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Bibliography of Microfiched Foreign Reports Distributed under the NRC Reactor Safety Research Foreign Technical Exchange Program, 1979

Debbie S. Queener

Prepared for the U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Under Interagency Agreements DOE 40-551-75 and 40-552-75

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113	A Selected Bibliography on Emergency Core Cooling Systems (ECCS) for Light-Water-Cooled Power Reactors (LWRs), Wm. B. Cottrell, Jan. 1974	$12.50
114	Annotated Bibliography of Safety-Related Occurrences in Nuclear Power Plants as Reported in 1973, R. L. Scott and R. B. Gallaher, Nov. 1974	$15.00
117	Protection of Nuclear Power Plants Against External Disasters, Wm. B. Cottrell, April 1975	$15.00
119	A Selected Bibliography on Pressure Vessels for Light-Water-Cooled Power Reactors (LWRs) Fred A. Heddleson, Jan. 1975	$15.00
120	Annotated Bibliography of Hydrogen Considerations in Light-Water-Power Reactors, G. W. Keilholtz, Feb. 1976	$10.00
121	Reactor Operating Experiences, 1972–1974, U.S. Nuclear Regulatory Commission, Dec. 1975	$ 8.00
122	Annotated Bibliography of Safety-Related Occurrences in Nuclear Power Plants as Reported in 1974, R. L. Scott and R. B. Gallaher, May 1975	$15.00
123	Nuclear Power: Accident Probability, Risks, and Benefits: A Bibliography, NSIC Staff, Feb. 1976	$ 6.00
118†	Siting of Nuclear Facilities, Selections from *Nuclear Safety*, J. R. Buchanan, July 1976	$ 9.75
125	LMFBR Safety, 1. Review of Current Issues and Bibliography of Literature (1960–1969), J. R. Buchanan and G. W. Keilholtz, Sept. 1976	$12.75
126	Annotated Bibliography of Safety-Related Occurrences in Boiling-Water Nuclear Power Plants as Reported in 1975, R. L. Scott and R. B. Gallaher, July 1976	$11.00
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128	HTGR Safety, 1. Review of Current Issues and Bibliography of Literature (1960–1977), J. R. Buchanan and G. W. Keilholtz, July 1978	$ 6.50
129	LMFBR Safety, 2. Review of Current Issues and Bibliography of Literature (1970–1972), J. R. Buchanan and G. W. Keilholtz, Dec. 1976	$13.00
130	Bibliography of Reports on Research Sponsored by the NRC Office of Nuclear Regulatory Research, November 1975–June 1976, J. R. Buchanan, Oct. 1976	$ 5.50
131	LMFBR Safety, 3. Review of Current Issues and Bibliography of Literature (1972–1974), J. R. Buchanan and G. W. Keilholtz, April 1977	$12.75
132	LMFBR Safety, 4. Review of Current Issues and Bibliography of Literature (1974–1975), J. R. Buchanan and G. W. Keilholtz, April 1977	$13.00
133	Index to *Nuclear Safety*, A Technical Progress Review by Chronology, Permuted Title, and Author, Vol. 11, No. 1 Through Vol. 17, No. 6, Wm. B. Cottrell and Ann Klein, April 1977	$ 5.50
134	Reports Distributed Under the NRC Light-Water Reactor Safety Technical Exchange, Wm. B. Cottrell and D. S. Sharp, April 1977	$ 4.00
135	Bibliography of Reports on Research Sponsored by the NRC Office of Nuclear Regulatory Research, J. R. Buchanan, March 1977	$ 5.50
136	Design Data and Safety Features of Commercial Nuclear Power Plants, Vol. VI (Sixth Volume of ORNL/NSIC-55), F. A. Heddleson, June 1977	$ 5.50
137	Annotated Bibliography of Safety-Related Occurrences in Boiling-Water Nuclear Power Plants as Reported in 1976, R. L. Scott and R. B. Gallaher, Sept. 1977	$11.75
138	Annotated Bibliography of Safety-Related Occurrences in Pressurized-Water Nuclear Power Plants as Reported in 1976, R. L. Scott and R. B. Gallaher, Aug. 1977	$12.00
139	LMFBR Safety, 5. Review of Current Issues and Bibliography of Literature: Vol. 5, 1975–1976, J. R. Buchanan and G. W. Keilholtz, July 1977	$13.75
140	Structural Integrity of Materials in Nuclear Service: A Bibliography, F. A. Heddleson, July 1977	$ 9.25
141	Summary Data for U.S. Commercial Nuclear Power Plants, F. A. Heddleson	

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Nuclear Safety Information Center

BIBLIOGRAPHY OF MICROFICHED FOREIGN REPORTS DISTRIBUTED UNDER THE NRC REACTOR SAFETY RESEARCH FOREIGN TECHNICAL EXCHANGE PROGRAM, 1979

Debbie S. Queener
Engineering Technology Division

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Prepared for the U.S. Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
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Prepared by the
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DEPARTMENT OF ENERGY

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Washington, D.C. 20555

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FOREWORD

The Nuclear Safety Information Center (NSIC), which was established in March 1963 at Oak Ridge National Laboratory, is principally supported by the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research. Support is also provided by the Division of Reactor Research and Technology of the Department of Energy. NSIC is a focal point for the collection, storage, evaluation, and dissemination of safety information to aid those concerned with the analysis, design, and operation of nuclear facilities. Although the most widely known product of NSIC is the technical progress review *Nuclear Safety*, the Center prepares reports and bibliographies as listed on the inside covers of this document. The Center has also developed a system of keywords to index the information which it catalogs. The title, author, installation, abstract, and keywords for each document reviewed are recorded at the central computing facility in Oak Ridge. The references are cataloged according to the following categories:

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 Hydraulics
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. Design, Construction and Licensing
19. Internal Exposure Effects on Humans Due to Radioactivity in the Environment (inactive September 1973)
20. Effects of Thermal Modifications on Ecological Systems (inactive September 1973)
21. Radiation Effects on Ecological Systems (inactive September 1973)
22. Safeguards of Nuclear Materials
23. Risk, Reliability, and Probabilistics

Computer programs have been developed that enable NSIC to (1) operate a program of selective dissemination of information (SDI) to individuals according to their particular profile of interest, (2) make retrospective searches of the stored references, and (3) produce topical indexed bibliographies. In addition, the Center Staff is available for consultation, and the document literature at NSIC offices is available for examination. NSIC reports (i.e., those with the ORNL/NSIC and ORNL/NUREG/NSIC numbers) may be purchased from the National Technical Information Service (see inside front cover). All of the above services are free to NRC and DOE personnel as well as their direct contractors. They are available to all others at a nominal cost as determined by the DOE Cost Recovery Policy. Persons interested in any of the services offered by NSIC should address inquiries to:

J. R. Buchanan, Assistant Director
Nuclear Safety Information Center
P.O. Box Y
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

Telephone 615-574-0391
FTS number is 624-0391

BIBLIOGRAPHY OF MICROFICHED FOREIGN REPORTS DISTRIBUTED UNDER THE NRC REACTOR SAFETY RESEARCH FOREIGN TECHNICAL EXCHANGE PROGRAM, 1979

Debbie S. Queener

ABSTRACT

A bibliography and indexes are presented for documents which were obtained in 1979 from France, the Federal Republic of Germany, Japan, and the United Kingdom under the NRC Reactor Safety Research Foreign Technical Exchange Program and subsequently microfiched and distributed. The bibliography contains abstracts of 262 reports, including 76 French, 139 German, 21 Japanese, and 26 United Kingdom reports. The three indexes included in this report are keyword, author, and permuted-title indexes.

INTRODUCTION

In 1974 the Office of Nuclear Regulatory Research of the Nuclear Regulatory Commission (NRC) implemented light-water reactor (LWR) safety research exchange agreements with the governments of France, the Federal Republic of Germany, and Japan. Additional agreements were negotiated in 1977 to include the United Kingdom and also to include documents on fast reactor safety research in addition to LWR safety research. Under these exchange agreements, the NRC periodically receives copies of the reactor safety research documents prepared in those countries. The nonproprietary documents received are microfiched and distributed by the NRC. This bibliography presents abstracts of all the nonproprietary foreign research documents which were received during 1979 and subsequently microfiched and distributed. This is the third bibliography in this series; previous bibliographies published are: ORNL/NUREG/NSIC-154 (January 1979), covering the period January 1975—December 1977, and ORNL/NUREG/NSIC-163 (August 1979), covering the period January—December 1978. Several proprietary reports were received during 1979, but they were microfiched according to special distribution arrangements and are therefore not included in this bibliography.

A tabulation of the number of nonproprietary documents received by the NRC in 1979 and subsequently microfiched and distributed is presented below. The total number of documents received (i.e., including proprietary documents) is shown in parentheses.

Foreign reactor safety research reports microfiched and distributed by the NRC[a]

Period	Country			
	France	F.R. Germany	Japan	U.K.
January—December 1979	76(82)	139(164)	21(38)	26(131)

[a]Numbers in parentheses indicate total number of reports received by the NRC.

Abstracts of the nonproprietary reports only (a total of 262) are listed in this bibliography.

When this exchange program was first initiated, the Department of Energy's Technical Information Center was serving as the NRC's document agent. At that time the distribution of documents was very limited, since few copies were received and were not being microfiched. In mid-1976 the document processing was transferred to the Nuclear Safety Information Center, and the distribution was expanded by distributing the reports in microfiche form. Then, in late 1978 the processing was once again transferred, this time to the NRC's Division of Technical Information and Document Control. The NRC is now directly responsible for both the microfiche processing and the distribution.

The reports listed in this document are no longer available from the National Technical Information Service. As of this writing, persons interested in obtaining microfiche copies of these reports should contact Ms. Susan DiSilvestre, NRC Division of Technical Information and Document Control, Document Management Branch, Washington, D.C. 20555. In addition, the hard copy received from the originating organization may be examined, by special arrangement, at the Nuclear Safety Information Center in Oak Ridge, Tennessee.

ORGANIZATION OF BIBLIOGRAPHY

The bibliography which follows contains abstracts of the nonproprietary reactor safety research reports which were received by the NRC in 1979 and subsequently microfiched and distributed. The reports are listed first by country, then alphabetically by the originating organization, and finally chronologically by report date under each organization. The bibliography is sorted into the following categories:

1. French Light-Water Reactor Safety Research Reports.
2. French Fast Reactor Safety Research Reports.
3. German (FRG) Light-Water Reactor Safety Research Reports.
4. German (FRG) Fast Reactor Safety Research Reports.
5. Japanese Light-Water Reactor Safety Research Reports.
6. Japanese Fast Reactor Safety Research Reports.
7. U.K. Light-Water Reactor Safety Research Reports.
8. U.K. Fast Reactor Safety Research Reports.

Following the bibliography are keyword, author, and permuted-title indexes.

METHOD OF INDEXING DOCUMENTS

DOCUMENT TITLE

AUTHOR – AUTHORS ARE LISTED ALPHABETICALLY IN THE *AUTHOR INDEX* ALONG WITH ACCESSION NUMBERS

ACCESSION NUMBER – SERIAL NUMBER ASSIGNED TO THE DOCUMENT BY NSIC

BIBLIOGRAPHIC DATA

PUBLICATION DATE

137347
WEINBERG AM
OUTLINE FOR AN ACCEPTABLE NUCLEAR FUTURE
INST. FOR ENERGY ANALYSIS, OAK RIDGE, TENN.
ORAU/IEA(0)--77-17 + 26 PP., JULY 1977

NUCLEAR ENERGY IS LIKELY TO DEVELOP IN TWO PHASES. PHASE I, BASED ON BURNER REACTORS, IS SELF-LIMITING BECAUSE THE RESERVE OF URANIUM IS LIMITED. PHASE II, BASED ON BREEDERS, MIGHT LAST FOR AN EXTREMELY LONG TIME. OPPOSITION TO PHASE I MIGHT BE REDUCED IF AN ACCEPTABLE PHASE II CAN BE CONSTRUCTED. ELEMENTS OF AN ACCEPTABLE PHASE II MIGHT INCLUDE ISOLATED AND COLLOCATED ENERGY CENTERS WITH RESIDENT IAEA INSPECTORS; HEAVIER SECURITY; PROFESSIONALIZATION OF THE NUCLEAR CADRE; IMMORTALITY OF THE OPERATING ENTITIES; AND SEPARATION OF GENERATION AND DISTRIBUTION. THE PROPOSED SITING POLICY, WITH IAEA RESIDENT INSPECTION, MIGHT BE MORE PROLIFERATION-RESISTANT THAN IS THE CURRENT DISPERSED SYSTEM.

ABSTRACT OF ORIGINAL DOCUMENT

AVAILABILITY – NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA 22161

POWER PLANT, NUCLEAR + URANIUM + REACTOR, LWR + REACTOR, BREEDER + IAEA + PROLIFERATION + ENERGY CENTER

CORPORATE AUTHOR

REPORT NUMBER

AVAILABILITY OF DOCUMENT

KEYWORDS – LISTED ALPHABETICALLY IN THE *KEYWORD INDEX* WITH THE ACCESSION AND PAGE NUMBERS

BIBLIOGRAPHY

1. FRENCH LIGHT-WATER REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM FRANCE DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

154658
BESLU P + LALET A + DEVILLERS C
ANALYSIS OF DOSE RATES NEAR THE CIRCUIT OF A PWR AFTER SHUTDOWN (IN ENGLISH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
FRRSR-207 +. 7 PPS. FROM 5TH INTERNATIONAL CONFERENCE ON REACTOR SHIELDING; KNOXVILLE, TENN., APRIL 18-23, 1977

FROM ACTIVITIES MEASURED AND CALCULATED IN THE PRIMARY CIRCUIT OF THE CHOOZ REACTOR, GAMMA DOSE RATES CORRESPONDING TO INDIVIDUAL CORROSION PRODUCT ISOTOPE DEPOSITS HAVE BEEN DETERMINED. THESE DOSE RATES ARE COMPARED WITH EXPERIMENTAL RESULTS. CONTRIBUTIONS OF GAMMA SOURCES DEPOSITED IN DIFFERENT REGIONS OF THE STEAM GENERATORS TO THE DOSE INSIDE THE "CHANNEL HEAD" HAVE BEEN EVALUATED.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

*SHIELDING + DOSE CALCULATION, EXTERNAL + DOSE MEASUREMENT, EXTERNAL + DOSE + *PERSONNEL EXPOSURE, RADIATION + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + ANALYTICAL MODEL + STEAM GENERATOR + GAMMA + REACTOR, PWR + REACTOR SHUTDOWN

155683
BOUCHARD J + FREJAVILLE G + ROBIN M
GAMMA SPECTROMETRIC MEASUREMENTS OF POWER DISTRIBUTION AND BURNUP ON IRRADIATED FUEL ELEMENTS OF LIGHT WATER REACTORS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
CEA-N-1982 + FRRSR-222 +. 72 PPS. FIGS. AUG. 1977

FOLLOWING A BRIEF SUMMARY OF GAMMA EMITTING RADIOACTIVE FISSION PRODUCTS AND MEASUREMENT CONDITIONS IS A DESCRIPTION OF THE FUEL COOLING INSTALLATION AT THE NUCLEAR POWER PLANT IN THE ARDENNES, INCLUDING THE RESULTS OBTAINED WITH THIS INSTALLATION AS WELL AS FROM MEASUREMENTS ON THE FUEL PINS. IN CONCLUSION, THE PROBLEMS CONCERNING BURN-UP DETERMINATION, ESPECIALLY THE 134CS/137CS METHOD, ARE DISCUSSED.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555

*SPECTROMETRY, GAMMA + POWER DISTRIBUTION + FUEL BURNUP + REACTOR, LWR + REACTOR, PWR + REACTOR, BWR + FISSION PRODUCTS + CESIUM + FUEL ELEMENTS + SPENT FUEL + FUEL ROD

153924
BESLU P + FREJAVILLE G + LALET A
A COMPUTER CODE PACTOLE TO PREDICT ACTIVATION AND TRANSPORT OF CORROSION PRODUCTS IN A PWR (IN ENGLISH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
FRRSR-227 +. 8 PPS. FROM PROCEEDINGS OF AN INTERNATIONAL CONFERENCE; BOURNEMOUTH, OCT. 24-27, 1977

THEORETICAL STUDIES ON ACTIVATION AND TRANSPORT OF CORROSION PRODUCTS IN A PWR PRIMARY CIRCUIT HAVE BEEN CONCENTRATED, AT CEA, ON THE DEVELOPMENT OF A COMPUTER CODE: PACTOLE. THIS CODE TAKES INTO ACCOUNT THE MAJOR PHENOMENA WHICH GOVERN CORROSION PRODUCTS TRANSPORT. ION SOLUBILITY IS OBTAINED BY USUAL THERMODYNAMICS LAWS IN FUNCTION OF WATER CHEMISTRY: PH AR OPERATING TEMPERATURE IS CALCULATED BY THE CODE. RELEASE RATES OF BASE METALS, DISSOLUTION RATES OF DEPOSITS, PRECIPITATION RATES OF SOLUBLE PRODUCTS ARE DERIVED FROM SOLUBILITY VARIATIONS. DEPOSITION OF SOLID PARTICLES IS TREATED BY A MODEL TAKING INTO ACCOUNT PARTICLE SIZE, BROWNIAN AND TURBULENT DIFFUSION AND INERTIAL EFFECT. EROSION OF DEPOSITS IS ACCOUNTED FOR BY A SEMI-EMPIRICAL MODEL. AFTER A REVIEW OF CALCULATIONAL MODELS, AN APPLICATION OF PACTOLE IS PRESENTED IN VIEW OF ANALYZING THE DISTRIBUTION OF IN CORE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

DEPOSITION + CORROSION + MASS TRANSFER + THERMODYNAMICS + RATE + DISSOLUTION + REACTOR, PWR

143930
DASCALAKIS J
UNDIMENSIONAL MODELS FOR DIPHASE FLOWS (IN FRENCH)
CEA DEPARTEMENT DES REACTEURS A EAU, FRANCE
DRE/STRE/LET/77/112 + FRRSR-153 +. 35 PPS. FIGS. NOV. 8, 1977

THIS REPORT REVIEWS AND INVESTIGATES THE THEORETICAL BASES FOR THE SCALED DOWN REPRESENTATION OF TWO PHASE FLUID MECHANICS. SEVERAL ONE DIMENSIONAL ANALYTICAL AND NUMERICAL MODELS FOR TWO PHASE FLOWS ARE EXAMINED AND THEIR RESTRICTIONS AND LIMITATIONS ARE DISCUSSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FLOW, TWO PHASE + ANALYTICAL MODEL + VOID FRACTION + *MASS TRANSFER + *NUMERICAL METHOD

154346
URLACHER C + CARSIE J + DORGAL JC
PRIMARY CIRCUIT CONTAMINATION MEASUREMENT AT THE NUCLEAR POWER PLANT IN THE ARDENNES DURING THE SHUTDOWN FOR RELOADING IN SEPTEMBER 1976

154346 *CONTINUED*
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
SEN/046 + FRRSR-225 +. 57 PPS, 3 TABS, DEC. 1977

THE RESULTS OF THE EXPERIMENTS MADE AT THE CENTRALE NUCLEAIRE DES ARDENNES TO EVALUATE THE CONTAMINATION BY THE CORROSION PRODUCTS OF THE PRIMARY CIRCUIT ARE DESCRIBED. THE RESULTS OF RADIATION FIELD AND DEPOSITED ACTIVITY MEASUREMENTS ON THE OUT OF FLUX SURFACES ARE DISCUSSED.

AVAILABILITY - M. JOHNSON, OFFICE OF INTERNATIONAL PROGRAMS, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + EXPERIMENT + *CONTAMINATION + CORROSION + DEPOSITION + REACTOR SHUTDOWN + MAIN COOLING SYSTEM + REFUELING

145296
SIGNORET JP
SYSTEMS WHICH ARE UNCONNECTED AND WAITING FOR PERIODIC TESTING-NONNEGLIGIBLE TEST DURATION, TEST EFFICIENCY NOT 100%, AND 1 OUT OF 2 STANDBY SYSTEM (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 206 + FRRSR-151 +. 98 PPS, JAN. 1978

USING THE BASIC MATHEMATICAL MODEL OF DSN REPORT 113, A SINGLE SYSTEM IS CHARACTERIZED BY THE FOLLOWING PARAMETERS: STAND-BY FAILURE RATE, REPAIR RATE, PROBABILITY NOT TO START ON DEMAND, AND TEST INTERVAL. IN EACH OF THE 3 PARTS ANALYTICAL FORMULAS ARE DEVELOPED TO ASSESS: POINTWISE (INSTANTANEOUS) AVAILABILITY, MEAN AVAILABILITY, THE LIMIT OF POINTWISE AVAILABILITY, AND STEADY STATE AVAILABILITY, WHEN THE NUMBER OF TEST INTERVALS IS HIGH.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *SYSTEM ANALYSIS + *ANALYTICAL MODEL + FAILURE MODE ANALYSIS + *AVAILABILITY + PROBABILITY + STATISTICAL ANALYSIS

153185
BESLU P + CAMP JJ + MARCHAL A
REDUCTION OF CORROSION PRODUCT DEPOSITED ACTIVITY BY SOLUBILIZATION REACTION
COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE + ELECTRICITE DE FRANCE
FRRSR-226 +. 45 PPS, PRESENTED AT CORROSION/78 CONFERENCE; HOUSTON, TEXAS, MARCH 6-10, 1978

IN THIS PAPER, THE AUTHORS PROPOSE TO USE THE SOLUBILITY VARIATION DUE TO TEMPERATURE DECREASES AND CHANGES IN BORON CONCENTRATION AFTER THE REACTOR SHUTDOWN TO REDUCE THE DEPOSIT ACTIVITY WITH A PURIFICATION SYSTEM. THE RESULTS OF TESTS REVEAL: A MAJOR KINETIC PROBLEM, THE ROLE OF OXYGEN AS AN INHIBITING AGENT. NEVERTHELESS THE LOOP TESTS DEMONSTRATED THE FEASIBILITY OF THE METHOD AND THE EXACTITUDE OF THE SOLUBILIZATION THEORY.

AVAILABILITY - MAXINE JOHNSON, OFFICE OF INTERNATIONAL PROGRAMS, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

CORROSION + DEPOSITION + DISSOLUTION + DECONTAMINATION + OPERATING EXPERIENCE + REACTOR, PWR + MONITOR + CHEMICAL REACTION + BORON + OXYGEN + FRANCE + CHEMICAL KINETICS

145871
CHAGROT M
CUPIDON: A CODE DESCRIBING THE THERMAL AND MECHANICAL BEHAVIOR OF A PWR FUEL ROD DURING A LOCA (IN FRENCH)
INSTITUT DE PROTECTION ET DE SURETE NUCLEAIRE, FRANCE
FRRSR-177 +. 9 PPS, PRESENTED AT IAEA SPECIALISTS' MEETING ON FUEL ELEMENT MODELING; MARCH 13-17, 1978

CUPIDON IS A TWO DIMENSIONAL CODE USING A FINITE DIFFERENCE RESOLVING TECHNIQUE. IT CALCULATES THE RADIAL THERMAL PROFILE ACROSS EACH SECTION OF THE ROD, THE STRESS AND CREEP RATE TO WHICH THE CLADDING IS SUBMITTED AND THE RATE OF FORMATION OF THE OXIDE LAYER ON THE SURFACE OF THE CLADDING UNDER STEADY STATE AND TRANSIENT CONDITIONS. AS CLADDING PLASTIC STRAIN INPUT DATA, IT IS USING THE EDGAR-ZY EXPERIMENTAL RESULTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FUEL ROD + THERMAL MECHANICAL EFFECT + REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + CREEP + TRANSIENT + FRANCE + DEFORMATION + COMPUTER PROGRAM

143756
BRUYERE M + LE BERRE F
STUDY OF THE STABILITY OF VARIOUS SYSTEMS AND DESCRIPTION OF EQUATIONS FOR HYDRODYNAMIC ANALYSIS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
DRE/STRE/LET/78/138 + FRRSR-156 +. 9 PPS, APRIL 10, 1978

SPECIFIES THE STEADY STATE FIELDS OF THE TWO FIRST HYDRODYNAMICS EQUATIONS WHEN DISCRETIZED WITH A THREE POINT EXPLICIT OR IMPLICIT SCHEME.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *ANALYTICAL TECHNIQUE + NUMERICAL METHOD + *HYDRODYNAMIC ANALYSIS + SYSTEM ANALYSIS

143751
ABRAMSON P + MENNESSIER D
MODEL FOR THE CALCULATION OF THE RATE OF VOIDING DURING A RAPID FAILURE (BLOWDOWN) COMPARISON OF SEVERAL MODELS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
DRE/STRE/LST/78/806 + FRRSR-157 +. 38 PPS, FIGS, 26 REFS, APRIL 19, 1978

THE FIRST PART IS A DESCRIPTION OF THE DIFFERENT METHODS OF CALCULATING THE VOID FRACTION. THESE ARE CLASSED INTO FIVE CATEGORIES ACCORDING TO THE TYPE OF CORRELATION USED: (1) MARTINELLI-NELSONS'S MODEL, (2) SLIP RATIO MODELS, (3) VOLUMETRIC QUALITY MODELS, (4) DRIFT FLUX MODELS, (5) RELATIVE VELOCITY MODELS. THE SECOND PART PRESENTS THE METHOD USED TO FIND A CORRELATION OF RELATIVE VELOCITY THAT AGREES WITH THE VOID FRACTION MEASUREMENTS MADE AT GRENOBLE ON PATRICIA LOOP. THE FORM OF THE CORRELATION IS GIVEN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*VOID + VOID FRACTION + BLOWDOWN + COMPARISON + *CORRELATION + MODEL + FLOW, TWO PHASE + COMPARISON, THEORY AND EXPERIENCE

143911
LE COQ G + RAYMOND P
CRITICAL FLOW AND FLOW BLOCKAGE PHENOMENOM FOR A TWO PHASE FLOW (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
SERMA/S-341 + FRRSR-161 +. 25 PPS, 9 FIGS, 7 REFS, APRIL 1978

A FLOW IS DEFINED AS A CRITICAL FLOW IN A CROSS SECTION, WHEN ANY DOWNSTREAM PERTURBATION CANNOT BE PROPAGATED IN THE UPSTREAM FLOW. THEN, THE FLUID VELOCITY IS SONIC. FOR THE SIX EQUATIONS MODEL, WITHOUT DIFFERENTIAL TERMS FOR THE TRANSFERS BETWEEN PHASES, THIS DEFINITION LEADS TO A TWO PHASE FLOW MACH NUMBER. HOWEVER, EXPERIMENTS SHOW THAT BEFORE THE FLOW BECOMES CRITICAL, AN IMPORTANT VARIATION OF THE DOWNSTREAM CONDITIONS DOESN'T HAVE ANY SIGNIFICANT EFFECT ON THE UPSTREAM FLOW. WE CALL THIS PHENOMENON: FLOW BLOCKAGE. FROM THE SIX EQUATIONS MODEL, WE DEFINE A FUNCTION WHICH DEPENDS ON LOCAL THERMOHYDRAULIC PROPERTIES AND ALGEBRAIC TRANSFER TERMS BETWEEN PHASES, AND WHICH PERMITS TO DESCRIBE THE FLOW BLOCKAGE PHENOMENOM.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FLOW, CRITICAL + FLOW, TWO PHASE + REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + FLOW BLOCKAGE

143928
RAYMOND P
FLOW AND HEAT TRANSFER THERMOHYDRAULIC MODELISATION DURING THE REFLOODING PHASE OF A PWR'S CORE (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
CEA-N-2025 + FRRSR-170 +. 148 PPS, TABS, FIGS, APRIL 1978

SOME GENERALITIES ABOUT L.O.C.A. ARE FIRST RECALLED. THE FRENCH EXPERIMENTAL STUDIES ABOUT EMERGENCY CORE COOLING SYSTEM ARE BRIEFLY DESCRIBED. THE DIFFERENT HEAT TRANSFER MECHANISMS TO TAKE INTO ACCOUNT, ACCORDING TO THE FLOW PATTERN IN THE DRY ZONE, AND THE CORRELATIONS OR METHODS TO CALCULATE THEM, ARE DEFINED. THEN THE THERMOHYDRAULIC CODE COMPUTER: FLIRA, WHICH DESCRIBES THE REFLOODING PHASE, AND A MODELISATION TAKING INTO ACCOUNT THE DIFFERENT FLOW PATTERNS ARE DISCUSSED. A FIRST INTERPRETATION OF ERSEC EXPERIMENTS WITH A TUBULAR TEST SECTION SHOWS THAT IT IS POSSIBLE, WITH THIS MODELISATION AND SOME CLASSICAL HEAT TRANSFER CORRELATIONS, TO DESCRIBE THE REFLOODING PHASE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

ACCIDENT, LOSS OF COOLANT + EMERGENCY COOLING SYSTEM + CORE REFLOODING + REACTOR, PWR + FLOW, TWO PHASE + HEAT FLUX, DRYOUT + DROPLET

153822
BERGER F
NEUTRON MEASUREMENTS WITH MINIATURE FISSION CHAMBERS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
CEA-N-2035 + FRRSR-215 +. 200 PPS, 56 FIGS, MAY 1978

***NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - SUSAN DISILVESTRO, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

NEUTRON + MEASUREMENT + INSTRUMENT, NUCLEAR + CHAMBER, FISSION + REACTOR, POWER + FRANCE

143914
ROUSSEAU JC + RIEGEL B
SUPER CANON EXPERIMENTS (IN ENGLISH)
COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE
FRRSR-146 +. 22 PPS, FROM CSNI SPECIALISTS MEETING ON TRANSIENT TWO-PHASE FLOW: PARIS, FRANCE, JUNE 1978

THIS PAPER CONTAINS A DESCRIPTION OF EXPERIMENTS MEASURING THE MEAN VOID FRACTION IN A TOTAL CROSS SECTION OF PIPE USING THE NEUTRON SCATTERING METHOD. CALIBRATION TESTS WERE PERFORMED IN STEADY

143914 *CONTINUED*
STATE AT VARIOUS VOID FRACTIONS AND DIFFERENT VOID DISTRIBUTIONS. IT IS DEMONSTRATED THAT EVEN FOR LARGE PIPE WALL THICKNESSES SUPPORTING HIGH PRESSURES, THE NEUTRON SCATTERING METHOD ALLOWS GOOD MEAN VOID FRACTION MEASUREMENTS WITH HIGH CONTRASTS. THIS METHOD IS USED FOR VOID FRACTION EVALUATION DURING A FAST BLOWDOWN EXPERIMENT.

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D.C. 20555(08 CENTS/PAGE -- MINIMUM CHARGE $2.00)

*FLOW, TWO PHASE + *BLOWDOWN + *MEASUREMENT + NEUTRON + *VOID FRACTION

143753
GRANDOTTO M
CALCULATIONAL METHOD FOR TWO DIMENSIONAL VISCOUS FLOW USING FINITE ELEMENT METHOD (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
DRE/STRE/LET/78/153 + FRRSR-150 +. 27 PPS, FIGS, 16 REFS, JUNE 1978

A COMPUTATIONAL METHOD TO STUDY TWO DIMENSIONAL VISCOUS FLOW IS PRESENTED. NAVIER-STOKES EQUATIONS ARE SOLVED USING A FINITE ELEMENT METHOD. THE FOLLOWING POINTS ARE GIVEN IN DETAIL: MATHEMATICAL THEORY, NUMERICAL ALGORYTHM, COMPUTATIONAL STRUCTURE, AND CALCULATIONS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *NUMERICAL METHOD + MATHEMATICAL TREATMENT + *FLOW + FLOW THEORY AND EXPERIMENTS + FLOW STABILITY

143210
PORRACCHIA A
STUDY OF THE RANGE OF VELOCITY OF GAS INSIDE A BUBLE RISING THROUGH A LIQUID CODE CABU I (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
S.E.S.T.R. 12 + FRRSR-152 +. 30 PPS, 7 FIGS, 13 REFS, JUNE 23, 1978

THIS DOCUMENT DESCRIBES A CODE THAT GIVES ACCESS TO THE FIELD OF SPEEDS INSIDE A GAS BUBBLE RISING THROUGH A LIQUID. DURING A SECOND PHASE, WHICH IS BEING DEVELOPED, IT WILL EXPLAIN THE INFLUENCE EXERTED BY THE MOTION OF THE GAS ON TH BEHAVIOUR OF PARTICLES OR AEROSOLS PLACED IN THE BUBBLE. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*BUBBLE + COMPUTER PROGRAM + AEROSOL + FRANCE + GAS

147103
PUIT JC + LEFORT G
THE SAFETY OF FRENCH INSTALLATIONS FOR THE STORAGE OF IRRADIATED FUEL ELEMENTS FROM LIGHT WATER REACTORS (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE DSN 236 + FRRSR-134 +. 9 PPS, FROM CONFERENCE HELD IN MADRID, JUNE 20-23, 1978

THE OPERATION OF THE LWRS REQUIRES THE STORAGE OF IRRADIATED FUEL ELEMENTS IN COOLING POOLS WHICH HAVE ACCESS DIRECTLY FROM THE REACTOR CORE. AFTER TRANSPORTATION TO THE REPROCESSING PLANTS, THE STORAGE MUST BE CONTINUED IN STORAGE POOLS LOCATED AT THE ENTRY OF THE PLANT. REQUIREMENTS FOR SAFE STORAGE HAVE BEEN BASED ON EXPERIENCE ACQUIRED RELATIVE TO NORMAL OPERATING CONDITIONS: COOLING, CONTAINMENT, SHIELDING, HANDLING, WASTE AND EFFLUENTS PROCESSING, ETC. THESE REQUIREMENTS ARE DISCUSSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *SPENT FUEL + *FUEL STORAGE + *SAFETY ANALYSIS + ACCIDENT ANALYSIS + ON SITE + FUEL REPROCESSING + REACTOR, LWR

143875
CAUMETTE P + CHEISSOUX JL + GARCIA JL
CALCULATING PLASTIC DEFORMATION OF STRUCTURES (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE CADARACHE, FRANCE
DRE/STRE/LMA 78/154 + FRRSR-149 +. 54 PPS, FIGS, JULY 1978

THE METHODS FOR CALCULATING PLASTIC DEFORMATION OF STRUCTURES ARE PRESENTED, AS THEY ARE USED IN THE CASTEM SYSTEM, DEVELOPED BY THE DEPARTEMENT DES ETUDES MECANIQUES ET THERMIQUES AT SACLAY. BASICS ON THE THEORY OF PLASTICITY, THE FINITE ELEMENT FORMULATION AND THE ALGORITHMS OF PLASTICITY, IN THE CASE OF ISOTROPIC HARDENING, ARE PRESENTED. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + PLASTICITY + DEFORMATION + STRUCTURE + MATHEMATICAL TREATMENT

143777
BLIN A + CARNINO A + GEORGIN JP + SIGNORET JP
USE OF MARKOV PROCESSES FOR RELIABILITY PROBLEMS (IN ENGLISH)
CEA DEPARTMENT DE SURETE NUCLEAIRE, FRANCE

143777 *CONTINUED*
OSN-234(E) + FRRSR-167 +. 28 PPS. 5 FIGS. 8 REFS. JULY 1978

IT IS NOT POSSIBLE TO USE A CLASSICAL METHOD SUCH AS FAULT TREE ANALYSIS TO ASSESS THE RELIABILITY OR THE AVAILABILITY OF TIME-EVOLUTIVE SYSTEMS. STOCHASTIC PROCESSES HAVE TO BE USED AND AMONG THEM THE MARKOV PROCESSES ARE THE MOST INTERESTING ONES. THE BASIC THEORY OF MARKOV PROCESSES IS DESCRIBED IN THIS PAPER IN CONNECTION WITH RELIABILITY PROBLEMS. THEN THE MARK-GE CODE DEVELOPED BY THE FRENCH CEA IS PRESENTED WITH AN EXAMPLE OF RELIABILITY ASSESSMENT OF A COMPLEX SYSTEM: AC POWER SUPPLY OF A 900 MW PWR. (EWH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*RELIABILITY ANALYSIS + *ANALYTICAL TECHNIQUE + FRANCE + COMPUTER PROGRAM + ELECTRIC POWER, AUXILIARY + REACTOR, PWR + MATHEMATICAL TREATMENT + ACCIDENT, LOSS OF POWER + FAILURE, COMMON MODE

143755
BONNETON M
DATA REDUCTION OF THE FIRST TEST SERIES OF BLOWDOWN ON A TUBULAR TEST SECTION ON OMEGA LOOP (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
TT 580 + FRRSR-162 +. 80 PPS. 3 TABS. 50 FIGS. 2 REFS. AUG. 1978

THIS REPORT DEALS WITH THE FIRST BLOWDOWN TEST SERIES, OPERATED ON THE OMEGA LOOP WITH A VERTICAL, TUBULAR HEATED TEST SECTION. THE GENERAL METHOD OF DATA REDUCTION IS ANALYSED AND A CRITICAL STUDY OF ALL THE MEASUREMENTS IS MADE: PRESSURES, VOID FRACTIONS, MASS FLOW RATES, FLUID TEMPERATURES, AND WALL TEMPERATURES. FOUR TYPICAL BLOWDOWN TESTS, WHICH ARE THE MOST REPRESENTATIVE OF THE SERIES, ARE PRESENTED. TWO OF THEM CORRESPOND TO DOWNSTREAM BREAKS (LARGE AND SMALL); THE TWO OTHERS CORRESPOND TO UPSTREAM BREAKS (LARGE AND SMALL).

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *DATA PROCESSING + *EXPERIMENT + *BLOWDOWN + PRESSURE, INTERNAL + VOID FRACTION + FLOW + TEMPERATURE + MEASUREMENT + ACCIDENT, LOSS OF COOLANT

143383
JANVIER JC
CONTAMINATION OF A PRESSURIZED WATER REACTOR'S PRIMARY CIRCUIT BY FUEL RODS SHOWING MANUFACTURING FAULTS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
DMG 90/78 + FRRSR-148 +. 15 PPS. 4 FIGS. 5 REFS. SEPT. 11, 1978

INCREASING IMPORTANCE IS BEING ATTACHED TO CONTAMINATION OF THE PRIMARY LOOP OF PWR'S RESULTING FROM FUEL ELEMENT FAILURES, ESPECIALLY THOSE THAT ARE MANUFACTURER'S DEFECTS. A RESEARCH PROGRAM ON THESE FAILURES IS BEING CARRIED OUT AT THE CENTRE D'ETUDES NUCLEAIRES, AT GRENOBLE, WITH THE OBJECTIVE OF ANALYZING THE BEHAVIOR OF FAILED FUEL ELEMENTS. A DISTINCTION IS MADE BETWEEN TWO TYPES OF FUEL ELEMENT FAILURES, ACCORDING TO WHETHER PRIMARY WATER PENETRATES INTO THE FUEL ROD AS SOON AS CIRCUIT PRESSURIZATION TAKES PLACE (MANUFACTURE DEFECT), OR FAILURE OCCURS WHILE IN OPERATION. THE EMISSION OF GASEOUS FISSION PRODUCTS AND HALOGENS HAS BEEN ANALYSED ACCORDING TO VARIOUS OPERATION PATTERNS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

R AND D PROGRAM + *FAILURE, FUEL ELEMENT + *MAIN COOLING SYSTEM + *CONTAMINATION + FISSION GAS RELEASE + FAILURE, FABRICATION ERROR + FAILURE, INHERENT + REACTOR, PWR + FRANCE

143778
BLIN A + DUCHEMIN B + CARNINO A
PATREC, A COMPUTER CODE FOR FAULT TREE CALCULATIONS (IN ENGLISH)
CEA DEPARTMENT DE SURETE NUCLEAIRE, FRANCE
OSN 235(E) + FRRSR-168 +. 13 PPS. 3 FIGS. 25 REFS. SEPT. 1978

A COMPUTER CODE FOR EVALUATING THE RELIABILITY OF COMPLEX SYSTEMS USING FAULT TREES IS DESCRIBED IN THIS PAPER. IT USES PATERN RECOGNITION APPROACH AND PROGRAMMING TECHNIQUES FROM IBM PL/1 LANGUAGE. IT CAN TAKE INTO ACCOUNT MANY OF THE PRESENT DAY PROBLEMS: MULTI-DEPENDENCIES TREATMENT, DISPERSION IN THE RELIABILITY DATA PARAMETERS, INFLUENCE OF COMMON MODE FAILURE . . . . THE CODE HAS BEEN RUNNING STEADILY FOR TWO YEARS. (EWH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*COMPUTER PROGRAM + *FAULT TREE ANALYSIS + RELIABILITY ANALYSIS + FAILURE, COMMON MODE + ANALYTICAL TECHNIQUE + PROBABILITY + FRANCE

143929
FRANK R + PICQUE R + BOURGINE R
BLOWDOWN OF A PART OF THE LOOP OMEGA INCLUDING A 36 DIRECT HEATED ROD BUNDLE (IN FRENCH)
COMMISSARIAT A L'ENERGIE ATOMIQUE, FRANCE
TT 582 + FRRSR-165 +. 167 PPS. 44 FIGS. 2 REFS. SEPT. 1978

THIS REPORT DESCRIBES A SET OF BLOWDOWN EXPERIMENTS PERFORMED WITH A 36 ROD BUNDLE TEST SECTION WHICH SIMULATE A LOSS OF COOLANT ACCIDENT IN A PRESSURIZED WATER REACTOR. THE MASS FLOW RATE AND VOID FRACTION ARE MEASURED USING A VENTURI AND A GAMMA-DENSITOMETER. THE CALCULATION OF THE MASS

143929 *CONTINUED*

FLOW RATE IS MADE ASSUMING THAT THE FLOW IS HOMOGENEOUS. IN A FIRST PART WE DESCRIBE THE EXPERIMENTAL SET UP. IN A SECOND PART THE MEASUREMENTS OF PRESSURE, TEMPERATURE, MASS FLOW RATE AND VOID FRACTION ARE DESCRIBED. IN A THIRD PART WE DESCRIBE THE PROCEDURE WHICH IS USED TO CORRECT THE MEASUREMENTS AND PROCESS THE EXPERIMENTAL DATA. WE FINALLY GIVE A PHYSICAL ANALYSIS OF SOME OF THE PARAMETER EVOLUTIONS IN THE DIFFERENT CASES WHICH WERE EXAMINED. THE MAJOR RESULT OF THESE FIRST EXPERIMENTS IS THAT THE MEASUREMENT OF THE MASS FLOW RATE AND VOID FRACTION IS MADE WITH AN ACCURACY BETTER THAN 5%.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ACCIDENT, LOSS OF COOLANT + *REACTOR, PWR + *BLOWDOWN + *MEASUREMENT + TEMPERATURE + VOID FRACTION + PRESSURE DROP

146872
BOULAIS J + BROLARD D + ROCHE R
EXPERIMENTAL TESTS ON RATCHET OF 304 AUSTENITIC STEEL, AT ROOM TEMPERATURE (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
CEA-N-2058 + FRRSR-165 +. 50 PPS, 8 TABS, 29 FIGS, 18 REFS, SEPT, 1978

THERE IS A NEED FOR EXPERIMENTAL TESTS ON BASIC STRUCTURES EASY TO USE TO DETERMINE MATERIAL CHARACTERISTICS. TESTS ON THIN TUBULAR SPECIMEN ARE VERY INTERESTING BECAUSE STRESS, STRAIN AND TEMPERATURE FIELDS ARE UNIFORM. THE PRIMARY STRESS P IS AN AXIAL TENSILE ONE (DEAD WEIGHT), THE SECONDARY STRESS, WITH DELTA Q RANGE, IS DUE TO A CYCLIC ANGLE CONTROLED TWIST. THE INCREMENTAL ELONGATION IS OBTAINED AS A FUNCTION OF THE NUMBER OF CYCLES N FOR DIFFERENT VALUES OF P AND DELTA Q. DIAGRAMS REPRESENTING THE ISOCURVES OF CUMULATED ELONGATION (FOR A GIVEN NUMBER OF CYCLES) AS A FUNCTION OF P AND DELTA Q ARE SHOWN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

STEEL, STAINLESS + TESTING + DEFORMATION + ANALYTICAL TECHNIQUE + FRANCE

144595
KURKA G + HARRER A + CHENEBAULT P
ANALYSIS OF THE FISSION PRODUCT RELEASE FROM A DEFECTED FUEL ROD - EFFECT OF THERMAL CYCLING (IN ENGLISH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
FRRSR-147 +. 8 PPS, 1 TAB, 3 FIGS, OCT, 1978

THE FOLLOWING EXPERIMENTAL WORK IS DEALING WITH THE STUDY OF THE MECHANISM OF FISSION PRODUCT RELEASE INTO THE PRIMARY CIRCUIT OF A PWR FROM FUEL ROD PRESENTING AN INITIAL DEFECTIVE LEAK TEST. EACH RAPID POWER VARIATION WAS FOLLOWED BY A PEAK OF ACTIVITY, THE AMPLITUDE OF WHICH WAS MORE IMPORTANT FOR IODINE ISOTOPES THAN FOR RARE GASES. THIS EFFECT CAN BE EXPLAINED BY VARIOUS HYPOTHESIS: IODINE ISOTOPES TRAPPED ON THE FUEL OR CLADDING SURFACE, CAN BE RELEASED BY WATER FLOWING INTO AND OUT OF THE FUEL ROD; AND STRESSES ON THE FUEL BRING A PARTIAL RELEASE OF THE FISSION GASES ACCUMULATED ON GRAIN BOUNDARIES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FISSION PRODUCT RELEASE + FISSION PRODUCT TRANSPORT + THERMAL EXPERIMENT + FRANCE

143138
DUCO J + GOBERT T
PROTECTION OF NUCLEAR POWER PLANTS (NPPS) AGAINST EXTERNAL EVENTS: EARTHQUAKES, FIRES, EXPLOSIONS AND AIRCRAFT CRASHES (IN ENGLISH)
COMMISSARIAT A L'ENERGIA ATOMIC, FRANCE + ELECTRICITE DE FRANCE
FRRSR-154 +. 10 PPS, PAPER PRESENTED AT SESSION D4/7 OF NUCLEX '78: 5TH INTERNATIONAL FAIR & TECHNICAL MEETINGS OF NUCLEAR INDUSTRIES; BASEL, SWITZERLAND, OCT, 3-7, 1978

THIS PAPER OUTLINES PRESENT GENERAL PRACTICE IN FRANCE AS CONCERNS THE SAFETY ANALYSIS OF NUCLEAR POWER PLANTS IN RELATION TO EXTERNAL IMPACTS DUE TO EARTHQUAKES, FIRES, EXPLOSIONS AND AIRCRAFT CRASHES. SOME TRENDS FOR THE FUTURE RESULTING FROM STUDIES NOW UNDER WAY IN THIS FIELD ARE SKETCHED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

SWITZERLAND + FRANCE + EARTHQUAKE + FIRE + EXPLOSION + AIRCRAFT + IMPACT SHOCK + SAFETY EVALUATION + POWER PLANT, NUCLEAR

143870
DUFRESNE J + CARNINO A + QUERO J + LUCIZ AC
FRACTURE PROBABILITY EVALUATION OF A LWR PRESSURE VESSEL (IN ENGLISH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
FRRSR-158 +. 13 PPS, PAPER PRESENTED AT SESSION D4 OF NUCLEX '78; 5TH INTERNATIONAL FAIR & TECHNICAL MEETINGS OF NUCLEAR INDUSTRIES; BASEL, SWITZERLAND, OCT, 3-7, 1978

IN ADDITION TO THE EVALUATION OF FRACTURE PROBABILITY OF A NUCLEAR PRESSURE VESSEL, THIS PROGRAM IS CARRIED OUT, TO GET THE FOLLOWING INFORMATIONS: ASSESSMENT OF THE INDIVIDUAL EFFECTS OF THE MAIN PARAMETERS ON THE FINAL RESULT; COMPARISON OF THE VARIOUS POSSIBILITIES IN THE FIELD OF FABRICATION OR OPERATION; AND BASIS FOR THE DETERMINATION OF THE INTERVALS FOR IN-SERVICE INSPECTIONS. IT IS EXPECTED THAT THIS WORK WILL BE EXTENDED TO A COMPARISON OF THE FAILURE

143870 *CONTINUED*
PROBABILITY OF THE DIFFERENT COMPONENTS OF THE REACTOR COOLANT PRESSURE BOUNDARY. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

SWITZERLAND + FRANCE + PROBABILITY + FAILURE + PRESSURE VESSELS + REACTOR, LWR

144415
BROSSARD J + DUCO J + GOBERT T
EXPERIMENTAL STUDY OF THE OVERPRESSURE GENERATED BY THE DETONATION OF SPHERICAL AIR-HYDROGEN GASEOUS MIXTURES (IN ENGLISH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
FRRSR-155 +. 15 PPS. FROM ENS/ANS TOPICAL MEETING OF NUCLEAR POWER REACTOR SAFETY; BRUSSELS, BELGIUM, OCT. 16-19, 1978

THE CHARACTERISTICS OF THE PRESSURE WAVES TRANSMITTED BY DETONATION OF GASEOUS MIXTURES TO THE SURROUNDING AIR WERE MEASURED BY TESTS MADE NEAR THE GROUND LEVEL IN 1 TO 54 M CUBED SPHERICAL BALLOONS CONTAINING AIR-ACETYLENE OR AIR-ETHYLENE MIXTURES. AS CONCERNS THE PEAK OVERPRESSURE DELTA P, A THEORICAL DIMENSIONAL ANALYSIS IN ACCORDANCE WITH THE EXPERIMENTAL RESULTS SHOWS THAT DELTA P CAN BE EXPRESSED AS A FUNCTION OF TWO INDEPENDENT VARIABLES, WHICH ARE THE RADIAL DISTANCE R AND THE VOLUME V OF THE BALLOON. A SEMI-EMPIRICAL FORMULA, INCLUDING GROUND EFFECTS, IS PROPOSED AND ITS PRESENT VALIDITY RANGE IS GIVEN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

ANALYTICAL MODEL + EXPLOSION + THERMAL EXPERIMENT + THEORETICAL INVESTIGATION + FIRE + PRESSURE PULSE + COMBUSTION + BELGIUM + HYDROGEN + FRANCE

143103
TANGUY P
THE SAFETY OF NUCLEAR REACTORS IN FRANCE (IN ENGLISH)
CEA INST. PROTECTION SURETE NUCLEAIRE
FRRSR-159 +. 6 PPS. PAPER PRESENTED AT ENS/ANS MEETING ON SAFETY OF NUCLEAR POWER REACTORS; BRUSSELS, OCT. 16-19, 1978

THE SPEAKER TALKED ABOUT THE NUCLEAR ENERGY PROGRAM IN FRANCE RELATING HIS COMMENTS TO PWR REACTORS, THE ADVANCED REACTORS, SAFETY, AND RESEARCH. THE PWR REACTORS ARE OF AMERICAN DESIGN BEING 900 MWE AND 1300 MWE PLANTS. SAFETY ASPECTS FOR THE PHENIX AND SUPER PHENIX HAVE BEEN DEVELOPED FROM PWR PHILOSOPHY AND RESEARCH SINCE THERE IS REALLY NO EXPERIENCE RECORDS THAT CAN BE RELIED UPON. RESEARCH OF NUCLEAR SAFETY IS GIVEN GREAT IMPORTANCE IN FRANCE. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + REACTOR, PWR + SUPERPHENIX (LMFBR) + R AND D PROGRAM + SAFETY PROGRAM

143758
REOCREUX M + SUREAU H + COURTAUD M + THIBAUDEAU J
FRENCH THERMO-HYDRAULIC STUDIES FOR THE DEVELOPMENT OF SAFETY ADVANCED CODE FOR PWR (IN FRENCH)
COMMISSARIAT A L'ENERGIA ATOMIQUE, FRANCE
FRRSR-163 +. 11 PPS. PAPER PRESENTED AT ENS/ANS MEETING ON SAFETY OF NUCLEAR POWER REACTORS; BRUSSELS, OCT. 16-19, 1978

AN ADVANCED CODE IS BEING WRITTEN IN FRANCE BY CEA-EDF AND FRAMATOME. IN THE THERMOHYDRAULIC FIELD SOME IMPROVEMENTS HAVE BEEN MADE IN THIS CODE WHICH ARE PRESENTED IN THE FOLLOWING SECTIONS. THIS CONCERNS TWO-PHASE FLOW MODELING, PUMP MODELING, HEAT TRANSFER DURING BLOWDOWN AND REFLOOD, SAFETY INJECTION AND SYSTEM CODE DEVELOPMENT.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *THERMAL HYDRAULIC ANALYSIS + REACTOR, PWR + FLOW, TWO PHASE + PUMPS + MODEL + BLOWDOWN + SAFETY INJECTION + HEAT TRANSFER + CORE REFLOODING

143339
BOUSCATIE F + FOURCADE P + GEORGIN JP + ROY C
MODEL OF THE FAILURE RATES OF THE VALVES OF ST. LAURENT DES EAUX POWER PLANT ACCORDING TO INFLUENTIAL PARAMETERS
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
FRRSR-164 +. 17 PPS. PAPER PRESENTED AT ENS/ANS MEETING ON SAFETY OF NUCLEAR POWER REACTORS; BRUSSELS, OCT. 16-19, 1978

THE STUDY IS A SEQUENCE OF CONVENTIONAL STATISTICAL STUDIES PERFORMED AT THE DEPARTEMENT DE SURETE NUCLEAIRE OF THE COMMISSARIAT A L'ENERGIE ATOMIQUE ON THE INCIDENT FILE OF THE ST-LAURENT DES EAUX NUCLEAR POWER PLANT. ALTHOUGH THIS FILE HAD NOT BEEN DESIGNED AT THE START IN THE SENSE OF A RELIABILITY FILE, IT MADE IT POSSIBLE, TO CLASSIFY VALVES ACCORDING TO PARAMETERS (CONTROL MODE, FLUID GOING THROUGH THE VALVE....) AND TO GIVE FOR EACH TYPE THE FAILURE RATES AND THE ASSOCIATED CONFIDENCE INTERVALS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + POWER PLANT, NUCLEAR + ANALYTICAL MODEL + *FAILURE MODE ANALYSIS + *VALVES + FAILURE, EQUIPMENT +

143339 *CONTINUED*
*RELIABILITY ANALYSIS + INCIDENT COMPILATION

143779
CARNINO A + NAMY P + LLORY M + QUENEE R
A FIRST APPROACH OF THE RARE EVENT PROBLEM BY THE STUDY OF THE RELIABILITY OF THE PROTECTION SYSTEM OF THE FESSENHEIM I PWR REACTOR (IN ENGLISH)
CEA DEPARTMENT DE SURETE NUCLEAIRE, FRANCE + FRAMATOME, FRANCE
FRRSR-165 +. 15 PPS. PAPER PRESENTED AT ENS/ANS MEETING ON SAFETY OF NUCLEAR POWER REACTORS; BRUSSELS, OCT. 16-19, 1978

THE STUDY PRESENTED CORRESPONDS TO CONCERNS SPECIFIC TO THE NUCLEAR SAFETY DEPARTMENT OF THE "COMMISSARIAT A L'ENERGIE ATOMIQUE" ON THE RARE EVENT PROBLEM. FOR THE SAFETY ASSESSMENT OF NUCLEAR POWER PLANTS EVENTS HAVING THE OCCURENCE PROBABILITIES OF VALUES COMPRISED BETWEEN 10 (EXP -5) AND 10 (EXP -8) PER REACTOR YEAR AND WHICH COULD RESULT IN MORE OR LESS SERIOUS CONSEQUENCES ARE CONSIDERED. (EWH)

AVAILABILITY - NATIONAL TECHNCIAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*RELIABILITY ANALYSIS + FAILURE, COMMON MODE + REACTOR PROTECTION SYSTEM + REACTOR, PWR + FRANCE + ANALYTICAL TECHNIQUE

148930
KALLI H + LANORE JM
USE OF THE LATIN HYPERCUBE SAMPLING (LHE) TECHNIQUE TO IMPROVE THE EFFICIENCY
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
SERMA/T/356 + FRRSR-192 +. 12 PPS. 2 FIGS. 10 REFS. OCT. 1978

A SEMI-SYSTEMATIC SAMPLING STRATEGY, THE SO-CALLED LATIN HYPERCUBE SAMPLING (LHS), IS PROPOSED TO IMPROVE THE EFFICIENCY OF THE MONTE CARLO PROGRAM PATREC-MC IN THE ESTIMATION OF THE CONFIDENCE INTERVAL OF THE RELIABILITY RESULTS IN FAULT TREE CALCULATIONS. THE LHS HAS SOME THEORETICAL ADVANTAGES OVER THE CRUDE ANALOG SAMPLING, ITS UTILIZATION IS SIMPLE AND IT HAS NO SIGNIFICANT EFFECT ON THE COMPUTING TIME. IN THE TWO EXAMPLES STUDIED IN THE REPORT, THE LHS IMPROVED PARTICULARLY THE ACCURACY OF THE HIGHER (95%) LIMIT OF THE CONFIDENCE INTERVAL.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *SAMPLING + FAULT TREE ANALYSIS + RELIABILITY ANALYSIS + COMPUTER PROGRAM + MONTE CARLO

148922
KALLI H
FEUIDEP - MODEL OF THE PROGRAM PATREC FOR THE SIMPLICATION OF FAULT-TREES (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
SERMA/S/352 + FRRSR-193 +. 21 PPS. 14 FIGS. 3 REFS. OCT. 1978

THE FAULT TREE OF A SYSTEM CAN HAVE SEVERAL LOGICALLY EQUIVALENT REPRESENTATIONS WHICH ARE DIFFERENT FROM THE POINT OF VIEW OF THE RELIABILITY CALCULATION BY THE PROGRAM PATREC. THE DIFFERENCE IS CLEARLY SEEN IN THE CASES OF DEPENDENCIES, I.E., IN CASES WHERE CERTAIN PRIMARY EVENTS ARE REPEATED IN THE FAULT TREE. THIS REPORT DESCRIBES THE NEW MODULE FEUIDEP OF THE PROGRAM PATREC FOR THE MINIMIZATION OF THE NUMBER OF DEPENDENCIES BY BOOLEAN ALGEBRA. THE RULES OF THE DEPENDENCY ELIMINATION ARE DERIVED USING MINIMAL CUT SETS AND VERIFIED IN THE APPENDIX BY BOOLEAN MANIPULATION OF THE CORRESPONDING LOGICAL EXPRESSIONS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *FAULT TREE ANALYSIS + COMPUTER PROGRAM

147101
BRUYERE M
CHARACTERISTICS AND RESOLUTIONS OF THE SYSTEM OF EQUATIONS DERIVED FROM PARTIAL HYPERBOLICS (IN FRENCH)
DEPARTEMENT DES REACTEURS A EAU, FRANCE
DRE/STRE/LMTA 78/173 + FRRSR-173 +. 21 PPS. REFS. NOV. 22, 1978

DISCUSSES A WELL-POSED PROBLEM OF AN HYPERBOLIC SET OF PARTIAL DIFFERENTIAL EQUATIONS WITH TWO VARIABLES AND BOUNDARIES CONDITIONS. TWO METHODS OF SOLUTIONS ARE PRESENTED: CHARACTERISTICS'S AND FINITE DIFFERENCE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + ANALYTICAL TECHNIQUE + *MATHEMATICAL TREATMENT + MATHEMATICS, DIFFERENCE EQUATION + EQUATION

149000
CROIX JM + LIEGEOIS A
STUDY ON THE CONDENSATION OF AIR AND STEAM MIXTURES, IN TRANSIENT CONDITIONS, ON A STAINLESS STEEL TEST SECTION (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
TT-596 + FRRSR-187 +. 55 PPS. 15 FIGS. DEC. 1978

THE OBJECTIVE IS TO OBTAIN HEAT TRANSFER COEFFICIENT DATA DURING CONDENSATION OF STEAM IN

149000 *CONTINUED*
TRANSIENT CONDITIONS AND IN PRESENCE OF AIR TO GIVE SOME INFORMATIONS FOR THE COMPUTATION OF PRESSURE TRANSIENT IN THE CONTAINMENT OF A PWR DURING A LOCA. THE MEASUREMENTS ARE PERFORMED IN THE ECOTRA INSTALLATION. A 16 CM DIAMETER TEST SECTION IS MAINTAINED AT ROOM TEMPERATURE AND INSULATED BY A MASK FROM A STEADY STATE FLOW OF AN AIR-STEAM MIXTURE. WHEN THE MASK IS SUDDENLY REMOVED, THERE IS CONDENSATION IN TRANSIENT CONDITIONS ON THE SURFACE OF THE WALL. TEMPERATURES AT THE SURFACE AND INSIDE THE WALL ARE MEASURED FROM WHICH ARE CALCULATED HEAT FLUX DENSITIES AND HEAT TRANSFER COEFFICIENTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

HEAT TRANSFER + HEAT TRANSFER, TWO PHASE + AIR + STEAM + PRESSURE TRANSIENT + HEAT TRANSFER COEFFICIENT

149274
DUMAS P + BERNARD J + GARNIER F
EPIS II - 2ND TESTING PHASE (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
S.E.E.N-RT-78-157 + FRRSR-195 +. 110 PPS, 75 FIGS, DEC. 1978

EPIS II EXPERIMENT IS RELATED TO THE INTEREACTIONS BETWEEN SUBCOOLED WATER AND SUPERHEATED STEAM IN THE COLD LEG OF A PWR REACTOR DURING ECCS. ALL OUR TESTS ARE MADE AT A 1/25 SCALE. THIS REPORT GIVES THE MAIN EXPERIMENTAL RESULTS OF THE 2ND TESTING PHASE. INFLUENCE OF SUCH PARAMETERS AS WATER MASS FLOW RATE, STEAM MASS FLOW RATE, STEAM TEMPERATURE, CORE PRESSURE NITROGEN, OUTGASSING IN ACCUMULATOR INJECTION, WAS STUDIED DURING THIS PHASE PRINCIPALLY UPWARD THE SAFETY INJECTIONS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, PWR + EMERGENCY COOLING SYSTEM + ACCIDENT, LOSS OF COOLANT + FLOW, TWO PHASE + STEAM + WATER + MODEL TESTING

143900
PINET B + JEANDEY CH
EXPERIMENTAL STUDY OF CRITICAL TWO-PHASE FLOW (IN ENGLISH)
COMMISSARIATE A L'ENERGIE ATOMIQUE, FRANCE
FRRSR-160 +. 21 PPS, FROM OECD SPECIALISTS MEETING ON TRANSIENT TWO-PHASE FLOW, PARIS, FRANCE, JUNE 1978

NEW EXPERIMENTAL STUDIES ON CRITICAL TWO PHASE FLOW PERFORMED ON THE MOBY DICK LOOP IN GRENOBLE ARE REPORTED HERE. PREVIOUS EXPERIMENTS CLEARLY DEMONSTRATED THE INFLUENCE OF THERMAL NONEQUILIBRIA BETWEEN THE TEMPERATURES OF WATER AND STEAM. EXTENSIVE EXPERIMENTAL DATA HAVE BEEN OBTAINED FOR TWO PHASE GAS WATER FLOW IN A STRAIGHT DIFFUSER. ACCURATE PRESSURE AND VOID FRACTION PROFILES WERE OBTAINED FOR A WIDE RANGE OF TWO PHASE FLOW RATES AND TEMPERATURES IN THE LOW QUALITY REGION. CRITICITY WAS ALSO EXPERIMENTALLY PROVED. ALTHOUGH THE GEOMETRY AND THE QUALITY RANGE WERE DIFFERENT, RESULTS ARE IN BROAD AGREEMENT WITH THE RESULTS OF SMITH AND AL (1967).

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FLOW, TWO PHASE + FLOW, CRITICAL + MASS TRANSFER + VOID FRACTION

146801
PORTE R + MAIGNE JP
STUDY OF POLLUTANT DISPERSION IN WATER AND AIR (IN ENGLISH)
CEA DEPARTMENT DE SURETE NUCLEAIRE, FRANCE
DSN 243(E) + FRRSR-175 +. 12 PPS, FROM ENS/ANS MEETING ON NUCLEAR POWER SAFETY; BRUSSELS, 1978

THIS REPORT SETS FORTH: 1) THE "PUFF" MODEL USED FOR PREDICTING DISPERSION IN BOTH WATER AND AIR, WITH THE ASSUMPTIONS AND SPECIFIC DATA REQUIRED FOR ITS USE IN THE CASE OF EACH OF THESE MEDIA; 2) A COMPARISON WITH EXPERIMENTAL RESULTS; 3) A COMPARISON FOR AIR DISPERSION, WITH OTHER PREDICTION METHODS SUCH AS THOSE OF PASQUELL-GIFFORD AND LE QUINIO.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *DISPERSION + ATMOSPHERIC DIFFUSION + COMPARISON, THEORY AND EXPERIENCE + CONCENTRATION + ATMOSPHERIC POLLUTION + POLLUTION

146869
DUFRESNE J
A PROBABILISTIC STUDY OF VESSEL BURST IN LIGHT WATER NSSS (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 216 + FRRSR-183 +. 112 PPS, FIGS, REFS, 1978

VARIOUS CRITERIA FOR BURSTING WERE ANALYZED, AND TWO METHODS HAVE BEEN SELECTED, THOSE OF TOWNLEY AND MERKLE. THE CRACK PROPAGATION TESTS IN COMPLEX MODE HAVE STARTED, THE SAMPLES AND MEASURING PROCEDURES ARE NOW FULLY DEVELOPED. BIBLIOGRAPHICAL RESEARCH HAS BEEN UNDERTAKEN ON ACCIDENTAL VARIATIONS AFFECTING PRIMARY WATER COMPOSITION IN OPERATING PWRS. 35 NUCLEAR PLANTS WERE ANALYSED BETWEEN 1974 AND 1977; 9 INCIDENTS BEARING ON WATER COMPOSITION WERE NOTED, THE AMPLITUDE OF WHICH WAS RELATIVELY LOW. TAKING THESE DATA INTO ACCOUNT, THE ANTICIPATED INCIDENTS FOR A GIVEN REACTOR HAVE BEEN ESTIMATED, ALONG WITH THE COMPOSITION OF THE WATER TO BE USED DURING FATIGUE TESTS. (FAH)

146869 *CONTINUED*
AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + PROBABILITY + PRESSURE VESSELS + FAILURE + REACTOR, LWR + COMPUTER PROGRAM + COOLANT CHEMISTRY

146871
ROCHE R
SHORT ANALYSIS OF A PROGRESSIVE DISTORSION PROBLEM (TENSION AND CYCLE TORSION) (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
CEA-N-2038 + FRRSR-186 +. 20 PPS, FIGS, 1978

A THIN TUBE IS SUBJECTED TO A CONSTANT TENSILE LOAD AND TO A CYCLIC TWIST. THIS PAPER IS A THEORETICAL ANALYSIS OF THAT CASE. A UNIFORM STRAIN AND STRESS FIELD IS CONSIDERED WITH A CONSTANT TENSILE STRESS P (PRIMARY STRESS) AND A CYCLIC SHEARING STRAIN. THE SHEARING STRAIN IS KNOWN BY THE CORRESPONDING ELASTIC EQUIVALENT STRESS INTENSITY. THE CYCLIC RANGE OF THE STRESS INTENSITY IS DELTA Q (SECONDARY STRESS RANGE). SPECIAL ATTENTION IS GIVEN TO PERFECT PLASTICITY AND BILINEAR KINEMATIC HARDENING. RESULTS ARE PRESENTED, BUT IT IS BELIEVED THAT THESE MATERIAL MATHEMATICAL MODELS ARE SIMPLISTIC AND SPECIAL EXPERIMENTAL TESTS ARE PROPOSED. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + THEORETICAL INVESTIGATION + TUBING + ANALYTICAL MODEL + DEFORMATION

146870
ALIX M + ROCHE R
EXPERIMENTAL TESTS ON BUCKLING OF ELLIPSOIDAL VESSEL HEADS UNDER INTERNAL PRESSURE (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
CEA-N-2075 + FRRSR-172 +. 87 PPS, TABS, FIGS, JAN, 1979

EXPERIMENTAL TESTS ON ELLIPSOIDAL VESSEL HEADS HAVE BEEN CONDUCTED AT SACLAY. SEVENTEEN HEADS MADE OUT OF METAL SHEETS, BY COLD WORKING, WERE TESTED. THREE DIFFERENT METALS WERE USED: CARBON STEEL, AUSTENITIC STEEL, AND ALUMINIUM ALLOY. GEOMETRICAL DEFINITION HEADS HAD A GOOD AXISYMETRIC SHAPE, BUT THE THICKNESS WAS VARYING ALONG THE ELLIPSE. THE THICKNESS WAS MEASURED, AFTER TESTING, ALONG A RADIAL CUT FOR EACH HEAD. MATERIAL CHARACTERISTIC OF EACH HEAD WAS GIVEN BY A TENSILE TEST (STRAIN-STRESS CURVE) MADE ON SAMPLES CUT OUT OF THE TESTED HEAD. THE RESULTS ARE MAINLY THE PRESSURE DEFLEXION RECORDINGS, STRAIN MEASUREMENTS AND VISUAL OBSERVATIONS OF THE GEOMETRY. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

BUCKLING + PRESSURE VESSELS + PRESSURE, INTERNAL + TESTING + STEEL + STEEL, STAINLESS + ALUMINUM + FRANCE

149301
PIC P + ZARE B + FREITAS R
PRELIMINARY EXPERIMENT TO MEASURE THE EFFECT OF VOIDS ON THE DIFFUSION AND/OR TRANSMISSIONS OF NEUTRONS (IN FRENCH)
CEA SERVICE DES TRANSPORTS THERMIQUES, FRANCE
TT/SETRE/78-22-B/RFR + FRRSR-191 +. 32 PPS, 22 FIGS, JAN, 30, 1979

VOID FRACTION MEASUREMENT BY NEUTRON ATTENUATION AND SCATTERING TECHNIQUES HAVE BEEN TESTED ON THE MELUSINE REACTOR OF THE NUCLEAR CENTER OF GRENOBLE. VOID FRACTION WAS SIMULATED WITH ALUMINIUM PIECES FOR TWO FLOW CONFIGURATIONS (ANNULAR AND INVERTED ANNULAR FLOW). THE ATTENUATION METHOD IS SHOWN TO PROVIDE A GOOD CONTRAST BOTH WITH A COLD OR A THERMAL NEUTRON BEAM, BUT THE MEASURED VALUE OF VOID FRACTION IS STRONGLY DEPENDENT ON VOID DISTRIBUTION.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

HYDRAULIC ANALYSIS + FLOW THEORY AND EXPERIMENTS + FLOW, TWO PHASE + VOID FRACTION + NEUTRON + THERMAL NEUTRON

153287
MADOZ-ESCANDE CH + DOURY A
CALCULATION OF POLLUTANT TRANSFER IN AN AQUIFER: TRIDISOL A1, A2 AND A3 CODES
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 279 + FRRSR-201 +. 33 PPS, FIGS, JAN, 1979

THIS REPORT DESCRIBES THE TRIDISOL A1, A2 AND 3 CODES WHICH USE A 3.D SOLUTION OF THE TRANSFER EQUATION TO OBTAIN FOR A GIVEN POINT THE ARRIVAL TIME AND THE CONCENTRATION OF A RADIONUCLIDE FOR A GIVEN RELEASE IN THE GROUND. MORE EXACTLY, THE TRIDISOL A1 AND A2 CODES ARE WRITTEN TO SEARCH AUTOMATICALLY FOR SOME PHYSICAL PARAMETERS OF THE AQUIFER AND GROUND-WATER (DIFFUSION COEFFICIENTS) FROM RESULTS OBTAINED WITH TRACER TESTS. THE TRIDISOL 3 CAN BE USED AS A PREVISIONAL CALCULATION MODEL FOR POLLUTION TRANSFER IN THE AQUIFER, THE PHYSICAL PARAMETERS OF WHICH WERE PREVIOUSLY DETERMINED WITH TRIDISOL A1 AND A2 CODES.

AVAILABILITY - W. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + GROUND WATER + GROUND WATER, NUCLIDE OCCURRENCE + *SOIL, RADIONUCLIDE MOVEMENT THROUGH + DIFFUSION + COMPUTER PROGRAM + RADIONUCLIDE + CONCENTRATION + DIFFUSION COEFFICIENT + POLLUTION

153286
MADOZ-ESCANDE C + PEYRUS JC
A METHOD FOR PROVISIONAL EVALUATION OF POLLUTANT TRANSFERS IN AN AQUIFER FIRST RESULTS OBTAINED IN A SANDY ENVIRONMENT (AT THE BARP WORKINGS, GIRONDE)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 261 + FRRSR-202 +. 12 PPS, 6 FIGS, JAN. 1979

THE FIRST RESULTS OBTAINED IN A SANDY ENVIRONMENT (BARP WORKINGS) ARE PRESENTED. THE DIFFICULTY OF EXTRAPOLATING MOCK-UP TEST RESULTS TO ACTUAL FIELD CONDITIONS HAS, MORE PARTICULARLY, MADE IT NECESSARY TO COMMISSION A MOBILE LABORATORY FITTED FOR IN SITU STUDIES. THE PROBLEMS OF POLLUTANT BEHAVIOR IN RELATION TO THE AQUIFEROUS ENVIRONMENT IS BEING SUBMITTED TO LABORATORY INVESTIGATION FOCUSSING ON THE ADSORPTION LAWS WHICH COME INTO PLAY BETWEEN THE ENVIRONMENT AND THE RADIO-ELEMENTS, UNDER VARIOUS PH AND TEMPERATURE CONDITIONS.

AVAILABILITY - W. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + POLLUTION + GROUND WATER + RADIONUCLIDE + POROUS MEDIA + EFFECT, PH + TEMPERATURE + TRANSPORT + RADIOACTIVITY RELEASE

155608
JEANDEY C + BARRIERE G
EXPERIMENTAL STUDY OF THE CENTRAL FLOW OF A WATER AIR MIXTURE (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
T.T. 599 + FRRSR-210 +. 225 PP FIGS, JAN. 1979

THE RESULTS OF AN EXPERIMENTAL STUDY OF TWO PHASE TWO COMPONENT CRITICAL FLOW ARE PRESENTED. THE MIXTURES ARE CONSTITUTED OF WATER AND GAS (NITROGEN) AT VERY LOW QUALITY AND ARE FLOWING AT HIGH VELOCITY IN A VERTICAL CYLINDRICAL (PHI 14 MM) TEST SECTION FOLLOWED BY A 7 DEGREE DIVERGENT. THE THROAT PRESSURE IS NEAR ATMOSPHERIC PRESSURE. A PARTICULAR ATTENTION HAS BEEN PAID TO THE MEASUREMENT OF THESE LOCAL FLOW PARAMETERS: STATIC PRESSURE PROFILE, AXIAL AND TRANSVERSE VOID FRACTION PROFILE BY THE X-RAY ATTENUATION TECHNIQUE, GAS-WATER MASS RATIO, AND MEAN VOID FRACTION AT THE INLET OF THE TEST SECTION.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*FLOW THEORY AND EXPERIMENTS + HYDRAULIC EXPERIMENT + FLOW, TWO PHASE + FLOW, CRITICAL + FLOW, HIGH SPEED

148735
RIEGEL B
EXPERIENCE SUPER-CANON (IN FRENCH)
CEA SERVICE DES TRANSFERTS THERMIQUES, FRANCE
TT/SETRE/79-2-B/BR + FRRSR-182 +. APPROX. 90 PPS, FIGS, FEB. 6, 1979

DESCRIBES THE SUPER-CANON BLOWDOWN EXPERIMENTAL FACILITY AND INSTRUMENTATION FOR MEASURING PRESSURE, TEMPERATURE, VOID FRACTION, AND THRUST. RESULTS OF THE EXPERIMENTS ARE PRESENTED FOR A NUMBER OF TEMPERATURES, PRESSURES, AND BREAK SIZES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *EXPERIMENT + *SYSTEM DESCRIPTION + ACCIDENT, LOSS OF COOLANT + *BLOWDOWN + DATA COLLECTION

148949
DOURY A
POLLUTION TRANSERS AT VARIOUS SCALES OF DURATION AND DISTANCE (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN-241 + FRRSR-190 +. 44 PPS, 9 FIGS, 10 REFS, FEB. 1979

AFTER A REVIEW OF CURRENT METHODOLOGIES, ILLUSTRATED BY CONCRETE EXAMPLES, IT IS SHOWN THAT IN THE DOMAIN OF ATMOSPHERIC POLLUTION, DESPITE APPEARANCES OF DIVERSITY AND DISORDER, THE ACTUAL SITUATION IS RATHER SATISFACTORY AND THAT, FOR MORE PROBLEMS RAISED, PRACTICAL SOLUTIONS CAN BE FOUND WHICH HAVE THE ADDED ADVANTAGE OF BEING CONSISTENT.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*POLLUTION + ATMOSPHERIC POLLUTION + DIFFUSION + ATMOSPHERIC CIRCULATION, GLOBAL + FRANCE

152883
LALLEMENT D
PROTECTION SYSTEM USING REDUNDANT COMPUTERS RELIABILITY CALCULATIONS ON DIFFERENT STRUCTURES (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
LETI/MCTE 1326 + FRRSR-196 +. 33 PPS, FIGS, FEB. 1979

IN ORDER TO EXPAND THE PROCESSING CAPACITIES OF THE PROTECTIVE SYSTEM PREVIOUSLY DISCUSSED (SEE TECHNICAL NOTE LETI NUMBER 1277) THE DECENTRALIZATION OF DATA ACQUISITION BY MEANS OF SPECIALIZED PROCESSORS WAS STUDIED. THE CHOICE OF REDUNDANT STRUCTURES, AND THE SELECTION OF THE DISTRIBUTION OF THE VARIOUS MAGNITUDES TO BE CONTROLLED, IMPOSED A COMPARATIVE ESTIMATION OF DIFFERENT SOLUTIONS. A NUMERICAL COMPUTATION PROGRAM, FOLLOWED BY THE PLOTTING OF CURVES.

152883 *CONTINUED*
PROVIDED THE NECESSARY QUANTITATIVE ELEMENTS.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

FRANCE + *PROTECTION SYSTEM + *RELIABILITY ANALYSIS + NUMERICAL METHOD + ANALYTICAL TECHNIQUE + DATA PROCESSING

155612
TOUFFAIT AM + SAGLIO R
CONTROL OF EPRI TEST BLOCK (IN ENGLISH)
CEA DEPARTEMENT DE TECHNOLOGIE, FRANCE
STA/SCND-DT 216 + FRRSR-216 +. 51 PPS, 5 FIGS, FEB. 15, 1979

A TEST BLOCK CONTAINING A WELD HAS BEEN SENT TO STA/SCND TO BE CONTROLLED. THE CONTROL HAS BEEN MADE WITH FOCUSED PROBES. THIS BLOCK COMES FROM BABCOCK AND IS A PART OF AN EPRI PROGRAM. THIS BLOCK MUST BE CONTROLLED BY DIFFERENT LABS AND THEN WILL BE CUT TO BE ABLE TO FIND THE REAL SIZE OF THE DEFEATS. THIS REPORT GIVES THE RESULTS OBTAINED WITH THE FOCUSED PROBES.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + EPRI + CLADDING + *WELDS + TESTING + *FLOW

154422
LERIDON A + PAUWELS C
PLASTIC INSTABILITY OF ZIRCALOY CLADDING SUBJECTED TO THE CONDITIONS OF A LOCA (IN FRENCH)
CEA DEPARTEMENT DES REACTEURS A EAU, FRANCE
DRE/STRE/LMTA/79/188 + FRRSR-223 +. 19 PPS, FIGS, FEB. 22, 1979

DURING THE LOSS OF COOLANT ACCIDENT IN A PWR, THE DEFORMATION OF THE ZIRCALOY CLADDING MAY LEAD TO PLASTIC INSTABILITY. THE DEFORMATION AT WHICH THE ONSET OF INSTABILITY OCCURS IS THE OBJECT OF THIS STUDY. IT IS SHOWN THAT IT DEPENDS ON THE TEMPERATURE RISE RATE BUT ALSO AND FOR A MAJOR PART OF THE DIFFERENTIAL PRESSURE EVOLUTION. AN ATTEMPT TO USE EXPERIMENTAL RESULTS TO SET UP AN EXPERIMENTAL LAW GIVING THE STRAIN RATE VERSUS THE EQUIVALENT STRESS, THE TEMPERATURE, AND THE TIME WAS MADE. THIS CONSTITUTION LAW COMING FROM CONSTANT PRESSURE EXPERIMENTS WILL BE PUT IN A LOCA CONDITION CODE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + *ZIRCALOY + CLADDING + PLASTICITY + INSTABILITY + REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + FAILURE, TUBING

151559
SIGNORET JP
AVAILABILITY OF PERIODICALLY TESTED SYSTEMS (IN ENGLISH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 263(E) + FRRSR-189 +. 9 PPS, 3 FIGS, 4 REFS, MARCH 28, 1979

THERE IS AT THE PRESENT TIME A NEED IN ACCURATE MODELS TO ASSESS THE AVAILABILITY OF PERIODICALLY TESTED STAND-BY SYSTEMS. THIS PAPER SHOWS HOW TO IMPROVE THE WELL KNOWN "SAW-TOOTH CURVE" MODEL IN ORDER TO TAKE INTO ACCOUNT VARIOUS RELIABILITY PARAMETERS. A MODEL IS DEVELOPED TO ASSESS THE POINTWISE AND THE MEAN AVAILABILITIES OF PERIODICALLY TESTED STAND-BY SYSTEMS. EXACT AND APPROXIMATION FORMULAE ARE GIVEN. IN ADDITION, THE MODEL DEVELOPED HEREIN LEADS TO OPTIMIZE THE TEST INTERVAL IN ORDER TO MINIMIZE THE MEAN UNAVAILABILITY. A SAFETY DIESEL IS GIVEN AS AN EXAMPLE. (EWH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

AVAILABILITY + *REACTOR PROTECTION SYSTEM + CONTROL SYSTEM + PROTECTION SYSTEM + *ENGINEERED SAFETY FEATURE + ANALYTICAL TECHNIQUE + *RELIABILITY ANALYSIS

154595
MAIGRET N + DE VILLENEUVE MJ
STUDY OF RESPONSE SURFACE METHOD. APPLICATION TO THE CALCULATION OF A A.C. POWER SUPPLY FAILURE PROBABILITY (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
SERMA/S/373 + FRRSR-197 +. 18 PPS, 9 REFS, MARCH 1979

RESPONSE SURFACES ARE MATHEMATICAL EXPRESSIONS WHICH PROVIDE AN ESTIMATION OF A CONSEQUENCE IN TERMS OF THE INPUT VALUES OF THE SYSTEM PARAMETERS. THIS METHOD IS ABLE TO GIVE THE CONSEQUENCE DISTRIBUTION IN A SUITABLE COMPUTING TIME BY REPLACING THE COMPUTER CODE WHICH TAKE ACCOUNT OF ALL THE NEEDED PHENOMENA BY A SIMPLE ANALYTICAL EXPRESSION. THIS METHOD SUMMARIZED IN THIS REPORT, IS APPLIED TO THE COMPUTATION OF THE FAILURE PROBABILITY DISTRIBUTION OF THE A.C. POWER SUPPLY OF A 930 MW P.W.R. REACTOR. (EWH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

154595 *CONTINUED*
MATHEMATICAL TREATMENT + FAILURE + *ELECTRIC POWER + EQUIPMENT + ANALYTICAL TECHNIQUE + *FAILURE, EQUIPMENT + RELIABILITY, COMPONENT

149291
CLEMENT P + DEPUAZ R + LAMBERT M
EMERGENCY COOLING SYSTEM OF WATER COOLED REACTORS EXPERIMENTS WITH REFLOODING OF A TUBULAR GEOMETRY (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
TT 156 + FRRSR-194 +. 40 PPS, 7 TABS, 11 FIGS, APRIL 1979

THE THERMAL BEHAVIOR OF FUEL ELEMENTS DURING THE REFLOODING PHASE OF A LWR AFTER A LOCA, DEPENDS ON COMPLEX AND INTERACTING PHENOMENA OCCURING IN THE CORE, THE PRIMARY CIRCUIT AND THE UPPER PLENUM. TESTS PERFORMED ON TUBULAR TEST SECTIONS ARE PRESENTED HERE. ALTHOUGH FAR FROM THE REAL CASE, THESE TESTS ARE OF GREAT INTEREST FOR A BETTER UNDERSTANDING OF THE PHENOMENA INVOLVED, AS WELL AS FOR WRITING AND ADJUSTMENT OF MODELS ABLE TO DESCRIBE VALUABLY THESE PHENOMENA. THE TEST SECTION, THE EXPERIMENTAL PROCEDURE AND CONDITIONS ARE PRESENTED, WHILE A SPECIAL ATTENTION IS PAID TO MEASUREMENTS: AIMS AND TECHNIQUES ARE DISCUSSED, DIFFICULTIES AND LIMITS RECALLED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + THERMAL ANALYSIS + THERMAL HYDRAULIC ANALYSIS + EMERGENCY COOLING SYSTEM + CORE REFLOODING

154679
EVALUATION OF FISSION PRODUCTS ESCAPING FROM A PWR (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
DMG 58/79 + FRRSR-218 +. APPROX. 75 PPS, 54 FIGS, APRIL 23, 1979

AT THE BEGINNING OF THE IRRADIATION (BURN-UP < 5 000 MWJ/T), IN THE RANGE 200 TO 400 W CM(-1) THE EFFECTIVE FISSION PRODUCTS RELEASE IS 20 TO 50 TIMES HIGHER THAN THAT OF THE FUEL NOT EXPOSED TO WATER ENTRY AND WORKING IN THE SAME POWER CONDITIONS; THIS RELEASE IS ESSENTIALLY INDEPENDENT ON THE POWER LEVEL. WITHIN THE POWER TRANSITIONS, BURSTS OF LONG LIVED RADIOACTIVE GASES AND IODINES ARE OBSERVED.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C. 20555

FISSION PRODUCT RELEASE + FAILURE, FUEL ELEMENT + IRRADIATION TESTING + CYCLING + LEAK + FAILURE, CLADDING + REACTOR, PWR + FRANCE + IODINE

153285
GRIFFON M
HUMAN FACTORS: SHORTCOMINGS OF HUMANS IN INCIDENTS
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 282 + FRRSR-199 +. 26 PPS, NO DATE

A SEARCH FOR HUMAN FAILURES AND THEIR CAUSES IN EXECUTIVE TASKS IS MADE. IDENTIFICATION OF HUMAN FAILURES AND CAUSES IN EXECUTIVE TASKS MAY BE CARRIED OUT BY TWO COMPLEMENTARY METHODS: (1) STARTING FROM INCIDENTS AND REBUILDING THE INCIDENT GENESIS, AND (2) STARTING FROM WORK SITUATION AND SEARCHING FOR ELEMENTS WHICH COULD GENERATE HUMAN FAILURES. THE ANALYSIS IS ILLUSTRATED BY SAINT-LAURENT-DES-EAUX.

AVAILABILITY - M. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + *INCIDENT, HUMAN ERROR + FAILURE, ADMINISTRATIVE CONTROL + FAILURE, MAINTENANCE ERROR + FAILURE, DESIGN ERROR + FAILURE, OPERATOR ERROR + *HUMAN FACTORS

153702
PELCE J + NOC B + CHARBONNEAU S
ADVANCES MADE IN FRENCH SAFETY STUDIES ON PRESSURIZED WATER REACTORS (IN ENGLISH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 277 + FRRSR-200 +. 19 PPS, 14 FIGS, MAY 1979

RECENT RESULTS OBTAINED IN DIFFERENT FIELDS CONCERNING 1) THE SAFETY MARGINS EVALUATIONS, 2) THE CONTAMINATION TRANSFER, AND 3) THE EFFECT OF EXTERNAL FORCES ARE PRESENTED.

AVAILABILITY - M. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + REACTOR, PWR + COMPUTER PROGRAM + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + CONTAMINATION + ACTIVITY BUILDUP + CONCRETE, REINFORCED + MISSILE GENERATION AND PROTECTION + EXPLOSION + GROUND MOTION + INTERACTION, SOIL AND STRUCTURE

155610
LE COQ G + LEWI J + RAYMOND P
INFLUENCE OF THE MODELISATION ON TRANSIENT TWO PHASE FLOW BEHAVIOR - STUDY PERFORMED WITH THE TRITON COMPUTER CODE (IN ENGLISH)
CEA CEN, SACLAY, FRANCE

155610 *CONTINUED*
FRRSR-205 +. 27 PPS, FIGS, FROM MEETING OF EUROPEAN TWO-PHASE FLOW GROUP; ISPRA, ITALY, JUNE 5-8, 1979

THIS PAPER PRESENTS THE TRITON COMPUTER MODULUS WHICH IS INTRODUCED IN THE POSEIDON SYSTEM CODE FOR SAFETY ANALYSIS. IT IS AN AXIAL CODE WHICH SOLVES THE SIX PARTIAL DIFFERENTIAL EQUATIONS OF A TWO FLUID FLOW MODEL. IN THE SECOND PART OF THIS PAPER, A STUDY IS PRESENTED, PERFORMED WITH TRITON, ON THE INFLUENCE OF THE TWO MAIN DESEQUILIBRIUM (LIQUID TEMPERATURE DESEQUILIBRIUM, AND DRIFT VELOCITY) OF A TWO PHASE FLOW, ON TRANSIENT BEHAVIOUR.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*COMPUTER PROGRAM + MATHEMATICAL TREATMENT + *FLOW, TWO PHASE + BLOWDOWN + SAFETY ANALYSIS

155617
FRANK R + JUHEL D + RICQUE R
BLOWDOWN EXPERIMENTS WITH A TUBULAR TEST SECTION TWO PHASE FLOW MEASUREMENTS (IN ENGLISH)
CEA CEN, GRENOBLE, FRANCE
FRRSR-211 +. 26 PPS, 15 FIGS, JUNE 5, 1979

EXPERIMENTS ARE PERFORMED ON THE LOOP OMEGA AT THE HEAT TRANSFER LABORATORY IN GRENOBLE TO STUDY THE HEAT TRANSFER COEFFICIENT DURING A LOSS OF COOLANT ACCIDENT. THE CONFIGURATION STUDIED WAS A DIRECT HEATED, 3.65 M LONG TUBULAR TEST SECTION PLACED BETWEEN TWO TANKS ON WHICH A BRANCH CAN BE OPENED. THE MASS FLOW RATE AND VOID FRACTION DURING THE BLOWDOWN PHASE ARE MEASURED BOTH AT THE INLET AND OUTLET OF THE TEST SECTION. THE DATA PROCESSING IS UNDERWAY AND FIRST RESULTS HAVE SHOWN THAT: (A) THE VOID FRACTION MEASUREMENT IS REASONNABLY ACCURATE (BETTER THAN 5%), AND (B) IN A FIRST STEP THE MASS FLOW RATE HAS BEEN CALCULATED WITH AN HOMOGENEOUS MODEL AND THE ACCURACY IS THE ORDER OF 5% IN ALMOST ALL CASES. A TREATMENT WITH A MODEL ASSUMING A SLIP BETWEEN PHASES IS ALSO PRESENTED FOR SOME CASES.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C. 20555

ACCIDENT, LOSS OF COOLANT + BLOWDOWN + FLOW THEORY AND EXPERIMENTS + HYDRAULIC EXPERIMENT + *FLOW, TWO PHASE + REACTOR, PWR + HEAT TRANSFER COEFFICIENT

153701
AUJOLLET P
COMPARISON OF THE THERMOHYDRAULIC CALCULATION AND EXPERIMENTAL RESULTS OF THE LOSS OF PRIMARY COOLANT IN THE SEMISCALE LOOP (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEARIES DE CADARACHE, FRANCE
DRE/STRE/LMTA 79/191 + FRRSR-221 +. APPROX. 75 PPS, FIGS, JUNE 6, 1979

THIS NOTE GIVES THE RESULTS OF CALCULATIONS CARRIED OUT WITH RELAP 4 MOD 5 CONCERNING THE SEMISCALE TEST S-06-3, AND ALSO THE COMPARISON OF THESE RESULTS WITH EXPERIENCE. A PREVIOUS NOTE ABOUT THE SAME RESULTS HAS ALREADY BEEN ESTABLISHED SO AS TO ANSWER TO OECD/CSNI STANDARD PROBLEM N(8).

AVAILABILITY - R. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + ACCIDENT, LOSS OF COOLANT + COMPARISON + EXPERIMENT + HYDRAULIC EXPERIMENT + THERMAL HYDRAULIC ANALYSIS

152819
CHENEBAULT P + HARRER A + KURKA G
EVALUATION OF FISSION GASES AND HALOGENS RELEASE OUT OF FAILED FUEL RUNNING AT CONSTANT POWERS AND IN POWER CYCLING REGIME (IN ENGLISH)
CEA DEPARTEMENT DE METALLURGIE DE GRENOBLE, FRANCE
DMG 101/79 + FRRSR-213 +. 12 PPS, 4 FIGS, 7 REFS, JULY 31, 1979

THIS HIGH EMISSION RATE IS MAINLY DUE TO OVERSTOICHIOMETRY OF THE FUEL ARISING FROM WATER INTRUSION. IODINE RELEASE HAPPENS TO BE AT A LEVEL COMPARABLE TO THAT OF THE NOBLE GASES IF THE THERMAL POWER IS CYCLED OR WHEN THE LEAK DEFECT IS CLOSE TO THE FUEL; OTHERWISE IT IS LOWERED AS A CONSEQUENCE OF CHEMICAL INTERACTIONS WITH THE INNER SURFACES OF THE ROD.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

FISSION GAS RELEASE + FISSION PRODUCT RELEASE + FAILURE, FUEL ELEMENT + CYCLING + FAILURE, CLADDING + HALOGEN + IODINE + FRANCE + CHEMICAL KINETICS

154598
CHENEBAULT P + KURKA G + FRIBOULET C
TECHNIQUES OF ANALYSIS USED AT SILOE REACTOR FOR MEASURING THE FISSION PRODUCT RELEASE OUT OF FAILED FUEL RODS (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE GRENOBLE, FRANCE
DMG 95/79 + FRRSR-214 +. 10 PPS, 14 FIGS, 2 REFS, JULY 11, 1979

THE INSTRUMENTAL EQUIPMENT SETTLED IN CENG BY THE "SERVICE DES PILES DE GRENOBLE" AND THE

154598 *CONTINUED*
"DEPARTEMENT DE METALLURGIE DE GRENOBLE" ENABLES EXPERIMENTAL IRRADIATIONS OF FUEL RODS HAVING TIGHTNESS DEFECTS TO BE CARRIED OUT AT TEMPERATURES AND POWERS REPRESENTATIVE OF POWER REACTORS. THE RADIOACTIVE SPECIES RELEASED IN THE COOLANT ARE ANALYSED ON LINE AND IT IS POSSIBLE TO ANALYSE THE DISTRIBUTION OF FISSION PRODUCTS AT THE END OF ANY IRRADIATION PERIOD BY GAMMA SCANNING EXAMINATION LESS THAN ONE HOUR AFTER A BREAK IN THE IRRADIATION. (EWH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

RADIATION MONITORS + INSTRUMENT, NUCLEAR + IRRADIATION TESTING + FUEL ROD + FAILURE, FUEL ELEMENT + MEASUREMENT + FISSION PRODUCT ACTIVITY, GROSS + *INSTRUMENT, FAILED FUEL DETECTION

154413
CAUQUELIN C + GARCIA JL + SERMET E
EXPERIMENTAL STUDIES OF PWR PRIMARY PIPING UNDER LOCA CONDITIONS (IN ENGLISH)
FRAMATOME, FRANCE + CEA CENTRE D'ETUDES NUCLEAIRES, CADARACHE
PAPER F6/1 + FERSR-206 +. 12 PPS. FROM 5TH SMIRT MEETING; BERLIN, AUG. 1979

TESTS HAVE BEEN PERFORMED ON A 1/10 TH SCALE MODEL TO STUDY THE MECHANICAL BEHAVIOR OF A PRIMARY PWR PIPE AND THE FORCES EXERTED ON THE NEIGHBOURING STRUCTURES AS A CONSEQUENCE OF A BREAK OPENING. A NUMBER OF TESTS HAVE BEEN CARRIED OUT WITH DIFFERENT PIPE CONFIGURATIONS (STRAIGHT TUBE, ELBOW, S OR U SHAPED TUBE) AND DIFFERENT BREAK TYPES (SINGLE OR DOUBLE GUILLOTINE). THE FOLLOWING ASPECTS ARE INVESTIGATED: THE DYNAMIC BEHAVIOR OF THE PIPE AND IN PARTICULAR THE FORMATION OF A PLASTIC HINGE AT THE RESTRAINT; IMPACT FUNCTION OF A PIPE ON AN ENERGY-ABSORBING BUMPER; LATERAL STABILITY OF BOTH ENDS OF A PIPE, CONSEQUENTLY TO A GUILLOTINE BREAK.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + REACTOR, PWR + PIPE WHIP + SHOCK ABSORBER + ACCIDENT, LOSS OF COOLANT + SUPPORT STRUCTURE + FAILURE, PIPE

153288
MAIGRET N + LANORE JM + DUCHEMIN B
APPLICATION OF THE RESPONSE SURFACE METHOD TO THE PROBABILISTIC STUDY OF THE PRIMARY PUMP STOPPING ACCIDENT (IN FRENCH)
CEA CENTRE D'ETUDES NUCLEAIRES DE SACLAY, FRANCE
SERMA T 384 + FRNSR-217 +. 40 PPS. TABS. FIGS. AUG. 1979

THIS REPORT IS DIVIDED INTO TWO PARTS: (1) THE MAIN PARAMETERS, THE CHOSEN REFERENCE CRITERIA, AND THE METHOD USED TO BUILD THE SURFACE ARE GIVEN IN STRESSING THE MAIN DIFFICULTUES. SOME TESTS ARE MADE TO JUDGE THE SURFACE ABILITY TO REPRODUCE THE CORRECT RESULTS. (2) PROBABILITY LAWS FOR THE PARAMETERS, MADE SIMULATIONS AND MAIN RESULTS ARE GIVEN. FOR THE PUMP STOPPING, THE LIMIT RADIAL FACTOR DISTRIBUTIONS ARE GIVEN. FOR THE PUMP STICKING, THE NUMBER OF DRIED-OUT RODS IS GIVEN WITH MAXIMUM ENTHALPIC FACTOR.

AVAILABILITY - M. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + *PUMPS + FAILURE, EQUIPMENT + PROBABILITY + ACCIDENT, LOSS OF FLOW

154416
CLEMENT B + HUEBER C + DUTRAIVE P
PRELIMINARY (QUICK LOOK) REPORT OF THE DEPRESSURIZATION OF A NUCLEAR SYSTEM (TEST NO. 29, TYPE 3C.7) (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
REPORT PHEBUS 17/79 + FRNSR-208 +. 20 PPS. FIGS. SEPT. 13, 1979

PRESENTS A QUICK LOOK REPORT OF TEST NO. 29 OF THE PHEBUS STARTING COMMISSION. THE PURPOSE OF THE TEST IS THE BLOWDOWN AND REFLOODING WITH THE 25 PINS CONFIGURATION AND WITH A NUCLEAR POWER OF 20 MW IN THE CORE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + BLOWDOWN + CORE REFLOODING + THERMAL TRANSIENT + PRESSURE TRANSIENT

155615
HUEBER C + CLEMENT B + DUTRAIVE P
PRELIMINARY (QUICK LOOK) REPORT OF THE DEPRESSURIZATION OF A NUCLEAR SYSTEM WITH ONE PROTOTYPE FUEL PIN (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
PHEBUS 15/79 + FRNSR-209 +. 16 PPS. SEPT. 4, 1979

THIS NOTE IS A QUICK LOOK REPORT OF THE TEST NO. 23 OF THE PHEBUS STARTING COMMISSION. THE AIM OF THIS TEST IS THE BLOWDOWN AND REFLOODING WITH THE 1 PIN CONFIGURATION AND WITH A NUCLEAR POWER OF 5 MW ON THE CORE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION AND DOCUMENT

155615 *CONTINUED*
CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C. 20555

PRESSURE TRANSIENT + PRESSURE DROP + *ACCIDENT, LOSS OF PRESSURE + FLOW THEORY AND EXPERIMENTS + HYDRAULIC EXPERIMENT

154414
PROT AC + SAGLIO R
FOCUSSED PROBES ULTRASONIC FOLLOW-UP OF ACTUAL FLAW GROWTH DURING FATIGUE TESTING (IN ENGLISH)
CEA/CEN, SACLAY, FRANCE
FRRSR-220 +. 15 PPS. FROM 9TH WORLD CONFERENCE ON NON-DESTRUCTIVE TESTING; MELBOURNE, NOV. 18-23, 1979

IN THE FRAMEWORK OF A MORE GENERAL STUDY ENTITLED "PROBABILISTIC STUDY OF NUCLEAR PRESSURE VESSEL RUPTURE", A PROGRAM WAS UNDERTAKEN TO FOLLOW-UP THE GROWTH OF ACTUAL FLAWS PURPOSELY INTRODUCED DURING THE WELDING PROCESS OF FIVE TEST SPECIMENS. THE AIM OF THIS TEST PROGRAM IS TO MEASURE THE ACTUAL SIZE OF THE CRACKS WHICH DEVELOP FROM THE KNOWN DEFECTS DURING THE FATIGUE TESTING. THE SIZING METHOD IS BASED ON THE USE OF FOCUSSED PROBES DEVELOPED FOR SEVERAL YEARS IN FRANCE, WHICH ALLOW GOOD ACCURACY AND REPEATABILITY, AS WELL AS GOOD SENSITIVITY.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + *ULTRASONICS + TESTING + FLAW + CRACK + FATIGUE + WELDS + TEST, NONDESTRUCTIVE + AUSTRALIA

154609
DUFRESNE J
RUPTURE PROBABILITY OF A NUCLEAR REACTOR PRESSURE VESSEL (IN FRENCH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 281 + FRRSR-204 +. 82 PPS. TABS. FIGS. 1979

PROGRESS HAS BEEN MADE IN THE USE OF ANALYTICAL TECHNIQUES FOR EVALUATING RUPTURE PROBABILITY, STRESS ANALYSIS FOR NOZZLES, AND COMPUTATION OF STRESS INTENSITY FACTORS. TESTING WAS COMPLETED ON FATIGUE CRACK GROWTH AND FATIGUE RUPTURE OF PRESSURE VESSELS. SIZING AND DISTRIBUTION OF DEFECTS IN LWR NUCLEAR PRESSURE VESSEL WELDS, HAVE BEEN DEFINED USING DATA FROM 3 EUROPEAN MANUFACTURERS. (FAH)

AVAILABILITY - M. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL PROGRAMS, WASHINGTON, D.C.

FRANCE + PRESSURE VESSELS + PROBABILITY + POWER PLANT, NUCLEAR + FAILURE + ANALYTICAL TECHNIQUE + COMPUTER PROGRAM

155616
GULLY PH + MAZILLE JE + ROUSSEAU JC
JET FORCES STUDIES - THE JERICHO LOOP (IN ENGLISH)
CEA CEN, GRENOBLE, FRANCE
FRRSR-212 +. 25 PPS. 15 FIGS. JUNE 5, 1979

THE JERICHO LOOP IS USED TO STUDY THE TWO PHASE JET DOWNSTREAM OF A BREACH, IN CRITICAL CONDITIONS. FOUR TYPES OF MEASUREMENTS ARE MADE DURING A DEPRESSURIZATION OF THE SYSTEM: THE MASS FLOW RATE, PRESSURES ON THE WALL AND ON THE AXIS OF THE CHANNEL AND ALONG THE AXIS OF THE JET, TEMPERATURES IN THE WHOLE FIELD OF THE JET, AND NORMAL AND RADIAL JET FORCES IN THE JET. COMPLETE MAPS OF STATIC PRESSURE AND AXIAL AND RADIAL FORCES HAVE BEEN OBTAINED IN THE JET.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C. 20555

ACCIDENT, LOSS OF COOLANT + JET + FLOW, CRITICAL + FLOW, TWO PHASE + FLOW THEORY AND EXPERIMENTS + BLOWDOWN + REACTOR, PWR

154412
ROY D + MATTEI A
OECD-CSNI STANDARD PROBLEM NO. 1 PRESSURE DISTRIBUTION WITHIN THE CONTAINMENT FOLLOWING A PIPE BREAK - FRENCH REPORT (IN ENGLISH)
ELECTRICITE DE FRANCE + CEA-DRE, FRANCE
DRE/STRE/LMTA/79/079 + FRRSR-219 +. 16 PPS. 4 REFS. APRIL 1979

PRESSURES AND TEMPERATURES WERE CALCULATED IN A CHAIN OF COMPARTMENTS AFTER A PIPE RUPTURE. MASS AND ENERGY RELEASED THROUGH THE BREAK WERE MEASURED. THE RELEASED FLOW CONSISTED OF STEAM FOR UP TO 3 SECONDS FOLLOWED BY A STEAM-WATER MIXTURE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + GERMANY + CONTAINMENT + ACCIDENT, LOSS OF COOLANT + COMPUTER PROGRAM + COMPARTMENT + PRESSURE TRANSIENT + THERMAL TRANSIENT + FLOW, TWO PHASE

148734
SIRETA X

148734 *CONTINUED*
ANA EXPERIMENTAL AND THEORETICAL STUDY OF THE BLOWDOWN OF THE SECONDARY SIDE OF A STEAM GENERATOR (IN FRENCH)
FRAMATOME, FRANCE
TP/CT/78.340 + FRRSR-179 +. 7 PPS. 1 FIG. SEPT. 29, 1978

IN ORDER TO ASSESS THE HYDRAULIC FORCES ON THE STEAM GENERATOR (SG) INTERNALS AND THE ENERGY RELEASED IN THE CONTAINMENT THE DESIGNER MUST STUDY THE BLOWDOWN OF THE SECONDARY SIDE OF THE STEAM GENERATOR WHICH MAY OCCUR AS A CONSEQUENCE OF A RUPTURE IN THE STEAM LINE. THIS PAPER SUMMARIZES SOME THEORETICAL AND EXPERIMENTAL RESEARCH WORK PERFORMED AT FRAMATOME IN COLLABORATION WITH THE CEA IN ORDER TO STUDY THE BLOWDOWN OF THE SECONDARY SIDE OF A STEAM GENERATOR. IT SUMMARIZES THE WORK RELATED TO THE STUDY AND THE MODELING OF THE EARLY PART OF THE BLOWDOWN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

COOLING SYSTEM, SECONDARY + *HYDRAULIC ANALYSIS + *BLOWDOWN + DESIGN CRITERIA + ACCIDENT, STEAM LINE RUPTURE + ANALYTICAL MODEL + COMPUTER PROGRAM + FRANCE + *STEAM GENERATOR

147175
NAMY P
SELECTION OF EVENTS FOR A PROBABILISTIC EVALUATION OF PWR SAFETY (IN ENGLISH)
FRAMATOME, FRANCE
FRRSR-181 +. 8 PPS. FROM HAMBOURG CONFERENCE; MAY 6-9, 1979

THIS PAPER PRESENTS A METHOD WHICH CAN BE USEFULLY FOLLOWED TO SELECT INITIATING EVENTS TO BE RETAINED FOR A RISK ANALYSIS OF A NUCLEAR POWER PLANT. THE MAIN STEPS ARE THE FOLLOWING: 1. DETERMINATION AND JUSTIFICATION OF THE INITIATING EVENTS CHOSEN. 2. QUANTIFICATION AND RELIABILITY ANALYSIS OF ACCIDENT SEQUENCES INDUCED BY THE INITIATING EVENTS. 3. RADIOLOGICAL ANALYSIS OF THESE ACCIDENT SEQUENCES. THIS PAPER PRESENTS A GENERAL METHOD OF SELECTION WHICH HAS BEEN USED IN THE LICENSING PROCESS OF KOEBERG NUCLEAR POWER PLANT TO ANSWER THE FIRST STEP OF THE RISK ANALYSIS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FRANCE + *RISK + *ANALYTICAL TECHNIQUE + *LICENSING PROCESS + REACTOR, PWR + ACCIDENT, PROBABILITY OF + PROBABILITY

148669
VOIN R
THE PRACTICE OF QUALITY ASSURANCE BY FRAMOTOME (IN ENGLISH)
FRAMATOME, FRANCE
FRRSR-180 +. 7 PPS. PRESENTED AT EUROPEAN NUCLEAR CONFERENCE; HAMBURG, MAY 6-11, 1979

FRAMATOME HAS MORE THAN TWENTY YEARS OF EXPERIENCE IN THE ENGINEERING, MANUFACTURING, TESTING AND COMMISSIONING OF NSSS OF THE PWR TECHNOLOGY. THIS PAPER DESCRIBES THE ORGANIZATION WHICH HAS BEEN IMPLEMENTED DURING THIS TIME TO PROVIDE THE QUALITY ASSURANCE OF FRAMATOME'S PRODUCT LINE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FRANCE + *INDUSTRY, NUCLEAR + *QUALITY ASSURANCE + REVIEW + DESIGN CRITERIA + FABRICATION + INSTALLATION + CONSTRUCTION + POWER PLANT, NUCLEAR

154424
MARTIN A + GARCIA JL + CHEISSOUX JL
EXPERIMENTAL STUDIES OF PWR SECONDARY PIPING IN CASE OF STEAM BREAK (IN FRENCH)
FRAMATOME, FRANCE
DRE/STRE/LMTA/79/212 + FRRSR-224 +. 14 PPS. 7 FIGS. MAY 15, 1979

EXPERIMENTS WERE CARRIED OUT WITH SPLITS AND DOUBLE GUILLOTINE RUPTURES USING A PYROTECHNICAL SYSTEM ON A 1/10 SCALE MODEL OF A 900 MWE, THREE LOOP PWR WITH A PRESSURE OF 70 BAR AND A TEMPERATURE OF 286 C. ATTENTION IS FOCUSED ON BEHAVIOUR OF THE PIPING AND SUPPORTING SYSTEM. AN ANALYSIS OF STABILITY OF LONGITUDINAL BREAKS IS PRESENTED, USING A TWO CRITERIA APPROACH BASED ON FRACTURE MECHANICS. CONCLUSIONS ARE DRAWN CONCERNING SAFETY ASSUMPTIONS MADE IN ANS STANDARDS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FRANCE + PIPES AND PIPE FITTINGS + *ACCIDENT, STEAM LINE RUPTURE + REACTOR, PWR + SUPPORT STRUCTURE + PIPE WHIP + FAILURE, PIPE

143078
GIRARD P + HUNEAU M + RABASSE C + LEYER JC
FLAME PROPAGATION THROUGH UNCONFINED AND CONFINED HEMISPHERICAL STRATIFIED GASEOUS MIXTURES (IN ENGLISH)
UNIVERSITE DE POITIERS, FRANCE
FRRSR-166 +. 24 PPS. 5 FIGS. 20 REFS. 1978

TO OBSERVE THE NONSTEADY FLAME PROPAGATION ACROSS GASEOUS MIXTURES OF NON UNIFORM COMPOSITION, A TECHNIQUE, BASED ON AN IMPROVEMENT OF THE SOAP BUBBLE METHOD, IS PROPOSED HERE. TWO APPLICATIONS OF THE METHOD ARE PRESENTED. RESULTS, WHICH RELATE MAINLY TO THE CORRELATION BETWEEN THE GENERATED PRESSURE FIELD AND THE FLAME FRONT VELOCITY VARIATIONS INDUCED BY THE CONCENTRATION

143078 *CONTINUED*
STEPS INTEND TO DESCRIBE SOME OF THE CONSEQUENCES OF NON UNIFORM COMPOSITION ON THE BLAST EFFECTS OF ACTUAL VAPOUR CLOUD EXPLOSIONS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*COMBUSTION + *GAS + EXPLOSION + VAPOR PRESSURE + *EXPERIMENT + TESTING + FRANCE

2. FRENCH FAST REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM FRANCE DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

147021
COGNE F + TANGUY P
USE OF PROBABILISTIC METHODS IN THE SAFETY EVALUATION OF NUCLEAR INSTALLATIONS (IN ENGLISH)
CEA DEPARTEMENT DE SURETE NUCLEAIRE, FRANCE
DSN 238(E) + FFRSR-188 +. 17 PPS. PRESENTED AT NUCLEX '78'; BASLE, SWITZERLAND, OCT. 3-7, 1978

DISCUSSES THE ROLE AND EXTENT TO WHICH PROBABILISTI METHODS FOR SAFETY EVALUATION OF NUCLEAR POWER PLANTS IN THE LICENSING PROCESS OF SUCH PLANTS. A CLASSIFICATION SYSTEM IS PRESENTED FOR USING PROBABILISTIC METHODS IN TERMS OF WHAT IS KNOWN AND WHAT NEEDS TO BE DONE. (A). USE WASH-1400 METHODOLOGY AS AN ASSISTANCE TO SAFETY ASSESSMENTS WITH THE PRESENT SAFETY RULES. (B). INTRODUCE NEW PROBABILISTIC SAFETY CRITERIA AND/OR REPLACE SOME DETERMINISTIC CRITERIA BY PROBABILISITIC ONES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ACCIDENT, PROBABILITY OF + PROBABILITY + *ANALYTICAL TECHNIQUE + *LICENSING PROCESS + SAFETY ANALYSIS + FRANCE + REACTOR, LMFBR

3. GERMAN (FRG) LIGHT-WATER REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM THE FEDERAL REPUBLIC OF GERMANY DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

148297
EXPERIMENTAL DETERMINATION OF THE HEAT TRANSFER COEFFICIENT IN THE CONTAINMENT DURING A COOLING SYSTEM BLOWDOWN (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS-50-62-4 + GERRSR-356 +. 31 PPS, 3 TABS, 9 FIGS, JUNE 1976

IN THE RESEARCH PROJECT RS 50 SUPPORTED BY THE WEST GERMAN MINISTRY OF RESEARCH AND TECHNOLOGY, RUPTURE OF A MAIN COOLANT PIPE OF A LIGHT-WATER REACTOR IS INVESTIGATED USING A MODEL CONTAINMENT DIVIDED INTO SEVERAL COMPARTMENTS. THE EXPERIMENTAL SET-UP AND THE PROCEDRUE OF EVALUATION OF THE MEASURED RESULTS ARE BRIEFLY DESCRIBED. IT WAS FOUND THAT THE VALUES DETERMINED EXPERIMENTALLY IN THE COMPARTMENT IN WHICH RUPTURE TAKES PLACE ARE SUBSTANTIALLY HIGHER AND THOSE IN THE COMPARTMENT REMOTE FROM THE SITE OF RUPTURE ARE MARKEDLY LOWER THAN THE VALUES AFTER TAGAMI/UCHIDA.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, LWR + ACCIDENT, LOSS OF COOLANT + MODEL TESTING + HEAT TRANSFER + TEMPERATURE + HEAT TRANSFER EXPERIMENT + HEAT TRANSFER COEFFICIENT

143329
INVESTIGATION OF THE PROCESSES IN A MULTIPLE COMPARTMENT CONTAINMENT BY PRESSURE IN WATER-COOLED REACTORS WITH REFRIGERATED CONDENSER (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF RS 50-32-C15-1 + GERRSR-311 +. APPROX. 200 PPS, FIGS, JULY 1976

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *CONTAINMENT ANALYSIS + *COMPARTMENT + CONTAINMENT, ICE CONDENSER + PRESSURE, INTERNAL + REACTOR, LWR

145875
INVESTIGATION OF THE PRESSURE TRANSIENT IN A MULTICOMPARTMENTED CONTAINMENT FROM THE COOLANT BLOWDOWN OF A WATER-COOLED REACTOR - INTERIM RESEARCH REPORT C 13 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50-32-C13-1 + GERRSR-359 +. APPROX. 200 PPS, FIGS, JULY 1976

***THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED. ***

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*PRESSURE TRANSIENT + *CONTAINMENT + COMPARTMENT + BLOWDOWN + REACTOR, LWR + GERMANY

145872
JAX P
PRELIMINARY EXPERIMENT ON LEAKAGE MONITORING USING SONIC EMISSION ANALYSIS: EXPANDED INSTRUMENTATION AND EVALUATION PROGRAM (IN GERMAN)
BATTELLE-INSTITUTE E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-62.944-2 + RS 193 + GERRSR-355 +. 76 PPS, 6 TABLES, 30 FIGS, 8 REFS, MAY 1977

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*EXPERIMENT + *LEAK DETECTION + *MONITOR + ACOUSTICS + CONTAINMENT LEAK MONITOR + GERMANY

144196
VON KLOT R + SAHM A + EISENBLATTER J + JOST H
PROPAGATION OF SIMULATED SONIC EMISSION-IMPULSES IN THICK WALLED STRUCTURES (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-62.945-1 + GERRSR-313 +. 101 PPS, 41 FIGS, DEC. 1977

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED. (GTM)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *ACOUSTICS + SIMULATION + NOISE ANALYSIS + *PRESSURE VESSELS

145846
INVESTIGATION OF THE PHENOMEN OCCURRING WITHIN A MULTI-COMPARTMENT CONTAINMENT AFTER RUPTURE OF THE PRIMARY COOLING CIRCUIT IN WATER-COOLED REACTORS, QUICK LOOK REPORT EXPERIMENT D15 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50-30-D15 + GERRSR-343 +. APPROX. 200 PPS, FIGS, MARCH 1978

THIS REPORT, WRITTEN IN GERMAN, IS THE QUICK LOOK REPORT FOR EXPERIMENT D15. THIS REPORT CONTAINS DIAGRAMS OF THE EXPERIMENTAL APPARATUS AND SEVERAL PLOTS OF DATA TAKEN DURING THE TEST.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

145846 *CONTINUED*
SAFETY ANALYSIS + CONTAINMENT + CONTAINMENT INSTRUMENTATION + MEASUREMENT, TEMPERATURE + INSTRUMENT, PRESSURE

145847
INVESTIGATION OF THE PHENOMENA OCCURRING WITHIN A MULTI-COMPARTMENT CONTAINMENT AFTER RUPTURE OF THE PRIMARY COOLING CIRCUITS IN WATER-COOLED REACTORS. SUPPLEMENTAL RESEARCH DOCUMENTATION D15 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50-32-D15 + GERRSR-341 +. APPROX. 150 PPS. FIGS. APRIL 1978

THIS REPORT, WRITTEN IN GERMAN, IS THE TECHNICAL REPORT FOR EXPERIMENT D15. THIS REPORT CONTAINS DIAGRAMS OF THE EXPERIMENT APPARATUS, AND SEVERAL PLOTS OF DATA TAKEN DURING THE EXPERIMENT. BRIEF DISCUSSIONS OF THE DATA ARE GIVEN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

SAFETY ANALYSIS + CONTAINMENT INSTRUMENTATION + INSTRUMENT, TEMPERATURE + MEASUREMENT, TEMPERATURE + INSTRUMENT, PRESSURE + CONTAINMENT

144198
JAX P + LORENZ F + ECHS J
IMPROVEMENT IN THE MEASUREMENT TECHNIQUES OF SONIC-EMISSION ANALYSIS (SEA) (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-63.244-1 + GERRSR-314 +. 54 PPS. 4 TABS. 9 FIGS. 8 REFS. MAY 1978

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *ACOUSTICS + NOISE ANALYSIS + *MEASUREMENT + TECHNOLOGY

151529
ZIRNIG W
MEASURING SYSTEM TO ANALYZE THE STEAM-WATER-AIR-MIXTURE IN CONTAINMENT OVERFLOW OPENINGS
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-62.994-1 + GERRSR-429 +. 73 PPS. 33 FIGS. JUNE 1978

THE PHENOMENA OCCURRING DURING A LOSS-OF-COOLANT ACCIDENT WITHIN A LIGHT-WATER REACTOR CONTAINMENT ARE SIMULATED AND INVESTIGATED IN LARGE-SCALE EXPERIMENTAL FACILITIES UNDER EXPERIMENTAL REACTOR SAFETY PROGRAMS. THE RESULTS OF THESE EXPERIMENTS ARE USED FOR THE VERIFICATION AND FURTHER DEVELOPMENT OF THE EXISTING COMPUTER CODES FOR REACTOR DESIGN. IN THE PROGRAM DESCRIBED IN THIS REPORT SUITABLE MEASURING SYSTEMS WERE SELECTED AND PROTECTIVE DEVICES SPECIFIC TO THE FIELD OF APPLICATION WERE DEVELOPED FOR THE INDIVIDUAL MEASURING QUANTITIES.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

MEASUREMENT + REACTOR, LWR + ACCIDENT, LOSS OF COOLANT + CONTAINMENT + CONTAINMENT ANALYSIS + MODEL TESTING + FLOW, MIXING + FLOW, TWO PHASE

148272
SCHALL M
COMPREHENSIVE SUMMARY OF THE THEORETICAL STUDIES ON THE D-SERIES OF THE RESEARCH PROGRAM RS 50 (MODEL CONTAINMENT) PART 1 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50A-1 + GERRSR-357 +. APPROX. 270 PPS. FIGS. SEPT. 1978

IN RESEARCH PROJECT RS 50, "PRESSURE DISTRIBUTION IN A REACTOR CONTAINMENT AFTER A LOSS OF COOLANT ACCIDENT", INTEGRAL BLOWDOWN EXPERIMENTS ARE PERFORMED IN AM MODEL CONTAINMENT (V EQUAL 600 M CUBED). THE EXPERIMENTAL RESULTS ARE TO BE USED FOR VERIFICATION AND IMPROVEMENT OF CONTAINMENT ANALYSIS CODES. FOR THE EXPERIMENTS OF THE D-SERIES, WHICH WERE PERFORMED UNDER SIMPLIFIED CONDITIONS (VAPOR FLOW IN THE SHORT TERM PERIOD, CHAIN-TYPE ARRANGEMENT OF THE COMPARTMENTS), A POST TEST ANALYSIS WAS PERFORMED. IN THIS FINAL REPORT A COMPREHENSIVE SUMMARY OF THIS WORK AND OF ADDITIONAL STUDIES IS GIVEN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + CONTAINMENT + COMPUTER PROGRAM + CONTAINMENT ANALYSIS + CONTAINMENT, LOW PRESSURE

146798
SCHALL M
ANALYSIS OF THE D SERIES EXPERIMENTS OF RESEARCH PROJECT RS 50 (MODEL CONTAINMENT) PART 2 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50A-1 + RS 50A + GERRSR-358 +. 283 PPS. FIGS. SEPT. 1978

IN PART 2 OF THE FINAL REPORT ON THE RESEARCH PROJECT RS 50 A, "ANALYSIS OF THE D-SERIES EXPERIMENTS OF RESEARCH PROJECT RS 50 (MODEL CONTAINMENT)" THE PLOTS DISCUSSED IN PART 1 ARE PRESENTED CONTAINING THE RESULTS OF THE MODEL CALCULATIONS AND EXPERIMENTAL RESULTS.

146798 *CONTINUED*
AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*DATA PROCESSING + CONTAINMENT ANALYSIS + EXPERIMENT + R AND D PROGRAM + GERMANY + *CONTAINMENT R AND D

144582
EXPERIMENTAL INVESTIGATION OF THE HYDROGEN DISTRIBUTION IN A LIGHT WATER REACTOR CONTAINMENT FOLLOWING A LOSS-OF-COOLANT ACCIDENT, QUICK LOOK REPORT 1 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 246-1 + GERRSR-312 +. 54 PPS, 3 TABS, 28 FIGS, OCT. 1978

THE OBJECTIVE OF THE "HYDROGEN DISPERSION IN THE CONTAINMENT" PROJECT IS TO STUDY BY MEANS OF EXPERIMENTS THE CONVECTION AND DIFFUSION PROCESSES BY WHICH HYDROGEN IS DISPERSED IN AIR. FOR THIS THE MODEL CONTAINMENT AVAILABLE AT BATTELLE-INSTITUT IS USED, WHICH IS ALSO USED FOR THE EXPERIMENTS OF THE RS 50 PROGRAMME.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

DIFFUSION + ANALYTICAL MODEL + HYDROGEN + GERMANY

143806
THE CONTAINMENT TEST FACILITY (EXPERIMENTS C AND D) (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS-50-21-1 + GERRSR-328 +. 130 PPS, FIGS, REFS, OCT. 1978

TO VERIFY AND IMPROVE CONTAINMENT COMPUTER CODES, LOSS-OF-COOLANT ACCIDENTS ARE CARRIED OUT IN A MODEL CONTAINMENT (VOLUME 600 M CUBED) AT BATTELLE-FRANKFURT. THE PRESENT REPORT DESCRIBES IN DETAIL THE MECHANICAL COMPONENTS OF THE CONTAINMENT TEST FACILITY AND GIVES A BRIEF SURVEY OF ITS MEASURING SYSTEMS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + COMPUTER PROGRAM + ACCIDENT, LOSS OF COOLANT + CONTAINMENT + *CONTAINMENT ANALYSIS + EXPERIMENT + R AND D PROGRAM

144286
EXPERIMENTAL INVESTIGATION OF THE HYDROGEN DISTRIBUTION IN A LIGHT WATER REACTOR CONTAINMENT FOLLOWING A LOSS-OF-COOLANT ACCIDENT, QUICK LOOK REPORT 2 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 246-2 + GERRSR-331 +. 33 PPS, 19 FIGS, DEC. 1978

THE PURPOSE AND GOAL OF THE PROJECT IS TO STUDY EXPERIMENTALLY THE DISTRIBUTION PROCESSES OF HYDROGEN IN AIR AS A RESULT OF CONVECTION AND DIFFUSION. IF THE GAS INJECTION SOURCE IS NOT AT FLOOR LEVEL, A DISTINCT VERTICAL CONCENTRATION GRADIENT CAN BE OBSERVED IN THE COMPARTMENT WHERE THE SOURCE IS LOCATED (9). A HORIZONTAL CONCENTRATION GRADIENT BETWEEN THE EXPERIMENTAL COMPARTMENTS OCCURS ONLY IF THE CONNECTING OPENING IS RELATIVELY SMALL.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

DIFFUSION + ANALYTICAL MODEL + GERMANY + HYDROGEN

149470
LANGER G + FROHLICH H + STAHL W
COMPARISON OF VARIOUS PRESSURE VESSEL CONCEPTS FOR LIGHT WATER REACTORS (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-63.119-1/2 + GERRSR-431 +. 270 PPS, FIGS, APRIL 1979

FIVE DIFFERENT CONCEPTS FOR REACTOR PRESSURE VESSEL IN LIGHT-WATER REACTORS ARE COMPARED. THESE INCLUDE: THICK-WALLED STEEL PRESSURE VESSEL, PRESSURE VESSEL PRODUCED BY BUILD-UP WELDING, MULTILAYER PRESSURE VESSEL, PRESTRESSED CAST-IRON PRESSURE VESSEL, AND PRESTRESSED CONCRETE PRESSURE VESSEL. THE FIVE CONCEPTS ARE COMPARED BY MEANS OF REFERENCE CRITERIA COMPRISING CONFIGURATION, DIMENSIONING, SELECTION, AND BEHAVIOUR OF MATERIALS, MANUFACTURE AND ASSEMBLY, QUALITY ASSURANCE AND, ABOVE ALL, ASPECTS OF SAFETY. THE SECOND PART OF THE STUDY IS CONCERNED WITH THE TECHNOLOGICAL ASSESSMENT OF THE CONCEPTS USING AN EVALUATION MATRIX. IN ADDITION, A UTILITY VALUE PROFILE WAS DEVELOPED FOR EACH CONCEPT, WHICH SHOWS WHICH VESSEL COMPONENTS WERE GIVEN PARTICULARLY POSITIVE OR NEGATIVE SCORES.(FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + PRESSURE VESSELS + HSST + WELDING + CONCRETE, PRESTRESSED + COMPARISON

151501
LANGER G + JENICK R + WENTLANDT HG
EXPERIMENTAL RESEARCH ON THE HYDROGEN DISTRIBUTION IN THE CONTAINMENT OF A LIGHT-WATER-REACTOR AFTER A LOSS-OF-COOLANT ACCIDENT (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-63.363-3 + GERRSR-418 +. 115 PPS, 52 FIGS, MAY 1979

DURING AND AFTER A LOSS-OF-COOLANT ACCIDENT (LOCA) IN A LIGHT-WATER REACTOR, CHEMICAL REACTIONS

151501 *CONTINUED*

AND THE RADIOLYTIC DECOMPOSITION OF THE WATER RESULT IN FORMATION OF GASEOUS HYDROGEN, THE CONCENTRATION OF WHICH MAY REACH - IN PARTICULAR LOCALLY - THE LIMITS OF INFLAMMABILITY. THE PURPOSE AND GOAL OF THE PROJECT "HYDROGEN DISPERSION IN THE CONTAINMENT" WAS TO STUDY EXPERIMENTALLY THE DISTRIBUTION OF HYDROGEN IN AIR AS A RESULT OF CONVECTION AND DIFFUSION. THE EXPERIMENTS WERE CARRIED OUT IN THE MODEL CONTAINMENT AVAILABLE AT BATTELLE-INSTITUT, WHICH IS ALSO USED FOR THE INVESTIGATION OF THE THERMOHYDRAULIC PROCESSES TAKING PLACE DURING THE LOCA.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

ACCIDENT, LOSS OF COOLANT + EXPLOSION + DIFFUSION + FLOW, CONVECTION + CONTAINMENT + THERMAL EXPERIMENT + HYDROGEN + FIRE + EXPERIMENT + DISPERSION

149935

THEORETICAL INVESTIGATION OF THE HEATING EFFECTS FROM THE INTERACTION OF MOLTEN CORE MATERIAL AND CONCRETE (IN GERMAN)

BATTELLE INSTITUTE E.V., FRANKFURT AM MAIN, F.R. GERMANY

BF-R-63.524-1 +BMFT-RS-293 + GERRSR-423 +. 125 PPS, 53 TABS, 7 FIGS, 44 REFS, MAY 1979

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*CORE MELTDOWN + *CONCRETE + HEAT TRANSFER + EFFECT + GERMANY

154578

KOLITSCH J + ZIRNIG W

COMPARISON OF PROVED AND CURRENTLY DEVELOPED OR PLANNED MASS-FLOW MEASURING METHODS FOR TWO-PHASE FLOWS (IN GERMAN)

BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY

BF-R-63.475-1 + GERRSR-428 +. 160 PPS, FIGS, REFS, MAY 1979

IN THE CONTEXT OF THE RESEARCH PROJECT RS-277 19 SEPARATE MEASURING METHODS FOR THE DETERMINATION OF THE MASS FLOW OF A TWO-PHASE FLOW (LIQUID-GASEOUS) WERE INVESTIGATED. IN THE PRESENT REPORT MEASURING METHODS BASED ON THE SAME PRINCIPLE ARE GROUPED TOGETHER AND DISCUSSED JOINTLY. FOR EACH GROUP OF METHODS THE PRINCIPLE IS DESCRIBED AND AN ERROR ANALYSIS IS CONDUCTED. THE CONDITIONS AND ASSUMPTIONS WHICH JUSTIFY THE USE OF THE RELEVANT MEASURING METHODS ARE PRESENTED. INDIVIDUAL EXPERIMENTS ARE INCLUDED FOR THOSE MEASURING METHODS FOR WHICH THE EXPERIMENTAL RESULTS WERE AVAILABLE.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C. FOR DISTRIBUTION INFORMATION.

SAFETY ANALYSIS + REACTOR + FLOW, TWO PHASE + MEASUREMENT + MASS TRANSFER + CORRELATION + INSTRUMENT, DENSITY + INSTRUMENT, FLOW + INSTRUMENT, LIQUID LEVEL

145874

DRESCHER HP + RODDER P

COMPARATIVE INVESTIGATIONS OF A COOLING SYSTEM BLOWDOWN ACCIDENT AND THE SUBSEQUENT THERMAL TRANSIENT IN LIGHT-WATER AND HIGH TEMPERATURE REACTORS (IN GERMAN)

BONNENBERG + DRESCHER INGENIEURGESELLSCHAFT MBH, F.R. GERMANY

GERRSR-361 +. 138 PPS, 23 FIGS, 99 REFS, JULY 1975

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

ACCIDENT, LOSS OF COOLANT + ACCIDENT ANALYSIS + *BLOWDOWN + *THERMAL TRANSIENT + REACTOR, LWR + HIGH TEMPERATURE + REACTOR + COMPARISON + GERMANY

154497

VEITH H + ZIEBS J

INFLUENCE OF THE NOMINAL STRESS STATE ON FRACTURE TOUGHNESS (IN GERMAN)

BUNDESANSTALT FUR MATERIALPRUFUNG (BAM), F.R. GERMANY

BAM-4937 + RS 0 275 B + GERRSR-441 +. 28 PPS, 13 FIGS, 9 REFS, JUNE 1979

CRACKS IN THE PRESSURE VESSELS ARE SUBJECTED TO A BIAXIAL NOMINAL STRESS STATE. CONVENTIONAL FRACTURE MECHANICS DISREGARD THIS SITUATION AND TAKE INTO ACCOUNT THE LARGEST NOMINAL STRESS ONLY. TESTS WERE CARRIED OUT ON GERMAN STANDARD STEEL STE 47 IN THE TEMPERATURE RANGE OF FRACTURE AT GENERAL YIELD T(SUB GY). RESULTS ON BIAXIAL BENDING WERE COMPARED WITH THOSE ON USUAL THREE POINT BENDING. IT IS DEMONSTRATED THAT A BIAXIAL NOMINAL STRESS STATE SHIFTS T(SUBGY) TO HIGHER TEMPERATURE AND REDUCES K(SUBC) OR THE NOMINAL FRACTURE STRESS IN DEPENDENCE ON TEMPERATURE. (FAH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

STRESS + CRACK + STEEL + TESTING + GERMANY

144197
KOSFELD R + PUHR-WESTERHEIDE P
DEVELOPMENT OF A MASS-DENSITY METHOD FOR TRANSIENT TWO PHASE STATE USING ATOMIC RESONANCE (IN GERMAN)
BMFT RS 188 + GERRSR-340 +. 77 PPS. FIGS. AUG. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *MASS + *INSTRUMENT, DENSITY + TRANSIENT + FLOW, TWO PHASE + MEASUREMENT

144280
BEHRENS K + SCHNEIDER H
INITIATION OF DETONATION OF HYDROGEN-AIR MIXTURES AND PROPAGATION OF SHOCK WAVES IN THE ENVIRONMENT (IN GERMAN)
ERNST-MACH-INSTITUT, F.R. GERMANY
RS-102-06-6 + GERRSR-342 +. 37 PPS. 10 TABS. 11 FIGS. 8 REFS. DEC. 1977

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

HYDROGEN + AIR + *EXPLOSION + *SHOCK WAVE + ENVIRONMENT + GERMANY

143803
LANGHEIM H
BEHAVIOR OF SPECIFIC REACTOR MATERIALS AND COMPONENT PARTS AT IMPACT OF FRAGMENTS AND PROJECTILES OF DIFFERENT MASS AND VELOCITY (IN GERMAN)
ERNST-MACH-INSTITUT, F.R. GERMANY
EMI E/6/78 + RS 102-07-9 + GERRSR-329 +. 28 PPS. 4 TABS. 21 FIGS. 8 REFS. MAY 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*COMPONENTS + STRUCTURAL INTEGRITY + *MISSILE GENERATION AND PROTECTION + GERMANY + *IMPACT PROPERTY

154647
THE GERMAN RISK STUDY: SUMMARY (IN ENGLISH)
THE FEDERAL MINISTER OF RESEARCH AND TECHNOLOGY, F.R. GERMANY
GERRSR-450 +. 49 PPS. 4 TABS. 12 FIGS. AUG. 15. 1979

THE PRESENT REPORT CONSTITUTES ONLY THE FIRST PART OF THE GERMAN RISK STUDY (PHASE A). THE RESULTS OF PHASE A OF THE GERMAN RISK STUDY HAVE BEEN COMPILED IN A MAIN VOLUME CONTAINING A TOTAL OF 9 CHAPTERS (1. OBJECTIVES, LAYOUT AND ORGANIZATION OF THE STUDY; 2. FUNDAMENTAL REMARKS ON THE IDENTIFICATION OF RISKS; 3. THE NUCLEAR POWER PLANT; 4. SUBJECT MATTER AND METHOD OF THE RISK ANALYSIS; 5. RESULTS OF THE EVENT TREE ANALYSIS; 6. RELEASE OF FISSION PRODUCTS; 7. ACCIDENT CONSEQUENCE MODEL; 8. RESULTS AND INHERENT SIGNIFICANCE OF THE RESULTS; 9. CONCLUSIONS). (EWH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,FOR DISTRIBUTION INFORMATION.

GERMANY + SAFETY EVALUATION + DESIGN STUDY + ACCIDENT ANALYSIS + PROBABILITY + *RISK + POWER PLANT, NUCLEAR + REACTOR, LWR + POPULATION EXPOSURE + *N-POWER, SAFETY OF

146486
LOTTERMOSER J + WASCHKIES E + ZENNER P
LABORATORY INVESTIGATIONS FOR THE ATTAINMENT OF INTERPRETATIONAL MODELS FOR THE ESTIMATION OF FLOW USING ULTRASONIC TESTS ON NUCLEAR REACTORS (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
REPORT 780236-TW + RS 196 + GERRSR-365 +. 215 PPS. FIGS. REFS. JUNE 29. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THE DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

EXPERIMENT + ANALYTICAL MODEL + *FLOW + MEASUREMENT + *ULTRASONICS + GERMANY

146799
JAKOBS E + DEUSTER G
EXAMINATION OF 3 HSST PLATES RUPTURED IN AIR (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
REPORT 78-738-TW + RS 247 + GERRSR-339 +. 135 PPS. 28 TABS. 24 FIGS. JULY 31. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

146799 *CONTINUED*
EXPERIMENT + *STRUCTURAL INTEGRITY + *STEEL + EXAMINATION + GERMANY

146793
DOBMANN G
MAGENTIC FLUX METHOD, FINAL REPORT (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
REPORT 780333-T* + GERRSR-362 K+. 55 PPS. 26 FIGS. 7 REFS. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ANALYTICAL TECHNIQUE + MATHEMATICAL TREATMENT + GERMANY

148368
BARBIAN OA + GECHS B
DISTURBANCE AND ERROR RECONSTRUCTION WITH HELP OF TIME-OF-FLIGHT DATA, FINAL REPORT (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
REPORT 780404-T* + RS-102-17 + GERRSR-380 +. 36 PPS. 20 FIGS. 10 REFS. JAN. 9,1979

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ERROR ANALYSIS + *ANALYTICAL TECHNIQUE + GERMANY + DATA PROCESSING

148370
WALTE F + MULLER W
ERROR ANALYSIS OF THE AMPLITUDE CURVE, FINAL REPORT (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
REPORT 780852-T* + RS-102-17 + GERRSR-384 +. 116 PPS. 92 FIGS. 17 REFS (NO DATE)

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ERROR ANALYSIS + ANALYTICAL TECHNIQUE + GERMANY

149933
BETZOLD K
THEORETICAL AND NUMERICAL ANALYSIS OF EDDY CURRENT TESTS OF LAMINATED MATERIALS USING INTERIOR AND EXTERIOR
WOUND COAXIAL CABLES, PART 3 (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
RS 102-18 + REPORT 780725-T* + GERRSR-427 +. 71 PPS. 33 FIGS. 11 REFS (NO DATE)

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

MATHEMATICAL TREATMENT + TESTING + CABLES AND CONNECTORS + GERMANY

149932
BECKER R + REGNERI L
APPLICATION OF EDDY CURRENT TEST TECHNIQUES FOR THE EXAMINATION OF REACTORS, PART 1 (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
RS 102-18 + REPORT 780822-T* + GERRSR-432 +. 62 PPS. 22 FIGS. 31 REFS. (NO DATE)

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + FLOW + TESTING + SURVEILLANCE PROGRAM + POWER PLANT, NUCLEAR

154343
BETZOLD K + BECKER R
THEORETICAL AND NUMERICAL ANALYSIS OF EDDY CURRENT TESTS OF LAMINATED MATERIAL WITH ATTACHED COIL
MEASUREMENTS, PART 2 (IN GERMAN)
FRAUNHOFER-GESELLSCHAFT, F.R. GERMANY
RS 102-18 + REPORT 780501-T* + GERRSR-425 +. 57 PPS. FIGS (NO DATE)

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY
RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

*NUMERICAL METHOD + *FLOW + *TESTING + MEASUREMENT + GERMANY + THEORETICAL INVESTIGATION

146796
INSTRUMENTATION SYSTEM FOR THE DAS-MULTIPLE TUBE RESEARCH PROGRAM (IN GERMAN)
GESELLSCHAFT FUR KERNENERGIEVERWERTUNG, F.R. GERMANY
REPORT 73 03 AR 8 57 + GERRSR-353 +. 72 PPS, 17 FIGS, NOV. 23, 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

R AND D PROGRAM + FUEL ROD + *INSTRUMENT, FUEL SCANNING + *SYSTEM DESCRIPTION + GERMANY

146488
EXPERIMENTAL RESEARCH ON SINGLE AND MULTIPLE TUBE ARRAYS IN THE PRESSURE TRANSIENT OF A NUCLEAR POWER PLANT IN THE LARGE EXPERIMENT AREA OF THE GKSS (IN GERMAN)
GESELLSCHAFT FUR KERNENERGIEVERWERTUNG, F.R. GERMANY
REPORT 73 03 AR 8 59 + GERRSR-354 +. 32 PPS, 9 TABS, 13 FIGS, 4 REFS, DEC. 13, 1978

A DESCRIPTION OF THE INSTRUMENTATION CONCEPTS FOR THE UNDERSTANDING OF THE PRESSURE TRANSIENT PHENOMENA IS PROVIDED. ***NO ADDITIONAL TRANSLATION WAS AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FUEL ROD + *FUEL ELEMENTS + *PRESSURE TRANSIENT + EXPERIMENT + MEASUREMENT + INSTRUMENT, PRESSURE + GERMANY

150186
WAHBA AB + TESCHENDORFF V
"FLUT" - A COMPUTER MODEL FOR THE SIMULATION OF THE REFILL AND REFLOOD PHASES OF THE LOSS OF COOLANT ACCIDENT IN A PRESSURIZED WATER REACTOR (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT MBH, F.R. GERMANY
GRS-A-128 + GERRSR-417 +. 85 PPS, 23 FIGS, 21 REFS, APRIL 1978

THE BASIC VERSION OF THE PROGRAM CALCULATES FUEL ROD CLADDING TEMPERATURES FOR AN AVERAGE COOLANT CHANNEL, DEPENDING ON THE RISE OF THE FLUID LEVEL AND THE PROGRESS OF THE QUENCH FRONTS. THE FLUID LEVELS ARE DETERMINED BY MASS- AND ENERGY-BALANCE EQUATIONS ASSUMING QUASI-STATIONARY CONDITIONS. THE SWELL LEVEL IN THE CORE REGIME IS CALCULATED USING THE BUBBLE RISE MODEL OF WILSON AND CONSIDERING THE CARRY-OVER-CRITERION OF PLUMMER. FUEL ROD CONDUCTION EQUATIONS ARE NUMERICALLY SOLVED USING A FULLY IMPLICIT INTEGRATION METHOD. THE QUENCHING MODEL ACCOUNTS FOR AXIAL CONDUCTION AND PRECOOLING BY SEVERAL HEAT TRANSFER REGIMES. (MLW)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

GERMANY + CORE REFLOODING + COMPUTER PROGRAM + ACCIDENT, LOSS OF COOLANT + REACTOR, PWR + WETTING + FUEL ROD + HEAT TRANSFER + CLADDING + TEMPERATURE

143932
VOJTEK I
EVALUATION OF THE 25-ROD BUNDLE TEST (RS-37C) WITH THE CALCULATIONAL PROGRAM (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-208 + GERRSR-333 +. 273 PPS, 126 FIGS, SEPT. 1978

THE PURPOSE OF THESE EXPERIMENTS WAS TO INVESTIGATE THE TRANSIENT CRITICAL HEAT-FLUX (CHF) PHENOMENA AND POST-CHF FILM BOILING HEAT TRANSFER COEFFICIENTS (HTC) DURING DEPRESSURIZATION. IN THE FRAME OF GERMAN BMFT RESEARCH PROGRAM ON REACTOR SAFETY (RS 263) THE POST-EXPERIMENTAL ANALYSIS HAS BEEN CARRIED OUT BY GRS. THE OBTAINED VALUES OF HTC HAVE BEEN COMPARED TO SEVERAL POST-CHF HEAT TRANSFER CORRELATIONS. THE GOOD AGREEMENT IN THE ENTIRE RANGE OF TEST PARAMETERS WAS OBTAINED ONLY WHEN CONDIE-BENGSTON IV CORRELATION WAS USED FOR THE CALCULATION OF HTC. THE RESULTS OF POST-EXPERIMENTAL ANALYSIS HAS SHOWN THAT NONE OF THE EMPLOYED CHF-CORRELATIONS PREDICTED CHF WITH SUFFICIENT ACCURACY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *HEAT TRANSFER EXPERIMENT + TRANSIENT + HEAT FLUX, CRITICAL + CORRELATION + HEAT TRANSFER COEFFICIENT + FUEL ROD + THERMAL TRANSIENT + FILM BOILING + R AND D PROGRAM + HEAT TRANSFER, BOILING

143966
SCHMIDT A
REPORT ON THE CONVERSION OF THE LASL-CODE TRAC-P1 (VERSION 16.3) TO IBM STANDARD OPERATING SYSTEM MVS (WITH FORTRAN-H-EXTENDED COMPILER) (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-206 + GERRSR-335 +. 137 PPS, 20 FIGS, SEPT. 1978

DESCRIBES THE CONVERSION OF TRAC P1 VERSION 16.3 FOR USE ON GRS'S AMDAHL 470 V/5 COMPUTER EQUIPMENT (IBM-COMPATIBLE) WITH IBM OPERATING SYSTEM MVS. THE WORK THAT HAS TO BE DONE WITH THE FORTRAN SOURCE MAY BE SPLIT INTO TWO PARTS: CONVERSION OF SINGLE PRECISION FLOATING POINT CALCULATION (CDC-48 BIT MANTISSA) TO DOUBLE PRECISION (IBM-56 BIT MANTISSA); REMOVAL OR REPLACEMENT OF NON-STANDARD FORTRAN FEATURES, WHICH CAN BE APPLIED AT LASL, SINCE THEY ARE RUNNING A SPECIAL NON-CD OPERATING SYSTEM FROM LIVERMORE WITH EXTENDED FORTRAN FACILITIES.

143966 *CONTINUED*
AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *COMPUTER PROGRAM + REACTOR PHYSICS + REACTOR TRANSIENT + ACCUMULATORS

143903
WAHBA AB
REFLUX-GRS ANALYSIS OF THE REFLOOD EXPERIMENTS (RS 62) (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-199 + GEFRSR-336 +. 46 PPS, 20 FIGS, 29 REFS, SEPT. 1978

A METHOD IS PRESENTED FOR THE DETERMINATION OF THE LOCAL SURFACE HEAT FLUX BEHAVIOUR FROM THE MEASURED VARIATION IN THE WALL TEMPERATURE DURING FLOODING. USING THE HISTORY OF SURFACE HEAT FLUX AT DIFFERENT AXIAL POSITIONS, THE PROPAGATION OF THE QUENCH FRONTS IS DETERMINED. THE DEPENDENCE OF SURFACE HEAT FLUX ON SURFACE TEMPERATURE IS USED TO PROVIDE INFORMATION ON THE HEAT TRANSFER REGIMES PRESENT. IN ORDER TO PREDICT THE TEMPERATURE HISTORY OF THE INTERNAL SURFACE OF THE TUBE DURING FLOODING, REWETTING AND HEAT CONDUCTION MODELS FROM THE GRS REFILL AND FLOODING PROGRAM FLUT WERE IMPLEMENTED IN THE MIT-PROGRAM REFLUX.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *HEAT TRANSFER ANALYSIS + THERMAL HYDRAULIC ANALYSIS + *WETTING + CORE REFLOODING + HEAT TRANSFER EXPERIMENT + R AND D PROGRAM + HYDRAULIC EXPERIMENT + EMERGENCY COOLING

143894
POINTNER W + FINGER F
BLOWDOWN - EXPERIMENT RS 109 (LOBI) CONTROL OF THE ELECTRICAL HEATING POWER (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-205 + GEFRSR-337 +. 23 PPS, 15 FIGS, SEPT. 1978

IN THE LOBI BLOWDOWN TESTS THE HEATING POWER OF THE TEST-BUNDLE IS TO BE CONTROLLED IN ORDER TO SIMULATE THE BEHAVIOR OF A FUEL BUNDLE DURING BLOWDOWN. WITHIN BMFT-CONTRACT RS 109 THE GRS IS RESPONSIBLE FOR ESTIMATING THE POWER VERSUS TIME CURVES. THIS REPORT DESCRIBES THE CALCULATIONAL METHOD FOR A DOUBLE-ENDED BREAK BETWEEN PUMP AND PRESSURE VESSEL. IN THIS CASE SIMULATION OF A FUEL-BUNDLE CAN BE ACHIEVED WITH THE FOLLOWING TIME DEPENDENCE OF POWER: HEATING POWER IS KEPT CONSTANT AT STEADY STATE VALUE (100%) TILL DNB IS DETECTED, AND THEN REDUCED TO 8%. DNB CAN BE ASSUMED WHEN THE WALL TEMPERATURE OF THE TEST RODS EXCEEDS 400C.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*REACTOR, PWR + *BLOWDOWN + *FUEL ROD + ELECTRIC POWER + HEATERS + *DNB + *NUCLEATE BOILING

143935
ULLRICH R
RELAP-R/GRS ANALYSIS OF THE NONNUCLEAR LOFT-TESTS L1-4 (PRE AND POST TEST CALCULATIONS) (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MB-H, F.R. GERMANY
GRS-A-212 + GEFRSR-338 +. APPROX. 125 PPS, FIGS, REFS, SEPT. 1978

LOFT L 1-4 WAS AN ISOTHERMAL BLOWDOWN TEST SIMULATING A 200% COLD LEG BREAK WITH ECC INJECTION INTO THE INTACT LOOP COLD LEG /3, 24/. THE RESULTS OF BOTH THE RELAP-R/GRS-PRETEST AND POSTTEST ANALYSIS CAN BE SUMMARIZED AS FOLLOWS: 1. BOTH CALCULATIONS SHOWED FAIRLY GOOD RESULTS FOR THE BLOWDOWN PHASE UNTIL THE START OF ECC INJECTION. 2. THE PRETEST SYSTEM SIMULATION FAILED AFTER ECC INJECTION BECAUSE OF WATER PACKING PROBLEMS. REFILL AND REFLOOD OF THE RPV WERE CALCULATED SEPARATELY IN A TWO ZONE REPRESENTATION. 3. THE POSTTEST ANALYSIS WAS DONE BY AN IMPROVED VERSION OF RELAP-4/GRS, WHICH AVOIDED STABILITY PROBLEMS. THE CALCULATION WAS DONE IN ONE RUN UP TO ABOUT 47 SECONDS OF PROBLEM TIME.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*GERMANY + COMPUTER PROGRAM + ACCIDENT, LOSS OF FLOW + *BLOWDOWN + THERMAL HYDRAULIC ANALYSIS + EMERGENCY COOLING + CORE REFLOODING + HYDRAULIC EXPERIMENT + *LOFT (S-RR)

143379
BRACHT K
THE COURSE OF EVENTS IN THE CONCRETE - FAILURE PHASE OF THE HYPOTHETICAL CORE MELTDOWN ACCIDENT: CALCULATION TO IDENTIFY THE INFLUENCE OF VARIOUS PARAMETERS (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-221 + GEFRSR-215 +. 65 PPS, FIGS, OCT. 1978

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *ACCIDENT ANALYSIS + *CORE MELTDOWN + *CONCRETE + STRUCTURAL INTEGRITY + CONTAINMENT INTEGRITY + MATHEMATICAL TREATMENT

145757
PANA P + SCHWINGES B
COMPUTER MODEL FOR THE TWO-DIMENSIONAL CALCULATION OF THE WATER POOL-SWELL IN THE CONDENSATION CHAMBER OF A

145757 *CONTINUED*
REACTOR SYSTEM (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-237 + GERRSR-250 +. 23 PPS. 9 FIGS. 4 REFS. NOV. 1978

THE MODEL IS BASED ON THE PARTIAL DIFFERENTIAL-EQUATION OF EULER TO DESCRIBE THE UNSTEADY, TWO DIMENSIONAL FLUID MOTION IN THE POOL. THE DIFFERENTIALS ARE CONVERTED INTO FINITE DIFFERENCES. THE AIR REGION ABOVE THE WATER SURFACE AND THE FLUID REGION ARE DIVIDED INTO CELLS OF THE SAME SIZE. THE FINITE DIFFERENCE EQUATIONS FOR EVERY VERTEX FORM A SYSTEM OF LINEAR EQUATIONS, WHICH CAN BE SOLVED WITH THE DETERMINANT THEOREM. DEFINING INITIAL VALUES AND THE DIFFERENT BOUNDARY CONDITIONS THE VELOCITY AND PRESSURE FIELD CAN BE CALCULATED STEP BY STEP.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + ACCIDENT, LOSS OF COOLANT + REACTOR, BWR + SWELLING + PRESSURE PULSE + PRESSURE TRANSIENT + CONTAINMENT, PRESSURE SUPPRESSION

147102
WARNEMUNDE R + WAY H
THE ESSENTIAL SAFETY ASPECTS OF A CONFINED NUCLEAR FUEL CYCLE (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-S-23 + GERRSR-271 +. 63 PPS. 8 TABS. 21 FIGS. NOV. 1978

***THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *FUEL CYCLE + *SAFETY ANALYSIS + SAFEGUARDS, NUCLEAR MATERIAL

146875
ERXLEBEN E
POSITION STATEMENTS ON ATOMIC ENERGY QUESTIONS, ACCIDENT PROTECTION AT NUCLEAR POWER PLANTS (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-S-24 + GERRSR-398 +. 45 PPS. 10 FIGS. 27 REFS. NOV. 1978

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED. (GTM)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + N-POWER, SAFETY OF + SAFETY PRINCIPLES AND PHILOSOPHY + SAFETY REVIEW + NUCLEAR DEBATE

144854
LIST OF REPORTS FROM THE REACTOR SAFETY RESEARCH PROGRAMS OF BMFT, USNRC, EPRI AND JSTA, JULY 1-SEPTEMBER 30, 1978 (IN GERMAN & ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-67 + GERRSR-227 +. 65 PPS. DEC. 1978

THIS LIST REVIEWS REPORTS FROM THE FEDERAL REPUBLIC OF GERMANY, FROM THE UNITED STATES AND FROM JAPAN CONCERNING SPECIAL PROBLEMS IN THE FIELD OF REACTOR SAFETY RESEARCH. THE LIST PURSUES THE FOLLOWING ORDER: COUNTRY OF ORIGIN, PROBLEM AREA CONCERNED, ACCORDING TO THE REACTOR SAFETY RESEARCH PROGRAM OF BMFT, REPORTING ORGANIZATION. (GTM)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REVIEW + R AND D PROGRAM + UNITED STATES + GERMANY + JAPAN + SAFETY ANALYSIS

145165
REPORT ON THE RESEARCH PROGRAM SPONSORED BY BMFT IN THE AREA OF REACTOR SAFETY, JULY 1-SEPTEMBER 30, 1978 (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-70 + GERRSR-344 +. APPROX. 200 PPS. DEC. 1978

INVESTIGATIONS ON THE SAFETY OF LIGHT WATER REACTORS (LWR) BEING PERFORMED IN THE FRAMEWORK OF THIS RESEARCH PROGRAM ON REACTOR SAFETY (RS-PROJECTS) ARE SPONSORED BY THE BMFT (FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY). THE OBJECTIVE OF THIS PROGRAM IS TO INVESTIGATE IN GREATER DETAIL THE SAFETY MARGINS OF NUCLEAR ENERGY PLANTS AND THEIR SYSTEMS AND THE FURTHER DEVELOPMENT OF SAFETY TECHNOLOGY. BESIDES THE INVESTIGATIONS OF LWR TASKS, PROJECTS ON THE SAFETY OF ADVANCED REACTORS SPONSORED BY THE BMFT ARE ALSO PRESENTED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + REACTOR, LWR + R AND D PROGRAM + SAFETY ANALYSIS + REACTOR, LMFBR

145636
HELLINGS G + MANSFELD G
CO. FLOW - A COMPUTER CODE FOR THE DETERMINATION OF PRESSURE TRANSIENTS IN FULL-PRESSURE CONTAINMENTS OF WATER-COOLED NUCLEAR POWER PLANTS (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY

145636 *CONTINUED*
GRS-A-254 + GERRSR-349 +. 145 PPS. FIGS. 12 REFS. DEC. 1978

COFLOW IS A COMPUTER CODE FOR DETERMINATION OF BOTH THE TIME HISTORY AND THE LOCAL DISTRIBUTION OF TEMPERATURE AND PRESSURE AFTER A LOSS-OF-COOLANT ACCIDENT IN FULL-PRESSURE CONTAINMENTS OF WATER COOLED NUCLEAR POWER REACTORS. THE DYNAMIC PRESSURE OF THE CURRENT IN THE CONTAINMENT CAN BE TAKEN INTO CONSIDERATION AS WELL AS THE HEAT TRANSFER TO SOLID STRUCTURES AND HEAT CONDUCTION WITHIN THEM. THE PHYSICAL AND MATHEMATICAL BASIS, THE ORGANIZATION AND THE APPLICATION OF THE COMPUTER CODE COFLOW ARE DESCRIBED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*CONTAINMENT ANALYSIS + CONTAINMENT + PRESSURE TRANSIENT + COMPUTER PROGRAM + GERMANY + ACCIDENT, LOSS OF COOLANT + THERMAL TRANSIENT

148674
FIRNHABER M
POST-EXPERIMENT CALCULATION OF THE NON-NUCLEAR LOFT TEST L1-5 (IN GERMAN AND ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-252 +. GERRSR-351 +. 120 PPS. 7 TABS. 88 FIGS. DEC. 1978

WITHIN THE FRAMEWORK OF THE AGREEMENT ON THE PROMOTION PROJECT RS 182 UNDER THE SHORT TITLE "PARTICIPATION ON THE LOFT PROGRAM OF USNRC", GRS IS ENGAGED IN CALCULATIONS OF THE LOFT EXPERIMENTS. THIS REPORT PRESENTS A DOCUMENTATION OF THE LOFT L 1-5 CALCULATIONS CONDUCTED BY THE GRS. LOFT L 1-5 WAS AN ISOTHERMAL NONNUCLEAR BLOWDOWN TEST SIMULATING A 200% COLD LEG BREAK WITH ECC INJECTION INTO THE INTACT LOOP COLD LEG. INSTEAD OF THE CORE SIMULATOR AN UNPOWERED NUCLEAR CORE WAS INSTALLED. RESULTS OF THE ANALYSIS ARE DISCUSSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*GERMANY + *THERMAL HYDRAULIC ANALYSIS + *LOFT (S-RR) + REACTOR, SAFETY RESEARCH + COMPARISON, THEORY AND EXPERIENCE + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + TESTING

148668
BUHL W + LIESCH KJ
RESULTS OF THE LOFT EXPERIMENT L1-4: POST RUN CALCULATIONS USING THE COMPUTER CODE "DRUFAN" (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-243 + GERRSR-382 +. 48 PPS. FIGS. REFS. DEC. 1978

THE TEST L1-4 WAS RECALCULATED APPLYING THE COMPUTER CODE DRUFAN. FOR THE RESULTS OF THESE COMPUTATIONS, COMPREHENSIVE COMPARISON MATERIAL GAINED FROM EXPERIMENTAL WORK WAS AVAILABLE. IT WAS THE AIM OF THESE INVESTIGATIONS TO APPLY DRUFAN TO A COMPLEX SYSTEM SUCH AS THE LOFT FACILITY AND, IF NECESSARY, TO MODIFY THE PROGRAM IN ORDER TO SHOW THE THERMO- AND FLUIDDYNAMIC PHENOMENA IN THE PRIMARY SYSTEM OF A PWR DURING A LOCA.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

COMPUTER PROGRAM + LOFT (S-RR) + ACCIDENT, LOSS OF COOLANT + REACTOR, PWR + GERMANY + PRESSURE TRANSIENT + THERMAL TRANSIENT + FLOW THEORY AND EXPERIMENTS

151977
HUBISKO M
CALCULATIONS AND EVALUATIONS OF THE SHORT-TIMED BEHAVIOR OF THE BATTELLE-BLOWDOWN EXPERIMENT DWR-5 USING THE DAPSY PROGRAM (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-245 + GERRSR-442 +. 98 PPS. 5 TABS. 61 FIGS. 11 REFS. DEC. 1978

IN THE FRAME-WORK OF THE GERMAN EMERGENCY CORE COOLING PROJECT BLOWDOWN EXPERIMENTS (RS 16 B) HAVE BEEN CONDUCTED AT THE BATTELLE INSTITUTE IN FRANKFURT. THE SPECIFIC OBJECTIVE OF THESE EXPERIMENTS WAS TO INVESTIGATE THE DISCHARGE PROCESS AND THE LOADS ON AND STRAINS IN THE INTERNALS. THE TESTS DWR5 AND DWR5A WERE RECALCULATED BY THE GRS APPLYING THE COMPUTER CODE DAPSY. COMPREHENSIVE MATERIAL GAINED FROM EXPERIMENTAL WORK WAS AVAILABLE FOR PROOFING THE CALCULATED RESULTS. THE RESULTS OBTAINED WITH DAPSY ARE IN GOOD AGREEMENT WITH THE EXPERIMENTAL RESULTS.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

REACTOR, PWR + REACTOR, SAFETY RESEARCH + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + EXPERIMENT + COMPUTER PROGRAM

152826
RECOMMENDATIONS FOR THE PLANNING OF EMERGENCY CONTROL MEASURES BY THE LICENSEES OF NUCLEAR POWER PLANTS (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT MBH, F.R. GERMANY
RS I12-515 930-1/2 + EDITION 8/79 + GERRSR-409 +. 38 PPS. 1978 (TRANSLATED FROM GERMAN REPORT, 1977)

AMONG THE TOPICS DISCUSSED ARE: 1) REPORTING OF ALARM CASES, 2) ALARM SIGNALS AND THEIR MEANINGS, 3) CRITERIA FOR THE VARIOUS ALARMS, 4) BEHAVIOR OF PERSONNEL IN CASE OF INTERNAL ALARMS, 5) BEHAVIOR IN CASE OF EXTERNAL ALARMS, AND 6) TRAINING AND ALARM EXERCISES.

152826 *CONTINUED*
AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + EMERGENCY PROCEDURE + TRAINING + INSTRUMENT, ALARM + RADIOACTIVITY RELEASE + GUIDE + FIRE PROTECTION + SURVEILLANCE PROGRAM + CODES AND STANDARDS

148369
GRS ANNUAL PROGRESS REPORT-1978 (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT, F.R. GERMANY
JAHRESBERICHT 1978 + GERRSR-391 +. 105 PPS. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*GERMANY + *R AND D PROGRAM + INDUSTRY, NUCLEAR

146813
LIST OF REPORTS FROM THE REACTOR SAFETY RESEARCH PROGRAMS OF BMFT, USNRC, EPRI, AND JSTA, REPORT PERIOD OCTOBER 1 - DECEMBER 31, 1978 (IN GERMAN & ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-72 + GERRSR-352 +. 38 PPS. JAN. 1979

THIS LIST REVIEWS REPORTS FROM THE FEDERAL REPUBLIC OF GERMANY, FROM THE UNITED STATES OF AMERICA AND FROM JAPAN CONCERNING SPECIAL PROBLEMS IN THE FIELD OF REACTOR SAFETY RESEARCH. THE LIST PURSUES THE FOLLOWING ORDER: COUNTRY OF ORIGIN, PROBLEM AREA CONCERNED, ACCORDING TO THE REACTOR SAFETY RESEARCH PROGRAM OF BMFT, REPORTING ORGANIZATION. THE LIST OF REPORTS APPEARS QUARTERLY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*R AND D PROGRAM + *SAFETY PROGRAM + SAFETY ANALYSIS + UNITED STATES + JAPAN + GERMANY

146805
PITTS JH
ANALYSIS OF BOILING-WATER REACTOR STEAM CHUGGING (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-259 + GERRSR-369 +. 82 PPS, 2 TABS, 15 FIGS, 31 REFS, JAN. 1979

RESULTS OF A TRANSIENT ANALYSIS, WHICH PREDICTS THE GENERAL CHARACTERISTICS OF STEAM CHUGGING, COMPARED WELL WITH TWO LARGE SCALE EXPERIMENTS, GKM II TEST 21 AND GKSS TEST 16. THE ANALYSIS INCLUDES EFFECTS OF AIR IN THE DRYWELL, MOMENTUM LOSS AND HEAT TRANSFER IN THE CONDENSATION PIPE, DIRECT CONTACT CONDENSATION HEAT TRANSFER AT THE GAS-WATER INTERFACE, AND MOMENTUM AND HEAT TRANSFER IN THE WETWELL WATER POOL. BUBBLE SHAPE IS CALCULATED IN TWO-DIMENSIONAL CYLINDRICAL COORDINATES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*REACTOR, BWR + *STEAM + *HYDRAULIC EFFECT + HYDRAULIC ANALYSIS + HEAT TRANSFER ANALYSIS + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + GERMANY

147176
SAFETY CONTAINMENT OF NUCLEAR POWER PLANTS (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-13 + GERRSR-370 +. 75 PPS, TABS, FIGS, JAN. 1979

***THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED. ***

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *CONTAINMENT + CONTAINMENT ANALYSIS + CONTAINMENT R AND D + POWER PLANT, NUCLEAR + *SAFETY ANALYSIS

148672
SCHAEFER A
DEVELOPMENT OF A CALCULATIONAL PROGRAM FOR THE SOLUTION OF THE NEUTRONIC EQUATION OF A MULTIDIMENSIONAL HTGR MODEL (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-14 + GERRSR-379 +. 70 PPS, 2 TABS, 47 FIGS, 5 REFS, FEB. 1979

A NEW CODE FOR EFFICIENT SOLUTION OF THE MULTIDIMENSIONAL STATIONARY MULTI-GROUP-DIFFUSION EQUATION, TO BE USED WITHIN A HTGR-CODE MODEL, IS PRESENTED. THE APPROXIMATION AND ITERATION METHODS ARE DESCRIBED. SPACIAL APPROXIMATION IS BASED ON THE QUABOX-COARSE-MESH METHOD, BUT ITERATION METHODS ARE DIFFERENT FROM QUABOX TO GIVE LINEAR DEPENDENCE OF COMPUTATION TIME ON THE NUMBER OF ENERGY GROUPS. RESULTS FOR VARIOUS MULTIDIMENSIONAL MULTI-GROUP PROBLEMS, AMONG THEM THE THTR PEBBLE BED REACTOR ARE ANALYZED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*COMPUTER PROGRAM + *ANALYTICAL TECHNIQUE + *DIFFUSION + EQUATION + REACTOR, HTGR + REACTOR PHYSICS + GERMANY

148277
INVESTIGATION OF THE PHENOMENA OCCURRING WITHIN A MULTI-COMPARTMENT CONTAINMENT AFTER RUPTURE OF THE PRIMARY COOLING CIRCUIT IN WATER-COOLED REACTORS. CONDENSATION IN CONTAINMENT BY EXPERIMENTS C04 AND C1 TO C16 (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-RS 50-31-5 + GERPSR-387 +. APPROX. 400 PPS, FIGS, FEB. 1979

TO VERIFY AND IMPROVE CONTAINMENT COMPUTER CODES LOSS-OF-COOLANT-ACCIDENT EXPERIMENTS WERE CARRIED OUT WITH A MODEL CONTAINMENT. FIRST EVALUATIONS OF THE EXPERIMENTAL RESULTS HAVE SHOWN THAT ALL DETAILS OF THE HEAT TRANSFER PROCESSES (MAINLY CONDENSATION) BETWEEN CONTAINMENT ATMOSPHERE AND CONTAINMENT STRUCTURES HAVE TO BE TAKEN INTO ACCOUNT IN THE MODEL CALCULATIONS. THE PRESENT REPORT CONTAINS A LIST OF THE INTERNAL SURFACES OF THE MODEL CONTAINMENT FOR EXPERIMENTS C04, C1 TO C16.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR + REACTOR, SAFETY RESEARCH + CONTAINMENT + COMPUTER PROGRAM + HEAT TRANSFER + CONTAINMENT STRUCTURE + CONTAINMENT ANALYSIS

145161
BUTZ H-P + DANZMANN H-J
POSITION STATEMENTS ON ATOMIC ENERGY QUESTIONS. QUESTIONS AND ANSWERS. PEACEFUL UTILIZATION OF ATOMIC ENERGY (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-S-25 + GERPSR-399 +. 46 PPS. FEB. 1979

NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

GERMANY + N-POWER, SAFETY OF + SAFETY PRINCIPLES AND PHILOSOPHY + SAFETY REVIEW + NUCLEAR DEBATE

147483
REPORT OF THE FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY CONCERNING RESEARCH PROJECTS IN THE AREA OF REACTOR SAFETY REPORTING PERIOD OCTOBER-DECEMBER 31, 1978 (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-74 + GERPSR-372 +. APPROX. 300 PPS, MARCH 1979

INVESTIGATIONS ON THE SAFETY OF LIGHT WATER REACTORS BEING PERFORMED IN THE FRAMEWORK OF THIS RESEARCH PROGRAM ON REACTOR SAFETY ARE SPONSORED BY THE BMFT (FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY). OBJECTIVES OF THIS PROGRAM ARE TO INVESTIGATE IN GREATER DETAIL THE SAFETY MARGINS OF NUCLEAR ENERGY PLANTS AND THEIR SYSTEMS AND THE FURTHER DEVELOPMENT OF SAFETY TECHNOLOGY. BESIDES THE INVESTIGATIONS OF LWR TASKS, ALSO PROJECTS ON THE SAFETY OF ADVANCED REACTORS ARE SPONSORED BY THE BMFT. EACH PROGRESS REPORT REPRESENTS A COMPILATION OF INDIVIDUAL REPORTS ABOUT OBJECTIVES, THE WORK PERFORMED, THE RESULTS, THE NEXT STEPS OF THE WORK , ETC.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*GERMANY + *R AND D PROGRAM + *REACTOR, LWR + REACTOR, PWR + REACTOR, BWR + REACTOR, LMFBR + SAFETY ANALYSIS + ACCIDENT ANALYSIS

147467
ANNUAL REPORT ON REACTOR SAFETY RESEARCH PROJECTS SPONSORED BY THE MINISTRY FOR RESEARCH AND TECHNOLOGY OF THE FEDERAL REPUBLIC OF GERMANY, 1978 (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-76 + GERPSR-373 +. APPROX. 400 PPS, TABS, FIGS, MARCH 1979

INVESTIGATIONS ON THE SAFETY OF LIGHT WATER REACTORS (LWR) BEING PERFORMED IN THE FRAMEWORK OF THIS RESEARCH PROGRAM REACTOR SAFETY (RS-PROJECTS) ARE SPONSORED BY THE BMFT. OBJECTIVE OF THIS PROGRAM IS TO INVESTIGATE IN GREATER DETAIL THE SAFETY MARGINS OF NUCLEAR POWER PLANTS AND THEIR SYSTEMS AND THE FURTHER DEVELOPMENT OF SAFETY TECHNOLOGY. BESIDES THE INVESTIGATIONS OF LWR TASKS, ALSO, PROJECTS ON THE SAFETY OF ADVANCED REACTORS ARE SPONSORED BY THE BMFT ARE REPORTED ON. EACH PROGRESS REPORT REPRESENTS A COMPILATION OF INDIVIDUAL REPORTS ABOUT OBJECTIVES, THE WORK PERFORMED, THE RESULTS, THE NEXT STEPS OF THE WORK, ETC.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*R AND D PROGRAM + *GERMANY + *REACTOR, LWR + REACTOR, LMFBR + SAFETY ANALYSIS + ACCIDENT ANALYSIS

149473
HALLINGS G
EVALUATION BY THE BATTELLE INSTITUTE, FRANKFURT ON MAIN OF EXPERIMENT D11 OF THE PROJECT RS50 "PRESSURE DISTRIBUTION IN CONTAINMENT" USING THE COMPUTER PROGRAM COFLOW (IN GERMAN)
REPL 149473 CORPGESELLSCHAFT FUR REAKTORSICHERHEIT MBH, F.R. GERMANY
GRS-A273 + GERPSR-416 +. 36 PPS, 32 FIGS, 8 REFS, MARCH 1979

THE EXPERIMENTAL RESULTS OF THE TEST D11 CAN BE SIMULATED WELL WITH THE CODE COFLOW, IF THE CHOICE OF THE CONTROL VOLUMES IN THE ANALYTICAL MODEL MAKES IT POSSIBLE TO SIMULATE THE EXISTING DEAD-

14!571 *CONTINUED*
IDS AND IF THE SAME ASSUMPTIONS ARE MADE FOR THE HEAT TRANSFER FROM THE ATMOSPHERE OF THE CONTAINMENT TO THE WALLS AS IN THE RECALCULATIONS OF THE EXPERIMENTS D1-D8: HIGH HEAT TRANSFER COEFFICIENTS IN CONTROL VOLUMES WITH HIGH VELOCITY AND HIGH STEAM QUALITY, AND LOW HEAT TRANSFER COEFFICIENTS IN CONTROL VOLUMES WITH LOW VELOCITY AND LOW STEAM QUALITY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA 22161

GERMANY + DISTRIBUTION + COMPUTER PROGRAM + PRESSURE DROP + TEMPERATURE + EXPERIMENT + HEAT TRANSFER

151574
LIST OF REPORTS ON THE REACTOR SAFETY RESEARCH PROGRAMS OF BMFT, USNRC, EPRI AND JSTA JANUARY 1-MARCH 31, 1979 (IN ENGLISH & GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-77 + GERRSR-411 +. 64 PPS, APRIL 1979

THIS LIST REVIEWS REPORTS FROM THE FEDERAL REPUBLIC OF GERMANY, FROM THE UNITED STATES OF AMERICAN AND FROM JAPAN CONCERNING SPECIAL PROBLEMS IN THE FIELD OF REACTOR SAFETY RESEARCH THE PARTICIPATING GROUPSINCLUDE. THE BUNDESMINISTER FUR FORSCHUNG UND TECHNOLOGY (BMFT) WITH THE UNITED STATES NUCLEAR REGULATORY COMMISSION (USNRC), THE ELECTRIC POWER RESEARCH INSTITUTE (EPRI), AND THE JAPAN SCIENCE AND TECHNOLOGY AGENCY.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

BIBLIOGRAPHY + *R AND D PROGRAM + *GERMANY + *JAPAN + *UNITED STATES + EPRI + AGENCY, NRC + SAFETY ANALYSIS + ACCIDENT ANALYSIS

154603
MULLER WC
SPECIFICATION OF PRELIMINARY LOAD-FUNCTION FOR COUPLED FLUID STRUCTURE CALCULATIONS OF CONDENSATION BEHAVIOR
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-298 +GERRSR-446 +. 37 PPS, 7 TABS, 10 FIGS, 4 REFS, MAY 1979

FOR A COUPLED FLUID STRUCTURE CALCULATION OF CONDENSATION EVENTS IN PRESSURE SUPPRESSION SYSTEMS IT IS NECESSARY TO SUPPLY THE PRESSURE TIME HISTORIES IN THE BUBBLE AS INPUTS. IN THIS REPORT SOME PRESSURE TIME HISTORIES AVAILABLE IN THE LITERATURE ARE PRESENTED. ALSO SUGGESTIONS ARE MADE BASED ON THEORETICAL ARGUMENTS AND MEASUREMENT DATA. AS ONLY PART OF THE EXPERIMENTAL RESULTS ARE KNOWN THESE PRESSURE TIME HISTORIES HAVE TO BE CONSIDERED AS PRELIMINARY.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

CONTAINMENT, PRESSURE SUPPRESSION + THERMAL HYDRAULIC ANALYSIS + REACTOR, BWR + GERMANY

154539
REPORT OF THE FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY IN THE AREA OF REACTOR SAFETY JANUARY 1-MARCH 31, 1979 (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-79 + GERRSR-412 +. 190 PPS, JUNE 1979

INVESTIGATIONS ON THE SAFETY OF LIGHT WATER REACTORS (LWR) BEING PERFORMED IN THE FRAMEWORK OF THIS RESEARCH PROGRAM ON REACTOR SAFETY (RS-PROJECTS) ARE SPONSORED BY THE BMFT (FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY). THE OBJECTIVE OF THIS PROGRAM IS TO INVESTIGATE IN GREATER DETAIL THE SAFETY MARGINS OF NUCLEAR POWER PLANTS AND THEIR SYSTEMS AND THE FURTHER DEVELOPMENT OF SAFETY TECHNOLOGY. EACH PROGRESS REPORT REPRESENTS A COMPILATION OF INDIVIDUAL REPORTS ABOUT OBJECTIVES, THE WORK PERFORMED, THE RESULTS, THE NEXT STEPS OF THE WORK ETC.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

*R AND D PROGRAM + *GERMANY + REACTOR, LWR + REACTOR, BREEDER + REACTOR, LMFBR + SAFETY ANALYSIS

154534
LIST OF REPORTS FROM THE REACTOR SAFETY RESEARCH PROGRAMS OF BMFT, USNRC, EPRI,AND JSTA FOR PERIOD APRIL 1-JUNE 30, 1979 (IN GERMAN & ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS)MBH, F.R. GERMANY
GRS-F-80 + GERRSR-433 +. 57 PPS, JULY 1979

THIS LIST REVIEWS REPORTS FROM THE FEDERAL REPUBLIC OF GERMANY, FROM THE UNITED STATES OF AMERICA AND FROM JAPAN CONCERNING SPECIAL PROBLEMS IN THE FIELD OF REACTOR SAFETY RESEARCH. THE PARTICIPATING GROUPS ARE THE BUNDESMINISTER FUR FORSCHUNG UND TECHNOLOGIE, U.S. NUCLEAR REGULATORY COMMISSION, THE ELECTRIC POWER RESEARCH INSTITUTE, AND THE JAPAN SCIENCE AND TECHNOLOGY AGENCY.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

REVIEW + BIBLIOGRAPHY + *R AND D PROGRAM + *GERMANY + *JAPAN + *UNITED STATES + AGENCY, NRC + EPRI + SAFETY ANALYSIS

151496
MULLER WC + OSTERLE B + PITTS I
CONDENSATION BEHAVIOR IN A PRESSURE SUPPRESSION SYSTEM (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-A-337 + GERRSR-445 +. 48 PPS. 9 FIGS. AUG. 1979

THIS REPORT CONTAINS PART OF THE CONTRIBUTIONS WHICH WERE PRESENTED ON THE GRS-SEMINAR 1/1979. THE TALKS GIVE AN OVERVIEW IN THE WORK ON PRESSURE SUPPRESSION SYSTEMS CARRIED OUT BY THE GRS AND THE RESULTS OBTAINED TO THAT DATE.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + CONTAINMENT, PRESSURE SUPPRESSION + R AND D PROGRAM + PRESSURE TRANSIENT + STEAM + HYDRAULIC EFFECT + CONTAINMENT ANALYSIS

154525
REPORT ON RESEARCH PROGRAM IN THE AREA OF REACTOR SAFETY, SPONSORED BY THE FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY - REPORT PERIOD APRIL 1-JUNE 30, 1979 (IN GERMAN)
GESELLSCHAFF FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-F-82 + GERRSR-466 +. 215 PPS. SEPT. 1979

INVESTIGATIONS ON THE SAFETY OF LIGHT WATER REACTORS (LWR) BEING PERFORMED IN THE FRAMEWORK OF THIS RESEARCH PROGRAM ON REACTOR SAFETY (RS-PROJECTS) ARE SPONSORED BY THE BMFT (FEDERAL MINISTER FOR RESEARCH AND TECHNOLOGY), BUNDESMINISTER FUR FORSCHUNG UND TECHNOLOGIE. OBJECTIVE OF THIS PROGRAM IS TO INVESTIGATE IN GREATER DETAIL THE SAFETY MARGINS OF NUCLEAR POWER PLANTS AND THEIR SYSTEMS AND THE FURTHER DEVELOPMENT OF SAFETY TECHNOLOGY. BESIDES THE INVESTIGATIONS OF LWR TASKS, PROJECTS ON THE SAFETY OF ADVANCED REACTORS ARE SPONSORED BY THE BMFT ALSO.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

*GERMANY + *R AND D PROGRAM + REACTOR, LWR + SAFETY ANALYSIS + ACCIDENT ANALYSIS + TESTING + PRESSURE VESSELS + THERMAL HYDRAULIC ANALYSIS

150659
COMPILATION OF INFORMATION ON THE SYSTEMS FOR THE HANDLING AND STORAGE OF OTHER RADIOACTIVE SUBSTANCES REQUIRED FOR EXAMINATION PURPOSES IN THE LICENSING PROCEDURES FOR NUCLEAR POWER PLANTS UNDER THE ATOMIC ENERGY ACT (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT, F.R. GERMANY
EDITION 4/79 + RS I6-513 801/1 + GERRSR-405 +. 15 PPS, TRANSLATIONS-SAFETY CODES & GUIDES. 1979 (TRANSLATED FROM GERMAN, 1978)

TOPICS DISCUSSED ARE: 1) CONCEPT INFORMATION, 2) BEGINNING OF CONSTRUCTION OF THE BUILDING STRUCTURES, 3) BEGINNING OF MANUFACTURE OF THE COMPONENTS, 4) BEGINNING OF INSTALLATION OF THE COMPONENTS, 5) BEGINNING OF COMMISSIONING OF THE SYSTEMS, 6) BEGINNING OF NUCLEAR COMMISSIONING, AND 7) BEGINNING OF POWER OPERATION.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

GERMANY + SPECIAL NUCLEAR MATERIAL + *FUEL, NUCLEAR + *EXAMINATION + FUEL STORAGE + BUILDING + FABRICATION + FUEL HANDLING + *LICENSING PROCESS

152697
IMPLEMENTATION OF THE RADIOLOGICAL PROTECTION ORDINANCE; TOPIC: GUIDE FOR THE DESIGN APPROVAL OF IONIZATION CHAMBER SMOKE DETECTORS
GESELLSCHAFT FUR REAKTORSICHERHEIT MB.H., F.R. GERMANY
EDITION 5/79 + RS II 3 - 517 033 + GERRSR-406 +. 27 PPS, TRANSLATIONS-SAFETY CODES & GUIDES. 1979 (TRANSLATED FROM GERMAN, 1978)

THE FOLLOWING TOPICS ARE DISCUSSED: 1) PURPOSE OF THE GUIDE, 2) DEFINITIONS, 3) LEGAL BASES, 4) TYPES OF DESIGN APPROVAL, 5) APPLICATION DOCUMENTS, 6) DESIGN TEST PERFORMED BY THE FEDERAL INSTITUTE OF PHYSICS AND TECHNOLOGY (PTB), 7) PREREQUISITES FOR A DESIGN APPROVAL, AND 8) CERTIFICATE OF APPROVAL AND NOTIFICATION OF APPROVAL.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + *SMOKE + CHAMBER, ION + GUIDE + PROTECTION SYSTEM + *INSTRUMENT, PROTECTIVE

152697
CHECKLIST ITEMS FOR APPLICATION DOCUMENTS IN THE LICENSING PROCEDURES FOR INSTALLATIONS FOR THE GENERATION OF IONIZING RADIATION (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT MB.H., F.R. GERMANY
EDITION 6/79 + RS II 3 - 517004/3 + GERRSR-407 +. 23 PPS, TRANSLATIONS-SAFETY CODES & GUIDES. 1979 (TRANSLATION OF GERMAN REPORT, 1978)

TOPICS DISCUSSED ARE AS FOLLOWS: 1) GENERAL STATEMENTS, 2) STATEMENTS RELATING TO ECOLOGICAL

152687 *CONTINUED*

CONDITIONS AT THE SITE, 3) PURPOSE OF THE INSTALLATION, 4) LAYOUT OF THE INSTALLATION, 5) OPERATION OF THE INSTALLATION, 6) RADIATION EXPOSURE; RADIOLOGICAL PROTECTION, 7) SAFETY-RELATED PRECAUTIONS; PHYSICAL SECURITY, 8) SAFETY CONSIDERATIONS, AND 9) DECOMMISSIONING OF THE INSTALLATION OR OF COMPONENTS.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + LICENSING PROCESS + RADIATION EXPOSURE + DECOMMISSIONING + GENERATORS + SOURCE, RADIATION + CONTAMINATION + DOSE + SECURITY + RADIOGRAPHY + IRRADIATION FACILITY + FIRE PROTECTION

154607

VERIFICATION OF LICENSEE'S SURVEILLANCE OF RADIOACTIVE EFFLUENTS FROM NUCLEAR POWER PLANTS (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT MBH, F.R. GERMANY
EDITION 7/79 + RS I14-517 037/2 + GERRSR-408 +. 5 PPS, TRANSLATIONS SAFETY CODES & GUIDES, 1979 (TRANSLATION OF GERMAN REPORT, JUNE 1978)

TOPICS DISCUSSED FOR WASTE WATER AND EXHAUST AIR ARE: 1) ROUTINE PROGRAM FOR THE OFFICIALLY APPOINTED EXPERT, 2) SIMULTANEOUS MEASUREMENTS DURING THE COMMISSIONING PHASE, 3) QUALITY CONTROL, 4) COOPERATIVE TEST, AND 5) LICENSEE'S SURVEILLANCE DELEGATED TO OTHER ORGANIZATIONS.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

GERMANY + WASTE DISPOSAL + WATER + *EFFLUENT + QUALITY ASSURANCE + MEASUREMENT + *WASTE, RADIOACTIVE

152820

KTA SAFETY STANDARD 3102.1 REACTOR CORE DESIGN FOR HIGH-TEMPERATURE GAS COOLED REACTOR; PART 1: CALCULATION OF THE PROPERTIES OF HELIUM (IN ENGLISH)
GESELLSCHAFT FUR REAKTORSICHERHEIT MBH, F.R. GERMANY
KTA 3102.1 + EDITION 9/79 + GERRSR-410 +. 4 PPS, DEC. 1978 (TRANSLATION OF GERMAN REPORT, JUNE 1978)

GIVES EQUATIONS FOR CALCULATION OF MASS DENSITY, DYNAMIC VISCOSITY AND THERMAL CONDUCTIVITY OF HELIUM.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + CODES AND STANDARDS + PROPERTY, PHYSICAL + THERMAL PROPERTY + HELIUM + REACTOR, HTGR

148670

BERNNAT W + DIETL G + HALM G
COMPREHENSIVE DAMAGE ANALYSIS FOR HIGH TEMPERATURE GAS REACTORS, PHASE II, WATER INGRESS, AIR INGRESS, REACTIVITY EXCURSIONS (IN GERMAN)
HOCHTEMPERATUR-REAKTORBAU GMBH, F.R. GERMANY
RS-252 + GERRSR-386 +. 116 PPS, FIGS, REFS, JAN. 1979

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *REACTOR, HTGR + DAMAGE + WATER + AIR + REACTIVITY, EXCESS + EXCURSION, LARGE + *ACCIDENT ANALYSIS

149390

JONAS W + RUDIGER E + RIECH H
KINETIC ULTIMATE LOADING CAPACITY (AIRCRAFT CRASH) (IN GERMAN)
HOCHTIEF AG, F.R. GERMANY
RS 165 + GERRSR 426 +. 102 PPS, FIGS, REFS, DEC. 1978

ULTIMATE BEARING CAPACITY OF REINFORCED CONCRETE SLABS UNDER TIME-DEPENDENT LOADS. THE MAIN PARTS OF THE REPORT COMPRISE THE EXPLANATION OF THE THEORETICAL METHODS WHICH ARE USED TO DETERMINE THE IMPACT PROCEDURE OF STRONGLY DEFORMABLE MISSILES ONTO REINFORCED CONCRETE STRUCTURES AND THE DESCRIPTION OF THE THEORETICAL BASIS OF THE NUMERICAL METHODS WHICH ARE APPLIED TO DETERMINE STRESSES AND DEFORMATIONS OF REINFORCED CONCRETE SLABS SUBJECTED TO THE IMPACT OF DEFORMABLE MISSILES. THE RESULTS OF SOME NUMERICAL CALCULATIONS ARE ENCLOSED FOR DEMONSTRATION.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + ACCIDENT + AIRCRAFT + CONCRETE, REINFORCED + CONTAINMENT STRUCTURE

144596

MICHAEL I
EXPERIMENTAL INVESTIGATIONS OF THE RADIOACTIVITY IN THE PRIMARY SYSTEM OF PRESSURIZED WATER REACTORS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2664 + GERRSR-218 +. 79 PPS, 40 FIGS, 48 REFS, SEPT. 1978

THE REPORT DESCRIBES WORK CARRIED OUT WITHIN THE FRAMEWORK OF THE REACTOR SAFETY RESEARCH PROGRAM

144596 *CONTINUED*
AND CONCERNED WITH THE ANALYSIS OF RADIATION EXPOSURES CAUSED BY THE OPERATION OF NUCLEAR POWER PLANTS EQUIPPED WITH PRESSURIZED WATER REACTORS, AND WITH PROBLEMS OF THE RELEASE AND TRANSPORT OF RADIOACTIVE SUBSTANCES IN PRIMARY CIRCUITS. THE EFFORTS ARE CONCENTRATED MAINLY ON THE RESPECTIVE REDUCTION MEASURES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

MASS TRANSFER + FISSION PRODUCT TRANSPORT + CORROSION + RADIATION EXPOSURE + ANALYTICAL TECHNIQUE + REACTOR, PWR + GERMANY + STEAM + OXYGEN

143906
ERBACHER F
FUEL ELEMENT BEHAVIOR DURING A LOSS-OF-COOLANT ACCIDENT AND INTERACTION WITH THE EMERGENCY CORE COOLING (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2691 + GERRSR-319 +. 52 PPS, 28 FIGS, SEPT, 1978

THE PROCESS OF EMERGENCY CORE COOLING IN A LOCA OF A PRESSURIZED WATER REACTOR IS SUMMARIZED. THE THERMOHYDRAULICS IN THE REACTOR CORE AND THE LOADING OF THE FUEL ROD CLADDINGS DURING A LOCA ARE COVERED IN MORE DETAIL. SOME RECENT EXPERIMENTAL RESULTS ON ZIRCALOY CLADDING DEFORMATION IN A LOCA ARE DISCUSSED. THEY INDICATE THAT AXIAL AND AZIMUTHAL CLADDING TEMPERATURE DIFFERENCES, WHICH ARE ENHANCED BY COOLING DURING REFLOODING, ARE LIMITING THE STRAINS OF THE ZIRCALOY CLADDING TUBES AND THE RESULTING COOLANT CHANNEL BLOCKAGE IN THE FUEL ELEMENTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*REACTOR, PWR + *ACCIDENT, LOSS OF COOLANT + *FLOW BLOCKAGE + *EMERGENCY COOLING SYSTEM + *FLOW BLOCKAGE

143745
BOCEK M + CLASS G + ERBACHER F + FIESE A
STATUS AND RESULTS OF THE THEORETICAL AND EXPERIMENTAL INVESTIGATIONS ON THE LWR FUEL ROD BEHAVIOR UNDER ACCIDENT CONDITIONS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-EXT.28/78-1 + GERRSR-322 +. 143 PPS, FIGS, REFS, SEPT, 1978

PRESENTS INFORMATION ACCUMULATED THROUGH 1977 ON FUEL ROD BEHAVIOR IN LWRS DURING LOSS-OF-COOLANT ACCIDENTS. RESULTS PRESENTED HAVE BEEN DERIVED FROM STUDIES ON THE FUEL ROD BEHAVIOR PERFORMED WITHIN THE FRAMEWORK OF THE NUCLEAR SAFETY PROJECT (PNS). THE RESULTS FROM COOPERATING RESEARCH ESTABLISHMENTS AND FROM INTERNATIONAL EXCHANGE OF EXPEREINCE ARE REFERRED TO ALSO.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *REACTOR, LWR + *FUEL ROD + *ACCIDENT, LOSS OF COOLANT + EXPERIMENT + ACCIDENT ANALYSIS

143089
BOCEK M
CREEP RUPTURE AT NON-STEADY STRESS AND TEMPERATURE LOADING CONDITIONS (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2699 + GERRSR-320 +. 60 PPS, 17 FIGS, OCT, 1978

ASSUMING THE VALIDITY OF THE LIFE FRACTION RULE (LFR) THE TIME TO RUPTURE AS WELL AS THE RESPECTIVE STRESS AND TEMPERATURE AT FAILURE HAVE BEEN CALCULATED FOR SEVERAL RAMP LOADING CONDITIONS. THE RESULTS OF RAMP RUPTURE TESTS CAN BE PREDICTED SOLELY FROM ISO-STRESS RUPTURE EXPERIMENTS WITHOUT ANY FITTING PROCEDURE. THE CALCULATIONS ARE COMPARED WITH RESULTS FROM TUBE BURST EXPERIMENTS AS WELL AS WITH THOSE FROM TENSILE TESTS ON ZIRCALOY-4. FOR THIS MATERIAL THE LFR IS OBEYED IN THE TEMPERATURE RANGE EXAMINED (873K + 1110K). THE AGREEMENT BETWEEN THE CALCULATIONS AND THE EXPERIMENTAL RESULTS IS SURPRISINGLY GOOD. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

CREEP + STRESS + TEMPERATURE + FAILURE + ZIRCALOY

143211
KEDZIUR F + MUSINGER H
COMPARISON BETWEEN A ONE- AND TWO-DIMENSIONAL CALCULATION OF A WATER-VAPOR NOZZLE FLOW (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2623 + GERRSR-321 +. 36 PPS, FIGS, REFS, OCT, 1978

THE STEADY WATER-VAPOR FLOW THROUGH A CONVERGENT NOZZLE IS SIMULATED WITH THE TWO-PHASE COMPUTER CODES DRIX-2D (TWO-DIMENSIONAL, TRANSIENT) AND DUESE (ONE-DIMENSIONAL, STATIONARY). THE RESULTS OF BOTH CODES ARE COMPARED AND INTERPRETED UNDER CONSIDERATION OF THEIR DIFFERENT MODELING, ESPECIALLY WITH RESPECT TO THE DIMENSIONALITY AND THE TIME-BEHAVIOR. THE MAIN RESULT OF THESE COMPARISONS IS THE UNDERSTANDING, THAT IN PRINCIPLE THE TWO-DIMENSIONAL CALCULATION RENDERS A LARGE PRESSURE-DROP OF THE NOZZLE-FLOW THAN THE ONE-DIMENSIONAL ONE. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *NOZZLE + *WATER VAPOR + FLOW + COMPARISON + COMPUTER PROGRAM + PRESSURE DROP + ANALYTICAL MODEL

147794
NUCLEAR SAFETY PROJECT FIRST SEMIANNUAL REPORT 1978 (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2700 + GERRSR-388 +. APPROX. 400 PPS, FIGS, REFS, NOV. 1978

THE 13TH SEMI-ANNUAL REPORT 1/78 IS A DESCRIPTION OF WORK WITHIN THE NUCLEAR SAFETY PROJECT PERFORMED IN THE FIRST SIX MONTHS OF 1978 IN THE NUCLEAR SAFETY FIELD BY KFK INSTITUTES AND DEPARTMENTS AND BY EXTERNAL INSTITUTIONS ON BEHALF OF KFK. THE FOLLOWING PROGRAMS ARE REPORTED ON: DYNAMIC LOADS AND STRAINS OF REACTOR COMPONENTS UNDER ACCIDENT CONDITIONS; FUEL BEHAVIOR UNDER ACCIDENT CONDITIONS; INVESTIGATION AND CONTROL OF LWR CORE-MELTDOWN ACCIDENTS; MODEL DEVELOPMENT FOR ANALYTICAL DESCRIPTION OF CORE-MELTDOWN ACCIDENTS; IMPROVEMENT OF FISSION PRODUCT RETENTION AND REDUCTION OF RADIATION LOAD; OFF GAS CLEANING FOR REPROCESSING PLANTS; AND BEHAVIOR, IMPACT AND REMOVAL OF RELEASED NUCLEAR POLLUTANTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*GERMANY + *REACTOR, LWR + *R AND D PROGRAM + ACCIDENT ANALYSIS + STRUCTURAL ANALYSIS, DYNAMIC + COMPONENTS + CORE MELTDOWN + ANALYTICAL MODEL + FISSION PRODUCT RETENTION + FUEL REPROCESSING + OFF GAS + RADIOACTIVITY RELEASE + ENVIRONMENT + SOIL, RADIONUCLIDE MOVEMENT THROUGH

146804
SCHUMANN U
EFFICIENT COMPUTATION OF THREE-DIMENSIONAL FLUID-STRUCTURE INTERACTIONS DURING BLOWDOWN OF A PRESSURIZED WATER REACTOR-FLUX (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2645 + GERRSR-367 +. 250 PPS, TABS, FIGS, 105 REFS, JAN. 1979

THE MODEL USED IN THIS METHOD IS BASED ON THE FOLLOWING ESSENTIAL ASSUMPTIONS: THREE-DIMENSIONAL POTENTIAL FLOW, CONSTANT SPEED OF SOUND, LINEAR-ELASTIC STRUCTURE AND SMALL STRUCTURAL DEFORMATIONS. NOT NEGLECTED ARE THE FLUID-STRUCTURE INTERACTIONS AND THE NON-LINEAR INERTIA FORCES IN THE FLUID. IN THE PRESENT PROGRAM VERSIONS (FOR INCOMPRESSIBLE AND COMPRESSIBLE FLUID) THE DYNAMICAL PROPERTIES OF THE CORE BARREL ARE DESCRIBED BY MEANS OF THE EXISTING SHELL MODEL CYLDY2. THE RELEVANT CONSERVATION EQUATIONS ARE APPROXIMATED BY AN IMPLICITY FINITE DIFFERENCE SCHEME.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + COMPUTER PROGRAM + CORE COMPONENTS + DEFORMATION + HYDRAULIC EFFECT

146750
ENDERLE G
FLUST-2D - A COMPUTERCODE FOR THE CALCULATION OF THE TWO-DIMENSIONAL FLOW OF A COMPRESSIBLE MEDIUM IN COUPLED RECTANGULAR AREAS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2679 + GERRSR-368 +. 188 PPS, 74 FIGS, REFS, JAN. 1979

IN A FINITE DIFFERENCE SCHEME THE PROGRAM COMPUTES PRESSURE, DENSITY, INTERNAL ENERGY AND VELOCITY. STARTING WITH A BASIC SET OF EQUATIONS, THE DIFFERENCE EQUATIONS IN A RECTANGULAR GRID ARE DEVELOPED. THE PROGRAM WAS USED TO PRECALCULATE THE BLOWDOWN EXPERIMENTS OF THE HDR EXPERIMENTAL PROGRAM. DOWNCOMER, PLENA, INTERNAL VESSEL REGION, BLOWDOWN PIPE AND A CONTAINMENT AREA HAVE BEEN MODELLED TWO-DIMENSIONALLY. THE MAJOR RESULTS OF THE PRECALCULATIONS ARE PRESENTED. THIS REPORT ALSO CONTAINS A DESCRIPTION OF THE CODE STRUCTURE AND USER INFORMATION.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA 22161

GERMANY + COMPUTER PROGRAM + FLOW + HYDRODYNAMIC ANALYSIS + FLOW, MIXING

147860
CALDAROLA L
FAULT TREE ANALYSIS WITH MULTISTATE COMPONENTS (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2761 + EUR-5756 E + GERRSR-392 +. 49 PPS, FIGS, REFS, FEB. 1979

A GENERAL ANALYTICAL THEORY HAS BEEN DEVELOPED WHICH ALLOWS ONE TO CALCULATE THE OCCURRENCE PROBABILITY OF THE TOP EVENT OF A FAULT TREE WITH MULTISTATE (MORE THAN TWO STATES) COMPONENTS. IT IS SHOWN THAT, IN ORDER TO CORRECTLY DESCRIBE A SYSTEM WITH MULTISTATE COMPONENTS, A SPECIAL TYPE OF BOOLEAN ALGEBRA IS REQUIRED. THE PROBLEM OF STATISTICAL DEPENDENCE AMONG PRIMARY COMPONENTS IS DISCUSSED. THE PAPER INCLUDES A SMALL DEMONSTRATIVE EXAMPLE TO ILLUSTRATE THE METHOD. THE EXAMPLE INCLUDES ALSO STATISTICAL DEPENDENT COMPONENTS. (EWH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FAULT TREE ANALYSIS + ANALYTICAL TECHNIQUE + MATHEMATICAL TREATMENT

152102
JOHN H + REIMANN J
TEST FACILITY FOR TESTS AND CALIBRATION OF DIFFERENT METHODS OF TWO-PHASE MASS FLOW MEASUREMENTS (IN GERMAN)
KERNFORSCHUNGZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2731B + GERRSR-443 +. 63 PPS, 27 FIGS, 16 REFS, FEB. 1979

152102 *CONTINUED*
A TEST FACILITY FOR TESTING AND CALIBRATING TWO PHASE MASS FLOW MEASURING DEVICES HAS BEEN BUILT AND IS DESCRIBED IN THIS REPORT. THE FACILITY CONSISTS OF A STEAM-WATER-LOOP AND AN AIR-WATER-LOOP. THE OPERATION RANGE FOR EACH LOOP IS CHARACTERIZED BY THE FOLLOWING VALUES: FOR THE STEAM-WATER LOOP VARIABLE STEAM QUALITY BETWEEN 0 AND 1, MAXIMUM MASS FLOW OF 5 KG/S AND MAXIMUM PRESSURE IN THE TEST SECTION OF 150 BAR. THE MAXIMUM RANGE FOR THE AIR-WATER-LOOP IS: WATER-MASS FLOW OF 30 KG/S, AIR-MASS FLOW OF 1 KG/S AND PRESSURE OF 10 BAR. THE HORIZONTAL TEST SECTION HAS A LENGTH OF 8 M. TEST SECTION PIPES WITH DIAMETERS OF 20, 50 AND 80 MM ARE AVAILABLE. IN THE REPORT, THE METHODS OF DATA MEASUREMENT AND ON-LINE CALCULATION OF THE REFERENCE DATA ARE DESCRIBED. ALSO A SERIAL 5 BEAM GAMMA DENSITOMETER AND A TRAVERSIBLE IMPEDANCE PROBE ARE DISCUSSED.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

REACTOR TEST FACILITY + FLOW, TWO PHASE + MASS TRANSFER + MEASUREMENT + FLOW THEORY AND EXPERIMENTS

148673
HOFMANN P
SIMULATION OF THE CHEMICAL STATE OF IRRADIATED OXIDE FUEL: INFLUENCE OF THE INTERNAL CORROSION ON THE MECHANICAL PROPERTIES OF ZRY-4 TURBINE (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2785 + GERRSR-389 +. 22 PPS, 2 TABS, 10 FIGS, 17 REFS, MARCH 1979

ZIRCALOY IS NOT COMPATIBLE WITH OXIDE FUEL NOR WITH SOME FISSION PRODUCT ELEMENTS. THEREFORE, CHEMICAL INTERACTION BETWEEN THE IRRADIATED OXIDE FUEL AND THE ZRY CLADDING MATERIAL TAKE PLACE, ESPECIALLY AT TEMPERATURES THAT CAN BE REACHED DURING REACTOR INCIDENTS (ATWS, LOCA). IN ORDER TO FIND OUT WHICH INFLUENCE THE CHEMICAL INTERACTION BETWEEN THE FISSION PRODUCTS AND THE ZRY CLADDING MATERIAL HAVE ON THE MECHANICAL PROPERTIES OF ZRY-4 TUBING OUT-OF-PILE BURST EXPERIMENTS AND CREEP RUPTURE TESTS HAVE BEEN PERFORMED AT TEMPERATURES > OR = 600C WITH SHORT TUBE SPECIMENS CONTAINING SIMULATED FISSION PRODUCTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*ZIRCALOY + *CORROSION + *PROPERTY, MECHANICAL + FUEL ROD + CLADDING + CHEMICAL REACTION + FUEL, NUCLEAR + OXIDE + OUT OF PILE EXPERIMENT + CREEP + TESTING

148006
ALDRICK DC + BAYER A + SCHUNCKLER M
A PROPOSED WIND SHIFT MODEL FOR THE GERMAN REACTOR SAFETY STUDY (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2791 + GERRSR-390 +. 10 PPS, 3 FIGS, 3 REFS, APRIL 1979

NEITHER THE U.S. NOR THE GERMAN REACTOR SAFETY STUDY IN THEIR PRESENT FORM INCLUDE HOURLY CHANGES IN WIND DIRECTION. FOR RELEASES OF SHORT DURATION THIS ASSUMPTION SHOULD HAVE A RELATIVELY SMALL EFFECT ON THE CALCULATION OF ACCIDENT CONSEQUENCLS. FOR RELEASES OF LONGER DURATION THIS ASSUMPTION COULD RESULT IN AN OVERESTIMATION OF CENTERLINE RADIONUCLIDE CONCENTRATIONS. TO ACCOUNT FOR HOURLY WIND DIRECTION CHANGES, A WIND SHIFT MODEL HAS BEEN PROPOSED. USING HOURLY RECORDED WIND SPEED AND DIRECTION DATA, THE MODEL MODIFIES THE ANGULAR DISTRIBUTION OF RADIONUCLIDE CONCENTRATIONS CALCULATED BY A STRAIGHTLINE MODEL, AND IS INTENDED TO BETTER REPRESENT THE CONCENTRATIONS IN AREAS CLOSE TO THE REACTOR WHERE POTENTIAL DOSES MIGHT EXCEED THE THRESHOLD LEVEL FOR EARLY FATALITIES.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + SAFETY ANALYSIS + *METEOROLOGY + *WIND STATISTICS + WIND PROFILE + *ACCIDENT, CONSEQUENCES + *ANALYTICAL MODEL + RADIOACTIVITY RELEASE + DOSE

148989
BERG HV + SCHANZ G + LEISTIKOW S
INVESTIGATIONS INTO THE TEMPERATURE-TRANSIENT STEAM OXIDATION OF ZIRCALOY 4 CLADDING MATERIAL UNDER HYPOTHETICAL PWR-LOSS-OF-COOLANT ACCIDENT CONDITIONS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2810 + GERRSR-397 +. 62 PPS, 8 TABS, 20 FIGS, 20 REFS, APRIL 1979

MATERIALS WERE INVESTIGATED BY EXPOSURE TO STEAM OF INDUCTIVELY HEATED TUBE SECTIONS UNDER REALISTIC AND PESSIMISTIC ASSUMPTIONS ABOUT THE HYPOTHETICAL ACCIDENT AT TEMPERATURES UP TO 1200C AND DURATIONS OF 3 MIN OR LESS. THUS, A VARIETY OF COMPLETE AND PARTIAL LOCA-TRANSIENTS COULD BE SIMULATED IN A SIMPLIFIED SHAPE OF THEIR TIME-TEMPERATURE SEQUENCES AND EVALUATED WITH RESPECT TO THE EXTENT OF OXIDATIVE ATTACK. IN ALL CASES AND DUE TO THE REDUCED TIME-AT-TEMPERATURE, THE EXTENT OF TRANSIENT OXIDATION WAS LOWER THAN UNDER COMPARABLE ISOTHERMAL CONDITIONS. THE AGREEMENT OF CALCULATED AND EXPERIMENTAL RESULTS WAS ACCEPTABLE. THE GRAVIMETRIC RESULTS ARE COMPLEMENTED BY METALLOGRAPHIC EVALUATIONS, WHICH CONCENTRATE ALSO ON THE LOCAL PATTERN OF OXIDATIVE ATTACK. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + REACTOR, PWR + STEAM + OXIDATION + ZIRCALOY + CLADDING + ACCIDENT, LOSS OF COOLANT

145273

149273 *CONTINUED*
ALDRICH D + BAYER D + SCHACKLER M
EFFECT OF CROSS-PLUME CONCENTRATION MODEL ON CALCULATED ACCIDENT CONSEQUENCES (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2767 + GERRSR-395 +. 10 PPS, 3 TABS, 2 FIGS, 2 REFS, MAY 1979

FOR REASONS OF NUMERICAL COMPUTATION, THE GAUSSIAN PLUME MODEL, WHICH IS USED TO DESCRIBE THE DISPERSION OF RELEASED ATMOSPHERIC CONTAMINANTS, IS REPLACED BY A STEP FUNCTION. IN THE U.S. REACTOR SAFETY STUDY (RSS) THIS FUNCTION IS A SIMPLE TOP-HAT DISTRIBUTION. TO IMPROVE UPON THE TOP-HAT TREATMENT A CROSS-PLUME CONCENTRATION DISTRIBUTION WITH FOUR DISTINCT CONCENTRATION STEPS WAS USED IN PHASE A OF THE GERMAN RSS. FROM ALL THE COMPUTATION RESULTS THE CONCLUSION CAN BE DRAWN THAT FOR THE CALCULATION OF EARLY FATALITIES A 2-STEP DISTRIBUTION (FOR SITE SPECIFIC CALCULATION A 4-STEP DISTRIBUTION) MIGHT BE ADEQUATE, WHEREAS FOR THE CALCULATION OF LATE FATALITIES A TOP-HAT DISTRIBUTION IS ADEQUATE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *PLUME BEHAVIOR + GAUSSIAN PLUME FORMULA + CONCENTRATION + MODEL + DISPERSION + CONTAMINATION + NUMERICAL METHOD + ACCIDENT, CONSEQUENCES

149005
GOLLER B
DYNAMIC BEHAVIOR OF THE SPHERICAL CONTAINMENT SHELL OF A BOILING WATER REACTOR DURING CONDENSATION OF STEAM IN THE PRESSURE SUPPRESSION SYSTEM (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2770 + GERRSR-396 +. 71 PPS, 18 FIGS, 43 REFS, MAY 1979

THE CONDENSATION OF STEAM BLOWN INTO THE WATERPOOL OF THE CONDENSATION CHAMBER INDUCES PRESSURE OSCILLATIONS WHICH ACT UPON THE THIN SHELL WALLS OF THE POOL. A FIRST COMPUTATION REVEALED THAT SUCH VERY THIN SHELLS CANNOT BE DESCRIBED APPROPRIATELY WITH STANDARD FINITE ELEMENTS. THEREFORE A SEMI-ANALYTICAL MODEL IS DEVELOPED FOR THE OUTER WALL OF THE POOL, WHICH IS FORMED BY A PART OF THE THIN SPHERICAL CONTAINMENT SHELL. THE MODEL IS BASED ON FLUGGE'S SHELL THEORY AND SOLVED FOR SIMPLIFIED BOUNDARY CONDITIONS BY MODAL SUPERPOSITION. PRESSURES MEASURED DURING FULL SCALE EXPERIMENTS ARE USED AS LOADING TO PERFORM A TRANSIENT ANALYSIS. COMPUTED DISPLACEMENTS AGREE QUITE WELL WITH MEASURED VALUES. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + REACTOR, BWR + CONTAINMENT, PRESSURE SUPPRESSION + WATER + STEAM + CONTAINMENT, EXPANDING VOLUME + SHELL + ANALYTICAL MODEL

154432
SCHAFER L + KEMPE H + POLIFKA F
THE CREEP AND STRESS-RUPTURE BEHAVIOR UNDER INTERNAL PRESSURE OF TUBES MADE FROM AUSTENITIC STAINLESS STEEL X8 CR NI MO NB 1616 (MATERIAL NO. 1.4981) (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2773 + GERRSR-459 +. VP, MAY 1979

CREEP AND STRESS RUPTURE TESTS HAVE BEEN PERFORMED AT 630, 650, 700 AND 750C ON TUBES MADE FROM THREE DIFFERENT HEATS FROM THE AUSTENITIC STAINLESS STEEL X8 CR NI MO NB 1616 (MATERIAL NO. 1.4981). THE TUBES WERE LOADED BY INTERNAL PRESSURE AND THE TANGENTIAL (HOOP) CREEP STRAIN WAS MEASURED CONTINUOUSLY. THE RESULTS ARE PRESENTED IN FORM OF CREEP CURVES, STRESS-TIME TO RUPTURE CURVES AND CURVES FOR A CREEP LIMIT. THE AVERAGE AND MINIMUM CREEP RATES AS A FUNCTION OF THE APPLIED STRESS HAVE BEEN EVALUATED AND ARE DESCRIBED WITH A CREEP LAW ANALOGOUS TO NORTON'S CREEP LAW.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*CREEP BEHAVIOR + STRESS STRAIN DATA + STEEL, STAINLESS + ALLOY + FAILURE, TUBING + THERMAL EXPERIMENT + GERMANY + PRESSURE, INTERNAL + TESTING + TUBING + EXPERIMENT

154433
SCHAFER L + CLOSS KD + WASSILEW C
THE IN-PILE STRESS-RUPTURE BEHAVIOR OF TUBES MADE FROM AUSTENITIC STAINLESS STEEL X 10 NICRMOTIB 15 15 (MATERIAL NO. 1.4570) (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSURHE, F.R. GERMANY
KFK-2781 + GERRSR-460 +. VP, MAY 1979

IN-PILE STRESS-RUPTURE TESTS HAVE BEEN PERFORMED AT 650 AND 700C ON TUBES WITH THE SNR 300-MK-II-DIAMETER (7.6 MM). THE TUBES WERE MADE FROM THE AUSTENITIC STAINLESS STEEL X 10 NICRMOTIB 15 15 (MATERIAL-NO. 1.4970, CHARGE 8-22075) IN THE REFERENCE-TREATMENT (S.A. + 14% C.W. + 800C) AND IN AN ALTERNATIVE TREATMENT (S.A. +800C + 14% C.W.) THE TUBES IN THE REFERENCE TREATMENT HAD THE HIGHER CREEP RESISTANCE AND THE HIGHER STRESS-RUPTURE STRENGTH AND THE LOWER DUCTILITY UNTIL 3,000 H RUPTURE LIFE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

STRESS STRAIN DATA + STEEL, STAINLESS + ALLOY + CREEP BEHAVIOR + *IN PILE EXPERIMENT + GERMANY + PROPERTY, PHYSICAL

154602
MULLER K
MEASUREMENT OF THE SPECTRAL EMISSIVITY OF CERAMIC MATERIALS IN THE SOLID AND LIQUID STATE BY USING A LASER REFLECTOMETER (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2803 + GERRSR-461 +. VP, MAY 1979

TO DETERMINE THE SPECTRAL DIRECTIONAL EMISSIVITY ABOVE THE MELTING POINT, THE LASER REFLECTOMETER, DEVELOPED AT THE INSTITUT FUR NEUTRONENPHYSIK UND REAKTORTECHNIK (KFK), HAS BEEN IMPROVED IN SOME IMPORTANT DETAILS. INCREASE OF THE SIGNAL TO NOISE RATIO AND IMPROVEMENT OF REFLECTOMETER CALIBRATION ALLOWED TO ACHIEVE A BETTER ACCURACY OF MEASUREMENT. (EWH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

EMISSION + MEASUREMENT + CERAMICS + MATERIAL + LASER + *MEASUREMENT, TEMPERATURE + *EQUIPMENT DEVELOPMENT

154418
WOZNICKI Z
HEXAGA-II-120, -60, -30 TWO-DIMENSIONAL MULTI-GROUP NEUTRON DIFFUSION PROGRAMMES FOR A UNIFORM TRIANGULAR MESH WITH ARBITRARY GROUP SCATTERING (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2789 + GERRSR-464 +. VP, JUNE 1979

THIS REPORT PRESENTS THE AGA TWO-SWEEP ITERATIVE METHODS BELONGING TO THE FAMILY OF FACTORIZATION TECHNIQUES IN THEIR PRACTICAL APPLICATION IN THE HEXAGA-II TWO-DIMENSIONAL PROGRAM TO OBTAIN THE NUMERICAL SOLUTION TO THE MULTI-GROUP, TIME-INDEPENDENT, (REAL AND/OR ADJOINT) NEUTRON DIFFUSION EQUATIONS FOR A FINE UNIFORM TRIANGULAR MESH. AN ARBITRARY GROUP SCATTERING MODEL IS PERMITTED. THE REPORT WRITTEN FOR THE USERS PROVIDES THE DESCRIPTION OF INPUT AND OUTPUT. THE USE OF HEXAGA-II IS ILLUSTRATED BY TWO SAMPLE REACTOR PROBLEMS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + DIFFUSION + NEUTRON + REACTOR PHYSICS + *COMPUTER PROGRAM

151617
PERINIC D + KAMMERER B + MACK A
EXPERIMENTS WITH THERMITE MELTS PERFORMED IN CONCRETE CRUCIBLES
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2572 + GERRSR-440 +. 136 FIGS, JULY 1979

IN A TEST SERIES COMPRISING NINE TESTS, BETWEEN 100 KG AND 300 KG OF THERMITE MELT MASS WERE PUT INTO CONCRETE CRUCIBLES AT INITIAL TEMPERATURES OF MORE THAN 2500C. TO MAINTAIN STRUCTURAL STABILITY, THE CRUCIBLES WERE REINFORCED BY STEEL OR BY A FIBER GLASS FABRIC. THE COURSE OF THE REACTION WAS RECORDED USING EXTENSIVE INSTRUMENTATION. AS A RESULT OF THE VIOLENT INTERACTION BETWEEN THE MELT AND THE CRUCIBLE MATERIAL, THE INITIAL INNER GEOMETRIES BULGED RADIALLY AND AXIALLY IN THE BOTTOM PART. THE CHARACTERISTIC MELTING CAVITIES SO FORMED ARE MAINLY PEAR SHAPED. (FAH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

CORE MELTDOWN + CONCRETE + TESTING + GERMANY + INSTRUMENTS, MISC.

154593
CLASS G + HAIN K + WAGNER KH
TRUE MASS FLOW METER (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2790 + GERRSR-446 +. 75 PPS, FIGS, REFS, JULY 1979

A PRESSURE AND TEMPERATURE RESISTANT MEASURING INSTRUMENT IS DESCRIBED FOR MEASUREMENTS OF A TRANSIENT WATER/VAPOR TWO-PHASE MASS FLOW UNDER PWR OPERATING CONDITIONS. THE MEASURING INSTRUMENT, TERMED "TRUE MASS FLOW METER", IS CAPABLE OF MEASURING THE MASS FLOW IN A DIRECT WAY AND INDEPENDENT OF THE STATE OF THE MEDIUM. THE OPERATING DATA OF 160 BAR AND 573 K CORRESPOND TO THE PWR CONDITIONS; THE MEASURING RANGE EXTENDS TO 5 KG/S. THE ACCURACY OF MEASUREMENT ACHIEVED IS BETTER THAN +(-) 3%. THIS REPORT DEALS WITH THE CONCEPT AND DESIGN OF THE TMFM AND WITH ITS OPERATING BEHAVIOR DURING THE BLOWDOWN TEST PERFORMED IN COSIMA. (EWH)

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

*INSTRUMENT, FLOW + *EQUIPMENT DEVELOPMENT + MEASUREMENT + MASS + FLOW + *FLOW, TWO PHASE + EQUIPMENT DESIGN

154417
KOBAYASHI K
TP2 - A COMPUTER PROGRAM FOR THE CALCULATION OF REACTIVITY AND KINETIC PARAMETERS BY THE TWO-DIMENSIONAL NEUTRON TRANSPORT PERTURBATION THEORY (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY

154417 *CONTINUED*
KFK-2787 + GERRSR-453 +. VP, JULY 1979

TP2 IS A FORTRAN-IV PROGRAM FOR THE CALCULATION OF THE REACTIVITY, EFFECTIVE DELAYED NEUTRON FRACTIONS AND MEAN GENERATION TIME BY THE PERTURBATION THEORY USING THE ANGULAR FLUXES CALCULATED BY A TWO-DIMENSIONAL S(SUB-N) TRANSPORT CODE. GROUP CROSS SECTIONS, DELAYED NEUTRON FRACTIONS AND SPECTRA, ISOTOPE DEPENDENT PROMPT NEUTRON SPECTRUM, AND DIRECT AND ADJOINT ANGULAR FLUXES ARE READ FROM DISK FILES. THIS CODE CAN TREAT X-Y, R-Z AND R-THETA GEOMETRY IN TWO DIMENSIONS, AND THE CODE STRUCTURE IS NEARLY THE SAME AS THE TP1 CODE FOR THE ONE-DIMENSIONAL GEOMETRY.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + *COMPUTER PROGRAM + REACTIVITY + REACTOR KINETICS + DELAYED NEUTRON + PROMPT NEUTRON + TRANSPORT THEORY + *PERTURBATION METHOD

154524
BAYER A + KALCKBRENNER R
AGE DEPENDENT FOOD CONSUMPTION DATA PROVIDED FOR THE COMPUTATION OF THE RADIOLOGICAL IMPACT VIA THE INGESTION PATHWAY (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2829 + GERRSR-447 +. 62 PPS, 23 TABS, 8 FIGS, 20 REFS, AUG. 1979

AVERAGED AGE DEPENDENT FOOD CONSUMPTION DATA ARE COMPILED AND EVALUATED TO PROVIDE INPUT DATA FOR THE COMPUTATION OF THE RADIOLOGICAL IMPACT VIA THE INGESTION PATHWAY. FOR SPECIAL POPULATION GROUPS (SELF-SUPPLIERS E. G.) FACTORS ARE PROVIDED, BY WHICH THE CONSUMPTION FOR SPECIAL FOODS MAY BE EXCEEDED. THE EVALUATED DATA ARE COMPARED WITH THOSE OF THE "USNRC-REGULATORY GUIDE 1.109 (REVISED 1977)" AND THOSE OF THE "RECOMMENDATION OF THE GERMAN COMMISSION ON RADIOLOGICAL PROTECTION (DRAFT 1977)".

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

GERMANY + INGESTION + FOOD INTAKE + FOOD + DATA COLLECTION + DOSE CALCULATION, INTERNAL

151594
FIEG G
HEAT TRANSFER FROM INTERNALLY HEATED FLUIDS WITH TEMPERATURE DEPENDENT VISCOSITY (IN GERMAN)
KERNFORSCHUNGZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2841 + GERRSR-458 +. VP, FIGS, AUG. 1979

THIS PAPER DEALS WITH THERMO-HYDRAULICAL EXPERIMENTS ON HEAT TRANSFER IN FLUIDS WITH HIGH PRANDTL-NUMBERS AND STRONG TEMPERATURE DEPENDENT VISCOSITY. PURE BENARD-CONVECTION AND VOLUME HEATED LIQUIDS HAVE BEEN INVESTIGATED. IN BOTH CASES THE RESULTS SHOW NO ESSENTIAL DIFFERENCES COMPARED TO THE HEAT TRANSFER IN FLUIDS WITH NEARLY TEMPERATURE INDEPENDENT VISCOSITY.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

THERMAL HYDRAULIC ANALYSIS + FLOW THEORY AND EXPERIMENTS + HEAT TRANSFER + HEAT TRANSFER ANALYSIS

154423
CONTRIBUTION TO THE STRUCTURAL ANALYSIS OF CYLINDRICAL FUEL RODS OF NUCLEAR REACTORS WITH CONSIDERATION OF MULTIDIMENSIONAL BEHAVIOR, BASED ON FINITE-ELEMENT-METHOD (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2858 + GERRSR-469 +. VP, SEPT. 1979

THIS INVESTIGATION CONSIDERS THE TWO-DIMENSIONAL ASPECTS OF THE FUEL ROD DESIGN. THE FEM-CODES ZIDRIG AND FINEL HAVE BEEN DEVELOPED, WHICH HAVE THE FOLLOWING FEATURES: 1) TWO DIMENSIONAL IN R-PHI OR R-Z-PLANE, 2) MATERIALS NONLINEARITIES (LARGE DEFLECTIONS), AND 4) TIME DEPENDENT BEHAVIOUR (E.G. CREEP, TIME DEPENDENT EXTERNAL LOADS).

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + *FUEL ROD + *CLADDING + PLASTICITY + FUEL CLAD INTERACTION + ACCIDENT, LOSS OF COOLANT + SWELLING + DEFORMATION + FUEL, PELLET TYPE + CRACK + FAILURE, CLADDING + CREEP

151583
MEYER L + DALLE DONNE M
HEAT TRANSFER AND FRICTION COEFFICIENTS FOR AIR FLOW IN A SMOOTH ANNULUS; RESULTS OF A RECENT EXPERIMENT AND COMPARISON WITH PREVIOUS CORRELATIONS (IN ENGLISH)
KERNFORSCHUNGZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2837 + EUR-5758 + GERRSR-455 +. VP, FIGS (NO DATE)

IN THE HEAT TRANSFER LABORATORY OF INR VARIOUS EXPERIMENTS ON SINGLE ROUGH OR SMOOTH RODS CONTAINED IN SMOOTH ANNULI HAVE BEEN PERFORMED IN THE PAST. THESE EXPERIMENTS HAVE BEEN PERFORMED WITH RODS OF LARGE DIAMETERS. RECENTLY, HOWEVER, A SERIES OF EXPERIMENTS WITH ROUGH RODS OF 8 MM O.D. HAS BEEN CARRIED OUT. TO CHECK IF THE NEW EXPERIMENTAL APPARATUS AND THE EXPERIMENTAL TECHNIQUES USED WERE CORRECT, AN EXPERIMENT WAS PERFORMED WITH AN INNER HEATED TUBE

151583 *CONTINUED*
OF 8 MM O.D. CONTAINED IN THE SMOOTH OUTER TUBE OF 16 MM I.D. USED IN THE EXPERIMENTS WITH THE ROUGH RODS. THE RESULTS OF THIS EXPERIMENT ARE REPORTED IN THE PRESENT PAPER.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

FUEL ROD + FLOW + FRICTION FACTOR + FLOW THEORY AND EXPERIMENTS + TEMPERATURE + HEAT TRANSFER

145638
NOVOTNY B + DAUBLEBSKY P
IMPACT OF STEEL PROJECTILES ON REINFORCED CONCRETE, CALCULATION AND COMPARISON WITH EXPERIMENTAL TESTS (IN GERMAN)
KERNTECHNIK, ENTWICKLUNG, DYNAMIK, F.R. GERMANY
RS 226 + GERRSR-348 +. 160 PPS, FIGS, AUG. 1978

NUCLEAR POWER PLANTS HAVE TO BE DESIGNED TO RESIST AN AIRPLANE CRASH WITHOUT ANY DANGER FOR THE ENVIRONMENT. THE INVESTIGATIN OF THE EFFECTS OF THE AIRPLANE IMPACT IS A COMPLICATED PROBLEM, WHICH HAS NOT BEEN SOLVED BEFORE WITH EXPERIMENTS AND CALCULATIONS. THE PURPOSE OF THIS RESEARCH PROJECT IS TO EVALUATE A MATHEMATICAL MODEL FOR REINFORCED CONCRETE AND TO CHECK IT AGAINST EXPERIMENTS. USING THE MATHEMATICAL MODEL, EXPERIMENTAL RESULTS SHOULD BE EXTRAPOLATED LATER, ESPECIALLY TO THE EFFECTS OF AN AIRPLANE CRASH ON A NUCLEAR POWER PLANT. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + STEEL + MISSILE GENERATION AND PROTECTION + CONCRETE, REINFORCED + IMPACT SHOCK + ANALYTICAL MODEL + AIRCRAFT + TESTING

149934
DORNER H
RESEARCH PROGRAM ON THE STRUCTURAL BEHAVIOR OF CRACK-AFFECTED WELD SEAMS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT RS 84 + RE 23/005 A/76 + GERRSR-424 +. APPROX. 250 PPS, FIGS, REFS, NOV. 1974

THERE WAS NOT ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

R AND D PROGRAM + *STRUCTURAL INTEGRITY + CRACK + *WELDS + GERMANY

148671
SCHWEICKERT A
RESEARCH PROGRAM ON REACTOR SAFETY, 3D EXPERIMENT (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
REPORT RE 23/001/78 + BMFT RS 268 + GERRSR-381 +. 186 PPS, 13 TABS, 55 FIGS, JAN. 1978

A BASIC DESIGN WAS FORMULATED FOR THE "3 D - EXPERIMENT" WHICH IS TO INVESTIGATE THE THERMOHYDRAULIC PHENOMENA IN THE UPPER PLENUM OF A PWR AFTER A LOCA. ONLY THE REFILL AND REFLOOD PHASE, BEGINNING AT 5 BAR, WILL BE VERIFIED. A TEST FACILITY WAS DESIGNED AND THE REQUIREMENTS FOR INSTRUMENTATION, DATA ACQUISITION AND TEST EVALUATION WERE DISCUSSED; A BASIC TESTMATRIX WAS PLANNED. MOREOVER TECHNICAL REQUIREMENTS FOR THE "2 D - EXPERIMENT" WERE SUMMARIZED. SIX YEARS ARE REQUIRED FOR PLANNING AND CONSTRUCTING THE TEST FACILITY AND DOING THE TESTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *R AND D PROGRAM + EXPERIMENT + *THERMAL HYDRAULIC ANALYSIS + REACTOR, PWR + PLENUM + *ACCIDENT, LOSS OF COOLANT + CORE REFLOODING

143768
SAUER A
DEVELOPMENT AND SYNTHESIS OF AN EDUCATIONAL SYSTEM USING COMBINATION OF MEDIA FOR THE INTENSIVE TRAINING AND INSTRUCTION OF OPERATING PERSONNEL AT NUCLEAR POWER PLANTS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT RS 152 + GERRSR-320 +. APPROX. 240 PPS, FIGS, REFS SEPT. 1976

A FEASIBLE COMBINATION OF MEDIA WAS WORKED OUT FOR THE OPTIMUM PLANT TRAINING OF THE CONTROL ROOM PERSONNEL OF NUCLEAR POWER PLANTS AFTER AN EVALUATION OF MEDIA. TAKING INTO ACCOUNT THE PRODUCTION AND REPRODUCTION CRITERIA FOR THE HARDWARE AND SOFTWARE TOGETHER WITH TECHNICAL AND ECONOMIC ASPECTS, A STANDARD METHOD IS RECOMMENDED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *POWER PLANT, NUCLEAR + OPERATOR ACTION + *LICENSED OPERATOR + *TRAINING

143083
SCHUSTER E + FUCHS A + KARNATH G
ACTIVATED CORROSION PRODUCTS IN LWR LOOPS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT-RS-20 + RE 23/057/77 + GERRSR-316 +. 58 PPS, 4 TABS, 21 FIGS, 7 REFS, OCT. 1978

143083 *CONTINUED*

ROUTINELY MEASURED ACTIVITY CONCENTRATIONS OF SOME CORROSION PRODUCT RADIONUCLIDES IN THE COOLANT OF DIFFERENT POWER STATIONS WERE EVALUATED. COMPILATIONS APPLIED HAVE DEMONSTRATED THAT THERE ARE SUFFICIENT DATA FOR PWR'S ALLOWING THEIR COMPARISON. THE AVAILABLE DATA FOR BWR'S ARE NOT SUFFICIENT FOR SUCH AN ANALOGUS EVALUATION. THE COMPARISON WAS DONE WITH ACTIVITY CONCENTRATIONS OF 58CO AND 60CO IN THE COOLANT OF FOUR PWR'S OPERATING AT FULL LOAD. FURTHER ON ANALYTICAL METHODS FOR THE DETERMINATION OF THE ELEMENTAL SPECIFIC ACTIVITIES OF 60CO AND 55FE IN SAMPLES FROM THE COOLANT AND FROM DIFFERENT COMPONENTS OF THE PRIMARY CIRCUITS HAVE BEEN OPTIMIZED. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY * REACTOR, PWR * CORROSION * RADIONUCLIDE * COBALT * IRON * MAIN COOLING SYSTEM

144158
ENGEL H
DOSE REDUCTION (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT RS 204 * RE 23/010/78 * GERRSP-317 *. 15 PPS, 1 FIG, OCT, 1978

TO IMPROVE THE HYDROGEN/OXYGEN MEASUREMENTS WITHIN THE GASEOUS WASTE PROCESSING SYSTEM AT PWRS, INVESTIGATIONS WERE PERFORMED TO DETERMINE WHAT PARAMETERS INFLUENCED THE MEASUREMENTS. SUCH PARAMETERS AS GAS HUMIDITY, PRESSURE, FLOW, INFLUENCE OF OXYGEN, HELIUM, AND ARGON CONCENTRATIONS WERE CONSIDERED. (GTM)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY * HYDROGEN * OXYGEN * *MEASUREMENT * *OFF GAS * WASTE TREATMENT, GAS * *REACTOR, PWR

145156
KNODLER D
PRELIMINARY EMPIRICAL DESCRIPTION OF THE FUEL ROD BEHAVIOUR DURING LOCA (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
RE 23/005/78 * BMFT RS 177 * GERRSR-324 *. 65 PPS, 22 FIGS, 12 REFS, OCT, 1978

A MODIFIED NORTON EQUATION IS USED TO DESCRIBE THE STRAIN BEHAVIOUR OF ZIRCALOY TUBES AT TEMPERATURES AS CALCULATED FOR HYPOTHETICAL LOCA'S. THE BURST STRAIN AT WHICH THE STRAIN CURVE IS CUT OFF, IS DERIVED EMPIRICALLY AS A FUNCTION OF TEMPERATURE AND HEATING RATE. THE MODELS ARE CALIBRATED AGAINST DATA FROM DIRECTLY HEATED SINGLE ROD EXPERIMENTS, WHICH IN CONTRAST TO REACTOR CONDITIONS EXHIBIT VERY HOMOGENEOUS TEMPERATURES. THIS LEADS TO PARTICULARLY HIGH BURST STRAINS. IT IS SHOWN HOW THESE MODELS CAN BE APPLIED TO CASES WITH AZIMUTHAL AND AXIAL TEMPERATURE VARIATIONS. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22151

GERMANY * ZIRCALOY * FUEL ROD * ACCIDENT, LOSS OF COOLANT * ANALYTICAL MODEL

145155
DORNER H
INVESTIGATION PROGRAM FOR THE TESTING OF A FRACTURE SAFETY DEVICE PROTECTION SYSTEM FOR REACTOR COMPONENTS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
RE 23/021/78 BMFT RS 104 * GERRSR-325 *. 150 PPS, TABS, FIGS, OCT, 1978

RESULTS OF INVESTIGATIONS ON THE MATERIAL BEHAVIOUR OF INSULATION-CONCRETE SUBJECTED TO TWO-PHASE JET LOADS ARE DESCRIBED. FURTHERMORE THIS REPORT DEALS WITH THE RESULTS OF THE BURST TESTS WITH PIPES WHICH WERE CARRIED OUT UNDER PWR CONDITIONS. TEST EQUIPMENT, INSTRUMENTATION, THE MEASURING TECHNIQUES AND THE TEST PROCEDURE ARE DESCRIBED. VARIOUS VOLUME INCREASES AND LEAKAGE AREAS OCCUR DURING THE PIPE FAILURE, WHICH INFLUENCE TO A GREAT EXTENT THE THERMOHYDRAULIC PHENOMENA. THE LOADING OF THE PIPES AND OF THE BURST-PROTECTION ELEMENTS IS DETERMINED. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY * REACTOR * COMPONENTS * CONCRETE * PIPES AND PIPE FITTINGS * REACTOR, PWR

148675
HILDENBRAND G
KFA/KWU POWER RAMPS FUEL ROD IRRADIATION TESTS 1976/77 (GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT RS 203 * RE 23/023/78 * GERRSR-345 *. 35 PPS, 2 TABS, 13 FIGS, 8 REFS, OCT, 1978

IRRADIATION EXPERIMENTS IN HFR PETTEN WERE CARRIED OUT TO DETERMINE THE OPERATIONAL BEHAVIOR OF FUEL RODS IN LIGHT WATER REACTORS DURING POWER RAMPS. 36 PWR TEST FUEL RODS, WHICH HAD BEEN PRE-IRRADIATED IN A NUCLEAR POWER STATION UP TO BURNUPS OF ABOUT 25 GWD/T (U), HAVE BEEN RAMPED IN A RELOADABLE "PRESSURE BOILING CAPSULE". ON ALL FUEL RODS WITH HIGH RAMP TERMINAL POWERS, PEAKS OF FISSION PRODUCTS AT PELLET INTERFACES AND CRACKS, INSIGNIFICANT RIDGES, PARTIAL DISH CLOSURE IN THE HIGH POWER REGION AND AN INCREASED APPEARANCE OF TRANSVERSE PELLET CRACKS HAVE BEEN DETERMINED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22.61

148675 *CONTINUED*
GERMANY + *IRRADIATION TESTING + REACTOR, LWR + *FUEL ROD + *CONTAINMENT INTEGRITY + CRACK + FISSION PRODUCT RELEASE

148296
SCHWEICKERT H
EMERGENCY COOLING DEPRESSURIZATION RESEARCH, BLOCKED COOLING CHANELS WITH BWR GEOMETRY (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
REPORT RE 23/024/78 + GERRSR-346 +. 165 PPS, 92 FIGS, 9 REFS, OCT. 1978

IN A TEST FACILITY OF TWO PARALLEL BWR-FUEL ASSEMBLIES EXPERIMENTS WERE CARRIED OUT WITH TOP SPRAY AND BOTTOM FLOODING. FOR THE SIMULATION OF BALLOONING OF THE FUEL ROD CLADDING (FLOW AREA RESTRICTIONS) ONE OF THE BUNDLES WAS PROVIDED WITH BLOCKAGE PLATES. THE TEST PARAMETERS WERE THE PRESSURE, THE SPRAY AND THE FLOODING RATES, THE HEATUP POWER AND THE INITIAL CLAD TEMPERATURE OF THE HEATERS. THE TEST RESULTS SHOWED, EXCEPT IN THE BLOCKED REGION, NO SIGNIFICANT VARIATIONS FROM THOSE WITHOUT BLOCKAGE. AN IMPROVED HEAT TRANSFER WAS OBSERVED IN A CLOSE REGION ABOVE THE BLOCKAGE IN THE CASE OF BOTTOM FLOODING AND BELOW IT IN THE CASE OF TOP SPRAY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, BWR + FLOW BLOCKAGE + FUEL ROD + FUEL SWELLING + TEMPERATURE + FLOW, TWO PHASE

144828
ENGEL H
DEVELOPMENT OF A SUCTION SYSTEM FOR INSTALLATIONS AND FITTINGS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
RE 23/027/78 + BMFT RS 238 + GERRSR-323 +. 120 PPS, 1 DTABS, 48 FIGS, 2 REFS, NOV. 1978

DESCRIBES A GLAND LEAK-OFF SYSTEM WITH FILTERS AND/OR ADSORBERS WHICH CONTINUOUSLY CLEANS UP A SIDE STREAM OF CONTAMINATED AIR FROM THE REACTOR LID, GLANDS, TANKS, CONTAINMENT PENETRATIONS, AND OTHER CRITICAL POINTS OF THE CONTAINED SYSTEM (CAB)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

AIR CLEANING + ADSORPTION + CHARCOAL ADSORBER + FILTERS + WASTE TREATMENT, EQUIPMENT + REACTOR

147473
ENGEL H
INVESTIGATION AND DEVELOPMENT OF SYSTEMS LIMITING THE H2-CONCENTRATION IN THE BWR CONTAINMENT (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT RS 223 + RE 23/028/78 + GERRSR-364 +. 163 PPS, TABS, FIGS, REFS, NOV. 1978

THE PURPOSE OF THE R + D PROGRAM IS TO IMPROVE OUR KNOWLEDGE OF HYDROGEN GENERATION AND DISTRIBUTION IN THE BWR CONTAINMENT DURING REACTOR OPERATION AND AFTER LOCA, AND ESPECIALLY TO DEVELOP AND TEST CONCEPTS AND METHODS FOR MEASUREMENTS AND LIMITATION OF H2 CONCENTRATIONS IN THE CONTAINMENT ATMOSPHERE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

ACCIDENT, LOSS OF COOLANT + ACCIDENT ANALYSIS + R AND D PROGRAM + CONTAINMENT + TESTING + REACTOR, BWR + HYDROGEN + MEASUREMENT + GERMANY

154486
MARKL H
EXPERIMENTAL INVESTIGATIONS OF MULTI-DIMENSIONAL EFFECTS INFLUENCING FLOODING (IN GERMAN)
KRAFTWORK UNION, ERLANGEN, F.R. GERMANY
BMFT-RS 268A + RE 22/001/79 + GERPSR-413 +. 186 PPS, 9 TABS, 64 FIGS, 1 REFS, JAN. 1979

THE TECHNICAL CONCEPT OF THE 180 DEGREE REACTOR SECTOR WAS DEVELOPED FOR EXPERIMENTAL EVALUATION OF THE THERMAL-HYDRAULIC PROCESSES IN THE UPPER PLENUM AND THE DOWNCOMER OF A PWR FOLLOWING A LOCA. THE CORE IS REPLACED BY A CORE SIMULATOR. A PERFORATED BAFFLE IS UTILIZED TO SIMULATE FLUID FLOW IN THE UPPER PLENUM BETWEEN THE REPRESENTED AND NONEXISTING HALF OF THE REACTOR. THE HYDRAULIC RESPONSE OF THE INTACT LOOP STEAM GENERATOR AND PUMP IS SIMULATED EXTENSIVELY. THE END OF BLOWDOWN STARTING AT 9 BAR AS WELL AS REFILL AND REFLOOD PORTIONS OF THE ACCIDENT ARE SIMULATED.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

REACTOR, SAFETY RESEARCH + REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + BLOWDOWN + FLOOD + CONTAINMENT INSTRUMENTATION + PLENUM + REACTOR, SAFETY RESEARCH + REACTOR, SAFETY RESEARCH + THERMAL HYDRAULIC ANALYSIS

154680
ROSLER U
IRRADIATION INFLUENCE ON STRENGTH AND RELAXATION OF AUSTENITIC STEELS AND NI-ALLOYS FOR CORE STRUCTURE CONNECTIONS (IN GERMAN)
KRAFTWERK UNION, ERLANGEN, F.R. GERMANY
BMFT-RS 133 + RE 23/023/77 + GERRSR-414 +. 35 PPS, 18 FIGS, 10 REFS, APRIL 1979

154680 *CONTINUED*
TENSILE AND RELAXATION SAMPLES OF ALLOYS X10 CRNINB 189 (AISI 347/348SS) AND X5 NICRTI 2615 (A 286) WERE TESTED AFTER IRRADIATION AT ABOUT 300 DEGREES C WITH 2 TO 5 X 10(20) N/CM(2) (E>1 MEV), AND IN THE UNIRRADIATED CONDITION. THE IRRADIATION INFLUENCE ON TENSILE PROPERTIES AND RELAXATION WAS LOWER FOR A 286 THAN IT WAS FOR X10 CRNINB 189. A SIMULATING HEAT TREATMENT OF 2.5 YEARS AT 300 DEGREES C EFFECTED NO REMARKABLE RELAXATION OR CHANGE OF TENSILE PROPERTIES OF THE UNIRRADIATED SAMPLES. THE TENSILE DATA OF THE IRRADIATED AND UNIRRADIATED X10 CRNINB 189 AGREE WELL WITH CORRESPONDING AMERICAN TEST RESULTS ON AISI 348SS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*STEEL, STAINLESS + ALLOY + RADIATION EFFECT + NICKEL + IRRADIATION TESTING + SUPPORT STRUCTURE + *TENSILE PROPERTY

151615
BREIFELD H + KREUDER G + NOLKER A
STUDY ON THE FINITE FATIGUE STRENGTH IN A BIAXIAL STRESS SYSTEM SUBJECTED TO PURELY TENSILE AND COMPRESSIVE LOADING (IN GERMAN)
KRUPP FORSCHUNGSINSTITUT, F.R. GERMANY
REPORT UR 043/79 + GERRSR-451 +. 64 PPS, 33 FIGS, 13 REFS, JULY 1979

PRESSURE VESSEL COMPONENTS MUST FREQUENTLY BE DESIGNED FOR LOW-CYCLE FATIGUE, TAKING INTO ACCOUNT THE CONSTRAINED, MULTIAXIAL, CYCLIC STRAINS DUE TO THERMAL STRESS RIGHT INTO THE PLASTIC RANGE. THE DIMENSIONING SO FAR HAS BEEN BASED ON UNIAXIAL MECHANICAL TESTS WITH LARGE SAFETY MARGINS. THESE INVESTIGATIONS WERE AIMED AT DETERMINING TO WHAT EXTENT ACTUAL STRESSES BY THERMAL CYCLES IN THE BIAXIAL STRESS FIELD ARE COVERED. THESE BIAXIAL THERMO-CYCLIC TESTS SHOULD BE CONTINUED TO PERMIT A COMPARISON OF THE TEST RESULTS WITH THE EXISTING DESIGN SPECIFICATIONS AND TO GAIN A BETTER UNDERSTANDING OF THE PROBLEMS INVOLVED. (FAH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U. S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

GERMANY + STRESS + FATIGUE + CYCLING + THERMAL CONSIDERATION

147817
JAGER EH + OPFER HC
RS236 - FINAL REPORT CONTROLLED-BLASTING DEMOLITION OF RADIOACTIVE PRIMARY LOOP COMPONENTS OF DECOMMISSIONED NUCLEAR POWER PLANTS (IN GERMAN)
MESSERSCHMITT-BOLKOW-BLOHM GMBH, F.R. GERMANY
SOB-629 + RS236 + GERRSR-383 +. APPROX. 200 PPS, FIGS, DEC. 28, 1978

POSSIBLE WAYS OF DISMANTLING THE RADIOACTIVE PRIMARY LOOP COMPONENTS OF A BIBLIS-B-TYPE NUCLEAR POWER PLANT BY MEANS OF EXPLOSIVE DEVICES HAVE BEEN STUDIED. THE FOLLOWING PWR LARGE COMPONENTS WERE EXAMINED: STEAM GENERATORS, REACTOR COOLANT PUMPS, REACTOR VESSEL, PRIMARY PIPING, AND BIOLOGICAL SHIELD ASSUMING THAT (A) THE PLANT HAD BEEN OPERATED FOR 40 YEARS AT A 75% POWER LEVEL, (B) THE PRIMARY LOOPS HAD BEEN THOROUGHLY DECONTAMINATED BY CHEMICAL MEANS AFTER REACTOR DECOMMISSIONING, AND (C) THE COMPONENTS HAVE TO BE DISMANTLED INSIDE THE REACTOR CONTAINMENT BUILDING.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + POWER PLANT, NUCLEAR + *DECOMMISSIONING + *REACTOR, PWR + *COMPONENTS + EXPLOSION + STEAM GENERATOR + PUMPS + PRESSURE VESSELS + MAIN COOLING SYSTEM + PIPES AND PIPE FITTINGS + SHIELDING

146795
EDER O + GASCH A + KAISER F
SPECIFICATION OF CONDITIONS OF A NUCLEAR POWER PLANT WITH A PWR FOLLOWING A LOCA FOR PURPOSES OF STUDYING THE ENSUING DECONTAMINATION AND TRANSPORT (IN GERMAN)
NIS, NUKLEAR-INGENIEUR-SERVICE, F.R. GERMANY
NIS-337 + GERRSR-347 +. 230 PPS, TABS, FIGS, AUG. 1978

ASSUMPTIONS ARE MADE WHICH PROVIDE A CONSERVATIVE PICTURE OF THE REFERENCE PLANT STUDIED (PWR, 1300 MW) WITH RESPECT TO THE COURSE OF THE ACCIDENT AND THE RESULTING DAMAGE AS WELL AS THE DISTRIBUTION OF RADIOACTIVITY IN THE PLANT. ASSUMING A DOUBLE-ENDED RUPTURE OF THE HOT LINE IN THE PIPING CHAMBER AND A FUEL ASSEMBLY CLADDING TUBE DAMAGE OF 10% CORRESPONDING TO THE LICENSING GUIDELINES CURRENTLY VALID FOR THE RELASE OF IODINE, THE NUCLIDE-SPECIFIC DISTRIBUTION OF THE RADIOACTIVITY IN REFERENCE CHAMBERS IN THE CONTAINMENT IS DETERMINED WITH THE "CORRAL" COMPUTER PROGRAM.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*REACTOR, PWR + *ACCIDENT, LOSS OF COOLANT + *DECOMMISSIONING + TRANSPORTATION AND HANDLING + RADIOACTIVITY RELEASE + DISTRIBUTION + WASTE MANAGEMENT + GERMANY

143904
MAYINGER F + VIECENZ HJ
PHASE SEPARATION (IN GERMAN)
TECHNISCHE UNIV. HANNOVER, F.R. GERMANY
BMFT-FB RS 179-03 + GERRSR-332 +. 133 PPS, FIGS, 39 REFS (NO DATE)

143904 *CONTINUED*
THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

PHASE CHANGE + HYDRAULIC ANALYSIS + GERMANY + ANALYTICAL TECHNIQUE + MATHEMATICAL TREATMENT

143901
EXPERIMENTAL AND THEORETICAL RESEARCH ON THE THERMAL HYDRAULIC BEHAVIOR IN THE INITIAL BLOWDOWN PHASE, PARTS A, B, & C (IN GERMAN)
TECHNISCHE UNIV. HANNOVER, F.R. GERMANY
BMFT-FB RS 163-03 + GERRSR-334 +. APPROX. 150 PPS, FIGS (NO DATE)

THREE AREAS ARE DISCUSSED: ENTRAINMENT INVESTIGATION AND POST DRYOUT, MIXING INVESTIGATIONS, AND INVESTIGATIONS OF PRIMARY SYSTEM BEHAVIOR.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*THERMAL HYDRAULIC ANALYSIS + *BLOWDOWN + EXPERIMENT + HEAT FLUX, DRYOUT + FLOW, MIXING + R AND D PROGRAM + GERMANY

146420
RELIABILITY ASSESSMENT OF THE SECONDARY CONTAINMENT OF A PWR (IN GERMAN)
TECHNISCHE UNIVERSITAT MUNCHEN, F.R. GERMANY
BMFT RS 201 + GERRSR-366 +. 270 PPS, FIGS, REFS, SEPT. 1978

THE INTENTION OF THIS REPORT IS TO CONTRIBUTE TO THE DEVELOPMENT OF METHODS FOR THE RISK ANALYSIS OF NUCLEAR POWER PLANTS. FOR THIS PURPOSE A RELIABILITY ANALYSIS OF A STRUCTURAL COMPONENT, I.E. A REACTOR CONTAINMENT STRUCTURE IS CARRIED OUT. THE PROJECT CONSISTS BASICALLY OF THREE CONCENTRATED EFFORTS: OF THE STEEL HULL FOLLOWING A LOSS OF COOLANT ACCIDENT (LOCA); THE BEHAVIOR OF CONCRETE UNDER IMPACT LOAD CONDITIONS; AND FINALLY WITH THE ANALYSIS OF THE LOAD CONDITIONS. THIS INFORMATION IS THEN ASSEMBLED TO A COMPLEX RELIABILITY ANALYSIS. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + REACTOR, PWR + CONTAINMENT + RELIABILITY ANALYSIS + RISK + ANALYTICAL TECHNIQUE

151613
RORS J + LUBBESMEYER D
DEVELOPMENT OF A METHOD TO MEASURE TRANSIENT MASS FLOW RATES USING SIGNAL CORRELATION (IN GERMAN)
TECHNISCHEN UNIVERSITAT BERLIN, F.R. GERMANY
BMFT-RS-135A + GERRSR-444 +. 64 PPS, FIGS, MARCH 1979

THE MASS-FLOW-RATE OF THE TWO-PHASE FLOW IS DETECTED BY MEASURING BOTH DENSITY AND VELOCITY. THE DENSITY MEASUREMENT IS BASED ON THE ATTENUATION OF X-RAY-BEAMS. THE VELOCITY MEASUREMENT ON THE CROSS-CORRELATION OF TWO THERMOCOUPLE-SIGNALS.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

FLOW, TWO PHASE + MEASUREMENT + NOISE ANALYSIS + THERMOCOUPLE + MASS TRANSFER

147779
MEMMERT G
UNCERTAINTY OF THE FAILURE RATE OF COMPONENTS AND THE APPARENT INFLUENCE OF THESE OCCURRENCES IN FAULT TREE ANALYSIS (IN GERMAN)
TECHNISCHEN UNIVERSITAT BERLIN, F.R. GERMANY
BMFT-RS-228 + GERRSR-385 +. 25 PPS, 1 TAB, NO DATE

THIS REPORT IS CONCERNED WITH THE UNCERTAINTY OF RELIABILITY DATA AS WELL AS ITS INFLUENCE ON THE RESULTS OF FAULT TREE CALCULATIONS. AFTER A SHORT COMMENT ON STATISTICAL PROBLEMS CONCERNING RELIABILITY DATA, THE AVAILABLE DATA IS DISCUSSED AND THE DEPENDENCE OF THE DATA SOURCES SHOWN. FINALLY SUITABLE DISTRIBUTION FUNCTIONS ARE PROPOSED TO DESCRIBE THE EXISTENT DATA. (EWH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FAULT TREE ANALYSIS + RELIABILITY ANALYSIS + DATA COLLECTION + ANALYTICAL TECHNIQUE

150143
WESSER U
MEASUREMENT OF TRANSIENT MASS-FLOW-RATES ON THE BASIS OF SIGNAL CORRELATION (DENSITY AND VELOCITY) (IN GERMAN)
TECHNISCHEN UNIVERSITAT BERLIN, F.R. GERMANY
BMFT-RS-135A + GERRSR-419 +. 64 PPS, 11 REFS (NO DATE)

WITHIN THE PROJECT RS-135 A METHOD WAS DEVELOPED TO MEASURE TRANSIENT MASS-FLOW-RATES (STEAM/WATER). THE MASS-FLOW-RATE OF THE TWO-PHASE-FLOW IS DETECTED BY MEASURING BOTH DENSITY AND VELOCITY. THE DENSITY MEASUREMENT IS BASED ON THE ATTENUATION OF X-RAY-BEAMS, THE VELOCITY MEASUREMENT ON THE CROSS-CORRELATION OF TWO THERMOCOUPLE-SIGNALS. (CED)

150143 *CONTINUED*
AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

SAFETY ANALYSIS + FLOW, TWO PHASE + MEASUREMENT + CORRELATION + FLOW, TURBULENT + THERMOCOUPLE + INSTRUMENT, DENSITY

149931
BAUES H + DITTMAR S + STRICKHAUSEN F
COMPARISON AND USE OF INTERNATIONAL STANDARDS - I.E., THE ASME BOILER AND PRESSURE VESSEL CODE AND THE CORRESPONDING GERMAN STANDARDS (IN GERMAN)
TECHNISCHER UBERWACHUNGS-VEREIN RHEINLAND E.V., F.R. GERMANY
REPORT 150345 + GERRSR-430 +. 135 PPS, FIGS, MARCH 31, 1979

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + INTERNATIONAL + *CODES AND STANDARDS + *COMPARISON + PRESSURE VESSELS

145458
KORBER H + VEIHELMANN R + UNGER H
INVESTIGATION OF THE FIRST PHASE OF THE CORE MELT ACCIDENT WITH MELSIM-1 IN A PWR AND A BWR STANDARD PLANT, AND THE COUPLING OFMELSIN-1 AND BILANZ-1, PART I (IN GERMAN)
UNITERSITAT STUTTGART, F.R. GERMANY
BMFT-RS 211(PART I) + GERRSR-363 +. 106 PPS, FIGS, REFS, JUNE 1978

MELSIM-1 IS COUPLED WITH THE ENERGY BALANCE CODE BILANZ-I IN ORDER TO OBTAIN THE INFLUENCE OF MELSIN-MODELS ON THE ATMOSPHERIC CONDITIONS IN THE CONTAINMENT. OVERALL RESULTS AT MASS AND ENERGY TRANSFORT BETWEEN REACTOR VESSEL AND CONTAINMENT OR CONTAINMENT PRESSURE AS A FUNCTION OF TIME ARE IN GOOD ACCORDANCE WITH VALUES OBTAINED BY A SINGLE ROD MODEL. THE COUPLED CALCULATIONS OF MELSIM-I AND BILANZ-I SHOW THAT THE CONTAINMENT PRESSURE STAYS BELOW THE DESIGN PRESSURE DURING THE TIME PERIOD CONSIDERED.

AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET, WASHINGTON, D. C. 20555 (08 CENTS/PAGE -- MINIMUM CHARGE $2.00)

GERMANY + ACCIDENT, CORE DISRUPTIVE + CORE MELTDOWN + ACCUMULATORS + REACTOR, PWR + CONTAINMENT ATMOSPHERE + ACCIDENT, LOSS OF COOLANT + REACTOR, PWR + REACTOR, BWR + ACCIDENT, FUEL SLUMP

145756
BISANZ R + KORBER H + UNGER H
INVESTIGATION OF THE VARIOUS PHASES OF THE CORE MELT ACCIDENT AFTER THE AFTER FAILURE OF THE CORE SUPPORT STRUCTURE DUE TO THE FORMATION OF MELT OR DUE TO PRESSURE VESSEL FAILURE, PART II (IN GERMAN)
UNIVERSITAT STUTTGART, F.R. GERMANY
BMFT-RS 211 (PART II) + GERRSR-369 +. 175 PPS, FIGS, REFS, JULY 1978

THIS REPORT CALCULATES THE MANNER IN WHICH A CORE MELT PROGRESSES IN BOTH A PWR AND A BWR REACTOR. SEVERAL COMPUTER PROGRAMS ARE USED TO SIMULATE THE VARIOUS PHASES OF THE ACCIDENT. CALCULATIONS INDICATE THAT THE PWR REACTOR VESSEL WILL BE MELTED THROUGH IN ABOUT 1 HOUR AFTER THE BEGINNING OF THE ACCIDENT. FOR THE BWR REACTOR MELT THROUGH THE REACTOR VESSEL OCCURS IN ABOUT 2 HOURS. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

ACCIDENT + CORE MELTDOWN + FAILURE + REACTOR, LWR + GERMANY + ANALYTICAL MODEL + PRESSURE VESSELS

149857
BENZ R + BURGER M + UNGER H
THEORETICAL STUDIES ON STEAM EXPLOSIONS (IN GERMAN)
UNIVERSITAT STUTTGART, F.R. GERMANY
BMFT-RS 206 + GERRSR-422 +. 162 PPS, 7 TABS, 63 FIGS, 97 REFS, OCT. 1978

TWO MODELS OF THE FRAGMENTATION OF THE MELT ARE EXPLAINED. IT CAN BE SHOWN THAT FRAGMENTATION TIME AND DEGREE AS WELL AS SOME IMPORTANT, EXPERIMENTALLY OBSERVED RELATIONS OF MELT/WATER-INTERACTIONS CAN BE EXPLAINED BY VAPOR BUBBLE COLLAPSE IN CASE OF METALS WITH A LOW MELTING POINT. ADDITIONALLY, IT CAN BE SHOWN THAT A PURE BOUNDARY LAYER STRIPPING MECHANISM IS TOO SLOW TO BE OF IMPORTANCE FOR FRAGMENTATION, BUT POSSIBLY, STRIPPING PLAYS A ROLE IN CONTEXT WITH OTHER, FASTER FRAGMENTATION MECHANISMS, E.G. TAYLOR INSTABILITY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22151

ANALYTICAL MODEL + EXPLOSION + STEAM + METAL, LIQUID + METAL WATER REACTION

4. GERMAN (FRG) FAST REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM THE FEDERAL REPUBLIC OF GERMANY DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

143805
FISCHER T + MULLER K
SONIC-EMISSION MEASUREMENTS IN FRACTURE MECHANICS RESEARCH ON MATERIALS USED IN FAST SODIUM-COOLED REACTORS (IN GERMAN)
BATTELLE-INSTITUT E.V., FRANKFURT AM MAIN, F.R. GERMANY
BF-R-62.945-3 + GERRSR-330 +. 94 PPS, 2 TABS, 41 FIGS, 15 REFS, AUG. 1978

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + *ACOUSTICS + *MEASUREMENT + FRACTURE TOUGHNESS + PROPERTY, MECHANICAL + REACTOR, LMFBR

148263
MULLER-CHRISTIANSE + WOLLFSEN P
ATTITUDES ON QUESTIONS PERTAINING TO NUCLEAR ENERGY: PLUTONIUM (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-S-27 + GERRSR-376 +. 46 PPS, 8 TABS, 10 FIGS, 22 REFS, APRIL 1979

THERE WAS NO ENGLISH ABSTRACT AVAILABLE AT THE TIME THIS DOCUMENT WAS PROCESS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

GERMANY + PLUTONIUM + N-POWER, SAFETY OF + SOCIO/PHILOSOPHICAL CONSIDERATION

154222
MAYER G
ATTITUDES TO QUESTIONS PERTAINING TO ATOMIC ENERGY FAST BREEDER REACTOR SNR-300 DESIGN AND SAFETY (IN GERMAN)
GESELLSCHAFT FUR REAKTORSICHERHEIT (GRS) MBH, F.R. GERMANY
GRS-S-29 + GERRSR-471 +. 52 PPS, 9 FIGS, AUG. 1979

**NO ENGLISH ABSTRACT GIVEN AT THE TIME THIS DOCUMENT WAS PROCESSED.

AVAILABILITY - M. JOHNSON, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF INTERNATIONAL AFFAIRS, WASHINGTON, D.C.

GERMANY + *SNR-300 (LMFBR) + REACTOR, LMFBR + DESIGN + CORROSION + PROTECTION SYSTEM + REACTOR, FBR

151598
WILHELM D
FLOW COAST-DOWN CALCULATIONS INCLUDING NATURAL CONVECTION IN HELIUM COOLED FAST REACTORS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2822 + GERRSR-462 +. VP, FIGS, JUNE 1979

PROTECTED FLOW COAST-DOWN ACCIDENTS CALCULATED BY THE PHAETON2 COMPUTER CODE SHOW THAT THE SHUT-DOWN HEAT OF A GAS-COOLED FAST BREEDER REACTOR CAN BE REMOVED BY NATURAL CONVECTION IN THE PRIMARY LOOPS. THE DIFFERENCES IN ELEVATION NEEDED FOR NATURAL CONVECTION ARE FEASIBLE TECHNICALLY, BECAUSE THEY ARE NOT GREATER THAN TEN METERS. FROM THE CALCULATIONS A NUMBER OF CRITERIA CAN BE DERIVED WHICH SHOULD BE TAKEN INTO ACCOUNT IN OPTIMIZATION OF THE PRIMARY LOOPS.

AVAILABILITY - CONTACT DR. D. E. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

REACTOR, BREEDER + REACTOR, GCFR + HEAT TRANSFER + DECAY HEAT + HEAT TRANSFER, NATURAL CONVECTION + COMPUTER PROGRAM

155964
FAUDE D
1979 PROJECT SCHELLER BRUTER (FAST BREEDER) STATUS REPORT (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F. R. GERMANY
KFK-2828 + GERRSR-483 +. VP, JUNE 1979

PRESENTS THE ACCOMPLISHMENTS TO DATE OF THE PROGRAM TASK AREAS.

AVAILABILITY - SUSAN DISILVESTRO, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

R AND D PROGRAM + GERMANY + REACTOR, FAST + REACTOR, BREEDER

151126
FUKUZAWA Y
OBSERVATIONS OF THE BEHAVIOUR OF GAS IN THE WAKE BEHIND A CORNER BLOCKAGE IN FAST BREEDER REACTOR SUBASSEMBLY GEOMETRY
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2825 + GERRSR-452 +. VP, JULY 1979

OBSERVATIONS WERE MADE OF GAS BEHAVIOUR IN THE WAKE BEHIND A 21% CORNER BLOCKAGE IN THE SUBASSEMBLY GEOMETRY OF A LIQUID METAL FAST BREEDER REACTOR. THE TEST SECTION USED REPRESENTED

153826 *CONTINUED*
ONE HALF OF THE REACTOR FUEL SUBASSEMBLY, DIVIDED ALONG THE VERTICAL PLANE OF SYMMETRY THROUGH THE BLOCKAGE. FROM THE RESULTS, THE POSSIBILITY OF FUEL FAILURE CAUSED BY FISSION GAS RELEASE AT A BLOCKAGE IN THE FAST BREEDER REACTOR CAN BE CONSIDERED TO DEPEND ON THE OPERATING CONDITIONS OF THE REACTOR, SPECIALLY ON THE COOLANT VELOCITY.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

FLOW BLOCKAGE + FISSION GAS RELEASE + BUBBLE + GERMANY + REACTOR, LMFBR

154419
BUCKEL G + GEBHARDT W + KIEFHABER E
DEPENDENCE OF DIFFUSION THEORY RESULTS ON THE MESH SIZE FOR FAST REACTOR CALCULATIONS (IN ENGLISH)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2827 + GERRSR-456 +. VP, JULY 1979

IN THIS STUDY DISCRETIZATION AND ROUNDING ERRORS IN NEUTRONIC REACTOR CALCULATIONS AND THEIR EFFECTS ON NUMERICAL RESULTS ARE CONSIDERED FOR A WELL KNOWN SNR-300 TYPE BENCHMARK PROBLEM AS WELL AS FOR THE SLIGHTLY SIMPLIFIED ORIGINAL PROBLEM. IT WAS FOUND THAT MESH REFINEMENTS DO NOT NECESSARILY LEAD TO AN IMPROVED ACCURACY OF THE RESULTS BECAUSE THE DECREASING OF DISCRETIZATION ERROR IS EVENTUALLY MORE THAN COUNTERBALANCED BY AN INCREASING ROUNDING ERROR.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + COMPUTER PROGRAM + DIFFUSION + REACTOR, FAST + VOID COEFFICIENT + PERTURBATION METHOD + REACTOR, LMFBR + SNR-300 (LMFBR)

151590
TRIPPE G
EXPERIMENTAL INVESTIGATIONS OF TURBULENT FLOWS IN ROD BUNDLES WITH AND WITHOUT SPACER GRIDS (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2834 + GERRSR-457 +. VP, FIGS, JULY 1979

IN THE THERMOFLUIDDYNAMIC DESIGN OF LIQUID METAL COOLED REACTOR FUEL ELEMENTS THE LACK OF EXPERIMENTALLY CONFIRMED KNOWLEDGE OF THE THREE-DIMENSIONAL FLOW EVENTS IN ROD BUNDLES PROVIDED WITH SPACER GRIDS HAS APPEARED AS A SIGNIFICANT PROBLEM. TO CLOSE THIS GAP OF KNOWLEDGE, DETAILED MEASUREMENTS OF THE LOCAL VELOCITIES WERE MADE ON A 19-ROD BUNDLE MODEL. THE PITOT METHOD OF DIFFERENTIAL PRESSURE MEASUREMENTS WAS USED AS THE MEASURING SYSTEM.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

REACTOR, LMFBR + REACTOR, SAFETY RESEARCH + FLOW THEORY AND EXPERIMENTS + FLOW, TURBULENT + THERMAL HYDRAULIC ANALYSIS

153829
ALEXAS A
DEVELOPMENT OF A CODE FOR DESCRIPTION OF SODIUM SPRAY AND POOL FIRES PART I: COMPARISON BETWEEN THE CODES SOFIRE II AND NABRAND (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
KFK-2824 + GERRSR-468 +. VP, SEPT. 1979

REGARDING THE PROGRAM TECHNIQUE OF BOTH CODES, THE NABRAND-CODE SEEMS TO BE THE BETTER ONE, THOUGH IT INCLUDES SOME CONSERVATISMS IN THE MODELLING AND IN THE TRANSPORT COEFFICIENTS USED. FOR A REALISTIC ESTIMATION OF THE CONSEQUENCES OF LARGE SODIUM FIRES IN AN LMFBR, AN ELIMINATION OF THESE CONSERVATISMS IS NECESSARY. AFTER THAT IT MUST BE INVESTIGATED IF A COMBINATION OF THE MODIFICATED VERSION OF THE NABRAND-CODE AND OF A SPRAY FIRE-CODE (FOR EXAMPLE THE CODE SPRAY) IS EFFICIENT.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + COMPUTER PROGRAM + SODIUM + FIRE + SPRAY

155966
PHYSICS AND SAFETY STUDIES, EXCERPT FROM THE 1ST QUARTERLY REPORT 1979 OF THE KARLSRUHE FAST BREEDER PROJECT (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F.R. GERMANY
GERRSR-421 +. VP, 1979

PRESENTS RESULTS FROM FAST BREEDER WORK CONDUCTED DURING THE FIRST QUARTER OF 1979 AT KARLSRUHE.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*GERMANY + *R AND D PROGRAM + REACTOR, FAST + *REACTOR, BREEDER + REACTOR PHYSICS + SAFETY ANALYSIS

155964
FAUDE D
1979 PROJECT SCHNELLER BRUETER (FAST BREEDER) STATUS REPORT (IN GERMAN)
KERNFORSCHUNGSZENTRUM KARLSRUHE, F. R. GERMANY
KFK-2823 + GERRSR-463 +. VP, JUNE 1979

PRESENTS THE ACCOMPLISHMENTS TO DATE OF THE PROGRAM TASK AREAS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

R AND D PROGRAM + GERMANY + REACTOR, FAST + REACTOR, BREEDER

155611
PROGRESS REPORT: FRG-LMFBR SAFETY PROGRAM (IN GERMAN AND ENGLISH)
GERRSR-467 +. 61 PPS (NO DATE)

WORK IN THE FOLLOWING AREAS IS REPORTED ON: MEASUREMENTS IN THE ZERO POWER RANGE; THEORETICAL WORK ON DYNAMICS AND SAFETY; OUT-OF-PILE STUDIES OF COOLING DEFECTS; IN-PILE EXPERIMENTS ON TRANSIENT BEHAVIOR; FUEL-SODIUM INTERACTION; SODIUM TEMPERATURE AND FLOW MEASUREMENT FOR ACCIDENT DETECTION; AEROSOL RESEARCH AND SODIUM FIRE STUDIES; ENVIRONMENTAL IMPACT OF A FAST BREEDER ECONOMY; STUDIES OF MACHINE ELEMENTS IN SODIUM; FLUID-DYNAMICS STUDIES ON SUBASSEMBLY GEOMETRIES; IN-PILE EXPERIMENTS ON CARBIDE FUEL; AND DESIGN, POST-IRRADIATION EXAMINATION AND EVALUATION OF CARBIDE EXPERIMENTS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

GERMANY + R AND D PROGRAM + *REACTOR, LMFBR + REACTOR DYNAMICS + *SAFETY ANALYSIS + IN PILE EXPERIMENT + OUT OF PILE EXPERIMENT + FUEL COOLANT INTERACTION + AEROSOL + IRRADIATION TESTING + CARBIDE + FUEL ELEMENTS + THERMAL HYDRAULIC ANALYSIS + ECONOMICS

5. JAPANESE LIGHT-WATER REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM JAPAN DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

144523
TAKEDA T + NAGAI H
AN ANALYSIS OF THE ADDITIONAL FISSION PRODUCT RELEASE PHENOMENA (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7855 + JPNRSR-195 +. 51 PPS, 25 FIGS, 8 REFS, AUG. 1978

THE ADDITIONAL FISSION PRODUCT RELEASE BEHAVIOR THROUGH A DEFECT HOLE ON THE CLADDING OF FUEL RODS HAS BEEN STUDIED QUALITATIVELY WITH A COMPUTER PROGRAM CODAC-ARFP. THE ADDITIONAL FISSION PRODUCT RELEASE PHENOMENA ARE DESCRIBED AS QUALITATIVE EVALUATION. THE ADDITIONAL FISSION PRODUCT RELEASE BEHAVIOR IN COOLANT TEMPERATURE AND PRESSURE FLUCTUATIONS AND IN REACTOR START-UP AND SHUT-DOWN DEPENDS ON COOLANT WATER FLOW BEHAVIOR INTO AND FROM THE FREE SPACE OF FUEL RODS THROUGH A DEFECT HOLE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FAILURE, CLADDING + FISSION PRODUCT RELEASE + COMPUTER PROGRAM + FAILURE, FUEL ELEMENT + JAPAN + IODINE + IN PILE EXPERIMENT

144532
MOCHIZUKI Y + SOBAJIMA M + SUZUKI M
ANALYSIS OF LOCA EXPERIMENTS WITH RELAP4J CODE (ANALYSIS OF ROSA-II EXPERIMENTS FOR COLD LEG BREAK RUNS 413 AND 312) (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7835 + JPNRSR-194 +. 54 PPS, FIGS, REFS, SEPT. 1978

THE TWO TESTS WERE PERFORMED UNDER ACTUAL REACTOR INITIAL PRESSURE AND TEMPERATURE, IN THE RESPECTIVE DIFFERENT LPCI LOCATIONS. TYPICAL FACTORS INFLUENCING THE PRESSURE HISTORY WERE EXAMINED ANALYTICALLY. IN CONCLUSION, THE PREDICTIONS OF MACROSCOPIC-HYDRAULIC PHENOMENA SUCH AS PRESSURE TRANSIENT IN EACH LOCATION ARE GOOD, AND THE PREDICTIONS OF MICROSCOPIC-HYDRAULIC PHENOMENA SUCH AS STEAM-WATER SLIP VELOCITY, MULTI-DIMENSIONAL FLOW IN PLENUMS OR CORE, QUENCHING VELOCITY, COOLING OF FUEL RODS BY SMALL COOLANT FLOW ARE NOT GOOD. EXPERIMENTAL PHENOMENA NOT CLARIFIED YET WITH TEST DATA ARE PREDICTED WITH THE ANALYSIS. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + COMPUTER PROGRAM + ACCIDENT, LOSS OF COOLANT + PRESSURE TRANSIENT + FLOW THEORY AND EXPERIMENTS + EMERGENCY COOLING SYSTEM + THERMAL TRANSIENT

144529
KOBAYASHI K + SATO K
ASCOT-1: A COMPUTER PROGRAM FOR ANALYZING THE THERMO-HYDRAULIC BEHAVIOR IN A PWR CORE DURING A LOCA (IN ENGLISH)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7917 + JPNRSR-196 +. 53 PPS, 6 FIGS, 25 REFS, SEPT. 1978

THE CORE IS ASSUMED TO BE AXI-SYMMETRIC TWO-DIMENSIONAL AND THE CONSERVATION LAWS ARE SOLVED BY THE METHOD OF CHARACTERISTICS. FOR THE TEMPERATURE REPSONSE OF REPRESENTATIVE FUELS OF THE CONCENTRIC ANNULAR SUBREGIONS INTO WHICH THE CORE IS DIVIDED, THE HEAT CONDUCTION EQUATIONS ARE SOLVED BY THE EXPLICIT METHOD WITH AVERAGED FLOW CONDITIONS. THE BOUNDARY CONDITIONS AT THE UPPER AND LOWER PLENUM ARE GIVEN AS INPUTS. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + COMPUTER PROGRAM + COMPUTER PROGRAM, DIGITAL + *THERMAL HYDRAULIC ANALYSIS + ACCIDENT, LOSS OF COOLANT + REACTOR, PWR + TEMPERATURE + METAL WATER REACTION

144526
SASAKI S
AN ANALYSIS OF LOFT L1-2 EXPERIMENT BY ALARM-P1 COMPUTER CODE (IN ENGLISH)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7947 + JPNRSR-198 +. 88 PPS, 76 FIGS, 14 REFS, OCT. 1978

PRELIMINARY TO NUCLEAR TESTS A SIMPLE BLOWDOWN EXPERIMENT WAS PERFORMED IN WHICH THE CORE IS COMPOSED OF A CONFIGURATION SIMULATING FRICTIONAL RESISTANCE AND THE OVERALL EXPERIMENTAL FACILITY IS MAINTAINED ISOTHERMALLY WITHOUT ECC WATER INJECTION. AT THE BEGINNING OF COMPUTATION, INPUT DATA WERE CHOSEN FROM RELAP4J DATA USED BY THE LOFT ANALYSIS GROUP AND THEN CONVERTED AS RELEVANT TO THE ALARM-P1 INPUT SPECIFICATIONS. BY AND LARGE, GOOD AGREEMENTS WERE OBTAINED BETWEEN CALCULATIONAL RESULTS AND EXPERIMENTAL DATA. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + COMPUTER PROGRAM + BLOWDOWN + COMPARISON, THEORY AND EXPERIENCE

143891
ROSA-II TEST DATA REPORT 12 EFFECTS OF ECCS INJECTION AND PUMP CIRCULATION ON LOCA PHENOMENA IN LARGEST COLD LEG BREAKS (RUNS 332, 413, 425) (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7944 + JPNRSR-197 +. 146 PPS, TABS, FIGS, NOV. 1978

143891 *CONTINUED*
RESULTS OF THE ROSA-II TESTS SIMULATING A LOSS-OF-COOLANT ACCIDENT (LOCA) AND THE EFFECTS OF AN EMERGENCY CORE COOLING SYSTEM (ECCS) IN A PRESSURIZED WATER REACTOR (PWR) ARE REPORTED AS WELL AS TEST CONDITIONS AND INTERPRETATIONS OF THE DATA IN TEST RUNS 332, 413 AND 425. EACH TEST WAS CARRIED OUT WITH A LARGE DOUBLE-ENDED COLD LEG BREAK. TEST PARAMETERS ARE ECC INJECTION, PUMP OPERATION AND INITIAL TEMPERATURE DIFFERENCE ACROSS THE CORE INFLUENCING THE PRIMARY COOLANT SYSTEM.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, PWR * ACCIDENT, LOSS OF COOLANT * REACTOR TEST FACILITY * BLOWDOWN * CORE REFLOODING * EMERGENCY COOLING SYSTEM * *CORE * TEMPERATURE

144527
KOBAYASHI K * SASAKI S
SPADE: A COMPUTER SUBROUTINE FOR GENERATING STEAM TABLES HAVING PRESSURE AND DENSITY AS THE INDEPENDENT VARIABLES (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7961 * JPNRSR-199 *. 34 PPS. 3 FIGS. NOV. 1978

THE SPADE DIGITAL COMPUTER PROGRAM WAS DEVELOPED TO CALCULATE VARIABLE TRANSFORMATIONS AND PARTIAL DERIVATIVES BETWEEN PROPERTY VALUES WHICH ARE NECESSARY TO SOLVE THE MASS, MOMENTUM, AND ENERGY CONSERVATION LAWS HAVING PRESSURE AND DENSITY AS INDEPENDENT VARIABLES. THE OUTPUTS ARE TABLES OF TEMPERATURE, SONIC VELOCITY AND THE PARITAL DERIVATIVE OF H WITH RESPECT TO RHO AT CONSTANT PRESSURE HAVING PRESSURE AND DENSITY AS THE INDEPENDENT VARIABLES. (MLW)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*STEAM * *DATA COLLECTION * COMPUTER PROGRAM * COMPUTER PROGRAM, DIGITAL * VAPOR PRESSURE * TEMPERATURE * ACOUSTICS * THERMAL PROPERTY * PROPERTY, PHYSICAL * JAPAN

143974
OHNISHI N * TANZAWA S * KITANO T
EFFECT OF HEAT GENERATION PROFILE IN PELLET ON FUEL FAILURE BEHAVIOR (ENRICHMENT PARAMETER TEST IN NSRR) (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKYO
JAERI-M-7990 * JPNRSR-201 *. 54 PPS. FIGS. REFS. NOV. 1978

THE EFFECT OF HEAT GENERATION PROFILE IN PELLET ON FUEL FAILURE BEHAVIOR HAS BEEN EXAMINED FOR 5%, 10%, AND 20% ENRICHED FUEL RODS IN NSRR TESTS. THE FAILURE THRESHOLD ENERGY DEPOSITION DECREASES WITH INCEASING ENRICHMENT OF THE FUEL ROD; THE FAILURE THRESHOLD ENERGY DEPOSITIONS FOR 5%, 10%, AND 20% ENRICHED FUEL RODS ARE ABOUT 278, 265 AND 248 CAL/GUO(SUB 2), RESPECTIVELY FUEL FAILURE DETERIORATION OF THE CLADDING.DISP 143986 HEDR

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN * ACCIDENT, REACTIVITY * FAILURE, CLADDING * HEAT GENERATION, INTERNAL * FUEL ROD * CENTERLINE MELTING

147064
KOIZUMI Y * KIKUCHI C * SODA K
PREDICTION OF ROSA-III EXPERIMENT RUN 702 (IN JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7970 * JPNRSR-204 *. 76 PPS. FIGS. NOV. 1978

RUN 702 REPRESENTS A TYPICAL 200% DOUBLE ENDED RECIRCULATING PIPE BREAK AT PUMP SUCTION SIDE. ECCS IS NOT ACTIVATED. INITIAL CORE POWER AND FLOW RATE IS 3.73 MW AND 36.4 KG/SEC RESPECTIVELY. SOME MAJOR RESULTS ARE: 1) LOWER PLENUM FLASHING IS PREDICTED TO OCCUR AT 3.7 SEC AFTER BREAK. 2) FLOW DIRECTION IN BROKEN LOOP JET PUMP REVERSES IMMEDIATELY AFTER BREAK. 3) INTACT LOOP JET PUMP LOOSES ITS FUNCTION AT 10.5 SEC. 5) SURFACE TEMPERATURE OF THE SIMULATED FUEL ROD DOES NOT EXHIBIT AN EXCURSION TO HIGH TEMPERATURE, ALTHOUGH TEMPERATURE BEGINS TO SLOWLY INCREASE WHEN QUALITY IN THE CORE BECOMES 1.0 AT ABOUT 80 SEC. AFTER BREAK.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN * FLOW THEORY AND EXPERIMENTS * HYDRAULIC EXPERIMENT * THERMAL EXPERIMENT * THERMAL HYDRAULIC ANALYSIS * COMPUTER PROGRAM * REACTOR, BWR * FUEL ROD * SIMULATION

143993
SUDO Y * MURAO Y
EXPERIMENT OF THE DOWNCOMER EFFECTIVE WATER HEAT DURING A REFLOOD PHASE OF PWR LOCA (IN JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-7978 * JPNRSR-200 *. 93 PPS. 62 FIGS. DEC. 1978

THE RESULTS AND ANALYSIS ARE DESCRIBED OF A DOWNCOMER EFFECTIVE WATER HEAD EXPERIMENT. DOWNCOMER EFFECTIVE WATER HEAD IS THE DRIVING FORCE TO FEED AN EMERGENCY COOLANT TO THE CORE DURING A REFLOOD PHASE OF PWR LOCA. THE TEST RIG HAS DIMENSIONS OF THE FULL-SCALE HEIGHT AND GAP. THE EFFECTIVE WATER HEAD HISTORIES OBTAINED BY EXPERIMENT WERE COMPARED WITH THOSE PREDICTED FROM THE HEAT RELEASE FROM THE DOWNCOMER WALLS. THE HEAT RELEASE WAS CALCULATED FROM THE TEMPERATURE HISTORIES INDICATED BY THERMOCOUPLES INSTRUMENTED IN AND ON THE WALLS DURING EXPERIMENT.

143893 *CONTINUED*
AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

REACTOR, PWR + ACCIDENT, LOSS OF COOLANT + FLOW, TWO PHASE + VOID FRACTION + THERMAL HYDRAULIC ANALYSIS + PRESSURE DROP + PRESSURE TRANSIENT + CORE REFLOODING

147502
SATO K + SASAKI S + ARAYA F
ALARM-P1: A COMPUTER PROGRAM FOR PRESSURIZED WATER REACTOR BLOWDOWN ANALYSIS (IN ENGLISH)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8004 + JPNRSR-205 +. 103 PPS, 20 FIGS, 35 REFS, DEC. 1978

ALARM-P1 MODELS THE PWR SYSTEM FLUID CONDITIONS INCLUDING FLOW, PRESSURE, MASS INVENTORY, FLUID QUALITY AND HEAT TRANSFER. IT SOLVES INTEGRAL FORMS OF FLUID CONSERVATION AND STATE EQUATIONS FOR USER DEFINED VOLUMES TREATED AS ONE-DIMENSIONAL HOMOGENEOUS, THERMAL-EQUILIBRIUM ELEMENTS WITH INTERCONNECTING FLOW PATHS. IT ALSO PROVIDES THE INITIAL CONDITIONS FOR ANALYSIS OF THE LAST PORTION OF THE LOCA TRANSIENT, A REFLOOD PHASE, AND THE INFORMATION FOR CORE HEAT-UP ANALYSIS DURING THE WHOLE LOCA.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + *COMPUTER PROGRAM + REACTOR, PWR + THERMAL HYDRAULIC ANALYSIS + ACCIDENT, LOSS OF COOLANT + *BLOWDOWN + CORE REFLOODING + FLOW, CRITICAL

148842
TAKEDA T + HIRANO K
FUEL COOLANT INTERACTION EXPERIMENT BY DIRECT ELECTRICAL HEATING METHOD (ZR(O)2- H2O SYSTEM) (IN JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8035 + JPNRSR-202 +. 94 PPS, 27 FIGS, 4 REFS, JAN. 1979

IN THE PCM (POWER COOLING MISMATCH) EXPERIMENTS, THE FCI (FUEL COOLANT INTERACTION) TEST IS ONE OF NECESSARY TESTS IN ORDER TO PREDICT VARIOUS PHENOMENA THAT OCCUR DURING PCM IN THE CORE. A DIRECT ELECTRICAL HEATING METHOD IS USED FOR THE FCI TESTS FOR FUEL PELLET TEMPERATURE OF OVER 1000C. TEMPERATURE CHANGES OF COOLANT AND FUEL SURFACE, AS WELL AS THE PRESSURE CHANGE OF COOLANT WATER, WERE MEASURED. THE MOLTEN FUEL INTERACTED WITH THE COOLANT AND GENERATED SHOCK WAVES. THIS REPORT SHOWS THE MEASURED COOLANT PRESSURE CHANGES AND THE COOLANT TEMPERATURE CHANGES, AS WELL AS PHOTOGRAPHS OF DAMAGED FUEL PIN AND FUEL FRAGMENTS.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + *FUEL COOLANT INTERACTION + REACTOR TRANSIENT + *EXPERIMENT + MOLTEN FUEL + *FUEL ROD + *DAMAGE + SHOCK WAVE + REACTOR, LWR

148844
IWAMURA T + KUROYANAGI T
FLOW REDUCTION TRANSIENT BURNOUT IN AN ANNULAR TEST SECTION (IN JAPANESE & ENGLISH)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8047 + JPNRSR-203 +. 106 PPS, FIGS, JAN. 1979

IN ORDER TO UNDERSTAND THE TRANSIENT BOILING PHENOMENA DURING PCM (POWER-COOLING-MISMATCH) IN LIGHT WATER REACTORS, TRANSIENT BURNOUT EXPERIMENTS WERE PERFORMED USING A VERTICAL ANNULAR TEST SECTION UNDER ATMOSPHERIC PRESSURE. THE EXPERIMENTAL RESULTS SHOWED THAT BEYOND A FLOW REDUCTION RATE OF ABOUT 5 CM/SEC/SEC (1.4 MM GAP) AND ABOUT 1 CM/SEC/SEC (2.0 MM GAP), BURNOUT MASS VELOCITY BECAME LOWER THAN THE STEADY STATE ONE. WHEN THE FLOW REDUCTION RATES WERE FURTHER INCREASED TO 20 TO 40 CM/SEC/SEC OR BEYOND, THE BURNOUT DELAY TIME BECAME CONSTANT AT ABOUT 0.4 SEC.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

JAPAN + EXPERIMENT + *FLOW, TWO PHASE + *HEAT FLUX, BURNOUT + HEAT FLUX, CRITICAL + FLOW, ANNULAR + REACTOR, LWR + TRANSIENT + BOILING

154482
MURAMATSU K
COMPUTER PROGRAMS, THYDE-B1 FOR ANALYSIS OF SMALL BREAK LOCA OF A BWR AND THYDE-B-REFLOOD FOR ANALYSIS OF REFLOAD PHASE (IN JAPANESE & ENGLISH)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8119 + JPNRSR-207 +. 160 PPS, FIGS, REFS, JAN. 1979

TWO COMPUTER PROGRAMS, THYDE-B1 AND THYDE-B-REFLOOD HAVE BEEN DEVELOPED FOR EVALUATION OF ECCS PERFORMANCE DURING A LOCA IN A BWR. THYDE-B1 IS MAINLY CONCERNED WITH BLOWDOWN PHASE OF SMALL BREAK LOCA'S WITH A SPECIAL EMPHASIS ON THE BEHAVIOR OF THE MIXTURE LEVEL IN THE CORE. IT SOLVES INTEGRAL FORMS OF FLUID CONSERVATION AND STATE EQUATIONS, AS WELL AS THE HEAT TRANSFER BETWEEN FLUID AND FUEL RODS OR OTHER STURCTURES UNDER VARIOUS MODES OF ECCS OPERATION. THYDE-B-REFLOOD IS TO PREDICT THE TIME OF CORE REFLOODING BY ANALYSING THERMOHYDRAULICS WITHIN THE CORE SHROUD. VARIOUS INTERACTIONS BETWEEN THE FLUID IN THE CORE SHROUD AND THE INJECTED ECC WATER, SUCH AS SO-CALLED CCFL PHENOMENON, ARE ACCOUNTED FOR WITH MODELS PROVIDED IN THE PROGRAM.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

154482 *CONTINUED*
REACTOR, BWR + ACCIDENT, LOSS OF COOLANT + THERMAL HYDRAULIC ANALYSIS + SAFETY ANALYSIS + FLOW + BLOWDOWN + HEAT TRANSFER + COMPUTER PROGRAM

1544[illegible]
HARAYAMA Y + IZUMI F + YAMADA R
CONTACT PRESSURE BETWEEN PELLETS AND CLADDING TUBE IN AXI-SYMMETRIC TWO-DIMENSIONAL PROBLEMS (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8107 + JPNRSR-206 +. 21 PPS. 5 FIGS. MARCH 1977

THE CONTACT PRESSURE BETWEEN FUEL PELLETS AND CLADDING TUBE IS NECESSARY FOR ESTIMATION OF THE STRESS ACTING ONTO THE TUBE AND THE GAP HEAT TRANSFER. RECENTLY THESE ESTIMATIONS ARE MADE BY USE OF COMPUTER PROGRAMS. THE CONTACT PRESSURES ANALYTICALY OBTAINED ARE USABLE IN CHECKING THOSE OBTAINED NUMERICALLY BY PROGRAMS. THE CONTACT PRESSURES IN AXI-SYMMETRIC TWO-DIMENSIONAL PROBLEMS APPLIED TO THE FUEL ROD WERE OBTAINED AND FORMULIZED. THE CONTACT PRESSURES UNDER PLANE STRAIN, PLANE STRESS AND LAME'S CONDITIONS CAN BE PLOTTED ON THE FIGURE WHICH IS DRAWN BY APPLYING AXIAL SLIP TO LAME'S CONDITIONS.

AVAILABILITY - SUSAN DISILVESTRO, DOCUMENT MANAGEMENT BRANCH, DIVISON OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

JAPAN + FUEL ROD + *FUEL CLAD INTERACTION + CLADDING + FUEL, PELLET TYPE + TUBING + STRESS + FRICTION

151621
SOBAJIMA M + SUZUKI M + KITAGUCHI H
LOCA ANALYSIS OF BWR6 FOR THE ROSA-III TEST (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8185 + JENRSR-208 +. 120 PPS. 64 FIGS. MARCH 1979

THE EFFECT OF PARAMETERS ON THE LOCA PHENOMENA WERE STUDIED, INCLUDING DECAY HEAT, PHYSICAL PROPERTIES OF UO2 AND CLADDING, PHYSICAL PROPERTIES OF GAP, PUMP CHARACTERISTIC CURVES, DISCHARGE COEFFICIENT, HEAT SLAB, FLUID VOLUME AND HEIGHT OF BREAK LOCATION. THE EFFECTS OF ECC ON CORE COOLING AND A DIFFERENT COMPUTER CODE (RELAP-4EM (MOD 3) AS ANOTHER EVALUATION CODE) ON THE ANALYTICAL RESULTS WERE ALSO EXAMINED. THE PHYSICAL PROPERTIES OF THE GAP INFLUENCE LOCA PHENOMENA AND CORE COOLING MOST SENSITIVELY.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

JAPAN + ACCIDENT, LOSS OF COOLANT + PROPERTY, PHYSICAL + HEAT CONDUCTANCE, FUEL TO CLAD + COMPUTER PROGRAM + REACTOR, BWR + DECAY HEAT + EMERGENCY COOLING SYSTEM

152106
SUZUKI M + USAKI H + SEKIGUCHI S
OPEN DATA TAPES OF ROSA-II TESTS: USER'S MANUAL ON THE TAPES (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8287 + JENRSR-209 +. 55 PPS. 30 TABS. 21 REFS. JUNE 1979

TESTS SIMULATING A POSTULATED LOSS-OF-COOLANT ACCIDENT AND PERFORMANCE OF ECCS IN A PWR WERE CARRIED OUT WITH ROSA-II TEST FACILITY. FOR THE PURPOSE OF GENERAL USE OF THE ROSA-II TEST DATA, OPEN DATA TAPES RECORDING THE DATA ARE MADE AVAILABLE IN THE CALCULATION CENTER OF JAERI. FOLLOWING THE PROCEDURES IN THE PRESENT MANUAL, ANYONE WHO UTILIZES THE CALCULATION CENTER CAN OBTAIN THE TEST DATA AS FIGURES AND NUMERICAL TABLES.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

JAPAN + REACTOR, PWR + EMERGENCY COOLING SYSTEM + DATA PROCESSING + ACCIDENT, LOSS OF COOLANT + DATA COLLECTION + REACTOR TEST FACILITY

152104
KOIZUMI Y + KIKUCHI O + SUDA K
PREDICTION OF ROSA-III EXPERIMENT RUN 703 (IN ENGLISH & JAPANESE)
JAPAN ATOMIC ENERGY RESEARCH INST., TOKAI
JAERI-M-8300 + JENRSR-210 +. 55 PPS. 14 TABS. 132 FIGS. REFS. JUNE 1979

THE PURPOSE OF THE ROSA-III EXPERIMENT WITH A SCALED BWR TEST FACILITY IS TO EXAMINE PRIMARY COOLANT THERMAL-HYDRAULIC BEHAVIOR AND PERFORMANCE ECCS DURING A POSTULATED LOSS-OF-COOLANT ACCIDENT OF A BWR. RUN 703 ASSUMES A RECIRCULATION LINE DOUBLE-ENDED BREAK AT THE PUMP SUCTION UNDER AN AVERAGE CORE POWER WITH ACTUATION OF ECCS (HPCS, LPCS, LPCI, AND ADS). PREDICTION OF RUN 703 EXPERIMENT WAS MADE WITH COMPUTER CODE RELAP4J.*** HPCS STARTED 27 SEC AFTER THE BREAK, LPCS 53.9 SEC AND LPCI 66.9 SEC. HEATER-ROD SURFACES WERE IN DRYOUT CONDITION FROM 9 TO 33 SEC AFTER THE BREAK FOR THE LONGEST DURATION.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

JAPAN + COMPUTER PROGRAM + THERMAL EXPERIMENT + ACCIDENT, LOSS OF COOLANT + REACTOR, BWR + EMERGENCY COOLING SYSTEM + LPCI + HPCI + THERMAL HYDRAULIC ANALYSIS + HYDRAULIC EXPERIMENT

152827
INUSHIMA H + HORI M + HAGA K
OUT-OF-PILE EXPERIMENT OF FISSION GAS RELEASE IN LMFBR SUBASSEMBLY-4. FEASIBILITY STUDY OF GAS RELEASE DETECTION BY USE OF FLOW FLUCTUATION SIGNAL (IN JAPANESE & ENGLISH)
MITSUBISHI ELECTRIC CORP., JAPAN
PNC N941 79-49 + JPNRSR-211 +. 27 PPS, 13 FIGS, MAY 1979

FISSION GAS RELEASE TESTS WERE CARRIED OUT IN A 37-PIN BUNDLE TO STUDY THE FEASIBILITY OF FISSION PRODUCT GAS RELEASE DETECTION BY USE OF EDDY CURRENT TYPE FLOW METER. THIS 37-PIN BUNDLE SIMULATED A NORMAL SUBASSEMBLY OF LMFBR. FLOW AND FLOW FLUCTUATIONS WERE MEASURED BY AN EDDY-CURRENT TYPE FLOW METER AT THE OUTLET OF THE BUNDLE. THE OUTPUT SIGNALS FROM THE FLOW METER WERE FILTERED AND AMPLIFIED THROUGH A SPECIALLY MADE FLUCTUATION MEASURING CIRCUIT. THUS, THESE MEASURED SIGNALS WERE ANALYZED USING A DIGITAL COMPUTER.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

FISSION GAS RELEASE + FUEL ELEMENTS + ASSAY + ANALYTICAL TECHNIQUE + FLOW + JAPAN + COMPUTER PROGRAM + FUEL BURNUP + OUT OF PILE EXPERIMENT

143907
UOTANI M + HAGA K + KIKUCHI Y + HORI M
LOCAL FLOW BLOCKAGE EXPERIMENTS IN 37-PIN SODIUM COOLED BUNDLES WITH GRID SPACERS (IN ENGLISH)
POWER REACTOR & NUCLEAR FUEL DEVELOPMENT CORP., JAPAN
PNC N941 78-141 + JPNRSR-190 +. 15 PPS, 13 FIGS, 5 REFS, OCT. 1978

A SERIES OF OUT-OF-PILE EXPERIMENTS WERE CONDUCTED ON LOCAL TEMPERATURE RISES DUE TO NON-HEAT GENERATING BLOCKAGES IN 37-PIN BUNDLES. IN THE CENTRAL BLOCKAGE EXPERIMENT, THE CENTRAL 24 SUBCHANNELS OF THE BUNDLE WERE BLOCKED WITH A 5 MM THICK STAINLESS-STEEL PLATE AT UPSTREAM END OF A GRID SPACER. THE BLOCKED AREA WAS 27% OF THE TOTAL FLOW AREA. IN THE EDGE BLOCKAGE EXPERIMENT, A STAINLESS-STEEL PLATE BLOCKED 39 SUBCHANNELS OF A 1/2 EDGE PART OF THE CROSS-SECTIONAL AREA. THE DIMENSIONALESS COOLANT RESIDENCE TIME WAS FOUND INDEPENDENT OF REYNOLDS NUMBER EXCEPT IN THE LOW NUMBER RANGE, AND THE VALUE OBTAINED IN THE EDGE BLOCKAGE EXPERIMENT WAS ABOUT 2.4 TIMES AS MUCH AS THAT OBTAINED IN THE CENTRAL BLOCKAGE EXPERIMENT. WHEN EXPERIMENTAL RESULTS WERE EXTRAPOLATED TO THE REACTOR CONDITION, AN EDGE BLOCKAGE OF MORE THAN 30% MIGHT CAUSE LOCAL BOILING IN THE WAKE REGION, WHILE A CENTRAL ONE WOULD NOT CAUSE LOCAL BOILING IN ANY BLOCKAGE RATIO LESS THAN 60%. THE TEMPERATURE RISES IN THE BLOCKED GRID SPACER WERE ALSO DISCUSSED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

FLOW BLOCKAGE + BOILING + TEMPERATURE + REACTOR, LMFBR + MASS TRANSFER + OUT OF PILE EXPERIMENT

6. JAPANESE FAST REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM JAPAN DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

143776
OZAKI Y + HAGA K + KIKUCHI Y
ACOUSTIC NOISES WITH LOSS-OF-FLOW SODIUM BOILING EXPERIMENT IN A 19-PIN BUNDLE (IN ENGLISH)
POWER REACTOR & NUCLEAR FUEL DEVELOPMENT CORP., JAPAN
PNC N961 78-140 + JPNRSR-189F +. 9 PPS. 7 FIGS. 7 REFS. OCT. 1978

THIS PAPER DEALS WITH THE MEASUREMENT OF ACOUSTIC NOISES IN LMFBR FUEL SUBASSEMBLY. THE INTENSITY OF BOILING ACOUSTIC NOISES MEASURED WITH THE WAVEGUIDE METHOD WAS MUCH HIGHER THAN BACKGROUND NOISES. A DISTINCT PEAK COULD EASILY BE DISTINGUISHED FROM THE RESONANCE PEAKS OF THE EXPERIMENTAL SYSTEM. THE WAVEFORM OF THE BOILING ACOUSTIC NOISES WAS SIMILAR TO THE BURST TYPE ACOUSTIC EMISSION. THE PROPAGATION SPEED OF ACOUSTIC NOISES AGREED WELL WITH A PREDICTION BY THE THEORY BASED ON THE ASSUMPTION THAT THE MEASURED ACOUSTIC SIGNALS WERE TRANSMITTED ON THE PIPE AS SURFCE WAVES (RAYLEICH WAVES) OR LAMB WAVES. (EWH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

MEASUREMENT + ACOUSTICS + *MEASUREMENT, NOISE + SODIUM + *BOILING + REACTOR, LMFBR

143343
PROGRESS REPORT ON FAST BREEDER REACTOR DEVELOPMENT IN JAPAN, APRIL-JUNE 1978
POWER REACTOR & NUCLEAR FUEL DEVELOPMENT CORP., JAPAN
PNC N251 78-06 + JPNRSR-192F +. 11 PPS. NOV. 1978

DEVELOPMENT IN THE FOLLOWING AREAS IS DISCUSSED: THE EXPERIMENTAL FAST REACTOR JOYO; THE PROTOTYPE FBR MONJU; REACTOR PHYSICS; STRUCTURAL COMPONENTS; INSTRUMENTATION AND CONTROL; SODIUM TECHNOLOGY; FUEL MATERIALS; REACTOR CORE SAFETY; AND STEAM GENERATOR.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*JAPAN + *R AND D PROGRAM + *REACTOR, LMFBR + REACTOR, FAST + REACTOR, BREEDER + REACTOR PHYSICS + CONTROL SYSTEM + STRUCTURAL INTEGRITY + COMPONENTS + SODIUM + FUEL, NUCLEAR + SAFETY ANALYSIS + STEAM GENERATOR

7. U.K. LIGHT-WATER REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM THE U.K. DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

155967
HOLT PD + BOOT SJ
NUCLEAR ACCIDENT DOSIMETRY SYSTEMS: UK MEASUREMENTS AT THE FOURTH IAEA INTERCOMPARISON AT HARWELL, APRIL 1975
UKAEA, OXFORDSHIRE, U.K.
AERE-R-9190 + UKRSR-262 +. VP, SEPT, 1978

PRESENTS CONCLUSIONS AND FINDINGS FROM THIS FOURTH IAEA MEETING CONCERNING NUCLEAR ACCIDENT DOSIMETRY SYSTEMS.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

UNITED KINGDOM + *DOSIMETRY + *COMPARISON + ACCIDENT + IAEA

120343
MARTIN DJV
LASER HOLOGRAPHIC AND SPECKLE PHOTOGRAPHY METHODS FOR DEFECT DETECTION AND STRAIN EVALUATION IN PRESSURE VESSELS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 60 + UKRSR-183 +. 39 PPS, 22 FIGS, 3 REFS, SEPT, 1976

HOLOGRAPHIC INTERFEROMETRY AND LASER SPECKLE PHOTOGRAPHY ARE COHERENT OPTIC TECHNIQUES CAPABLE OF SHOWING, RECORDING, AND EVALUATING THE PHYSICAL EFFECTS OF DYNAMIC EVENTS. THIS PAPER EXPLAINS THE HOLOGRAPHIC TECHNIQUES, WITH AN EXAMPLE VISUALISING BURIED DEFECTS IN TUBES, AND DESCRIBES THE USE OF A SAFETY LASER FOR HOLOGRAPHIC AND SPECKLE PHOTOGRAPHY METHODS, TO EVALUATE STRAIN, AND FINALLY GIVES CONCLUSIONS. STRAIN VALUES IN FRONT OF A CRACK TIP IN A 75 MM THICK PRESSURE VESSEL BY SPECKLE PHOTOGRAPHY IS GIVEN.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

STRESS + PRESSURE VESSELS + TEST, NONDESTRUCTIVE + LASER + FLAW

140447
MARTIN D
HUBBLE BUBBLE II: A COMPUTER PROGRAM TO DESCRIBE THERMAL NON-EQUILIBRIUM FLOW OF WATER IN SIMPLE PIPE SYSTEMS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARNINGTON, UK
SRD R 118 + UKRSR-182 +. 38 PPS, 19 FIGS, 8 REFS, JULY 1978

DESCRIBES THE COMPUTER PROGRAM HUBBLE-BUBBLE II WHICH CONSIDERS THE FLOW OF A TWO-PHASE MIXTURE THROUGH SIMPLE PIPE SYSTEMS. THE WATER-STEAM MIXTURE IS NOT IN THERMAL EQUILIBRIUM, THE FORMATION OF THE STEAM BEING CONTROLLED BY HEAT FLOW TO THE BUBBLES. THE PROGRAM IS USED TO INVESTIGATE TRANSIENT FLOW FROM A PIPE SYSTEM CONTAINING PRESSURIZED HOT WATER, THE FLOW BEING INITIATED BY THE BURSTING OF A DISC AT ONE END OF THE PIPE SYSTEM.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA 22161

*COMPUTER PROGRAM + *FLOW, TWO PHASE + *PIPES AND PIPE FITTINGS + HEAT TRANSFER ANALYSIS + BUBBLE + PRESSURE TRANSIENT + WATER + UNITED KINGDOM + STEAM

143773
MACINNES DA
THE ELECTRONIC CONTRIBUTION TO THE THERMODYNAMICS OF UO2.
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 117 +(*) UKRSR-171 +. 8 PPS, 1 TAB, 2 FIGS, 11 REFS, AUG, 1978

THE SPECIFIC HEAT, CP(T), OF UO2 SHOWS A RAPID INCREASE BETWEEN 1500K AND 3100K (THE MELTING POINT). IT HAS BEEN CUSTOMARY TO INTERPRET THIS PEAK IN TERMS OF FORMATION OF DEFECTS IN THE PERFECT LATTICE. HOWEVER, STUDIES OF THE ELECTRICAL CONDUCTIVITY OF UO2 HAVE SHOWN IT TO BE THAT OF A SEMICONDUCTOR WITH A BAND GAP OF APPROXIMATELY 2 EV. THE FORMATION ENERGY OF DEFECTS IS CALCULATED TO BE BETWEEN 3.25 AND 5.5 EV, SO THE ACTIVATION ENERGY OF ELECTRONIC EXCITATION IS CONSIDERABLY LOWER THAN THAT OF DEFECT FORMATION. THIS PAPER PROPOSES A RE-INTERPRETATION OF THE PEAK IN CP(T) IN TERMS OF ELECTRONIC EXCITATION, AND SHOWS A SIMPLE BUT REALISTIC MODEL OF THE UO(2) VALENCE - CONDUCTION BAND STRUCTURE. (FAH)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

URANIUM DIOXIDE + THERMODYNAMICS + MICROSTRUCTURE + ELECTRICAL CONDUCTION + THERMAL PROPERTY

146483
HALL SF
A SIMPLE HOMOGENEOUS EQUILIBRIUM CRITICAL DISCHARGE MODEL APPLIED TO MULTI-COMPONENT, TWO-PHASE SYSTEMS - THE COMPUTER PROGRAMS CRITS AND CRITTER
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
UKRSR-170 + SRD R 127 +. 33 PPS, 2 TABS, 6 REFS, SEPT, 1978

A SIMPLE HOMOGENEOUS EQUILIBRIUM MODEL OF TWO-PHASE CRITICAL DISCHARGE FROM A RESERVOIR IS DESCRIBED, FOR USE IN SAFETY CALCULATIONS. THE ASSUMPTIONS ON WHICH THE MODEL IS BASED ARE DISCUSSED AND THE SOLUTION METHOD IS DESCRIBED; A COMPUTER PROGRAM, CRITS, WHICH SOLVES THE MODEL EQUATIONS IS GIVEN. THE MODEL IS THEN EXTENDED TO THE CASE WHERE THE FLUID IN THE RESERVOIR

146483 *CONTINUED*
UNDER CONSIDERATION IS A MIXTURE OF SEVERAL COMPONENTS. ADDITIONAL ASSUMPTIONS ARE MADE AND AN EASILY SOLVABLE SET OF EQUATIONS DERIVED. AGAIN, A COMPUTER PROGRAM, CRITTER, IS DESCRIBED WHICH SOLVES THIS MORE GENERAL SET OF EQUATIONS. THE SINGLE COMPONENT MODEL IS COMPARED WITH CRITICAL DISCHARGE RATES FOR WATER SYSTEMS DERIVED BY A DIFFERENT METHOD BUT WITH SIMILAR ASSUMPTIONS. EXAMPLES OF THE USE OF BOTH COMPUTER PROGRAMS ARE GIVEN.

AVAILABILITY - THE EDITOR, UNITED KINGDOM ATOMIC ENERGY AUTHORITY, SAFETY & RELIABILITY DIRECTORATE, CULCHETH, WARRINGTON WA3 4NE, ENGLAND

DISCHARGE + COMPONENTS + FLOW, TWO PHASE + COMPUTER PROGRAM + EQUATION OF STATE

148845
MACINNES DA
THE ELECTRONIC CONTRIBUTION TO THE THERMODYNAMICS OF MOLTEN UO(2)
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, UK
SRD R 130 + UKRSR-239 +. 6 PPS, 3 TABS, 14 REFS, SEPT, 1978

THE SPECIFIC HEAT OF MOLTEN UO(2) WAS ANALYZED AT ITS MELTING POINT T(SUB M) AND SUGGEST THERE EXISTS A MECHANISM WHICH CAN ABSORB INTERNAL ENERGY AND WHICH IS PRESENT IN UO(2) BUT NOT IN OTHER IONIC AB(2) COMPOUNDS SUCH AS CAF(2). THIS MECHANISM WAS IDENTIFIED WITH ELECTRONIC EXCITATION. THE CALCULATED VALUE OF C(SUB V)(T)(SUB M) WAS COMPARED WITH THAT IN CURRENT USE AND SHOW THAT A MAJOR DISCREPANCY EXISTS. IT SEEMS POSSIBLE THAT ERRONEOUS EXTRAPOLATION OF C(SUB P)(T) BETWEEN T = T(SUB M) AND T = 5000K IS THE SOURCE OF DIFFICULTY IN INTERPRETATION OF CURRENT EXPERIMENTAL WORK ON HIGH-TEMPERATURE THERMODYNAMICS OF UO(SUB 2).

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*THERMODYNAMICS + *MOLTEN FUEL + URANIUM DIOXIDE + HIGH TEMPERATURE + UNITED KINGDOM

148843
BRISCOE F + VAUGHAN GJ
LNG/WATER VAPOUR EXPLOSIONS - ESTIMATES OF PRESSURES AND YIELDS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 131 + UKRSR-176 +. 20 PPS, 4 TABS, 7 FIGS, 27 REFS, OCT, 1978

CRITICALLY REVIEWS THE EXPERIMENTAL DATA ON VAPOUR EXPLOSIONS BETWEEN LNG AND WATER AND OTHER HEAVIER HYDROCARBONS AND WATER. THE SUPERHEAT LIMIT THEORY WHICH PURPORTS TO EXPLAIN THE EXPERIMENTS IS CONSIDERED, AND IS USED TO CALCULATE EXPLOSION PRESSURES AND YIELDS. THE THEORY IS SHOWN TO BE DEFICIENT IN SOME RESPECTS, AND A METHOD IS DESCRIBED OF CALCULATING UPPER LIMITS TO THE EXPLOSION YIELDS, DEPENDANT ONLY ON THERMODYNAMIC EFFECTS. THESE CALCULATIONS GIVE PRESSURES AND YIELDS HIGHER THAN THOSE CALCULATED BY THE SUPERHEAT LIMIT THEORY, BUT STILL MANY TIMES SMALLER THAN THE YIELDS FROM EXPLOSIVE BURNING.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

LIQUID + *GAS + *WATER VAPOR + REVIEW + DATA COLLECTION + MATHEMATICAL TREATMENT + *EXPLOSION

147602
TIRION 4 -A COMPUTER PROGRAM FOR USE IN NUCLEAR SAFETY STUDIES
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD-R-134 + UKRSR-231 +. 37 PPS, 10 FIGS, 41 REFS, NOV, 1978

TIRION 4 IS A COMPUTER PROGRAM WHICH MAY BE USED TO CALCULATE THE CONSEQUENCES OF RELEASING RADIOACTIVE MATERIAL TO THE ATMOSPHERE. IT IS AN IMPROVED VERSION OF AN EARLIER PROGRAM, TIRION 2. THIS PAPER DESCRIBES THE WAYS IN WHICH THE TWO PROGRAMS DIFFER AND THE IMPROVEMENTS THAT HAVE BEEN MADE. THESE INCLUDE A SYSTEMATIC STUDY OF PLUME RISE, SEVERAL REFINEMENTS OF THE METEOROLOGICAL MODEL EMPLOYED, A MUCH MORE FLEXIBLE APPROACH TO THE RELATIONSHIP BETWEEN DOSE AND CONSEQUENCE AND AN EXAMINATION OF THE MILK INGESTION PATHWAY.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

RADIOACTIVITY RELEASE + PLUME BEHAVIOR + GAUSSIAN PLUME FORMULA + COMPUTER PROGRAM + WAKE EFFECT + CONCENTRATION + DOSE + IODINE + STRONTIUM + CESIUM + AIRBORNE RELEASE + AIRBORNE RELEASE

151575
WORLEDGE DH + SHAW P + PARRY GW
THE TOLERANCE-CONFIDENCE RELATIONSHIP AND SAFETY ANALYSIS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 129 + UKRSR-268 +. 15 PPS, 2 TABS, 5 FIGS, 8 REFS, JAN, 1979

THE RESULTS ARE PRESENTED OF AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN THE FRACTION OF A POPULATION (TOLERANCE) LYING BETWEEN TWO LIMITS AND THE CONFIDENCE ONE CAN HAVE ON THE VALUE OF THAT FRACTION BASED ON A SMALL SAMPLE DRAWN AT RANDOM FROM THE POPULATION. A NEW INTERPRETATION OF THIS RELATIONSHIP IS PRESENTED. FOR THE SPECIAL CASE OF THE NORMAL DISTRIBUTION AN INTERESTING EMPIRICAL FACT IS INTRODUCED AND ITS RELEVANCE TO SAFETY ANALYSIS BY EVENT/FAULT TREE METHODS IS DISCUSSED.(FAH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

151575 *CONTINUED*
UNITED KINGDOM + SAFETY ANALYSIS + FAULT TREE ANALYSIS + MATHEMATICAL TREATMENT

148846
MACINNES DA
DO ELECTRONIC TRANSITIONS CONTRIBUTE TO THE THERMODYNAMICS OF CONDENSED UO(2)? A REVIEW OF THE ARGUMENTS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 151 + UKRSR-232 +. 13 PPS. 2 TABS. 5 FIGS. 20 REFS. MARCH 1979

RECENT ANALYSIS OF THE ROLE OF ELECTRONIC TRANSITIONS IN THE THERMOPHYSICAL PROPERTIES OF UO(2) IS SURVEYED. IT IS CONCLUDED TO BE HIGHLY LIKELY THAT THE ELECTRONS ON THE U4+ METAL ION PLAY A MAJOR ROLE IN BOTH THE SPECIFIC HEAT AND THERMAL CONDUCTIVITY, IN THAT THEY ARE PRIMARILY RESPONSIBLE FOR THE LARGE 'ANOMALOUS' INCREASE DISPLAYED BY EACH OF THESE QUANTITIES BETWEEN T = 1600K AND T(SUB M) = 3100K. THIS HAS IMPORTANT IMPLICATIONS FOR REACTOR ANALYSIS, SINCE TO OBTAIN THE REQUIRED DATA FOR MOLTEN FUEL ONE MUST EXTRAPOLATE EXISTING DATA THROUGH A WIDE RANGE IN TEMPERATURE, AND THE BEHAVIOR OF THE ELECTRONIC MECHANISMS MAY BE EXPECTED TO EXTRAPOLATE QUITE DIFFERENTLY FROM THAT OF THE MECHANISM IN CURRENT USE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*THERMODYNAMICS + ELECTRON + *MOLTEN FUEL + *URANIUM DIOXIDE + DATA COLLECTION + ANALYTICAL TECHNIQUE + REVIEW + UNITED KINGDOM

154605
MACINNES DA + CATLOW CRA
THE SPECIFIC HEAT ANOMALY IN CRYSTALLINE UO2
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 140 + UKRSR-267 +. 10 PPS. 4 FIGS. 17 REFS. MAY 1979

AT HIGH TEMPERATURES THE SPECIFIC HEAT OF UO(SUB 2) SHOWS A MARKED DEPARTURE FROM THE DULONG AND PETIT LAW, AND THIS HAS BEEN ATTRIBUTED, BY ANALOGY WITH THE BEHAVIOUR OF ISOSTRUCTURAL CRYSTALS SUCH AS CAF(SUB 2), TO THE THERMAL GENERATION OF FRENKEL DEFECTS. THE EXCESS C(SUB P) OF T OF UO2 IS COMPARED WITH THAT OF CAF2, SRCL2, K2S AND ALSO PUO2 AND THO2. THESE COMPARISONS REVEAL BEHAVIOUR WHICH DEPENDS IN A MAJOR WAY ON THE PARTICULAR COMPOUND INVOLVED, AND THIS LENDS IMPORTANT SUPPORT TO AN EARLIER SUGGESTION THAT THE C(SUB P) OF T BEHAVIOUR OF UO(SUB 2) SHOULD BE ATTRIBUTED TO ELECTRONIC TRANSITIONS RATHER THAN FRENKEL DEFECT GENERATION.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

PROPERTY, PHYSICAL + THERMAL PROPERTY + URANIUM DIOXIDE + PLUTONIUM DIOXIDE + CALCIUM + FLUORIDE + STRONTIUM + CHLORIDE

151773
ALDERSON MAHG
A METHOD FOR THE ESTIMATION OF THE PROBABILITY OF DAMAGE DUE TO EARTHQUAKES
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 135 + UKRSR-284 +. 40 PPS. 13 FIGS. 28 REFS. JULY 1979

THE AVAILABLE INFORMATION ON SEISMICITY WITHIN THE UNITED KINGDOM HAS BEEN COMBINED WITH BUILDING DAMAGE DATA FROM THE UNITED STATES TO PRODUCE A METHOD OF ESTIMATING THE PROBABILITY OF DAMAGE TO STRUCTURES DUE TO THE OCCURRENCE OF EARTHQUAKES. THE ANALYSIS HAS BEEN BASED ON THE USE OF SITE INTENSITY AS THE MAJOR DAMAGE PRODUCING PARAMETER. DATA FOR STRUCTURAL, PIPEWORK AND EQUIPMENT ITEMS HAVE BEEN ASSUMED AND THE OVERALL PROBABILITY OF DAMAGE CALCULATED AS A FUNCTION OF THE DESIGN LEVEL. DUE ACCOUNT IS TAKEN OF THE UNCERTAINTIES OF THE SEISMIC DATA. (FAH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

EARTHQUAKE + DAMAGE + FORECAST + PROBABILITY + UNITED KINGDOM + BUILDING + STRUCTURE

154601
BRISCOE F
VALIDATION OF BKWAVE - A COMPUTER PROGRAM FOR THE CALCULATION OF ONE-DIMENSIONAL SHOCK WAVE PROPAGATION FROM EXPLOSIONS
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 155 + UKRSR-289 +. 53 PPS. 3 TABS. 18 FIGS. 20 REFS. SEPT. 1979

THIS REPORT COMPARES BKWAVE RESULTS FOR BURSTING HIGH PRESSURE SPHERES AND UNCONFINED GAS CLOUD EXPLOSIONS WITH OTHER PUBLISHED DATA (INCLUDING BOTH THEORETICAL PREDICTIONS AND EXPERIMENTAL MEASUREMENTS). IT IS CONCLUDED THAT BKWAVE RESULTS ARE IN GOOD AGREEMENT WITH OTHER PUBLISHED DATA FOR APPLICATIONS WHERE THE BKWAVE INITIAL CONDITIONS ALLOW AN ACCURATE REPRESENTATION OF THE REAL SITUATION AND THAT BKWAVE RESULTS CAN BE ADJUSTED BY USING ONE OF THE INPUT PHYSICAL PARAMETERS AS A FREE PARAMETER TO GIVE GOOD AGREEMENT WITH OTHER PUBLISHED DATA FOR APPLICATIONS WHERE THE BKWAVE INITIAL CONDITIONS ONLY ALLOW AN APPROXIMATE REPRESENTATION OF THE REAL SITUATION. THE CURRENT VERSION OF BKWAVE IS DESCRIBED.

AVAILABILITY - CONTACT DR. G.L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C.,F OR DISTRIBUTION INFORMATION.

154601 *CONTINUED*
COMPUTER PROGRAM + SHOCK WAVE + EXPLOSION + SAFETY PROGRAM

145640
BRITTAIN I + BRYCE WM + GREEN C
THE STATUS OF RELAP-UK MK III AT JULY 1976- A PROGRAM FOR TRANSIENT THERMAL-HYDRAULIC ANALYSIS
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-R-1083 + SGHW/HTWG/P(77)322 + UKRSR-177 +. 105 PPS. MAY 1977

RELAP-UK MKIII WAS DEVELOPED IN SUPPORT OF THE STEAM GENERATING HEAVY WATER REACTOR. THE MAJOR CHANGE OVER EARLIER VERSIONS IS THE INTRODUCTION OF AN IMPLICIT SCHEME FOR THE INTEGRATION OF THE EQUATIONS OF HYDRODYNAMICS, WHICH RESULTS IN RUNNING TIME IMPROVEMENTS OF UP TO A FACTOR OF TEN. ANOTHER NEW FEATURE IS THE RELAP4 FOUR-QUADRANT DYNAMIC PUMP MODEL. IMPROVEMENTS ALSO INCLUDE REVISED MOMENTUM FLUX AND KINETIC ENERGY TERMS IN THE CONSERVATION EQUATIONS, AND AN OPTION TO RAMP ON/OFF VALVES OVER A FINITE TIME OF OPERATION.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

UNITED KINGDOM + THERMAL HYDRAULIC ANALYSIS + COMPUTER PROGRAM + TRANSIENT + REACTOR, LWR + FLOW, TWO PHASE + HEAT FLUX, DRYOUT

148847
NASH G
AN APPRAISAL OF SUBCOOLED BOILING AND SLIP RATIO FROM MEASUREMENTS MADE IN LINGEN BWR
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-R-1128 + UKRSR-178 +. 28 PPS, 2 TABS, 12 FIGS, 14 REFS, AUG. 1977

MEASUREMENTS OF STEAM BUBBLE VELOCITIES AND VOIDAGE HAVE BEEN MADE IN THE RELATIVELY SMALL CORE B OF LINGEN BWR. THE RESULTS OF AXIAL SCANNING IN ONE RADIAL POSITION HAVE PRODUCED EXPERIMENTAL VALUES OF SLIP RATIO, POWER (FROM A TRAVELLING INCORE PROBE), VOIDAGE AND COOLANT MEAN DENSITY OVER THE CORE HEIGHT FOR THIS POSITION. THIS ONE SET OF DISTRIBUTIONS HAS ENABLED TESTING OF CURRENT UKAEA MODELS OF SUBCOOLED BOILING AND SLIP RATIO AGAINST EXPERIMENTS. FROM THE COMPARISONS, IT APPEARS THAT THE ONSET OF VOIDING CAN BE PREDICTED WELL, BUT THE ASSUMPTION THAT A CONSTANT FRACTION OF THE HEAT FLUX FORMS STEAM IN THE SUBCOOLED REGION NEEDS MODIFYING.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

BOILING + SUBCOOLING + VOID + BUBBLE + MEASUREMENT + REACTOR, BWR + ANALYTICAL TECHNIQUE + UNITED KINGDOM + COMPARISON, THEORY AND EXPERIENCE

145281
RAMSDEN D
ASSESSMENTS OF RISK FOLLOWING THE INHALATION OF PLUTONIUM OXIDE USING OBSERVED LUNG CLEARANCE PATTERNS
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-R-1118 + UKRSR-175 +. 20 PPS, 4 TABS, 3 FIGS, 16 REFS, OCT. 1977

DOSE COMMITMENTS AND RISK ESTIMATES FOR THE INHALATION OF PLUTONIUM OXIDE ARE CALCULATED USING THE LUNG CLEARANCE PATTERNS OBSERVED AT AEE WINFRITH. THESE RISKS ARE COMPARED WITH PUBLISHED DATA ON RISKS ARISING FROM A LUNG CLEARANCE BASED ON THE ICRP LUNG MODEL. (GTM)

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

DOSE + DOSE MEASUREMENT, INTERNAL + *LUNG + *PLUTONIUM + *RISK + UNITED KINGDOM + INHALATION

145877
FRASER DC
IN-SITU TESTING OF HIGH EFFICIENCY FILTERS AT AEE WINFRITH
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-M-1510 + UKRSR-181 +. 19 PPS, 2 TABS, 4 FIGS, 11 REFS, OCT. 1977

EXPERIENCE WITH IN-PLACE TESTING OF INSTALLED HEPA FILTERS. SYSTEMS, USING A CONDENSATION NUCLEI TECHNIQUE, IS DESCRIBED. ALSO INCLUDED IS A COMPARISON OF THIS METHOD WITH THE DOP TEST AND SODIUM CHLORIDE TEST.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

AIR CLEANING + TEST, FILTER SYSTEM + FILTER EFFICIENCY + FILTER, HEPA + TESTING + TEST, FILTER

145641
HOLMES JA
DEVELOPMENT OF THE BUBBLE RISE MODEL IN RELAP-UK
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-M-1540 + UKRSR-180 +. 19 PPS, 2 FIGS, 5 REFS, NOV. 1977

SEVERAL IMPROVEMENTS HAVE BEEN MADE TO THE "BUBBLE RISE CALCULATION" IN THE CODE RELAP-UK. IN PARTICULAR, THE CALCULATION OF THE BUBBLE RISE VELOCITY IS CONSISTENT WITH THE RELAP-UK DRIFT FLUX CORRELATION. IT IS NOW POSSIBLE TO REPRESENT A VERTICAL COLUMN BY A STACK OF VERTICALLY-ADJACENT BUBBLE-RISE VOLUMES. ANY MIXTURE LEVEL EXISTING WITHIN THE COLUMN CAN FREELY PASS BETWEEN THE VOLUMES IN THE STACK. THESE FACILITIES ARE DEMONSTRATED IN THIS PAPER BY A SIMPLE

145641 *CONTINUED*
COMPUTATIONAL EXAMPLE.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

UNITED KINGDOM + BUBBLE + COMPUTER PROGRAM + VOID FRACTION + FLOW, TWO PHASE

147795
HALSALL MJ
A REVIEW OF INTERNATIONAL SOLUTIONS TO NEACRP BENCHMARK BWR LATTICE CELL PROBLEMS
UKAEA ATOMIC ENERGY ESTABLISHMENT, DORSET, U.K.
AEEW-R-1052 + UKRSR-179 +. 31 PPS, 5 TABS, 9 FIGS, 11 REFS, DEC, 1977

THIS PAPER SUMMARIZES INTERNATIONAL SOLUTIONS TO A SET OF BWR BENCHMARK PROBLEMS. THE PROBLEMS, POSED AS AN ACTIVITY SPONSORED BY THE NUCLEAR ENERGY AGENCY COMMITTEE ON REACTOR PHYSICS, WERE AS FOLLOWS: (1). 9-PIN SUPERCELL WITH CENTRAL BURNABLE POISON PIN; (2) MINI-BWR WITH 4 PIN-CELLS AND WATER GAPS AND CONTROL ROD CRUCIFORM; (3) FULL 7 X 7 PIN BWR LATTICE CELL WITH DIFFERENTIAL U(235) ENRICHMENT; AND (4) FULL 8 X 8 PIN BWR LATTICE CELL WITH WATER-HOLE, PU LOADING, BURNABLE POISON, AND HOMOGENISED CRUCIFORM CONTROL ROD. SOLUTIONS HAVE BEEN CONTRIBUTED BY DENMARK, JAPAN, SWEDEN, SWITZERLAND AND THE UK.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U.S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22616

COMPARISON + COMPUTER PROGRAM + TRANSPORT THEORY + CODES AND STANDARDS + FLUX DISTRIBUTION + REACTOR, BWR + REACTOR PHYSICS + QUALITY ASSURANCE + NUMERICAL METHOD + INTERNATIONAL

152828
WOOD MH + MATTHEWS HR + MATTHEWS JR
COMPARISON OF EXPERIMENT AND NEFIG MODEL CALCULATIONS OF TRANSIENT FISSION GAS BEHAVIOR
UKAEA ATOMIC ENERGY ESTABLISHMENT, HARWELL, U.K.
TP, 793 + HL75/1849 + UKRSR-282 +. 27 PPS, 12 FIGS, 16 REFS, JUNE 1979

CALCULATIONS HAVE BEEN PERFORMED, USING THE NEFIG MODEL OF TRANSIENT GAS BEHAVIOR, OF RAPID EXTERNAL HEATING EXPERIMENTS PERFORMED ON PRE-IRRADIATED MIXED OXIDE FUEL. THE CALCULATIONS PREDICT FISSION GAS RELEASE, INTRAGRANULAR BUBBLE SIZES AND SWELLING IN GOOD AGREEMENT WITH EXPERIMENT.

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION

FISSION GAS RELEASE + FISSION PRODUCT RELEASE + THEORETICAL INVESTIGATION + BUBBLE + SWELLING + EXPANSION + COMPARISON, THEORY AND EXPERIENCE + COMPUTER PROGRAM + ANALYTICAL MODEL

143910
DULLFORCE TA + DE M JELPHS AN + RIMMER W
THERMAL INTERACTIONS BETWEEN CERROTRU AND WATER
UKAEA CULHAM LAB., OXON, U.K.
CLM-44/52/17 + UKRSR-169 +. 8 PPS, 2 TABS, 2 FIGS, 1977

FUEL-COOLANT INTERACTIONS BETWEEN WATER AND 20 G SAMPLES OF THE LOW MELTING POINT ALLOY CERROTRU HAVE, AS IN THE PREVIOUSLY REPORTED CASES OF TIN AND CERROBEND, SHOWN THE EXISTENCE OF A WELL DEFINED ZONE IN FUEL TEMPERATURE-COOLANT TEMPERATURE SPACE WITHIN WHICH FCIS MAY OCCUR SPONTANEOUSLY. THE MINIMUM FUEL TEMPERATURE REQUIRED IS SLIGHTLY DEPENDENT ON COOLANT TEMPERATURE AND IS SHOWN TO CORRESPOND VERY CLOSELY TO AN INTERFACE TEMPERATURE LINE CORRESPONDING TO HOMOGENEOUS NUCLEATION

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FUEL COOLANT INTERACTION + EXPLOSION + TEMPERATURE + TIN + *TEMPERATURE + MEASUREMENT + THERMAL CONDUCTIVITY

148848
DULLFORCE TA + RIMMER W
THERMAL INTERACTIONS BETWEEN CERROBEND AND WATER
CULHAM LAB., OXON, U.K.
CLM-RR/52/18 + UKRSR-184 +. 13 PPS, 4 TABS, 3 FIGS, 6 REFS, 1977

DROP TYPE FCI EXPERIMENTS HAVE BEEN PERFORMED USING 8-13 G SAMPLES OF THE LOW MELTING POINT ALLOY CERROBEND AS FUEL AND WATER AS COOLANT. ALTHOUGH THE COMPLETE TEMPERATURE INTERACTION ZONE HAS BEEN DETERMINED SPONTANEOUS INTERACTIONS OCCUR ONLY FOR SPECIFIC COMBINATIONS OF FUEL AND COOLANT TEMPERATURE (AS FOR MOLTEN TIN DROPPED INTO WATER). IT IS SHOWN THAT IN THIS SYSTEM THE INTERFACE TEMPERATURE MUST EXCEED THE COOLANT HOMOGENEOUS NUCLEATION TEMPERATURE FOR FRAGMENTATION TO OCCUR WHILE FOR EXPLOSIVE INTERACTIONS MUCH HIGHER INITIAL FUEL TEMPERATURES ARE REQUIRED.

AVAILABILITY - NATIONAL TECHNICAL INFORMATION SERVICE, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VA. 22161

*FUEL COOLANT INTERACTION + *EXPERIMENT + THERMAL ANALYSIS + MEASUREMENT + UNITED KINGDOM

154431

154431 *CONTINUED*
ROSE KM + MANN CA + HINDLE ED
THE AXIAL DISTRIBUTION OF DEFORMATION IN THE CLADDING OF PWR FUEL RODS IN A LOSS-OF-COOLANT ACCIDENT
UKAEA RISLEY ESTABLISHMENT, WARRINGTON, U.K.
ND-R-270(S) + UKRSR-255 *. 16 PPS, 5 FIGS, 16 REFS, FEB, 1979

FUEL ROD BEHAVIOUR IN A PWR LOSS-OF-COOLANT ACCIDENT IS COMMONLY ASSESSED BY REFERENCE TO EXPERIMENTS WHICH SIMULATE THE QUASI-ADIABATIC HEATING IN THE REFILL STAGE. HOWEVER, BEST ESTIMATES OF CLADDING TEMPERATURE CHARGES ARE MORE APPROPRIATELY REPRESENTED BY CONSTANT TEMPERATURE EXPERIMENTS. WHERE THE STRAIN RATE IS LOW, THESE HAVE BEEN FOUND TO GIVE RISE TO LARGE 'LONG BALLOONS' BY A MECHANISM OF THERMAL STABILISATION. THE CONSEQUENCES OF THIS PHENOMENON FOR EMERGENCY CORE REFLOODING NEED TO BE CONSIDERED.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*FUEL ROD + *CLADDING + *DEFORMATION + REACTOR, PWR + TRANSIENT + THERMAL TRANSIENT + PRESSURE TRANSIENT + ACCIDENT, LOSS OF COOLANT + UNITED KINGDOM + ZIRCALOY + FAILURE, CLADDING + SWELLING

8. U.K. FAST REACTOR SAFETY RESEARCH REPORTS

THE FOLLOWING IS A LISTING OF MICROFICHED REPORTS RECEIVED FROM THE U.K. DURING 1979 UNDER THE TECHNICAL EXCHANGE AGREEMENT.

152451
MATTHEWS JR
IMPROVED CALCULATION OF FISSION GAS DRIVEN CREEP IN FUEL PIN CLADDING
UKAEA ATOMIC ENERGY ESTABLISHMENT, HARWELL, U.K.
AERE-R-9160 + UKRSR-277 +. 30 PPS, 5 FIGS, 6 REFS, OCT. 1978

THE THIN SHELL APPROXIMATION IN CALCULATING FISSION GAS DRIVEN DEFORMATION OF FAST REACTOR CLADDING IS RE-EXAMINED. THE THIN SHELL APPROXIMATION USING MEAN CLAD DIAMETER AND TEMPERATURE MAY BE USED WITH MINOR ADJUSTMENT TO FIND CLAD STRAIN RATES. THICK SHELL ANALYSIS IS NECESSARY TO CALCULATE CLAD STRESS WHEN THERE IS A TEMPERATURE VARIATION THROUGH THE CLAD THICKNESS. METHODS ARE DESCRIBED FOR ESTIMATING THE EFFECTS OF LOCAL VARIATIONS IN CLAD SHAPE, THICKNESS AND TEMPERATURE. THE SIMPLEST APPROXIMATIONS ARE FOUND TO BE EXCESSIVELY PESSIMISTIC WHEN THE DISTRUBANCES ARE VERY LOCALISED. (FAH)

AVAILABILITY - CONTACT DR. G. L. BENNETT, U.S. NUCLEAR REGULATORY COMMISSION, OFFICE OF NUCLEAR REGULATORY RESEARCH, WASHINGTON, D.C., FOR DISTRIBUTION INFORMATION.

FUEL ROD + CLADDING + CREEP + REACTOR, FAST + ANALYTICAL TECHNIQUE

154415
MACINNES DA + MARTIN C + VAUGHAN GJ
THE EFFECT OF UNCERTAINTIES IN THERMO-PHYSICAL PROPERTIES OF UO(SUB 2) AND SODIUM ON MFCI'S
UKAEA SAFETY & RELIABILITY DIRECTORATE, WARRINGTON, U.K.
SRD R 159 + UKRSR-278 +. 12 PPS, 4 TABS, 4 FIGS, 18 REFS, JULY 1979

RECENT WORK HAS LED TO THE VALUES OF THE PHYSICAL PROPERTIES OF MOLTEN UO(SUB 2) AND SODIUM TO BE QUESTIONED. IN THIS PAPER, THE EFFECT OF THESE UNCERTAINTIES ON MOLTEN FUEL COOLANT INTERACTIONS (MFCI) IS INVESTIGATED. IN PARTICULAR, HOW THE INTERFACE TEMPERATURE/SPONTANEOUS NUCLEATION TEMPERATURE CRITERION FOR AN INTERACTION TO OCCUR AND ITS YIELD, ARE CHANGED. IT IS CONCLUDED THAT IT IS NOT POSSIBLE TO EXCLUDE MFCI'S BETWEEN UO(SUB 2) AND SODIUM BY THIS CRITERION GIVEN THE PRESENT UNCERTAINTIES.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

*FUEL COOLANT INTERACTION + FUEL MELTDOWN + SODIUM + THERMAL PROPERTY + HIGH TEMPERATURE + UNITED KINGDOM + PROPERTY, PHYSICAL

154429
BAKER AR
WHOLE CORE ACCIDENT IN AN LMFBR
UKAEA RISLEY ESTABLISHMENT, WARRINGTON, U.K.
ND-R-178(R) + UKRSR-279 +. 27 PPS, 16 FIGS, 19 REFS, NOV. 1978

THE LECTURE PRESENTS AN INTRODUCTION TO THE EVALUATION OF WHOLE-CORE ACCIDENTS IN A LIQUID-METAL-COOLED FAST BREEDER REACTOR (LMFBR). THESE ACCIDENTS CAN BE SUB-DIVIDED INTO TWO TYPES: TRANSIENT OVERPOWER ACCIDENTS OR TRANSIENT UNDER-COOLING ACCIDENTS, ACCORDING AS THE POWER OR COOLANT FLOW IS SUBSTANTIALLY DISTURBED FROM NORMAL VALUES. THERE WOULD ONLY BE SERIOUS CONSEQUENCES IN THE EVENT OF FAILURE OF THE REACTOR'S AUTOMATIC PROTECTION SYSTEM OR, FOR A FEW LESS IMPORTANT HYPOTHETICAL ACCIDENTS, IN THE EVENT OF SUDDEN AND CATASTROPHIC FAILURE OF A MAJOR STRUCTURE. THE TREATMENT OF WHOLE-CORE ACCIDENTS IN SAFETY PRESENTATIONS TO RESPONSIBLE AUTHORITIES IS BRIEFLY DISCUSSED AND THE POSSIBLE COURSES OF SUCH ACCIDENTS ARE OUTLINED, SHOWING THE IMPORTANCE OF THE DOPPLER FUEL TEMPERATURES AND SODIUM VOID COEFFICIENTS. THE CALCULATIONAL METHODS ARE DESCRIBED WITH ILLUSTRATIONS FROM STUDIES WITH THE UK CODE FRAX. THE LECTURE CONCLUDES WITH BRIEF CONSIDERATION OF THE EXPERIMENTAL VALIDATION OF COMPUTER CODES AND THE DESIGN CONSEQUENCES OF WHOLE-CORE ACCIDENT STUDIES.

AVAILABILITY - SUSAN DISILVESTRE, DOCUMENT MANAGEMENT BRANCH, DIVISION OF TECHNICAL INFORMATION & DOCUMENT CONTROL, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C.

UNITED KINGDOM + *REACTOR, LMFBR + *ACCIDENT, LOSS OF FLOW + COMPUTER PROGRAM + *ACCIDENT, TRANSIENT OVERPOWER + TRANSIENT + ACCIDENT, HYPOTHETICAL + ACCIDENT, CORE DISRUPTIVE

KEYWORD INDEX

A COLLECTION OF KEYWORDS IS USED TO DENOTE THE MAIN SAFETY RELATED POINTS COVERED IN EACH ARTICLE. THE FOLLOWING INDEX IS AN ALPHABETICAL LISTING OF THE KEYWORDS GIVING REFERENCES TO EACH ARTICLE WHICH WAS KEYED TO IT.

AUTHOR INDEX

FOLLOWING IS A LIST OF AUTHORS WHOSE DOCUMENTS
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