAMS SPONSORED BY THE NUCLEAR REGULATORY COMMISSION'S DIVISION OF REACTOR SAFETY RESEARCH, OCTOBER-DECEMBER 1975. May 1976. Transmitted June 23, 1976.

ANCR-NUREG-1303. TEMPERATURE MEASUREMENT ON ZIRCALOY-CLAD FUEL PINS DURING HIGH TEMPERATURE EXCURSIONS. April 1976. Transmitted June 3, 1976.

ANCR-NUREG-1305. SEMISCALE MOD-1 PROGRAM AND SYSTEM DESCRIPTION FOR THE REFLOOD HEAT TRANSFER TESTS (TEST SERIES 3). May 1976. Transmitted July 12, 1976.

ANCR-NUREG-1307. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TESTS S-03-A, S-03-B, S-03-C, and S-03-D (REFLOOD HEAT TRANSFER TESTS). May 1976. Transmitted June 23, 1976.

ANCR-NUREG-1308. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TESTS S-03-5, S-03-6, S-03-7, and S-03-8 (REFLOOD HEAT TRANSFER TESTS). June 1976. Transmitted August 2, 1976.

† ANCR-NUREG-1315. QUARTERLY TECHNICAL PROGRESS REPORT ON WATER REACTOR SAFETY PROGRAMS SPONSORED BY THE NRC DIVISION OF REACTOR SAFETY RESEARCH JANUARY-MARCH 1976. June 1976. Transmitted July 14, 1976.

ANCR-NUREG-1320. A FAST RESPONSE, 2.5K psi (17.24 MPa) TRANSDUCER FOR MEASUREMENT OF GAS PRESSURE IN PWR FUEL RODS. September 1976. Transmitted November 1, 1976.

ANCR-NUREG-1321. CHARACTERISTICS OF UO₂-ZIRCALOY FUEL ROD MATERIALS FROM SAXTON REACTOR FOR USE IN POWER BURST FACILITY. September 1976. Transmitted November 2, 1976.

ANCR-NUREG-1327. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TEST S-29-1 (INTEGRAL TEST WITH ASYMMETRICAL BREAK). July 1976. Transmitted September 1, 1976.

ANCR-NUREG-1328. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TEST S-29-2 (INTEGRAL TEST FROM REDUCED PRESSURE). August 1976. Transmitted September 29, 1976.

ANCR-NUREG-1329. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TEST S-29-3 (INTEGRAL TEST FROM REDUCED INITIAL PRESSURE). September 1976. Transmitted November 1, 1976.

ANCR-NUREG-1330. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1 TEST S-04-1 (BASELINE ECC TEST). September 1976. Transmitted November 12, 1976.

ANCR-NUREG-1331. EXPERIMENT DATA REPORT FOR SEMISCALE MOD-1, TEST S-04-2 (BASELINE ECC TEST). September 1976. Transmitted December 27, 1976.

ANCR-NUREG-1335(VOL. I). RELAP4/MOD5 - A COMPUTER PROGRAM FOR TRANSIENT THERMAL-HYDRAULIC ANALYSIS OF NUCLEAR REACTORS AND RELATED SYSTEMS, USER'S MANUAL, VOLUME I, RELAP4/MOD5 DESCRIPTION. September 1976. Transmitted October 12, 1976.

ANCR-NUREG-1335(VOL. II). RELAP4/MOD5 - A COMPUTER PROGRAM FOR TRANSIENT THERMAL-HYDRAULIC ANALYSIS OF NUCLEAR REACTORS AND RELATED SYSTEMS, USER'S MANUAL, VOLUME II, PROGRAM IMPLEMENTATION. September 1976. Transmitted October 12, 1976.

ANCR-NUREG-1335(VOL. III). RELAP4/MOD5 - A COMPUTER PROGRAM FOR TRANSIENT THERMAL-HYDRAULIC ANALYSIS OF NUCLEAR REACTORS AND RELATED SYSTEMS, USER'S MANUAL, VOLUME III, CHECKOUT APPLICATIONS. September 1976. Transmitted October 4, 1976.

ANCR-NUREG-1336. POSTIRRADIATION EXAMINATION RESULTS FOR THE IRRADIATION EFFECTS SCOPING TEST 1. September 1976. Transmitted November 16, 1976.

ANCR-NUREG-1340. NUMERICAL METHODS FOR SOLVING THE GOVERNING EQUATIONS FOR A SERIATED CONTINUUM. September 1976. Transmitted November 16, 1976.

ANCR-NUREG-1347. POWER-COOLING-MISMATCH TEST SERIES TEST PCM-2A TEST RESULTS REPORT. September 1976. Transmitted November 8, 1976.

† ANL-75-72. LIGHT-WATER REACTOR SAFETY RESEARCH PROGRAM: QUARTERLY PROGRESS REPORT, JULY-SEPTEMBER 1975. No date. Transmitted March 18, 1976.

ANL-75-82. CONTRIBUTION TO THE THEORY OF THE TWO-PHASE BLOWDOWN PHENOMENON. December 1975. Transmitted September 23, 1976.

ANL-76-15. LIGHT-WATER REACTOR SAFETY RESEARCH PROGRAM: QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1975. No date. Transmitted May 7, 1976.

ANL-76-49. LIGHT-WATER-REACTOR SAFETY RESEARCH PROGRAM: QUARTERLY PROGRESS REPORT - JANUARY-MARCH 1976. No date. Transmitted September 23, 1976.

⁺ BMI-1942. EVALUATING STRENGTH AND DUCTILITY OF IRRADIATED ZIRCALOY. December 1975. Transmitted March 17, 1976.

[†] BMI-NUREG-1944. CRITICAL EXPERIMENTS, MEASUREMENTS AND ANALYSES TO ESTABLISH A CRACK ARREST METHODOLOGY FOR NUCLEAR PRESSURE VESSEL STEELS. March 1976. Transmitted March 23, 1976.

BMI-NUREG-1945. REACTOR SAFETY PROGRAM APPLICATIONS AND COORDINATION, TASK 1. STEAM-WATER MIXING PROGRAM AND SYSTEM HYDRODYNAMICS QUARTERLY PROGRESS REPORT OCTOBER THROUGH DECEMBER 1975. March 1976. Transmitted April 5, 1976.

BMI-NUREG-1948. EVALUATING STRENGTH AND DUCTILITY OF IRRADIATED ZIRCALOY. March 1976. Transmitted June 16, 1976.

BMI-NUREG-1949. REACTOR SAFETY PROGRAM APPLICATIONS AND COORDINATION, TASK 1. STEAM-WATER MIXING PROGRAM AND SYSTEM HYDRODYNAMICS. May 1976. Transmitted July 2, 1976.

BMI-NUREG-1950. FISSION PRODUCT TRANSPORT ANALYSIS - QUARTERLY PROGRESS REPORT, JANUARY THROUGH MARCH 1976. June 9, 1976. Transmitted June 29, 1976.

BMI-NUREG-1951. CRITICAL EXPERIMENTS, MEASUREMENTS AND ANALYSES TO ESTABLISH A CRACK ARREST METHODOLOGY FOR NUCLEAR PRESSURE VESSEL STEELS. July 1976. Transmitted August 9, 1976.

BMI-NUREG-1955. FISSION PRODUCT TRANSPORT ANALYSIS - TASK 2 - QUARTERLY PROGRESS REPORT, APRIL THROUGH JUNE 1976. September 7, 1976. Transmitted October 4, 1976.

BMI-NUREG-1956. EVALUATING STRENGTH AND DUCTILITY OF IRRADIATED ZIRCALOY TASK 5. July 1976. Transmitted September 29, 1976.

BMI-NUREG-1958. RESIDUAL STRESSES AT GIRTH-BUTT WELDS IN PIPES AND PRESSURE VESSELS, QUARTERLY PROGRESS REPORT, JULY 15-OCTOBER 15, 1976. October 1976. Transmitted January 12, 1977.

BMI-NUREG-1959. CRITICAL EXPERIMENTS, MEASUREMENTS, AND ANALYSIS TO ESTABLISH A CRACK ARREST METHODOLOGY FOR NUCLEAR PRESSURE VESSEL STEELS, SECOND ANNUAL PROGRESS REPORT, JULY 1975-JUNE 1976. October 1976. Transmitted January 12, 1977.

† BNL-50458. DEVELOPMENT OF A COMPUTER CODE FOR THERMAL HYDRAULICS OF REACTOR (THOR). No date. Transmitted April 27, 1976.

† BNL-50475. PREDICTION OF STEADY STATE THERMOHYDRAULIC CONDITIONS IN WATER REACTOR SYSTEMS. August 1975. Transmitted May 4, 1976.

BNL-50477. THERMOHYDRAULIC LMFBR SAFETY EXPERIMENTS, QUARTERLY REPORT, JULY-SEPTEMBER 1975. November 1975. Transmitted February 3, 1976.

BNL-50480. INTEGRAL STRESS CORROSION CRACKING OF SENSITIZED STAINLESS STEELS. January 1976. Transmitted March 1, 1976.

† BNL-50497. INTERGRANULAR STRESS CORROSION CRACKING OF SENSITIZED STAINLESS STEELS. No date. Transmitted May 11, 1976.

† BNL-NUREG-50506. DEVELOPMENT OF A COMPUTER CODE FOR THERMAL HYDRAULICS OF REACTORS (THOR), QUARTERLY PROGRESS REPORT - JULY-SEPTEMBER 1975. April 1976. Transmitted July 6, 1976.

BNL-NUREG-50517. INTERGRANULAR STRESS CORROSION CRACKING OF SENSITIZED STAINLESS STEELS. June 1976. Transmitted July 23, 1976.

BNL-NUREG-50534. DEVELOPMENT OF A COMPUTER CODE FOR THERMAL HYDRAULICS OF REACTORS (THOR), FIFTH QUARTERLY PROGRESS REPORT, OCTOBER-DECEMBER 1975. July 1976. Transmitted September 29, 1976.

BNWL-1713. PARTIALLY-SATURATED TRANSIENT GROUNDWATER FLOW MODEL THEORY AND NUMERICAL IMPLEMENTATION. 1975. Transmitted August 13, 1976.

† BNWL-1897. USER'S GUIDE FOR GAPCON-THERMAL-2: A COMPUTER PROGRAM FOR CALCULATING THE THERMAL BEHAVIOR OF AN OXIDE FUEL ROD. November 1975. Transmitted January 6, 1976.

† BNWL-1924-1. CORE THERMAL MODEL DEVELOPMENT AND EXPERIMENTS. July 1975. Transmitted January 2, 1976.

† BNWL-1955. AN EVALUATION OF THE DISCREPANCIES BETWEEN THE PREDICTED AND THE EXPERIMENTAL EFFECTS OF XENON AND KRYPTON IN NUCLEAR FUEL RODS. November 1975. Transmitted March 29, 1976.

BNWL-1965. EFFECTS OF SLEEVE BLOCKAGES ON AXIAL VELOCITY AND INTENSITY OF TURBULENCE IN A 7 X 7 ROD BUNDLE. January 1976. Transmitted March 18, 1976.

BNWL-1975. EFFECTS OF SLEEVE BLOCKAGES ON AIR VELOCITY DISTRIBUTIONS IN AN UNHEATED 7 X 7 ROD BUNDLE. January 1976. Transmitted March 16, 1976.

COO-2471-5. MODELING OF CLADDING AND FUEL MOTION IN A LOSS OF FLOW SITUATION FOR GCFR SAFETY ANALYSIS. November 15, 1975. Transmitted February 6, 1976.

† CREARE-TN-217. ECC DELIVERY STUDY - EXPERIMENTAL RESULTS AND DISCUSSION. October 1975. Transmitted January 15, 1976.

CREARE-TN-229. CREARE 1/15-SCALE CYLINDRICAL ELEVATED PRESSURE FACILITY DESCRIPTION. February 1976. Transmitted April 19, 1976.

CREARE-TN-231. ANALYSIS OF ECC DELIVERY. April 1976. Transmitted May 25, 1976.

CREARE-TN-233. AN EVALUATION OF ECC PENETRATION DATA USING TWO SCALING PARAMETERS. September 1976. Transmitted October 13, 1976.

CREARE-TN-235. PRELIMINARY ECC DELIVERY DATA AT 1/15-SCALE, QUARTERLY PROGRESS REPORT, JANUARY 1, 1976-MARCH 31, 1976. May 1976. Transmitted July 7, 1976.

CREARE-TN-242. COUNTERCURRENT FLOW, COUPLED COLD LEG STEAM, AND TRANSIENT STEAM FLOW TESTS AT 1/15-SCALE. September 1976. Transmitted November 4, 1976.

LA-6209-SR. FISSION PRODUCT DECAY HEAT STUDIES AS OF DECEMBER 15, 1975. January 1976. Transmitted March 10, 1976.

LA-NUREG-6326-MS. DEVELOPMENT OF THIN SHELL EQUATIONS FOR REACTOR SUB-ASSEMBLY DYNAMICS. May 1976. Transmitted June 23, 1976.

LA-NUREG-6330-MS. NUMERICAL CALCULATION OF FLASHING FROM LONG PIPES USING A TWO-FIELD MODEL. May 1976. Transmitted August 11, 1976.

LA-NUREG-6447-PR. REACTOR SAFETY AND TECHNOLOGY - QUARTERLY PROGRESS REPORT APRIL 1-JUNE 30, 1976. August 1976. Transmitted October 7, 1976.

LA-NUREG-6488-MS. COMPARE: A COMPUTER PROGRAM FOR THE TRANSIENT CALCULATION OF A SYSTEM OF VOLUMES CONNECTED BY FLOWING VENTS. September 1976. Transmitted October 15, 1976.

LA-NUREG-6526-MS. REPORT ON THE APPLICATION OF STATISTICAL TECHNIQUES TO THE ANALYSIS OF COMPUTER CODES. October 1976. Transmitted November 12, 1976.

LAMS-NUREG-6330. NUMERICAL CALCULATION OF FLASHING FROM LONG PIPES USING A TWO-FIELD MODEL. May 1976. Transmitted June 3, 1976.

LAPR-NUREG-6233. REACTOR SAFETY AND TECHNOLOGY - QUARTERLY PROGRESS REPORT, OCTOBER 1-DECEMBER 31, 1975. March 1976. Transmitted May 6, 1976.

LAPR-NUREG-6317. REACTOR SAFETY AND TECHNOLOGY - QUARTERLY PROGRESS REPORT, JANUARY 1-MARCH 31, 1976. May 1976. Transmitted June 23, 1976.

LLL-NUREG-1000-76-1. REACTOR CONTAINMENT ANALYSIS FOR BWR SUPPRESSION SYSTEMS. June 30, 1976. Transmitted August 24, 1976.

GEAP-10207-35. REACTOR PRIMARY COOLANT SYSTEM PIPE RUPTURE STUDY, PROGRESS REPORT NO. 35. JANUARY-MARCH 1976. May 1976. Transmitted August 26, 1976.

⁺GEAP-13317-12. BWR BLOWDOWN HEAT TRANSFER, TWELFTH QUARTERLY PROGRESS REPORT, APRIL 1-JUNE 30, 1975. July 1975. Transmitted March 24, 1976.

⁺GEAP-13317-13. BWR BLOWDOWN HEAT TRANSFER, THIRTEENTH QUARTERLY PROGRESS REPORT, JULY 1-SEPTEMBER 30, 1975. October 1975. Transmitted March 24, 1976.

GEAP-13317-14. BWR BLOWDOWN HEAT TRANSFER, FOURTEENTH QUARTERLY PROGRESS REPORT. January 1976. Transmitted June 16, 1976.

⁺GEAP-21126. BLOWDOWN HEAT TRANSFER PHENOMENA IN THE SCALED BWR TEST SYSTEM. January 1976. Transmitted March 24, 1976.

GEAP-21207. BWR 8X8 FUEL ROD SIMULATION USING ELECTRICAL HEATERS. March 1976. Transmitted June 22, 1976.

GEAP-21214. BWR BLOWDOWN HEAT TRANSFER PROGRAM FINAL REPORT. February 1976. Transmitted July 15, 1976.

GEAP-21304-1. BWR BLOWDOWN/EMERGENCY CORE COOLING, FIRST QUARTERLY PROGRESS REPORT, JANUARY-MARCH 31, 1976. April 1976. Transmitted August 31, 1976.

GEAP-21304-2. BWR BLOWDOWN/EMERGENCY CORE COOLING, SECOND QUARTERLY PROGRESS REPORT, APRIL 1-JUNE 30, 1976. August 1976. Transmitted to Japan and Germany December 27, 1976; France January 1977.

MARC REPORT 09177. THREE-DIMENSIONAL ELASTIC-PLASTIC STRESS AND STRAIN ANALYSIS FOR FRACTURE MECHANICS. November 1975. Transmitted January 12, 1977.

MLM-2337. TRITIUM WASTE CONTROL PROJECT PROGRESS REPORT: OCTOBER-DECEMBER, 1975. July 30, 1976. Transmitted August 10, 1976.

⁺NUREG-75/-65. HIGH RAYLEIGH NUMBER CONVECTION IN ENCLOSED FLUID LAYERS WITH INTERNAL HEAT SOURCES. July 1975. Transmitted January 16, 1976.

^{*}NUREG-0111. EVALUATION OF HIGH TEMPERATURE GAS COOLED REACTOR FUEL PARTICLE COATING FAILURE MODELS AND DATA. November 1976. Transmitted December 8, 1976.

ORNL-5035. FLANGE: A COMPUTER PROGRAM FOR THE ANALYSIS OF FLANGED JOINTS WITH RING-TYPE GASKETS. January 1976. Transmitted February 2, 1976.

[†]ORNL-5044, Vol. 3. STRESS ANALYSES OF FLAT PLATES WITH ATTACHED NOZZLES. VOL. 3. EXPERIMENTAL STRESS ANALYSES OF A FLAT PLATE WITH TWO CLOSELY SPACED NOZZLES OF EQUAL DIAMETER ATTACHED. December 1975. Transmitted January 8, 1976.

ORNL-5102. ZIRCONIUM METAL-WATER OXIDATION KINETICS. I. THERMOMETRY. February 1976. Transmitted February 12, 1976.

ORNL/NSIC-96. DESIGN DATA AND SAFETY FEATURES OF COMMERCIAL NUCLEAR POWER PLANTS. VOLUME V. June 1976. Transmitted June 14, 1976.

ORNL-NSIC-120. HYDROGEN CONSIDERATIONS IN LIGHT-WATER POWER REACTORS. February 1976. Transmitted February 25, 1976.

ORNL/NSIC-121. REACTOR OPERATING EXPERIENCES 1972-1974. December 1975. Transmitted February 25, 1976.

ORNL/NSIC-123. NUCLEAR POWER ACCIDENT PROBABILITIES, RISKS, AND BENEFITS. February 1976. Transmitted March 9, 1976.

[†]ORNL/NSIC-124. INDEX TO NUCLEAR SAFETY - A TECHNICAL PROGRESS REVIEW BY CHRONOLOGY, PERMUTED TITLE, AND AUTHOR, VOL. 11, NO. 1 THROUGH VOL. 16, NO. 6. April 1976. Transmitted May 6, 1976.

ORNL/NUREG-1. TEST OF 6-IN.-THICK PRESSURE VESSELS. SERIES 3: INTERMEDIATE TEST VESSEL V-7. August 1976. Transmitted September 8, 1976.

ORNL/NUREG-2. STRESS ANALYSES OF PERFORATED FLAT PLATES UNDER IN-PLANE LOADINGS. August 1976. Transmitted August 11, 1976.

ORNL/NUREG-5. ZIRCONIUM METAL-WATER OXIDATION KINETICS. III. OXYGEN DIFFUSION IN OXIDE AND ALPHA ZIRCALOY PHASES. October 1976. Transmitted October 13, 1976.

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ORNL/NUREG/TM-14. QUARTERLY PROGRESS REPORT ON BLOWDOWN HEAT TRANSFER PROGRAM FOR JANUARY-MARCH 1976. July 1976. Transmitted July 27, 1976.

ORNL/NUREG/TM-17. QUARTERLY PROGRESS REPORT ON THE ZIRCONIUM METAL-WATER OXIDATION KINETICS PROGRAM SPONSORED BY THE NRC DIVISION OF REACTOR SAFETY RESEARCH FOR JANUARY-MARCH 1976. May 1976. Transmitted May 21, 1976.

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ORNL/NUREG/TM-19. ZIRCONIUM METAL-WATER OXIDATION KINETICS. II. OXYGEN-18 DIFFUSION IN α -ZIRCALOY. July 1976. Transmitted July 27, 1976.

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ORNL/NUREG/TM-27. ANALYTICAL RELATIONS BETWEEN ELASTIC-PLASTIC FRACTURE CRITERIA. July 1976. Transmitted July 20, 1976.

ORNL/NUREG/TM-28. HEAVY-SECTION STEEL TECHNOLOGY PROGRAM QUARTERLY PROGRESS REPORT JANUARY-MARCH 1976. July 1976. Transmitted August 19, 1976.

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ORNL/NUREG/TM-52. QUARTERLY PROGRESS REPORT ON THE CREEPDOWN AND COLLAPSE OF ZIRCALOY FUEL CLADDING PROGRAM SPONSORED BY THE NRC DIVISION OF REACTOR SAFETY RESEARCH FOR APRIL-JUNE 1976. October 1976. Transmitted October 28, 1976.

ORNL/NUREG/TM-53. ANALYSIS OF ABNORMALITIES OF SCRUBBERS IN NUCLEAR REACTOR SERVICE. November 1976. Transmitted January 18, 1977.

ORNL/NUREG/TM-55. INFRARED INSPECTION AND CHARACTERIZATION OF FUEL-PIN SIMULATORS. November 1976. Transmitted January 18, 1977.

ORNL/NUREG/TM-57. HEAT-TO-HEAT VARIATIONS OF TOTAL STRAIN (TO 5%) AT DISCRETE STRESS LEVELS IN TYPE 316 AND 304 STAINLESS STEEL FROM 24 TO 316°C. November 1976. Transmitted November 11, 1976.

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ORNL/TM-5240. QUARTERLY PROGRESS REPORT ON BLOWDOWN HEAT TRANSFER PROGRAM FOR OCTOBER-DECEMBER 1975. March 1976. Transmitted March 8, 1976.

ORNL/TM-5248. QUARTERLY PROGRESS REPORT ON THE ZIRCONIUM METAL-WATER OXIDATION KINETICS PROGRAM SPONSORED BY THE NRC DIVISION OF REACTOR SAFETY RESEARCH FOR OCTOBER-DECEMBER 1975. March 1976. Transmitted March 8, 1976.

ORNL/TM-5272. FISSION PRODUCT BETA AND GAMMA ENERGY RELEASE QUARTERLY PROGRESS REPORT FOR OCTOBER-DECEMBER 1975. February 1976. Transmitted March 8, 1976.

ORNL/TM-5273. PRELIMINARY FISSION PRODUCT ENERGY RELEASE MEASUREMENTS FOR THERMAL NEUTRON FISSION OF ^{235}U . March 1976. Transmitted April 6, 1976.

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ORNL/Sub/2203-4. EXPERIMENTAL STRESS ANALYSIS OF THE ATTACHMENT REGION OF HEMISPHERICAL SHELLS WITH ATTACHED NOZZLES. July 1976. Transmitted September 15, 1976.

ORNL/Sub-2913-1. FLANGED JOINTS WITH CONTACT OUTSIDE THE BOLT CIRCLE - ASME PART B DESIGN RULES. May 1976. Transmitted July 20, 1976.

ORNL/SUB/2913-2. APPROPRIATE NOMINAL STRESSES FOR USE WITH ASME CODE PRESSURE-LOADING STRESS INDICES FOR NOZZLES. June 1976. Transmitted August 11, 1976.

ORNL/Sub/2913-3. EVALUATION OF THE BOLTING AND FLANGES OF ANSI B16.5 FLANGED JOINTS - ASME PART A DESIGN RULES. September 30, 1976. Transmitted October 28, 1976.

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† SAND-76-0163. LIGHT WATER REACTOR SAFETY RESEARCH PROGRAM -- QUARTERLY REPORT, OCTOBER-DECEMBER 1975. April 1976. Transmitted May 12, 1976.

SAND-76-0369. LIGHT WATER REACTOR SAFETY RESEARCH PROGRAM -- QUARTERLY REPORT, JANUARY-MARCH 1976. September 1976. Transmitted October 18, 1976.

SUNYSB-NUREG-0001. A STUDY OF DROPLET HYDRODYNAMICS IMPORTANT IN LOCA REFLOOD. April 1976. Transmitted July 8, 1976.

TREX-NUREG-1001. THERMAL AND HYDRAULIC RESPONSE OF THE SEMISCALE MOD-1 CORE DURING FORCED FEED REFLOOD TESTS. October 1976. Transmitted December 27, 1976.

† WCAP-8651. FLECHT LOW FLOODING RATE COSINE TEST SERIES DATA REPORT. December 1975. Transmitted January 13, 1976.

FRENCH LIGHT-WATER REACTOR SAFETY REPORTS
RECEIVED BY NRC

The following is a cumulative listing of reports received from France during 1976 under the Technical Exchange Agreement. Bibliographic information is omitted from proprietary reports.

FRSR-11. INSTRUMENTATION USED IN THE HEAT TRANSFER LABORATORY OF GRENoble FOR EXPERIMENTS RELATED TO LIGHT WATER REACTORS. CEA CENTRE D'ETUDES NUCLEAIRES, GRENoble, FRANCE. October 17, 1975. Received January 30, 1976.

FRSR-12. TT 508. TRANSITORY CONDENSATION OF WATER VAPOR IN PRESENCE OF AIR ON A PLANE WALL - DESCRIPTION OF THE INSTALLATION. CEA SERVICE DES TRANSFERTS THERMIQUES, FRANCE. September 1975. Received May 17, 1976.

FRSR-13. CODE BERTHA - APPLICATION AUX EXPERIENCES "EDWARDS." CEA. September 1975. Received May 18, 1976.

FRSR-14. EXPERIMENTAL STUDY OF CRITICAL FLOW IN TWO PHASE FLOW WITH STEAM QUALITY IN 7 DEGRESS DIVERGENTS FROM 2 TO 7 BARS PRESSURE. CEA. No date. Received May 18, 1976.

FRSR-15. TT 509. EMERGENCY COOLING FOR WATER REACTORS. REFLOODING. CEA-CENG. October 1975. Received May 18, 1976.

FRSR-16. VOID FRACTION MEASUREMENTS DURING BLOWDOWN BY NEUTRON ABSORPTION OR SCATTERING METHODS. SERVICE DES TRANSFERTS THERMIQUES, GRENoble, FRANCE. No date. Received July 13, 1976.

FRSR-17. DETERMINATION OF MASS FLOW RATE AND QUALITY DISTRIBUTIONS BETWEEN THE SUBCHANNELS OF A HEATED BUNDLE. SERVICE DES TRANSFERTS THERMIQUES, GRENoble, FRANCE. No date. Received July 13, 1976.

FRSR-18. MODELING OF QUENCH FRONT PROGRESSION AND HEAT TRANSFER BY RADIATION DURING REFLOODING OF A TUBULAR TEST SECTION. SERVICE DES TRANSFERTS THERMIQUES, GRENoble, FRANCE. No date. Received July 13, 1976.

FRSR-19. SETS 42. PRESENTATION AND USES ON THE CODE PATREC. COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE (CEA). January 1976. Received April 1976.

FRSR-20. SETS 39. GENERAL REPORT OF PHYSICAL TESTS ON MARVIKEN I. COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE. December 1975. Received April 1976.

- FRRSR-21. SETS 38. DANAIDES - PROGRAM FOR THE CALCULATION OF DEPRESSURIZATION TRANSIENTS. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. October 1975. Received April 1976.
- FRRSR-22. ENT/75-24. CODE TRICO - ANALYSIS OF THREE-DIMENSIONAL STRUCTURES COMPOSED OF SHELLS AND BEAMS. CEA SERVICE DES ETUDES MECANIKES ET THERMIQUES, FRANCE. April 1975. Received April 1976.
- FRRSR-23. Proprietary report.
- FRRSR-24. Proprietary report.
- FRRSR-25. DSN 70. EVALUATION OF THE EFFECT OF DEPENDENCES ON THE RELIABILITY OF A SAFETY SYSTEM WITH THE AID OF THE PAT-REC-DE CODE. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. April 1975. Received June 1976.
- FRRSR-26. TT 491. BERTHA CODE OF APPLICATIONS TO CANON EXPERIMENTS. COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE. March 1975. Received April 1976.
- FRRSR-27. Proprietary report.
- FRRSR-28. DSN No. 94. RESEARCH PROGRAM CONCERNING THE FAILURE PROBABILITY CALCULATION OF A WATER REACTOR PRESSURE VESSEL. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. April 1976. Received July 1976.
- FRRSR-29. DSN No. 97. THE SOLUTION PULSE REACTOR SILENE. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. January 1976. Received July 1976.
- FRRSR-30. Proprietary report.
- FRRSR-31. Proprietary report.
- FRRSR-32. Proprietary report.
- FRRSR-33. DSN No. 78. FEASIBILITY AND PROBABILITY OF PREMATURE RELEASE OF THE PROTECTION SYSTEM. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. November 1975. Received June 1976.
- FRRSR-34. DSN No. 84. ABACI FOR THE DIRECT EVALUATION OF ATMOSPHERE TRANSFER OF GASEOUS EFFLUENTS. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. January 1976. Received June 1976.
- FRRSR-35. DSN No. 85. APPLICATION OF RELIABILITY ANALYSIS METHODS TO THE COMPARISON OF TWO SAFETY CIRCUITS. CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE. June 1975. Received June 1976.

GERMAN (FRG) LIGHT-WATER REACTOR SAFETY
REPORTS RECEIVED BY SRC

The following is a cumulative listing of reports received from the Federal Republic of Germany during 1976 under the Technical Exchange Agreement. Bibliographic information is omitted from proprietary reports.

GERRSR-7. KFK-2195(Ext.). FIRST SEMIANNUAL REPORT PNS 1975. KARLSRUHE. 1975. Received January 30, 1976.

GERRSR-8. EXPERIMENTAL PROGRAM FOR THE SWR (BOILING WATER REACTOR) LOW PRESSURE EXPERIMENTS. KRAFTWERK UNION, FRANKFURT/MAIN. December 1975. Received February 2, 1976.

GERRSR-9. RESEARCH PROGRAM FOR SAFETY TECHNOLOGY IN THE AREA OF LIGHT WATER REACTORS. KRAFTWERK UNION, ERLANGEN. March 1974. Received February 2, 1976.

GERRSR-10. OPINION OF THE WG (WORK GROUP) "ND (LOW PRESSURE) EXPERIMENTS" WITH RESPECT TO THE EXPERIMENTAL PROGRAM WITH SWR (BOILING WATER REACTOR) GEOMETRY. KRAFTWERK UNION, FRANKFURT/MAIN. March 4, 1974. Received February 2, 1976.

GERRSR-11. SESSION OF THE WORK GROUP FOR LOW PRESSURE REFILL EXPERIMENTS RS 36, BWR EXPERIMENTS. REAKTORTECHNIK, ERLANGEN. March 1974. Received February 2, 1976.

GERRSR-12. STRESS-MEASUREMENTS IN A MODEL CONTAINMENT WITH REINFORCED CONCRETE. BATTELLE-INSTITUT e.V. FRANKFURT. August 1975. Received March 3, 1976.

GERRSR-13. PRESSURE AND TEMPERATURE HISTORIES IN BLOWDOWN EXPERIMENTS IN A MODEL CONTAINMENT. BATTELLE-INSTITUT e.V. FRANKFURT. October 1975. Received March 4, 1976.

GERRSR-14. EXPERIMENTAL INVESTIGATIONS OF PRESSURE AND TEMPERATURE LOADS ON A CONTAINMENT AFTER A LOSS-OF-COOLANT ACCIDENT. BATTELLE-INSTITUT e.V. FRANKFURT. October 1975. Received March 4, 1976.

GERRSR-15. CALCULATIONS AND EXPERIMENTS OF THERMOHYDRAULICS AND HEAT EXCHANGE WITHIN THE CORE MELT - PART I: SUMMARIZING REPORT OF ALL RESULTS. INSTITUT FUR VERFAHRENSTECHNIK. July 1975. Received March 4, 1976.

GERRSR-16. CALCULATIONS AND EXPERIMENTS OF THERMOHYDRAULICS AND HEAT EXCHANGE WITHIN THE CORE MELT - PART II: ANALYTICAL RESULTS. INSTITUT FUR VERFAHRENSTECHNIK. July 1975. Received March 4, 1976.

- GERRSR-17. CALCULATIONS AND EXPERIMENTS OF THERMOHYDRAULICS AND HEAT EXCHANGE WITHIN THE CORE MELT -- PART III: EXPERIMENTAL RESULTS. INSTITUT FÜR VERFAHRENSTECHNIK. July 1975. Received March 4, 1976.
- GERRSR-18. CALCULATIONS AND EXPERIMENTS OF THERMOHYDRAULICS AND HEAT EXCHANGE WITHIN THE CORE MELT -- PART IV: INVESTIGATIONS OF THE VELOCITY FIELD IN THE MOLTEN POGL. INSTITUT FÜR VERFAHRENSTECHNIK. October 1975. Received March 4, 1976.
- GERRSR-19. SAFETY ORIENTED RESEARCH PROGRAM CONDENSATION AND FREE BLOWING TESTING. KRAFTWERK UNION, REACTOR TECH., ERLANGEN. No date. Received March 24, 1976.
- GERRSR-20. RESEARCH PROGRAM REACTOR SAFETY TECHNICAL REPORT PROJECT RS 37/2 FINAL REPORT ABOUT BLOWDOWN-EXPERIMENTS WITH 4-ROD-BUNDLES. INSTITUT FÜR REAKTORSICHERHEIT. September 1975. Received March 24, 1976.
- GERRSR-21, Vol. 1. EUR 5402d, Vol. 1. COMPILATION AND COMPARATIVE EXAMINATION OF EXISTING GUIDELINES AND SPECIFICATIONS FOR THE DESIGN, FABRICATION, TESTING, AND INSPECTION OF STEEL PRESSURE VESSELS FOR REACTORS. FINAL REPORT. VOLUME 1. KOMMISSION DER EUROPÄISCHEN GEMEINSCHAFTEN. December 1974. Received March 29, 1976.
- GERRSR-21, Vol. 2. EUR 5402d, Vol. 2. COMPILATION AND COMPARATIVE EXAMINATION OF EXISTING GUIDELINES AND SPECIFICATIONS FOR THE DESIGN, FABRICATION, TESTING, AND INSPECTION OF STEEL PRESSURE VESSELS FOR REACTORS. FINAL REPORT. VOLUME 2. KOMMISSION DER EUROPÄISCHEN GEMEINSCHAFTEN. December 1974. Received March 29, 1974.
- GERRSR-21, Vol. 3. EUR 5402d, Vol. 3. COMPILATION AND COMPARATIVE EXAMINATION OF EXISTING GUIDELINES AND SPECIFICATIONS FOR THE DESIGN, FABRICATION, TESTING, AND INSPECTION OF STEEL PRESSURE VESSELS FOR REACTORS. FINAL REPORT. VOLUME 3. KOMMISSION DER EUROPÄISCHEN GEMEINSCHAFTEN. December 1974. Received March 29, 1974.
- GERRSR-22. BMFT-RS-119. INVESTIGATION OF THE INFLUENCE OF SOME IMPORTANT PARAMETERS IN THE CASE OF A HYPOTHETICAL CORE-MELTDOWN-ACCIDENT. INSTITUT FÜR REAKTORSICHERHEIT. January 1975. Received April 15, 1976.
- GERRSR-23. RS 102-7. CLASSIFICATION OF MISSILES, PROJECTILES AND FRAGMENTS DURING POSSIBLE ACCIDENT SEQUENCES IN REACTOR PLANTS. INSTITUT FÜR REAKTORSICHERHEIT. October 1974. Received April 15, 1976.
- GERRSR-24. KFK-2050(EXCERPT). POST-ACCIDENT RECIRCULATION FILTERS FOR FISSION PRODUCT REMOVAL FROM THE CONTAINMENT ATMOSPHERE. KARLSRUHE. No date. Received April 15, 1976.
- GERRSR-25. KFK-1973(EXCERPT). POST-ACCIDENT RECIRCULATION AIR FILTER FOR SEPARATING FISSION PRODUCTS FROM THE SAFETY CONTAINMENT ATMOSPHERE. KARLSRUHE. No date. Received April 15, 1976.
- GERRSR-26. KFK-2130(EXCERPT). IODINE REMOVAL IN POWER PLANTS AND RE-PROCESSING PLANTS. KARLSRUHE. No date. Received April 15, 1976.

GERRSR-27. KFK-2165(EXCERIT). POST-ACCIDENT RECIRCULATION FILTERS FOR FISSION PRODUCT REMOVAL FROM THE CONTAINMENT ATMOSPHERE. KARLSRUHE. No date. Received April 15, 1976.

GERRSR-28. IRS-F-26. REPORTS ON RESEARCH PROJECTS IN THE FIELD OF REACTOR SAFETY SUPPORTED BY THE BUNDESMINISTERIUM FUER FORSCHUNG UND TECHNOLOGIE (REPORTING PERIOD: APRIL 1 THROUGH JUNE 30, 1975). INSTITUT FUR REAKTORSICHERHEIT. August 1975. Received May 17, 1976.

GERRSR-29. INVESTIGATION INTO BRITTLE FRACTURE BEHAVIOR OF THICK-WALLED HOLLOW CYLINDERS SUBJECTED TO THERMAL SHOCK. IRS. September 1975. Received May 24, 1976.

GERRSR-30. RS-50. ERROR ANALYSIS FOR THE DATA ACQUISITION AND PROCESSING SYSTEM OF THE CONTAINMENT-TEST FACILITY. BATTELLE. April 1976. Received July 13, 1976.

GERRSR-31. RS-172. COMPARISON OF COMPUTER PROGRAMS FOR THE RELIABILITY ANALYSIS OF NUCLEAR POWER PLANTS - FINAL REPORT. INSTITUT FUR REAKTORSICHERHEIT. April 1976. Received July 13, 1976.

GERRSR-32. BMFT-RS-71. RESEARCH AND DEVELOPMENT-WORK ABOUT THE VISCOSITY OF MOLTEN LWR CORE MATERIALS AND INVESTIGATION OF THE COMPATIBILITY BETWEEN THESE MATERIALS AND CRUCIBLE-MATTER. BATTELLE INSTITUT. June 1976. Received July 19, 1976.

GERRSR-33. Proprietary report.

GERRSR-34. Proprietary report.

GERRSR-35. Proprietary report.

GERRSR-36. Proprietary report.

GERRSR-37. KU-RD-23. THREE COMPUTER PROGRAMS FOR ECCS EVALUATION. September 1975. Received February 1976.

GERRSR-38. IRS-F-27. REPORTS ON RESEARCH PROJECTS IN THE FIELD OF REACTOR SAFETY SUPPORTED BY THE BUNDESMINISTERIUM FUER FORSCHUNG UND TECHNOLOGIE (REPORTING PERIOD: JULY 1-SEPTEMBER 30, 1975). INSTITUT FUR REAKTORSICHERHEIT DER TECHNISCHEN UBERWACHUNGS-VEREINE e.V., KOLN, GERMANY. December 1975. Received February 1976.

GERRSR-39. IRS-F-28. REPORTS ON RESEARCH PROJECTS IN THE FIELD OF REACTOR SAFETY SUPPORTED BY THE BUNDESMINISTERIUM FUER FORSCHUNG UND TECHNOLOGIE (REPORTING PERIOD: OCTOBER 1-DECEMBER 31, 1975). INSTITUT FUR REAKTORSICHERHEIT DER TECHNISCHEN UBERWACHUNGS-VEREINE e.V., KOLN, GERMANY. March 1976. Received May 1976.

GERRSR-40. IRS-F-29. ANNUAL REPORT ON REACTOR SAFETY RESEARCH PROJECTS SPONSORED BY THE MINISTRY FOR RESEARCH AND TECHNOLOGY OF THE FEDERAL REPUBLIC OF GERMANY, 1975. INSTITUT FUR REAKTORSICHERHEIT DER TECHNISCHEN UBERWACHUNGS-VEREINE e.V., KOLN, GERMANY. April 1976. Received June 4, 1976.

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GERRSR-42. MPA-Task B30/1, Tech. Report 3. REACTOR PRESSURE VESSELS -- VESSELS OF INTERMEDIATE SIZES. UNIV. OF STUTTGART, F.R. GERMANY. December 1975. Received October 1976.

GERRSR-43. MPA-Task B30/1, Tech. Report 2. REACTOR PRESSURE VESSELS -- VESSELS OF INTERMEDIATE SIZES. UNIV. OF STUTTGART, F.R. GERMANY. July 1974. Received October 1976.

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GERRSR-46. MPA-Task B30/2, Tech. Report 2. REACTOR PRESSURE VESSELS -- CIRCUMFERENTIAL WELDS IN REACTOR PRESSURE VESSELS. UNIV. OF STUTTGART, F.R. GERMANY. July 1974. Received October 1976.

GERRSR-47. MPA-Task B30/2, Tech. Report 3, Vol. 1. REACTOR PRESSURE VESSELS -- CIRCUMFERENTIAL WELDS IN REACTOR PRESSURE VESSELS. UNIV. OF STUTTGART, F.R. GERMANY. December 1975. Received October 1976.

GERRSR-48. MPA-Task B30/2, Tech. Report 3, Vol. 2. REACTOR PRESSURE VESSELS -- CIRCUMFERENTIAL WELDS IN REACTOR PRESSURE VESSELS. UNIV. OF STUTTGART, F.R. GERMANY. December 1975. Received October 1976.

GERRSR-49. MPA-Task B30/5 and B30/6, Tech. Report 1. REACTOR PRESSURE VESSELS -- SIMULATED SAMPLES STUDIES OF SIMULATED WELDS, HEATING AND RELAXATION STUDIES. UNIV. OF STUTTGART, F.R. GERMANY. October 1973. Received October 1976.

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